



AMS100

AMERICAN METEOROLOGICAL SOCIETY
100TH ANNUAL MEETING | BOSTON | 2020

12-16 JANUARY 2020

2020 100TH ANNUAL MEETING PROGRAM

12-16 JANUARY 2020
BOSTON, MASSACHUSETTS





ATTENTION METEOROLOGISTS & WEATHER-FRIENDLY COMPANIES!

Join or supply these dedicated meteorologists as they distribute NWS-based weather-safety picture booklets during school visits, station tours, fairs and festivals.

Requests will be fulfilled in the order received at no charge upon receipt of sufficient national sponsorship. Books will be guaranteed for stations which arrange local sponsorship with shared funding.

Book Request Deadline: May 1st
National Sponsorship Deadline: June 1st
Distribution Period: August 2020-July 2021

For full details visit: www.forecastforce.tv

BOOTH 605



Welcome to the 100th AMS Annual Meeting in Boston, Massachusetts. For the first time, the city of Boston, a quintessential blend of colonial history and cutting-edge innovation, as well as home to AMS Headquarters, hosts the AMS Annual Meeting. We hope you take the time to explore Boston's iconic neighborhoods, sample its diverse cuisine, and visit its unique attractions such as the Freedom Trail, Fenway Park, and AMS Headquarters itself, located at 45 Beacon Street.

The theme of this year's Annual Meeting—The AMS Past, Present and Future: Linking Information to Knowledge to Society (LINKS)—is fitting for a time when we will celebrate the successes of our first century and also look forward with excitement to our second. Our theme will be woven throughout the Annual Meeting beginning with keynote speaker Gina McCarthy at our Presidential Forum on Sunday afternoon and will continue all week in both the new Presidential Forum Sessions, where speakers will challenge the members of our community to practice their professions in a holistic and interdisciplinary way, and in three Presidential Town Hall Meetings. On Monday, Boston Mayor Martin J. Walsh will speak on Financial Weather and Climate Risk Management. On Tuesday, Mona Behl, associate director of the Georgia Sea Grant College Program at the University of Georgia, will moderate a panel discussion on Confronting Bullying, Discrimination, and Harassment in the Geosciences. On Thursday, Bill Gail of Global Weather Corp. will discuss Pathways to Tackle Future Challenges. Details on the Presidential Forum, Presidential Forum Sessions, and Presidential Town Hall Meetings can be found on pages 9-13.

AMS is closing out our yearlong Centennial celebration at our 100th Annual Meeting. Make sure you set aside time to catch a Centennial Presentation or Session, contribute your story to the AMS Oral History Project, take a look back at pieces of our community's history on display, wish AMS a happy birthday by signing the larger-than-life birthday card, snap a photo in front of the Centennial backdrop, shop for our limited-edition AMS Centennial merchandise, and, finally, join us on Wednesday evening for our highly anticipated Centennial Celebration. During this once-in-a-lifetime event, which will take the place of the Annual Meeting Awards Banquet, we'll travel back in time and party through the first decades of AMS. We hope you can make it!

Since the Annual Meeting Awards Banquet will not be held in Boston, please note that all 2020 AMS awards will be presented on Sunday afternoon, immediately following the Presidential Forum. This program will be followed by a welcoming reception to honor awardees and kick off the meeting. This new event is called the Presidential Forum, Annual Meeting Welcome, and Awards Ceremony and it will take place on Sunday, 12 January 2020, from 4:00 to 6:30 p.m., in Ballroom East of the Boston Convention and Exhibition Center (BCEC). We'll also be featuring our 2020 Awardees in our new Awardee Way, a photo gallery showing 2020 awardees and newly elected fellows, located near the BCEC skybridge to the Westin Waterfront. Be sure to visit Awardee Way during the week to learn more about these outstanding leaders of the weather, water, and climate community. Forty-three 2020 Awardees and twenty New Fellows will be presenting at the 100th Annual Meeting. Check out the full listing on page 23-41.

The 100th Annual Meeting will feature a record-breaking 2800 oral presentations and 1500 poster presentations given in over 750 different sessions. In addition to the technical content that makes up the core of the Annual Meeting, you'll also want to check out the three named symposia honoring Robert Dickinson, Wayne Schubert, and Susan Solomon, as well as named sessions, short courses, lectures, town hall meetings, side panels, and other events. Be sure to check the Conference at a Glance on page 46 in the General Information for an overview of all that is going on during the week. For more detailed information, please go to page 67 for the Sunday–Thursday technical program.

AMS is looking forward to a truly memorable 100th Annual Meeting in Boston. We can't think of a better way to celebrate the end of our Centennial year than with an exciting program, curated by dedicated volunteers, that represents so many of the scientific and professional subdisciplines of the Society's fields, both reflecting on our past and looking forward to our future. Many thanks to the overall planning committee, the program chairs, session chairs, student assistants, presenters, coauthors, attendees, and AMS members for making this incredible milestone possible.

WHAT'S NEW AT THE 2020 ANNUAL MEETING?

- 4 Presidential Forum, Annual Meeting Welcome, and Awards Ceremony**
- 4 Awardee Way**
- 4 Wednesday Centennial Celebration**
- 4 Presidential Forum Sessions**

7 LOCATION OF FUNCTIONS AND EVENTS

7 CONFERENCES AND SYMPOSIA

9 COSPONSORS OF THE 100TH ANNUAL MEETING

PRESIDENTIAL SESSIONS

- 9 Presidential Forum: Broadcasting Solutions—Making Climate Change Personal**
- 11 Presidential Town Hall Meeting 1: Financial Weather and Climate Risk Management**
- 12 Presidential Town Hall Meeting 2: Confronting Bullying, Discrimination, and Harassment in the Geosciences**
- 12 Presidential Town Hall Meeting 3: Pathways to Tackling Future Challenges**
- 13 Presidential Forum Sessions**

CELEBRATING THE CENTENNIAL

- 14 Oral History**
- 14 Historical Instruments Display**
- 14 AMS Timeline at the Annual Meeting**
- 14 Meteorology/Atmospheric Science Family Tree**
- 14 Centennial Selfie**
- 14 Centennial Celebration**
- 14 Time Capsule**
- 14 Merchandise**
- 14 Sign the AMS Birthday Card**
- 16 Centennial Sessions**
- 17 Centennial Presentations**

18 SHORT COURSES/WORKSHOPS

LECTURES

- 19 EMS Lecture**
- 19 Walter Orr Roberts Lecture**
- 19 Robert E. Horton Lecture**

HIGHLIGHTED SESSIONS

- 20 Town Hall Meetings/Side Panel Discussions**
- 23 Named Sessions**

HIGHLIGHTED PRESENTATIONS

- 23 Award Winners**
- 36 New Fellows**
- 42 Core Science Keynotes**

FIELD TRIPS

- 43 45 Beacon Street Open House**
- 43 Sustainability Tour at Boston University**

44 SPECIAL CONFERENCES

45	OFFICERS OF THE 100TH ANNUAL MEETING
46	CONFERENCE AT A GLANCE
48	ATTENDING THE 100TH ANNUAL MEETING
50	TRANSPORTATION / ATTENDEE INFO
51	STATEMENT ON OPEN MEETINGS
52	SAFE AND INCLUSIVE MEETINGS
52	ACCESSIBILITY AT THE 100 TH ANNUAL MEETING
53	REGISTRATION
54	PRESENTATION INFORMATION
55	AMS GUEST PROGRAM
55	EXHIBIT HALL / AMS BOOTH
56	WEATHERFEST
59	PARTICIPATING PROGRAM COMMITTEES
66	SUMMARY OF THE TECHNICAL PROGRAM LAYOUT
DAILY SCHEDULES	
67	Sunday
68	Monday
129	Tuesday
197	Wednesday
268	Thursday
303	DIRECTORY OF ACRONYMS
306	ANNUAL MEETING PROGRAM GRID
325	PRESENTER INDEX
357	ADVERTISER'S INDEX
358	EXHIBITOR BOOTH LIST AND DESCRIPTIONS
379	EXHIBIT HALL MAP
380	POSTER NUMBERS BY CONFERENCE / POSTER FLOORPLAN MAPS
384	CONVENTION CENTER MAPS
390	MAP OF BOSTON'S SEAPORT DISTRICT

AN INTRODUCTION FROM AMS

BOSTON CONVENTION AND EXHIBITION CENTER

BOSTON, MA

12–16 JANUARY 2020

AMS President Jenni Evans and the 100th Annual Meeting Overall Program Committee, along with the program chairpersons for each conference, are thrilled that you have chosen to take part in the Society's historic 100th Annual Meeting. As AMS closes out its centennial year, a host of exciting new activities and opportunities will be offered in addition to those that form the foundation of each AMS Annual Meeting, including an engaging and informative technical program that revolves around the AMS Annual Meeting theme, "The AMS Past, Present, and Future: Linking Information to Knowledge to Society (LINKS)"; the many educational and social events designed to facilitate networking among attendees; the exhibit hall featuring organizations that showcase a wide range of products, publications, and services. The 100th Annual Meeting will celebrate the history of not only AMS and its members, but also the entire water, weather, and climate community. Please use this General Information as a guide to everything related to the 100th Annual Meeting. This year's Annual Meeting features a number of program improvements:

- All 2020 AMS awards will be presented on Sunday afternoon immediately following the Presidential Forum and will be followed by a welcoming reception to honor 2020 awardees newly elected fellows and kick off the meeting. This new event is called the Presidential Forum, Annual Meeting Welcome, Annual Review, and Awards Ceremony, and it will take place Sunday, 12 January 2020, 4:00 p.m.–6:30 p.m., Grand Ballroom, Boston Convention and Exhibition Center (BCEC).
- New to the annual meeting this year is Awardee Way, a photo gallery showing 2020 awardees and newly elected fellows, located in the convention center near the skybridge to the Westin Waterfront. Be sure to visit Awardee Way during the week to learn more about these outstanding leaders of the weather, water, and climate community.
- All badged attendees and guests are invited to the Grand Ballroom of the BCEC on Wednesday evening for the highly anticipated Centennial Celebration. During this once-in-a-lifetime event, attendees will travel back in time to party through the first decades of AMS. This event takes the place of the AMS Awards Banquet and will provide an opportunity to relax with friends old and new while celebrating AMS's first 100 years. There will be food and drink to sample, as well as music and activities from 1919 to the present. This is an event not to be missed!
- In addition to the traditional Presidential Forum on Sunday and Presidential Town Hall Meetings during the week, new Presidential Forum Sessions have been planned as a way to illustrate how the annual meeting theme of "The AMS Past, Present, and Future: Linking Information to Knowledge to Society (LINKS)" carries across the AMS professions. These seven sessions will take place during the week in Rooms 210AB and 252B. A full listing is included in the following pages.
- The new Social Media Wall, powered by GDIT, in the North Lobby of the BCEC will be offering a live social media feed and select video content throughout the course of the Annual Meeting.





GOES-R: Weather forecasting to
protect our planet and beyond.



Lockheed Martin. Your Mission is Ours.®

www.lockheedmartin.com

LOCATION OF FUNCTIONS AND EVENTS

AMS committee meetings, some receptions, and some events will be held at the AMS headquarters hotel, the Westin Boston Waterfront located at 425 Summer Street, Boston, MA 02210. Annual Meeting registration, scientific sessions, poster sessions, exhibits, short courses, town hall meetings, and the Annual Meeting Banquet will be held in the Boston Convention and Exhibition Center, located at 415 Summer St, Boston, MA 02210.

CONFERENCES AND SYMPOSIA

Conferences and symposia represent the core of the AMS Annual Meeting. They provide the foundation for the organization of our technical sessions.

- Presidential Forum
- Robert Dickinson Symposium
- Wayne Schubert Symposium
- Susan Solomon Symposium
- 48th Conference on Broadcast Meteorology
- 36th Conference on Environmental Information Processing Technologies
- 34th Conference on Hydrology
- 33rd Conference on Climate Variability and Change
- 30th Conference on Weather Analysis and Forecasting (WAF)/26th Conference on Numerical Weather Prediction (NWP)
- 29th Conference on Education
- 26th Conference on Probability and Statistics
- 25th Conference on Applied Climatology
- 24th Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS)
- 23rd Conference of Atmospheric Science Librarians International
- 22nd Conference on Atmospheric Chemistry
- 22nd Conference on Planned and Inadvertent Weather Modification
- 21st Joint Conference on the Applications of Air Pollution Meteorology with the A&WMA
- 20th Conference on Aviation, Range, and Aerospace Meteorology
- 20th Symposium on Meteorological Observation and Instrumentation
- 19th Annual Student Conference
- 19th Conference on Artificial Intelligence for Environmental Science
- 18th History Symposium
- 18th Symposium on the Coastal Environment
- 17th Conference on Space Weather
- 16th Annual Symposium on New Generation Operational Environmental Satellite Systems
- Major Weather Events and Impacts of 2019
- 15th Symposium on Societal Applications: Policy, Research, and Practice
- 15th Symposium on the Urban Environment
- 12th Symposium on Aerosol–Cloud–Climate Interactions
- 11th Conference on Environment and Health
- 11th Conference on Weather, Climate, and the New Energy Economy
- 10th Conference on Transition of Research to Operations
- 10th Symposium on Advances in Modeling and Analysis Using Python
- 10th Symposium on Lidar Atmospheric Applications
- Eighth AMS Conference for Early Career Professionals
- Eighth AMS Symposium on the Joint Center for Satellite Data Assimilation (JCSDA)
- Eighth Symposium on Building a Weather-Ready Nation: Enhancing Our Nation's Readiness, Responsiveness, and Resilience to High Impact Weather Events
- Eighth Symposium on the Madden–Julian Oscillation and Subseasonal Monsoon Variability
- Eighth Symposium on the Weather, Water, and Climate Enterprise
- Sixth Symposium on High Performance Computing for Weather, Water, and Climate
- Fifth Symposium on U.S.–International Partnerships
- Fourth Symposium on Multiscale Predictability: Data–Model Integration and Uncertainty Quantification for Weather, Climate, and Earth System Monitoring and Prediction
- Third Conference on Earth Observing Smallsats
- Tropical Meteorology and Tropical Cyclones Symposium
- Middle Atmosphere One-Day Symposium
- Severe Local Storms Symposium
- Special Symposium on the Future of Weather, Forecasting, and Practice
- Symposium on Strategies for Addressing the Climate Crisis: Mitigation, Restoration, and Communication
- Symposium on Diversity, Equity, and Inclusion

TECHNICAL PROGRAM

The technical presentations that take place within the various Annual Meeting conferences and symposia represent the core of the AMS Annual Meeting. They provide the foundation for the organization of its technical sessions. A full schedule of technical sessions follows this General Information.

To view the technical program online, which has the most up-to-date information,

go to <https://ams.confex.com/ams/2020Annual/meetingapp.cgi>

or download the mobile app at <https://annual.ametsoc.org/index.cfm/2020/programs/mobile-app/>.



Congratulations

American Meteorological Society
on your Centennial Anniversary!

As a proud sponsor of AMS100 and trusted NOAA partner, we thank you for continuing to advance the science of weather.



MAXIMUS® Federal

COSPONSORS OF THE 100TH ANNUAL MEETING

Canadian Meteorological and Oceanographic Society (CMOS)
Indian Meteorological Society (IMS)
American Geophysical Union (AGU)
Australian Meteorological and Oceanographic Society (AMOS)
European Meteorological Society (EMS)
American Academy of Environmental Engineers & Scientists (AAEES)
American Society of Agronomy (ASA)
The Oceanography Society

PRESIDENTIAL SESSIONS

Presidential Forum, powered by Vaisala **Broadcasting Solutions: Making Climate Change Personal** **Sunday, 10 January 2020, 4:00 P.M., BCEC Grand Ballroom**

Speaker: Gina McCarthy, former U.S. Environmental Protection Agency (EPA) Administrator, Director of the Center for Climate, Health and the Global Environment (C-CHANGE) at the Harvard T.H. Chan School of Public Health



Gina McCarthy is Professor of the Practice of Public Health in the Department of Environmental Health at Harvard T.H. Chan School of Public Health and the Director of The Center for Climate, Health, and the Global Environment at the Harvard T.H. Chan School of Public Health (Harvard C-CHANGE). In this capacity, she leads the development of the School's strategy in climate science, health, and sustainability; strengthens the climate science and health curriculum; and liaises with climate science leaders across the University.

McCarthy has been a leading advocate for common sense strategies to protect public health and the environment for more than 30 years. She served under President Barack Obama as the 13th Administrator of the EPA from 2013–2017. Her tenure as EPA Administrator heralded a paradigm shift in national environmental policy, expressly linking it with global public health. She led EPA initiatives that cut air pollution, protected water resources, reduced greenhouse gases, and strengthened chemical safety to better protect more Americans, especially the most vulnerable, from negative health impacts. McCarthy signed the Clean Power Plan, which set the first-ever national standards for

reducing carbon emissions from existing power plants, underscoring the country's commitment to domestic climate action and spurring international efforts that helped secure the Paris Climate Agreement. McCarthy worked with the United Nations and the World Health Organization on a variety of efforts and represented the U.S. on global initiatives to reduce high-risk sources of pollution.

A longtime public servant, McCarthy was previously Assistant Administrator for the EPA Office of Air and Radiation, Commissioner of the Connecticut Department of Environmental Protection, Deputy Secretary of the Massachusetts Office of Commonwealth Development, and Undersecretary of Policy for the Massachusetts Executive Office of Environmental Affairs. In the EPA Office of Air and Radiation, McCarthy strengthened collaborative efforts with public health agencies and organizations across the U.S. to identify and reduce threats to human health from harmful air pollution, including carbon pollution that fuels climate change, by updating health and technology based emissions standards, establishing greenhouse gas standards for cars and trucks, promoting energy efficiency and alternative fuels, and mitigating harmful exposures to indoor air pollution. In Connecticut, she was instrumental in developing the Regional Greenhouse Gas Initiative, a multistate effort to reduce emissions contributing to global warming, which has spurred economic growth, improved public health, decreased energy demand and helped mitigate electricity price increases across the region. During her career in Massachusetts, McCarthy advised five governors on environmental affairs, worked at the state and local levels on critical environmental issues, and helped coordinate policies on economic growth, energy, transportation, and the environment.

After the Obama Administration, McCarthy became a Senior Leadership Fellow at both the Harvard Kennedy School of Government and Harvard T.H. Chan School of Public Health. In addition to her work at Harvard, McCarthy serves on the boards of the Energy Foundation and CERES.

She holds a Master of Science in Environmental Health Engineering and Planning and Policy from Tufts University and a Bachelor of Arts in Social Anthropology from University of Massachusetts at Boston.

After the Presidential Forum, attendees are invited to remain in Ballroom East for the Annual Meeting Welcome and Awards Ceremony. All 2020 AMS Awards will be presented at this time and the awards presentation will be followed by a welcoming reception in Hall B to honor the 2020 AMS Awardees and Newly Elected Fellows and to kick off the meeting.



AccuWeather

“The greater the accuracy of weather forecasts, the better decisions people can make and the more lives are saved.”

— Dr. Joel N. Myers
Founder, CEO & Chairman



AccuWeather is honored to be a leader in the global weather community's mission of saving lives and advancing the science and impact of meteorology. Every day, AccuWeather serves more than 1.5 billion people worldwide, providing innovative products and forecasts with Superior Accuracy™.

To learn more about our latest innovations, career opportunities, and global partnerships, please visit us at this year's Annual Meeting and at our website accuweather.com

VISIT US AT
BOOTH #501



Weather-Ready Nation Ambassador™ and the Weather-Ready Nation Ambassador™ logo are trademarks of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, used with permission.

Presidential Town Hall Meetings

Presidential Town Hall Meeting 1: Financial Weather and Climate Risk Management

Monday, January 13, 2020: 12:15 P.M.–1:45 P.M., BCEC Grand Ballroom



Martin J. Walsh, Mayor of Boston



Carl Spector, Commissioner of the Environment Department

Speaker: Martin J. Walsh, Mayor of Boston

Martin J. Walsh was first elected mayor of Boston in 2013 and reelected in 2017. Among his many priorities for the city, Walsh has made climate action one of the highest. In doing so, he has made Boston a national and global leader among major cities addressing issues related to climate and environment. During each year of his tenure, Boston has been ranked the number 1 city in the country for energy efficiency by the American Council on an Energy-Efficient Economy. Mayor Walsh was named North American cochair of the C40 Climate Cities steering committee, a nationwide network. At the Paris climate conference in 2015, Boston won the C40 award for Smart Cities and Smart Community Engagement. In 2017, Boston led cities nationwide in upholding the country's commitments to the Paris Climate Agreement. Walsh recently accelerated the original carbon reduction goals of Boston's Climate Action Plan, with the goal of becoming carbon neutral by 2050—the most aggressive energy efficiency goal of any city Boston's size. Through energy performance contracting, Walsh will implement the Renew Boston Trust, a program to manage energy retrofits of large public buildings that are self-financed by future savings. In 2018, Walsh announced the “Resilient Boston Harbor” initiative to protect Boston's 47-mile shoreline from flooding due to extreme weather and sea level rise. In the event Mayor Walsh is unable to attend, Carl Spector will lead as the speaker. Carl Spector was appointed commissioner of the Environment Department in 2015. As environment commissioner, he oversees programs related to climate mitigation and adaptation, environmental protection, historic preservation, and other aspects of sustainability. Among related programs, the Environment Department includes the Air Pollution and Control Commission, the Conservation Commission, and the Boston Landmarks Commission. Spector and his colleagues in the Environment Department are responsible for steering the City of Boston toward the goals outlined in Boston's Climate Action Plan Update, which outlines strategies to reduce carbon emissions and prepare for the impacts

of climate change. The most significant and recent initiatives led by his team include Climate Ready Boston and Carbon Free Boston. For more information, please contact Jennifer Henderson (jennifer.henderson-l@colorado.edu) or Robert Brammer (rfbtech@comcast.net).

<https://ams.confex.com/ams/2020Annual/meetingapp.cgi/Session/54424>

Presidential Town Hall Meeting 2: Confronting Bullying, Discrimination, and Harassment in the Geosciences

Wednesday, January 15, 2020: 12:15 P.M.–1:15 P.M., 210AB

Moderator: Mona Behl, Associate Director, The Georgia Sea Grant College Program, University of Georgia

Panelists: Brittany Bloodhart, Assistant Professor, California State University

Billy Williams, American Geophysical Union, Vice President, Ethics, Diversity and Inclusion

Antonia Franco, Interim Executive Director, Santa Cruz Museum of Art and History

Jenni Evans, AMS Centennial President, Professor, Pennsylvania State University

Keith Seitter, AMS Executive Director



Mona Behl



Brittany Bloodhart



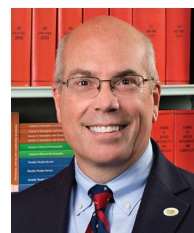
Billy Williams



Antonia Franco



Jenni Evans



Keith Seitter

Recent surveys and a sweeping report from the National Academy of Sciences document a surprising and unacceptable level of unethical behavior in all sciences, including the geosciences. In addition to AGU, GSA, National Academy of Sciences, and other professional societies, who are standing against harassment, bullying, and discrimination, AMS is also taking a proactive approach to confront these problems. This town hall will feature a panel of individuals from AMS leadership and experts from outside of the Society, who will facilitate a discussion of scientific ethics and conduct, including topics such as harassment, discrimination, bullying, and bias. Through an open conversation with members of the Society, the hope is to bring forth increased awareness of these issues and identify specific actions that can reduce or eliminate the problem. Ultimately, these efforts will promote a more inclusive, equitable, vibrant, and diverse AMS, and will help to improve the professional climate and culture of the society.

Recent surveys and a sweeping report from the National Academy of Sciences document a surprising and unacceptable level of unethical behavior in all sciences, including the geosciences. The American Geophysical Union, Geological Society of America, National Academy of Sciences, and other professional societies are taking a stand against harassment, bullying, and discrimination. The AMS is also taking a proactive approach to confront these problems.

This town hall will feature a panel of individuals from AMS leadership and experts from outside of the Society, to have a facilitated discussion of scientific ethics and conduct, including topics such as harassment, discrimination, bullying, and bias. By having an open conversation with members of the Society, we hope to bring forth increased awareness of these issues, and specific actions that can reduce or eliminate the problem. Ultimately, this will promote a more inclusive, equitable, vibrant, and diverse AMS, and will help to improve the professional climate and culture of the society.

For more information, please contact Melissa Burt at Melissa.Burt@ColoState.EDU & Gary Lackmann at gary@ncsu.edu. <https://ams.confex.com/ams/2020Annual/meetingapp.cgi/Session/54422>

Presidential Town Hall Meeting 3: Pathways to Tackling Future Challenges

Thursday, January 16, 2020: 12:15 P.M.–1:15 P.M., 210AB



Speaker: Bill Gail, Global Weather Corp.

In anticipation of the 100th year of the AMS, the Society's leadership established a Centennial Committee chaired by former AMS President Bill Gail. One goal of this committee was to assess emerging issues and anticipate the grand challenges of the future. The AMS community was invited to contribute perspectives on the greatest challenges facing our society in the coming 100 years. Three overarching themes emerged as the feedback was organized: advance science, applications, capabilities, and ourselves; amplify our impact on society; and respond to society's growing needs and opportunities. The top priority for each theme was identified through an AMS-wide voting process: to educate new generations, to enhance dialogue with the public and Congress, and to ensure the sustainability of Earth and its resources. Led by Bill Gail, this town hall will be an engaging, participatory discussion designed to identify how AMS-members can respond to the challenges identified through this society-wide process.

<https://ams.confex.com/ams/2020Annual/meetingapp.cgi/Session/54421>

Presidential Forum Sessions

New this year, we have planned Presidential Forum Sessions as a way to illustrate how the annual meeting theme of “The AMS Past, Present, and Future: Linking Information to Knowledge to Society (LINKS)” carries across our profession.

<https://annual.ametsoc.org/index.cfm/2020/programs/presidential-forum-sessions/>

Presidential Forum Session Title	Moderators and Speakers/Panelists	Conference Title	Session Day, Time, and Location
Special Presidential Forum Preview: A Climatologist, an Engineer, and a Social Scientist Walk into a Bar...: Tough Choices on a Warming Planet	Moderator: Jamison Hawkins Panelists: Matthew Cutler, Gavin Schmidt, Jennifer Jerado	19th Annual Student Conference; 15th Symposium on Societal Applications: Policy, Research, and Practice; and 33rd Conference on Climate Variability and Change	Sunday, 12 January 2020, 12:35–2:00 P.M., 210AB
Presidential Forum Session 1: The Enterprise: Worth More than You Think	Moderator: William Hooke Speakers: Jason Hickey and Scott Barrett	19th Conference on Artificial Intelligence for Environmental Science and Eighth Symposium on Building a Weather-Ready Nation: Enhancing Our Nation’s Readiness, Responsiveness, and Resilience to High Impact Weather Events	Monday, 13 January 2020, 8:30–10:00 A.M., 210AB
Presidential Forum Session 3: Research Needs for the Anthropocene—Integrated Services for the Urban Environment	Moderators: Kenneth J. Davis and Chandana Mitra Speakers: John Cleveland and Alison Brizius	15th Symposium on the Urban Environment	Monday, 13 January 2020, 10:30–12:00 P.M., 210AB
Presidential Forum Session 4: The Future of Financial Weather and Climate Risk Management—Part I	Moderator: Robert Brammer Panelists: Shumeane Benford, Adam B. Smith, Robert Muir-Wood, Sepideh Yalda, F. Martin Ralph, and Fernando Miralles-Wilhelm	15th Symposium on Societal Applications: Policy, Research, and Practice and Eighth Symposium on the Weather, Water, and Climate Enterprise	Tuesday, 14 January 2020, 8:30–10:00 A.M., 252B
Presidential Forum Session 5: The Future of Financial Weather and Climate Risk Management—Part II: Climate Extremes	Moderator: Robert Brammer Panelists: Carl Spector, Phillip Duffy, Chris Goolgasian, Michael Chen, Roger Grenier, and Suzana Camargo	15th Symposium on Societal Applications: Policy, Research, and Practice and Eighth Symposium on the Weather, Water, and Climate Enterprise	Tuesday, 14 January 2020, 10:30 A.M.–12:00 P.M., 252B
Presidential Forum Session 6: Bridging the Gulf between Meteorologists and Humanitarian Operations	Moderators: Helen Greatrex, Andrew Kruczkiewicz, and Shanna N. McClain Speakers: Lori Peek and Henry Huntington	15th Symposium on Societal Applications: Policy, Research, and Practice	Tuesday, 14 January 2020, 10:30 A.M.–12:00 P.M., 210AB
Presidential Forum Session 7: A Climatologist, an Engineer and a Social Scientist Walk into a Bar...: Tough Choices on a Warming Planet	Moderator: Jamison Hawkins Panelists: Jill Engel-Cox, Lori Peek, and Brenda Ekwurzel	15th Symposium on Societal Applications: Policy, Research, and Practice and 33rd Conference on Climate Variability and Change	Wednesday, 15 January 2020, 10:30 A.M.–12:00 P.M., 210AB

CELEBRATING THE CENTENNIAL

ORAL HISTORY

Attendees are invited to help AMS celebrate 100 years of meteorological advances and contribute their personal stories in a 15-minute interview. Members and guests can share your stories about any aspect of their education, career, research, or any other facet of their experiences as a meteorologist at the AMS Oral History Project Booth, which will be in rooms Elm I and Elm II in the Westin Waterfront. Each personal account will contribute to the AMS Oral History Project and become an important part of the AMS Centennial celebration. To make an appointment to share a story, please email amsoralhistoryproject@ametsoc.org. Attendees can also stop by the booth with any questions or to make an appointment once on site.

Interviewers: Jinny Nathans, AMS librarian and curator; Sophie Mankins, AMS archivist

HISTORICAL INSTRUMENTS DISPLAY

The 2020 Annual Meeting will be the official conclusion to the year-long celebration of the AMS's Centennial Year. During the past year, there have been many discussions about not only the history of the Society, but also the history of the Society's community and the advances made within it. To celebrate this milestone, AMS will be coordinating a Historical Instrument display at the AMS 100th Annual Meeting. Located in the Exhibit Hall, the display will offer a chance to take a look back at pieces of the community's history.

METEOROLOGY/ATMOSPHERIC SCIENCE FAMILY TREE

Since 2012, an academic "family tree" or lineage of tropical meteorology has been broadened and expanded to all of the atmospheric sciences and its very diverse branches and roots. The tree now has nearly 6,000 people in it and, using connections provided by the separate Mathematics Genealogy Project, extends backward to the 1300s and 1400s. During the Annual Meeting, the tree will be projected to large size using an HD projector in the Poster Hall (Hall B). There will be the ability to add names to the tree for those who are not already in it at the conference. More information about this project and how to add a name can be found at the project main's website: <http://moe.met.fsu.edu/familytree>.

One of the links on the website includes a list of all nearly 6,000 names already in the tree to help determine if a name has already added: <http://moe.met.fsu.edu/familytree/fullnamelist.php>.

This family tree will be on display during Poster Hall hours beginning Sunday, 12 January, at 6:30 P.M.

CENTENNIAL SELFIE

Snap a photo in front of the Centennial backdrop (located near the AMS Registration Desk) and share on social media with #AMS100.

CENTENNIAL CELEBRATION

All badged attendees and guests are invited to stop by the Grand Ballroom of the BCEC on Wednesday evening for the highly anticipated Centennial Celebration. During this-once-in-a-lifetime event, guests will travel back to the past and party through the first decades of AMS. This event takes the place of the AMS Awards Banquet and will give all attendees the opportunity to relax with friends old and new while helping to celebrate AMS's first 100 years. There will be food and drink to sample, as well as music to enjoy along with activities from 1919 to the present.

TIME CAPSULE

What's the one object that summarizes the study of meteorology? Is it Holton's *Dynamic Meteorology*, whose end-of-the-chapter exercises/problems have kept many awake until late into the night? Is it a skew T/logp diagram depicting the sounding of a major storm that affected the local university? Or is it the collective memories made with fellow meteorology majors?

In conjunction with the AMS Centennial, the AMS Student Conference has planned a community-wide effort to create and dedicate a time capsule encapsulating life as a meteorology student in 2020. This time capsule will be opened in 50 years, at the 2070 AMS Annual Meeting.

To capture the wide diversity of students, interests, and backgrounds across the country and world, each AMS local chapter or institution was asked

to bring a piece of memorabilia to the 2020 Student Conference that answers the question: "What makes you a meteorology student in 2020?" There were no guidelines as to what local chapters or institutions could contribute, and creativity was encouraged! However, items to be contributed should be no larger than a textbook.

For students in Boston on their own or for students wanting to leave a memento to future students beyond the contribution of their local chapter or institution, notecards with space for a message will be available during the Sunday morning coffee hour of the Student Conference.

This project is intended to not only bring together the current generation of meteorology students but simultaneously give meteorologists in the future the opportunity to glean some insights into life as a meteorology student in 2020. Any questions regarding this project can be directed to amsscpc@gmail.com.

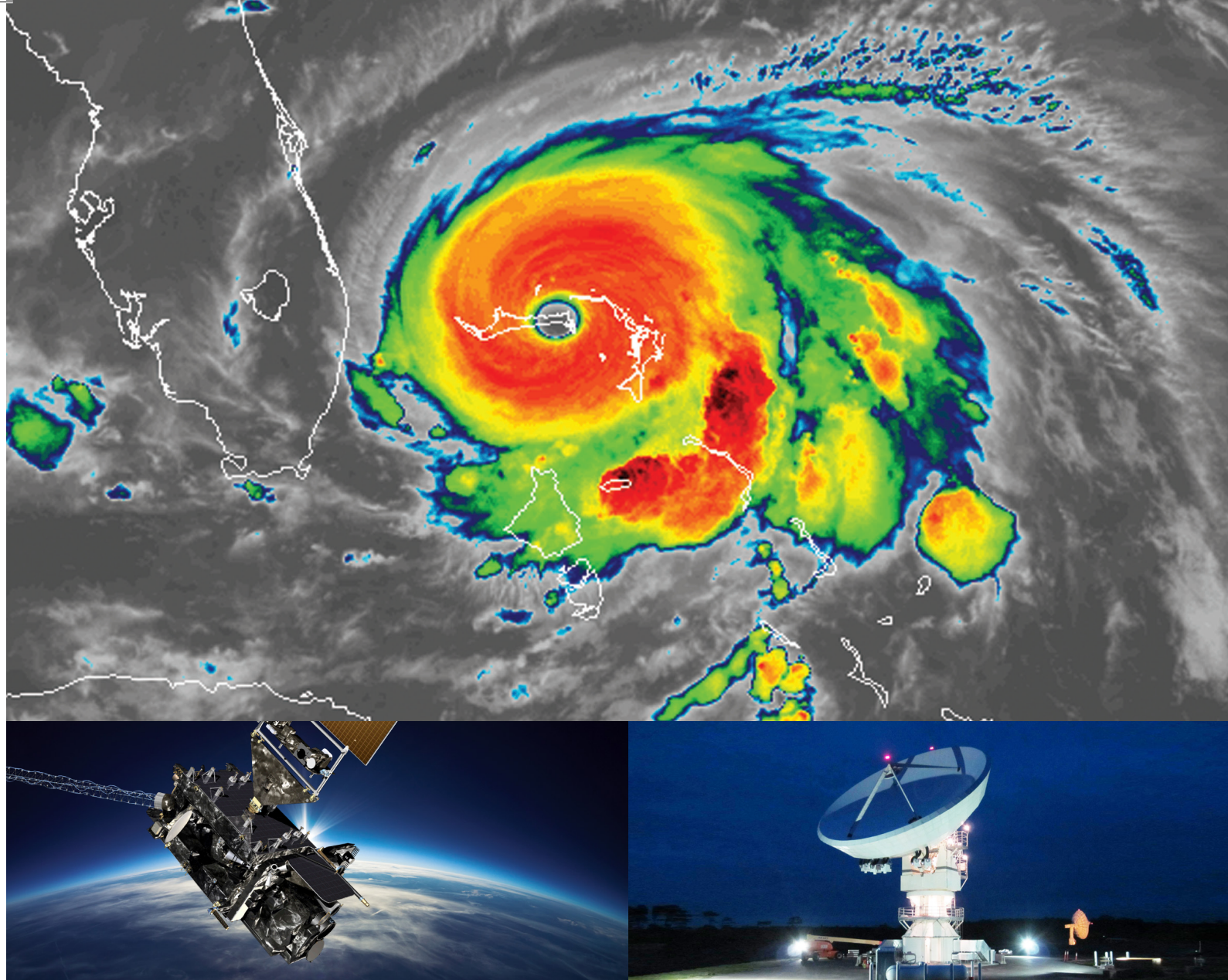
MERCHANDISE

Take advantage of the last chance to shop for the coveted limited-edition AMS Centennial merchandise in person. Stop by the AMS Booth to check out the new line of t-shirts, drinkware, stickers, and more!

SIGN THE AMS BIRTHDAY CARD

Don't forget to wish AMS a Happy Birthday by signing the larger than life birthday card in the Exhibit Hall.





L3HARRIS.COM

THE FUTURE OF FORECASTING STARTS HERE

L3Harris delivers breakthrough innovation for the next generation of weather satellites and ground systems with speed, agility and enduring focus. Congratulations to the AMS on 100 years.

Visit L3Harris Booth #209

Hurricane Dorian captured by the L3Harris Advanced Baseline Imager on NOAA's GOES-East.
(NOAA/NESDIS/STAR)



L3HARRIS™
FAST. FORWARD.

Centennial Sessions

Many of the conferences and symposia at the 100th Annual Meeting are hosting sessions that focus on the history of the weather, water, and climate field and/or of AMS to celebrate the Society's centennial year.

https://ams.confex.com/ams/2020Annual/meetingapp.cgi/Index/CB_Centennial~Yes

Centennial Session Title	Conference Title	Session Day, Time, and Location
Centennial Session on Air Pollution Meteorology	21st Joint Conference on the Applications of Air Pollution Meteorology with the A&WMA	Monday, 13 January 2020, 8:30–10:00 A.M., 211
Panel Discussion: Transitions from Research to Operations, Operations to Research, and Operations to Practice (Centennial)	Special Symposium on the Future of Weather, Forecasting, and Practice	Monday, 13 January 2020, 10:30 A.M.–12:00 P.M., 258B
The Need for Water Driving the Science of Rain and Snow: Past, Present, and Future	22nd Conference on Planned and Inadvertent Weather Modification; 15th Symposium on Societal Applications: Policy, Research, and Practice; 12th Symposium on Aerosol–Cloud–Climate Interactions; and 33rd Conference on Climate Variability and Change	Monday, 13 January 2020, 2:00–3:00 P.M., 105
60 Years of Weather Satellites: How Earth Observing Satellites Contributed to Linking Information to Knowledge to Society	16th Annual Symposium on New Generation Operational Environmental Satellite Systems	Monday, 13 January 2020, 2:00–4:00 P.M., 253B
Historical Lidar Perspectives	10th Symposium on Lidar Atmospheric Applications	Monday, 13 January 2020, 2:00–4:00 P.M., 210C
The Need for Water Driving the Science of Rain and Snow: Past, Present, and Future Panel	22nd Conference on Planned and Inadvertent Weather Modification; 15th Symposium on Societal Applications: Policy, Research, and Practice; 12th Symposium on Aerosol–Cloud–Climate Interactions; and 33rd Conference on Climate Variability and Change	Monday, 13 January 2020, 3:00–4:00 P.M., 105
History of Ice Nucleation Research and Its Impact on Weather Modification	22nd Conference on Planned and Inadvertent Weather Modification and 12th Symposium on Aerosol–Cloud–Climate Interactions	Tuesday, 14 January 2020, 8:30–10:00 A.M., 105
AMS Centennial Monograph—100 Years of Progress (Part I)	18th History Symposium	Tuesday, 14 January 2020, 8:30–10:15 A.M., 104A
Future Challenges in Weather Analysis and Forecasting	30th Conference on Weather Analysis and Forecasting/ 26th Conference on Numerical Weather Prediction; Special Symposium on the Future of Weather, Forecasting, and Practice; and Eighth Symposium on Building a Weather-Ready Nation: Enhancing Our Nation's Readiness, Responsiveness, and Resilience to High Impact Weather Events	Tuesday, 14 January 2020, 8:30–10:00 A.M., 257AB
AMS Centennial Monograph—100 Years of Progress (Part II)	18th History Symposium	Tuesday, 14 January 2020, 10:30–12:15 A.M., 104A
AMS Centennial Monograph—100 Years of Progress (Part III)	18th History Symposium	Tuesday, 14 January 2020, 1:30–2:30 P.M., 104A
History of Artificial Intelligence (AI) in Environmental Science	19th Conference on Artificial Intelligence for Environmental Science	Tuesday, 14 January 2020, 3:00–4:00 P.M., 156B
AMS Centennial Monograph—100 Years of Progress (Part IV)	18th History Symposium	Tuesday, 14 January 2020, 3:00–4:00 P.M., 104A
The History and Impact of Operational Postprocessing and Current Status I	26th Conference on Probability and Statistics	Wednesday, 15 January 2020, 10:30 A.M.–12:00 P.M., 260
On the Shoulders of Giants: Formative Moments for Environment and Health Research	11th Conference on Environment and Health and 18th History Symposium	Wednesday, 15 January 2020, 1:30–2:30 P.M., 153B
Historical Perspectives on Weather Analysis and Forecasting	30th Conference on Weather Analysis and Forecasting/ 26th Conference on Numerical Weather Prediction	Thursday, 16 January 2020, 8:30–9:30 A.M., 258A

Centennial Presentations

Many of the conferences and symposia at the 100th Annual Meeting feature presentations that focus on the history of the weather, water, and climate field and/or of AMS to celebrate the Society's centennial year.

https://ams.confex.com/ams/2020Annual/meetingapp.cgi/Index/CB_Centennial~Yes

Conference	Centennial Presentation Title	Presenter	Presentation Date, Time, and Location
34th Conference on Hydrology	Soil Moisture as a Harbinger of Increased Forecast Reliability at Subseasonal Timescales	Randal D. Koster	Monday, 13 January 2020, 11:00–11:15 A.M., 253A
34th Conference on Hydrology	Land Surface Modeling and Land–Atmosphere–Ocean Interaction Studies—A Historical Perspective	Yongkang Xue	Monday, 13 January 2020, 11:45 A.M.–12:00 P.M., 253A
34th Conference on Hydrology	Using Forecasts in Water Supply Management: History and Applications	Josh Weiss	Monday, 13 January 2020, 4:15–4:30 P.M., Hall B
34th Conference on Hydrology	Land Data Assimilation: Making the Transition from States to Fluxes	Wade T. Crow	Tuesday, 14 January 2020, 8:30–8:45 A.M., 253A
34th Conference on Hydrology	A Historical Perspective on Hydrometeorological Forecasting and Uncertainty Analysis	Qingyun Duan	Tuesday, 14 January 2020, 1:30–2:00 P.M., 253A
34th Conference on Hydrology	The Nature of Extreme Rainfall and Hydrologic Extremes: Perspectives from the Past 100 Years (Part I)	James A. Smith	Tuesday, 14 January 2020, 1:30–2:00 P.M., 253C
34th Conference on Hydrology	Historical Perspective on the Science and Estimation of Evapotranspiration for Operational Water Management, Systems Design, Research, and Monitoring—Successful Evolutions	Richard Allen	Wednesday, 15 January 2020, 8:30–8:45 A.M., 253C
34th Conference on Hydrology	A Review of Snow Cover Analysis: Potential Technologies for Planning and Risk-Based Assessment	Robert E. Davis	Wednesday, 15 January 2020, 10:30–10:45 A.M., 253A
34th Conference on Hydrology	Advances in Modeling Evapotranspiration: An Overview of Theoretical and Experimental Contributions	William P. Kustas	Wednesday, 15 January 2020, 10:30–10:45 A.M., 253C
34th Conference on Hydrology	Human–Water Interactions in Urban Systems: Challenges and Opportunities in the Twenty-First Century	Terri Hogue	Wednesday, 15 January 2020, 1:30–1:45 P.M., 253C
34th Conference on Hydrology	Earth Observations and Land Surface Models to Support Agricultural Water Resources Management	Pierre Guillevic	Wednesday, 15 January 2020, 3:00–3:15 P.M., 253C
34th Conference on Hydrology	Creating and Using Sensors That Tell Us about Precipitation	G. J. Huffman	Thursday, 16 January 2020, 10:30–10:45 A.M., 253A
34th Conference on Hydrology	Flash Droughts	J. A. Otkin	Thursday, 16 January 2020, 1:30–1:45 P.M., 253C

SHORT COURSES/WORKSHOPS

Each year, at the Annual Meeting, short courses and workshops are offered that will enable attendees to increase their skills and knowledge in their chosen area of expertise or learn about another. Short courses take place Saturday and Sunday, 11–12 January 2020, prior to the Annual Meeting and require a separate registration.



Short Course	Date, Time, and Location
Integrating Weather and Climate with GIS Technology Part 1: Desktop and Online Applications	Saturday, 11 January 2020, 8:30 A.M.–12:00 P.M., 153B
Introducing the Community WRF-Hydro Modeling System: An Interactive Hands-on Tutorial	Saturday, 11 January 2020, 8:30 A.M.–5:00 P.M., 153C
The Canadian Climate Data Portal: Providing Canadians with the Climate Data and Information They Need to Thrive in a Changing Climate	Saturday, 11 January 2020, 8:30–11:30 A.M., 154
Machine Learning in Python for Environmental Science Problems: Introduction	Saturday, 11 January 2020, 8:30 A.M.–5:00 P.M., 156A
A Beginner's Course to Using Python in Climate and Meteorology	Saturday, 11 January 2020, 8:30 A.M.–5:30 P.M., 155
A Beginner's Course to Using Python in Climate and Meteorology	Sunday, 12 January 2020, 7:30 A.M.–3:45 P.M., 155
Diversity, Equity, and Inclusion for Geoscientists	Sunday, 12 January 2020, 7:30 A.M.–3:45 P.M., 104B
Introducing Podpac, the Easy Way to Analyze NASA and Non-NASA Earth Science Data Via the AWS Cloud (half day)	Sunday, 12 January 2020, 8:00–11:45 A.M., 153C
Experimentation and Development of Physical Parameterizations for Numerical Weather Prediction Using a Single-Column Model and the Common Community Physics Package (CCPP)	Sunday, 12 January 2020, 8:00 A.M.–12:00 P.M., 105
Integrating Weather and Climate with GIS Technology. Part 2: Analyze Data Using Python and Models (half day)	Sunday, 12 January 2020, 8:00 A.M.–12:00 P.M., 153B
Catastrophe Modeling 101	Sunday, 12 January 2020, 8:00 A.M.–12:45 P.M., 156BC
From Satellite Data to Disaster Response: Every Decision Counts	Sunday, 12 January 2020, 8:00 A.M.–3:30 P.M., 153A
AI in Weather Radars	Sunday, 12 January 2020, 8:00 A.M.–3:45 P.M., 157C
Integrating NWP System Components Using Container Technology and Cloud Services	Sunday, 12 January 2020, 8:00 A.M.–3:45 P.M., 151A
An Introduction to Ensemble Data Assimilation and the Data Assimilation Research Testbed	Sunday, 12 January 2020, 8:00 A.M.–3:45 P.M., 152
Setting up a Modern-Day Mesonet—A TexMesonet Example	Sunday, 12 January 2020, 8:00 A.M.–3:45 P.M., 150
Machine Learning in Python for Environmental Science Problems: Advanced Topics	Sunday, 12 January 2020, 8:30 A.M.–3:45 P.M., 156A
Machine Learning in Python for Environmental Science Problems: Hackathon	Sunday, 12 January 2020, 8:30 A.M.–3:45 P.M., 154
Plotting in Python with Metpy: Gempak-like Plots Made Easy	Sunday, 12 January 2020, 8:30 A.M.–3:45 P.M., 158
Becoming a Great Certified Consulting Meteorologist	Sunday, 12 January 2020, 9:00 A.M.–3:45 P.M., 151B

LECTURES

EMS Lecture

Monday, 13 January, 9:15–10:00 A.M., 204AB

The EMS Lecture will be given in a session sponsored by the 48th Conference on Broadcast Meteorology. The lecture will be given by Tanja Cegnar, Slovenian Environment Agency, Ljubljana, Slovenia. The title of the lecture is “Talking about Weather and Climate in Europe.” <https://ams.confex.com/ams/2020Annual/meetingapp.cgi/Paper/371461>

Walter Orr Roberts

Tuesday, 14 January 2020, 1:30–2:30 P.M., 151B

The Walter Orr Roberts Lecture will be given in a session sponsored by the 15th Symposium on Societal Applications: Policy, Research, and Practice. The lecture will be given by Walker Ashley, Northern Illinois University, DeKalb, Illinois. The title of the lecture is “Severe Thunderstorms and Their Impacts: Past, Present, and Future.” <https://ams.confex.com/ams/2020Annual/meetingapp.cgi/Paper/371471>

Robert E. Horton

Wednesday, 15 January 1:30–2:30 P.M., 253C

The Robert H. Horton Lecture will be given in a session sponsored by the 34th Conference on Hydrology. The lecture will be given by Terri S. Hogue, Colorado School of Mines, Golden, Colorado. The title of the lecture is “Human–Water Interactions in Urban Systems: Challenges and Opportunities in the Twenty-First Century.” <https://ams.confex.com/ams/2020Annual/meetingapp.cgi/Paper/371411>



GDIT

Cloud transformations taken to new heights.

gdit.com

HIGHLIGHTED SESSIONS

Town Hall Meetings/Side Panel Discussions

More informal in nature than technical sessions, town hall meetings and side panel discussions cover some of the hottest topics and draw some of the biggest names in the water, weather, and climate community.

<https://ams.confex.com/ams/2020Annual/meetingapp.cgi/Program/I439>



Town Hall/Side Panel Title	Date, Time, and Location	Notes
Town Hall Meeting: Weather-Ready Nation Ambassador Roundtable	Sunday, 12 January 2020, 1:00–2:30 P.M., Commonwealth C, Westin	For additional information contact Doug Hilderbrand (douglas.hilderbrand@noaa.gov).
Town Hall Meeting: AMS and the U.N. Decade of Ocean Science for Sustainable Development	Monday, 13 January 2020, 12:15–1:15 P.M., 157AB	For additional information contact Alicia Cheripka (alicia.cheripka@noaa.gov).
Town Hall Meeting: Environment and Security: AMS Partnerships for the Future	Monday, 13 January 2020, 12:15–1:15 P.M., 153B	For additional information contact Eileen Shea (elmshawaii@gmail.com).
Town Hall Meeting: Getting Creative with Climate Change Outreach: Promoting Scientific Engagement, Improving Science Literacy, and Building Community	Monday, 13 January 2020, 12:15–1:15 P.M., 152	For additional information contact Janel Hanrahan (janel.hanrahan@northernvermont.edu).
Side Panel: NASA's Earth Observations from the Private Sector Small Constellation Satellite Data Product Pilot Project	Monday, 13 January 2020, 12:15–1:15 P.M., 153A	For additional information contact Alfreda A. Hall (alfreda.a.hall@nasa.gov).
Town Hall Meeting: The NASA Earth Science Flight Program—Investments in and Planning for the Next-Generation Earth Observatories: NASA HQ	Monday, 13 January 2020, 12:15–1:15 P.M., 251	For additional information contact Robert Bauer (robert.bauer@nasa.gov). A limited number of boxed lunches will be provided by Northrop Grumman Corp.
Town Hall Meeting: 2019 NCEI Users Conference—Debrief and Path Forward	Tuesday, 14 January 2020, 12:15–1:15 P.M., 153A	For additional information contact Annette Hollingshead (annette.hollingshead@noaa.gov). A limited number of boxed lunches will be provided by Riverside Technology, Inc., and KBR.
Town Hall Meeting: Forecast-Informed Reservoir Operations—A Discussion of the Definition under Development for the Glossary of Meteorology	Tuesday, 14 January 2020, 12:15–1:15 P.M., 152	For additional information contact F. Martin Ralph (mralph@ucsd.edu).
Town Hall Meeting: NOAA Modeling Forum	Tuesday, 14 January 2020, 12:15–1:15 P.M., 157AB	For additional information contact Hendrik L. Tolman (hendrik.tolman@noaa.gov).
Town Hall Meeting: OPEN Government Data Act on Data Stewardship Planning for Federal Agencies	Tuesday, 14 January 2020, 12:15–1:15 P.M., 155	For additional information contact Nazila Merati (nazila.merati@noaa.gov).
Side Panel: Progress in Using Satellite Observations to Help Monitor, Understand, and Eventually Predict and Warn of Extreme Events, Especially Volcanic Eruptions, Seismic Activity, Earthquakes, and Tsunami: Focus—Earth's Volatile Ring of Fire	Tuesday, 14 January 2020, 12:15–1:15 P.M., 253B	For additional information contact Gary McWilliams (gary.mcwilliams@noaa.gov). A limited number of boxed lunches will be provided by Ball Aerospace and Technology, Integrated Systems Solutions, and Science and Technology Corp.

continued

Town Hall/Side Panel Title	Date, Time, and Location	Notes
Town Hall Meeting: United States Air Force Weather Capabilities Roadmap	Tuesday, 14 January 2020, 12:15–1:15 P.M., 151B	For additional information contact Andrew Travis (andrew.travis.1@us.af.mil).
Town Hall Meeting: Upcoming NASA Health and Air Quality Missions: the Multi-Angle Imager for Aerosols (MAIA) and Tropospheric Emissions: Monitoring Pollution (TEMPO)	Tuesday, 14 January 2020, 12:15–1:15 P.M., 153	For additional information contact Abigail Nastan (abigail.m.nastan@jpl.nasa.gov).
Town Hall Meeting: Weather in the Clouds: Leveraging Public Clouds for Scalable Operational Meteorology	Tuesday, 14 January 2020, 12:15–1:15 P.M., 156BC	For additional information contact Gene Dolgin (gene@climacell.co).
Town Hall Meeting: NASA Science and Space Weather	Tuesday, 14 January 2020, 12:15–1:15 P.M., 251	For additional information contact Richard A. Behnke (behnke.richard@yahoo.com).
Town Hall Meeting: Improving Field Campaign Data Archive Services at the NCAR Earth Observing Laboratory	Tuesday, 14 January 2020, 6:00–7:00 P.M., 153A	For additional information contact Greg Stossmeister (gstoss@ucar.edu).
Town Hall Meeting: NASA Earth Science Division (ESD)	Tuesday, 14 January 2020, 6:00–7:00 P.M., 153B	For additional information contact J. A. Kaye (jack.a.kaye@nasa.gov).
Town Hall Meeting: Forecasts for the Future—Visions and Dreams for the Next 100 Years	Wednesday, 15 January 2020, 12:15–1:15 P.M., 152	For additional information contact John P. Dreher (tls@ucar.edu).
Town Hall Meeting: Linking the Forecasting Needs to Solutions of the Analysis and Nowcast (0–18-h Forecast) through the Requirements of the National Weather Service	Wednesday, 15 January 2020, 12:15–1:15 P.M., 252A	For additional information contact Young-Joon Kim (young-joon.kim@noaa.gov).

continued



Peraton

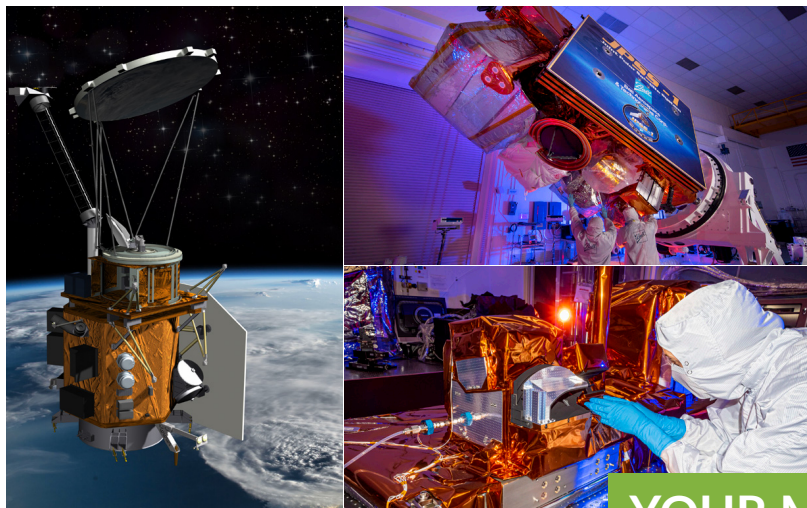
COMMAND THE OUTCOME OF MOTHER NATURE'S NEXT MOVE

Peraton's resilient communications solutions enable the discovery and transmission of vital environmental data needed to preserve life and property. From designing, managing and sustaining complex ground systems to delivering a seamless suite of mission planning and operations capabilities, Peraton is ready to ensure that the nation's decision makers have the information they need to stay several steps ahead of Mother Nature's next move.

COMMAND THE COSMOS
PROTECT. DISCOVER. TRANSFORM.

peraton.com/command-the-cosmos

Town Hall/Side Panel Title	Date, Time, and Location	Notes
Town Hall Meeting: LWS Institutes: Pathways for Reducing Risk to Aviation and Satellite Operations	Wednesday, 15 January 2020, 12:15–1:15 P.M., 153B	For additional information contact Kendra Greb (kgreb@ucar.edu). A limited number of boxed lunches will be provided by UCAR Cooperative Programs for Advancement of Earth System Science.
Town Hall Meeting: NOAA Big Data Project Updates	Wednesday, 15 January 2020, 12:15–1:15 P.M., 153A	For additional information contact Nazila Merati (nazila.merati@noaa.gov).
Town Hall Meeting: NOAA Satellites and the Future	Wednesday, 15 January 2020, 12:15–1:15 P.M., 155	For additional information contact Alek Krautmann (alek.krautmann@noaa.gov).
Town Hall Meeting: NWS Evolve Strategic and Tactical Perspectives for the NWS Workforce and Our Partners	Wednesday, 15 January 2020, 12:15–1:15 P.M., 151B	For additional Information contact Aubry Bhattarai (aubry.bhattarai@noaa.gov).
Town Hall Meeting: The U.S. Global Change Research Program's Water Cycle Group: New Directions and Opportunities for U.S. Water and Energy Cycle Science	Wednesday, 15 January 2020, 12:15–1:15 P.M., 158	For additional Information contact Jennifer Arrigo at (jsaleem-arrigo@usgcrp.gov).
Side Panel: Using Social Media to Communicate Climate Science	Wednesday, 15 January 2020, 12:15–1:15 P.M., 156BC	For additional information contact Kerry H. Cook (kc@jsg.utexas.edu).
Town Hall Meeting: Advocating for Science as an Expert or as a Citizen	Thursday, 16 January 2020, 12:15–1:15 P.M., 152	For additional information contact Lauren Kurtz (lkurtz@cslf.org).
Town Hall Meeting: GEOS-Chem Model Overview and New Developments	Thursday, 16 January 2020, 12:15–1:15 P.M., 155	For additional Information contact Daniel J. Jacob (djacob@fas.harvard.edu).
Town Hall Meeting: USGEO Town Hall	Thursday, 16 January 2020, 12:15–1:15 P.M., 151B	For additional information contact K. S. Becker (kate.becker@noaa.gov).



Ball Aerospace delivers accurate, actionable environmental data to civilian and military weather forecasters—with spacecraft, instrumentation and expertise that eliminate data gaps in the U.S. weather satellite network. It's all part of our collaborative approach as we work together to give our military a competitive advantage, protect our communities and help grow our economy.

YOUR MISSION PARTNER

TOGETHER, WE **GO BEYOND®**
ACCURACY & RELIABILITY.

BALL.COM/GOBEYOND

Named Sessions

This year there are several sessions planned to honor individuals in our community.

Honoree	Session Title	Conference Title	Day, Time, and Location
John T. Madura	John T. Madura Session on Developing Weather Technologies to Support Range Operations through R2O and O2R Pathways	20th Conference on Aviation, Range, and Aerospace Meteorology	Tuesday, 14 January 2020, 1:30–2:30 P.M., 206A
Louis J. Lanzerotti	Louis J. Lanzerotti Session on Heliophysics and Space Weather in History	17th Conference on Space Weather	Monday, 13 January 2020, 2:00–4:00 P.M., 205A
Fuqing Zhang	Joint Session on Scales Interactions and Predictability—In Memory of Fuqing Zhang: Part I	Fourth Symposium on Multiscale Predictability: Data–Model Integration and Uncertainty Quantification for Weather, Climate, and Earth System Monitoring and Prediction; 30th Conference on Weather Analysis and Forecasting/26th Conference on Numerical Weather Prediction; 24th Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface; and Fifth Symposium on U.S.–International Partnerships	Tuesday, 14 January 2020, 8:30–10:00 A.M., 104C
Fuqing Zhang	Joint Session on Scales Interactions and Predictability—In Memory of Fuqing Zhang: Part II	Fourth Symposium on Multiscale Predictability: Data–Model Integration and Uncertainty Quantification for Weather, Climate, and Earth System Monitoring and Prediction; 30th Conference on Weather Analysis and Forecasting/26th Conference on Numerical Weather Prediction; 24th Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface; and Fifth Symposium on U.S.–International Partnerships	Tuesday, 14 January 2020, 10:30 A.M.–12:00 P.M., 104C
Ronald (Ron) W. Przybylinski	AMS/NWA Ronald W. Przybylinski Research Operations Nexus (RON) Meetup	Special Symposium on the Future of Weather, Forecasting, and Practice	Monday, 13 January 2020, 2:00–4:00 P.M., 205C

HIGHLIGHTED PRESENTATIONS

Award Winners

Each year, AMS presents over 30 awards to leaders in the weather, water, and climate community. Many of the 2020 winners will present at our Annual Meeting.

<https://ams.confex.com/ams/2020Annual/meetingapp.cgi/Index/AwardWinner~Yes>



Award Winner	Conference Title	Presentation Title	Day, Time, and Location
Adele Igel 	12th Symposium on Aerosol–Cloud–Climate Interactions	The Impact of Boundary Layer and Free Troposphere Aerosol Particles on Arctic Low-Level Clouds	Wednesday, 15 January 2020, 4:00–6:00 P.M., Hall B
Agus Santoso 	Fourth Symposium on Multiscale Predictability: Data–Model Integration and Uncertainty Quantification for Weather, Climate, and Earth System Monitoring and Prediction	Uncertainty in Near-Term Global Surface Warming Linked to Tropical Pacific Climate Variability	Monday, 13 January 2020, 11:15–11:30 A.M., 104C
	33rd Conference on Climate Variability and Change	Governing Processes of Extreme El Niño and Implications for Future Projections	Tuesday, 14 January 2020, 10:45–11:00 A.M., 154
Alan Sealls 	Eighth Symposium on Building a Weather-Ready Nation: Enhancing Our Nation's Readiness, Responsiveness, and Resilience to High Impact Weather Events	Words to the Weatherwise	Monday, 13 January 2020, 2:00–2:15 P.M., 153C
Alberto Martilli 	15th Symposium on the Urban Environment	A Modelling Study of the Interaction between Cold Air Pool and Urban Structure: The Madrid Case	Monday, 13 January 2020, 3:45–4:00 P.M., 104B
Anne Douglass 	22nd Conference on Atmospheric Chemistry	Using Long Records of HCl to Understand Dynamical Processes Affecting Lower-Stratospheric Ozone Trends	Tuesday, 14 January 2020, 8:30–8:45 A.M., 206B

continued

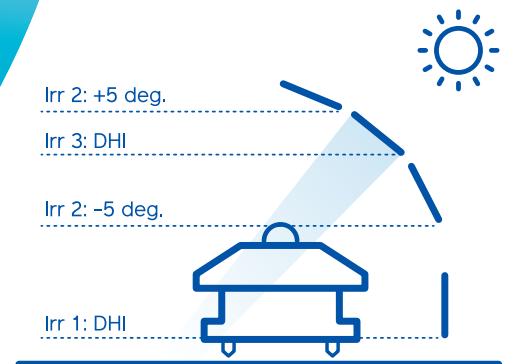
New Rotating Shadow Band


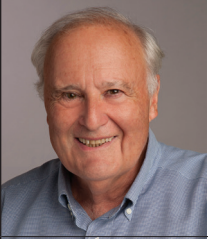


For spectral measurement of the three irradiance components (DNI, GHI, DHI) we took a different approach. A spectroradiometer with rotating Shadow Band (RSB) is an attractive alternative to a conventional 3 component sun tracker system. Just one spectroradiometer used for all measurements lowers the costs associated with the instrumentation required.

www.eko-usa.com

www.eko-eu.com

www.eko-asia.com





Award Winner	Conference Title	Presentation Title	Day, Time, and Location
<p>Ardeshir Ebtehaj</p> 	Robert Dickinson Symposium	Physically Constrained Inversion of Radiative Transfer Models in L Band for High-Resolution Retrievals of Soil Moisture and Vegetation Optical Depth from Space	Tuesday, 14 January 2020, 4:00–6:00 P.M., Hall B
<p>Arnold Gordon</p> 	33rd Conference on Climate Variability and Change	The Indonesian Throughflow—Its Place in the Global Ocean and Climate Systems (Invited Presentation)	Thursday, 16 January 2020, 9:00–9:15 A.M., 150
<p>Caroline Vera</p> 	15th Symposium on Societal Applications: Policy, Research, and Practice	Climate Knowledge Coproduction for the Agriculture Sector in Argentina from an Implicated Science Approach	Monday, 13 January 2020, 8:30–8:45 A.M., 152
	33rd Conference on Climate Variability and Change	Climate Variability and Change in South America	Monday, 13 January 2020, 3:30–3:45 P.M., 150
	33rd Conference on Climate Variability and Change	Multiscale Nature of Tropical Influence on Precipitation Variability in Southern South America	Tuesday, 14 January 2020, 3:15–3:30 P.M., 151A
<p>Dale Barker</p> 	Special Symposium on the Future of Weather, Forecasting, and Practice	Current Status and Vision of Future Met Office NWP Capabilities	Monday, 13 January 2020, 9:30–9:45 A.M., 258B

continued

Award Winner	Conference Title	Presentation Title	Day, Time, and Location
<p>Dale Barker</p> 	Eighth AMS Symposium on the Joint Center for Satellite Data Assimilation	Met Office Plans for Next-Generation Observation Preprocessing and Data Assimilation	Tuesday, 14 January 2020, 11:00–11:15 A.M., 254B
<p>Elizabeth Pattey</p> 	20th Symposium on Meteorological Observation and Instrumentation	Impact of Climate Variations on Nitrous Oxide Emissions during Spring Wheat Growing Seasons in Eastern Canada—Micrometeorological Measurements, STICS Model Verification, and Long-Term Simulations	Tuesday, 14 January 2020, 8:45–9:00 A.M., 203
<p>Eric Gilleland</p> 	26th Conference on Probability and Statistics	Spatial Forecast Verification: Putting Location-Based Measures to the Test with a New Set of Geometric Cases	Monday, 13 January 2020, 10:30–10:45 A.M., 260
<p>Glen Romine</p> 	10th Conference on Transition of Research to Operations	Progress in Building Formal Approaches for Regional Ensemble Prediction System Development	Monday, 13 January 2020, 9:00–9:15 A.M., 252A
<p>Gregory Jenkins</p> 	25th Conference on Applied Climatology	Quantifying the Exposure of Unhealthy to Hazardous PM _{2.5} and PM ₁₀ concentrations to Adult and Children Populations in Senegal during Four Significant Dust Events	Thursday, 16 January 2020, 11:15–11:30 A.M., 211
<p>Isla Simpson</p> 	21st Joint Conference on the Applications of Air Pollution Meteorology with the A&WMA	Decadal Predictability of Late Winter Precipitation in Western Europe through an Ocean–Jet Stream Connection	Tuesday, 14 January 2020, 8:30–8:45 A.M., 151A

continued

Award Winner	Conference Title	Presentation Title	Day, Time, and Location
James Bresch 	33rd Conference on Climate Variability and Change	A Review of NCAR/MMM's Forecasting Support for Recent Atmospheric Chemistry Field Campaigns	Thursday, 16 January 2020, 11:45 A.M.–12:00 P.M., 258B
Jared Rennie 	30th Conference on Weather Analysis and Forecasting/26th Conference on Numerical Weather Prediction	From NCL to Python: The Triumphs (and Struggles) of Upgrading a Tropical Monitoring Page for Air Force Operations	Tuesday, 14 January 2020, 3:00–3:15 P.M., 157AB
	10th Symposium on Advances in Modeling and Analysis Using Python	It's Not the Heat, It's the Humidity ... and Wind and Solar—Developing and Validating Heat Exposure Products Using the United States Climate Reference Network	Monday, 13 January 2020, 9:15–9:30 A.M., 153B

continued

INGENUITY FOCUSES YOU ON WHAT MATTERS.



Our end-to-end innovative network connectivity capabilities helps you automate the routine, so you can focus on the mission.

See all the ways we are Redefining Ingenuity® at saic.com.


SAIC
Redefining Ingenuity

Award Winner	Conference Title	Presentation Title	Day, Time, and Location
Jeffery Tongue 	11th Conference on Environment and Health	Aviation Weather—40 Years of Trying to Enhance Decision Support	Wednesday, 15 January 2020, 8:30–8:45 A.M., 157C
Jeffery Evans 	36th Conference on Environmental Information Processing Technologies	Hurricane Harvey—Societal Challenges for the Weather Enterprise	Monday, 13 January 2020, 11:00–11:45 A.M., 152
John Knox 	15th Symposium on Societal Applications: Policy, Research, and Practice	Taking Poetic License With Atmospheric Dynamics	Monday, 13 January 2020, 2:45–3:00 P.M., 258C
	29th Conference on Education	Student-Driven Hyperlocal Weather Forecasting on Social Media: AthensGaWeather at the University of Georgia	Wednesday, 15 January 2020, 11:15–11:30 A.M., 258C
Joshua Wurman 	Severe Local Storms Symposium	Some Good or Foolish Ideas, with Farm Names, Concerning the Future of Adaptable Radar Networks for Severe Storm Observations	Tuesday, 14 January 2020, 3:00–3:15 P.M., 258B
	Severe Local Storms Symposium	An Updated Mobile Radar–Based Climatology of Tornadoes	Tuesday, 14 January 2020, 4:00–6:00 P.M., Hall B

continued

Award Winner	Conference Title	Presentation Title	Day, Time, and Location
Julia M. Slingo 	Eighth Symposium on the Madden-Julian Oscillation and Subseasonal Monsoon Variability	The Mysterious MJO: Here Today, Gone Tomorrow! (Invited Presentation)	Monday, 13 January, 2020, 8:30–8:45 A.M., 254B
Jun Zhang 	Tropical Meteorology and Tropical Cyclones Symposium	Evaluating the Impact of Boundary Layer Parameterization on Hurricane Intensity and Structure in HWRF Forecasts	Wednesday, 15 January 2020, 3:00–3:15 P.M., 205B
	Robert Dickinson Symposium	Evaluating the Regional Impact of Aircraft Emissions on Climate	Tuesday, 14 January 2020, 4:00–6:00 P.M., Hall B

continued

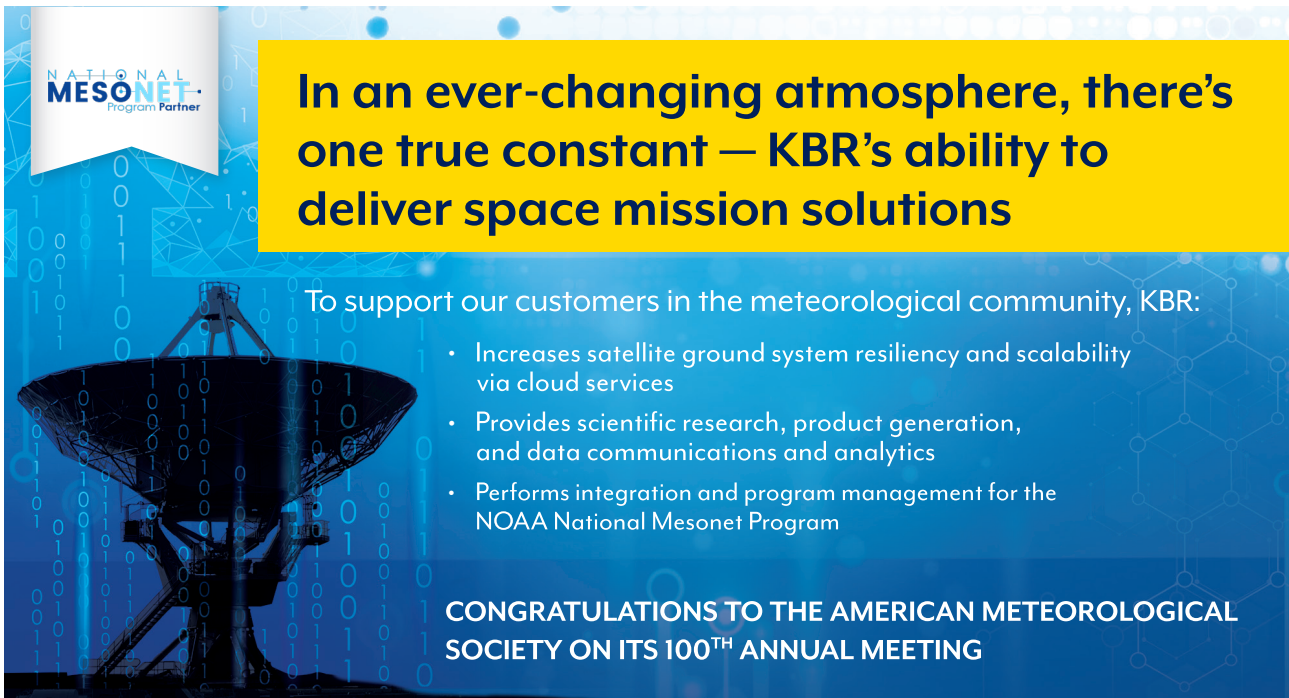


In an ever-changing atmosphere, there's one true constant — KBR's ability to deliver space mission solutions

To support our customers in the meteorological community, KBR:

- Increases satellite ground system resiliency and scalability via cloud services
- Provides scientific research, product generation, and data communications and analytics
- Performs integration and program management for the NOAA National Mesonet Program

CONGRATULATIONS TO THE AMERICAN METEOROLOGICAL SOCIETY ON ITS 100TH ANNUAL MEETING



The future, designed and delivered.



KBR.COM

Award Winner	Conference Title	Presentation Title	Day, Time, and Location
Kait Parker 	48th Conference on Broadcast Meteorology	Turn On the Volume: How to Get Someone to Watch Your Online Forecast	Wednesday, 15 January 2020, 2:00–2:15 P.M., 204AB
	33rd Conference on Climate Variability and Change	How to Help Me Get Your Research Right	Tuesday, 14 January 2020, 3:15–3:30 P.M., 154
	48th Conference on Broadcast Meteorology	When Climate Communication Requires a Security Guard	Wednesday, 15 January 2020, 11:15–11:30 A.M., 204AB
Kelly Werner 	48th Conference on Broadcast Meteorology	Cloud Computing Support for the Weather Research and Forecasting Model	Tuesday, 14 January 2020, 3:45–4:00 P.M., 157C
Laure Zanna 	19th Conference on Artificial Intelligence for Environmental Science	Discovering Novel Eddy Parameterizations with Machine Learning	Monday, 13 January 2020, 2:00–2:15 P.M., 156BC
Marc Parlange 	21st Joint Conference on the Applications of Air Pollution Meteorology with the A&WMA	Drag and Drag Partition on Vegetated Urban Canopies	Thursday, 16 January 2020, 3:45–4:00 P.M., 211




continued

Award Winner	Conference Title	Presentation Title	Day, Time, and Location
Matthew Kumjian 	Severe Local Storms Symposium	Influences on Hail Size as Inferred from Hailstone Growth Trajectory Model Calculations	Tuesday, 14 January 2020, 11:30–11:45 A.M., 258B
	Severe Local Storms Symposium	Hail Size and Dual-Polarization Doppler on Wheels Radar Observations During RELAMPAGO	Tuesday, 14 January 2020, 4:00–6:00 P.M., Hall B
Phil Bergmaier 	29th Conference on Education	Engaging Undergraduates in K–12 STEM Education through High-Altitude Ballooning: The LIFT Project	Wednesday, 15 January 2020, 9:30–9:45 A.M., 258C
Ping Yang 	16th Annual Symposium on New Generation Operational Environmental Satellite Systems	Single and Multiple Scattering of Ice Clouds and Dust Aerosol: Brief History and Applications to Remote Sensing Implementations and Radiative Transfer Simulations	Thursday, 16 January 2020, 10:30–10:45 A.M., 255
Qiang Fu 	Middle Atmosphere One-Day Symposium	The Brewer–Dobson Circulation during the Last Glacial Maximum	Tuesday, 14 January 2020, 4:00–6:00 P.M., Hall B
	Susan Solomon Symposium	Changes in Brewer–Dobson Circulation Seen from Satellite MSU/AMSU Observations	Monday, 13 January 2020, 11:15–11:30 A.M., 205B



continued


Award Winner	Conference Title	Presentation Title	Day, Time, and Location
Robert Banta 	30th Conference on Weather Analysis and Forecasting/26th Conference on Numerical Weather Prediction	Using Doppler–Lidar Measurements of Recurrent Diurnal Marine Air Intrusion Flows into the Columbia River Basin to Characterize and Quantify HRRR Errors	Thursday, 16 January 2020, 8:45–9:00 A.M., 258B
Robert Rauber 	22nd Conference on Planned and Inadvertent Weather Modification	Weather and Climate Modification as a Driving Force for Cloud Physics Research (Invited Presentation)	Monday, 13 January 2020, 2:00–2:15 P.M., 105
Robert Sharman 	20th Conference on Aviation, Range, and Aerospace Meteorology	Aviation Turbulence Theory, Detection, and Forecasting: Past, Present, and Future (Invited Presentation)	Monday, 13 January 2020, 9:00–9:30 A.M., 206A
Sebastian Torres 	36th Conference on Environmental Information Processing	An Update on the Advanced Technology Demonstrator at the National Severe Storms Laboratory	Wednesday, 15 January 2020, 8:30–8:45 A.M., 155
Sergey Gulev 	33rd Conference on Climate and Change	Atmospheric Rivers and Cyclone Clustering from Reanalyses and High-Resolution Model Simulations	Tuesday, 14 January 2020, 3:30–3:45 P.M., 150
Terri Hogue 	34th Conference on Hydrology	Human–Water Interactions in Urban Systems: Challenges and Opportunities in the Twenty-First Century (Centennial)	Wednesday, 15 January 2020, 1:30–1:45 P.M., 253C

continued


Award Winner	Conference Title	Presentation Title	Day, Time, and Location
Vijay Tallapragada 	36th Conference on Environmental Information Processing Technologies	A Targeted Operational Aircraft Reconnaissance Program Strategy for Improved Prediction of Atmospheric Rivers and Winter Storms	Tuesday, 14 January 2020, 9:30–9:45 A.M., 209
	10th Conference on the Transition of Research to Operations	Unified Forecast System Development and Operational Implementation Plans at NCEP/EMC	Tuesday, 14 January 2020, 8:30–8:45 A.M., 252A
	30th Conference on Weather Analysis and Forecasting/ 26th Conference on Numerical Weather Prediction	Development of and Implementation Strategies for the Unified Forecast System at NCEP to Assist with Forecasting Aviation Weather Hazards	Wednesday, 15 January 2020, 9:00–9:15 A.M., 257AB
Walker Ashley 	15th Symposium on Societal Applications: Policy, Research, and Practice	Severe Thunderstorms and Their Impacts: Past, Present, and Future	Tuesday, 14 January 2020, 1:30–2:30 P.M., 151B
	33rd Conference on Climate Variability and Change	Future Changes in Snowstorms over North America	Wednesday, 15 January 2020, 2:00–2:15 P.M., 154
William Skamarock 	30th Conference on Weather Analysis and Forecasting/26th Conference on Numerical Weather Prediction	Vertical Resolution Requirements for NWP Models	Tuesday, 14 January 2020, 10:30–10:45 A.M., 257AB


continued

Award Winner	Conference Title	Presentation Title	Day, Time, and Location
Xiaodong Chen 	34th Conference on Hydrology	Precipitation Morphology in the Western United States: Its Relationship to Ambient Atmospheric Conditions and Future Changes	Thursday, 16 January 2020, 2:45–3:00 P.M., 253A
Ying-Hwa (Bill) Kuo 	24th Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface	Impact of GPS Radio Occultation Data on the Prediction of Tropical Cyclogenesis	Wednesday, 15 January 2020, 3:00–3:15 P.M., 259A




World's Highest Weather Station


8,430 Meters
Booth #229



What does it take to pull this off?
Come hear the story and learn why it's all in a day's work for our team of experts.




CAMPBELL SCIENTIFIC
WHEN MEASUREMENTS MATTER

New Fellows

Each year, AMS elects Fellows that have made outstanding contributions to the atmospheric or related oceanic or hydrologic sciences or their applications over a substantial period of years. Be sure to catch a presentation made by one of the new 2020 Fellows.

<https://ams.confex.com/ams/2020Annual/meetingapp.cgi/Index/NewFellowAward~Yes>

New Fellow	Conference Title	Presentation Title	Day, Time, and Location
Adam Sobel 	Eighth Symposium on the Madden–Julian Oscillation and Subseasonal Monsoon Variability	Large-Scale State and Evolution of the Atmosphere and Ocean during PISTON	Monday, 13 January 2020, 4:00–6:00 P.M., Hall B
	33rd Conference on Climate Variability and Change	Dynamic Amplification of Extreme Precipitation Sensitivity	Wednesday, 15 January 2020, 11:00–11:15 A.M., 150

continued

PREPARE *for your* FUTURE

WITH YOUR MASTERS DEGREE FROM MILLERSVILLE UNIVERSITY

INTEGRATED SCIENTIFIC APPLICATIONS:

the convergence of business and science with specializations in:

- Weather Intelligence and Risk Management
- Space Weather and Environment: Science, Policy, and Communication
- Climate Science Applications
- Geoinformatics
- Environmental Systems Management

millersville.edu/msisa

EMERGENCY MANAGEMENT:

building a workforce of leaders in preparedness and disaster management with programs in:


- Emergency Management
- Social Work and Emergency Management dual degree
- Emergency and Disaster Management Graduate Certificate
- Community Emergency Response Team (CERT) training

millersville.edu/cdre



Millersville University






Millersville University is an Equal Opportunity/Affirmative Action Institution. A member of Pennsylvania's State System of Higher Education. 7842-CST-1119-CL

New Fellow	Conference Title	Presentation Title	Day, Time, and Location
Adam Sobel 	Tropical Meteorology and Tropical Cyclones Symposium	Statistical–Dynamical Downscaling Projections of Tropical Cyclone Activity in a Warming Climate: Two Diverging Genesis Scenarios	Wednesday, 15 January 2020, 8:30–8:45 a.m., 205B
Bart Geerts 	10th Conference on Transition of Research to Operations	Toward Better Operational Predictions of High-Impact Winter Weather in the Northern High Plains and Rockies	Wednesday, 15 January 2020, 1:45–2:00 p.m., 252A
Caroline Vera 	33rd Conference on Climate Variability and Change	Climate Variability and Change in South America	Monday, 13 January 2020, 3:30–3:45 p.m., 150
	15th Symposium on Societal Applications: Policy, Research, and Practice	Climate Knowledge Coproduction for the Agriculture Sector in Argentina from an Implicated Science Approach	Monday, 13 January 2020, 8:30–8:45 a.m., 152
	33rd Conference on Climate Variability and Change	Multiscale Nature of Tropical Influence on Precipitation Variability in Southern South America	Tuesday, 14 January 2020, 3:15–3:30 p.m., 151A
Claudia Wagner-Riddle 	20th Symposium on Meteorological Observation and Instrumentation	Understanding and Managing Nitrous Oxide Emissions from Agricultural Soils: Knowledge Gained through Year-Round Micrometeorological Measurements	Tuesday, 14 January 2020, 9:15–9:30 a.m., 203

continued

New Fellow	Conference Title	Presentation Title	Day, Time, and Location
Courtney Schumacher 	Tropical Meteorology and Tropical Cyclones Symposium	What does Convective Organization Look Like in a GCM?	Tuesday, 14 January 2020, 3:00–3:15 P.M., 205
James Bearer Edson 	20th Symposium on Meteorological Observation and Instrumentation	Autonomous Direct Covariance Flux Systems for Use on Enhanced Surface Moorings and Expendable Platforms over the Open Ocean	Wednesday, 15 January 2020, 9:00–9:15 A.M., 203
Jeffery Collett Jr. 	22nd Conference on Atmospheric Chemistry	Emissions and Near-Field Concentrations of VOCs from Oil and Gas Operations in Colorado (Invited Presentation)	Tuesday, 14 January 2020, 10:30–11:00 A.M., 207
John Cortinas 	10th Conference on Transition of Research to Operations	Transitioning Research to Operations: A Program and Laboratory Perspective	Tuesday, 14 January 2020, 9:00–9:15 A.M., 252A
	15th Symposium on Societal Applications: Policy, Research, and Practice	Taking Poetic License With Atmospheric Dynamics	Monday, 13 January 2020, 2:45–3:00 P.M., 258C
	29th Conference on Education	Student-Driven Hyperlocal Weather Forecasting on Social Media: Athens-GaWeather at the University of Georgia	Wednesday, 15 January 2020, 11:15–11:30 A.M., 258C



continued

New Fellow	Conference Title	Presentation Title	Day, Time, and Location
<p>Marc Parlange</p> 	21st Joint Conference on the Applications of Air Pollution Meteorology with the A&WMA	Drag and Drag Partition on Vegetated Urban Canopies	Thursday, 16 January 2020, 3:45–4:00 P.M., 211
<p>Michael B. Ek</p> 	34th Conference on Hydrology	Local Land–Atmosphere Interactions: Exploring the Terrestrial Leg with “Little Omega”	Monday, 13 January 2020, 8:45–9:00 A.M., 253A
<p>Ming Xue</p> 	24th Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface	Assimilation of GOES-16 Satellite Geostationary Lightning Mapper Lightning Flash Rate Data for the Analysis and Forecast of Convective Storms Using EnKF and En3DVar Hybrid Methods (Invited Presentation)	Wednesday, 15 January 2020, 8:30–9:00 A.M., 259A
<p>Mingfang Ting</p> 	Tropical Meteorology and Tropical Cyclones Symposium	Past and Future Hurricane Intensity Change along the U.S. East Coast: Anthropogenic Forcing vs Internal Variability	Wednesday, 15 January 2020, 8:45–9:00 A.M., 205B
<p>Paul DeMott</p> 	22nd Conference on Planned and Inadvertent Weather Modification	Some Past Research on Cloud Seeding Aerosols and a Future Outlook (Invited Presentation)	Tuesday, 14 January 2020, 9:00–9:30 A.M., 105
	12th Symposium on Aerosol–Cloud–Climate Interactions	How Well Do We Understand and Predict Ice Nucleating Particle Sources and Concentrations around the World?	Wednesday, 15 January 2020, 3:30–4:00 P.M., 208

continued

New Fellow	Conference Title	Presentation Title	Day, Time, and Location
Stephen Klein 	Wayne Schubert Symposium	Observed Large-Scale Controls on Marine Cloud-Topped Boundary Layers and How Wayne Schubert Influenced the Science	Wednesday, 15 January 2020, 4:00–6:00 P.M., Hall B
Tammy Weckwerth 	10th Symposium on Lidar Atmospheric Applications	Initial Observations from the MicroPulse DIAL (MPD) Network Demonstration Project	Wednesday, 15 January 2020, 11:00–11:15 A.M., 209
Wassila Thaiw 	Eighth Symposium on the Weather, Water, and Climate Enterprise	The WMO Regional Climate Center-Washington for the WMO Regional Association IV	Wednesday, 15 January 2020, 3:30–3:45 P.M., 252B
Wen-Chau Lee 	20th Symposium on Meteorological Observation and Instrumentation	Can VAD and DVAD Provide More Information?	Wednesday, 15 January 2020, 9:30–9:45 A.M., 203
Wojciech W. Grabowski 	22nd Conference on Planned and Inadvertent Weather Modification	Separating Physical Impacts from Natural Variability Using Piggybacking (Master-Slave) Technique	Monday, 13 January 2020, 11:45 a.m.–12:00 P.M., 105
	12th Symposium on Aerosol–Cloud–Climate Interactions	Modeling of Cloud Microphysics: Can We Do Better?	Wednesday, 15 January 2020, 3:00–3:30 P.M., 208

continued

New Fellow	Conference Title	Presentation Title	Day, Time, and Location
Wojciech W. Grabowski 	22nd Conference on Planned and Inadvertent Weather Modification	Modeling Condensation inside a Pi Chamber with Eulerian Bin and Lagrangian Particle-Based Microphysics	Thursday, 16 January 2020, 9:00–9:15 A.M., 105
Zhiyong (Ellie) Meng 	30th Conference on Weather Analysis and Forecasting/26th Conference on Numerical Weather Prediction	Climatology of Tropical Cyclone Tornadoes in China from 2006 to 2018	Monday, 13 January 2020 3:00–3:15 P.M., 258A



READY TO INNOVATE?

@AccentureFed
accenturefederal.com

Accenture's Innovation Architecture helps federal agencies capitalize on breakthrough ideas and commercial best practices to foster a more innovative operating model and culture.

Visit us at the **Accenture Federal Digital Studio** to learn how.

MARIE LOVERN
NOAA Programs Lead
marie.lovorn@accenturefederal.com

KATHRYN WOODWARD
Commerce Business Development Lead
kathryn.woodward@accenturefederal.com

Core Science Keynotes

This series of invited talks at AMS Annual Meetings is intended to highlight, discipline by discipline, the history, foundational knowledge, and research challenges that drive the fields of atmospheric and related sciences forward. This year, AMS has introduced Core Science Keynotes that link the individual session topic to the Annual Meeting theme of "The AMS Past, Present, and Future: Linking Information to Knowledge to Society (LINKS)."

<https://ams.confex.com/ams/2020Annual/meetingapp.cgi/Index/CoreKeynote~Yes>

Presenter	Conference Title	Presentation Title	Day, Time, and Location
Amy McGovern	10th Symposium on Advances in Modeling and Analysis Using Python	How Python Can Help Us to Create the Physical Data Scientists of the Future	Monday, 13 January 2020, 10:30–11:00 A.M., 157AB
Jeffrey S. Evans	15th Symposium on Societal Applications: Policy, Research, and Practice	Hurricane Harvey—Societal Challenges for the Weather Enterprise	Monday, 13 January 2020, 11:00–11:45 A.M., 152
Robert M. Rauber	22nd Conference on Planned and Inadvertent Weather Modification	Weather and Climate Modification as a Driving Force for Cloud Physics Research	Monday, 13 January 2020, 2:00–2:15 P.M., 105
Petteri Taalas	Fifth Symposium on U.S.–International Partnerships	Keynote Speaker and Panelist: Petteri Taalas, Secretary-General, World Meteorological Organization	Monday, 13 January 2020, 2:00–2:30 P.M., 212
L. Ruby Leung	22nd Conference on Planned and Inadvertent Weather Modification	Atmospheric Rivers in the Context of Water Cycle and Climate Change Research	Monday, 13 January 2020, 2:15–2:30 P.M., 105
Dave Matthews	22nd Conference on Planned and Inadvertent Weather Modification	Weather Modification Research to Enhance Water Supplies in the Western United States	Monday, 13 January 2020, 2:30–2:45 P.M., 105
Neil A. Jacobs	36th Conference on Environmental Information Processing Technologies	Dr. Neil Jacobs	Monday, 13 January 2020, 8:30–9:00 A.M., 157C
Andy Morse	11th Conference on Environment and Health	Climate-Driven Modelling of Malaria and Other Infectious Diseases	Thursday, 16 January 2020, 2:00–2:30 P.M., 153B
Sue Ellen Haupt	19th Conference on Artificial Intelligence for Environmental Science	History of AI in Environmental Science	Tuesday, 14 January 2020, 3:00–3:15 P.M., 156BC
G. L. Stephens	Fourth Symposium on Multiscale Predictability: Data–Model Integration and Uncertainty Quantification for Weather, Climate, and Earth System Monitoring and Prediction	The Role of Observations in Advancing Earth Science Prediction	Tuesday, 14 January 2020, 8:30–9:00 A.M., 104C
Elizabeth A. Barnes	19th Conference on Artificial Intelligence for Environmental Science	Viewing Climate Signals through an AI Lens	Wednesday, 15 January 2020, 10:30–11:00 A.M., 156BC
Inez Fung	Robert Dickinson Symposium	Challenges in Modeling Biosphere–Atmosphere Interactions	Wednesday, 15 January 2020, 10:30–11:00 A.M., 210C
R. P. Abernathey	10th Symposium on Advances in Modeling and Analysis Using Python	What Can Science Learn from Open Source?	Wednesday, 15 January 2020, 10:30–11:00 A.M., 251
Guy Brasseur	22nd Conference on Atmospheric Chemistry	100 Years of Research in Atmospheric Chemistry	Wednesday, 15 January 2020, 1:30–2:00 P.M., 206B
Ángel Adames-Corraliza	Robert Dickinson Symposium	100 Years of Research in Large-Scale Atmospheric Dynamics: Progress, Challenges, and Future Directions	Wednesday, 15 January 2020, 1:30–2:00 P.M., 210C
Qingyun Duan	34th Conference on Hydrology	A Historical Perspective on Hydrometeorological Forecasting and Uncertainty Analysis	Wednesday, 15 January 2020, 1:30–2:00 P.M., 253A

continued

Presenter	Conference Title	Presentation Title	Day, Time, and Location
James A. Smith	34th Conference on Hydrology	The Nature of Extreme Rainfall and Hydrologic Extremes: Perspectives from the Past 100 Years (Part I)	Wednesday, 15 January 2020, 1:30–2:00 P.M., 253C
Richard Eckman	22nd Conference on Atmospheric Chemistry	Atmospheric Chemistry Research at NASA: From the Space Act to the Clean Air Act and Beyond	Wednesday, 15 January 2020, 2:00–2:30 P.M., 206B
Ronald G. Prinn	22nd Conference on Atmospheric Chemistry	Atmospheric Chemistry: A Century of Expanding Scientific Discovery and Societal Relevance	Wednesday, 15 January 2020, 3:00–3:30 P.M., 206B
Wojciech Grabowski	12th Symposium on Aerosol–Cloud–Climate Interactions	Modeling of Cloud Microphysics. Can We Do Better?	Wednesday, 15 January 2020, 3:00–3:30 P.M., 208
Simone Tilmes	Robert Dickinson Symposium	Current and Future Research Directions of Aerosol Climate Engineering	Wednesday, 15 January 2020, 3:00–3:30 P.M., 210C
Gordon B. Bonan	Robert Dickinson Symposium	From Atmospheric Sciences to Ecology: Building an Interdisciplinary View of Climate	Wednesday, 15 January 2020, 8:30–9:00 A.M., 210C
Paul J. DeMott	22nd Conference on Planned and Inadvertent Weather Modification	Some Past Research on Cloud Seeding Aerosols and a Future Outlook	Wednesday, 15 January 2020, 9:00–9:30 A.M., 105

FIELD TRIPS

45 Beacon Street Open House

For those in town during the 100th Annual Meeting, the AMS Headquarters at 45 Beacon Street will be open for fifteen-minute tours, led by members of the AMS staff. The AMS is proud to maintain 45 Beacon as a historic building, honoring its origins as the home of the third mayor of Boston, Harrison Gray Otis. Designed by Charles Bulfinch, the house was completed in 1806, and stands as a beautiful example of Federal style architecture. The AMS received the house as a gift in 1958 and has been headquartered there ever since. Please feel free to stop by to learn more about this unique and beloved space. Tour times must be scheduled in advance to ensure guides and space are available. Please sign up here: <https://annual.ametsoc.org/index.cfm/2020/programs/events/45-beacon-street-open-house/>



Sustainability Tour at Boston University

Sponsored by the AMS Committee on Environmental Stewardship

1:00–4:00 P.M., Thursday, 16 January
(weather permitting)

Fee: \$25 (during Annual Meeting or Special Conference registration)

<https://annual.ametsoc.org/index.cfm/2020/programs/events/sustainability-tour-at-boston-university/>



SPECIAL CONFERENCES

19th Annual AMS Student Conference and Career Fair

11–12 January 2020, BCEC

Hindsight in 2020: A Century of Meteorological Innovation to Inspire the Future



Intended for all undergraduate and graduate students, sessions at the Student Conference will focus on self-exploration and understanding through exposure to career options and recent research in the geosciences. The conference concludes with a poster session featuring student presenters on Sunday evening. While all registered attendees of the Student Conference and Annual Meeting are encouraged to attend the poster session, those attending sessions on Saturday and Sunday must be active AMS members and register separately from the Annual Meeting. More details can be found here: <https://annual.ametsoc.org/index.cfm/2020/programs/conferences-and-symposia/19th-annual-student-conference/>.

Eighth AMS Conference for Early Career Professionals

12–13 January 2020, BCEC

The Eighth Annual AMS Conference for Early Career Professionals serves as a gateway for graduate students and those early in their careers to connect and network with other members, boards, and leaders of AMS. Registration for this conference is separate from the registration for the Annual Meeting. More details can be found here: <https://annual.ametsoc.org/index.cfm/2020/programs/conferences-and-symposia/eighth-ams-conference-for-early-career-professionals/>.

23rd Conference of Atmospheric Science Librarians International

15–16 January 2020, BCEC

Registration for the Atmospheric Science Librarians International (ASLI) Conference does not include registration for other 100th AMS Annual Meeting events, but ASLI Conference registrants are encouraged to visit the exhibits. For more information, visit <https://annual.ametsoc.org/index.cfm/2020/programs/conferences-and-symposia/23rd-conference-of-atmospheric-science-librarians-international/>.

EVENTS

While the technical sessions at the Annual Meeting provide attendees with countless opportunities to learn about and share their science, there are also many chances to network with colleagues, collaborate informally, and help celebrate the Society's centennial year with the Annual Meeting's robust events program: <https://annual.ametsoc.org/index.cfm/2020/programs/events/>.



OFFICERS OF THE 100TH ANNUAL MEETING

Overall Planning Committee

Raymond J. Ban, Chairperson

Ana P. Barros ♦ Patrick A. Harr ♦ Jamison S. Hawkins ♦ Makenzie Krocak
Craig McLean ♦ Shali Mohleji ♦ Marshall Shepherd

Program Chairpersons

Becky Adams-Selin ♦ Curtis Alexander ♦ Philip Ardanuy ♦ Saravanan Arunachalam ♦ Bob Atlas ♦ Tom Auligne
Lourdes B. Avilés ♦ Ray Ban ♦ Robert Bauer ♦ Tom Bedard ♦ Rich Behnke ♦ Jordan Bell ♦ Stephen Bieda
Paul Bieringer ♦ Reginald Blake ♦ Trevor Boucher ♦ Kandis Boyd ♦ Scott Braun ♦ Bill Burke ♦ Melissa Burt
Bill Campbell ♦ James Campbell ♦ Fred Carr ♦ Margaret Caulfield ♦ Abhishek Chatterjee ♦ Paul Ciesielski
Renee Leduc Clarke ♦ Scott Collis ♦ Marc Cotnoir ♦ Gerry Creager ♦ Sean Davis ♦ Becky DePodwin ♦ Ankur Desai
Ken Dewey ♦ Juliana Dias ♦ Leo Donner ♦ Clara Draper ♦ Kristie Ebi ♦ Kerry Emanuel ♦ Kacey Ernst ♦ Jenni Evans
Rosana Nieto Ferreira ♦ Eric Fetzer ♦ Emily Fischer ♦ Lisa Fish ♦ Genene Fisher ♦ Matthew Flournoy ♦ Tanja Fransen
Jeff Freedman ♦ David John Gagne ♦ Carlos Gaitan ♦ Andrew Geyer ♦ Daniel Gilford ♦ Larry Gloeckler
Mitch Goldberg ♦ Jorge Gonzalez ♦ ♦ Bin Guan ♦ Jen Henderson ♦ Douglas Hilderbrand ♦ Mike Hobbins ♦ Dan Hodyss
David Hondula ♦ Adele Igel ♦ Scott Jacobs ♦ Michael Jamilkowski ♦ Tara Jensen ♦ Jonathan Jiang ♦ Dick Johnson
Bradford Johnson ♦ Michael Johnson ♦ Dave Jones ♦ Hunter Jones ♦ Erik Kabela ♦ Satya Kalluri ♦ John Keller
Emil Kepco ♦ Gaige Kerr ♦ Young-Joon Kim ♦ Chandra Kondragunta ♦ Makenzie Krocak ♦ Sujay Kumar
Ryan Lagerquist ♦ Scott Landolt ♦ Heather Lazrus ♦ Dan Lindsey ♦ Chungu Lu ♦ Sharan Majumdar ♦ Stephen Mango
Amy McGovern ♦ Gary McWilliams ♦ Eric Miller ♦ Chandana Mitra ♦ Ottmar Moehler ♦ Joe Murgo ♦ Jinny Nathans
Cheryl Nelson ♦ Dev Niyogi ♦ Caroline Normile ♦ John Pereira ♦ Kenneth Pickering ♦ James Pinto ♦ Robb Randall
A. R. Ravishankara ♦ Nicole Riemer ♦ Mike Robinson ♦ Ricky Rood ♦ Naoko Sakaeda ♦ Elizabeth Satterfield
Timothy J. Schmit ♦ Carl Schueler ♦ Andrew Schwartz ♦ Justin Sharp ♦ Owen Shieh ♦ Isla Simpson ♦ Tim Sliwinski
Jennifer Sprague ♦ Graeme Stephens ♦ Trude Storelmo ♦ Vijay Tallapragada ♦ Bruce Telfeyan ♦ Sarah Tessendorf
Barbara Thompson ♦ Rei Ueyama ♦ Tiffany Vance ♦ Jennifer Vanos ♦ Vanessa Vincente ♦ Yuan Wang ♦ Zhuo Wang
Jennifer B. Webster ♦ Eric Wertz ♦ Andre Van der Westhuysen ♦ Klaus Wolter ♦ Chun-Chieh Wu ♦ Martin Yapur
Jim Yoe ♦ Jeffrey Yuhas ♦ John Zack ♦ Xubin Zeng ♦ Fuqing Zhang

MEETINGS DEPARTMENT STAFF

Claudia Gorski, Director of Meetings
Jen Ives, Senior Meetings Manager
Jenn Rosen, Senior Exhibits Manager
Ricky Sidla, Senior Meetings Coordinator
Meghan Summers, Senior Meetings Coordinator
Christine Card, Meetings Coordinator
Annie Delehanty, Meetings Coordinator
Cati Iannarilli, Meetings Coordinator
Marissa Welch, Meetings Coordinator

CONFERENCE AT A GLANCE

Saturday, 11 January

7:30 A.M.—8:00 P.M.
Registration for Short Courses and Student Conference,
North Lobby

7:30 A.M.—6:00 P.M.
Info Desk Open, North Lobby

8:00 A.M.—5:30 P.M.
Short Courses

8:00 A.M.—5:00 P.M.
19th Annual Student Conference

5:30—7:30 P.M.
Career Resource and Graduate School Fair (Student
Conference only), East Registration

Color key

- = presidential sessions
- = technical program events

Got coffee? ☕

Monday, 13 January

10:00—10:30 A.M.
NE Lobby A/B1, Level 1, BCEC
Northeast Lobby, Level 2, BCEC
Northwest Lobby, Level 2, BCEC

4:00—6:00 P.M.
Exhibit Hall B, Exhibit Level, BCEC

Tuesday, 14 January

10:00—10:30 A.M.
NE Lobby A, Level 1, BCEC
Northeast Lobby, Level 2, BCEC
Northwest Lobby, Level 2, BCEC
Exhibit Hall A, Exhibit Level, BCEC

2:30—3:00 P.M.
NE Lobby A, Level 1, BCEC
Northeast Lobby, Level 2, BCEC
Northwest Lobby, Level 2, BCEC
Exhibit Hall A, Exhibit Level, BCEC

4:00—6:00 P.M.
Exhibit Hall A/B, Exhibit Level, BCEC

Wednesday, 15 January

10:00—10:30 A.M.
NE Lobby A, Level 1, BCEC
Northeast Lobby, Level 2, BCEC
Northwest Lobby, Level 2, BCEC
Exhibit Hall A, Exhibit Level, BCEC

2:30—3:00 P.M.
NE Lobby A, Level 1, BCEC
Northeast Lobby, Level 2, BCEC
Northwest Lobby, Level 2, BCEC
Exhibit Hall A, Exhibit Level, BCEC

4:00—6:00 P.M.
Exhibit Hall A/B, Exhibit Level, BCEC

Thursday, 16 January

9:30—10:30 A.M.
Exhibit Hall A, Exhibit Level, BCEC

2:30—3:00 P.M.
NE Lobby A, Level 1, BCEC
Northeast Lobby, Level 2, BCEC
Northwest Lobby, Level 2, BCEC

Sunday, 12 January

7:00 A.M.—12:00 P.M.
Scout Event (separate RSVP required), Marina Ballrooms III
and IV, Westin Waterfront

7:00 A.M.—8:30 P.M.
Registration Open, North Lobby

7:30 A.M.—6:00 P.M.
Info Desk Open, North Lobby

7:30 A.M.—3:45 P.M.
Short Courses

8:00—9:00 A.M.
19th Annual Student Conference and Eighth Conference for
Early Career Professionals: Coffee Break, Ballroom Foyer

8:00—9:00 A.M.
Meet the President (for students and early career professionals)

9:00 A.M.—5:00 P.M.
Guest Welcome and Information Desk, North Lobby

9:00 A.M.—3:45 P.M.
19th Annual Student Conference

9:00 A.M.—3:45 P.M.
Eighth Conference for Early Career Professionals, 255

9:00 A.M.—5:00 P.M.
Oral History Interviews, Elm I and Elm II, Westin Waterfront

11:55 A.M.—1:00 P.M.
Eighth Conference for Early Career Professionals: Luncheon,
205C

12:00—3:45 P.M.
Speaker Ready Room Open, 102B

12:00—4:00 P.M.
Weatherfest ☀, Galleria, Westin Waterfront

12:00—8:30 P.M.
Poster Hall Open, Hall B

12:35—2:00 P.M.
Special Presidential Forum Preview: “A Climatologist, an
Engineer, and a Social Scientist Walk Into a Bar... Tough
Choices on a Warming Planet,” 210AB

2:30—3:30 P.M.
Newcomer's Welcome and Informational Exchange, 104A

4:00—6:30 P.M.
Presidential Forum, Annual Meeting Welcome, Annual Review,
and Awards Ceremony, Ballroom East

6:30—7:30 P.M.
Welcome Reception Honoring 2020 AMS Awardees and Newly
Elected Fellows, Hall B (entrance at East Registration)

6:30—8:30 P.M.
Career Resource and Graduate School Fair, East Registration

6:30—8:30 P.M.
Student Conference Poster Session, Hall B (entrance at East
Registration)

6:30—8:30 P.M.
View the Academic Family Tree, Hall B (entrance at East
Registration)

7:00—9:30 P.M.
American Weather and Climate Industry Association (AWCIA)
Reception, Marina Ballroom III, Westin Waterfront

7:30—9:30 P.M.
Colour of Weather Reception, Marina Ballroom I, Westin
Waterfront

9:00—11:00 P.M.
Early Career Professional Reception, Marina Ballroom II,
Westin Waterfront

Monday, 13 January

7:30 A.M.—6:00 P.M.
Registration Open, North Lobby

7:30 A.M.—6:00 P.M.
Info Desk Open, North Lobby

7:30 A.M.—6:00 P.M.
Quiet Room Open, Commonwealth C, Westin Waterfront

7:30 A.M.—6:00 P.M.
Speaker Ready Room Open, 102B

8:30—10:00 A.M.
Oral Sessions

8:30—10:00 A.M.
Presidential Forum Session I—The Enterprise: Worth More than
You Think, 210AB

8:30 A.M.—4:00 P.M.
Susan Solomon Symposium, 205B

9:00—11:00 A.M.
Guest Coffee and Visit Boston Presentation, Hancock, Westin
Waterfront

9:00 A.M.—6:00 P.M.
Poster Hall Open, Hall B (entrance at East Registration)

9:00 A.M.—7:30 P.M.
View the Academic Family Tree, Hall B (entrance at East Registration)

9:00 A.M.—7:30 P.M.
View Local Chapter Posters, Hall B (entrance at East Registration)

9:15—10:00 A.M.
EMS Lecture, 204AB

10:00 A.M.—6:00 P.M.
Member Services Desk Open, North Lobby

10:00—10:30 A.M.
Morning Coffee Break ☕

10:30 A.M.—12:00 P.M.
Presidential Forum Session 3—Research Needs for the Anthropocene:
Integrated Services for the Urban Environment, 210AB

10:30 A.M.—12:00 P.M.
Oral Sessions

11:00 A.M.—5:00 P.M.
Oral History Interviews, Elm I and Elm II, Westin Waterfront

12:00—1:30 P.M.
Lunch Break

12:15—1:45 P.M.
Presidential Town Hall Meeting—Financial Weather and Climate
Risk Management, Ballroom East

12:15—1:45 P.M.
Town Hall Meetings and Side Panels

1:00—1:20 P.M.
Daily Weather Briefing, 157C

2:00—4:00 P.M.
Oral Sessions

2:00—4:00 P.M.
AMS/NWA Ronald W. Przybylinski Research Operations Nexus
(RON) Meetup (separate RSVP required), 205C

4:00—6:00 P.M.
Formal Poster Viewing Reception ☕, Hall B (entrance at East
Registration)

6:00—8:00 P.M.
Exhibit Hall Opening Reception, Hall A (entrance at North Lobby)

6:00—8:00 P.M.
Viewing of Historical Instruments, Hall A (entrance at North Lobby)

7:00—8:00 P.M.
Hydrometeorology Networking Social

7:00—9:00 P.M.
Susan Solomon Dinner (ticketed event), 205C

8:00—10:00 P.M.
CoRioLis Reception, Marina Ballroom III

8:00—10:00 P.M.
Sixth Annual Speed Networking Event for Students and
Early Career Professionals (separate RSVP required), East Registration

8:00—10:00 P.M.
AMS Broadcaster Social (separate ticket required)

8:00—10:00 P.M.
Sixth Annual Speed Networking Event for Students and Early Career
Professionals (separate RSVP required), East Registration

Tuesday, 14 January

- 7:30 A.M.—6:00 P.M.
Registration Open, North Lobby
- 7:30 A.M.—6:00 P.M.
Info Desk Open, North Lobby
- 7:30 A.M.—6:00 P.M.
Member Services Desk Open, North Lobby
- 7:30 A.M.—5:00 P.M.
Quiet Room Open, Commonwealth C, Westin Waterfront
- 7:30 A.M.—5:00 P.M.
Speaker Ready Room Open, 102B
- 8:30—10:00 A.M.
Oral Sessions
- 8:30—10:00 A.M.
Presidential Forum Session 4—The Future of Extreme Weather Financial Risk Management. Part I, 252B
- 8:30 A.M.—4:00 P.M.
Robert Dickinson Symposium, 210C
- 9:00—10:00 A.M.
Guest Coffee, Hancock, Westin Waterfront
- 9:00 A.M.—6:00 P.M.
Exhibits and Poster Hall Open, Hall A (entrance at North Lobby)
- 9:00 A.M.—6:00 P.M.
View the Academic Family Tree, Hall A (entrance at North Lobby)
- 9:00 A.M.—6:00 P.M.
View Local Chapter Posters, Hall A/B (entrance at North Lobby)
- 9:00 A.M.—6:00 P.M.
View Historical Instruments, Hall A (entrance at North Lobby)
- 10:00—10:30 A.M.
Morning Coffee Break ☕
- 10:00—10:30 A.M.
Meet President Jenni Evans, AMS Booth, Hall A
- 10:30—12:00 P.M.
Oral Sessions
- 10:30—12:00 P.M.
Presidential Forum Session 5—The Future of Financial Weather and Climate Risk Management. Part II: Climate Extremes, 252B
- 10:30—12:00 P.M.
Presidential Forum Session 6—Bridging the Gulf between Meteorologists and Humanitarian Operations, 210AB
- 12:00—1:30 P.M.
Lunch Break
- 12:00—1:30 P.M.
Women in the Atmospheric Sciences Luncheon, 205C
- 12:15—1:15 P.M.
Town Hall Meetings and Side Panels
- 1:00—1:20 P.M.
Daily Weather Briefing, 157C
- 1:30—2:30 P.M.
Oral Sessions
- 1:30—2:30 P.M.
Walter Orr Robert Lecture, 151B
- 2:30—3:00 P.M.
Afternoon Coffee Break ☕
- 3:00—4:00 P.M.
Oral Sessions
- 4:00—6:00 P.M.
Formal Poster Viewing Reception 📄, Hall A/B (entrance at North Lobby)
- 6:00—7:00 P.M.
Town Hall Meetings and Side Panels
- 6:00—8:00 P.M.
Citadel Reception, Marina Ballroom IV, Westin Waterfront
- 6:00—10:00 P.M.
University Night Receptions, Westin Waterfront
- 7:00 P.M.—9:00 P.M.
Robert Dickinson Dinner (ticketed event), 205C

Wednesday, 15 January

- 7:30 A.M.—6:00 P.M.
• Registration Open, North Lobby
• Info Desk Open, North Lobby
• Member Services Desk Open, North Lobby
• Quiet Room Open, Commonwealth C, Westin Waterfront
• Speaker Ready Room Open, 102B
- 8:30—10:00 A.M.
Oral Sessions
- 8:30 A.M.—4:00 P.M.
ASLI Conference, 259B
- 9:00—10:00 A.M.
Guest Coffee, Hancock, Westin Waterfront
- 9:00 A.M.—6:00 P.M.
Exhibits and Poster Hall Open, Hall A (entrance at North Lobby)
- 9:00 A.M.—6:30 P.M.
View the Academic Family Tree, Hall A (entrance at North Lobby)
- 9:00 A.M.—6:30 P.M.
View Local Chapter Posters, Hall A/B (entrance at North Lobby)
- 9:00 A.M.—6:00 P.M.
View Historical Instruments, Hall A (entrance at North Lobby)
- 8:30 A.M.—4:00 P.M.
Wayne Shubert Symposium, 201C
- 9:00 A.M.—6:00 P.M.
Global Weather Enterprise Forum, Grand Ballroom E, Westin Waterfront
- 10:00—10:30 A.M.
Morning Coffee Break ☕
- 10:00—10:30 A.M.
Meet President Jenni Evans, AMS Booth, Hall A
- 10:30 A.M.—12:00 P.M.
Oral Sessions
- 10:30 A.M.—12:00 P.M.
Presidential Forum Session 7—An Engineer, a Climatologist, and a Social Scientist Walk into a Bar... Tough Choices on a Warming Planet, 210AB
- 12:00—1:30 P.M.
Lunch Break
- 12:15—1:15 P.M.
Town Hall Meetings and Side Panels
- 12:15—1:15 P.M.
Presidential Town Hall Meeting: Confronting Bullying, Discrimination, and Harassment in the Geosciences, 210AB
- 12:00—1:30 P.M.
Wayne Shubert Luncheon (ticketed event), 205C
- 1:00—1:20 P.M.
Daily Weather Briefing, 157C
- 1:00—5:00 P.M.
Oral History Interviews, Elm I and Elm II, Westin Waterfront
- 1:00—6:00 P.M.
Free Legal Consultations (provided by the Climate Science Legal Defence Fund), Executive Boardroom, Westin Waterfront
- 1:30—4:00 P.M.
The Symposium on Diversity, Equity, and Inclusion Workshop on Work Climate: Responding to Sexual Harassment, 205C
- 1:30—2:30 P.M.
Robert E. Horton Lecture, 253C
- 1:30—2:30 P.M.
Oral Sessions
- 2:30—3:00 P.M.
Afternoon Coffee Break ☕
- 3:00—4:00 P.M.
Oral Sessions
- 4:00—6:00 P.M.
Formal Poster Viewing Reception 📄, Hall A/B (entrance at North Lobby)
- 5:30—6:30 P.M.
Exhibit Hall Networking Reception, Hall A/B (entrance at North Lobby)
- 6:30—9:00 P.M.
Centennial Celebration 🎉, Ballroom

Thursday, 16 January

- 7:30 A.M.—3:00 P.M.
Registration Open, North Lobby
- 7:30 A.M.—3:00 P.M.
Info Desk Open, North Lobby
- 7:30 A.M.—3:00 P.M.
Member Services Desk Open, North Lobby
- 7:30 A.M.—3:00 P.M.
Quiet Room Open, Commonwealth C, Westin Waterfront
- 7:30 A.M.—5:00 P.M.
Speaker Ready Room Open, 102B
- 8:30 A.M.—5:00 P.M.
Oral Sessions
- 8:30 A.M.—4:00 P.M.
ASLI Conference
- 9:00 A.M.—12:00 P.M.
Exhibit Hall Open
- 9:00 A.M.—12:00 P.M.
View Historical Instruments
- 9:00 A.M.—5:00 P.M.
Oral History Interviews
- 9:30—10:30 A.M.
Exhibit Hall Breakfast ☕
- 10:00—10:30 A.M.
Meet President Jenni Evans
- 10:30 A.M.—12:00 P.M.
Oral Sessions
- 12:00—1:30 P.M.
Lunch Break
- 12:15—1:15 P.M.
Town Hall Meetings and Side Panels
- 12:15—1:15 P.M.
Presidential Town Hall Meeting—Pathways to Tackling Future Challenges
- 1:00—1:20 P.M.
Daily Weather Briefing
- 1:00—4:00 P.M.
Sustainability Tour at Boston University (ticketed event)
- 1:30—3:00 P.M.
Oral Sessions
- 1:30—5:30 P.M.
Free Legal Consultations (provided by the Climate Science Legal Defence Fund)
- 2:30—3:00 P.M.
Afternoon Coffee Break ☕
- 3:30—5:00 P.M.
Oral Sessions
- 5:00 P.M.
Meeting Adjourns

MOBILE APP

The 100th AMS Annual Meeting Mobile App is due to be released in early December. Check here for information: <https://annual.ametsoc.org/index.cfm/2020/programs/mobile-app/>.



ATTENDING THE 100TH ANNUAL MEETING

AMS Info Desk

Lost? Have a question about the Annual Meeting? Need to print a boarding pass? Stop by the AMS Info Desk, located in the North Lobby of the BCEC during the following hours:

Saturday, 11 January 2020, 7:30 A.M.–6:00 P.M.

Sunday, 12 January 2020, 7:30 A.M.–6:00 P.M.

Monday, 13 January 2020, 7:30 A.M.–6:00 P.M.

Tuesday, 14 January 2020, 7:30 A.M.–6:00 P.M.

Wednesday, 15 January 2020, 7:30 A.M.–6:00 P.M.

Thursday, 16 January 2020, 7:30 A.M.–3:00 P.M.

AMS Connect

Attendees are invited to stop by AMS Connect to check their email, surf the web, and view an online version of the technical program. AMS Connect stations locations are NE Lobby, Level 1 and Northwest Pre-function, Level 2.

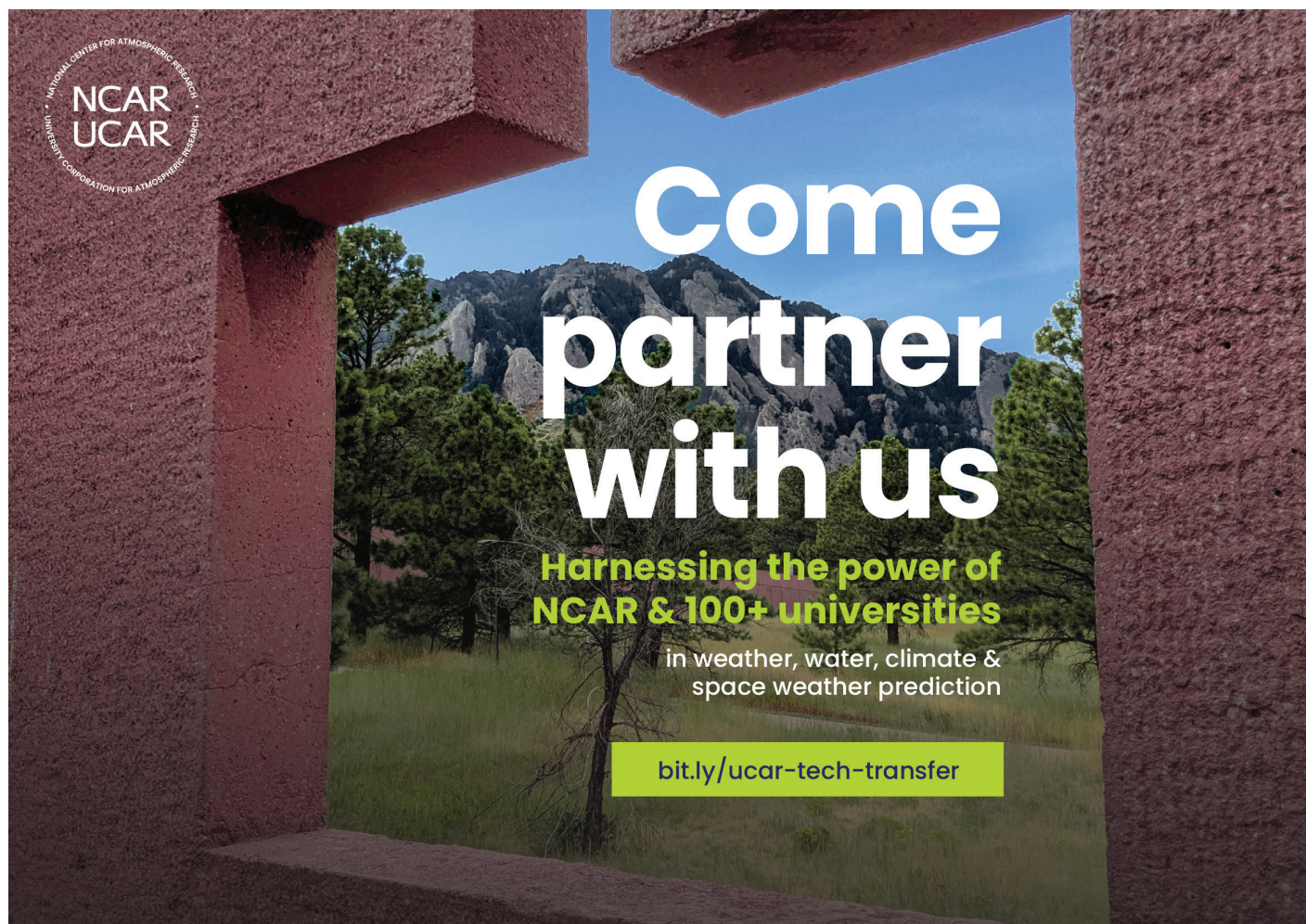
Beacons

The AMS Beacons Program is rooted in former Executive Director Kenneth Spengler's legacy of fostering the AMS as an open, inclusive, and welcoming organization. At the 100th AMS Annual Meeting, Beacons will once again be available to assist anyone in attendance—from the first-timer who needs directions to a seasoned attendee who needs some timely and thoughtful advice. Beacons, who may be identified by their bright yellow lanyards, are a volunteer, complementary resource to the AMS staff and are trained on what questions and information should be referred to AMS staff members. For information on how to volunteer as a Beacon, contact Beth Farley, AMS director of Member Services (tel: 617-226-3910; e-mail: bfarley@ametsoc.org).

Newcomer's Welcome and Informational Exchange

Sunday, 12 January 2020, 2:30 P.M.–3:30 P.M., 104A

This session is designed to provide first-time attendees with an overview of the Annual Meeting and suggestions on how



to get the most out of their time while attending the meeting. All attendees and exhibitors are encouraged to attend.

Photo Ops at the 100th Annual Meeting

AMS Letters

Don't miss an opportunity to pose with the life-size AMS letters and Boston skyline, located in the Northwest Lobby of the BCEC.

Attendee Map

Where are you from? AMS wants to know, so be sure to make time to mark the beginning of your journey on the Attendee map, located in the North Lobby of the BCEC.

Centennial Selfie

Snap a photo in front of the Centennial backdrop, located in the North Lobby of the BCEC and share on social media with #AMS100.

New AMS Logo

Capture the new look of AMS by posing with the Society's new logo, which will bring AMS into its second century of serving the weather, water, and climate communities. The new logo design will be on display in the AMS Booth, No. 335, Exhibit Hall A.

Life-Size BAMS Cover

Ever wanted the chance to put yourself on the cover of the Bulletin of the American Meteorological Society? BAMS is the flagship magazine of AMS and publishes articles of interest and significance for the weather, water, and climate communities as well as news, editorials, and reviews for AMS members. A life-size BAMS cover will be located in the AMS Booth, No. 335, Exhibit Hall A.

Accommodations

<https://annual.ametsoc.org/index.cfm/2020/travel/hotels/>

Attendees are encouraged to book their reservations at AMS-contracted hotels to help the Society avoid penalties

for not filling its hotel block. This will help slow the rate of growth in registration fees.

Westin Boston Waterfront (Headquarters)

425 Summer Street, Boston, MA 02210

Distance to BCEC: The Westin is connected to the Convention Center by a sky bridge.

Element Boston Seaport District (Coheadquarters)

391–395 D Street, Boston, MA 02210

Distance to BCEC: 1 block (3-minute walk)

Aloft Boston Seaport District (Coheadquarters)

401–403 D Street, Boston, MA 02210

Distance to BCEC: 1 block (3-minute walk)

Renaissance Boston Waterfront

606 Congress Street, Boston, MA 02210

Distance to BCEC: 0.3 miles (8-minute walk)

Seaport Hotel

One Seaport Lane, Boston, MA 02210

Distance to BCEC: 0.3 miles (7-minute walk)

Yotel Boston

65 Seaport Boulevard, Boston, MA 02210

Distance to BCEC: 0.5 miles (10-minute walk)

Hyatt Regency Boston

1 Avenue de Lafayette, Boston, MA 02111

Distance to BCEC: 1.0 mile (19-minute walk)

This hotel is closer to AMS Headquarters.

Buses will be available for attendees.

Omni Parker House

60 School Street, Boston, MA 02108

Distance to BCEC: 1.2 miles (25-minute walk)

This hotel is closer to AMS Headquarters.

Buses will be available for attendees.

Boston Park Plaza

50 Park Plaza, Boston, MA 02116

Distance to BCEC: 1.5 miles (30-minute walk)

This hotel is closer to AMS Headquarters. Buses will be available for attendees.



Transportation

<https://annual.ametsoc.org/index.cfm/2020/travel/transportation/>

Getting around Boston

AMS encourages all attendees to use public transportation to and from the airport and around Boston. For additional information, please look here: <https://www.bostonusa.com/plan-your-trip/getting-around/>.

MBTA

Boston's public transportation system is operated by the Massachusetts Bay Transportation Authority (MBTA), and is simply called the "T" by locals. Service is available from several T stations and bus stops. The nearest bus stop to the BCEC is at Summer Street and World Trade Center Avenue. The No. 7 bus takes passengers to South Station, where they can connect with the Silver Line (to Logan Airport), the Red Line (downtown Boston and Cambridge), Commuter Rail (suburban points), and Amtrak (rail). The closest T stop is World Trade Center, where riders can take the Silver Line directly to Logan Airport or South Station. More information is available at the MBTA's website: <https://www.mbta.com/>.



Ride Share

Uber: <https://www.uber.com/global/en/cities/boston/>
Lyft: <https://www.lyft.com/rider/cities/boston-ma>

Taxi Information

Taxi service is available throughout the city. Current fares are approximately \$25.00–\$35.00, one way to/from Logan Airport.

Taxi options include the following companies:

Boston Cab: 617-536-5010
City Cab: 617-536-5100

Independent Taxi (ITOA):
617-825-4000

Announcing the NEW Graduate Certificate Program in **SPACE WEATHER and ENVIRONMENT:** Science, Policy & Communication

Expert Instructors | Fully Online Delivery
15 Credit Hours | Fully Accredited Program
Complete in one year | Rolling Admission
Contemporary Curriculum

ACCEPTING APPLICATIONS NOW millersville.edu/swen



SPACE IS THE PLACE
MILLERSVILLE IS YOUR TICKET

Millersville University

Millersville University is an Equal Opportunity/Affirmative Action institution. A member of Pennsylvania's State System of Higher Education. 7845-CST-1119-CL

Metro Cab: 617-782-5500

Town Taxi: 617-536-5000

Top Cab: 617-266-4800

Food and Entertainment

There are many dining and entertainment options in and around Boston's Seaport District. A neighborhood map is available at the end of the program book. Please visit the Annual Meeting Travel Page (<https://annual.ametsoc.org/index.cfm/2020/travel/>) or the Visit Boston website (<https://www.bostonusa.com/>) for full details.

Visitor Services Desk

Visit Boston will staff a booth where attendees can ask questions about the city of Boston and surrounding areas, get directions, restaurant recommendations, as well as information on things to do and see while visiting. The desk is located in the North Lobby of the BCEC and will be staffed during the following hours:

Saturday, 11 January 2020, 8:30 A.M.–6:00 P.M.

Sunday, 12 January 2020, 8:30 A.M.–6:00 P.M.

Monday, 13 January 2020, 8:30 A.M.–6:00 P.M.

Tuesday, 14 January 2020, 8:30 A.M.–6:00 P.M.

Wednesday, 15 January 2020, 8:30 A.M.–6:00 P.M.

Thursday, 16 January 2020, 8:30 A.M.–3:00 P.M.

Student Support

Travel and Best Presentation Awards

Many conferences and symposia offer travel awards as well as award certificates and cash prizes for the best student oral and poster presentations given at the Annual Meeting. Check out this page for specifics: <https://annual.ametsoc.org/index.cfm/2020/your-annual/student/student-award-opportunities/>.

100 Years/100 Students Fund:

In celebration of its 100th Anniversary, AMS has set a goal of sending 100 students to the 2020 Annual Meeting in Boston.

Childcare Grant

The American Meteorological Society offers childcare grants of up to \$400 per family to assist conference attendees who will incur additional expenses by attending the Annual Meeting. Limited funds are available, and preference is given to applicants in the early stages of their career. As a secondary criterion, preference is given to applicants who explain clearly why a grant to support childcare, dependent care, or their own assistance is necessary.

Mother's Room

BCEC

The Mamava Nursing Pod is located in the BCEC on the southeast side of 1st level, adjacent to the restrooms. Please note, the pod is accessible through the Mamava app. For

more information regarding the app, view the Mamava FAQ page: <https://www.mamava.com/faq>. Please see the AMS Registration Desk for assistance.

Westin Waterfront:

The mother's room is located in the Marina Ballroom Coatroom. Please see AMS Staff in the Frost Room or contact Marissa Welch at mwelch@ametsoc.org to obtain a key.

Quiet Room

Attendees looking for a quiet place to relax between sessions or collect their thoughts before your presentation are advised that the Quiet Room, located in Commonwealth C of the Westin Waterfront Hotel, will be open during the following hours for those seeking a moment of respite or quiet reflection:

Monday, 13 January 2020, 7:30 A.M.–6:00 P.M.

Tuesday, 14 January 2020, 7:30 A.M.–5:00 P.M.

Wednesday, 15 January 2020, 7:30 A.M.–6:00 P.M.

Thursday, 16 January 2020, 7:30 A.M.–3:00 P.M.

Business Center

The FedEx Office Print and Ship Center is conveniently located inside the BCEC at 415 Summer Street. For more information, visit their website: <https://local.fedex.com/ma/boston/office-1323/>.

Dietary Restrictions

Attendees with special dietary requirements (e.g., vegetarian or kosher meals) should visit the AMS Registration Desk.

Photo Release

From time to time AMS uses photographs of conference events in its promotional materials. Unless this permission is revoked in writing to AMS, by virtue of their attendance all conference visitors agree to the use of their likeness in such materials.

Attendee Lists

AMS will make attendee lists available to any registered attendee. Attendees who do not want their name and address information included on the list must note this at the time of their registration. Please send an email (amsmtgs@ametsoc.org) to request a copy of the attendee list. The list will only be delivered in an electronic format and will contain names, addresses, and affiliations (if provided). No phone numbers or email addresses will be provided.

AMS Open Meetings

Throughout the week, AMS Committees, Boards, and the Council will be meeting at various times and locations. These meetings are, in principle, open to all members of

the Society, although portions of some meetings may be held in executive sessions when dealing with personnel issues, awards, or other matters of a confidential nature.

As a matter of courtesy and to ensure adequately sized meeting rooms, members wishing to observe a particular Committee, Board, or Council Meeting should contact its chairperson in advance. Members may request a place on the agenda by following a similar procedure. Please feel free to contact Jen Ives (jives@ametsoc.org) for more information.

Safe and Inclusive Meetings

Professional and Respectful Conduct at AMS Meetings

Need to report unprofessional or disrespectful conduct? Email conduct@ametsoc.org or call 617-226-3965.

- AMS is committed to safe and inclusive meetings for all attendees.
- Harassment, intimidation, or discrimination of any kind will not be tolerated at any meeting or event associated with the meeting.
- All communication should be appropriate for a professional audience including people of many different backgrounds. Be inclusive and respectful
- Those who violate the standards of professional and respectful conduct may be asked to leave the meeting immediately and without refund, may not be considered for service on AMS Boards and Committees, and may be subject to additional legal action.
- Harassment, intimidation, or discrimination includes offensive comments and actions related to age, gender and gender identity, sexual orientation, disability, physical appearance, body size, race, religion; sexual images in public spaces; deliberate intimidation, stalking, or following; harassing photography or recording; sustained disruption of talks or other events; inappropriate physical contact; and unwelcome sexual attention.
- Any attendee who is the subject of unacceptable behavior or who has witnessed any such behavior, is advised to immediately take the following steps:
 - Notify an AMS Staff Member (who will be wearing a blue ribbon)
 - Email conduct@ametsoc.org or call 617-226-3965
 - Email the AMS Executive Director, Keith Seitter (kseitter@ametsoc.org)
- Attendees who witness or experience behavior that constitutes an immediate and serious threat are advised to call 911.
- Members of the response team include the following:
 - Keith Seitter, Executive Director
 - Stephanie Armstrong, Associate Executive Director
 - Brian Papa, Associate Executive Director
 - Jen Ives, Senior Meetings Manager

- Claudia Gorski, Director of Meetings
- Wendy Abshire, Education Program Director

Inclusivity at AMS

AMS is committed to creating an environment for meetings that “embraces diversity through the inclusion of individuals across age, gender, race, sex, nationality, ethnicity, physical ability, marital status, sexual orientation, body shape or size, gender identity and expression, socioeconomic status, and other facets of social diversity” (see: <https://www.ametsoc.org/ams/index.cfm/about-ams/diversity-and-inclusion-at-ams/>).

Inclusivity at the 100th Annual Meeting

AMS is committed to, and benefits from the full and equitable participation of a diverse community in its membership, in its activities, and in the audiences that it serves.

Plans for making the 100th Annual Meeting inclusive for all include the following actions:

- Any meeting participant will be able to honor the languages they speak with a sticker for their badge.
- AMS Meetings Staff arranges accessibility accommodations according to the Americans with Disabilities Act (ADA).
- AMS Meetings staff ensures that gender neutral/family restrooms are available to meeting attendees.
- More information on Inclusivity services and events planned for the 100th Annual Meeting can be found at <https://annual.ametsoc.org/index.cfm/2020/your-annual/safe-and-inclusive-meetings/>

Accessibility at the 100th Annual Meeting

ADA

It is the Society’s sincere desire to comply fully with both the letter and the spirit of the Americans with Disabilities Act (ADA) of 1990. For questions about accessibility, such as real-time captioning [communication access real-time translation (CART)], special printing needs, or reserved seating, or if issues arise on site in Boston, attendees are invited to visit the AMS Registration Desk. While four-week advance notice is recommended to ensure seamless action, AMS staff will do everything possible to help ensure that each attendee’s stay at the 100th Annual Meeting is a pleasant and productive one. Special housing needs should have been requested when hotel reservations were made.

ADA Office in Boston: <https://www.newenglandada.org/>.

Accessibility at the BCEC:

The BCEC is accessible to patrons with disabilities. Please see the complete guide on accessibility: <https://www.signatureboston.com/attend/ada-information>.

A limited number of wheelchairs are available free of charge for guest convenience at the BCEC.

Caretakers:

AMS welcomes those who assist others in need during the 100th Annual Meeting. Caretakers are individuals who attend the meeting to assist with childcare or those with ADA needs. Individuals may register for free at the AMS Registration Desk located in the North Lobby of the BCEC; valid identification is required.

REGISTRATION

<https://annual.ametsoc.org/index.cfm/2020/registration/>

The Annual Meeting Registration Desk (North Lobby of the BCEC):

Hours:

Saturday, 11 January 2020, 7:30 A.M.–8:00 P.M.

Sunday, 12 January 2020, 7:30 A.M.–8:30 P.M.

Monday, 13 January 2020, 7:30 A.M.–6:00 P.M.

Tuesday, 14 January 2020, 7:30 A.M.–6:00 P.M.

Wednesday, 15 January 2020, 7:30 A.M.–6:00 P.M.

Thursday, 16 January 2020, 7:30 A.M.–3:00 P.M.

Preregistration and Registration Policies:

Everyone presenting (both oral and poster) and/or attending the 100th AMS Annual Meeting must register and wear a badge. Early registration rates are valid through Tuesday, 3 December 2019.

Refunds (less a \$25 processing fee) are granted for cancellations received on or before 21 December 2019.

After 21 December, refunds for canceled registrations will not be granted.

By registering for the AMS Annual Meeting, attendees are agreeing to adhere to the Professional and Respectful Conduct at AMS Meetings policy.

Abstract Fee: Please note that the abstract fee of \$95 is refundable only if the abstract is not accepted.

Cosponsoring Societies:

The following societies are cosponsoring the 2020 AMS Annual Meeting: Canadian Meteorological and Oceanographic Society (CMOS), Indian Meteorological Society (IMS), Australian Meteorological and Oceanographic Society (AMOS), American Geophysical Union (AGU), Chinese Meteorological Society (CMS), European Meteorological Society (EMS), American Academy of Environmental Engineers & Scientists (AAEES), American Society of Agronomy (ASA), and The Oceanography Society.

Guest Registration:

All registered attendees for the 100th Annual Meeting may bring up to two guests to the meeting. Each guest will be required to wear a badge, which can be picked up at the registration desk, and be accompanied by a registered attendee.

Guests will not be able attend sessions but are allowed into town hall meetings, formal poster viewings/receptions, the exhibit hall, coffee breaks and the Centennial Celebration. Guest badges are available for purchase at \$50.00 each.

Please note that in order for a guest to attend food functions or excursions, the attendee will need to purchase an additional ticket during online registration or at the AMS Registration Desk. For guests attending only ticketed functions, attendees who have purchased an additional ticket for a guest to join you at a function may have their guest join them at that function without purchasing a guest badge. However, attendees who do not purchase a guest badge will not be able to have their guest join them at exhibits, poster viewings, and coffee breaks.

Children age 12 and under: Guests who are 12 and under are eligible for a complimentary guest badge. It is not necessary to purchase a guest badge online for a child attending the Annual Meeting. Attendees with children should visit the AMS Registration Desk located in the North Lobby of the BCEC to pick up a guest badge at no charge.

Attendees looking to purchase more than two guest badges, or who have any questions regarding guest badges, should contact the Meetings Department staff (meetings@ametsoc.org).

Press Registration:

The AMS operates a Press Room each year at the Annual Meeting, which provides an excellent opportunity for media with a plethora of presentations, special programs, and exhibits. This year the Press Room is located in Room 103 of the BCEC. Eligibility for press registration is limited to the working press and freelance science writers with appropriate identification, as well as public information officers of scientific societies, educational institutions, and government agencies.

In completing AMS Press Registration, the following conditions must be agreed to:

- No videotaping is allowed within session rooms.
- Press members are expected to adhere to the same guidelines as attendees when it comes to Professional and Respectful Conduct at AMS Meetings.
- Press credentials are provided as a courtesy by AMS and may be revoked by AMS if in its sole judgment an attendee's presence at the meeting is in any way disruptive.

Special Conference Registration:

Admittance to the following conferences are not included in AMS Annual Meeting Registration and must be purchased separately:

19th Annual AMS Student Conference and Career Fair, 11–12 January 2020

Eighth AMS Conference for Early Career Professionals, 12–13 January 2020

23rd Conference of Atmospheric Science Librarians International, 15–16 January 2020

INFORMATION FOR PRESENTERS

All authors should visit the AMS Abstract Author and Presenters page (<https://www.ametsoc.org/index.cfm/ams/meetings-events/abstract-author-and-presenter-information/>) to learn more about managing their abstracts online and presenting their work at an AMS meeting. For more detailed information about presenting at the 100th Annual Meeting, please visit <https://annual.ametsoc.org/index.cfm/2020/your-annual/authors-and-presenters/>.

Important dates:

Edit abstract title and author list, 1 November 2019

Upload presentation file before the meeting, 30 December 2019

Upload supplementary information, 16 February 2020

Login details for the Presenter's Corner can be found in the presenter's abstract initiation and abstract acceptance notification emails. To have these emails resent, please contact the AMS Meetings Department (meetings@ametsoc.org).

Information for Oral Presenters

Loading Presentations during the Meeting:

On site, speakers may upload their presentations onto the Speaker Ready Room computers, which are networked to the proper meeting room. The use of personal laptops for presentations, which can cause technical delays and cut into a presenter's time, is discouraged.

Presenters who choose to load their presentations at the meeting will be required to use special installer software running on the Speaker Ready Room PC, which is networked to the meeting room PC. These presenters will not be permitted to store their files on the PC desktop. Instead, the installer software will automatically create a special directory for those files. Once stored to the directory, presenters will be able to check that their files were copied and that they will run properly.

Presenters who have questions, are invited to visit the Speaker Ready Room in 102B of the BCEC during the following hours:

Sunday, 12 January 2020, 12:00–3:45 P.M.

Monday, 13 January 2020, 7:30 A.M.–6:00 P.M.

Tuesday, 14 January 2020, 7:30 A.M.–6:00 P.M.

Wednesday, 15 January 2020, 7:30 A.M.–6:00 P.M.

Thursday, 16 January 2020, 7:30 A.M.–5:00 P.M.

Presentation File Guidelines:

The aspect ratio for the projectors in the session rooms at the 100th Annual Meeting is 16:9, with a resolution of 1280 × 720.

The file size limit for premeeting upload is 200 MB. If a file exceeds the size limit, presenters will have the



opportunity to upload their presentation at the meeting in the Speaker Ready Room.

The following file types may be uploaded: PDF document (*.pdf), Word document (*.doc), DOCX file (*.docx), RTF document (*.rtf), PowerPoint presentation (*.ppt), PowerPoint presentation (*.pps), PPTX file (*.pptx), or PPSX file (*.ppsx).

Recording of Presentations:

In an attempt to expand the audience for presentations and to provide a more complete and permanent record of the authors' remarks, AMS would like to record the voices of authors and their slides as their presentations are being made in cases where authors are willing to grant AMS permission. To facilitate the recordings, and to make things easier for all attending the meeting, presenters are asked to load their presentation well in advance of the scheduled presentation time. Recorded presentations will be available on from the conference program for free 4–6 weeks after the meeting ends.

Copyright of recorded presentations remains with the author(s). Permission to use figures, tables, and brief excerpts from presentations is granted provided that the source is acknowledged. Any use of material in presentations that is determined to be "fair use" under § 107 of the U.S. Copyright Act or that satisfies the conditions specified in § 108 of the U.S. Copyright Act (17 USC § 108, as revised by P.L. 94-553) does not require the permission. Republication, systematic reproduction, password sharing, posting in the electronic form on other servers, or other uses of this material, excepted by the above statement, requires written permission or a license from the author(s).

Information for Poster Presenters

A poster support desk is located in Hall B of the BCEC. Presenters and attendees can access the Poster Hall through the East Registration on Sunday and Monday and through the North Lobby on Tuesday and Wednesday.

Poster Presentation Guidelines:

- For maximum viewing, a suggested setup completion time is noon (lunch).
- Posters will be set up, presented, and taken down on the same day.
- Poster boards at this meeting will be 4' × 8' (1.2 m × 2.4 m) double-sided Velcro covered panels. These panels have a horizontal/landscape orientation. Presenters are not permitted to move the boards or change the orientation.
- Only one accepted abstract/topic is allowed on each board.

Poster Setup, Viewing, and Teardown Times				
Day	Sunday	Monday	Tuesday	Wednesday
Location	Hall 3	Exhibit Hall 3	Exhibit Hall 3/4	Exhibit Hall 3/4
Setup Time	after 12:00 P.M.	after 9:00 A.M.	after 9:00 A.M.	after 8:00 A.M.
Formal Poster Viewing	6:30–8:30 P.M.	4:00–6:00 P.M.	4:00–6:00 P.M.	4:00–6:00 P.M.
Teardown Time*	by 8:30 P.M.	by 7:30 P.M.	by 6:00 P.M.	by 6:00 P.M.

*Posters not removed by the teardown time will be removed and recycled.

Chapter Poster Displays:

The chapter poster display is located in Hall A/B of the BCEC. Each chapter is allotted a 4' × 8' poster space to display content related to their local chapter history and recent activities. First-, second-, and third-place ribbons will be awarded to the best regular and student local chapter posters. Posters will be judged on content and design. For more information, please visit the Local Chapter Awards page.

Saturday, 11 January,	10:00 A.M.–6:00 P.M.
Sunday, 12 January,	8:00 A.M.–6:00 P.M.
Monday, 13 January,	8:00 A.M.–7:30 P.M.
Tuesday, 14 January,	8:00 A.M.–6:45 P.M.
Wednesday, 15 January,	8:00 A.M.–6:30 P.M.
Thursday, 16 January,	8:00 A.M.–12:00 P.M.

INFORMATION FOR GUESTS

Attendees traveling with a guest are encouraged to check out the Guest Program page (<https://annual.ametsoc.org/index.cfm/2020/your-annual/guests/>) to learn more about which events guests are welcome to attend, as well as special guest-only programming.

Guest Welcome and Information Desk

Guests are encouraged to stop by the Guest Welcome and Information Desk on Sunday, 12 January 2020, from 9:00 a.m. to 5:00 p.m. to learn more about the guest program. The Guest Welcome and Information Desk is located in the North Lobby of the BCEC.

EXHIBIT HALL

The AMS Annual Meeting is host to the largest exhibit program anywhere in the atmospheric, oceanic, and related sciences. Exhibitors come from all over the United States and abroad to showcase a wide range of products, publications, and services.

Exhibit Hours

Monday, 13 January	5:00–8:00 P.M. (internal walk-around 5:00–6:00 P.M.; ribbon cutting at 6:00 P.M.)
Tuesday, 14 January	9:00 A.M.–6:00 P.M.
Wednesday, 15 January	9:00 A.M.–6:30 P.M.
Thursday, 16 January	9:00 A.M.–12:00 P.M.

Have questions about Exhibits? Stop by the Onsite Exhibit Check-In Desk, located in the North Lobby of the BCEC.

Onsite Exhibit Check-In Desk Hours

For more information of exhibit check in, please contact Jenn Rosen, AMS Exhibits Manager (jrosen@ametsoc.org) or visit <https://annual.ametsoc.org/index.cfm/2020/exhibits/>.

AMS Booth

AMS Booth, No. 335, Exhibit Hall A

Attendees are invited to come see the new look of AMS in the AMS Booth! On display will be the Society's new logo, which will bring AMS into its second century of serving the weather, water, and climate communities. Attendees will also be able to learn about AMS membership and programs, including journals and books, certification, precollege and college education initiatives, student opportunities, the AMS Policy Program, local chapters, and AMS meetings. AMS provides many opportunities for everyone across its community, whether a student, an early career professional, or a seasoned veteran with years of experience. Be sure to stop by to learn more about AMS and take home some limited edition Centennial merchandise.

Meet AMS President, Jenni Evans:

Stop by the AMS Booth (No. 335, Exhibit Hall A) to meet AMS President, Jenni Evans. She'll be there to answer questions and get to know attendees from 10:00 a.m. to 10:30 a.m., Tuesday, Wednesday, and Thursday.



WEATHERFEST

Free of Charge and Open to All!

Join teachers, students, families, and weather enthusiasts of all ages at AMS's public outreach event, the 19th Annual WeatherFest. WeatherFest is a cool, fun, and fascinating look at all things weather, water, and climate. It will be taking place at the Westin Waterfront Hotel in the Galleria (lower level) from 12:00 to 4:00 p.m. Sunday, 12 January 2020.



AMS MEETS TWEETS AND BLOGS

With more than 4200 presentations being given at the 2020 AMS Annual Meeting in Boston, the best way to

stay up to date with all that is going on is by following all of the AMS social media channels.

Every day during the Annual Meeting, AMS publishes news, interviews, commentaries, updates, photos, and videos across multiple online channels:

The Front Page blog (www.blog.ametsoc.org) extends the reach of attendees and exhibitors beyond the BCEC walls to fellow members back home and to the general public. In addition to news and commentary during the week in Boston, the blog features special sessions, news about presenters, and tips for attendees, and explores the links between AMS science, the meeting agenda, and the world in the months leading up to the meeting.

All registered attendees have been automatically subscribed to the Daily Forecast, the Newsletter of the AMS Annual Meeting. With tips, updates, and meeting news, attendees should look for this newsletter in their inbox each day.

For the 100th AMS Annual Meeting, the AMS Community platform is hosting a special Event Community, specifically for meeting attendees. The Event Community is a designated online space where attendees can gather to talk about the meeting and whatever else comes up on the forum's discussion boards and connect with fellow attendees ahead of and during the meeting! Attendees who want to keep a finger on the pulse of all things Annual are encouraged to participate! Attendees were given the option to join the Event Community when registering for the 100th AMS Annual Meeting. Anyone who chose to do so can remove themselves from the Event Community at any time. Please contact the Member Community Coordinator (amscommunity@ametsoc.org) with any questions or concerns.

Follow the breaking stories and ongoing conversations at the Annual Meeting in real time on Facebook and Twitter. To stay up to date, be sure to "like" AMS on Facebook (www.facebook.com/ametsoc) and follow @ametsoc on Twitter and Instagram. The hashtag for the Annual Meeting is #AMS2020.

View AMS's new Social Media Wall, powered by GDIT, in the North Lobby of the BCEC to view a live social media feed and select video content throughout the Annual Meeting.



Thank You to the Sponsors of the 100th AMS Annual Meeting

Diamond

VAISALA

LOCKHEED MARTIN

Centennial Corporate Patron



Titanium

MAXIMUS Federal



Booz | Allen | Hamilton

Platinum

Gold

Peraton

GDIT

Silver

accenture

Northrop Grumman

SAIC
Redefining Ingenuity



UCAR | UNIVERSITY CORPORATION
FOR ATMOSPHERIC RESEARCH



L3HARRIS

FAST. FORWARD. 57

AMS100

AMERICAN METEOROLOGICAL SOCIETY
100TH ANNUAL MEETING | BOSTON | 2020

Food and Beverage Available for Purchase BCEC

Portable Outtakes | Ballroom Pre-Function

Saturday, January 11th 11:30am to 2:30pm
Monday, January 13th 11:30am to 2:30pm

Portable Outtakes | Show floor Hall A

Tuesday, January 14th 11:00am to 3:00pm
Wednesday, January 15th 11:00am to 3:00pm

Outtakes Quick Cuisine | North Lobby Level 1

Saturday, January 11th	7:00am to 4:00pm
Sunday, January 12th	7:00am to 6:30pm
Monday, January 13th	7:00am to 5:00pm
Tuesday, January 14th	7:00am to 5:00pm
Wednesday, January 15th	7:00am to 5:00pm
Thursday, January 16th	7:00am to 3:30pm

Wicked Good Market | South West Level 1

Sunday, January 12th (Sauce and Heat Only)	11:00am to 2:00pm
Monday, January 13th	11:00am to 2:00pm
Tuesday, January 14th	11:00am to 2:00pm
Wednesday, January 15th	11:00am to 2:00pm
Thursday, January 16th (Excludes Mex and Bowls)	11:00am to 2:00pm

**THE AMERICAN METEOROLOGICAL SOCIETY WOULD LIKE TO THANK THE STAC
BOARDS/COMMITTEES AND PROGRAM COMMITTEES FOR THEIR PARTICIPATION IN THE
100th AMS ANNUAL MEETING**

**20TH AMS PRESIDENTIAL FORUM—BROADCASTING
SOLUTIONS: MAKING CLIMATE CHANGE PERSONAL
PROGRAM COMMITTEE**

Raymond J. Ban, Chairperson
Ana P. Barros, Jenni L. Evans, Patrick A. Harr, Jamison S.
Hawkins, Makenzie Krocak, Craig McLean, Shali Mohleji,
and Marshall Shepherd

**ROBERT DICKSON SYMPOSIUM
PROGRAM COMMITTEE**

Leo Donner, Alan Robock, Richard Rood, and Xubin
Zeng, Co-Chairpersons

**WAYNE H. SCHUBERT SYMPOSIUM
PROGRAM COMMITTEE**

Paul Ciesielski, Richard Johnson, Chungu Lu, and Rosana
Nieto Ferreira

**SUSAN SOLOMON SYMPOSIUM
PROGRAM COMMITTEE**

Daniel Gilford and A. R. Ravishankara, Co-Chairpersons
Douglas Kinnison and Karen Rosenlof

**48th CONFERENCE ON BROADCAST METEOROLOGY
PROGRAM COMMITTEE**

Joe Murgo and Cheryl Nelson, Co-Chairpersons

BOARD OF BROADCAST METEOROLOGY

Tim Heller, 2019 Chairperson
Cheryl Nelson, 2020 Chairperson
Danielle Breezy, Matthew C. Elwell, Jordan Evans, Chris
W. Gilson, Joe Murgo, Brandon M. Rector, Karli A.
Ritter, Jorge A. Torres, Katie Walls, and Shel D.
Winkley

**36th CONFERENCE ON ENVIRONMENTAL
INFORMATION PROCESSING TECHNOLOGIES
PROGRAM COMMITTEE**

Scott Jacobs and Tiffany C. Vance, Co-Chairpersons

**BOARD ON ENVIRONMENTAL INFORMATION
PROCESSING TECHNOLOGIES**

Nazila Merati, Chairperson
Margaret Caulfield, Scott Collis, Marc Cotnoir, Max
Grover, Scott Jacobs, J. T. Johnson, Ian Lisk, Patrick
Marsh, Paul Pisano, Baudouin Raoult, Kevin Tyle, and
Tiffany C. Vance

**34th CONFERENCE ON HYDROLOGY
PROGRAM COMMITTEE**

Clara Draper, Mike Hobbins, and Sujay Kumar, Co-
Chairpersons

COMMITTEE ON HYDROLOGY

Martha Anderson, Konstantinos Andreadis, Matthew
Beitscher, Elias Deeb, Clara Draper, Kristie Franz, Dave
Gochis, Chris Hain, Nichole Hammond, Mike Hobbins,
Justin Huntington, Sujay Kumar, Tim Lahmers, John
McHenry, Joshua Roundy, and Melissa Wrzesien

**33RD CONFERENCE ON CLIMATE
VARIABILITY AND CHANGE
PROGRAM COMMITTEE**

Bin Guan and Isla Simpson, Co-Chairpersons

**COMMITTEE ON CLIMATE VARIABILITY AND
CHANGE**

Kerry H. Cook, Chairperson
Stephen R. Baxter, Bin Guan, Samson M. Hagos, Robert
L. Korty, Young-Oh Kwon, Zachary M. Labe, Gudrun
Magnusdottir, Carlos J. Martinez, Sumant Nigam, Bing
Pu, Walter A. Robinson, Brian E. J. Rose, Agniv
Sengupta, Isla R. Simpson, and Wassila Mamadou Thiaw

**30th WEATHER ANALYSIS and FORECASTING
(WAF)/26th NUMERICAL WEATHER PREDICTION
(NWP)**

PROGRAM COMMITTEE

Stephen W. Bieda III and Ryan A. Lagerquist, Co-
Chairpersons
Rebecca Adams-Selin, Stephanie Avey, Martin A. Baxter,
Kandis Boyd, Clark Evans, Aaron Hill, Joseph P. Koval,
Brandt Maxwell, Christopher D. McCray, Christopher
Melick, Louisa B. Nance, Sam Ng, Greg Stumpf,
Benjamin Trabling, Andrew Winters, and May Wong

**COMMITTEE ON WEATHER ANALYSIS AND
FORECASTING**

Rebecca Adams-Selin, Chairperson
Clark Evans, Vice-Chairperson
Cyrena-Marie Arnold, Robert F. Banks, Martin A.
Baxter, Alicia M. Bentley, Stephen W. Bieda III, Jason C.
Furtado, Gail L. Hartfield-Supina, Chasity Henson, Aaron
Hill, Joseph P. Koval, Ryan A. Lagerquist, Katie Magee,
Christopher D. McCray, Justin McLay, Shawn M. Milrad,
Louisa B. Nance, Joseph Slezak, Alex Tardy, Jennifer E.
Tate, Jerry W. Wegiel, and Nusrat Yussouf

**29th CONFERENCE ON EDUCATION
PROGRAM COMMITTEE**

Reginald Blake and Jeff Yuhas, Co-Chairpersons
Wendy Abshire, Staci Deschryver, Rick DiMaio, Janet
Liou-Mark, Danny Mattox, Shakila Merchant, and
Jon Nese

COMMITTEE FOR THE CONFERENCE ON EDUCATION

Reginald Blake and Jeffrey A. Yuhas, Co-Chairpersons
Staci M. DeSchryver, Zachary Handlos, Janet Liou-Mark,
Danny E. Mattox, Shakila Merchant, and Jon M. Nese

**26TH CONFERENCE ON PROBABILITY AND
STATISTICS****PROGRAM COMMITTEE**

William Campbell, Andrew Geyer, Dan Hodyss, Tara
Jensen, and Elizabeth Satterfield

COMMITTEE ON PROBABILITY AND STATISTICS

Elizabeth Satterfield, Chairperson

Andrew Geyer, Vice-Chairperson

Alexandra Anderson-Frey, William Campbell, Jason
Giovannettone, Harry Glahn, Dan Hodyss, Tara Jensen,
Amy McGovern, Andrew Poppick, Derek Posselt, Phillip
Shafer, Nick Slaughter (Student Member), David Unger,
Betsy Weatherhead, and Yu Zhang

**25th CONFERENCE ON APPLIED CLIMATOLOGY
PROGRAM COMMITTEE**

Robb Randall, Chairperson

Emily Becker, Trent Ford, and Natalie Umphlett

COMMITTEE ON APPLIED CLIMATOLOGY

Trent Ford, Chairperson

Robb Randall, Vice-Chairperson

Emily Becker, Elaine Godfrey, Olivia Kellner, Alek
Krautmann, Nina Oakley, Natalie Teale, Natalie
Umphlett, and Bernadette Woods Placky

**24th CONFERENCE ON INTEGRATED OBSERVING
AND ASSIMILATION SYSTEMS FOR THE
ATMOSPHERE, OCEANS, AND LAND SURFACE
(IOAS-AOLS)****PROGRAM COMMITTEE**

Robert Atlas and Sharanya J. Majumdar, Co-
Chairpersons

**23rd CONFERENCE of ATMOSPHERIC SCIENCE
LIBRARIANS INTERNATIONAL
PROGRAM COMMITTEE**

Lisa Fish, Chairperson

Amy Butros, Elise Gowen, Matt Mayernik, Jinny
Nathans, Christine Reed, Christine Sherratt, Fred Stoss,
and Brian Voss

**22nd CONFERENCE ON ATMOSPHERIC CHEMISTRY
PROGRAM COMMITTEE**

Jonathan H. Jiang, Chairperson

Abhishek Chatterjee, Emily V. Fischer, and Kenneth
Pickering, Co-Chairpersons

COMMITTEE ON ATMOSPHERIC CHEMISTRY

Jeffrey L. Collett Jr., Chairperson

Jonathan H. Jiang, Vice-Chairperson

Abhishek Chatterjee, Emily V. Fischer, Adele Igel,
William Lassman (Student Member), Xiaowen Li,
Zhanqing Li, Ottmar Moehler, Kenneth E. Pickering,
Nicole Riemer, Jun Wang, Yuan Wang, Shaocai Yu, and
Leiming Zhang

**22nd CONFERENCE ON PLANNED AND
INADVERTENT WEATHER MODIFICATION
PROGRAM COMMITTEE**

Trude Storelvmo and Sarah Tessendorf, Co-
Chairpersons

**COMMITTEE ON PLANNED AND INADVERTENT
WEATHER MODIFICATION**

Duncan Axisa, Randy Chase, Jen-Ping Chen, Jeff French,
Frank McDonough, and Greg McFarquhar

**21st JOINT CONFERENCE ON THE APPLICATIONS OF
AIR POLLUTION METEOROLOGY WITH THE
A&WMA****PROGRAM COMMITTEE**

Saravanan Arunachalam, Paul E. Bieringer, Vlad Isakov,
and Erik D. Kabela

**COMMITTEE ON METEOROLOGICAL ASPECTS OF AIR
POLLUTION**

Saravanan Arunachalam, Chairperson

Erik D. Kabela, Vice-Chairperson

Stefano Alessandrini, Paul E. Bieringer, Christina E.
Cecelski, Areana Flores, John Hannan, Denise Hertwig,
Vlad Isakov, Yaitza Luna-Cruz, Ariel Stein, and
Chenghao Wang (Student Member)

**20th SYMPOSIUM ON METEOROLOGICAL
OBSERVATIONS and INSTRUMENTATION
PROGRAM COMMITTEE**

Scott Landolt and Andrew Schwartz, Co-Chairpersons

COMMITTEE ON MEASUREMENTS

Scott D. Landlot, Chairperson

Andrew Schwartz, Vice-Chairperson

Joshua D. Aikins, Duncan Axisa, Kevin R. Brinson, David
Halliwell, Reid A. Hansen, Temple R. Lee, Alexandria G.
McCombs, and Michelle Rose Spencer

**20th CONFERENCE on AVIATION, RANGE, AND
AEROSPACE METEOROLOGY
PROGRAM COMMITTEE**

James Pinto and Mike Robinson

**COMMITTEE ON AVIATION, RANGE, AND
AEROSPACE METEOROLOGY**

Matt Fronzak, Chairperson
Ryan Decker, Vice-Chairperson
Corey Amiot, Rob Banks, Katelyn Barber, Randy Bass,
Gordon Brooks, Bruce Carmichael, Noelle Cudzilla,
Austin Cross, Judy Ghirardelli, Le Jiang, Jason Knieval,
Alex Mahalov, Cecilia Miner, Pat Murphy, John Pace,
James Pinto, Colleen Reiche, Mike Robinson, Adam
Thomas, Blaine Thomas, Matt Tucker, and William
Vaughan

**19th ANNUAL STUDENT CONFERENCE
PROGRAM COMMITTEE**

Matt Flournoy, Gaige Kerr, and Kenzie Krocak, Co-
Chairpersons
John Knox, Faculty Advisor
Aaron Alexander, Addison Alford, Margo Andrews,
Massey Bartolini, Jordan Benjamin, Heather Bricca, Lily
Campbell, Kristy Carter, Eli Dennis, Aryeh Drager, Lena
Dziechowski, Keenan Eure, Isabel Fajardo, Tyler Fenske,
Elena Fernandez, Meredith Fish, Megan Franke, Nick
Grondin, Glen Kendrick, Gaige Kerr, Jonathon
Klepatzki, John Knox, Kenzie Krocak, Quinton Lawton,
Andrew Mahre, Holly Mallinson, Rachel Miller, Angela
Mose, Shawn Murdzek, Hrag Najarian, Margaret Orr,
Christiaan Patterson, Jeremiah Piersante, Melissa Piper,
Ajay Raghavendra, Zoey Rosen, Aaron Scott, Kris
Tuftedal, and Ryann Wakefield

**19th CONFERENCE ON ARTIFICIAL INTELLIGENCE
FOR ENVIRONMENTAL SCIENCE
PROGRAM COMMITTEE**

David John Gagne, Carlos Gaitan, and Amy McGovern,
Co-Chairpersons

**COMMITTEE ON ARTIFICIAL INTELLIGENCE
APPLICATIONS TO THE ENVIRONMENTAL SCIENCES**

Philippe E. Tissot, Chairperson
Amy McGovern, Vice-Chairperson
David J. Gagne, Carlos F. Gaitan, Christiane Jablonowski,
Lucas Joppa, Evan Anton Kodra, Vipin Kumar, Ryan
Lagerquist, Valliappa Lakshmanan, Surya Karthik
Mukkavilli, Beth Ann Reid, Timothy Sliwinski, and
Thomas Vandal

**18th SYMPOSIUM ON THE COASTAL ENVIRONMENT
PROGRAM COMMITTEE**

Andre J. Van der Westhuysen, Chairperson

COMMITTEE ON THE COASTAL ENVIRONMENT
Andre J. Van der Westhuyse, Chairperson
Arthur Miller

**18th HISTORY SYMPOSIUM
PROGRAM COMMITTEE**
Lourdes B. Aviles, Chairperson

HISTORY COMMITTEE

Lourdes B. Aviles, Chairperson
Sim D. Aberson, Eugene W. Bierly, Warren Blier, James
R. Fleming, Gregory A. Good, Leslie M. Hartten, Jen
Henderson, William Henneberg, Laura Hoff, George N.
Kiladis, Terrence R. Nathan, and Sean Potter

**17th CONFERENCE ON SPACE WEATHER
PROGRAM COMMITTEE**

Richard Behnke and Barbara Thompson, Co-
Chairpersons

COMMITTEE ON SPACE WEATHER

Richard Behnke, Chairperson
Barbara Thompson, Vice-Chairperson
William Bauman III, Kelsey Doerksen, Alec Engell, Larisa
Goncharenko, Sara Housseal, Valbona Kunkel, Christina
Lee, Jeffrey Love, Scott McIntosh, Robert Robinson,
Robert Rutledge, James Spann, and Elsayed Talaat

**16th ANNUAL SYMPOSIUM ON NEW GENERATION
OPERATIONAL ENVIRONMENTAL SATELLITE
SYSTEMS**

PROGRAM COMMITTEE
Gary McWilliams, Chairperson
Mitch Goldberg, Michael Jamilkowski, Satya Kalluri, Dan
Lindsey, Stephen Mango, and Timothy J. Schmit

**COMMITTEE ON SATELLITE METEOROLOGY,
OCEANOGRAPHY, AND CLIMATOLOGY**

Kenneth Carey and Fuzhong Weng, Co-Chairpersons
Steven Ackerman, Jason Apke, Otis Brown, Carol
Clayson, Jordan Gerth, Mitchell Goldberg, Kenneth
Holmlund, Xianglei Huang, Edward Hyer, Michael
Johnson, George Kablick III, Brian Kahn, Elin McIlhatten,
and Kathryn Shontz

**IMPACTS: MAJOR WEATHER EVENTS AND
IMPACTS OF 2019**

PROGRAM COMMITTEE
Thomas Bedard, Owen Shieh, and Klaus Wolter

**15th SYMPOSIUM ON SOCIETAL APPLICATIONS:
POLICY, RESEARCH, AND PRACTICE**
PROGRAM COMMITTEE

Jennifer Henderson, Heather Lazrus, and Vanessa
Vincente, Co-Chairpersons

BOARD ON SOCIETAL IMPACTS

Kathleen Sherman-Morris, Chairperson
Kimberly E. Klockow McClain, Vice-Chairperson
Walker S. Ashley, Robert J. Berg, Kenneth A.
Blumenfeld, Greg Guibert, Jen Henderson, Nathan S.
Johnson, Makenzie Krocak, Zachary M. Labe, Heather
Lazrus, Michael S. Michaud, Daniel D. Nietfeld, Elisa
Raffa, Ebone Denise Smith, Jamie Vickery, Vanessa
Vincente, and Olga V. Wilhelmi

**15th SYMPOSIUM ON THE URBAN ENVIRONMENT
PROGRAM COMMITTEE**

Jorge Gonzalez, Chandana Mitra, and Dev Niyogi, Co-Chairpersons

BOARD ON THE URBAN ENVIRONMENT

Dev Niyogi, Chairperson
Jorge E. Gonzalez, Vice-Chairperson
Brian M. Freitag, Matei Georgescu, Chandana Mitra,
Negin Nazarian, Haider Taha, and Mukul Tewari

**12th SYMPOSIUM on AEROSOL–CLOUD–CLIMATE
INTERACTIONS**

PROGRAM COMMITTEE

Adele Igel, Ottmar Moehler, Nicole Riemer, and Yuan Wang, Co-Chairpersons

COMMITTEE ON ATMOSPHERIC CHEMISTRY

Jeffrey L. Collett Jr., Chairperson
Jonathan H. Jiang, Co-Chairperson
Abhishek Chatterjee, Emily V. Fischer, Adele Igel,
William Lassman (Student Member), Xiaowen Li,
Zhanqing Li, Ottmar Moehler, Kenneth E. Pickering,
Nicole Riemer, Jun Wang, Yuan Wang, Shaocai Yu, and
Leiming Zhang

**11th CONFERENCE ON WEATHER, CLIMATE,
WATER, AND THE NEW ENERGY ECONOMY
PROGRAM COMMITTEE**

Jeff Freedman and Eric Wertz, Co-Chairpersons

RENEWABLE ENERGY COMMITTEE

Jeff Freedman and John Zack, Co-Chairpersons
Rebecca J. Barthelmie, Caroline Draxl, Bri-Mathias
Hodge, William Holmgren, Jan P. Kleissl, Katherine L.
McCaffrey, Angel McCoy, Jessica M. Tomaszewski,
Aidan Tuohy, and John W. Zack

COMMITTEE ON ENERGY

Eric E. Wertz, Chairperson
Shunondo Basu, Jeremy D. Berman, Evan Caron,
Christopher T. Coleman, Rob D'Arienzo, Jeffrey Michael
Freedman, Zachary Freitag Johnson, Carrie Gillespie,
Jennifer L. Kafka, Kristin A. Larson, Ted W. Letcher,
Bradfield Lyon, and Ted Zarras

**11th CONFERENCE ON ENVIRONMENT AND HEALTH
PROGRAM COMMITTEE**

Kristie Ebi, Kacey Ernst, David Hondula, Hunter Jones,
and Jennifer Vanos

BOARD ON ENVIRONMENT AND HEALTH

Kristie L. Ebi, Chairperson
Jennifer Vanos, Vice-Chairperson
Karin Ardon-Dryer, John Balbus, Chris Boyer, Jean-Paul
Chretien, Kacey Ernst, Jeremy Hess, David Hondula,
Hunter Jones, Kim Knowlton, John Moore, Hannah
Nissan, Sebastian Rowland, Shubhayu Saha, Sheila
Steinberg, Chris Uejio, and Mary Wright

**10th SYMPOSIUM ON ADVANCES IN MODELING AND
ANALYSIS USING PYTHON
PROGRAM COMMITTEE**

Scott Collis, Chairperson
Hannah Aizenman, Scott Collis, Johnny Lin, Ryan May,
Sheri Mickelson, Daniel Rothenberg, and Jingyin Tang

**BOARD ON ENVIRONMENTAL INFORMATION
PROCESSING TECHNOLOGIES**

Nazila Merati, Chairperson
Margaret Caulfield, Scott Collis, Marc Cotnoir, Max
Grover, Scott Jacobs, J. T. Johnson, Ian Lisk, Patrick
Marsh, Paul Pisano, Baudouin Raoult, Kevin Tyle, and
Tiffany C. Vance

**10th SYMPOSIUM ON LIDAR ATMOSPHERIC
APPLICATIONS PROGRAM COMMITTEE**

James R. Campbell and John Yorks, Co-Chairpersons

COMMITTEE ON LASER ATMOSPHERIC STUDIES

James R. Campbell, Chairperson
Sunil Baidar, Timothy Berkoff, Catharine E. Bunn,
Gilberto Javier Fochesatto, Micheal M. Hicks, Shane D.
Mayor, Amin R. Nehrir, Rebecca Pauly, Kristen
Pozsonyi, Kevin Repasky, Sharon Rodier, Robert A.
Stillwell, Monique N. Walker, Tammy M. Weckwerth,
and John E. Yorks

**10th CONFERENCE ON TRANSITIONS OF RESEARCH
TO OPERATIONS
PROGRAM COMMITTEE**

Martin Yapur, Chairperson
Robert Bauer, Margaret Caulfield, Eric Fetzer, Young-
Joon Kim, Chandra Kondragunta, Stephen Mango, Eric
Miller, John Pereira, Vijay Tallapragada, and Jennifer
Bosch Webster

**COMMITTEE ON SATELLITE METEOROLOGY,
OCEANOGRAPHY, AND CLIMATOLOGY**

Kenneth Carey and Fuzhong Weng, Co-Chairpersons
Steven Ackerman, Jason Apke, Otis Brown, Carol
Clayson, Jordan Gerth, Mitchell Goldberg, Kenneth
Holmlund, Xianglei Huang, Edward Hyer, Michael
Johnson, George Kablick III, Brian Kahn, Elin McIlhatten,
and Kathryn Shontz

**EIGHTH AMS CONFERENCE FOR EARLY CAREER PROFESSIONALS
PROGRAM COMMITTEE**

Jordan Bell, Bill Burkey, Becky DePodwin, and Brad Johns

BOARD FOR EARLY CAREER PROFESSIONALS

Jared Rennie, Chairperson
Rebecca DePodwin, Chairperson-Elect
Matthew Anderson, Jordan Bell, Bill Burkey, Brad Johnson, Samuel Larsen, Elizabeth McGriffin, Rachael Peart, Matthew Rogers, Irene Sans, Stephen Strader, and Morgan Yarker

**EIGHTH SYMPOSIUM ON THE WEATHER, WATER, AND CLIMATE ENTERPRISE
Program Committee**

Becky DePodwin and Tanja Fransen, Co-Chairpersons

COMMISSION ON WEATHER AND CLIMATE ENTERPRISE

Pam Emch, Commissioner

**EIGHTH SYMPOSIUM ON BUILDING A WEATHER-READY NATION: ENHANCING OUR NATION'S READINESS, RESPONSIVENESS, AND RESILIENCE TO HIGH-IMPACT WEATHER EVENTS
PROGRAM COMMITTEE**

Trevor Boucher, Douglas Hilderbrand, Dave Jones, and Jennifer Sprague-Hilderbrand, Co-Chairpersons

BOARD ON SOCIETAL IMPACTS

Kathleen Sherman-Morris, Chairperson
Kimberly E. Klockow McClain, Vice-Chairperson
Walker S. Ashley, Robert J. Berg, Kenneth A. Blumenfeld, Greg Guibert, Jen Henderson, Nathan S. Johnson, Makenzie Krocak, Zachary M. Labe, Heather Lazrus, Michael S. Michaud, Daniel D. Nietfeld, Elisa Raffa, Ebone Denise Smith, Jamie Vickery, Vanessa Vincente, and Olga V. Wilhelmi

**EIGHTH SYMPOSIUM ON THE JOINT CENTER FOR SATELLITE DATA ASSIMILATION (JSCDA)
PROGRAM COMMITTEE**

James G. Yoe, Chairperson
Tom Auligne, Nancy Baker, Stan Benjamin, Kevin Garrett, Ron Gelaro, Daryl Kleist, and John McMillen

COMMITTEE ON SATELLITE METEOROLOGY, OCEANOGRAPHY, AND CLIMATOLOGY

Kenneth Carey and Fuzhong Weng, Co-Chairpersons
Steven Ackerman, Jason Apke, Otis Brown, Carol Clayson, Jordan Gerth, Mitchell Goldberg, Kenneth Holmlund, Xianglei Huang, Edward Hyer, Michael Johnson, George Kablick III, Brian Kahn, Elin McIlhatten, and Kathryn Shontz

**EIGHTH SYMPOSIUM ON THE MADDEN–JULIAN OSCILLATION AND SUBSEASONAL MONSOON VARIABILITY
PROGRAM COMMITTEE**

Juliana Dias and Naoko Sakaeda, Co-Chairpersons

COMMITTEE ON TROPICAL METEOROLOGY AND TROPICAL CYCLONES

Zhuo Wang, Chairperson
Scott A. Braun, Vice-Chairperson
Hugo Bellenger, Eric Blake, Daniel Chavas, Eric Hendricks, Kosuke Ito, Charles Jones, Hanh Nguyen, Robert G. Nystrom, Carl Schreck III, Hui Su, and Ming Zhao

**SIXTH SYMPOSIUM ON HIGH-PERFORMANCE COMPUTING FOR WEATHER, WATER, AND CLIMATE
PROGRAM COMMITTEE**

Marc Cotnoir, Gerry Creager, and Tim Sliwinski, Co-Chairpersons

BOARD ON ENVIRONMENTAL INFORMATION PROCESSING TECHNOLOGIES

Nazila Merati, Chairperson
Margaret Caulfield, Scott Collis, Marc Cotnoir, Max Grover, Scott Jacobs, J. T. Johnson, Ian Lisk, Patrick Marsh, Paul Pisano, Baudouin Raoult, Kevin Tyle, and Tiffany C. Vance

**FIFTH SYMPOSIUM ON SPECIAL SESSIONS ON U.S.–INTERNATIONAL PARTNERSHIPS
PROGRAM COMMITTEE**

Frederick Carr and Renee Leduc Clarke, Co-Chairpersons

INTERNATIONAL AFFAIRS COMMITTEE

Ghassem R. Asrar, Chairperson
Frederick Carr, Daniel DePodwin, Robert G. Goldhammer, John L. Hayes, Renee Leduc Clarke, Chungu Lu, James W. Peronto, Wassila Mamadou Thiaw, Roger M. Wakimoto, and Ming Xue

**FOURTH SYMPOSIUM ON MULTISCALE PREDICTABILITY: DATA–MODEL INTEGRATION AND UNCERTAINTY QUANTIFICATION FOR WEATHER, CLIMATE, AND EARTH SYSTEM MONITORING AND PREDICTION
PROGRAM COMMITTEE**

Roberto Buizza, Kerry Emanuel, and Graeme Stephens, Co-Chairpersons

**THIRD CONFERENCE ON EARTH OBSERVING SMALLSATS
PROGRAM COMMITTEE**

Philip Ardanuy, Chairperson
Bob Bauer, Michael Johnson, Larry Kepko, Alexander MacDonald, and Carl Schueler

**COMMITTEE ON SATELLITE METEOROLOGY,
OCEANOGRAPHY, AND CLIMATOLOGY**

Kenneth Carey and Fuzhong Weng, Co-Chairpersons
Steven Ackerman, Jason Apke, Otis Brown, Carol
Clayson, Jordan Gerth, Mitchell Goldberg, Kenneth
Holmlund, Xianglei Huang, Edward Hyer, Michael
Johnson, George Kablick III, Brian Kahn, Elin McIlhatten,
and Kathryn Shontz

**TROPICAL METEOROLOGY AND TROPICAL
CYCLONES SYMPOSIUM
PROGRAM COMMITTEE**

Scott Braun, Zhuo Wang, and Chun-Chieh Wu

**COMMITTEE ON TROPICAL METEOROLOGY AND
TROPICAL CYCLONES**

Zhuo Wang, Chairperson
Scott A. Braun, Vice-Chairperson
Hugo Bellenger, Eric Blake, Daniel Chavas, Eric
Hendricks, Kosuke Ito, Charles Jones, Hanh Nguyen,
Robert G. Nystrom, Carl Schreck III, Hui Su, and Ming
Zhao

**MIDDLE ATMOSPHERE ONE-DAY SYMPOSIUM
PROGRAM COMMITTEE**

Sean Davis and Rei Ueyama, Co-Chairpersons

COMMITTEE ON MIDDLE ATMOSPHERE

Amy Butler, Chairperson
Margaret Hurwitz, Vice-Chairperson
Marta Abalos, Natalia Calvo, Sean Davis, Laura Holt,
Simon Lee, Nathaniel Livesey, Andrea Lopez Lang,
Raymond Plumb, Rei Ueyama, and Krzysztof Wargan

**SEVERE LOCAL STORMS ONE-DAY SYMPOSIUM
PROGRAM COMMITTEE**

Curtis R. Alexander, Chairperson

COMMITTEE ON SEVERE LOCAL STORMS

Curtis R. Alexander, Chairperson
John T. Allen, Tanya M. Brown, Matthew J. Bunkers,
Casey Davenport, Julie Demuth, Jared L. Guyer, Pamela
Heinselman, Therese Thompson Ladwig, James N.
Marquis, and Jeffrey C. Snyder

**SPECIAL SYMPOSIUM ON THE FUTURE OF WEATHER,
FORECASTING, AND PRACTICE
PROGRAM COMMITTEE**

Becky Adams-Selin and Kandis Boyd, Co-Chairpersons
Clark Evans, Joseph Koval, Christopher Melick, Louisa
Nance, Neil Stuart, Greg Stumpf, and Nusrat Yussouf

**COMMITTEE ON WEATHER ANALYSIS AND
FORECASTING**

Rebecca Adams-Selin, Chairperson
Clark Evans, Vice-Chairperson
Cyrena-Marie Arnold, Robert F. Banks, Martin A.
Baxter, Alicia M. Bentley, Stephen W. Bieda III, Jason C.
Furtado, Gail L. Hartfield-Supina, Chasity Henson, Aaron
Hill, Joseph P. Koval, Ryan A. Lagerquist, Katie Magee,
Christopher D. McCray, Justin McLay, Shawn M. Milrad,
Louisa B. Nance, Joseph Slezak, Alex Tardy, Jennifer E.
Tate, Jerry W. Wegiel, and Nusrat Yussouf

**SYMPOSIUM ON STRATEGIES FOR ADDRESSING THE
CLIMATE CRISIS: MITIGATION, RESTORATION, AND
COMMUNICATION
PROGRAM COMMITTEE**

Harold Hedelman, John Keller, and Caroline Normile,
Co-Chairpersons

**SYMPOSIUM ON DIVERSITY, EQUITY, AND
INCLUSION
PROGRAM COMMITTEE**

Melissa Burt, Chairperson

**DIVERSITY, EQUITY, AND INCLUSIVENESS TASK
FORCE**

Susan Avery and Melissa Burt, Co-Chairpersons
Mona Behl, Andrea Bleistein, Donna Charlevoix, Pamela
Emch, Kevin Goebbert, Rebecca Haacker, Jen
Henderson, and Raj Pandya

PROFESSIONAL CONDUCT TASK FORCE

Melissa Burt and Gary Lackmann, Co-Chairpersons
Mona Behl, Donna Charlevoix, John Cortinas, Pamela
Emch, Tanja Fransen, Kevin Goebbert, Rebecca
Haacker, Jen Henderson, Gaige Kerr, and Yvette
Richardson

Download the AMS 100th Annual Meeting MOBILE APP!

With the 2020AMS Annual Meeting mobile app, you can:

- Stay organized with up-to-the-minute Exhibitor, Speaker, and Event information
- Receive important real-time communications from Show Organizers
- Build a personalized schedule and bookmark exhibitors
- Take notes and download event handouts and presentations
- Rate the sessions you attend and comment on them, too
- Stay in-the-know and join in on social media
- Find Boston Local Places
- And much, much more!

Downloading the App is Easy!

SEARCH: The App Store or Google Play for “**AMS 2020**”

SCAN:



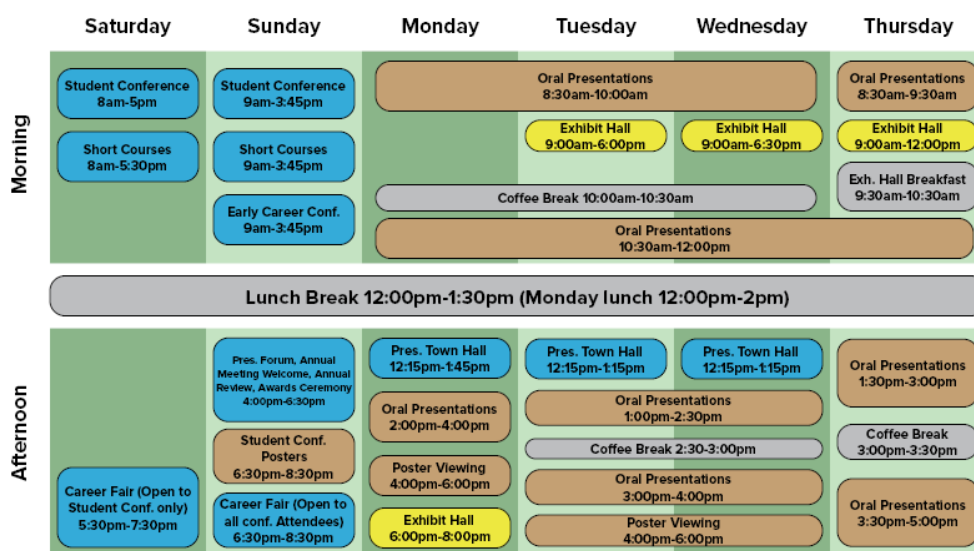
For all other device types (including BlackBerry, Windows, and all other web browser-enabled devices): While on your smartphone, point your mobile browser to **<http://app.core-apps.com/ams2020>** to be directed to the proper download version for your device.

Should you have any questions, please contact support@core-apps.com



SUMMARY OF THE TECHNICAL PROGRAM LAYOUT

The technical program for the 100th Annual Meeting has been organized in blocks of time as shown in the graphic below.



The technical program is organized by day and provides a detailed listing of each presentation that will be given during the Oral Presentations and Posters time blocks (see graphic above).

Below is a list that shows the order and layout of the program:

1. Common Times, which outline any special events that are scheduled for that day;
2. Presidential Forum Sessions, which are listed within each time block;
3. Oral Presentations, which are listed within each time block;
4. Joint Sessions, which are listed under their host conference; and
5. One-Day Poster Sessions, which will be held at the end of the day on Monday, Tuesday, and Wednesday. The presentations fall at the end of the listing for the day on which they are scheduled.

Note: All sessions are ordered by conference (in numerical order) according to the list found in the general information on page 4.

Other ways to schedule the week's activities include the following:

- the Presenter Index on page 326
- the Daily Grids on page 306
- the App; see page 65 for download instructions

Sunday, January 12

7:00 A.M.–12:00 P.M.	Scout Event–Westin Hotel, Marina Ballroom III & IV
7:30 A.M.–8:30 P.M.	Registration–North Lobby
7:30 A.M.–6:00 P.M.	AMS Info Desk–North Lobby
8:30 A.M.–9:00 A.M.	Meet President Jenni Evans
9:00 A.M.–5:00 P.M.	AMS Oral History Project
9:00 A.M.–5:00 P.M.	Guest Welcome and Information Desk
12:00 P.M.–3:45 P.M.	Speaker Ready Room–102B
12:00 P.M.–8:30 P.M.	Academic Family Tree–Hall B
12:00 P.M.–4:00 P.M.	WeatherFest–Westin Hotel in Galleria (lower level)
12:30 P.M.–2:00 P.M.	Special Presidential Forum Preview: “A Climatologist, an Engineer, and a Social Scientist Walk Into a Bar: Tough Choices on a Warming Planet”–210AB
2:30 P.M.–3:30 P.M.	Newcomer’s Welcome and Informational Exchange
4:30 P.M.–6:30 P.M.	Presidential Forum, Annual Meeting Welcome, Annual Review and Awards Ceremony–Ballroom East
6:30 P.M.–8:30 P.M.	Welcome Reception Honoring 2020 AMS Awardees and Newly Elected Fellows
6:30 P.M.–8:30 P.M.	Career Resource and Graduate School Fair–East Registration
6:30 P.M.–8:30 P.M.	Student Conference Poster Session
7:00 P.M.–9:30 P.M.	The American Weather and Climate Industry Association (AWICA) Reception
7:30 P.M.–9:30 P.M.	Colour of Weather Reception
9:00 P.M.–11:00 P.M.	Early Career Professionals Reception

8:30 A.M.–9:00 A.M.

8EARLYCAREER

Session: MEET PRESIDENT JENNI EVANS –BALLROOM FOYER

9:00 A.M.–9:40 A.M.

8EARLYCAREER

Session: SESSION 1: WELCOME AND NETWORKING WITH YOUR PEERS –255

Chairs: Jordan Bell, Univ. of Alabama, Huntsville, AL; Bill Burkey, Houston, TX; Bradford Johnson, Florida State Univ., Tallahassee, FL; Rebecca DePodwin, AccuWeather, Inc., State College, PA

9:50 A.M.–10:45 A.M.

8EARLYCAREER

Session: WHY I AMS –255

Chairs: Rebecca DePodwin, AccuWeather, Inc., State College, PA; Jared Rennie, NCICS/North Carolina State Univ., Asheville, NC

11:55 A.M.–1:00 P.M.

8EARLYCAREER

Session: JOINT LUNCH SESSION WITH BPSM: ENTREPRENEURSHIP AND THE ROADS LESS TRAVELED –205C

Chair: Rebecca DePodwin, AccuWeather, Inc., State College, PA

Panelists: Matt Rogers, Commodity Weather Group, LLC, Washington, DC; Morgan Brown Yarker, Yarker Consulting, Cedar Rapids, IA; Brian V. Smoliak, The Climate Corporation, Seattle, WA; Alicia Wasula, Shade Tree Meteorology, LLC, Niskayuna, NY; Ashton Robinson Cook, NOAA/NWS SPC, Norman, OK

1:10 P.M.–2:20 P.M.

8EARLYCAREER

Session: NEGOTIATION: MAXIMIZING YOUR WORTH –255

Chairs: Bill Burkey, Houston, TX; Rebecca DePodwin, AccuWeather, Inc., State College, PA

Panelists: Mary Glackin, AMS President-Elect, Washington, DC; Victor A. Gensini, Northern Illinois Univ., DeKalb, IL; Joshua Darr, JLT Re, Fort Collins, CO; Kelly Lombardo, The Pennsylvania State Univ., University Park, PA; Irene Sans, WFTV Channel 9 ABC, Orlando, FL

2:30 P.M.–3:10 P.M.

8EARLYCAREER

Session: MI CAMINO: NAVIGATING YOUR SPACE IN BROADCASTING –255

Chair: Bradford Johnson, Florida State Univ., Tallahassee, FL

Speaker: Denise Isaac, NBC10 Boston, Newton, MA

3:15 P.M.–4:00 P.M.

8EARLYCAREER

Session: NETWORKING WITH AMS PROFESSIONALS –255

Chairs: Bill Burkey, Houston, TX; Rebecca DePodwin, AccuWeather, Inc., State College, PA; Jordan Bell, NASA SPoRT, Huntsville, AL; Bradford Johnson, Florida State Univ., Tallahassee, FL

9:00 P.M.–11:00 P.M.

8EARLYCAREER

Session: EARLY CAREER PROFESSIONALS RECEPTION –MARINA BALLROOM II

Chairs: Bill Burkey, Houston, TX; Rebecca DePodwin, AccuWeather, Inc., State College, PA; Jordan Bell, NASA SPoRT, Huntsville, AL; Bradford Johnson, Florida State Univ., Tallahassee, FL

SUNDAY

Monday, January 13

7:30 A.M.–6:00 P.M.	Registration–North Lobby
7:30 A.M.–6:00 P.M.	AMS Info Desk–North Lobby
7:30 A.M.–6:00 P.M.	Speaker Ready Room–102B
7:30 A.M.–6:00 P.M.	Quiet Room–Westin Hotel, Commonwealth C
9:00 A.M.–10:00 A.M.	Guest Coffee–Westin Hotel, Hancock
9:00 A.M.–6:00 P.M.	Academic Family Tree–Hall B
9:00 A.M.–6:00 P.M.	Poster Hall Open–Hall B
9:00 A.M.–6:00 P.M.	Local Chapter Posters–Hall B
10:00 A.M.–6:00 P.M.	Member Services–North Lobby
10:00 A.M.–10:30 A.M.	AM Coffee Break–Meeting Room Foyers
11:00 A.M.–5:00 P.M.	AMS Oral History Project
12:00 P.M.–2:00 P.M.	Lunch Break
12:15 P.M.–1:45 P.M.	Presidential Town Hall: Financial Weather and Climate Risk Management–Ballroom East
1:00 P.M.–1:20 P.M.	Daily Weather Briefings–157C
4:00 P.M.–6:00 P.M.	Formal Poster Viewing Reception–Hall B
6:00 P.M.–8:00 P.M.	Historical Instruments Exhibit
6:00 P.M.–8:00 P.M.	Exhibits Opening and Reception–Hall A
7:00 P.M.–9:00 P.M.	Solomon Dinner–205C
7:00 P.M.–10:00 P.M.	CoRioLis Reception–Westin Hotel, Lewis
8:00 P.M.–10:00 P.M.	Sixth Annual Speed Networking Event for Students and Early Career Professionals–East Registration

8:30 A.M.–10:00 A.M.

PRESESSIONS / 19AI / 15SOCIETY / 8WXCLIMATE / 8WRN

Session 1: THE ENTERPRISE: WORTH MORE THAN YOU THINK –210AB

Moderator: William Hooke, AMS, Washington, DC

8:30 A.M.

PFI.1 *Extreme Weather, Artificial Intelligence, and the Enterprise: Google's Flood Forecasting Initiative in India.* **Jason Hickey**, Google, Mountain View, CA

9:00 A.M.

PFI.2 **Scott Barrett**, Columbia School of International and Public Affairs

9:30 A.M.

Q & A

8:30 A.M.–10:00 A.M.

SOLOMONSYMP

Session 1: WISDOM OF SOLOMON: HISTORY AND SUCCESSES IN ENVIRONMENTAL POLICY –205B

Chair: Daniel Gilford, Rutgers Univ., New Brunswick, NJ

8:30 A.M.

I.1 *Introductory Remarks.* **Daniel Gilford**, Rutgers Univ., New Brunswick, NJ

8:45 A.M.

I.2 *The Contribution of Women Scientists to Ozone Research in the Last 100 Years.* **Guy Brasseur**, NCAR, Boulder, CO

9:00 A.M.

I.3 *The Role of Assessments in the Science–Policy Interface.* **Robert Tony Watson**, UEA, Norwich, UK

9:15 A.M.

I.4 *The Indomitable Solomon Spirit: Unequivocal Science and Impeccable Leadership.* **Venkatachalam Ramaswamy**, NOAA, Princeton, NJ

9:30 A.M.

I.5 *Contributions by Emissions from Various Regions to the Global Energy Budget.* **Daniel Murphy**, NOAA, Boulder, CO; A. R. Ravishankara

9:45 A.M.

I.6 *International Ozone Assessments: The Contributions of Susan Solomon.* **John A. Pyle**, Univ. of Cambridge and National Centre for Atmospheric Science, Cambridge, UK

8:30 A.M.–9:15 A.M.

48BROADCAST

Session 1: OUR CHANGING CLIMATE –204AB

Chairs: Cheryl Nelson, WTKR-TV, Norfolk, VA; Joe Murgo, WTAJ-TV, Altoona, PA

8:30 A.M.

Introductory Remarks. **Cheryl Nelson**, WTKR-TV, Norfolk, VA and Joe Murgo, WTAJ-TV, Altoona, PA

8:45 A.M.

I.1 *City Attempts to Lead the Way: Large U.S. Cities' Progress in Reducing Greenhouse Gas Emissions.* **David J. Ribeiro**, ACEEE, Washington, DC

9:00 A.M.

I.2 *Temperatures in Urban Settings versus Nearby MMTS.* **Richard Berler**, KGNS TV, Laredo, TX

8:30 A.M.–10:00 A.M.

36EPT

Session 1A: SERVICES UPDATE FOR WEATHER AGENCIES. PART 1 –157C

Chairs: Randall Bass, FAA, Washington, DC; Scott Jacobs, NOAA/NWS, Silver Spring, MD

8:30 A.M.

IA.1 *Epic: Leveraging Cloud Computing to Enable a Community Model Development Program for Numerical Weather Prediction (Core Science Keynote).* **Neil A. Jacobs**, NOAA

9:00 A.M.

IA.2 *National Weather Service Update.* **Louis W. Uccellini**, NOAA/NWS, Silver Spring, MD

9:15 A.M.

IA.3 *Naval Meteorology and Oceanography 2020 AMS Update.* **John Okon**, Naval Meteorology and Oceanography Command, Stennis Space Center, MS

9:30 A.M.

IA.4 *Meteorological Service of Canada: Update.* **Diane Campbell**, EC, Gatineau, Canada

9:45 A.M.

IA.5 *UK Met Office—Pulling through Science and Technology Improvements into User Benefits.* **Andrew Stephen Kirkman**, UKMO, Exeter, UK

8:30 A.M.–10:00 A.M.**36EIP**

Session 1B: WEATHER AND ROADS—LINKING ROAD WEATHER RESEARCH, INFORMATION, AND TECHNOLOGIES TO BENEFIT SOCIETY. PART I –209

Chairs: Amanda R. Siems-Anderson, NCAR, Boulder, CO; Stephen Early, IBM/The Weather Company, Brookhaven, GA

8:30 A.M.

IB.1 *Road Weather Management: Past, Present, and Future.* **David Johnson**, FHWA, Washington, DC; R. Alfelot, B. Boyce

8:45 A.M.

IB.2 *Toward Zero Deaths: Making the Traveling Public Safer through a Partnership between the National Weather Service and the Idaho Transportation Department.* **Vernon Preston**, NWS, Pocatello, ID; A. DeSmet

9:00 A.M.

IB.3 *The Pathfinder Project: Road Weather Collaboration and Successes from the First Two Seasons of Pathfinder in the State of Minnesota.* **Shawn DeVanny**, NWS, Chanhassen, MN

9:15 A.M.

IB.4 *Deploying an Interagency Debris Flow Decision Matrix for the Ferguson Burn Scar across Yosemite National Park and California Highway 140.* **Kristian Mattarochia**, NWS, Hanford, CA

9:30 A.M.

IB.5 *Enhancing Collaboration and the Prediction of Tule Fog between the California Department of Transportation, California Highway Patrol, and NWS Hanford.* **Kristian Mattarochia**, NWS, Hanford, CA

9:45 A.M.

IB.6 *Current Status of Clarus Functionality in the NWS's Meteorological Assimilation Data Ingest System (MADIS).* **Leon Benjamin**, CIRES/Univ. of Colorado, Boulder, CO; G. Pratt

8:30 A.M.–10:00 A.M.**34HYDRO**

Session 1A: FLOOD PREDICTION, ANALYSIS, DECISION SUPPORT, AND MANAGEMENT. PART I –253C

Chairs: David Gochis, NCAR, Boulder, CO; Kristie Franz, Iowa State Univ., Ames, IA

8:30 A.M.

IA.1 *Limits to Hydrologic Predictability: Lessons for High-Resolution Forecast Systems.* **Thomas Adams**, TerraPredictions, Blacksburg, VA

8:45 A.M.

IA.2 *Development of Watershed-Based, Large-Domain Modeling to Support Monitoring, Prediction, and Water Management Applications.* **Andrew W. Wood**, NCAR, Boulder, CO; R. Siddique, N. Mizukami, H. Liu, B. Nijssen, S. Gangrade, A. J. Newman, M. Barlage, K. FitzGerald, A. Dugger, D. J. Gochis, M. Clark

9:00 A.M.

IA.3 *Using Multiple Precipitation Inputs for Flash-Flood Forecasting in Semiarid Environments.* **Amir Givati**, ClimaCell, Boston, MA; D. Paz, J. L'Heureux, L. Karsten, D. J. Gochis, L. T. Peffers, D. Rothenberg

9:15 A.M.

IA.4 *Validation of NWS Hydrologic Ensemble Forecast Service (HEFS) Real-Time Products at the Middle Atlantic River Forecast Center.* **Seann M. Reed**, NOAA/NWS/Middle Atlantic River Forecast Center, State College, PA; A. MacFarlane

9:30 A.M.

IA.5 *Flood Inundation Mapping: Incorporating Emergency Management Experience into the Development of Future Flood Fighting Resources.* **Derek Giardino**, NOAA/NWS, Fort Worth, TX; F. Salas, W. Flynn

9:45 A.M.

IA.6 *Simulation of a Multiweek Flood Inundation Event in the Cape Fear River Basin (NC) Using a Tightly Coupled Advanced Hydrologic Land Surface and Routing Model at 100-m Resolution.* **John McHenry**, Baron Advanced Meteorological Systems, Raleigh, NC; A. Sims

8:30 A.M.–10:00 A.M.**34HYDRO**

Session 1B: LAND–ATMOSPHERE AND LAND–OCEAN INTERACTIONS. PART I –253A

Chairs: Yongkang Xue, Univ. of California, Los Angeles, Los Angeles, CA; Michael Ek, NCAR/RAL/JNT, Boulder, CO; Craig R. Ferguson, Univ. at Albany, SUNY, Albany, NY; Randal Koster, NASA GSFC, Greenbelt, MD

8:30 A.M.

IB.1 *Emergent Simplicity of Continental Evapotranspiration Mediated by Land–Atmosphere Coupling.* **Kaighin Alexander McColl**, Harvard Univ., Cambridge, MA; A. J. Rigden

8:30 A.M.–9:45 A.M.

8:45 A.M.

IB.2 *Local Land–Atmosphere Interactions: Exploring the Terrestrial Leg with “Little Omega”*. **Michael Ek**, NCAR, Boulder, CO; A.A. M. Holtslag

9:00 A.M.

IB.3 *Land Surface Interactions with the Atmosphere over the Iberian Semi-Arid Environment (LIAISE): Land–Atmosphere Interaction Observations and Modeling Framework*. **Jennifer K. Brooke**, UKMO, Exeter, UK; M. J. Best, A. A. Boone, J. Cuxart, J. Bellvert, G. Canut-Rocafor, A. Lock, P. Le Moigne, J. Polcher, S. Osborne, J. D. Price, P. Quintana-Segui

9:15 A.M.

IB.4 *Land Surface Interactions with the Atmosphere over the Iberian Semi-Arid Environment (LIAISE): Surface Heterogeneity Observations and Modeling Framework*. **Martin J. Best**, Met Office, Exeter, UK; J. K. Brooke, A. A. Boone, J. Cuxart, J. Polcher, J. Bellevert, G. Canut-Rocafor, P. Le Moigne, S. Osborne, J. Price, P. Quintana-Segui

9:30 A.M.

IB.5 *Linking Latent Heat Fluxes to Column Water Vapor: Results from the North American Monsoon GPS Hydrometeorological Network Experiment 2017*. **Benjamin R. Lintner**, Rutgers Univ., New Brunswick, NJ; D. K. Adams, R. L. Scott, E. R. Vivoni, E. Perez-Ruiz, M. I. Gonzalez, P. Hazenberg, C. Minjarez, J. C. Rodriguez, Y. L. Serra, J. S. Haase, S. Tannenbaum

9:45 A.M.

IB.6 *Using Temporal Information Partitioning Networks (TIPnets) to Assess Land–Atmosphere Coupling*. **Hsin Hsu**, George Mason Univ., Fairfax, VA; P. A. Dirmeyer

8:30 A.M.–9:45 A.M.

33CVC

Session 1A: AFRICAN CLIMATE CHANGE AND VARIABILITY. PART I –156BC

Chairs: Andreas H. Fink, Karlsruhe Institute of Technology, Karlsruhe, Germany; Michela Biasutti, LDEO, Palisades, NY

8:30 A.M.

IA.1 *Linking Coupled Model Errors in Simulating East African Climatological Rainfall to Model Biases in SSTs*. **Bradfield Lyon**, Univ. of Maine, Orono, ME

8:45 A.M.

IA.2 *Observed Relationship between the Turkana Low-Level Jet and Boreal Summer Convection*. **Edward K. Vizzy**, Austin, TX; K. H. Cook

9:00 A.M.

IA.3 *The Turkana Low-Level Jet—Links to Rainfall and Representation in Climate Models*. **James A. King**, Univ. of Oxford, Oxford, UK; R. Washington, S. Engelstaedter, C. Munday

9:15 A.M.

IA.4 *Can Thermodynamic Intensification of the Global Walker Circulation Help Resolve the East African Climate Paradox?* **Chris C. Funk**, USGS EROS, Santa Barbara, CA; A. Fink

8:30 A.M.–10:00 A.M.

9:30 A.M.

IA.5 *Using Seasonal Rainfall Clusters to Explain the Interannual Variability of the Rain Belt over the Greater Horn of Africa*. **Andreas H. Fink**, Karlsruhe Institute of Technology, Karlsruhe, Germany; L. S. Seregina, R. van der Linden, C. C. Funk, J. G. Pinto

8:30 A.M.–10:00 A.M.

33CVC

Session 1B: LAND USE AND LAND COVER CHANGE—INTERACTIONS WITH WEATHER AND CLIMATE –154

Chairs: Marcus Williams, USDA, Athens, GA; Bradford Johnson, TriVector Services, Inc., Silver Spring, MD

8:30 A.M.

IB.1 *New insights into Land–Atmosphere Interactions and Hydrometeorological and Hydroclimatological Extremes (Invited Presentation)*. **Jeffrey B. Basara**, Univ. of Oklahoma, Norman, OK

8:45 A.M.

IB.2 *Land-Use and Land Cover Changes Strongly Modulate Warm-Season Precipitation over the Central United States*. **Maoyi Huang**, PNNL, Richland, WA; A. Devanand, D. M. Lawrence, C. M. Zarzycki, Z. Feng, P. Lawrence

9:00 A.M.

IB.3 *Impacts of Changing Land Use and Land Cover on Regional Climate in Sub-Saharan Africa*. **Timothy Glotfelty**, Univ. of North Carolina, Chapel Hill, NC; D. Ramirez, A. Ghilardi, J. H. Bowden, J. J. West

9:15 A.M.

IB.4 *Combined Climate–Land Change Driven Impacts from Coproduced Land Cover Scenarios in San Juan, Puerto Rico*. **Luis E. Ortiz**, The New School, New York, NY

9:30 A.M.

IB.5 *Afforestation versus Reforestation in New Zealand: Effects on Regional Climate*. **M. James Salinger**, Univ. of Tasmania, Hobart, Australia; J. D. Fuentes, M. E. Mann, Z. Moon

9:45 A.M.

IB.6 *Trade-Offs between Land Management and Regional Climate in the Brazilian Cerrado*. **Stephanie Spera**, Univ. of Richmond, Richmond, VA; J. M. Winter, T. Partridge

8:30 A.M.–10:00 A.M.

33CVC

Session 1C: SEASONAL-TO-DECADAL CLIMATE PREDICTION. PART I –151A

Chairs: Stephen Yeager, NCAR, Boulder, CO; Sarah Larson, North Carolina State Univ., Raleigh, NC

8:30 A.M.

IC.1 *An Autumn Arctic Pacific Sea-Ice Dipole as a Source of Predictability for Subsequent Spring Barents–Kara Sea-Ice Conditions*. **Yu-Chiao Liang**, WHOI, Woods Hole, MA; C. Frankignoul, Y. O. Kwon

8:45 A.M.

IC.2 *Gfdl's SPEAR Seasonal Predictions: Initialization and Bias Correction with Coupled Data Assimilation.* **Feiyu Lu**, GFDL, Princeton, NJ; A. Rosati, M. Harrison, T. L. Delworth, W. F. Cooke

9:00 A.M.

IC.3 *Toward Western U.S. Seasonal Snowpack Prediction (Invited Presentation).* **Sarah Kapnick**, NOAA/Geophysical Fluid Dynamics Laboratory, Princeton, NJ; X. Yang, S. Malyshev, T. L. Delworth, W. F. Cooke

9:30 A.M.

IC.4 *Persistent and Reemergent Sea Surface Temperatures: A Recipe for Better Seasonal Climate Forecasts.* **Michael Scheuerer**, CIRES, Boulder, CO; M. B. Switanek, J. Barsugli, T. M. Hamill

9:45 A.M.

IC.5 *Skillful Empirical Prediction of High-Impact Temperature Deviations.* **Patrick T. Brown**, San Jose State Univ., San Jose, CA; M. Evans, A. Mahesh, H. Gupta, K. caldeira

8:30 A.M.–10:00 A.M.**30WAF26NWP****Session 1A: ANALYSIS AND FORECASTING OF SEVERE THUNDERSTORMS AND ASSOCIATED HAZARDS. PART I –258A**

Chairs: Clark Evans, Univ. of Wisconsin, Milwaukee, WI; Rebecca Adams-Selin, AER, Omaha, NE

8:30 A.M.

IA.1 *Development and Improvements in the High Resolution Rapid Refresh Data Assimilation System (HRRRDAS).* **Therese T. Ladwig**, NOAA/ESRL/GSD and CIRES/Univ. of Colorado, Boulder, CO; D. C. Dowell, C. Alexander, M. Hu, S. Weygandt, G. Ge, T. Alcott, I. Jankov

8:45 A.M.

IA.2 *Vice and Virtue of Increased Resolution of Thunderstorm Objects.* **John R. Lawson**, CIMMS/NSSL, Norman, OK; C. K. Potvin, P. S. Skinner, A. E. Reinhart

9:00 A.M.

IA.3 *Understanding High-Shear Low-CAPE (HSLC) Environments across the Contiguous United States and Europe Using Reanalysis Data.* **Elinor R. Martin**, South Central Climate Adaptation Science Center, Norman, OK; F. Battaglioli, H. Croad, R. Cumming, H. E. Brooks

9:15 A.M.

IA.4 *Forecast Parameters for U.S. Hail Occurrence and Size.* **John T. Allen**, Central Michigan Univ., Mount Pleasant, MI; M. R. Kumjian, C. J. Nixon, R. E. D. Jewell, B. T. Smith, R. L. Thompson

9:30 A.M.

IA.5 *Sensitivity of a Winter Tornado Outbreak to Upstream SSTs.* **Maria J. Molina**, NCAR, Boulder, CO; J. T. Allen, A. F. Prein

9:45 A.M.

IA.6 *Role of Unusual MCS Morphology in the Table Rock Lake Duck Boat Tragedy and Its Implications for Messaging to Vulnerable User Groups.* **Randall Graham**, Smithville, MO

8:30 A.M.–10:00 A.M.**30WAF26NWP****Session 1B: VERIFICATION, BIAS CORRECTION, AND POSTPROCESSING OF NUMERICAL WEATHER MODELS. PART I –257AB**

Chair: Joseph P. Koval, The Weather Company, Andover, MA

8:30 A.M.

IB.1 *A New Webpage for Visualizing Verification Statistics from the Environmental Modeling Center's Numerical Modeling Suite.* **Alicia M. Bentley**, I.M. Systems Group and NOAA/NWS/NCEP/EMC, College Park, MD; C. D. Logan, B. T. Blake, M. P. Row, L. C. Dawson, J. J. Levit

8:45 A.M.

IB.2 *Advancing Capabilities for Verification of Convection-Allowing Models at the Environmental Modeling Center.* **Logan C. Dawson**, I.M. Systems Group, Inc. and NOAA/NWS/NCEP/EMC, College Park, MD; J. R. Carley, G. S. Manikin, B. T. Blake, Y. Lin, P. Shafan, E. Rogers, B. Zhou, M. E. Pyle, J. J. Levit

9:00 A.M.

IB.3 *Characteristics of Convective Initiation in High-Resolution Simulations: Object-Based Validation Using Geostationary Satellite Observations.* **D. Henderson**, Univ. of Wisconsin, Madison, WI; J. A. Otkin, J. Mecikalski, D. Haliczzer, X. Li

9:15 A.M.

IB.4 *Verification of Convection-Allowing NWP in High-Shear, Low-CAPE Environments.* **Chase S. Graham**, North Carolina State Univ., Raleigh, NC; G. M. Lackmann

9:30 A.M.

IB.5 *Object-Based Climatology and Verification of HRRR Forecasts.* **Jeffrey Duda**, NOAA/ESRL/GSD, Boulder, CO; C. Alexander

9:45 A.M.

IB.6 *The Use of the METplus Verification and Diagnostic Capability in Forecast Evaluation across Multiple Scales and Applications.* **Tara Jensen**, NCAR, Boulder, CO; J. Halley Gotway, G. P. McCabe Jr., J. Frimel, M. P. Row, R. G. Bullock, T. L. Fowler, D. W. Fillmore, B. Strong, M. Marquis, M. Win-Gildenmeister, J. Prestopnik, D. R. Adriaansen, C. P. Kalb

8:30 A.M.–10:00 A.M.**29EDUCATION****Panel Discussion 1: ACTIVE LEARNING DEMONSTRATIONS FROM THE ATMOSPHERIC SCIENCES –258C**

Chairs: Daria B. Kluver, Central Michigan Univ., Mount Pleasant, MI; Danny E. Mattox, Univ. of Oklahoma, Norman, OK

PDI.1 *Being an Atmospheric Science Wizard.* **Tim Barnes**, UCAR, Boulder, CO; J. Aquino, J. Weber

PDI.2 *Demonstrating Atmospheric Phenomena through Active Learning.* **Celia M. Payne**, American Meteorological Society, Washington, DC; E. Baugher, A. E. Stimach, W. Abshire, C. M. Kauffman

PD1.3 *Using Inexpensive, Arduino-Based Weather Sensors for Middle School STEM.* **John M. Trostel**, Georgia Tech Research Institute, Atlanta, GA; J. L. Losego, T. Perry, M. H. Lupas, S. Mulvanity, W. Lloyd

PD1.4 *An Informal Introduction to Numerical Weather Models with Low-Cost Hardware.* **Elliott Foust**, NCAR, Boulder, CO

PD1.5 *Using Cloud Computing and Software Container Technology for Interactive Classroom Learning in Numerical Weather Prediction.*

Michael J. Kavulich, NCAR, Boulder, CO; J. K. Wolff, K. Fossell, J. Halley Gotway, M. Harold, S. Ng

PD1.6 *Satellites in the K–12 Classroom.* **Vicky Gorman**, Citizen Science Education Program, Medford, NJ

PD1.7 *Visualizing Meteorological Features in Immersive, Interactive, and Collaborative Virtual Reality.* **Alan F. Srock**, St. Cloud State Univ., Saint Cloud, MN; C. A. Hammitt, M. C. Gill

8:30 A.M.–10:00 A.M.

26PROBSTAT

Session 1: EXTREME VALUE ANALYSIS AND PREDICTION. –260

Chairs: William F. Campbell, NRL, Monterey, CA; Eric Gilleland, NCAR, Boulder, CO

8:30 A.M.

I.1 *A City-Based Analysis of the Likelihood of Extreme Hail Sizes over the United States.* **Olivia G. VanBuskirk**, Central Michigan Univ., Mount Pleasant, MI; J. T. Allen

8:45 A.M.

I.2 *Changing Distribution of Extreme Precipitation Influenced by North Atlantic Tropical Cyclones across the Mid-Atlantic United States.* **Nirajan Dhakal**, Spelman College, Atlanta, GA

9:00 A.M.

I.3 *Comparing a Spatial Proximity Extreme-Value Model with a Simple Univariate Generalized Pareto Approach for Precipitation.* **Vitaly Kholodovsky**, Univ. of Maryland, College Park, MD; X. Z. Liang

9:15 A.M.

I.4 *Returning Period of Nonstationary Extreme Precipitation under Climate Change.* **Huijuan Cui**, Chinese Academy of Sciences, Beijing, China; H. Huang

9:30 A.M.

I.5 *Analysis of Extremes for Hurricane Wind Speeds and Residential Losses.* **Sneh Gulati**, Florida International Univ., Miami, FL; F. George, B. M. G. Kibria, J. P. Pinelli, S. Cocke, S. Hamid

9:45 A.M.

I.6 *Identifying Nonstationary Risk in an Era of Changing Environmental Perils.* **Patrick Harr**, Jupiter Intelligence, San Mateo, CA; S. R. Sain, L. Madaus

8:30 A.M.–10:00 A.M.

24IOAS

Session 1: ADVANCES IN DATA ASSIMILATION AND OBSERVING SYSTEMS –259A

Chair: R. Atlas, NOAA/AOML Retired, Miami, FL

8:30 A.M.

I.1 *Data Assimilation for the Coupled Earth System (Invited Presentation).* **Antonio J. Busalacchi**, UCAR, Boulder, CO

9:00 A.M.

I.2 *The WMO Global Basic Observing Network (GBON).* **Lars Peter Riishojgaard**, WMO, Geneva, Switzerland

9:15 A.M.

I.3 *Mission Preparation for the NASA TROPICS Hurricane Constellation Observatory.* **W. J. Blackwell**, MIT Lincoln Laboratory, Lexington, MA; R. V. Leslie, S. A. Braun, R. Bennartz, C. S. Velden, T. Greenwald, D. Herndon, M. DeMaria, G. Chirokova, R. Atlas, J. Dunion, F. Marks, R. Rogers, H. Christophersen, B. Annane, B. A. Dahl

9:30 A.M.

I.4 *Big Data Assimilation: Real-Time Workflow for 30-s-Update Forecasting and Perspectives Toward DA-AI Integration.* **Takemasa Miyoshi**, RIKEN, Kobe, Japan; T. Honda, M. Ohigashi, S. Otsuka, A. Amemiya, Y. Maejima, S. Kotsuki, Y. Ishikawa, H. Seko, Y. Yoshizaki, N. Ueda, H. Tomita, Y. Ishikawa, S. Satoh, T. Ushio, K. Koike, Y. Nakada

9:45 A.M.

I.5 *Data Assimilation Planning and Testing for Version 16 of the NCEP Global Forecast System.* **Daryl T. Kleist**, NCEP, College Park, MD; V. Tallapragada, R. Treadon, J. Whitaker, A. Collard, C. Thomas, W. S. Wu, K. Bathmann, F. Yang

8:30 A.M.–10:00 A.M.

22ATCHEM

Session 1A: HIGHLIGHTING THE WORK OF THE PAN-AMERICAN NODE OF THE WMO SAND AND DUST STORM WARNING ADVISORY AND ASSESSMENT SYSTEM –207

8:30 A.M.

IA.1 *Fifteen-Year Trend in African Dust Outbreaks across the U.S. Caribbean.* **Odalys Martínez-Sánchez**, Univ. of Puerto Rico, Rio Piedras Campus, San Juan, PR; A. J. Heymsfield, O. L. Mayol-Bracero

8:45 A.M.

IA.2 *Aerosols Deposition Loss Observed during Desert Dust Events of 2018 in French Guiana.* **Jack Molinie**, Univ. of Antilles, Pointe-A-Pitre, Guadeloupe; J. L. Henry, M. L. Gobinddass, K. Panechou, T. Feuillard

9:00 A.M.

IA.3 *The Influence of the Saharan Dust on Air Quality and Mixed-Phase Cloud Formation in the Yucatan Peninsula.* **Carolina Ramirez**, Universidad Nacional Autónoma de México, Mexico City, Mexico; F. Cordoba, G. B. Raga, J. Miranda, H. Alvarez, D. Rosas, E. Salinas, L. Martinez, I. Rosas, J. Kim, J. Yakobi-Hancock, T. Amador, D. Baumgardner, L. A. Ladino

9:15 A.M.

IA.4 *Monitoring the Saharan Air Layer over the Caribbean Using Satellite Imagery.* **Shanice Whitehall**, Caribbean Institute for Meteorology and Hydrology, Bridgetown, Barbados; K.A. Caesar, R. Chewitt - Lucas, L. Pologne, A. Sealy

9:30 A.M.

IA.5 *Using Aerosol Optical Depth to Enhance Prediction of Solar PV Performance in Tropical Climates: Case Study—Barbados.*

Darlene Field, Univ. of the West Indies, Cave Hill Campus, Saint Michael, Barbados; A. Sealy

9:45 A.M.

IA.6 *The Predictability of Saharan Dust Incursions over the Eastern Caribbean.* **Ashford Reyes**, Caribbean Institute for Meteorology and Hydrology, St. James, Barbados; N. Alexander, A. Sealy, R. Chewitt-Lucas

8:30 A.M.–10:00 A.M.**22ATCHEM****Session 1B: REGIONAL AIR QUALITY. PART I –206B**

Chairs: A. Gannet Hallar, Univ. of Utah, Salt Lake City, UT; Steven S. Brown, NOAA/Earth System Research Laboratory/Chemical Sciences Division, Boulder, CO; Jeffrey L. Collett, Colorado State Univ., Fort Collins, CO, Colorado State Univ., Fort Collins, CO

8:30 A.M.

IB.1 *Decadal Trends in Air Pollution over the Eastern United States: A Remarkable Success Story.* **Russell R. Dickerson**, Univ. of Maryland, College Park, MD; T. P. Canty, X. Ren

8:45 A.M.

IB.2 *Significant Reduction of PM_{2.5} in Eastern China due to Regional-Scale Emission Control: Evidences from the Sorpes Station, 2011–18.* **Aijun Ding**, Nanjing Univ., Nanjing, China; X. Huang, W. Nie, X. Chi, C. Fu

9:00 A.M.

IB.3 *A Summary of Decadal Trends of Various Pollutants Monitored across Canada.* **Leiming Zhang**, Environment and Climate Change Canada, Toronto, Canada; X. Yao, H. Wang, I. Cheng, J. Feng, A. Cole, J. M. O'Brien

9:15 A.M.

IB.4 *Do Atmospheric Nonmethane Hydrocarbon Concentrations Show Long-Term Trends? Results from a 15-yr Auto-GC Time Series.* **Bernhard Rappenglueck**, Univ. of Houston, Houston, TX; A. Holler, M. Ahmad

9:30 A.M.

IB.5 *Emergence of a New Chemical Regime: Growing Abundance of Water Soluble Organics in Cloud Water Associated with a Growing Ion Imbalance.* **Christopher Lawrence**, Univ. at Albany, SUNY, Albany, NY; S. M. Lance, J. J. Schwab, D. Kelting, E. Yerger, H. Favreau, P. Casson, R. Brandt, K. Civerolo, O. V. Rattigan

9:45 A.M.

IB.6 *TROPOMI Observations of the Atmospheric Composition over the Middle East.* **Zolal Ayazpour**, Univ. at Buffalo, Buffalo, NY; K. Sun

8:30 A.M.–10:00 A.M.**21AIRPOL****Session 1: CENTENNIAL SESSION ON AIR POLLUTION METEOROLOGY (CENTENNIAL) –211**

Chairs: Saravanan Arunachalam, Univ. of North Carolina, Chapel Hill, NC; Paul Bieringer, Aeris, Louisville, CO

8:30 A.M.

Welcome and Introductions. **Saravanan Arunachalam**, Univ. of North Carolina, Chapel Hill, NC

8:45 A.M.

I.1 *A Brief History of Applied Transport and Dispersion Models.* **Steven Hanna**, Hanna Consultants, Kennebunkport, ME

9:00 A.M.

I.2 *Progress in Understanding Dispersion in the Atmospheric Boundary Layer.* **Jeffrey C. Weil**, NCAR, Boulder, CO

9:15 A.M.

I.3 *Fifty Years of Near-Field Air Dispersion Modeling Advances and Challenges.* **Robert Paine**, AECOM, Chelmsford, MA

9:30 A.M.

I.4 *Atmospheric Boundary Layer Studies: From Canonical Representations to an Integrative Understanding.* **Jordi Vilà-Guerau de Arellano**, Wageningen Univ. and Research, Wageningen, Netherlands; F. Glassmeier, O. Hartogensis, C. van Heerwaarden, B. G. Heusinkveld, A. Moene, R. J. Ronda, G. J. Steeneveld, B. van Stratum

8:30 A.M.–10:00 A.M.**20SMOI****Session 1: REMOTE SENSING—CEILOMETER, MICROWAVE RADIOMETER, AND RADIATIVE TRANSFER APPLICATIONS –203**

Chair: Temple Lee, Univ. of Virginia, Charlottesville, VA

8:30 A.M.

I.1 *Using Ceilometer-Attenuated Backscatter Profiles in Meteorological Applications.* **Minttu Tuononen**, Vaisala Oyj, Helsinki, Finland; R. Lehtinen

8:45 A.M.

I.2 *The Use of a Ground-Based Microwave Radiometer Data to Monitor and Nowcast Fog Conditions.* **Marouane Temimi**, Khalifa Univ. of Science and Technology, Abu Dhabi, United Arab Emirates; R. M. Fonseca, N. R. Nelli, V. K. Valappil, M. Weston, M. S. Thota, Y. Wehbe, L. Yousef

9:00 A.M.

I.3 *Deployment of the UMass Simultaneous Frequency Microwave Radiometer on the NOAA P-3 for the Hurricane Season of 2019.* **Jezabel Vilardell Sanchez**, Univ. of Massachusetts, Amherst, MA; S. J. Frasier, J. Sapp, P. S. Chang, Z. Jelenak

9:15 A.M.

I.4 *A High-Resolution Ultraviolet Spectroradiometer and Its Application in Solar Radiation Measurement.* **Qilong Min**, ASRC, Albany, NY; B. Yin, J. Berndt, L. Harrison

8:30 A.M.–10:00 A.M.

9:30 A.M.

I.5 *Vector Radiative Transfer Theory and Its Applications in Remote Sensing of the Atmosphere.* **Peng-Wang Zhai**, Univ. of Maryland, Baltimore, MD; Y. Hu

9:45 A.M.

I.6 *Extensive Study of Planetary Boundary Layer Height in the Paso Del Norte Region Using CALIPSO Satellite, Ground-Based Ceilometer, Radiosonde Measurement, and Numerical Weather Prediction Models.* **Suhail Mahmud**, Univ. of Texas, El Paso, TX; N. Karle, R. M. Fitzgerald, D. Lu, R. K. Sakai, N. Nalli

8:30 A.M.–10:00 A.M.

20ARAM

Session 1: HISTORY OF ARAM—EVOLUTION OF CAPABILITIES FOR DETECTING AND PREDICTING AVIATION WEATHER HAZARDS: SAVING LIVES –206A

Chairs: James Pinto, NCAR, Boulder, CO; Mike Robinson, The MITRE Corporation, McLean, VA

8:30 A.M.

I.1 *Addressing the Microburst Threat to Aviation: A Research-to-Operations Success Story (Invited Presentation).* **John McCarthy**, NCAR, Boulder, CO; R. Serafin, B. Mahoney

9:00 A.M.

I.2 *Aviation Turbulence Theory, Detection, and Forecasting: Past, Present, and Future (Invited Presentation).* **Robert D. Sharman**, NCAR, Boulder, CO

9:30 A.M.

I.3 *Over a Quarter-Century of Aircraft Icing Diagnoses and Forecasts (Invited Presentation).* **Gregory Thompson**, NCAR, Boulder, CO; B. C. Bernstein

8:30 A.M.–10:00 A.M.

18COASTAL

Session 1: COUPLED FORECASTING OF EXTREME WEATHER AND COASTAL FLOOD EVENTS. PART 1 –158

Chairs: Jesse Feyen, GLERL, Ann Arbor, MI; Gregory Dusek, NOAA, Silver Spring, MD

8:30 A.M.

I.1 *The Consumer Option for an Alternative System to Allocate Losses (Coastal) Act.* **Nicole P. Kurkoski**, NOAA, Silver Spring, MD

8:45 A.M.

I.2 *The COASTAL Act Wind and Water Event Database (CWWED).* **Stephen Del Greco**, CIRES, Asheville, NC

9:00 A.M.

I.3 *WAVEWATCH III Accuracy and Efficiency within Coupling Framework.* **Ali Abdolali**, NOAA, College Park, MD; A. Roland, A. Van der Westhuysen, M. Schneider, S. Moghimi, Z. Ma, A. Mehra, A. Chawla, N. Kurkowski, M. Dutour Sikirik

8:30 A.M.–10:00 A.M.

9:15 A.M.

I.4 *Coupling and Validation of WAVEWATCH III and ADCIRC Using the NUOPC/ESMF Framework.* **Andre Jaco Van der Westhuysen**, IMSG at NOAA, College Park, MD; S. Moghimi, A. Abdolali, S. V. Vinogradov, E. Myers III

9:30 A.M.

I.5 *Compound Simulation of Riverine Freshwater and Storm Tides in the U.S. East Coast under Tropical Cyclones: Application to Hurricanes Sandy and Isabel.* **Roham Bakhtyar**, NOAA/NWS/NWC, Office of Water Prediction, Tuscaloosa, AL; P. Velissariou, K. Maitaria, B. Trimble, T. Flowers, H. Mashriqui, S. Moghimi, A. Abdolali, A. J. van der Westhuysen, E. Clark

9:45 A.M.

I.6 *Investigating Freshwater and Coastal Circulation Interaction for Extreme Events.* **Saeed Moghimi**, UCAR, Boulder, CO; E. Myers III, S. V. Vinogradov, L. Shi, Z. Yang, Y. Zhang, F. Ye, J. Westerink, M. T. Contreras-Vargas, K. M. Dresback, C. M. Szpilkka, A. J. Van der Westhuysen, J. Calzada, A. Abdolali, R. Bakhtyar, P. Velissariou, K. Maitaria, B. Blanton, C. Chen, J. Qi, J. Wilkin, H. Arango, A. Luscher, P. Burke, C. DeLuca, T. Flowers, N. P. Kurkowski, D. Snowden, J. Powell, N. Saraf

8:30 A.M.–10:00 A.M.

18HISTORY

Session 1: AMS–NSF INTERACTIONS: LOOKING BACK, LOOKING FORWARD –104A

Chairs: Anjuli S. Bamzai, NSF, Alexandria, VA; William Easterling, National Science Foundation, Alexandria, VA

8:30 A.M.

I.1 *Meteorology and the Federal Patron: Interactions before AMS and before NSF.* **James Rodger Fleming**, Colby College, Waterville, ME

8:45 A.M.

I.2 *Strengthening Fundamental Science in Atmospheric Research: Shared Goals of the AMS and NSF during the 1950s and 1960s.* **Emily K. Gibson**, NSF, Alexandria, VA

9:00 A.M.

I.3 *The AMS Summer Policy Colloquium: Accelerating and Magnifying the Broader Impacts of Science.* **William H. Hooke**, American Meteorological Society, Washington, DC

9:15 A.M.

I.4 *The American Meteorological Society and the National Science Foundation—Common Goals in the Service and Support of Science for the Benefit of Society.* **Richard A. Anthes**, UCAR, Boulder, CO

9:30 A.M.

I.5 *NSF and AMS: Their Contributions to Increasing Opportunities for Women and Minorities.* **Margaret LeMone**, NCAR, Boulder, CO; L. M. Hartten

9:45 A.M.

I.6 *Envisioning Future Interactions between the AMS and NSF.* **William Easterling**, National Science Foundation, Alexandria, VA

8:30 A.M.–10:00 A.M.

I7SPACEWX**Session I: AGENCY EFFORTS IN SPACE WEATHER: PRIORITIES AND OPPORTUNITIES. PART I –205A**

Chairs: Richard A. Behnke, Science Prime, Vienna, VA; Sara Housseal, Millersville Univ., Millersville, PA

8:30 A.M.

I.1 U.S. Air Force Space Weather Federal Agency Update (Invited Presentation). **Ralph O. Stoffler**, U.S. Air Force, Washington, DC; M. Farrar, J. V. Jenniges

8:45 A.M.

I.2 Space Weather Operations and Research Future Infrastructure Workshop. **Lawrence Zanetti**, NOAA/NESDIS, Silver Spring, MD; E. Talaat, A. Charo

9:00 A.M.

I.3 The State and Vision for the Future of Heliophysics at NASA (Invited Presentation). **Nicola Fox**, NASA, Washington, DC

9:15 A.M.

I.4 NSF Support of Space Weather Research (Invited Presentation). **Michael Wiltberger**, NSF, Alexandria, VA

9:30 A.M.

I.5 NOAA's Current and Future Space Weather Observational Architecture. **Elsayed R. Talaat**, NOAA, Silver Spring, MD

9:45 A.M.

I.6 NASA GSFC Heliophysics Science Division and Space Weather. **Holly Gilbert**, GSFC, Greenbelt, MD; A. Pulkkinen

8:30 A.M.–10:00 A.M.

I6GOESRJPSS**Session I: SPECIAL SESSION ON THE JPSS SERIES SATELLITE SYSTEM. PART I –253B**

Chairs: B. Sjöberg, NOAA/NESDIS/JPSS, Lanham, MD; L. Zhou, NOAA/NESDIS/JPSS, Lanham, MD

8:30 A.M.

I.1 The Value of Two JPSS Satellites in the Same Orbit for Nowcasting and Climate Applications. **Mitch Goldberg**, NOAA/NESDIS/JPSS, Lanham, MD; L. Zhou

8:45 A.M.

I.2 Ozone Mapping and Profiler Suite (OMPS) Data Product Updates since the Launch of NOAA-20. **Laura J. Dunlap**, JPSS/Science and Technology Corp., Lanham, MD

9:00 A.M.

I.3 Using the JSTAR Mapper to Monitor Natural Disasters. **Tom Atkins**, IMSG, College Park, MD; L. K. Brown, R. C. Smith, C. Brown, L. Zhou

9:15 A.M.

I.4 The JPSS Advocacy Channel: A Training Resource for Polar-Orbiting Satellites. **S. S. Lindstrom**, Univ. of Wisconsin/CIMSS, Madison, WI; J. J. Gerth, W. Straka III, N. Eckstein, E. Lau

9:30 A.M.

I.5 Joint Polar Satellite System (JPSS): NOAA's Proving Ground Initiative on Oceans and Coasts. **Chowdhury Nazmi**, JPSS/NOAA/STC, Lanham, MD; M. Goldberg, V. Lance

9:45 A.M.

I.6 Operational Transition of Gridded NUCAPS to NOAA NWS and Emerging Applications. **E. Berndt**, NASA MSFC, Huntsville, AL; K. D. White, N. Smith, R. Esmaili

8:30 A.M.–10:00 A.M.

I6IMPACTS**Session I: MAJOR WEATHER IMPACTS OF 2019—SESSION I –BALLROOM EAST**

8:30 A.M.

I.1 International Weather and Climate Events of 2019. **Klaus Wolter**, Univ. of Colorado, Boulder, CO

8:45 A.M.

I.2 Tropical Cyclones of 2019 in the Eastern and Southern Hemispheres: Perspectives from the Joint Typhoon Warning Center. **Owen H. Shieh**, Joint Typhoon Warning Center, Pearl Harbor, HI

9:00 A.M.

I.3 Highlights of the Atlantic and Eastern North Pacific Tropical Cyclones of 2019. **Lixion A. Avila**, NWS/NHC, Miami, FL

9:15 A.M.

I.4 When Can We Talk about the Successes? Perspectives on the Impacts of Hurricane Dorian to Buildings and Infrastructure in the Bahamas. **David Roueche**, Auburn Univ., Auburn, AL; T. L. Kijewski-Correa, D. Allen, J. W. Berman, J. M. Kaihatu, A. B. Kennedy, H. D. Lester, A. Lyda, J. D. Marshall, K. M. Mosalam, D. O. Prevatt, I. N. Robertson, D. J. Smith, R. L. Wood

9:30 A.M.

I.5 The New York City Metro Area Transportation Apocalypse Event of 15 November 2018. **Lance Bosart**, Univ. at Albany, SUNY, Albany, NY; K. A. Biernat, T. C. Leicht

9:45 A.M.

I.6 Communicating the Reasonable Worst-Case Scenario for Rush Hour Planning. **Melissa Di Spigna**, NWS, Upton, NY

8:30 A.M.–10:00 A.M.

I5SOCIETY**Session I: THE COPRODUCTION OF SCIENCE AND STAKEHOLDER ENGAGEMENT –152**

Chairs: Stephanie Schollaert Uz, NASA Goddard Space Flight Center, Greenbelt, MD; Kodi Berry, NOAA/NSSL, Norman, OK

8:30 A.M.

I.1 Climate Knowledge Coproduction for the Agriculture Sector in Argentina from an Implicated Science Approach. **Carolina Vera**, Univ. of Buenos Aires, Buenos Aires, Argentina; V. Hernandez, F. Fossa Riglos

8:30 A.M.–10:00 A.M.

8:45 A.M.

I.2 *Using Social Science to Gather Stakeholder Feedback on the National Water Model and Hydrologic Ensemble Forecast Services.* **Mary G. Mullusky**, NOAA/NWS, Silver Spring, MD

9:00 A.M.

I.3 *Network Analysis of the NASA Earth Science Disasters Program.* **Lauren Cutler**, The Univ. of Arizona, Tucson, AZ; M. Zurek, D. Borges, J. J. Murray, D. S. Green, S. N. McClain

9:15 A.M.

I.4 *NASA's Ice, Cloud, and Land Elevation Satellite Applications Program: Advancing Coproduction of Earth Science Knowledge.* **Sabrina Delgado Arias**, NASA GSFC/Science Systems and Applications, Inc., Greenbelt, MD; M. E. Brown, A. Steiker, S. Tanner, T. Neumann, M. F. Jasinski

9:30 A.M.

I.5 *Impacts of Climate Information on Coffee Farms in Jamaica.* **Malgosia Madajewicz**, Columbia Univ., New York City, NY; E. Johnson, Z. Guido, J. Tomlinson

9:45 A.M.

Discussion.

8:30 A.M.–10:00 A.M.

I5URBAN

Session 1: OUTCOME-FOCUSED URBAN CLIMATE RESEARCH FOR COMMUNITY RESILIENCE –104B

Chairs: Ariane Middel, Arizona State Univ., Tempe, AZ; Peter Crank, Arizona State Univ., Tempe, AZ

8:30 A.M.

I.1 *Unintended Consequences and Trade-Offs of Heat Mitigation Strategies.* **Florian Arwed Schneider**, Arizona State Univ., Tempe, AZ

8:45 A.M.

I.2 *Investigating the Climate and Air Quality Impacts of Adopting Solar Reflective Cool Walls and Roofs in Los Angeles.* **Jiachen Zhang**, Univ. of Southern California, Los Angeles, CA; Y. Li, W. Tao, J. Liu, R. Levinson, A. Mohegh, G. Ban-Weiss

9:00 A.M.

I.3 *Transformative Climate Communities: Informing Adaptation Planning through Cool Urban Design Interventions in Southern California.* **V. Kelly Turner**, Univ. of California, Los Angeles, CA; A. Middel, F. Schneider, Y. Zhang, M. Stiller

9:15 A.M.

I.4 *Measurements of the Impacts of Neighborhood-Scale Cool Pavement Deployments on Albedo, Temperatures, and Pedestrian Thermal Comfort in the Greater Los Angeles Area.* **Joseph Ko**, Univ. of Southern California, Los Angeles, CA; H. Schlaerth, G. Ban-Weiss

9:30 A.M.

I.5 *Heat Walk: Perception of Thermal Comfort in Relation to Street Infrastructure.* **Yuliya Dzyuban**, Arizona State Univ., Tempe, AZ; D. M. Hondula, M. Messerschmidt, J. Vanos, A. Middel, P. Coseo

8:30 A.M.–10:00 A.M.

9:45 A.M.

I.6 *Wicked Hot Boston: Connecting Citizen Science to Extreme Heat Events through Urban Heat Mapping and ISeeChange.* **Sara Benson**, Museum of Science, Boston, MA; D. F. Sittenfeld, V. Shandas, J. S. Hoffman, K. Baur, S. Harrington, D. Cavalier

8:30 A.M.–10:00 A.M.

I2AEROSOL

Session 1: MEASUREMENTS AND MODELING OF CCN AND INP. PART I –208

Chairs: Ottmar Moehler, Institute of Technology, Karlsruhe, Germany; Nicole Riemer, Univ. of Illinois at Urbana, Urbana, IL; Naruki Hiranuma, West Texas A&M Univ., Canyon, TX

8:30 A.M.

I.1 *Developing a New Ice Nucleation Parameterization for Volcanic Ash Particles in Mixed-Phase Clouds.* **Nsikanabasi Silas Umo**, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany; R. Ullrich, E. Maters, I. Steinke, N. Benker, K. Höhler, R. Wagner, P. G. Weidler, G. Hoshyaripour, A. Kiselev, U. Kueppers, K. Kandler, D. Dingwell, T. Leisner, O. Möhler

8:45 A.M.

I.2 *Cloud Processing of Soot Particles and the Effect on Ice Nucleation in Subsequent Cloud Formation Cycles.* **Zamin A. Kanji**, ETH Zürich, Zurich, Switzerland; F. Mahrt, K. Kilchhofer, R. O. David, M. Roesch

9:00 A.M.

I.3 *Ice-Nucleating Particles around the World—The Attempt of an Overview.* **Heike Wex**, Leibniz Institute for Tropospheric Research, Leipzig, Germany

9:15 A.M.

I.4 *Contact Nucleation Caused by Pressure Perturbation?* **Fan Yang**, Brookhaven National Laboratory, Upton, NY; W. Cantrell, A. B. Kostinski, R. A. Shaw, A. M. Vogelmann

9:30 A.M.

I.5 *Clouds out of Pores: Redefining Deposition Nucleation.* **Robert O. David**, Univ. of Oslo, Oslo, Norway; C. Marcolli, J. Fahrni, F. Mahrt, Z. McGraw, D. Brühwiler, Z. A. Kanji, T. Storelvmo

9:45 A.M.

I.6 *Ice-Nucleating Particle Spectra Relevant for Mixed-Phase Clouds from the Tropics to the Arctic Measured from a Research Aircraft.* **Alberto Sanchez-Marroquin**, Univ. of Leeds, Leeds, UK; B. J. Murray, J. B. McQuaid, I. T. Burke

8:30 A.M.–10:00 A.M.

I1ENERGY

Session 1: GRID OPERATIONS AND ENERGY WEATHER. PART I—FORECASTING –256

Chair: Eric E. Wertz, Maxar Technologies, Gaithersburg, MD

8:30 A.M.

Introductory Remarks.

8:45 A.M.

I.1 *Solar Forecasting for Isolated Microgrids.* **Gail Vaucher**, Army Research Laboratory, White Sands Missile Range, NM; M. Berman, G. Parker, R. Jane

I.2 **WITHDRAWN****9:00 A.M.**

I.3 *A Multistage Regime-Dependent Machine Learning Approach to Short-Term Wind Power Forecasting.* **Tyler C. McCandless**, NCAR, Boulder, CO; S. Naegele, S. E. Haupt

9:15 A.M.

I.4 *Kuwait Renewable Energy Grid Operator's Display.* **Nhi Nguyen**, NCAR, Boulder, CO; W. Petzke, J. A. Lee, T. Brummet, G. Weiner, S. E. Haupt, B. Kosovic, M. Al-Rasheedi, T. Hussain, A. Ismail

9:30 A.M.

I.5 *The Effects of Climate Change on Renewable Energy Distribution in New York State: Results from High-Resolution Dynamic Downscaling.* **Jeffrey M. Freedman**, Univ. at Albany, SUNY, Albany, NY; J. Manobianco, D. B. Kirk-Davidoff, A. Gothandaraman, P. Beaucage, R. Perez, A. Dai, G. Xia, J. M. Covert, S. Chen, A. Stevens

9:45 A.M.

I.6 *Projected Increase in the Spatial Extent of U.S. Summer Heat Waves and Implications for the Energy Sector.* **Bradfield Lyon**, Univ. of Maine, Orono, ME

8:30 A.M.–10:00 A.M.**II HEALTH****Session I: EXERTIONAL HEAT ILLNESS AND HEALTH—FROM HEAT METRICS AND PREDICTIONS TO PRACTICE –153B**

Chair: Jennifer Vanos, Arizona State Univ., Tempe, AZ

8:30 A.M.

I.1 *Protecting Youth Athletes in the Heat: How a Flawed Governance System Creates Unnecessary Hurdles to Achieve Best Practices.* **Douglas J. Casa**, Univ. of Connecticut, Storrs, CT

9:00 A.M.

I.2 *Forecasting the Wet-Bulb Globe Temperature: A Web-Based Tool Designed for Populations Who Are Vulnerable to Heat-Related Illnesses.* **Sandra Rayne**, Southeast Regional Climate Center, Chapel Hill, NC; C. E. Konrad, J. J. Clark, D. Bertrand

9:15 A.M.

I.3 *It's Not the Heat, It's the Humidity...and Wind and Solar: Developing and Validating Heat Exposure Products Using the U.S. Climate Reference Network.* **Jared Rennie**, North Carolina Institute for Climate Studies, Asheville, NC; M. A. Palecki, S. Heuser

9:30 A.M.

I.4 *Marching to the Heat of a Different Drum.* **Kevin A. Kloesel**, Univ. of Oklahoma, Norman, OK

9:45 A.M.

I.5 *Variations in Athlete Heat Loss Potential between Hot-Dry and Warm-Humid Environments at Equivalent WBGT Thresholds.* **Jennifer Vanos**, Arizona State Univ., Tempe, AZ; A. J. Grundstein

8:30 A.M.–10:00 A.M.**I0 LIDAR****Session I: CLOUD AND AEROSOL LIDAR-BASED RESEARCH –210C**

Chair: James R. Campbell, NRL, Monterey, CA

8:30 A.M.

I.1 *Differences in Ice Cloud Optical Depth from CALIPSO and Ground-Based Raman Lidar at the ARM SGP and TWP Sites.* **Kelly A. Balmes**, Univ. of Washington, Seattle, WA; Q. Fu, T. Thorsen

8:45 A.M.

I.2 *Validating Air Force Weather's Passively Sensed World Wide Merged Cloud Analysis (WWMCA) against the Cloud-Aerosol Transport System (CATS) Lidar.* **Timothy E. Nobis**, Northrop Grumman Mission Systems, Offutt AFB, NE

9:00 A.M.

I.3 *Sensitivities in Satellite-Lidar-Derived Estimates of Top-of-the-Atmosphere Optically Thin Cirrus Cloud Radiative Forcing: A Case Study.* **Erica K Dolinar**, American Society for Engineering Education, Monterey, CA; J. R. Campbell, S. Lolli, S. Ozog, J. E. Yorks, C. P. Camacho, Y. Gu, A. Bucholtz

9:15 A.M.

I.4 *A Classification of Cirrus Ice Crystal Habits with Combined Lidar and Polarimeter Data.* **Natalie Midzak**, Univ. of North Dakota, Grand Forks, ND; J. E. Yorks, J. Zhang

9:30 A.M.

I.5 *Micropulse Lidar Observation and Analysis of the Development of the McCook, Nebraska, Tornado.* **Timothy Logan**, Texas A&M Univ., College Station, TX; S. D. Brooks, R. Li

9:45 A.M.

I.6 *Connecting Lidar-Derived Aerosol Hygroscopicity to Estimated CCN Concentrations during the Combined HSRL and Raman Lidar Measurement Study (CHARMS).* **Kyle W. Dawson**, USRA, Hampton, VA; R. A. Ferrare, R. H. Moore, T. Thorsen, S. P. Burton, C. A. Hostetler, M. Clayton, E. Eloranta

8:30 A.M.–10:00 A.M.

I0R20 / I6GOESRJPS / 3SMALLSATS
Joint Session I: ADVANCES IN CUBESATS AND SMALLSATS TO IMPROVE EARTH SCIENCE, WEATHER FORECASTING, SPACE WEATHER PREDICTION, HYDROLOGY STUDIES, OR CLIMATE MONITORING—PART I –25 I

Chairs: Martin Yapur, NOAA/NESDIS/Office of Projects, Planning and Analysis, Silver Spring, MD; P. Millar, NASA, Greenbelt, MD

8:30 A.M.

J1.1 *RainCube One Year after Completing Its Mission: What We Have Learned and What Lies Ahead.* **Simone Tanelli**, JPL/CalTech, Pasadena, CA; S. S. Joshi, O. O. Sy, G. Sacco, R. M. Beauchamp, N. Rouse, E. Peral, B. Ortloff, D. Price, R. Rodriguez-Monje, Z. S. Haddad, G. Stephens, E. Im, M. Lebsack, C. J. Shaffer, A. Williams, T. Mosher

8:45 A.M.

J1.2 *One Year of Operational Overlap of the Compact Spectral Irradiance Monitor (CSIM) with the Total and Spectral Solar Irradiance Sensor (TSIS-1) Spectral Irradiance Monitor (SIM).* **Erik Richard**, Univ. of Colorado, Boulder, CO; D. Harber, W. Zheng, M. Chambliss, T. Woods, P. Pilewski

8:30 A.M.–10:00 A.M.

9:00 A.M.

J1.3 *Global Observations from a Science-Quality Millimeter-Wave Atmospheric Sounding Radiometer on a CubeSat to Improve Weather Forecasting: Temporal Experiment for Storms and Tropical Systems Demonstration (TEMPEST-D).* **S. C. Reising**, Colorado State Univ., Fort Collins, CO; T. C. Gaier, S. T. Brown, S. Padmanabhan, C. Kummerow, W. Berg, B. H. Lim, V. Chandrasekar, C. Heneghan, R. Schulte, Y. Goncharenko, C. Radhakrishnan, M. Pallas, D. Laczkowski, A. Bullard, J. Adams

9:15 A.M.

J1.4 *The CubeSat Radiometer Radio Frequency Interference Technology (CubeRRT) Validation Mission: Operations and Development of Software Simulation Tools for Future Resource Constrained Observing Systems.* **Chris Ball**, Ohio State Univ., Columbus, OH; M. Abu Shattal, J. DeLong, R. Linnabary, C. McKelvey, G. Smith, A. O'Brien, J. Johnson, S. Misra, J. R. Piepmeier, D. Laczkowski, N. Monahan

9:30 A.M.

J1.5 *The Global Environmental Monitoring Systems (GEMS) Constellation of Passive Microwave Satellites.* **Albin Gasiewski**, Univ. of Colorado, Boulder, CO; M. Hurowitz, D. W. Gallaher, B. T. Sanders, W. Hosack, R. McAllister, F. McAllister, D. M. Kraft, R. Belter, R. Carter, G. Sasaki, K. Zhang, L. Periasamy

9:45 A.M.

J1.6 *Technology Advancements and Concepts for IR Grating Spectrometer Sounders for CubeSats and SmallSats at NASA JPL.* **Thomas S. Pagano**, JPL, Pasadena, CA

8:30 A.M.–10:00 A.M.

10R20

Session 1: MODELS AND DATA ASSIMILATION TO ENABLE AND ACCELERATE THE TRANSITION OF RESEARCH TO OPERATION TO DECISION-MAKERS, END USERS, AND TO THE PUBLIC: LAND-OCEAN-HYDROLOGICAL MODELING, ADVANCED MODELING, AND DATA DEVELOPMENT AND TEST BEDS –252A

Chairs: Vijay Tallapragada, NOAA/NWS/NCEP, College Park, MD; David Helms, NOAA/NESDIS/Office of Projects, Planning and Analysis, Silver Spring, MD

8:30 A.M.

I.1 *The Community Terrestrial System Model: Facilitating the Transition of Land Model Research to Operations for Applications Spanning Weather to Climate.* **Michael Barlage**, NCAR, Boulder, CO; D. Lawrence, N. Sobhani, W. J. Sacks

8:45 A.M.

I.2 *Recent Progress in COAMPS R20 Transition to Navy Operation.* **Sue Chen**, NRL, Monterey, CA; J. Nachamkin, X. Hong, J. Tsu, A. L. Walker

9:00 A.M.

I.3 *Progress in Building Formal Approaches for Regional Ensemble Prediction System Development.* **Glen S. Romine**, NCAR, Boulder, CO; D. C. Dowell, R. A. Sobash, C. Schwartz, M. Wong, C. Alexander, J. R. Carley

8:30 A.M.–10:00 A.M.

9:15 A.M.

I.4 *Using NSSL's Experimental Warn-on-Forecast System to Message Uncertainty in High-Impact Convective Events.* **Chad M. Gravelle**, NOAA/NWS/Southern Region Headquarters, Fort Worth, TX; K. A. Wilson, P. Skinner, P. L. Heinselman

9:30 A.M.

I.5 *Evaluation of FV3-SAR Initialized by Multiscale Hybrid EnVar Analyses for Convection-Allowing Hazardous Weather Forecasting.* **Nicholas A. Gasperoni**, Univ. of Oklahoma, Norman, OK; X. Wang, C. R. Alexander, J. R. Carley

9:45 A.M.

I.6 *Transition of the Basin-Scale Hurricane Weather Research and Forecasting Model to Operations.* **Ghassan J. Alaka**, NOAA/AOML/HRD, Miami, FL; B. Thomas, X. Zhang, A. Mehra, S. Gopalakrishnan, F. Marks

8:30 A.M.–10:00 A.M.

8MJO

Session 1: DYNAMICS OF THE MADDEN–JULIAN OSCILLATION –254B

Chairs: Juliana Dias, CIRES/Univ. of Colorado and NOAA, Boulder, CO; Alex Omar Gonzalez, Iowa State Univ., Ames, IA, , Iowa State Univ., Ames, IA

8:30 A.M.

I.1 *The Mysterious MJO: Here Today, Gone Tomorrow! (Invited Presentation).* **Julia M. Slingo**, Cabot Institute, Bristol, UK

8:45 A.M.

I.2 *A New MJO Theory.* **Chidong Zhang**, NOAA PMEL, Seattle, WA; J. E. Kim

9:00 A.M.

I.3 *What Determines the Propagation Speed of the Madden–Julian Oscillation?* **Guosen Chen**, Nanjing Univ. of Information Science and Technology, Nanjing, China; B. Wang

9:15 A.M.

I.4 *Analysis of Primary Madden–Julian Oscillation Events in the Indian Ocean Using Satellite Observations.* **Casey G. Shoup**, Univ. of South Carolina, Columbia, SC; S. Bulusu

9:30 A.M.

I.5 *Examining the MJO–QBO Relationship in a GCM with a Nudged Stratosphere.* **Zane K. Martin**, Columbia Univ., New York, NY; C. Orbe, S. Wang, A. H. Sobel

9:45 A.M.

I.6 *The Madden–Julian Oscillation, Wave Energy Accumulation, and the Formation of Intense South Atlantic Convergence Zones.* **Fernando E. Hirata**, Federal Univ. of Parana, Curitiba, Brazil; V. Toma, P. J. Webster

8:30 A.M.–10:00 A.M.

FUTURESYP**Session 1: MODEL CENTER PROGRESS AND FUTURE VISION –258B**

Chairs: Kandis Boyd, OAR, Silver Spring, MD; Alexander O. Tardy, NOAA/NWS, San Diego, CA

8:30 A.M.

I.1 *ECMWF: 2019–20 Update and Our Vision for the Future of Forecasting and Model Development.* **Jennifer M.A. Rourke**, ECMWF, Reading, UK

8:45 A.M.

I.2 *USAF Weather Modeling: Status Update and Future Plans for New and Enhanced Model Capabilities.* **Michael Farrar**, U.S. Air Force, Washington, DC

9:00 A.M.

I.3 *Leveraging Community Modeling in NOAA to Advance Operational Environmental Prediction.* **Brian Gross**, NOAA/NWS/NCEP, College Park, MD

9:15 A.M.

I.4 *Overview of the Navy Coupled Atmospheric and Ocean Modeling Systems.* **William Burnett**, NOAA/NDBC, Stennis Space Center, MS

9:30 A.M.

I.5 *Current Status and Vision of Future Met Office NWP Capabilities.* **Dale Barker**, Met Office, Exeter, UK

9:00 A.M.–10:00 A.M.

22WXMOD**Session 1: UNDERSTANDING KEY CHALLENGES FOR CLOUD SEEDING –105**

Chairs: Jeff Frech, Univ. of Wyoming, Laramie, WY; Katja Friedrich, Univ. of Colorado, Boulder, CO

9:00 A.M.

I.1 *A Summary of the WMO/WWRP Peer Review Report on Global Precipitation Enhancement Activities.* **Andrea I. Flossmann**, Univ. Clermont Auvergne, Aubière, France; M. J. Manton Sr., A. Abshaev Sr., R. T. Brintjes Sr., M. Murakami, T. Prabhakaran Sr., Z. Yao Sr.

9:15 A.M.

I.2 *Which Is Effective in Enhancing Rainfall from Mixed-Phase Convective Clouds: Hygroscopic or Glaciogenic Seeding?* **Masataka Murakami**, Nagoya Univ., Nagoya, Japan; W. Jung, Y. Yoshizumi, T. Shinoda, M. Kato

9:30 A.M.

I.3 *Challenges in Simulating Orographic Precipitation in Natural and Seeded Clouds.* **Roy Rasmussen**, NCAR, Boulder, CO; S. A. Tessendorf, L. Xue

9:45 A.M.

I.4 *Simulating the Microphysical Properties of Orographic clouds in SNOWIE.* **Lulin Xue**, NCAR, Boulder, CO; R. M. Rasmussen, S. A. Tessendorf

9:00 A.M.–10:00 A.M.

10PYTHON**Session 1: WORKING WITH LARGE DATASETS USING PYTHON –157AB**

Chair: Scott Collis, Argonne National Laboratory, Argonne, IL

9:00 A.M.

I.1 *Opening Remarks and History of the Symposium.* **Scott Collis**, Argonne National Laboratory, Argonne, IL

9:15 A.M.

I.2 *The Big Climate Data Pipeline (BCDP): An Open-Source Python Library to Analyze High-Resolution Climate Models and Satellite Observations in Amazon Cloud and NASA's High-Performance Computing Environments.* **Alexander Goodman**, Jet Propulsion Laboratory, Pasadena, CA; H. Lee, K. Gorski

9:30 A.M.

I.3 *Storm-centric Analysis of Tropical Cyclones in Python.* **Kimberly M. Wood**, Mississippi State Univ., Mississippi State, MS

9:00 A.M.–10:00 A.M.

8EARLYCAREER**Session: MIND THE GAP: EFFORTS TO PREPARE STUDENTS FOR THE REAL WORLD –255**

Chairs: Rebecca DePodwin, AccuWeather, Inc., State College, PA; Matt Rogers, Commodity Weather Group, LLC, Washington, DC

Panelists: Heidi Centola, The Weather Company, Phoenix, AZ; Andrea L. Lang, Univ. at Albany, SUNY, Albany, NY; Lawrence Gloeckler, Riskpulse, Philadelphia, PA; Maximilian Andrew Vido, ACES, IN; Sue Ellen Haupt, NCAR, Boulder, CO

9:00 A.M.–10:00 A.M.

4PREDICTABILITY**Session 1: INTRINSIC AND PRACTICAL PREDICTABILITY –104C**

Chair: Roberto Buizza, ECMWF, Reading, UK

9:00 A.M.

I.1 *Waveguide Seeds, Sensitivity and Predictability.* **James D. Doyle**, NRL, Monterey, CA; M. G. Fearon, P. M. Finocchio, C. A. Reynolds

9:15 A.M.

I.2 *Operational Forecast-Based Estimates of the Practical Predictability of Weather.* **Istvan Szunyogh**, Texas A&M Univ., College Station, TX; N. Zagar

9:30 A.M.

I.3 *Carbon-Weather Data Assimilation: Progress and Outlook.* **Inez Fung**, Univ. of California, Berkeley, CA; S. Wuerth

9:45 A.M.

I.4 *Assessment and Selection of Regional Automatic Weather Stations in China Based on the RRR Principle of the WMO.* **Jian Xia Guo**, Meteorological Observation Center of China Meteorological Administration, Beijing, China

9:15 A.M.–10:00 A.M.

48BROADCAST

Lecture 1: EMS LECTURE –204AB

Chairs: Cheryl Nelson, WTKR-TV, Norfolk, VA; Joe Murgo, WTAJ-TV, Altoona, PA

9:15 A.M.

L 1.1 EMS Lecture: *Talking about Weather and Climate in Europe (Invited Presentation)*. **Tanja Cegnar**, Slovenian Environment Agency, Ljubljana, Slovenia

9:45 A.M.

Q & A.

9:45 A.M.–10:00 A.M.

33CVC

Session 1D: SPECIAL SESSION WITH SENATOR WHITEHOUSE –156BC

9:45 A.M.

ID.1 *The Role of Scientists in Public Policy during the Age of Climate Misinformation (Invited Presentation)*. **Senator Sheldon Whitehouse**, U.S. Senator for Rhode Island, Providence, RI

10:30 A.M.–12:00 P.M.

SOLOMONSYMP

Session 2: OZONE AND THE MIDDLE ATMOSPHERE: PAST, PRESENT, AND FUTURE –205B

Chair: Doug Kinnison, NCAR, Boulder, CO

10:30 A.M.

2.1 *The Antarctic Ozone Hole: Past, Present, and Future*. **Paul A. Newman**, NASA GSFC, Greenbelt, MD

10:45 A.M.

2.2 *Response of the Middle Atmosphere to Energetic Particle Production*. **Charles H. Jackman**, NASA GSFC, Greenbelt, MD

11:00 A.M.

2.3 *Comprehensive Modeling of Dynamics and Chemistry in the Middle Atmosphere*. **Rolando R. Garcia**, NCAR, Boulder, CO

11:15 A.M.

2.4 *Changes in Brewer–Dobson Circulation Seen from Satellite MSU/AMSU Observations*. **Qiang Fu**, Univ. of Washington, Seattle, WA; S. Solomon, H. Pahlavan, P. Lin

11:30 A.M.

2.5A *Dynamical Drivers of Recent Boreal Winter Ozone Trends in the Northern Hemisphere Lower Stratosphere*. **Clara Orbe**, NASA, New York, NY; K. Wargan, S. Pawson, L. D. Oman

2.5 WITHDRAWN

11:45 A.M.

2.6 *Understanding the Role of QBO-Driven Variability in Observed Changes in Ozone from the Middle Stratosphere to the Troposphere and across Multiple Time Scales*. **Jessica L. Neu**, JPL, Pasadena, CA; A. S. Glanville, D. E. Kinnison, R. R. Garcia, M. Linz

10:30 A.M.–12:00 P.M.

48BROADCAST

Session 2: COMMUNICATING RESILIENCE TO YOUR VIEWERS –204AB

Chair: Brandon Rector, KOLN, Lincoln, NE

10:30 A.M.

2.1 *Indicators of Climate Change to Inform Resilience Decisions*. **Michael Kolian**, EPA, Washington, DC

10:45 A.M.

2.2 *Cape Cod: No Tornadoes since 1977, Then Five within a Year*. **Matthew Cappucci**, *The Washington Post*, Washington, DC

11:00 A.M.

2.3 *Utilizing Technology to Keep Middle Tennessee and Southern Kentucky Viewers Safe during the 21 June 2019 Derecho*. **Danielle Breezy**, WKRN-TV, Nashville, TN; D. Nolan

11:15 A.M.

2.4 *Lightning and Lightning Safety*. **John Jensenius**, Cumberland, ME

11:30 A.M.

2.5 *California's 6.4th of July Earthquake and 7.1 Magnitude Aftershock*. **Anthony Yanez**, KNBC, Los Angeles, CA

11:45 A.M.

2.6 *The FIU "WOW" Factor!*. **Erik Salna**, Extreme Events Institute, Florida International Univ., Miami, FL

10:30 A.M.–12:00 P.M.

36EIP

Session 2A: SERVICES UPDATE FOR WEATHER AGENCIES. PART II –157C

Chairs: Randall Bass, FAA, Washington, DC; Scott Jacobs, NOAA/NWS, Silver Spring, MD

10:30 A.M.

2A.1 *Federal Aviation Administration Service Update*. **William H. Bauman**, FAA, Washington, DC

10:45 A.M.

2A.2 *U.S. Air Force Weather Operations Update*. **Ralph O. Stoffler**, U.S. Air Force, Washington, DC; M. Farrar

11:00 A.M.

2A.3 *An Update on Global Satellite-Based Precipitation Products and Services at NASA GES DISC*. **Zhong Liu**, NASA GES DISC/CSISS, George Mason Univ., Greenbelt, MD; A. Savtchenko, B. Deshong, M. Greene, F. Fang, I. V. Gerasimov, C. F. Loeser, S. Shen, P. Huwe, J. Su, C. L. Shie, R. Albayrak, J. Acker, A. W. Li, G. D. Lei, J. Alfred, D. Ostrenga, W. Teng, J. Wei, D. Meyer

11:15 A.M.

2A.4 *Integrated Dissemination Program—The Data Platform for a Weather-Ready Nation*. **Carissa L. Klemmer**, NCEP, College Park, MD; J. A. Lupfer

11:30 A.M.

2A.5 *Improving the Local Climate Analysis Tool by Incorporating User Input.* **Marina Timofeyeva**, NOAA/NWS, Silver Spring, MD; J. C. Meyers, J. Kennedy, M. E. Churma, M. Coulman, J. Fox, D. Michelson

11:45 A.M.

2A.6 *Update on Numerical Weather Prediction Efforts within the 16th Weather Squadron.* **Evan Kuchera**, 557th Weather Wing, Offutt AFB, NE

10:30 A.M.–12:00 P.M.**36EIP**

Session 2B: WEATHER AND ROADS: LINKING ROAD WEATHER RESEARCH, INFORMATION, AND TECHNOLOGIES TO BENEFIT SOCIETY. PART II –209

Chairs: Amanda R. Siems-Anderson, NCAR, Boulder, CO; Stephen Early, IBM/The Weather Company, Brookhaven, GA

10:30 A.M.

2B.1 *New Test Results: Automated Vehicles during Adverse Weather.* **Brenda Boyce**, Booz Allen Hamilton, Alexandria, AR; D. Johnson, R. Alfelot

10:45 A.M.

2B.2 *Effects of Precipitation Type on Crash Relative Risk Estimates in Kansas.* **Dana M. Tobin**, The Pennsylvania State Univ., University Park, PA; M. R. Kumjian, A. W. Black

11:00 A.M.

2B.3 *Machine Learning to Predict Vehicular Crash Severity from Weather Conditions.* **Curtis L. Walker**, National Center for Atmospheric Research, Boulder, CO; S. E. Haupt, T. C. McCandless, A. R. Siems-Anderson

11:15 A.M.

2B.4 *Road Surface Temperature Validation of the Global Weather Corp. Road Weather Forecasts.* **Danny Cheresnick**, Global Weather Corporation, Boulder, CO; J. Thompson, B. Gail

11:30 A.M.

2B.5 *Evaluation of the High-Resolution Rapid Refresh Model for Forecasting Roadway Surface Temperatures.* **W. Logan Downing**, Purdue Univ., West Lafayette, IN; H. Li, J. Desai, M. Liu, D. M. Bullock, M. E. Baldwin

11:45 A.M.

2B.6 *Are We Ready to Weather Urban Air Mobility (UAM)?* **Colleen Reiche**, Booz Allen Hamilton, Washington, DC

10:30 A.M.–12:00 P.M.**34HYDRO**

Session 2A: FLOOD PREDICTION, ANALYSIS, DECISION SUPPORT, AND MANAGEMENT. PART II –253C

Chairs: David Gochis, NCAR, Boulder, CO; Kristie Franz, Iowa State Univ., Ames, IA

10:30 A.M.

2A.1 *March 2019 “Bomb Cyclone”: The 2019 Mississippi River Basin Flooding Begins.* **Kevin Low**, NOAA/NWS, Pleasant Hill, MO

10:45 A.M.

2A.2 *National Weather Service Impact Decision Support Services for the Historic Spring Flood of 2019 in the Mississippi Watershed.* **Corey B. Loveland**, NOAA/NWS, Chanhassen, MN; S. D. Buan

11:00 A.M.

2A.3 *The Record-Setting Arkansas River Flood of 2019: An Analysis and Review of Forecasts and Coordination.* **Eric T. Jones**, NOAA/NWS, Tulsa, OK

11:15 A.M.

2A.4 *The Use of Unmanned Aerial System Imagery in the 2018–19 Mississippi River Flood Event to Enhance NWS Flood Forecasting and Decision Support Services.* **Suzanne Van Cooten**, Lower Mississippi River Forecast Center, Slidell, LA; R. J. Moorhead II

11:30 A.M.

2A.5 *Communicating Probabilities for the Better Understanding of Flood Risk.* **Ryan S. Knutsvig**, NWS, Grand Forks, ND; A. D. Moore, A. J. Lee

11:45 A.M.

2A.6 *Anatomy of a Texas Flood: Causes, Challenges, and Conclusions of the October 2018 Llano and Colorado River Flooding.* **Melissa Huffman**, National Weather Service, New Braunfels, TX; K. Dedeaux

10:30 A.M.–12:00 P.M.**34HYDRO**

Session 2B: LAND–ATMOSPHERE AND LAND–OCEAN INTERACTIONS. PART II –253A

Chairs: Yongkang Xue, Univ. of California, Los Angeles, CA; Michael Ek, NCAR, Boulder, CO; Craig R. Ferguson, Univ. at Albany, SUNY, Albany, NY; Randal Koster, USRA, Greenbelt, MD

10:30 A.M.

2B.1 *Amplification of Mega-Heat-Wave Temperatures by Upwind Drought Conditions.* **Dominik L. Schumacher**, Ghent Univ., Ghent, Belgium; J. Keune, C. C. van Heerwaarden, J. Vilà-Guerau de Arellano, A. J. Teuling, D. G. Miralles

10:45 A.M.

2B.2 *Reconciling Divergent Estimates of the Sensitivity of Colorado River Discharge to Atmospheric Warming.* **P. C. D. Milly**, USGS, Princeton, NJ; K. A. Dunne

11:00 A.M.

2B.3 *Soil Moisture as a Harbinger of Increased Forecast Reliability at Subseasonal Time Scales (Centennial).* **Randal D. Koster**, NASA GSFC, Greenbelt, MD; S. D. Schubert, A. M. DeAngelis

11:15 A.M.

2B.4 *Global Atmospheric Responses to Observed Tibetan Plateau Snow Anomalies in Winter and Spring.* **Qigang Wu**, Fudan Univ., Shanghai, China; S. Liu, Y. Yao

11:30 A.M.

2B.5 *Impact of Land Surface Conditions in the Tibetan Plateau on Summer Precipitation in Southeast Asia: Comparing the Roles of Soil Moisture and Soil Temperature.* **Guiling Wang**, Univ. of Connecticut, Storrs, CT; W. Liu, M. Yu

11:45 A.M.

2B.6 *Land Surface Modeling and Land–Atmosphere–Ocean Interaction Studies—A Historical Perspective (Centennial).* **Yongkang Xue**, Univ. of California, Los Angeles, CA; R. Koster

10:30 A.M.–12:00 P.M.

33CVC

Session 2A: AFRICAN CLIMATE CHANGE AND VARIABILITY. PART II –150

Chairs: Kerry Cook, Univ. of Texas, Austin, TX; Edward K. Vizy, Austin, TX

10:30 A.M.

2A.1 *A Systematic Comparison of Tropical Waves over Western and Eastern Equatorial Africa.* **Andreas H. Fink**, Karlsruhe Institute of Technology, Karlsruhe, Germany; A. Schlueter, R. van der Linden, J. G. Pinto

10:45 A.M.

2A.2 *The Influence of Kelvin Waves during Dry and Wet African Rainfall Years.* **Ademe Mekonnen**, North Carolina A&T State Univ., Greensboro, NC; C. J. Schreck III

11:00 A.M.

2A.3 *Attribution of Sahel Rainfall Variability: What Can Flawed Models Teach Us?* **Michela Biasutti**, LDEO, Palisades, NY; K. Marvel, R. Herman, A. Giannini, Y. Kushnir

11:15 A.M.

2A.4 *The Tropical Easterly Jet over West Africa in Models and Observations and the Links to Sahel Rainfall.* **Sharon E. Nicholson**, Florida State Univ., Tallahassee, FL

11:30 A.M.

2A.5 *Characterizing 15 Years of Saharan Air Layer Properties in North Africa.* **Stephen D. Nicholls**, NASA, Greenbelt, MD; K. I. Mohr, J. J. Shi, S. A. Braun

11:45 A.M.

2A.6 *On the Interpretation of Seasonal Southern Africa Precipitation Prediction Skill Estimates during Austral Summer.* **Andrew Hoell**, NOAA, Boulder, CO; J. K. Eischeid

10:30 A.M.–12:00 P.M.

33CVC

Session 2B: SEASONAL-TO-DECADAL CLIMATE PREDICTION. PART II –154

Chairs: Stephen Yeager, National Center for Atmospheric Research, Boulder, CO; Sarah Larson, North Carolina State Univ., Raleigh, NC

10:30 A.M.

2B.1 *Initialized Seasonal-to-Interannual Forecasting without Initialization.* **Matthew Newman**, CIRES–Colorado Univ., Boulder, CO; H. Ding, Y. Wang, M. A. Alexander

10:45 A.M.

2B.2 *A Subseasonal-to-Decadal Prediction Research Framework with NCAR's CESM1 and CESM2.* **Jadwiga Richter**, NCAR, Boulder, CO; S. Yeager, J. Caron, W. M. Kim, A. S. Glanville, K. Lindsay, K. Oleson, J. Edwards, J. Tribbia, H. Teng, J. Berner, S. Bates, N. Rosenbloom, G. Strand, J. Olson, G. Danabasoglu, I. R. Simpson, B. Medeiros, M. C. Long, G. A. Meehl, J. F. Lamarque

11:00 A.M.

2B.3 *Seasonal-to-Decadal Predictability and Prediction with an Ocean Eddy Resolving Coupled Model (Invited Presentation).* **Ben Kirtman**, RSMAS, Miami, FL

11:30 A.M.

2B.4 *Assessment of CanESM5 Decadal Hindcasts: Modes of Variability and Their Teleconnections.* **Reinel Sospedra-Alfonso**, CCCma, Victoria, Canada; W. S. Lee, V. Kharin, W. Merryfield, G. J. Boer

11:45 A.M.

2B.5 *Exploring North Atlantic and North Pacific Decadal Climate Prediction Using Self-Organizing Maps.* **Qinxue Gu**, The Pennsylvania State Univ., State College, PA; M. M. Gervais

10:30 A.M.–12:00 P.M.

33CVC

Session 2C: WESTERN NORTH AMERICAN CLIMATE: DIAGNOSIS, PREDICTION, AND IMPACTS AT SUBSEASONAL-TO-MULTIDECADAL SCALES –151A

Chair: Emily Becker, NOAA, College Park, MD

10:30 A.M.

2C.1 *Projections in Many Directions: Extracting Meaningful Guidance for Water Resources Planning in the Western United States from the NA-CORDEX GCM-RCM Ensemble.* **Kelly Mahoney**, NOAA, Boulder, CO; J. D. Scott, M. Alexander, M. Hughes, D. Swales, R. McCrary

10:45 A.M.

2C.2 *Changes in Extreme Integrated Water Vapor Transport on the U.S. West Coast in NA-CORDEX, and Their Relationship to Mountain and Inland Precipitation.* **Mimi Hughes**, NOAA, Boulder, CO; D. Swales, J. D. Scott, M. Alexander, K. Mahoney, R. McCrary

11:00 A.M.

2C.3 *The Modulation of Natural Gas through Winter Climate and Cyclone Variability.* **Jacob Stuivenvolt Allen**, Utah State Univ., Logan, UT; S. Y. Wang

11:15 A.M.

2C.4 *Influences and Impacts of Variability and Recent Collapse in Seasonal Bering Sea Ice Coverage.* **Richard Thoman**, Univ. of Alaska, Fairbanks, AK

11:30 A.M.

2C.5 *Large-Scale Drivers of Connected Atmospheric Rivers along the U.S. West Coast.* **Meredith A. Fish**, SIO, La Jolla, CA; J. Done, A. M. Wilson, F. M. Ralph

11:45 A.M.

2C.6 *Mesoscale Climate Surprises over the Pacific Northwest: Initial Results of a Large High-Resolution Regional Climate Ensemble for 1970–2100.* **Clifford F. Mass**, Univ. of Washington, Seattle, WA; R. Steed, J. Baars

10:30 A.M.–12:00 P.M.

29 EDUCATION**Session 1: PRECOLLEGE EDUCATION INITIATIVES—ENGAGING STUDENTS –258C**

Chairs: Staci DeSchryver, Education, Centennial, CO; Eleanor Vallier-Talbot, NOAA/NWS, Norton, MA

10:30 A.M.

1.1 *Keeping up with the Data Revolution with SOS Explorer Mobile.* **Hilary Peddicord**, CIRES/Univ. of Colo., Boulder, CO; E. Hackathorn, E. L. Russell, K. Searight, J. Stewart

10:45 A.M.

1.2 *GOES Nation and the GOES Virtual Science Fair: How Students Can Learn and Have Fun Doing Research with Satellite Data!* **Vicky Gorman**, Medford Memorial Middle School, Medford, NJ; M. Mooney, T. J. Schmit, D. T. Lindsey

11:00 A.M.

1.3 *GLOBE Mission Earth: Engaging Students in Research through Fusing GLOBE with NASA Assets to Build Systematic Innovation in STEM.* **John Moore**, Institute for Earth Observations, Palmyra, NJ

11:15 A.M.

1.4 *What Ingredients Lead to a Successful Precollege Student Chapter of AMS.* **Elizabeth Rennert**, Concord–Carlisle High School, Concord, MA; T. Ruggiero

11:30 A.M.

1.5 *Sparkling K-12 Student Interest in Meteorology and STEM Careers by Utilizing Real Time and Archival Weather Data.* **Eleanor Vallier-Talbot**, NOAA/NWS, Norton, MA

11:45 A.M.

AMS K–12 Teacher Award Winner.

10:30 A.M.–12:00 P.M.

26 PROBSTAT**Session 2: METHODS OF VERIFICATION AND EVALUATION OF FORECASTS: SPATIAL AND OBJECT-BASED METHODS –260**

Chairs: Tara Jensen, NCAR, Boulder, CO; Jason Otkin, Univ. of Wisconsin, Madison, WI; Christina P. Kalb, NCAR, Boulder, CO

10:30 A.M.

2.1 *Spatial Forecast Verification: Putting Location-Based Measures to the Test with a New Set of Geometric Cases.* **Eric Gilleland**, NCAR, Boulder, CO; G. Skok, B. G. Brown, B. Casati, M. Dorninger, L. J. Wilson, M. P. Mittermaier

10:45 A.M.

2.2 *Impacts of Neighborhood Approaches for Verification of Gridded Products.* **Matthew S. Wandishin**, NOAA/ESRL/GSD and CIRES/Univ. of Colorado, Boulder, CO; L. Melling, G. J. Layne

11:00 A.M.

2.3 *Clarifying Applications of Neighborhood Approaches to High-Resolution Forecasts.* **Craig S. Schwartz**, NCAR, Boulder, CO; R. A. Sobash

11:15 A.M.

2.4 *A New Object-Based Method for the Scale-Dependent Verification of Convection-Allowing NWP Models: Methodology and Application for the OU MAP Ensemble.* **Fan Han**, Univ. of Oklahoma, Norman, OK; X. Wang

11:30 A.M.

2.5 *Exploring Nontraditional Methods for Streamlining the Model Validation Process.* **Michelle Harrold**, NCAR, Boulder, CO; T. Hertneky, T. L. Fowler

11:45 A.M.

2.6 *The Information Gain of NWP Models.* **John R. Lawson**, CIMMS/NSSL, Norman, OK; C. K. Potvin, P. S. Skinner, M. L. Flora

10:30 A.M.–12:00 P.M.

25 APPLIED**Session 1: THE VALUE OF FEDERAL CLIMATE SERVICES IN REGIONAL CONTEXTS: EXAMPLES FROM DROUGHT AND THE FUTURE LANDSCAPE –153A**

Chair: Mark D. Brusberg, USDA, Washington, DC

10:30 A.M.

1.1 *Collaborative Drought Monitoring and Analysis: Examples from the NOAA National Centers for Environmental Information.* **Richard R. Heim**, NOAA/NESDIS/NCEI, Asheville, NC; D. S. Arndt, S. Ansari

10:45 A.M.

1.2 *Cooperation and Coordination among Federal Boundary Organizations in the Southern Great Plains in Response to Weather and Climate Extremes.* **Michael A. Langston**, USGS, Norman, OK; D. P. Brown, M. A. Shafer

11:00 A.M.

1.3 *Building Indigenous Resilience to Drought through Regional Collaborations in the Missouri River Basin.* **Crystal J. Stiles**, Univ. of Nebraska, Lincoln, NE; N. A. Umphlett, J. Rattling Leaf Sr., D. R. Kluck

11:15 A.M.

1.4 *Drought Social Media Doesn't Have to Be Dry.* **Gregory Hammer**, NESDIS, Asheville, NC

11:30 A.M.

1.5 *Blending Coproduction and Conventional Research Approaches to Address Real-World Climate Challenges.* **Stephanie A. McAfee**, Univ. of Nevada, Reno, NV; J. S. Littell, H. R. Prendeville, S. T. Gray, A. Jacobs, R. Thoman Jr., D. J. Bathke, A. Bidlack, P. Bieniek, R. Lader, T. S. Rupp, G. J. Wolken

10:30 A.M.–12:00 P.M.

24IOAS**Session 2: OBSERVING SYSTEM SIMULATION EXPERIMENTS (OSSES) –259A****Chair:** Ross Hoffman, AER, Lexington, MA**10:30 A.M.**

2.1 *Ongoing Efforts for Observing System Simulation Experiments (OSSES) in Support of the Next Generation of Satellite Architecture at NOAA.* **Lidia Cucurull**, NOAA/AOML, Miami, FL; R. A. Anthes, R. Atlas, F.W. Gallagher III, M.W. Maier

10:45 A.M.

2.2 *Understanding the Response of Tropical Cyclone Structure to the Assimilation of Synthetic Wind Profiles.* **Lisa R. Bucci**, NOAA/AOML, Miami, FL; S. J. Majumdar, R. Atlas, S. Greco, G. D. Emmitt

11:00 A.M.

2.3 *Optimizing Assimilation of TROPICS Radiances for Tropical Cyclone Prediction in a Regional OSSE.* **B.A. Dahl**, Univ. of Miami/ CIMAS and NOAA/AOML/HRD, Miami, FL; H. Christophersen, R. Atlas, W. J. Blackwell, S. A. Braun, R. Bennartz, R. F. Rogers, J. P. Dunion, F. D. Marks

11:15 A.M.

2.4 *Simulation of Microwave Radiance Observations for the TROPICS Mission.* **David Earl Bates**, AOML, Miami, FL; S.W. Diaz, L. Cucurull

11:30 A.M.

2.5 *Global OSSE Systems Capabilities at NOAA.* **Sean P. F. Casey**, Cooperative Institute for Marine and Atmospheric Studies, Miami, FL; L. Cucurull, A. Vidal

11:45 A.M.

2.6 *Observing System Simulation Experiments for Convective Clouds.* **D. J. Posselt**, JPL, Pasadena, CA; M. Lebsock, R. L. Storer, M. Minamide, J. Mace, Z. Xu

10:30 A.M.–12:00 P.M.

22ATCHEM**Session 2A: GREENHOUSE GASES. PART I –207**

Chairs: Abhishek Chatterjee, GSFC, Greenbelt, MD; Sean Crowell, Univ. of Oklahoma, Norman, OK; Berrien Moore, National Weather Center/Univ. of Oklahoma, Norman, OK; Scott Denning, Colorado State Univ., Fort Collins, CO

10:30 A.M.

2A.1 *Using Satellite Observations of Atmospheric Methane to Quantify the Methane Budget and Its Trends from the Global Scale down to Point Sources (Invited Presentation).* **Daniel J. Jacob**, Harvard Univ., Cambridge, MA; D. Cusworth, J. maasakkers, H. Nesser, E. Penn, T. Scarpelli, D. Varon, Y. Zhang

10:45 A.M.

2A.2 *Progress toward Global Atmospheric CO₂ and CH₄ Flux Inventories.* **David Crisp**, JPL/California Institute of Technology, Pasadena, CA

11:00 A.M.

2A.3 *Atmospheric Methane Attributes from a Decade-Long, Global, High-Resolution GEOS Simulation: Trends in Inter- and Intra-Annual Variability.* **Abhishek Chatterjee**, GSFC, Greenbelt, MD; L. Ott, S. Basu, K. Morgan, S. Pawson, B. Poulter, B. Weir

11:15 A.M.

2A.4 *Preliminary Study of the Joint Carbon Data Assimilation System (JDAS).* **Zhiqiang Liu**, IAP, Beijing, China; N. Zeng, L. Di, H. Pengfei, M. Han

11:30 A.M.

2A.5 *CO–CO₂ Correlations over the Tropics during the 2015 El Niño Event Observed with Two Flux Inversions.* **Helene Peiro**, Univ. of Oklahoma, Norman, OK; S. Crowell

11:45 A.M.

2A.6 *The OCO-3 Mission: Performance of the Snapshot Area Map and Target Mode Observations and Coincident Measurements with the OMPS and TROPOMI Air Quality Sensors.* **T. P. Kurosu**, JPL, Pasadena, CA; A. Eldering, R. R. Basilio, M.W. Bennett, C. O'Dell, P. Somkuti, T. E. Taylor, M. Kiehl, R. Nelson, G. D. Spiers, B. M. Fisher, R. P. Pavlick, G. B. Osterman, J. Laughner, R. Rosenberg, G. R. Keller Rodrigues, S. Yu, Y. Marchetti, D. Crisp, P. O. Wennberg

10:30 A.M.–12:00 P.M.

22ATCHEM**Session 2B: REGIONAL AIR QUALITY. PART II –206B**

Chairs: Jeffrey L. Collett, Colorado State Univ., Fort Collins, CO; A. Gannet Hallar, Univ. of Utah, Salt Lake City, UT; Steven S. Brown, NOAA/Earth System Research Laboratory/Chemical Sciences Division, Boulder, CO

10:30 A.M.

2B.1 *Particle pH: A Critical Air Quality Parameter (Invited Presentation).* **Rodney J. Weber**, Georgia Institute of Technology, Atlanta, GA; A. Nenes

10:45 A.M.

2B.2 *Characterization of Organics in Cloud Water: Measurements from the Present Day and from Decades Past.* **Sara M. Lance**, Univ. at Albany, SUNY, Albany, NY; C. Lawrence, J. J. Schwab, J. Zhang, Q. Zhang, A. P. Sullivan, L. Husain, D. Kelting, E. Yergler, H. Favreau, P. Casson, R. Brandt

11:00 A.M.

2B.3 *Impact of Updated Wet Scavenging Processes in GEOS-Chem on Global Simulation of Nitric Acid and Aerosols: Comparisons with U.S., European, and East Asian Surface and ATom Aircraft Measurements.* **Gan Luo**, Univ. at Albany, SUNY, Albany, NY; F. Yu

11:15 A.M.

2B.4 *Potential Vorticity Diagnostics of Baseline and Surface Ozone in Relation to Stratospheric Intrusions and Wildfires during CABOTS 2016.* **Jodie E. Clark**, San Jose State Univ., San Jose, CA; S. Chiao

11:30 A.M.

2B.5 *Assimilating TOLNET Profile and AirNow Surface Ozone Observations over the Eastern United States during a Canadian Wildfire Smoke Intrusion Event Using WRF-Chem/DART.* **Zhifeng Yang**, Univ. of Maryland, Baltimore, MD; A. P. Mizzi, A. Tangborn, B. Demoz, J. L. Anderson, R. Delgado, J. T. Sullivan

11:45 A.M.

2B.6 *Monitoring Atmospheric Composition and Long-Range Smoke Transport with NUCAPS Satellite Soundings in Field Campaigns and Operations.* **Rebekah Esmaili**, Science and Technology Corporation, Columbia, MD; N. Smith, C. D. Barnet, G. J. Frost, S. A. McKeen, M. K. Trainer, C. Francoeur

10:30 A.M.–12:00 P.M.**22WXMOD****Session 2: RECENT FIELD CAMPAIGNS AND MODELING STUDIES –105**

Chairs: Randy Chase, N/A, Brockport, NY; Duncan Axisa, Droplet Measurement Technologies, Longmont, CO

10:30 A.M.

2.1 *Recent In Situ and Radar Measurements of Microphysical Characteristics in Convective Clouds in Desert and Tropical Regions.* **Roelof Bruintjes**, NCAR, Boulder, CO; P. Lawson, S. Woods

10:45 A.M.

2.2 *In Situ Measurements of Aerosol and Cloud Microphysical Properties and Cloud Seeding Experiments over the UAE.* **Narihiro Orikasa**, MRI, Tsukuba, Ibaraki, Japan; M. Murakami, T. Tajiri, Y. Zaizen, T. Shinoda

11:00 A.M.

2.3 *Under What Conditions Can We Detect a Microphysical Response in Clouds Seeded with AgI? Lessons from SNOWIE.* **Jeffrey French**, Univ. of Wyoming, Laramie, WY; M. Hatt, K. Friedrich, S. Tessoroff, L. Xue, R. M. Rauber, B. Geerts, R. M. Rasmussen, D. Blestrud, M. L. Kunkel

11:15 A.M.

2.4 *Quantifying Snowfall from Orographic Cloud Seeding.* **Katja Friedrich**, Univ. of Colorado, Boulder, CO; K. Ikeda, S. Tessoroff, J. French, R. M. Rauber, B. Geerts, L. Xue, R. Rasmussen, D. Blestrud, M. L. Kunkel

11:30 A.M.

2.5 *Simulated Seeding Impacts in a Seeded Cloud Observed during SNOWIE.* **Lulin Xue**, NCAR, Boulder, CO; R. M. Rasmussen, S. A. Tessoroff

11:45 A.M.

2.6 *Separating Physical Impacts from Natural Variability Using Piggybacking (Master–Slave) Technique.* **Wojciech W. Grabowski**, NCAR, Boulder, CO

10:30 A.M.–12:00 P.M.**21AIRPOL****Session 2: MODELING AND MONITORING OF AIR POLLUTION IN THE URBAN ENVIRONMENT –211**

Chairs: Jeffrey Weil, NCAR, Boulder, CO; Chenghao Wang, Arizona State Univ., Tempe, AZ

10:30 A.M.

2.1 *Natural Ventilation of Urban Offices: A Summary of Findings from the Refresh Project.* **Janet F. Barlow**, Univ. of Reading, Reading, UK; C. Noakes, M. C. Schraefel, H. Gough, C. H. Halios, M. F. King, S. Snow, Z. Luo, C. S. B. Grimmond, A. Robins, A. Quinn

10:45 A.M.

2.2 *Spatial Variation of Air Pollutants Using Machine Learning Models.* **Jiajun Gu**, Cornell Univ., Ithaca, NY; G. Bang, A. Guha Roy, M. Brauer, M. Zhang

11:00 A.M.

2.3 *Including Aerosol Dynamic Processes in LES: Evaluation and Application.* **Mona Kurppa**, Univ. of Helsinki, Helsinki, Finland; S. Karttunen, A. Hellsten, L. Järvi

11:15 A.M.

2.4 *3D Mobile Monitoring and CFD Modeling of PM and BC Distributions in Urban Air Pollution Hotspots.* **Kyung-Hwan Kwak**, Kangwon National Univ., Chuncheon-si, Korea, Republic of (South); S. H. Lee, Y. U. Kim, Y. H. Lee, J. H. Kim, S. B. Lee, S. J. Jeong

11:30 A.M.

2.5 *The Residence Time of Pollutants Emitted within the Urban Canopy Influenced by Street Canyon Geometry and Emission Conditions.* **Chenghao Wang**, Arizona State Univ., Tempe, AZ; Q. Li, Z. Wang

11:45 A.M.

2.6 *The Spatiotemporal Variability of Aerosols and Particulate Matter in the Urban Environment.* **Michael Garay**, JPL/California Institute of Technology, Pasadena, CA; O. Kalashnikova, M. Franklin, H. Lee, Y. Yu, M. Sorek-Hamer

10:30 A.M.–12:00 P.M.**20SMOI****Session 2: REMOTE SENSING—RADAR- AND SATELLITE-BASED APPLICATIONS –203**

Chair: Reid Hansen, Scintec, Boulder, CO

10:30 A.M.

2.1 *Next-Generation Cloud Radars: How Do We Obtain Rapid Three-Dimensional Observations of Clouds?* **David J. Bodine**, Univ. of Oklahoma, Norman, OK; J. Salazar, J. McDaniel, C. R. Homeyer, R. D. Palmer, P. E. Kirstetter, M. Yeary, G. McFarquhar, J. F. Kelly, B. M. Isom, P. Kollias, M. R. Kumjian

10:45 A.M.

2.2 *Can We Derive a Climatology of Riming from Ground-Based Cloud Radar Datasets?* **Stefan Kneifel**, Univ. of Cologne, Cologne, Germany; D. Moisseev

11:00 A.M.

2.3 *An Improved Beta Method for Ice Cloud Retrievals Using Spaceborne Thermal Infrared Observations.* **Masanori Saito**, Texas A&M Univ., College Station, TX; P. Yang, A. K. Heidinger, Y. Li

11:15 A.M.

2.4 *Near-Real-Time Distribution of LANCE ISS LIS Lightning Data Available at the Global Hydrology Resource Center (GHRC) Distributed Active Archive Center (DAAC).* **Geoffrey T. Stano**, Univ. Alabama in Huntsville, Huntsville, AL; S. G. Harrison, H. Conover, L. Sinclair, S. J. Graves, R. Blakeslee

11:30 A.M.

2.5 *Use of Commercial, Airborne Weather Radars to Fill in Operational Network Gaps.* **Jonathan J. Gourley**, NOAA/NSSL, Norman, OK; K. W. Howard, P. E. Kirstetter, M. E. Weber, H. Vergara, J. A. Duarte, C. Marshall, J. Hendricks

11:45 A.M.

2.6 *A Mobile Ka-Band Polarimetric Scanning Doppler Radar System for Wildfire and Cloud Research.* **Taylor Aydel**, San Jose State Univ., San Jose, CA; C. B. Clements

10:30 A.M.–12:00 P.M.

20ARAM**Session 2: RESEARCH PROGRAMS, SERVICES, AND INITIATIVES TO SUPPORT THE AVIATION, RANGE, AND AEROSPACE METEOROLOGICAL COMMUNITIES –206A**

Chairs: Matt Fronzak, The MITRE Corporation, McLean, VA; Randy Bass, AWRP, Washington, DC

10:30 A.M.

2.1 *The Status of the International Civil Aviation Organization Meteorological Information Exchange Model (IWXXM) Global and U.S. Implementation.* **M. Pat Murphy**, FAA, Washington, DC

10:45 A.M.

2.2 *Federal Aviation Administration (FAA) Ceiling and Visibility Research.* **Jennifer A. Colavito**, FAA, Washington, DC

11:00 A.M.

2.3 *Federal Aviation Administration Aircraft Icing Weather Research.* **Stephanie DiVito**, FAA, Atlantic City International Airport, NJ; D. L. Sims, J. T. Riley, T. Bond, S. D. Landolt, J. A. Haggerty

11:15 A.M.

2.4 *Weather Information Services for Enterprise Research—A Framework to Allow Better Integration, Analysis, and Testing of Weather Information within the National Airspace System.* **John Preston**, FAA, Atlantic City International Airport, NJ

11:30 A.M.

2.5 *JPSS Aviation Initiative.* **J. Weinrich**, JPSS/STC, Glenn Dale, MD

11:45 A.M.

2.6 *Science Upgrades to the World Area Forecast System.* **Teil Howard**, UKMO, Exeter, UK; P. Buchanan, E. Steele, G. Anderson, C. S. Bartholomew, K. L. Brown, M. Canning, J. C. H. Cheung, A. Lanyon, D. Turp, B. P. Pettegrew, M. Strahan

10:30 A.M.–12:00 P.M.

18COASTAL**Session 2: COUPLED FORECASTING OF EXTREME WEATHER AND COASTAL FLOOD EVENTS. PART II –158**

Chairs: Jesse Feyen, GLERL, Ann Arbor, MI; Andre Van der Westhuysen, IMSG at NOAA/NWS/NCEP/EMC, College Park, MD

10:30 A.M.

2.1 *Modeling Compound Flooding from Hurricane Florence Using ADCIRC. Part I: Coastal Response.* **Rick Luettich**, Univ. of North Carolina, Morehead City, NC; J. Ratcliff, B. Blanton, Y. Feng

10:45 A.M.

2.2 *Modeling Compound Flooding from Hurricane Florence Using ADCIRC. Part II: Riverine Contributions.* **Brian Blanton**, Univ. of North Carolina, Chapel Hill, NC; Y. Feng, J. Ratcliff, R. Luettich

11:00 A.M.

2.3 *Simulating Compound Flooding Events in a Hurricane: Baroclinic Effects and Backwater Processes.* **Yinglong Joseph Zhang**, Virginia Institute of Marine Science, Gloucester Point, VA

11:15 A.M.

2.4 *Toward Forecasting the Coastal Compound Hazard Caused by River Flooding and Storm Surge during Extreme Weather Events.* **Hongyuan Zhang**, Coastal Carolina Univ., Myrtle Beach, SC; S. Bao, L. J. Pietrafesa, P. Gayes

11:30 A.M.

2.5 *Investigation of Extreme Weather, Ocean Current, Wave, and Coastal Flooding during Hurricane Florence (2018) Using the Coupled Ocean–Atmosphere–Wave–Sediment Transport (COAWST) Model.* **Joseph B. Zambon**, North Carolina State Univ., Raleigh, NC; R. He, J. C. Warner, C. A. Hegermiller

11:45 A.M.

2.6 *Updates to the Coupling of Hazards to Evacuation/Sheltering Models: Inland Flooding Considerations in the Integrated Scenario-Based Evacuation Framework for Hurricanes Matthew and Florence.* **Kendra M. Dresback**, Univ. of Oklahoma, Norman, OK; H. Vergara, J. J. Gourley, R. L. Kolar, R. Davidson, B. Blanton, B. A. Colle, T. Wachtendorf, L. Nozick, K. Yang, S. DeYoung, Y. Hong, N. Leonardo

10:30 A.M.–12:00 P.M.

18HISTORY**Session 2: HISTORY OF METEOROLOGICAL PRACTICES, OBSERVATIONS, AND RELATED. PART I –104A**

Chairs: Terrence R. Nathan, Univ. of California, Davis, CA; Warren Blier, NOAA/NWS, Monterey, CA

10:30 A.M.

2.1 *NCAR's Earth Observing Laboratory Legacy Field Campaign Archives.* **Steve Williams**, NCAR, Boulder, CO; R. A. Rilling, G. Stossmeister, C. Connell

10:45 A.M.

2.2 *McIDAS: Visualizing Weather Data for Nearly One-Half Century!.* **D. A. Santek**, CIMSS, Madison, WI; B. Schaffer, M. A. Lazzara, S. S. Lindstrom

11:00 A.M.

2.3 *Unidata's Launch and Early Development—A Technology-Rooted, Transformational Partnership between the National Science Foundation (NSF) and the Meteorology Community.* **David Fulker**, OPeNDAP, Inc., Narragansett, RI; C. Jacobs

11:15 A.M.

2.4 *Early Roots of Quality Assurance for Meteorological Measurements for Environmental Applications.* **Kenneth Underwood**, Technical and Business Systems, Valencia, CA; P. Franscioli

11:30 A.M.

2.5 *Linking Historical Tornado Trends to Today's Society through Climate Decision Support Services.* **Kyle Brown**, NWS, Syracuse, IN; S. Lashley

11:45 A.M.

2.6 *The History of Extratropical Transition in Canada: Impacts, Research, and Prediction.* **James Abraham**, MSC, Halifax, Canada; C. Fogarty

10:30 A.M.–11:30 A.M.**I7SPACEWX****Session 2: AGENCY EFFORTS IN SPACE WEATHER: PRIORITIES AND OPPORTUNITIES. PART II –205A****10:30 A.M.**

2.1 *The Heliophysics Space Weather Science and Applications Program (Invited Presentation).* **James Spann**, NASA, Washington, DC

10:45 A.M.

2.2 *International Community Coordination in Space Weather.* **Masha Kuznetsova**, NASA GSFC, Greenbelt, MD; M. Bisi, M. Temmer, S. Bruinsma, H. Opgenoorth, A. Belehaki, L. Mays, E. J. Semones, S. Murray, Y. Zheng, I. Mann, J. Linker, D. Nandi, M. Mendoza, D. Heynderickx, A. Glover

11:00 A.M.

2.3 *A Roadmap to Ensure a Space Weather-Ready Nation (Invited Presentation).* **Louis Uccellini**, NOAA, Silver Spring, MD

10:30 A.M.–12:00 P.M.**I6GOESRJPS****Session 2: SPECIAL SESSION ON THE GOES SERIES SATELLITE SYSTEM. PART I –253B**

Chairs: Pam Sullivan, NOAA/NESDIS/GOES Program Office, Greenbelt, MD; D. Lindsey, NOAA/NESDIS/GOES-R, Ft. Collins, CO

10:30 A.M.

2.1 *GOES-17 ABI L2 Algorithm Status.* **T. Feroli**, NESDIS, Greenbelt, MD; J. Daniels, M. Seybold, S. Superczynski

10:45 A.M.

2.2 *Update on Geostationary Operational Environmental Satellite Rebroadcast (GRB) Data Usage.* **James McNitt**, NESDIS, Suitland, MD; M. Seybold, J. Tsui, B. Gockel, G. Martin

11:00 A.M.

2.3 *GOES-17 ABI Anomaly Recovery: Predictive Calibration.* **D. Pogorzala**, Centauri, Chantilly, VA; J. Fulbright, E. Kline, M. Seybold, B. Efremova, J. McCorkel, J. Van Naarden

11:15 A.M.

2.4 *Further Recovering GOES-17 ABI Radiances and Imagery.* **M. R. Black**, MIT Lincoln Laboratory, Lexington, MA; M. M. Coakley, M. S. Veillette, A. Krimchansky, J. McCorkel

11:30 A.M.

2.5 *Update on CSPP Geo Software for Geostationary Direct Broadcast.* **G. D. Martin**, CIMSS/Univ. of Wisconsin, Madison, WI; L. Gumley, J. Braun, G. Cureton, A. De Smet, R. Garcia, D. Hoese, T. Jasmin, S. Mindock, E. Schiffer, K. Strabala

11:45 A.M.

2.6 *Distribution and Cloud-Free Evaluations of the GOES-17 ABI Radiance Anomalies.* **Michael D. Grossberg**, City College, City Univ. of New York, New York, NY; R. O. Adomako, T. Schmit

10:30 A.M.–12:00 P.M.**I6IMPACTS****Session 2: MAJOR WEATHER IMPACTS—SESSION II –BALLROOM EAST****10:30 A.M.**

2.1 *East Tennessee Flash Flood Event of 6 February 2019.* **Richard Vincent Garuckas**, NWS, Morristown, TN; J. L. Buckles, D. Hotz

10:45 A.M.

2.2 *The Intersection of Historic Flooding, Winter and Severe Weather, and Decision Support during February 2019 in the Tennessee Valley.* **Kathleen M. Magee**, NWS, Huntsville, AL; A. Pritchett, M. Amin

11:00 A.M.

2.3 *2019 Precipitation and Temperature Extremes in the Missouri River Basin.* **Laura M. Edwards**, South Dakota State Univ., Aberdeen, SD; N. A. Umphlett

11:15 A.M.

2.4 *The Catastrophic Mid-America Floods of March 2019: Ice Jams, Rapid Snowmelt, Heavy Rain, and One of the Costliest Natural Disasters in Nebraska's Recorded History.* **Catherine M. Zapotocny**, NOAA/NWS Omaha/Valley, Valley, NE; D. Pearson, B. Barjenbruch, B. Miller

11:30 A.M.

2.5 *Leveraging Satellite Remote Sensing for the Monitoring of 2019 Spring Floods.* **Lori A. Schultz**, Univ. of Alabama, Huntsville, AL; J. R. Bell, A. L. Molthan, R. Lucey, J. Kirkendall, G. W. Layne, D. Kirschbaum, D. S. Green

11:45 A.M.

2.6 *THIS IS NOT A DRILL! Psychological and Managerial Aspects of Becoming Part of the Disaster in the Midst of Providing Support.* **Suzanne M. Fortin**, NOAA, Valley, NE; R. J. Kern, B. Barjenbruch, B. E. Smith

10:30 A.M.–12:00 P.M.**I5SOCIETY****Session 2: WHAT OUR PUBLICS AND EXPERTS HAVE TO SAY –152**

Chairs: Cassandra A Shivers-Williams, Howard Univ., Washington, DC, , OU CIMMS/NSSL, Norman, OK; Castle Williams, The Univ. of Georgia, Athens, GA

10:30 A.M.

2.1 *Tornado Warning Behavior and Decision-Making in National Weather Service Forecast Offices.* **Frank Alsheimer**, NWSFO, West Columbia, SC; T. Johnstone, D. Sharp, V. Brown, L. Myers, D. Arnold

10:45 A.M.

2.2 *Improving Hurricane Risk Communication for Vulnerable Populations.* **Sharanya J. Majumdar**, Univ. of Miami, Miami, FL; B. Millet, K. Broad, A. Cairo, S. Evans

11:00 A.M.

2.3 *Hurricane Harvey—Societal Challenges for the Weather Enterprise.* **Jeffrey S. Evans**, NOAA/NWS/WFO Houston, TX, Dickinson, TX; L. Wood

10:30 A.M.–12:00 P.M.

15 SOCIETY

Panel Discussion 8: BUILDING STRONGER: BRINGING TOGETHER GEOSPATIAL, SOCIAL SCIENTIFIC, AND ENGINEERING-BASED PERSPECTIVES ON WEAK-FRAMED HOUSING IN THE SOUTHEASTERN UNITED STATES –151B

Panelists: Stephen M. Strader, Villanova Univ., Villanova, PA; Walker S. Ashley, Northern Illinois Univ., DeKalb, IL; Kevin D. Ash, Univ. of Florida, Gainesville, FL; David B. Roueche, Univ. of Florida, Gainesville, FL; Kimberly E. Klockow-McClain, AAAS, Washington, DC; Michael Egnoto, Walter Reed Army Institute of Research, Silver Spring, MD; Heather Lazrus, NCAR, Boulder, CO; Barry S. Goldsmith, NWSFO, Brownsville, TX

10:30 A.M.–12:00 P.M.

15 URBAN

Session 2: BIOMETEOROLOGY: RECENT ADVANCES AND FUTURE DIRECTION –104B

Chair: Negin Nazarian, Univ. of New South Wales, Australia

10:30 A.M.

2.1 *Thermal Performance of Cool Pavements in Los Angeles Residential Neighborhoods: A Pedestrian Perspective.* **Ariane Middel**, Arizona State Univ., Tempe, AZ; V. K. Turner, F.A. Schneider, Y. Zhang, M. Stiller

10:45 A.M.

2.2 *Mean Radiant Temperature Modeling Outdoors: A Comparison of Three Approaches.* **Csilla V. Gal**, Dalarna Univ., Falun, Sweden; K. A. Nice

11:00 A.M.

2.3 *Continuous Sky-View Factor Simulation and Thermal Comfort Evaluation Based on the UMEP Model.* **Fanhua Kong**, Nanjing Univ., Nanjing, China

11:15 A.M.

2.4 *Modeling Sensitivity of Urban Thermal Comfort on Street-Level Adaptation Measures: Case Study of Prague-Holesovice, Czech Republic.* **Jan Geletic**, Institute of Computer Science of the Czech Academy of Sciences, Prague, Czech Republic; J. Resler, P. Krč, K. Eben, M. Lehnert Jr., O. Vlček, M. Belda, V. Fuka, M. Kurppa, B. Maronga, M. Sühling

11:30 A.M.

2.5 *TUF-Pedestrian: A Three-Dimensional Microscale Model for Pedestrian Thermal Exposure in Urban Environments.* **Jacob Lachapelle**, Univ. of Guelph, Guelph, Canada; N. Menheere, S. Krayenhoff, A. Middel, A. M. Broadbent

11:45 A.M.

2.6 *From Thermal Sensation to Thermal Effect: A Multidimensional Semantic Space to Assess Outdoor Thermal Comfort.* **Sijie Liu**, Univ. of New South Wales, Sydney, Australia; R. De Dear, J. Niu, M. A. Hart, N. Nazarian

10:30 A.M.–12:00 P.M.

12 AEROSOL

Session 2: MEASUREMENTS AND MODELING OF CCN AND INP. PART II –208

Chairs: Ottmar Moehler, Institute of Technology, Karlsruhe, Germany; Nicole Riemer, Univ. of Illinois, Urbana, IL; Naruki Hiranuma, West Texas A&M Univ., Canyon, TX

10:30 A.M.

2.1 *The Critical Role of Observations in Developing Numerical Representations of Ice-Nucleating Particles for Southern Ocean Mixed-Phased Clouds.* **Christina S. McCluskey**, NCAR, Boulder, CO; P. J. DeMott, T. C. J. Hill, S. M. Kreidenweis, J. Ovadnevaite, M. Rinaldi, J. Atkinson, F. Belosi, D. Ceburnis, S. Marullo, U. Lohmann, Z. A. Kanji, C. O'Dowd, R. Humphries, A. M. Rauker, S. Moreau, P. Stratton, S. Chambers, A. Williams, I. McRobert, J. Ward, M. Keywood, J. Harnwell, W. Ponnsonby, Z. Loh, P. Krummel, A. Protat, A. Gettelman, C. G. Bardeen, C. H. Twohy, P. L. Ma, S. M. Burrows

10:45 A.M.

2.2 *Ice Nucleation Efficiency of SOA Particles from Boreal Forests.* **Ana A. Piedehierro**, Finnish Meteorological Institute, Helsinki, Finland; A. Welti, A. Virtanen, A. Buchholz, K. Korhonen, I. Pullinen, I. Summanen, A. Laaksonen

11:00 A.M.

2.3 *Cation-Specific Effects on the Ice-Nucleating Ability of Potassium-Rich Feldspar.* **Jingwei Yun**, Univ. of British Columbia, Vancouver, Canada; J. Davidson, N. Link, A. K. Bertram

11:15 A.M.

2.4 *Drone-Based Investigation of Biological INPs in the Atmosphere.* **Paul Bieber**, TU Wien, Vienna, Austria; T. M. Seifried, J. Gratzl, J. Burkart, A. Kasper-Giebl, D. Schmale III, H. Grothe

11:30 A.M.

2.5 *The Concentrations of Atmospheric Ice Nuclei and Their Relation with Aerosol Particles in Different Regions in China.* **Yan Yin**, Laboratory for Aerosol-Cloud-Precipitation of the China Meteorological Administration, Nanjing, China; H. Jiang, K. Chen, C. He

11:45 A.M.

2.6 *Long-Term Coastal Ice-Nucleating Particle Measurements from Mace Head Research Station.* **Ottmar Möhler**, Karlsruhe, Germany; K. N. Fossum, C. Schaupp, W. Xu, K. Höhler, C. O'Dowd, D. Ceburnis

10:30 A.M.–12:00 P.M.

11 ENERGY

Session 2: GRID OPERATIONS AND ENERGY WEATHER. PART II—OUTAGE –256

Chairs: Robert D'Arienzo, IBM, New York, NY; Eric E. Wertz, Maxar Technologies, Gaithersburg, MD

10:30 A.M.

2.1 *Data-Driven Modeling of Utility Outages Using Weather Radar Observations.* **Michael Jensen**, Brookhaven National Laboratory, Upton, NY; M. Yue, T. Toto, S. E. Giangrande, A. Zhou

10:45 A.M.

2.2 *Studying Tree Trimming Effects on Power Grid Resilience Using Weather and Outage Models.* **Diego Cerrai**, Univ. of Connecticut, Storrs, CT; P. Watson, E. Anagnostou

11:00 A.M.

2.3 *Examining the 24–25 February 2019 Windstorm and Projecting Utility Outages in High-Wind Events in American Electric Power.* **Marcus R. Smith**, American Electric Power, Columbus, OH

11:15 A.M.

2.4 *BART—Physical Damage Approach for Power Outages Forecast.* **Juan Montoya**, City College of New York, New York, NY; R. Pokhrel, S. Del Coss, M. Yue, M. Jensen, J. Gonzalez

11:30 A.M.

2.5 *Icing Forecast and Detection Operationally for the Province of Quebec Grid.* **Gilles Cazade**, Hydro-Quebec, Saint-Basile-le-grand, Canada

11:45 A.M.

2.6 *Predicting Wet Snow Icing Risks on the Grid Edge.* **Jason C. Shafer**, Northern Vermont Univ., Lyndonville, VT; D. M. Siuta

10:30 A.M.–12:00 P.M.**11 HEALTH**

Session 2: LINKING KNOWLEDGE TO SOCIETY: INNOVATIVE SOLUTIONS FOR REDUCING HEAT'S HEALTH IMPACTS IN THE NORTHEAST UNITED STATES –153B

Chairs: Augusta Williams, Harvard TH Chan School of Public Health, Boston, MA; Hunter Jones, NOAA, Silver Spring, MD

10:30 A.M.

2.1 *Cool Neighborhoods NYC: A Data-Driven Approach to Keep Communities Safe and Adapt New York City to Rising Temperatures and Extreme Heat Events.* **Kizzy Charles-Guzman**, Mayor's Office of Resiliency, New York, NY

10:45 A.M.

2.2 *Extreme Heat Planning in Boston, Massachusetts.* **Erin Polich**, Boston Public Health Commission, Boston, MA

11:00 A.M.

2.3 *Dying at Home on Hot Days: The Role of Small-Area Social and Environmental Factors on Heat Vulnerability to At-Home Mortality in Boston, Massachusetts.* **Augusta Williams**, Harvard TH Chan School of Public Health, Boston, MA

11:15 A.M.

2.4 *What Is a "Safe" Indoor, Warm Season, Temperature?* **Chris Uejio**, Florida State Univ., Tallahassee, FL; E. Gonsoroski

11:30 A.M.

2.5 *Spatial Patterns of Heat Vulnerability Constituents across Massachusetts.* **Leila Heidari**, Boston Univ., Boston, MA; P. L. Kinney, M. P. Fabian

11:45 A.M.

2.6 *Matching Statistically Downscaled Climate Projections to Northeastern U.S. Heat Application Sensitivities.* **Keith W. Dixon**, GFDL, Princeton, NJ; D. Adams-Smith, J. Lanzante, E. Mccray

10:30 A.M.–12:00 P.M.**10 LIDAR / 10R20**

Joint Session 3: SPACE-BASED LIDAR APPLICATIONS –210C

Chair: Sharon Rodier, SSAI, Hampton, VA

10:30 A.M.

J3.1 *The Atmospheric Measurements of ICESat-2.* **Stephen P. Palm**, SSAI, Greenbelt, MD; Y. Yang, U. Herzfeld

10:45 A.M.

J3.2 *Cloud-Aerosol Transport System (CATS) Single-Wavelength Data Products and Performance.* **John E. Yorks**, NASA, Greenbelt, MD; M. J. McGill, E. P. Nowottnick, P. Selmer

11:00 A.M.

J3.3 *A Global Analysis of Dust Diurnal Variability Using CATS Observations.* **Yan Yu**, Univ. of California, Los Angeles, CA; O. Kalashnikova, M. Garay, H. Lee, M. Choi, G. S. Okin, J. E. Yorks, J. R. Campbell

11:15 A.M.

J3.4 *Global Cloud and Surface Properties from ICESat-2 Observations: Preliminary Results.* **Yuekui Yang**, NASA, Greenbelt, MD; S. P. Palm, U. Herzfeld

11:30 A.M.

J3.5 *Using CALIOP to Evaluate Cirrus Cloud Detection Proficiencies in GOES-16 ABI 1.378-um Channel Imagery.* **James R. Campbell**, NRL, Monterey, CA; T. M. McHardy, D. A. Peterson, A. Garnier, R. L. Bankert, E. K. Dolinar, X. Dong

11:45 A.M.

J3.6 *Column Optical Depths Derived from CALIOP Ocean Surface Returns.* **Robert Ryan**, SSAI, Hampton, VA; M. A. Vaughan, D. M. Winker

10:30 A.M.–12:00 P.M.**10 PYTHON / 36EPT / 19AI / 6HPC**

Joint Session 2: HOW ARTIFICIAL INTELLIGENCE AT SCALE WILL LINK WEATHER AND CLIMATE DATA TO SOCIETY –157AB

Chairs: David John Gagne, NCAR, Boulder, CO; Scott Collis, Argonne National Laboratory, Argonne, IL

10:30 A.M.

J2.1 *How Python Can Help Us to Create the Physical Data Scientists of the Future (Core Science Keynote).* **Amy McGovern**, Univ. of Oklahoma, Norman, OK

11:00 A.M.

J2.2 *Cloud Nowcasting on Satellite Images: A Novel Dataset and Experimental Comparisons.* **Andreas Holm Nielsen**, Aarhus Univ., Aarhus, Denmark; A. Wagner, A. Iosifidis, H. Karstoft

J2.3 WITHDRAWN

10:30 A.M.—12:00 P.M.

11:15 A.M.

J2.4 *Geocaching with Geohashing—Scaling Weather APIs with Python and Spark for Big Data Machine Learning.* **Alexander Kalmikov**, QuantumBlack, Cambridge, MA; Y. Zhu, L. Zhang, J. Annor

11:30 A.M.

J2.5 *Frameworks for Gaining Insight and Machine Learning on Large Climate and Weather Datasets.* **Robert Jackson**, Argonne National Laboratory, Argonne, IL; S. Collis, I. Foster, B. Blaiszik, S. Fiore

10:30 A.M.—12:00 P.M.

10R20 / 16GOESRJPS / 3SMALLSATS

Joint Session 4: ADVANCES IN CUBESATS AND SMALLSATS TO IMPROVE EARTH SCIENCE, WEATHER FORECASTING, SPACE WEATHER PREDICTION, HYDROLOGY STUDIES, OR CLIMATE MONITORING—PART II –251

Chairs: Robert Bauer, NASA Earth Science Technology Office, Greenbelt, MD; Stephen A. Mango, NOAA/NESDIS/Office of Projects, Planning and Analysis, Silver Spring, MD

10:30 A.M.

J4.1 *Enabling Global Observations of Cloud Ice Particle Size and Water Vapor Sounding to Improve Understanding of the Role of Clouds in Climate and Weather Prediction: Tropospheric Water and Cloud ICE (TWICE) 6U CubeSat Instrument.* **S. C. Reising**, Colorado State Univ., Fort Collins, CO; P. Kangaslahti, W. Deal, E. Schlecht, J. Jiang, M. Ogut, Y. Goncharenko, I. Ramos, X. Bosch-Lluis, B. Kilmer, A. Skalare, R. Cofield, N. Chahat, S. Padmanabhan, S. T. Brown, A. Zamora, C. Cooke, K. Leong, S. Shih, G. Mei

10:45 A.M.

J4.2 *Evolution of the Multi-Angle Stratospheric Aerosol Radiometer.* **Matthew G. Kowalewski**, NASA GSFC, Greenbelt, MD; M. T. DeLand, P. R. Colarco, L. Ramos-Izquierdo, W. Mamakos, A. J. Digregorio

11:00 A.M.

J4.3 *Galago-1: A Compact Day—Night Band Sensor Pathfinder.* **Kelly Collett**, The Aerospace Corporation, El Segundo, CA

11:15 A.M.

J4.4 *Comparing a CubeSat with VIIRS: What we learned from the Cubesat MULTispectral Observing System - CUMULOS.* **Dee W. Pack**, The Aerospace Corporation, Los Angeles, CA; S. Miller, C. M. Coffman, J. R. Santiago, C. J. Seaman, S. Kidder, C. Combs, G. Chirokova

11:30 A.M.

J4.5 *Update on the Stratospheric Water Inventory: Tomography of Convective Hydration (SWITCH) Project.* **Nathaniel Livesey**, JPL, Pasadena, CA; A. J. Tang, W. G. Read, G. Chattopadhyay, R. Jarnot, C. Felten, R. Stachnik, F. Werner

11:45 A.M.

J4.6 *Computational Reconfigurable Imaging Spectrometer (CRISP).* **Adam Milstein**, MIT Lincoln Laboratory, Lexington, MA; Y. Rachlin, C. Wynn, R. Sullenberger, C. Smeaton, P. Chapnik, S. Leman

10:30 A.M.—12:00 P.M.

10:30 A.M.—12:00 P.M.

10R20

Session 2: TESTBEDS TO ENABLE AND ACCELERATE TRANSITIONS OF R20 TO DECISION-MAKERS, END USERS, AND THE PUBLIC IN WEATHER, WATER, OR CLIMATE APPLICATIONS [E.G., HAZARDOUS WEATHER TESTBED (HWT) AND HYDROMETEOROLOGICAL TESTBED (HMT)]—PART I –252A

Chairs: Alan E. Gerard, NOAA/OAR/NSSL, Norman, OK; Kodi Nemunaitis-Berry, NOAA/OAR/NSSL, Norman, OK

10:30 A.M.

2.1 *Joint Technology Transfer Initiative: A Research to Operations Transition Program in NOAA.* **Chandra R. Kondragunta**, NOAA/OAR/Office of Weather and Air Quality, Silver Spring, MD; B. Lapenta, H. L. Tolman

10:45 A.M.

2.2 *The 2019 NOAA Hazardous Weather Testbed Spring Forecasting Experiment.* **Adam J. Clark**, NOAA/OAR/NSSL, Norman, OK; I. L. Jirak, B. T. Gallo, B. Roberts, S. J. Weiss, L. J. Wicker, S. R. Dembek, M. Xue, F. Kong, K. W. Thomas, C. Zhang, K. H. Knopfmeier, G. J. Creager, K. Brewster, Y. Jung, G. Romine, C. R. Alexander, X. Wang, S. M. Willington, Y. Wang, A. Johnson, L. Harris, T. A. Supinie, A. R. Dean, K. A. Wilson, M. J. Krocak, K. Hoogewind, P. L. Heinselman, J. J. Choate, C. Potvin

11:00 A.M.

2.3 *Incorporating End Users in Hazardous Weather Testbed Experiments.* **Kodi Nemunaitis-Berry**, NSSL, Norman, OK; H. Obermeier, K. M. Calhoun, T. C. Meyer, K. E. Klockow-McClain, D. LaDue, Z. Stanford, A. Gerard

11:15 A.M.

2.4 *Key Highlights from the Hazardous Weather Testbed: Experimental Warning Program 2019.* **Tiffany C. Meyer**, CIMMS/Univ. of Oklahoma, and NOAA/NSSL, Norman, OK; A. V. Bates, K. Berry, K. M. Calhoun, P. A. Campbell, A. Gerard, J. J. Gourley, K. E. Klockow-McClain, S. M. Martinaitis, J. W. Monroe, B. R. Smith, G. J. Stumpf

11:30 A.M.

2.5 *Transitioning the Tropical Cyclone Logistic Guidance for Genesis (TCLOGG) Forecast Tool to the National Hurricane Center via the Joint Hurricane Testbed.* **Daniel J. Halperin**, Embry-Riddle Aeronautical Univ., Daytona Beach, FL; R. E. Hart, A. Brammer

11:45 A.M.

2.6 *'An Overview of the 2019 Aviation Weather Testbed Summer Experiment'.* **Stephanie Avey**, NWS/NCEP/AWC, Kansas City, MO; A. Cross, R. M. Hepper, S. Alvidrez

10:30 A.M.—12:00 P.M.

8EARLYCAREER

Session: LEADING UP! –255

Chairs: Rebecca DePodwin, AccuWeather, Inc., State College, PA; Bradford Johnson, Florida State Univ., Tallahassee, FL

10:30 A.M.–12:00 P.M.

8WXCLIMATE / 48BROADCAST / 8WRN
Joint Session 5: TRANSLATING WEATHER INTO THE SPANISH LANGUAGE. PART 1: CURRENT RESOURCES AND INITIATIVES IN THE SPANISH WEATHER WORLD –252B

Chairs: Joseph Enrique Trujillo, CIMMS/NSSL, Norman, OK; Gina M Eosco, OAR, Silver Spring, MD

10:30 A.M.

J5.1 *From Alberto the Avocado to Augmented Reality.* **John Toohey-Morales**, WTVJ NBC-6, Miami, FL

10:45 A.M.

J5.2 *How Varying Climate, Geography, and Government in the Spanish-Speaking World Impact Weather Communication.* **Christopher Bianchi**, WeatherNation, Centennial, CO

11:00 A.M.

J5.3 *Multimedia Assistance in Spanish: A New Method to Deliver Critical Weather Information during High-Impact Events in Spanish.* **Orlando Bermudez**, NVS, New Braunfels, TX

11:15 A.M.

J5.4 *Support from the Multimedia Assistance in Spanish Team (MAS) during NWS and National Hurricane Center Tropical Operations.* **Maria Torres**, NHC, Miami, FL

11:30 A.M.

J5.5 *National Hurricane Center Tropical Analysis and Forecast Branch Adds New Marine Forecast Zones to Eastern Pacific Ocean.* **Evelyn A. Rivera-Acevedo**, NHC, Miami, FL

11:45 A.M.

J5.6 *The Storm Prediction Center Spanish Language Initiative.* **Joseph Enrique Trujillo**, CIMMS/NSSL, Norman, OK; O. Bermudez, P.T. Marsh, E. M. Leitman

10:30 A.M.–12:00 P.M.

8WXCLIMATE
Panel Discussion 1: HAZARDS AND OVERPASSES: THE INTERSECTION OF TRANSPORTATION SAFETY AND WEATHER –254A

Moderator: Thomas Bedard, AccuWeather Enterprise Solutions, Wichita, KS

Panelists: Richard “Chip” Barrett, Westford Highway Department, Westford, MA; John Bechard, MassDOT, Boston, MA; Joseph Foti, MassDOT, Boston, MA; Richard Smith, NOAA/NWS Forecast Office, Norman, OK

10:30 A.M.

Panel Discussion.

10:30 A.M.–12:00 P.M.

8WRN

Session 1: SEE IT, HEAR IT, TOUCH IT—INFORMAL WEATHER EDUCATION OUTREACH TO BUILD A WEATHER-READY NATION –153C

10:30 A.M.

I.1 *Citizen Science, Civics, and Resilient Communities: Engaging Informal Science Learners in Participatory Science and Deliberation about Building Resilience to Weather and Climate Hazards.* **David F. Sittenfeld**, Museum of Science, Boston, MA; D. Cavalier; J. K. Drapkin, S. Benson, K. Baur, F. Choi, K. Todd

10:45 A.M.

I.2 *FIU Informal STEAM Weather Education.* **Erik Salna**, Extreme Events Institute, Florida International Univ., Miami, FL

11:00 A.M.

I.3 *Can the K–12 Public School System Be Leveraged as Part of the Weather-Ready Nation Initiative?* **John M. Lanicci**, Univ. of South Alabama, Mobile, AL; S. K. Guffey

11:15 A.M.

I.5 *Working Toward a Weather-Ready Southern New England: Some Unique Challenges and Successful Outreach Methodologies.* **Glenn Field**, NWSFO, Norton, MA

11:30 A.M.

I.6 *Five Years of NOAA’s ENSO Blog: A Lesson in Climate Communication.* **Tom DiLiberto**, CollabraLink inc, Silver Spring, MD; E. Becker, M. L’Heureux, N. C. Johnson, R. Lindsey

10:30 A.M.–12:00 P.M.

8MJO

Session 2: TROPICAL WAVES AND TROPICAL–EXTRATROPICAL INTERACTIONS –254B

Chair: Naoko Sakaeda, Univ. of Oklahoma, Norman, OK

10:30 A.M.

2.1 *Alternative Explanations of Convectively Coupled Disturbances between the MJO and Convectively Coupled Kelvin Waves.* **Paul E. Roundy**, Univ. at Albany, SUNY, Albany, NY

10:45 A.M.

2.2 *Vertical Velocity Profiles in Convectively Coupled Equatorial Waves and the MJO: New Diagnoses of Vertical Velocity Profiles in the Wavenumber-Frequency Domain.* **Kuniaki Inoue**, GISS, New York, NY; A. F. Adames, K. Yasunaga

11:00 A.M.

2.3 *The Role of Moisture in the Convective Coupling of Equatorial Waves.* **Brandon O. Wolding**, NOAA/ESRL, Boulder, CO; J. Dias, G. N. Kiladis, E. Maloney, M. Branson

11:15 A.M.

2.4 *Eastward Disturbances in the Tropical Pacific: NH Extratropical Forcing and Impacts on the Shallow Meridional Circulation.* **Lidia Huaman**, Texas A&M Univ., College Station, TX; C. Schumacher

10:30 A.M.–11:45 A.M.

11:30 A.M.

2.5 *Tropical Forcing of Euro-Atlantic Weather Regime Transitions: Reanalysis and Predictions.* **Ralph Getzandanner**, George Mason Univ., Fairfax, VA; D. M. Straus

11:45 A.M.

2.6 *Assessing the Influence of Tropical Forecast Errors on Higher-Latitude Predictions Using Nudging Experiments.* **Juliana Dias**, CIRES/Univ. of Colorado and NOAA, Boulder, CO; S. N. Tulich, M. Gehne, G. Kiladis

10:30 A.M.–11:45 A.M.

4PREDICTABILITY

Session 2: PREDICTABILITY OF EXTREME EVENTS –104C

Chair: David Parsons, Boulder, CO

10:30 A.M.

2.1 *Potential for Parameter Estimation of Tropical Cyclone Air–Sea Enthalpy and Momentum Exchange Coefficients through Ensemble Data Assimilation.* **Robert G. Nystrom**, The Pennsylvania State Univ., State College, PA; F. Zhang

10:45 A.M.

2.2 *Conditional Predictability of Idealized Thunderstorms in CAPE–Shear Space.* **John R. Lawson**, CIMMS/NSSL, Norman, OK

11:00 A.M.

2.3 *Comparing Extreme Weather Events Generated by 36- and 12-km WRF Simulations.* **Tanya L. Spero**, EPA, Research Triangle Park, NC; J. H. Bowden, A. M. Jalowska, M. S. Mallard, G. M. Gray

11:15 A.M.

2.4 *Uncertainty in Near-Term Global Surface Warming Linked to Tropical Pacific Climate Variability.* **Agus Santoso**, Univ. of New South Wales, Sydney, Australia; M. H. Bordbar, M. England, A. Sen Gupta, A. Taschetto, T. Martin, W. Park, M. Latif

11:30 A.M.

2.5 *On the Prospects for Improved Tropical Cyclone Forecasts.* **Feifan Zhou**, IAP, Beijing, China; Z. Toth

10:30 A.M.–12:00 P.M.

FUTURESYP

Panel Discussion 1: PANEL DISCUSSION: TRANSITIONS FROM RESEARCH TO OPERATIONS, OPERATIONS TO RESEARCH, AND OPERATIONS TO PRACTICE (CENTENNIAL) –258B

Chair: Rebecca Adams-Selin, AER, Omaha, NE

Moderator: Kandis Boyd, OAR, Silver Spring, MD

Panelists: Louisa B. Nance, NCAR, Boulder, CO; Patrick Harr, Jupiter Intelligence, San Mateo, CA; John S. Kain, NOAA, College Park, MD; Kimberly E. Klockow-McClain, Cooperative Institute for Mesoscale Meteorological Studies/National Severe Storms Laboratory, Norman, OK; Evan Kuchera, 557th Weather Wing, Offutt AFB, NE, USAF 16th Weather Squadron, Offutt Air Force Base, NE; Laura Myers, Center for Advanced Public Safety, Univ. of Alabama, Tuscaloosa, AL

11:00 A.M.–12:00 P.M.

10:30 A.M.

PD1.1 *The Weather Enterprise Wants to Know How to Improve Protective Action.* **Laura Myers**, Center for Advanced Public Safety, Univ. of Alabama, Tuscaloosa, AL

10:30 A.M.

PD1.2 *Improving the Decision Requires More than Improving the Forecast.* **Evan Kuchera**, 557th Weather Wing, Offutt AFB, NE

10:30 A.M.

PD1.3 *One Perspective on the Key Elements of Successful R2O and O2R within NOAA.* **John S. Kain**, NOAA, College Park, MD

10:30 A.M.–12:00 P.M.

PRESESSIONS / 15URBAN

Session 3: RESEARCH NEEDS FOR THE ANTHROPOCENE: INTEGRATED SERVICES FOR THE URBAN ENVIRONMENT –210AB

Chairs: Kenneth J. Davis, The Pennsylvania State Univ., University Park, PA; Chandana Mitra, Auburn Univ., Auburn, AL

2:00 P.M.

PF3.1 *Advancing Scientist–Practitioner Collaboration to Accelerate City Climate Action.* **John Cleveland**, Innovation Network for Communities, Tamworth, NH

2:30 P.M.

PF3.2 *Alison Brizius.* **Alison Brizius**, City of Boston, Boston, MA

3:00 P.M.

Q & A.

11:00 A.M.–12:00 P.M.

19AI

Session 1A: AI FOR ENVIRONMENTAL SCIENCE. PART 1 –156BC

Chairs: Carlos F. Gaitan, Arable Labs, Inc., Princeton, NJ; Zhonghua Zheng, Univ. of Illinois at Urbana–Champaign, Urbana, IL

11:00 A.M.

IA.1 *Lessons from Downscaling Precipitation in Tasmania, Australia, and the Northeast United States Using Machine Learning Approaches.* **Timothy Lynar**, Univ. of New South Wales, Campbell, Australia; C. D. Watson

11:15 A.M.

IA.2 *Climate Change Impacts on Global Ecology.* **Kate Duffy**, Northeastern Univ., Boston, MA; T. Gouhier, A. Ganguly

11:30 A.M.

IA.3 *Creating Bias-Corrected Global Radiation Datasets from Climate Reanalysis Products Using Supervised Learning.* **Tirthankar Chakraborty**, Yale Univ., New Haven, CT; X. Lee

11:45 A.M.

IA.4 *Causal Inference: A Pathway for System Identification Using Observational Datasets.* **Mohammed Ombadi**, Univ. of California, Irvine, Irvine, CA; P. Nguyen, S. Sorooshian, K. Hsu

11:00 A.M.–12:00 P.M.

19AI

**Session 1B: AI FOR ENVIRONMENTAL SCIENCE.
PART II –156A****Chair:** Auroop R. Ganguly, Northeastern Univ., Boston, MA

11:00 A.M.

IB.1 *Convection Forecast Enhanced by the Deep Learning of Radar Observations and Numerical Prediction.* **Leiming Ma**, Shanghai Central Meteorological Observatory, Shanghai, China

11:15 A.M.

IB.2 *Smartphone Pressure Analysis with Machine Learning and Kriging.* **Conor McNicholas**, Univ. of Washington, Seattle, WA

11:30 A.M.

IB.3 *Cloud-Based Machine Learning Capabilities to Improve Weather Event Predictions.* **Rich Baker**, Solers, Greenbelt, MD; P. MacHarrie, L. Koye, H. Phung, J. Hansford, S. Causey, R. Niemann, D. M. Beall

11:45 A.M.

IB.4 *Developing an Automated System to Predict Tornadoes in Simulated Nonclassical Convective Storms.* **Dylan J. Steinkruger**, The Pennsylvania State Univ., State College, PA; P. Markowski, G. S. Young

11:30 A.M.–12:00 P.M.

17SPACEWX

**Session 3: HELIOPHYSICS AND SPACE WEATHER
IN HISTORY. PART I –205A****Chairs:** William B. Cade, Baylor Univ., Waco, TX; Gregory Good, American Institute of Physics, College Park, MD; Sara Housseal, Millersville Univ., Millersville, PA

11:30 A.M.

3.1 *NOAA Space Weather Support for NASA Human Spaceflight—A Storied Legacy (Invited Presentation).* **William J. Murtagh**, NOAA, Boulder, CO

11:45 A.M.

3.2 *The Emergence of Space Weather from the Roots of Space Physics (Invited Presentation).* **D. N. Baker**, Univ. of Colorado Boulder, Boulder, CO

12:15 P.M.–1:45 P.M.

PRESTM

**Session 1: FINANCIAL WEATHER AND CLIMATE
RISK MANAGEMENT –BALLROOM EAST****Speaker:** Martin J. Walsh, Mayor, City of Boston, Boston, MA

2:00 P.M.–4:00 P.M.

SOLOMONSYMP

**Session 3: CLIMATE CHANGE: THE CHALLENGE
OF THE TWENTY-FIRST CENTURY –205B****Chairs:** Karen H. Rosenlof, NOAA/ESRL, Boulder, CO; A. R. Ravishankara, Colorado State Univ., Fort Collins, CO

2:00 P.M.

3.1 *The Influence of the Lower Stratosphere and Tropical Tropopause Layer on Tropical Cyclones.* **Kerry Emanuel**, Massachusetts Institute of Technology, Cambridge, MA

2:15 P.M.

3.2 *Adventures in Signal Detection with Susan Solomon.* **Benjamin D. Santer**, LLNL, Livermore, CA

2:30 P.M.

3.3 *Radiative Constraints on the Extratropical Storm Tracks under Climate Change.* **David W. J. Thompson**, Colorado State Univ., Fort Collins, CO

2:45 P.M.

3.4 *What Can We Learn about the Climate of the Twenty-First Century from Historical Observations?* **Gabriele Hegerl**, Univ. of Edinburgh, Edinburgh, Scotland; S. Broennimann, T. Tim Cowan, N. Freychet, A. Schurer

3:00 P.M.

3.5 *Extreme Weather, Climate Change, and Attribution.* **Dale Durran**, Univ. of Washington, Seattle, WA

3:15 P.M.

3.6 *Some Remarks and Introducing Susan Solomon.* **A. R. Ravishankara**, Colorado State Univ., Fort Collins, CO

3:30 P.M.

3.7 *One Scientist's Adventures in Science and Policy.* **Susan Solomon**, MIT, Cambridge, MA

3:45 P.M.

J9.8 *Hazardous Weather Messaging—What We Can Learn from Different Users to Improve Our Message?* **Scott D. Reynolds**, NWS, Nashua, NH; C. J. Gloninger

2:00 P.M.–4:00 P.M.

36EPT

**Session 3A: QUASI-OPERATIONAL PRODUCTS
YOU CAN USE NOW—THE VIEW FROM THE DRY
AND WET SIDE –157C****Chairs:** Tiffany C. Vance, NOAA, Silver Spring, MD; Jennifer Mahoney, NOAA/OAR/ESRL/GSD, Boulder, CO

2:00 P.M.

3A.1 *Quasi-Operational Functionality in MADIS.* **Leon Benjamin**, CIRES/Univ. of Colorado, Boulder, CO; G. Pratt

2:00 P.M.—4:00 P.M.

2:15 P.M.

3A.2 *Testing and Refinement of a Three-Dimensional Real-Time Mesoscale Analysis (3D-RTMA) for Severe Weather, Aviation, Operational Forecasting, and Other Nowcast Applications.* **Steve Weygandt**, NOAA/ESRL/GSD, Boulder, CO; G. Ge, M. Hu, J. Carley, C. Alexander, T. T. Ladwig, G. Zhao, E. Colon, C. Hartsough, M. Pondeva, S. Levine

2:30 P.M.

3A.3 *High-Resolution QPE Products from the Experimental MRMS System.* **Jian Zhang**, NOAA/NSSL, Norman, OK; K. W. Howard, S. B. Cocks, S. M. Martinaitis, L. Tang, A. P. Osborne, M. Simpson, V. Hanft, C. Langston, B. T. Kaney, K. Cooper, A. Arthur, J. Brogden

2:45 P.M.

3A.4 *High-Resolution Real-Time Forecasting of Smoke and Visibility for the CONUS and Alaska: The HRRR-Smoke System.* **E. P. James**, Cooperative Institute for Research in Environmental Sciences, Boulder, CO; R. Ahmadov, G. Grell, C. Alexander, S. Benjamin, S. McKeen, M. M. Bela, K. Y. Wong, G. Pereira, S. R. Freitas, I. A. Csiszar, M. Tsidulko, S. Kondragunta, C. Xu

3:00 P.M.

3A.5 *Development and Application of Global Aerosol Forecasts Using the Online Coupled GEFS-Aerosol Model.* **Georg A. Grell**, NOAA/ESRL/GSD, Boulder, CO; L. Zhang, S. A. McKeen, R. Montuoro, P. Bhattacharjee, S. Kondragunta, L. Pan, J. K. Henderson, G. J. Frost, X. Zhang, J. T. McQueen, R. Ahmadov, F. Li, J. Wang, B. Baker, R. Saylor

3:15 P.M.

3A.6 *Real-Time Subseasonal Forecast with SubX.* **Shan Sun**, Earth System Research Laboratory, Boulder, CO; K. Pegion

3:30 P.M.

3A.7 *Adaptation of METplus Wrappers at GSD for Ensemble Verification.* **Jeff A. Hamilton**, CIRES, Boulder, CO; M. B. Smith, R. Pierce, V. Hagerty, B. Strong, D. D. Turner

3:45 P.M.

3A.8 *The Weather Archive and Visualization Environment (WAVE) Project.* **Jonathan Joyce**, CIRES, Boulder, CO; J. Stewart, B. Rasch, J. S. Smith, R. Walsh, T. H. Wilson, D. Nietfeld

2:00 P.M.—4:00 P.M.

36EIP

Session 3B: INTERNATIONAL HAZARDS—WHAT'S THE RISK? –209

Chairs: Ian Lisk, Met Office, Exeter, UK; Baudouin Raoult, ECMWF, Reading, UK

2:00 P.M.

3B.1 *Building Effective Warning Systems: The Role of Partnerships in Bridging the Five Valleys of Death.* **Brian W. Golding**, Met Office, Exeter, UK

2:15 P.M.

3B.2 *How Improvements to Ensemble Prediction Could Help the Development of Risk- or Impact-Based Forecasting.* **Jennifer M. A. Rourke**, ECMWF, Reading, UK

2:00 P.M.—3:00 P.M.

2:30 P.M.

3B.3 *Hail Storm Risk Assessment Using Space-Borne Remote Sensing Observations and Reanalysis Data.* **B. Scarino**, SSAI, Hampton, VA; K. M. Bedka, C. J. Schultz, D. J. Cecil, J. R. Bell, H. J. Punge, G. Saville, P. Salio, L. Vidal, L. Machado, K. Khlopenkov, K. F. Itterly, S. Bang, D. A. Spangenberg

2:45 P.M.

3B.4 *Day-Night Monitoring of Volcanic SO₂ and Ash for Aviation Avoidance at Northern Polar Latitudes: Enhancing Direct Readout Capabilities from EOS, SNPP, and NOAA-20.* **N. A. Krotkov**, NASA Goddard Space Flight Center, Greenbelt, MD; C. Li, C. Seftor, K. Brentzel, V. Realmuto, M. Stuefer, D. J. Schneider, J. Tamminen, S. Hassinen, T. Ryyppö, E. Petrescu, J. J. Murray

3:00 P.M.

3B.5 *NASA Earth Science Disasters Program: Transitional Earth Observation Applications from Hazard to Risk through Exposure and Vulnerability.* **John J. Murray**, NASA Langley Research Center, Hampton, VA; D. S. Green, D. Borges, S. N. McClain, B. Helms

3:15 P.M.

3B.6 *Putting International Science to Work for Resilience.* **D. S. Green**, NASA Headquarters, Washington, DC; S. N. McClain

3:30 P.M.

3B.7 *Building Cloud-Based Data Services to Enable Earth Science Workflows across HPC Centres for Decision-Makers.* **Tiago Quintino**, ECMWF, Reading, UK; S. Siemen, J. Hawkes, J. Hanley, M. Vuckovic

2:00 P.M.—3:00 P.M.

34HYDRO

Session 3A: FLOOD PREDICTION, ANALYSIS, DECISION SUPPORT, AND MANAGEMENT. PART III –253C

Chairs: David Gochis, NCAR, Boulder, CO; Kristie Franz, Iowa State Univ., Ames, IA

2:00 P.M.

3A.1 *NOAA's National Water Model: A Dynamically Evolving Operational Hydrologic Forecasting Framework.* **Brian A. Cosgrove**, NWS, Silver Spring, MD; D. J. Gochis, T. Graziano, E. Clark, T. Flowers

2:15 P.M.

3A.2 *Decomposing Sources of Error in National Water Model Flood Forecasts.* **David Gochis**, NCAR, Boulder, CO

2:30 P.M.

3A.3 *Performance and Reliability of the NOAA National Water Model Operational Forecasts for Water Resources Management.* **Jungho Kim**, CIRA, Fort Collins, CO; R. Cifelli, L. E. Johnson, M. Hughes, F. Viterbo, K. Nowak

2:45 P.M.

3A.4 *Partnerships for Real-Time Flood Inundation Mapping Capabilities across the Federal Enterprise.* **Mary Erickson**, NOAA/ NWS, Silver Spring, MD; M. Osler, J. Murphy, T. Graziano, E. Clark

2:00 P.M.–3:00 P.M.

34HYDRO**Session 3B: LAND–ATMOSPHERE AND LAND–OCEAN INTERACTIONS. PART III –253A**

Chairs: Yongkang Xue, Univ. of California, Los Angeles, Los Angeles, CA; Michael Ek, NCAR, Boulder, CO; Craig R. Ferguson, Univ. at Albany, SUNY, Albany, NY; Randal Koster, USRA, Greenbelt, MD

2:00 P.M.

3B.1 *The Influence of Summer Deep Soil Temperature on Early Winter Snow Conditions in Eurasia in the NCEP CFSv2 Simulation.* **Ravi Shukla**, COLA, Fairfax, VA; B. Huang, P.A. Dirmeyer, J. Kinter

2:15 P.M.

3B.2 *Assessing Global and Regional Effects of Reconstructed Land Use and Land Cover Change since 1950 on Climate Using a Coupled Land–Atmosphere–Ocean Model.* **Huilin Huang**, Univ. of California, Los Angeles, CA; Y. Xue, N. Chilukoti, Y. Liu, G. Chen

2:30 P.M.

3B.3 *How South American Topography Influences Climate Simulation over the South Pacific Ocean in CESM.* **Weixuan Xu**, Brown Univ., Providence, RI; J. E. Lee

2:45 P.M.

3B.4 *Quantification of the Land Surface and Brown Ocean Influence on Tropical Cyclone Intensification over Land: A Case Study of TC Kelvin (2018).* **Jinwoong Yoo**, NASA, Greenbelt, MD; J. A. Santanello, J. M. Shepherd, S. V. Kumar, P. Lawston, A. M. Thomas

2:00 P.M.–4:00 P.M.

33CVC**Session 3A: CLIMATE DYNAMICS—GENERAL –150**

Chair: Young-Oh Kwon, WHOI, Woods Hole, MA

2:00 P.M.

3A.1 *Effects of Spatial Patterns of Ocean Heat Uptake on the Intermodel Spread of the Transient Climate Response.* **Brian E. J. Rose**, Univ. at Albany, SUNY, Albany, NY; M. C. Rencurrel

2:15 P.M.

3A.2 *What Can Glacial–Interglacial Cycles Reveal about Climate Sensitivity?* **Anthony J. Broccoli**, Rutgers Univ., New Brunswick, NJ

2:30 P.M.

3A.3 *The Arctic Boundary Layer Cloud Annual Cycle and the Influence of Surface–Atmosphere Interactions: Implications for Arctic Climate Change.* **Patrick C. Taylor**, NASA, Hampton, VA; R. C. Boeke

2:45 P.M.

3A.4 *Structural Changes and Variability of the ITCZ Induced By Radiation–Cloud–Convection–Circulation Interactions: Inferences from the Goddard Multi-Scale Modeling Framework (GMMF) Experiments.* **William K. M. Lau**, Univ. of Maryland, College Park, College Park, MD; K. M. Kim, J. D. Chern, W. K. Tao, L. R. Leung

3:00 P.M.

3A.5 *Communication Breakdown: The Impacts of Climate Change on Tropical–Extratropical Teleconnections.* **Brandon O. Wolding**, NOAA/ESRL, Boulder, CO; E. Maloney, S. Henderson, M. Branson

3:15 P.M.

3A.6 *The Role of Tropical Diabatic Heating for the Indian Monsoon.* **Erik T. Swenson**, George Mason Univ., Fairfax, VA; D. M. Straus, D. Das

3:30 P.M.

3A.7 *Climate Variability and Change in South America.* **Carolina Vera**, Univ. of Buenos Aires, Buenos Aires, Argentina

3:45 P.M.

3A.8 *Rapid Expansion of Nuclear Arsenals by Pakistan and India Portends Regional and Global Catastrophes.* **Owen Brian Toon**, Univ. of Colorado, Boulder, CO; C. G. Bardeen, A. Robock, L. Xia, H. Kristensen, M. McKinzie, R. J. Peterson, C. Harrison, N. S. Lovenduski, R. Turco

2:00 P.M.–4:00 P.M.

33CVC**Session 3B: DYNAMICS OF JET STREAMS AND STORM TRACKS IN PAST, PRESENT, AND FUTURE CLIMATES –154**

Chairs: Gudrun Magnusdottir, Univ. of California, Irvine, CA; Isla Simpson, NCAR, Boulder, CO

2:00 P.M.

3B.1 *How Will Atmospheric Persistent Anomalies Change in a Warming Climate?* **Gary M. Lackmann**, North Carolina State Univ., Raleigh, NC; A. C. Michaelis, W. A. Robinson, R. Miller

2:15 P.M.

3B.2 *The Bivariate Sensitivity of Persistent Anomalies to Environmental Temperature and Baroclinicity.* **Gregory Tierney**, North Carolina State Univ., Raleigh, NC; R. Miller, W. A. Robinson, G. M. Lackmann

2:30 P.M.

3B.3 *Size of the Atmospheric Blocking Events: A Scaling Law and Response to Climate Change.* **Pedram Hassanzadeh**, Rice Univ., Houston, TX; E. Nabizadeh, D. Yang, E. A. Barnes

2:45 P.M.

3B.4 *Increased Shear in the North Atlantic Upper-Level Jet Stream over the Past Four Decades.* **Paul D. Williams**, Univ. of Reading, Reading, UK; S. H. Lee, T. H. A. Frame

3:00 P.M.

3B.5 *Atmospheric Blocking as an Evolution of Rossby Wave Packets.* **Lei Wang**, Harvard Univ., Cambridge, MA; Z. Kuang

3:15 P.M.

3B.6 *A Regime Perspective on the North Atlantic Eddy-Driven Jet Response to Sudden Stratospheric Warmings.* **Amanda Maycock**, Univ. of Leeds, Leeds, UK; G. Masukwedza, P. Hitchcock, I. R. Simpson

2:00 P.M.—4:00 P.M.

3:30 P.M.

3B.7 *Impacts of the Planetary-Scale Eddies on the Midwinter Suppression in North Pacific Storm Track Intensity.* **Mingyu Park**, The Pennsylvania State Univ., University Park, PA; S. Lee

3:45 P.M.

3B.8 *An Investigation of the Effect of Ocean Mesoscale Variability on the Dynamics of the North Pacific Jet Stream and Storm Track.* **Istvan Szunyogh**, Texas A&M Univ., College Station, TX; E. Forinash, G. Gyarmati, Y. Jia, P. Chang, R. Saravanan

2:00 P.M.—4:00 P.M.

33CVC

Session 3C: THE USE OF LARGE ENSEMBLES IN UNDERSTANDING CLIMATE VARIABILITY AND CHANGE –151A

Chairs: Karen McKinnon, Univ. of California, Los Angeles, CA; Justin Mankin, Dartmouth College, Hanover, NH

2:00 P.M.

3C.1 *The Use of Large Ensembles in Climate Model Consistency Testing (Invited Presentation).* **Dorit Hammerling**, Colorado School of Mines, Golden, CO; A. Baker

2:30 P.M.

3C.2 *The Signature of Atmospheric Internal Variability on the Terrestrial Carbon Cycle (Invited Presentation).* **Gordon B. Bonan**, NCAR, Boulder, CO

2:45 P.M.

3C.3 *Uncertainty Introduced by Internal Climate Variability in the Projected Climate Change Impacts on Canadian Crop Yields.* **Budong Qian**, Agriculture and Agri-Food Canada, Ottawa, Canada; Q. Jing, W. Smith, B. Grant, A. J. Cannon, X. Zhang

3:00 P.M.

3C.4 *Planning for a Changing Mountain Hydroclimate: Using Large Ensembles to Assess Future Risks (Invited Presentation).* **Sarah Kapnick**, NOAA/Geophysical Fluid Dynamics Laboratory, Princeton, NJ; T. L. Delworth, H. G. Chan, W. F. Cooke, P. Ginoux, S. Malyshev, S. Pascale, D. B. Kirschbaum, T. A. Stanley, I. Velicogna

3:15 P.M.

3C.5 *The Seasonality of Surface Temperature Warming: A Robust Comparison of Models and Observations..* **Alexa Zabaske**, Texas A&M Univ., College Station, TX; J. Nielsen-Gammon

3:30 P.M.

3C.6 *Assessing Climate Variability and Change in an Ensemble Simulation of Climate Impacts on U.S. Air Quality and Public Health (Invited Presentation).* **Fernando Garcia Menendez**, North Carolina State Univ., Raleigh, NC; J. East, R. K. Saari, E. Monier

3:45 P.M.

3C.7 *On the Use of Large Ensembles for Studying Climate and Air Quality.* **Christopher W. Callahan**, Dartmouth College, Hanover, NH; J. S. Mankin

2:00 P.M.—3:00 P.M.

2:00 P.M.—3:00 P.M.

30WAF26NWP

Session 2A: ANALYSIS AND FORECASTING OF SEVERE THUNDERSTORMS AND ASSOCIATED HAZARDS. PART II –258A

Chairs: James McCormick, Software Engineering Services, Offutt AFB, NE; Sam Ng, Metropolitan State Univ., Denver, CO

2:00 P.M.

2A.1 *Distinguishing Characteristics of Tornadic and Nontornadic Supercell Storms from Composite Mean Analyses of Radar Observations.* **C. R. Homeyer**, Univ. of Oklahoma, Norman, OK; T. Sandmæl, C. K. Potvin

2:15 P.M.

2A.2 *An Analysis of the Environmental and Physical Processes That Led to a Nocturnal Tornado in a Highly Stable Boundary Layer.* **Michael Hollan**, NWS, Bismarck, ND; C. Schultz

2:30 P.M.

2A.3 *Outflow Surges in Simulated Supercell-Like Storms and Their Influence on Tornado Development.* **Jannick Fischer**, Texas Tech Univ., Lubbock, TX; J. Dahl

2:45 P.M.

2A.4 *Refining CAM-Based Tornado Probability Forecasts Using Storm-Inflow and Storm-Attribute Information.* **David E. Jahn**, CIMMS/Univ. of Oklahoma and NOAA/NWS/SPC, Norman, OK; B. T. Gallo, C. Broyles, B. T. Smith, I. L. Jirak, J. M. Milne

2:00 P.M.—3:00 P.M.

30WAF26NWP

Session 2B: VERIFICATION, BIAS CORRECTION, AND POSTPROCESSING OF NUMERICAL WEATHER MODELS. PART II –257AB

Chair: Joseph P. Koval, The Weather Company, Andover, MA

2:00 P.M.

2B.1 *Verification and Optimization of a Patchwise Localized Probability Matched Mean for Ensemble QPF.* **Nathan Snook**, CAPS, Norman, OK; K. Brewster, F. Kong, M. Xue

2:15 P.M.

2B.2 *Comparison of Object-Based and Grid-Based Verification of Warn-on-Forecast System HAILCAST Forecasts.* **Rebecca Adams-Selin**, AER, Omaha, NE; C. P. Kalb, P. S. Skinner, T. Jensen

2:30 P.M.

2B.3 *Reducing Moist-Adiabatic Calculation Costs Using Lookup Tables.* **Nathan Aaron Dahl**, CIMMS, Norman, OK

2:45 P.M.

2B.4 *Using Recurrent Neural Networks (RNNs) to Bias Correction of Wind Speed Forecasting.* **Bonyang Ku**, KMA, Seoul, Korea, Republic of (South); M. K. Kim, S. Y. Park, Y. H. Lee

2:00 P.M.—4:00 P.M.

29 EDUCATION**Session 2: ENGAGEMENT IN ATMOSPHERIC EDUCATION—RESEARCH AND APPLICATION –258C**

Chairs: Zachary Handlos, Georgia Institute of Technology, Atlanta, GA; Jeffrey A. Yuhas, Morristown-Beard School, Morristown, NJ

2:00 P.M.

2.1 *It's a New Century for the AMS: What's New with the Education Program for 2020 and Beyond?* **Wendy Abshire**, AMS, Washington, DC; E. W. Mills, B. A. Blair, C. Kauffman

2:15 P.M.

2.2 *An American in Copenhagen: Reflections on the EMS (European Meteorological Society) Annual Meeting 2019.* **Michael J Passow**, Lamont-Doherty Earth Observatory, Palisades, NY

2:30 P.M.

2.3 *Helping Middle School Students Build Understanding of Hazardous Weather and Its Impacts with the GLOBE Weather Curriculum.* **Becca Hatheway**, UCAR, Boulder, CO; J. Ristvey Jr., L. S. Gardiner, M. Rummel, E. Snodden-Breneman, J. S. Malmberg, R. Curry, L. H. Chambers, T. Murphy

2:45 P.M.

2.4 *Taking Poetic License With Atmospheric Dynamics.* **John A. Knox**, The Univ. of Georgia, Athens, GA

3:00 P.M.

2.5 *Characterizing Instructional Strategies within Atmospheric Science Courses.* **Zachary Handlos**, Georgia Institute of Technology, Atlanta, GA; C. E. Davenport, D. Kopacz

3:15 P.M.

2.6 *Recommendations for Improving Teaching and Learning in Atmospheric Science through Research.* **Dawn Kopacz**, Univ. of Nebraska, Lincoln, NE; W. J. Flynn, L. C. Maudlin, Z. Handlos, S. Gill, A. T. Hirsch

3:30 P.M.

2.7 *Narrated Animations and Still Frame Figures: When and How Should I Use Them?* **Lindsay C. Maudlin**, Auburn Univ., Auburn, AL; K. S. McNeal, N. Soltis, S. J. Hassol

3:45 P.M.

2.8 *Mount Washington Observatory's Arctic Wednesdays Professional Development for Teachers.* **Brian J. Fitzgerald**, Mount Washington Observatory, North Conway, NH; W. Broussard

2:00 P.M.—4:00 P.M.

26 PROBSTAT**Session 3: METHODS OF VERIFICATION AND EVALUATION OF FORECASTS: FOCUS ON HIGH IMPACT –260**

Chairs: Tara Jensen, NCAR, Boulder, CO; Tanya R. Peevey, NOAA/ESRL/GSD and CSU/CIRA, Boulder, CO; Burkely T. Gallo, CIMMS/Univ. of Oklahoma and NOAA/NWS/SPC, Norman, OK

2:00 P.M.

3.1 *Streamlining Verification through the Enhanced Model Evaluation Tools (METplus).* **Tara Jensen**, NCAR, Boulder, CO; J. H. Gotway, M. P. Row, B. Strong, J. Frimel, J. J. Levit, M. Win-Gildenmeister, M. Marquis

2:30 P.M.

3.2 *Quantitative Precipitation Forecast Verification Service: A Dynamic, Interactive, and Extensible Verification Capability for Evaluating National Weather Service Forecast Precipitation Amounts.* **Dana Choate Strom**, DOC, Silver Spring, MD

2:45 P.M.

3.3 *Evaluation of Convective Storm Attributes Using Advanced Verification Techniques during HWT 2019.* **Christina P. Kalb**, NCAR, Boulder, CO; T. Jensen, B. T. Gallo, R. Adams-Selin, A. J. Clark, B. Roberts, P. S. Skinner, C. R. Alexander

3:00 P.M.

3.4 *The Impact of Radar Data Assimilation on Short-Term and Next-Day Thunderstorm Forecasts in the 2016 Community Leveraged Unified Ensemble (CLUE).* **Patrick S. Skinner**, CIMMS, Norman, OK; A. J. Clark, J. K. Wolff, T. Jensen, J. Halley Gotway, R. Bullock, M. Xue

3:15 P.M.

3.5 *Forecasting a Continuum of Environmental Threats (FACETS): Verification of the Tornado and Lightning Plumes.* **Ian Gesell**, School of Meteorology, Norman, OK; K. M. Calhoun, H. E. Brooks

3:30 P.M.

3.6 *Verifying the Performance of the Colorado Fire Prediction System.* **Amanda R. Siems-Anderson**, NCAR, Boulder, CO; A. DeCastro, B. Kosovic, P. Jimenez, D. Munoz-Esparza, J. Knievel

3:45 P.M.

3.7 *User-Driven Verification of Tropical Cyclone Predictions.* **Barbara G. Brown**, NCAR, Boulder, CO; L. B. Nance, C. L. Williams

2:00 P.M.—4:00 P.M.

25 APPLIED**Session 2: OTHER TOPICS IN APPLIED CLIMATOLOGY –153A**

Chair: Robb M. Randall, Army Research Laboratory, WSMR, NM

2:00 P.M.

2.1 *Meteorological Data to Monitor, Prevent, and Predict the Rain Erosion on the Leading Edge of Wind Turbine Blades.* **Luis Bartolomé**, Delft Univ. of Technology, Delft, Netherlands; J. Teuwen

2:15 P.M.

2.2 *Implications of a Climate-Changed Atmosphere on Cool Climate Viticulture.* **Steven Schultze**, Univ. of South Alabama, Mobile, AL; P. Sabbatini

2:30 P.M.

2.3 *Development of an Extremes Vulnerability Index for the Lower 48 United States Based on NCEI's Climate Extremes Index and CDC's Social Vulnerability Index.* **Emily L. Pauline**, Univ. of Georgia, Athens, GA; J. A. Knox, L. Seymour, A. Grundstein

2:00 P.M.—4:00 P.M.

2:45 P.M.

2.4 *Development and Characterization of U.S. Drought Monitor Based Drought Events.* **R. D. Leeper**, North Carolina Institute for Climate Studies, Asheville, NC; B. Petersen, M. Palecki

3:00 P.M.

2.5 *Spatial Analysis of U.S. Agriculture Losses Due to Hailfall over the Past 29 Years.* **Nicholas R. Bogen**, Central Michigan Univ., Mount Pleasant, MI; J. T. Allen, B. W. Heumann

3:15 P.M.

2.6 *An Environmental Climatology of Quasi-Linear Convective System Mesovortices around Northern Illinois.* **Max Ungar**, Univ. of Oklahoma, Norman, OK; G. Izzi, E. Lenning, V. A. Gensini, W. S. Ashley, A. M. Haberlie

3:30 P.M.

2.7 *Should We Expect Each Year in the Next Decade (2019–28) to be Ranked among the Top 10 Warmest Years Globally?* **Anthony Arguez**, NOAA/NESDIS/NCEI, Asheville, NC; L. Yang, L. Mahoney, S. Hurley, A. K. Inamdar, A. Sanchez-Lugo

2:00 P.M.—4:00 P.M.

24IOAS

Session 3: ADVANCES IN ENSEMBLE-BASED DATA ASSIMILATION METHODOLOGIES FOR HIGHLY NONLINEAR AND LARGE-DIMENSIONAL SYSTEMS. PART I –259A

Chairs: Yue (Michael) Ying, NCAR, Boulder, CO; Jeffrey L. Anderson, NCAR, Boulder, CO

2:00 P.M.

3.1 *Non-Gaussian, Nonlinear Extensions for Ensemble Filter Data Assimilation with a Marginal Correction Rank Histogram Filter.* **Jeffrey L. Anderson**, NCAR, Boulder, CO

2:15 P.M.

3.2 *A Multiscale Alignment Method for Ensemble Data Assimilation with Displacement Errors.* **Yue (Michael) Ying**, NCAR, Boulder, CO

2:30 P.M.

3.3 *A Particle Flow Data Assimilation Method for High-Dimensional Systems.* **Chih-Chi Hu**, Colorado State Univ., Fort Collins, CO; P. J. Van Leeuwen, M. Pulido

2:45 P.M.

3.4 *4D-EnVar with an Iterative Nonlinear Forecast Model.* **Sho Yokota**, MRI, Tsukuba, Ibaraki, Japan; K. Koizumi, M. Kunii, K. Ito

3:00 P.M.

3.5 *Why Perturbing Observations in Ensemble Kalman Filters Is Inconsistent.* **Peter Jan Van Leeuwen**, Colorado State Univ., Fort Collins, CO

3:15 P.M.

3.6 *Regularization and Iterative Resampling for the Local Particle Filter.* **Jonathan Poterjoy**, Univ. of Maryland, College Park, College Park, MD

2:00 P.M.—4:00 P.M.

3:30 P.M.

3.7 *High-Dimensional Ensemble Filtering with Nonlinear Couplings.* **Ricardo Baptista**, MIT, Cambridge, MA; Y. Marzouk, A. Spantini

3:45 P.M.

3.8 *Improving Particle Filter Performance by Smoothing Observations in a Multiscale Lorenz-96 Model.* **Ian Grooms**, Univ. of Colorado, Boulder, CO; G. Robinson

2:00 P.M.—4:00 P.M.

22ATCHEM

Session 3A: GREENHOUSE GASES. PART II –207

Chairs: Abhishek Chatterjee, GSFC, Greenbelt, MD; Sean Crowell, Univ. of Oklahoma, Norman, OK; Scott Denning, Colorado State Univ., Fort Collins, CO; Berrien Moore, National Weather Center/Univ. of Oklahoma, Norman, OK

2:00 P.M.

3A.1 *Combined Lidar Measurements of Methane, Aerosols, and Planetary Boundary Layer Heights with the NASA High Altitude Lidar Observatory.* **Rory A. Barton-Grimley**, NASA Langley Research Center, Hampton, VA; A. R. Nehrir, Z. Barkley, J. Collins, S. A. Kooi, J. W. Lee, J. Digangi, Y. Choi, K. J. Davis

2:15 P.M.

3A.2 *Taking Regional Atmospheric Inversions to the Next Level: Lessons from the ACT-America Mission.* **Kenneth J. Davis**, The Pennsylvania State Univ., University Park, PA; D. Baker, B. Baier, Z. Barkley, E. V. Browell, A. Boyer, G. Chen, A. S. Denning, J. Digangi, J. T. Dobler, S. Feng, A. Fried, T. Gerken, A. Jacobson, K. Keller, T. Lauvaux, B. Lin, A. R. Nehrir, M. D. Obland, C. O'Dell, S. Pal, A. Roiger, A. Schuh, C. Sweeney, Y. Wei, C. A. Williams

2:30 P.M.

3A.3 *Novel Application of NASA's GEOS-CF CO₂ Forecasting System to the ACT-America Airborne Campaign.* **Nikolay Balashov**, NASA, Greenbelt, MD; L. Ott, B. Weir, K. E. Knowland, K. J. Davis, C. A. Keller, A. Chatterjee

2:45 P.M.

3A.4 *Greenhouse Gas Variability across Fronts over the Eastern United States during an Early versus a Late Summer Campaign.* **Sandip Pal**, Texas Tech Univ., Lubbock, TX; K. J. Davis, E. V. Browell, Y. Choi, J. Digangi, S. Feng, T. Lauvaux, B. Lin, A. R. Nehrir, M. D. Obland

3:00 P.M.

3A.5 *Measurements of the Vertical Structure of Carbon Dioxide in the Atmospheric Boundary Layer using RPAS.* **Elizabeth A. Pillar-Little**, Univ. of Oklahoma, Norman, OK; G. Britto Huspel de Azevedo, E. R. Martin, P. B. Chilson

3:15 P.M.

3A.6 *The Northeast Corridor Urban Greenhouse Gas Project.* **Anna Karion**, NIST, Gaithersburg, MD; S. Gourdji, K. Mueller, I. Lopez-Coto, S. Ghosh, R. R. Dickerson, X. Ren, P. Shepson, K. J. Davis, W. Callahan, M. Stock, S. Prinzivalli, J. R. Whetstone

3:30 P.M.

3A.7 A 7-yr Top-Down Analysis of Methane Emissions from Natural Gas Infrastructure in the Boston Urban Region. **Maryann Sargent**, Harvard Univ., Cambridge, MA; C. Floerchinger, L. R. Hutya, T. Jones, K. McKain, S. Raciti, S. Wofsy

3:45 P.M.

3A.8 Lots of Aggressive Climate Pledges, but How Do We Measure Progress? (Invited Presentation). **Lucy Hutya**, Boston Univ., Boston, MA

2:00 P.M.–4:00 P.M.**22ATCHEM****Session 3B: REGIONAL AIR QUALITY. PART III –206B**

Chairs: Steven S. Brown, NOAA/Earth System Research Laboratory/Chemical Sciences Division, Boulder, CO; Jeffrey L. Collett, Colorado State Univ., Fort Collins, CO; A. Gannet Hallar, Univ. of Utah, Salt Lake City, UT

2:00 P.M.

3B.1 Factors Controlling Ammonium Nitrate Formation in Cold Polluted Environments (Invited Presentation). **Jennifer G. Murphy**, Univ. of Toronto, Toronto, Canada; A. Moravek, A. H. I. Hrdina, J. Lin, R. Bares, C. C. Womack, E. McDuffie, D. L. Fibiger, S. S. Brown, A. Middlebrook, A. Franchin, J. A. Thornton, L. Goldberger, M. Baasandorj

2:15 P.M.

3B.2 Tracking Ammonia Emission and Chemistry in Fresh Traffic Derived Plumes Utilizing Nitrogen Stable Isotopes. **Wendell William Walters**, Brown Univ., Providence, RI; L. Song, J. Chai, Y. Fang, M. Hastings

2:30 P.M.

3B.3 Near-Road Observations of CO, NO_y, and CO₂: Evidence for a Temperature Dependence of Vehicular Emissions of NO_x. **Dolly Hall**, Univ. of Maryland, College Park, College Park, MD; D. Anderson, C. Martin, X. Ren, R. J. Salawitch, H. He, T. P. Canty, J. Hains, R. R. Dickerson

2:45 P.M.

3B.4 Impact from International and Interstate Transport on O₃ Exceedances in Yuma, Arizona. **Zhen Qu**, Univ. of Colorado, Boulder, CO; Y. Li, D. Henze, D. Wu, F. Mao, M. Sonenberg

3:00 P.M.

3B.5 Observations of Volatile Organic Compounds over Hebei Province, China, and Their Impact on Ozone Formation. **Sarah Benish**, Univ. of Maryland, College Park, College Park, MD; X. Ren, H. He, S. J. Roberts, R. J. Salawitch, Z. Li, F. Zhang, G. Pfister, F. Flocke, R. Dickerson

3:15 P.M.

3B.6 Background and Anthropogenic Source Contributions to Surface Ozone Pollution over China. **Lin Zhang**, Peking Univ., Beijing, China; X. Lu

3:30 P.M.

3B.7 Understanding Ozone and Ozone Precursors during the OWLETS-I Field Campaign through Model Simulations, Air Mass Trajectories, and Aircraft and Surface Observations. **Lindsey A. Rodio**, Univ. of Maryland, College Park, MD; T. P. Canty, J. T. Sullivan, T. Berkoff, G. Gronoff, R. J. Salawitch, R. R. Dickerson

3:45 P.M.

3B.8 Connections between the Surface-Level Ozone-Temperature Relationship and the Eddy-Driven Jet Stream. **Gaige Hunter Kerr**, The Johns Hopkins Univ., Baltimore, MD; D. W. Waugh

2:00 P.M.–3:00 P.M.

22WXMOD / 33CVC / 15SOCIETY / 12AEROSOL
Joint Session 6: THE NEED FOR WATER DRIVING
THE SCIENCE OF RAIN AND SNOW: PAST,
PRESENT, AND FUTURE (CENTENNIAL) –105

Chairs: Sarah A. Tessendorf, NCAR, Boulder, CO; Isla R. Simpson, NCAR, Boulder, CO

2:00 P.M.

J6.1 Weather and Climate Modification as a Driving Force for Cloud Physics Research (Invited Presentation). **Robert M. Rauber**, Univ. of Illinois, Urbana, IL

2:15 P.M.

J6.2 Atmospheric Rivers in the Context of Water Cycle and Climate Change Research (Invited Presentation). **L. Ruby Leung**, PNNL, Richland, WA

2:30 P.M.

J6.3 Weather Modification Research to Enhance Water Supplies in the Western United States (Invited Presentation) (Core Science Keynote). **Dave Matthews**, CEO Hydrometdss, LLC, Silverthorne, CO; D. Reynolds, G. E. Klazura

2:45 P.M.

Discussion/Q&A.

2:00 P.M.–3:00 P.M.**21AIRPOL**

Session 3: GLOBAL-TO LOCAL-SCALE COUPLED
METEOROLOGY AND ATMOSPHERIC CHEMISTRY
MODELING. PART I –211

Chairs: Jonathan Pleim, EPA, Research Triangle Park, NC; Allison Ring, Univ. of Maryland, College Park, MD

2:00 P.M.

3.1 Evaluation of the MPAS-CMAQ Global Air Quality Modeling System. **Jonathan Pleim**, EPA, Research Triangle Park, NC; D. Wong, R. Gilliam, J. A. Herwehe, O. R. Bullock Jr., G. A. Pouliot, C. Hogrefe, D. Kang, R. Mathur, L. Ran

2:15 P.M.

3.2 Automated MPAS Mesh Generation: Herding Cats with the Push of a Button. **O. Russell Bullock**, EPA, Research Triangle Park, NC

2:30 P.M.

3.3 Evaluation of the Model for Prediction across Scales (MPAS) in a Retrospective Application with Comparisons to WRF. **Robert C. Gilliam**, EPA, Research Triangle Park, NC

2:45 P.M.

3.4 WITHDRAWN

2:00 P.M.–4:00 P.M.

20SMOI**Session 3: RESULTS FROM RECENT FIELD PROJECTS –203****Chair:** Darcy Jacobson, NCAR, Boulder, CO**2:00 P.M.**

3.1 *Close-Range Radar Observations and High-Resolution Damage Survey of a Large, Intense Tornado in a Forested Area during the VORTEX-SE Meso18-19 Field Campaign.* **Anthony W. Lyza**, Univ. of Alabama, Huntsville, AL; B. T. Goudeau, K. R. Knupp

2:15 P.M.

3.2 *Preliminary Analysis of Data from the TORUS Experiment.* **Dean Austin Meyer**, OAR, Hanceville, AL; E. N. Rasmussen, M. D. Flournoy

2:30 P.M.

3.3 *An Examination of Near-Surface Mobile Observations from TORUS: What Does “Surface Based” Really Mean?* **Sean Waugh**, NSSL, Norman, OK; E. Rasmussen

2:45 P.M.

3.4 *WITHDRAWN*

3:00 P.M.

3.5 *Analysis of the 13–14 December 2018 Mesoscale Convective System Observed during the RELAMPAGO Field Campaign.* **Nathan R. Kelly**, Colorado State Univ., Fort Collins, CO; R. S. Schumacher

3:15 P.M.

3.6 *Observed Precipitation and Weather Conditions across the Continental Divide in the Canadian Rockies.* **Cécile Carton**, UQAM, Montréal, Canada; J. M. Thériault

3:30 P.M.

3.7 *Two Years of Remote and Autonomous Measurements of Precipitation for the Ross Ice Shelf, Antarctica.* **Mark W. Seefeldt**, CIRES/Univ. of Colorado, Boulder, CO; S. D. Landolt, T. Low

3:45 P.M.

3.8 *Elevating Meteorological Understanding on Everest: Installing the Highest Weather Stations on Earth.* **Baker Perry**, Appalachian State Univ., Boone, NC; T. Matthews, K. Abernathy, D. Aryal, D. Shrestha, A. Khadka

2:00 P.M.–4:00 P.M.

20ARAM**Session 3: WEATHER NEEDS FOR SMALL UAS AND THE POTENTIAL FOR IMPROVING THEIR OWN GUIDANCE –206A****Chairs:** Paul E. Bieringer, Aeris, Louisville, CO; Hyeyum (Hailey) Shin, NCAR, Boulder, CO**2:00 P.M.**

3.1 *Preliminary Gap Analysis and Research Roadmap for Unmanned Aircraft Weather Decision Support.* **James E. Evans**, MIT Lincoln Laboratory, Lexington, MA; D. Clark, T. Bonin, J. Kuchar

2:15 P.M.

3.2 *Weather Focus Area within the Federal Aviation Administration (FAA) Integration Research Plan for Unmanned Aircraft Systems (UASs).* **Kevin Johnston**, FAA, Washington, DC

2:30 P.M.

3.3 *Simulation of Small Fixed-Wing and Multirotor UASs Using Realistic Small-Scale Wind Fields.* **Larry Cornman**, NCAR, Boulder, CO

2:45 P.M.

3.4 *Ice Accretion Prediction for Small Unmanned Aircraft Conditions.* **Alyssa Avery**, Oklahoma State Univ., Stillwater, OK; J. Jacob

3:00 P.M.

3.5 *What If Every Aeronautical Vehicle Operating in Our Airspace Were to Report Weather Conditions?* **Michael Robinson**, The MITRE Corporation, McLean, VA; M. Fronzak, M. Steiner, T. Becher

3:15 P.M.

3.6 *Evaluation of Real-Time Finescale UAS Forecast Guidance on Winds and Turbulence Obtained Using WRF LES over a Sub-Alpine Desert Valley.* **James Pinto**, NCAR, Boulder, CO; A. Jensen, P. Jimenez, J. Lundquist, S. Bailey, J. Jacob, A. Houston, S. Waugh, P. Chilson, G. deBoer, K. Glasheen

3:30 P.M.

3.7 *Quantifying the Impact of UAS-Sensed Data on High-Resolution, Limited-Area WRF Forecasts Using NCAR's Data Assimilation Research Testbed (DART).* **Anders A. Jensen**, NCAR, Boulder, CO; J. O. Pinto, S. Bailey, S. Smith, P. B. Chilson, G. S. Romine, R. A. Sobash, G. de Boer, K. Glasheen, S. Waugh, A. L. Houston, P. Jimenez

3:45 P.M.

3.8 *Utilizing UASs to Assist in Weather Hazard Detection for Urban Air Mobility and Unmanned Traffic Management.* **Jamey Jacob**, Oklahoma State Univ., Stillwater, OK; R. Allamraju, T. Mitchell, V. Natalie

2:00 P.M.–4:00 P.M.

19AI**Session 2A: APPLICATIONS OF MACHINE LEARNING IN EARTH SYSTEM MODELING –156BC****Chairs:** Christiane Jablonowski, Univ. of Michigan, Ann Arbor, MI; Christoph A. Keller, GMAO, Greenbelt, MD**2:00 P.M.**

2A.1 *Discovering Novel Eddy Parameterizations with Machine Learning.* **Laure Zanna**, Univ. of Oxford, Oxford, UK; T. Bolton

2:15 P.M.

2A.2 *A Pure Deep Learning Approach to Precipitation Nowcasting.* **Jason Hickey**, Google, Mountain View, CA; C. Gazen, S. Agrawal, C. Bromberg, L. Barrington, V. Lakshmanan, J. Burge

2:30 P.M.

2A.3 *Toward Physics-Informed Deep Learning for Spatiotemporal Modeling of Turbulent Flows.* **Rui Wang**, Northeastern Univ., Boston, MA; A. Albert, K. Kashinath, M. Mustafa, R. Yu

2:45 P.M.

2A.4 *Deep Learning for Weather Prediction: Forecasting Globally Gridded 500-hPa Geopotential Heights on Short- to Medium-Range Time Scales.* **Jonathan A. Weyn**, Univ. of Washington, Seattle, WA; D. R. Durran, R. Caruana

3:00 P.M.

2A.5 *Nonlinear Averaging of Global NCEP Wave Ensemble Using NNs.* **Vladimir Krasnopolsky**, NOAA, College Park, MD

3:15 P.M.

2A.6 *Machine Learning for Parameterization of Moist Processes in the Atmosphere.* **Janni Yuval**, MIT, Cambridge, MA; P.A. O’Gorman

3:30 P.M.

2A.7 *Developing the Snow Cover Fraction Schemes for Land Surface Models Using a Machine Learning Approach.* **Yuan-Heng Wang**, The Univ. of Arizona, Tucson, AZ; H. V. Gupta, P. D. Broxton, Y. Fang, A. Behrangi, X. Zeng, G. Y. Niu

3:45 P.M.

2A.8 *A Machine Learning–Based Parameterization of OH.* **M. B. Follette-Cook**, Morgan State Univ./GESTAR, Greenbelt, MD; J. M. Nicely, C. A. Keller, B. Duncan

2:00 P.M.—4:00 P.M.**I9AI****Session 2B: DEEP LEARNING APPLICATIONS FOR ENVIRONMENTAL SCIENCE. PART I –156A**

Chairs: Tianle Yuan, GSFC, Greenbelt, MD; Sarvesh Garimella, ACME AtronOmatic, LLC, Portland, OR

2:00 P.M.

2B.1 *Classifying Global Low-Cloud Morphology with a Deep Learning Model: Results and Potential Use.* **Tianle Yuan**, JCET, Baltimore, MD; J. Mohrmann, H. Song, R. Wood, K. Meyer, L. Oreopoulos

2:15 P.M.

2B.2 *A Deep Learning Approach for Intelligent Compression of Satellite Data.* **Sarvesh Garimella**, ACME AtronOmatic, LLC, Portland, OR

2:30 P.M.

2B.3 *Artificial Intelligence (AI) Techniques to Enhance Satellite Data Use for Nowcasting and NWP/Data Assimilation.* **S.A. Boukabara**, NOAA/NESDIS/STAR, College Park, MD; E. Maddy, N. Shahroudi, R. N. Hoffman, T. Connor, S. Upton, J. E. Ten Hoeve III

2:45 P.M.

2B.4 *Convective Storm Nowcasting Using a Deep Learning Approach.* **Lei Han**, Ocean Univ. of China, Qingdao, China; W. Zhang, J. Sun

3:00 P.M.

2B.5 *Using Deep Learning Algorithms in Forecasting the Severe Haze Events in Southeast Asia.* **Chien Wang**, CNRS/UPS, Toulouse, France

3:15 P.M.

2B.6 *Learning and Inference of Advective Fluid Transport in Geophysical Environments.* **Chinmay S. Kulkarni**, MIT, Cambridge, MA; P. F. J. Lermusiaux

3:30 P.M.

2B.7 *Downscaling Numerical Weather Models with GANs.* **Alok Singh**, Terrafuse, Berkeley, CA; B. White, A. Albert

3:45 P.M.

2B.8 *Finescale Surface Climate Data with Deep Learning.* **Thomas C. M. Martin**, Univ. of São Paulo, São Paulo, Brazil; H. R. Rocha, K. Brauman, M. Flörke, G. M. P. Perez, R. L. N. Wanderley, L. M. Domingues, R. C. Abreu

2:00 P.M.—4:00 P.M.**I8COASTAL****Session 3: HAZARD ASSESSMENT AND PREDICTION IN THE COASTAL MARINE ENVIRONMENT. PART I –158**

Chairs: Chester Huang, Department of the Interior, New Orleans, LA; Jesse Feyen, GLERL, Ann Arbor, MI

2:00 P.M.

3.1 *Coastal Ocean Model Development for Operational Prediction in NOAA’s National Ocean Service.* **Edward Myers**, NOAA, Silver Spring, MD; A. Zhang, P. Burke, D. Snowden, N. Saraf, J. Powell, P. Bradley, C. Lindley, C. Urizar

2:15 P.M.

3.2 *Coastal Storm Surge Operational Forecast Development at the National Ocean Service.* **Sergey V. Vinogradov**, NOAA, Silver Spring, MD; E. Myers III, Y. Funakoshi, S. Moghimi, J. Calzada

2:30 P.M.

3.3 *Enhancing Coastal Water-Level Forecasting to Support the Protection of Life and Property—2019 Update.* **Brian J. Miretzky**, NOAA/NWS, Bohemia, NY; L. Hogan, K. McMahon, C. Shafer, J. C. Elliott, J. Lamb, M. Dutter, B. Goodman, M. Scalora

2:45 P.M.

3.5 *Strategies for Back-Barrier Bay Total Water-Level Estimation.* **Alfredo L. Aretxabaleta**, USGS, Woods Hole, MA; N. K. Ganju, Z. Defne, C. A. Hegermiller

3.4 **WITHDRAWN****3:00 P.M.**

3.6 *Storm Tide Amplification due to Estuary Urbanization and Harbor Development.* **Philip Orton**, Stevens Institute of Technology, Hoboken, NJ; S. Talke

3:15 P.M.

3.7 *On Upgrading the Probabilistic Storm Surge Ensemble for NHC Operations.* **Laura Paulik Alaka**, UCAR/National Hurricane Center, Miami, FL; A. B. Penny, C. L. Fritz, J. R. Rhome

3:30 P.M.

3.8 *Probabilistic Assessment of Climate Change Impact on Hurricane Wave Hazards in New York and New Jersey Bight.* **Reza Marsooli**, Stevens Institute of Technology, Hoboken, NJ; N. Lin

2:00 P.M.—4:00 P.M.

18HISTORY**Session 3: HISTORY OF METEOROLOGICAL PRACTICES, OBSERVATIONS, AND RELATED. PART II –104A**

Chairs: Warren Blier, NOAA/NWS, Monterey, CA; Terrence R. Nathan, Univ. of California, Davis, CA

2:00 P.M.

3.1 *Cloud and Weather Symbols in the Historic Language of Weather Map Plotters.* **Robert A. Houze**, Univ. of Washington, Seattle, WA; R. D. Houze

2:15 P.M.

3.2 *The NCAR GPS Dropwindsonde and Its Impact on Tropical Cyclone Operations and Research.* **Sim D. Aberson**, NOAA/AOML/Hurricane Research Division, Miami, FL; H. Vömel

2:30 P.M.

3.3 *A Brief History of Lightning Detection and Location Systems.* **Walter A. Lyons**, WeatherVideoHD.TV, Fort Collins, CO

2:45 P.M.

3.4 *“Choose the Weather for Battle”: The Origins, Evolution, and Achievements of Air Force Weather.* **Kent G. Sieg**, 557 Weather Wing, Offutt AFB, NE

3:00 P.M.

3.5 *Do You Believe in Miracles? Preserving and Highlighting the Work of the NWS Olympic Support Unit at the 1980 Winter Olympics.* **John G. W. Kelley**, NOAA, Durham, NH; A. Haas, P. Sisson, K. Rigsbee, J. Herman

3:15 P.M.

3.6 *The Weather Research and Forecasting (WRF) Model: A Force In Meteorological Practice.* **Jordan G. Powers**, NCAR, Boulder, CO

3:30 P.M.

3.7 *A 10-Year History of Improving Gridded Forecasting in the National Weather Service (NWS) Central Region.* **Andrew Just**, NWS, Kansas City, MO; J. R. Wiedenfeld, C. Greif

3:45 P.M.

3.8 *Celebrating NOAA Heritage in 2020: A Milestone Year in So Many Ways.* **Gregory Romano**, NWS, Silver Spring, MD; C. Oliver

2:00 P.M.—4:00 P.M.

17SPACEWX**Session 4: LOUIS J. LANZEROTTI SESSION ON HELIOPHYSICS AND SPACE WEATHER IN HISTORY –205A**

2:00 P.M.

4.1 *Space Weather History Keynote: Effects of Solar–Terrestrial Processes on Electrical Technologies.* **Louis J. Lanzerotti**, New Jersey Institute of Technology, Newark, NJ

3:00 P.M.

4.2 *Extreme Space Weather: How Often Does It Occur? (Invited Presentation).* **Delores J. Knipp**, Univ. of Colorado, Boulder, CO; M. Hapgood

3:15 P.M.

4.3 *Simulating the Extreme Storm Sudden Commencement of 4 August 1972 (Invited Presentation).* **Daniel Welling**, Univ. of Texas, Arlington, TX; D. J. Knipp, C. Cid, S. Morley, A. Mukhopadhyay, M. Liemohn

3:30 P.M.

4.4 *Human-Error Contributions to Observations of Thermospheric Dynamics and Chemistry.* **Patrick Dandenault**, JHUAPL, Gaithersburg, MD

3:45 P.M.

4.5 *Oral History of Heliophysics/Space Weather: Something New under the Sun (Invited Presentation).* **Gregory Good**, AIP, College Park, MD

2:00 P.M.—4:00 P.M.

16GOESRJPSS**Session 3: 60 YEARS OF WEATHER SATELLITES: HOW EARTH OBSERVING SATELLITES CONTRIBUTED TO LINKING INFORMATION TO KNOWLEDGE TO SOCIETY (CENTENNIAL) –253B**

Chairs: Kenneth Holmlund, EUMETSAT, Darmstadt, Germany; Wenjian Zhang, WMO, Geneva, Switzerland

2:00 P.M.

3.1A *TIROS Origins: How Military and Civilian Organizations Contributed to the First Weather Satellite System.* **Angelina L. Callahan**, NRL, Washington, DC; G. Dittberner, T. Vonder Haar

2:15 P.M.

3.2 *TIROS-1 Established the Foundation for Today's Remarkable JPSS and GOES-R Satellite Systems.* **G. Dittberner**, CIRA, Springfield, VA; T. Vonder Haar

2:30 P.M.

3.3A *Early Weather Satellite Observations Energized the History of Science Discoveries and Weather Forecasting.* **Thomas Vonder Haar**, Colorado State Univ., Fort Collins, CO; G. Dittberner

2:45 P.M.

3.4 *Imaging from ATS-1 to the GOES-R Series: What Has Changed and What Has Stayed the Same.* **T. J. Schmit**, NOAA/NESDIS/Center for Satellite Applications and Research, Madison, WI; M. M. Gunshor, W. P. Menzel, J. Phillips, D. T. Lindsey

3:00 P.M.

3.5 *NOAA's Joint Polar Satellite System's (JPSS) Proving Ground and Risk Reduction (PGRR) Program—PGRR Initiatives, in Collaboration with Its Key Stakeholders, Have Revolutionized the Operational Application of Core JPSS Data and Products.* **Mitch Goldberg**, NOAA/NESDIS, Lanham, MD; B. Sjöberg

3:30 P.M.

3.6 *Progress/Status on the GOES-R Socioeconomic Benefits Study.* **Michael Jamilkowski**, The Aerospace Corporation, Greenbelt, MD; D. G. Lubar

3:45 P.M.

3.7 *Case Studies on the Socioeconomic Benefits of Satellite Information in Weather-Related Decisions.* **Yusuke Kuwayama**, Resources for the Future, Washington, DC; B. Mabee

2:00 P.M.—4:00 P.M.

I6IMPACTS**Session 3: MAJOR WEATHER IMPACTS—SESSION III —BALLROOM EAST**

2:00 P.M.

3.1 *2019—An Extremely Warm Year in Alaska: A Review of Significant Events, Impacts, and Decision Support Services.* **Eugene Petrescu**, NOAA/NWS, Anchorage, AK; B. R. Brettschneider

2:15 P.M.

3.2 *The 2019 Wildfire Season: 420,002,019th Year of Biomass Burning on Earth.* **Timothy J. Brown**, DRI, Reno, NV

2:30 P.M.

3.3 *Breaking All the Rules: The Washington, D.C., Area Flash Flood of 8 July 2019.* **Jason C. Elliott**, NOAA/NWS, Sterling, VA; K. J. Pallozzi, S. M. Zubrick

2:45 P.M.

3.4 *The Devastating 3 March 2019 Beauregard, Alabama, Tornado.* **Christopher B. Darden**, NWS, Calera, AL; M. L. Grantham

3:00 P.M.

3.5 *A Mid-May Miracle: How Communication and Collaboration across the Central Missouri Weather Enterprise Impacted the Outcome of the 22 May 2019 Jefferson City EF-3 Tornado.* **Benjamin S. Herzog**, National Weather Service, St. Charles, MO; E. Smith

3:15 P.M.

3.6 *The EF3 Tornadoes of Alto, Texas, and Ruston, Louisiana, in April 2019: A Success Story in Situational Awareness and Critical Partner Decision Support.* **Matthew Duplantis**, NWSFO, Shreveport, LA

3:30 P.M.

3.7 *129 Warnings in 3 Months! How CASA High-Resolution Radars Helped Forecasters and Stakeholders during the Active 2019 Convective Storm Season in the Greater Dallas–Fort Worth Area.* **Ted Ryan**, NOAA/NWS WFO, Fort Worth, TX; B. J. Philips, E. Lyons, J. Dunn, T. Bradshaw, A. Bajaj, V. Chandrasekar

3:45 P.M.

3.8 *The 2019 Tornado and Severe Thunderstorm Season.* **Russell Schneider**, NOAA/NWS/NCEP/Storm Prediction Center, Norman, OK; P. Marsh, W. F. Bunting

2:00 P.M.—4:00 P.M.

I5SOCIETY**Session 3A: SOCIAL SCIENTIFIC FINDINGS FROM FIVE YEARS OF VORTEX SOUTHEAST: WHAT HAVE WE LEARNED? —I51B**

Chairs: Jack R. Friedman, Univ. of Oklahoma, Norman, OK; Walker S. Ashley, Univ. of Georgia, Athens, GA

2:00 P.M.

Introductory Remarks.

2:15 P.M.

3A.1 *What Social? Navigating the Conceptual Challenges of Defining the Partners and Publics in VORTEX Southeast Research.* **Jack R. Friedman**, Univ. of Oklahoma, Norman, OK; D. LaDue

2:30 P.M.

3A.2 *Perception and Vulnerability Factors for Tornado Sheltering within Mobile and Manufactured Housing in Alabama and Mississippi.* **Kevin D. Ash**, Univ. of Florida, Gainesville, FL; M. Egnoto, S. M. Strader, W. S. Ashley, D. B. Roueche, K. E. Klockow-McClain, D. Caplen, M. Dickerson

2:45 P.M.

3A.3 *Keeping Calm in the Chaos: An Examination of Forecaster Sense-Making and Partner Response to TORFFs during Hurricane Florence.* **Jennifer A. Spinney**, Cooperative Institute for Research in Environmental Sciences, Boulder, CO; J. Henderson, M. Bica, L. Palen, E. R. Nielsen, J. Demuth

3:00 P.M.

3A.4 *“Hey @weather, I’m Really Getting Tired of Huddling My Little Girls in the Closet”: Using Twitter to Examine Risk Messages, Risk Perceptions, and Responses during Tornadoes.* **Dakota C. Smith**, NCAR, Boulder, CO; J. L. Demuth, J. Vickery, J. Henderson, H. Lazrus, R. E. Morss, K. D. Ash

3:15 P.M.

3A.5 *The Impact of Color-Coded Probabilistic Tornado Warnings on Risk Perceptions and Responses. Part I: Experiment.* **Susan Joslyn**, Univ. of Washington, Seattle, WA; S. Savelli, C. Qin, J. Demuth, R. Morss, K. D. Ash

3:30 P.M.

3A.6 *The Impact of Color-Coded Probabilistic Tornado Warnings on Risk Perceptions and Responses. Part II: Interviews.* **Julie L. Demuth**, NCAR, Boulder, CO; R. E. Morss, K. D. Ash, S. Savelli, S. Joslyn, C. Qin

3:45 P.M.

Discussion.

2:00 P.M.—4:00 P.M.

I5SOCIETY**Session 3B: THE FUTURE OF FINANCIAL WEATHER AND CLIMATE RISK MANAGEMENT —I52**

Chairs: Stephen Bennett, Riskpulse, Austin, TX; Heidi Centola, The Weather Company, Phoenix, AZ; Robert Brammer, Brammer Technology, LLC, Andover, MA

2:00 P.M.

3B.1 *Developing an Index for Measuring Supply Chain Vulnerability to Climate Change.* **Michael D. Gerst**, Univ. of Maryland, College Park, MD; L. Guntuka, M. Maddox, M. A. Kenney, S. Boyson

2:15 P.M.

3B.2 *Measuring Global Economic Damages from Global Carbon Emissions through an Excel-Based Integrated Assessment Model.* **Jill Freedman**, Univ. of Maryland, College Park, MD; T. Canty, R. Brammer

2:30 P.M.

3B.3A *Risk Management in the Global-to-Local and Now-to-Decadal Agendas.* **Gordon A. McBean**, Western Univ., London, Canada

3B.3 *WITHDRAWN*

2:00 P.M.—4:00 P.M.

2:45 P.M.

3B.4 *Optimizing Global Supply Chains by Leveraging Risk Metrics: Case Studies.* **Stephen Bennett**, Riskpulse, Austin, TX; J. Davis, M. S. Russo, L. Gloeckler III, E. Adamchick, K. S. Griffin

3:00 P.M.

3B.5 *The Economic Value of Weather Forecasts in Spraying for the Oriental Fruit Moth (OFM) Affecting Apple Orchards in South-Central Pennsylvania.* **Sheila Ngu**, Weather Risk Management Association, New York, NY

3:15 P.M.

3B.6 *Worldwide Consistent Climate-Related Financial Risk Estimation for Companies and Equities.* **Terence Randall Thompson**, The Climate Service, Asheville, NC

3:30 P.M.

3B.7 *Development of a Hurricane Storm Surge Frequency Proxy for Athenium Analytics' Risk Management Tool.* **Amanda M. Walker**, Athenium Analytics, Dover, NH

3:45 P.M.

Discussion.

2:00 P.M.—4:00 P.M.

I5URBAN

Session 3: INTEGRATED URBAN SERVICES (IUS)—A PATHWAY TO SUSTAINABLE URBAN SYSTEMS –I04B

Chair: Chandana Mitra, Auburn Univ., Auburn, AL

2:00 P.M.

3.1 *Project URBI PRAGENSI—Urbanization of Weather Forecast, Air Quality Prediction, and Climate Scenarios.* **Tomas Halenka**, Charles Univ., Prague, Czech Republic; M. Belda, P. Huszar, J. Karlicky, T. Novakova, U. PRAGENSI Team

2:15 P.M.

3.2 *Toward an Integrated Urban Modeling Framework Considering Water-Related Climate-Induced Stressors.* **Franziska S. Hanf**, Univ. Hamburg, Hamburg, Germany; K. H. Schlünzen, J. Knieling, J. Oßenbrügge, C. C. “Water from 4 Sides” Team

2:30 P.M.

3.3 *A Conceptual Model for Water-Related Climate-Induced Urban Stressors.* **Franziska S. Hanf**, Univ. Hamburg, Hamburg, Germany; K. H. Schlünzen, J. Knieling, J. Oßenbrügge, C. C. “Water from 4 Sides” Team

2:45 P.M.

3.4 *Urban Climate Services: Overview of the URCLIM Project.* **Valéry Masson**, Meteo-France/CNRS, Toulouse, France; E. Bocher, B. Bucher, J. C. Calvet, Z. Chitu, S. Christophe, C. Fortelius, R. Hamdi, A. Lemonsu, B. Le Roy, A. Perrels, H. Van de Vyver, P. van Velthoven, B. Van Schaeybroeck, L. Velea, A. Votsis, B. W. Schreur

3:00 P.M.

3.5 *Integrated Urban Model System RMAPS for Integrated Urban Service.* **Shiguang Miao**, Institute of Urban Meteorology, China Meteorological Administration, Beijing, China; M. Chen, M. Chen, X. Zhao, Y. Zhang, C. Huang, Y. Liu, F. Chen, J. Gonzalez-Cruz, R. D. Bornstein

2:00 P.M.—4:00 P.M.

3:15 P.M.

3.6 *Development of an UIS for the Greater Toronto and Hamilton Area Built upon the 2015 Pan Am Games Science Project Legacy.* **Sylvie Leroyer**, Environment and Climate Change Canada, Dorval, Canada; F. Vogel

3:30 P.M.

3.7 *Addressing the Scale Problem for Urban Weather Warnings: Hazard Impact Modelling in the UK Natural Hazards Partnership.* **Brian W. Golding**, Met Office, Exeter, UK

2:00 P.M.—4:00 P.M.

I2AEROSOL

Session 3: MEASUREMENTS AND MODELING OF CCN AND INP. PART III –208

Chairs: Ottmar Moehler, Institute of Technology, Karlsruhe, Germany; Nicole Reimer, Univ. of Illinois at Urbana; Naruki Hiranuma, West Texas A&M Univ., Canyon, TX

2:00 P.M.

3.1 *Coupling of CCN and INP in Cloud Systems Is Important to Climate: Uncertainties and Implications.* **Ann Fridlind**, NASA, New York, NY

2:30 P.M.

3.2 *Statistical Quantification of Secondary Ice Occurrence Using Long-Term Remote Sensing Observations in the Arctic.* **Edward P. Luke**, Brookhaven National Laboratory, Upton, NY; F. Yang, P. Kollias, A. M. Vogelmann, M. Maahn

2:45 P.M.

3.3 *Observation of Sea Spray Aerosol Size Distribution in Hawai'i.* **Alison D. Nugent**, Univ. of Hawai'i at Mānoa, Honolulu, HI; C. Taing, J. B. Jensen

3:00 P.M.

3.4 *Comparison of Ice Nucleation Parameterizations for Dust Minerals in Climatological Simulations with a Global Model.* **Jan P. Perlwitz**, GISS, New York, NY; D. A. Knopf, R. L. Miller

3:15 P.M.

3.5 *Impact of Physicochemical and Hygroscopic Properties of Urban Aerosols on CCN Activity in Seoul, Korea.* **Seong Soo Yum**, Yonsei Univ., Seoul, Korea, Republic of (South); N. Kim, M. park, H. J. Shin, J. S. Park, J. Ahn

3:30 P.M.

3.6 *Enhancement of the Heterogeneous Ice Nucleation by the Changing Phase State of Secondary Organic Aerosols.* **Yue Zhang**, Univ. of North Carolina, Chapel Hill, NC; M. J. Wolf, A. Koss, X. Shen, L. Nichman, Z. Zhang, A. Gold, J. Jayne, D. Worsnop, T. Onasch, P. Davidovits, J. D. Surratt, J. H. Kroll, D. J. Cziczo

3:45 P.M.

3.7 *A Major Combustion Aerosol Event Has No Impact on the Atmospheric Ice-Nucleating Particle Concentration.* **Michael P. Adams**, Univ. of Leeds, Leeds, UK; M. D. Tarn, A. Sanchez-Marroquin, G. C. E. Porter, D. O'Sullivan, A. D. Harrison, Z. Cui, J. Vergara-Temprado, F. Carotenuto, M. Holden, M. I. Daily, T. F. Whale, S. N. F. Sikora, I. T. Burke, J. U. Shim, J. B. McQuaid, B. J. Murray

2:00 P.M.—3:00 P.M.

II ENERGY

Session 3: GRID OPERATIONS AND ENERGY WEATHER. PART III—GENERAL GRID OPS –256

Chair: Benjamin Frechette, Maxar Technologies, Gaithersburg, MD

2:00 P.M.

3.1 *Development of the Kuwait Renewable Energy Prediction System (KREPS).* **Jared A. Lee**, NCAR, Boulder, CO; S. E. Haupt, B. Kosovic, G. Wiener, M. Al-Rasheedi

2:15 P.M.

3.2 *A Wind Extremes Forecast System (WEFS) for Outage Prediction.* **Jeffrey M. Freedman**, Univ. at Albany, SUNY, Albany, NY; J. W. Zack, M. Berlinger, C. Cheng

2:30 P.M.

3.3 *Energy Forecast Demand Models and Weather Forecasts Used Operationally in the Province of Quebec.* **Gilles Cazade**, Hydro-Quebec, Saint-Basile-le-grand, Canada

2:45 P.M.

3.4 *Probabilistic Predictions of Aggregated Wind and Solar Power at Shagaya Farm in Kuwait.* **Stefano Alessandrini**, NCAR, Boulder, CO; T. McCandless

2:00 P.M.—4:00 P.M.

II HEALTH

Session 3: NASA EARTH OBSERVATION SYSTEMS AND APPLICATIONS FOR HEALTH, AIR QUALITY, ENVIRONMENTAL MANAGEMENT, AND PUBLIC OUTREACH –153B

Chair: Sue M. Estes, Univ. of Alabama, Huntsville, AL

2:00 P.M.

3.1 *A Public Outreach Overview for NASA Earth Observation Systems and Applications for Health and Air Quality.* **John A. Haynes**, NASA, Washington, DC; S. M. Estes, H. Chapman

2:15 P.M.

3.2 *Capturing the Use of Earth Observations for Health Assessments of Climate Change: Learnings from the 2016 GCRP Climate Health Assessment.* **John Balbus**, National Institute of Environmental Health Sciences, Bethesda, MD; T. Castranio

2:30 P.M.

3.3 *Characterizing Multiple Environmental Exposures from Satellite Observations and Examining Their Role on Children's Health.* **Xiaozhe Yin**, Univ. of Southern California, Los Angeles, CA; M. Franklin

2:45 P.M.

3.4 *Enabling Worldwide Citizen Science Reporting of Dust Storms with NASA's GLOBE Observer App.* **Marile Colon Robles**, SSAI, Hampton, VA; H. Amos, K. Schepanski, D. Tong

3:00 P.M.

3.5 *Hydroclimate-Influenced Transmission of Waterborne Diseases in the Environment and Human Population.* **Antarpreet Jutla**, Univ. of Florida, Gainesville, FL; R. Colwell

3:15 P.M.

3.6 *Satellite Earth Observations Identify Arbovirus Transmission Hot Spots in an Urban Landscape.* **Michael C. Wimberly**, Univ. of Oklahoma, Norman, OK; J. K. Davis, M. V. Evans, A. Hess, P. M. Newberry, N. Solano, C. C. Murdock

3:30 P.M.

3.7 *Supporting "One Health" Collaborations in Environmental Health Applications.* **Helena Chapman**, NASA, Washington, DC; S. M. Estes, J. A. Haynes

3:45 P.M.

3.8 *SWOT Applications Engagement: Development, Progress, and Growth.* **Margaret M. Srinivasan**, JPL, Pasadena, CA; F. Hossain, R. E. Beighley, A. Andral

2:00 P.M.—4:00 P.M.

IOPYTHON

Session 2: NEW PYTHON TOOLS IN THE ATMOSPHERIC AND OCEANOGRAPHIC SCIENCES –157AB

Chair: Ryan M. May, UCAR, Boulder, CO

2:00 P.M.

2.1 *GeoCAT: The NCL Pivot to Python.* **John Clyne**, NCAR, Boulder, CO

2:15 P.M.

2.2 *A Tornado Damage Assessment Model and Lessons Learned from the 2019 Lee County, Alabama, EF4 Tornado.* **Madeline Jones**, New Light Technologies, Inc., Washington, DC; R. E. Kollmeyer

2:30 P.M.

2.3 *Remote Access of National Hurricane Center Storm Tracks and Storm Prediction Center Storm Reports with Siphon.* **Aodhan Sweeney**, UCAR, Boulder, CO; S. C. Arms, R. M. May, Z. Bruick

2:45 P.M.

2.4 *Atmospheric Data Community Toolkit (ACT): A Python Library for Working with Atmospheric Data.* **Adam Theisen**, Argonne National Laboratory, Lemont, IL; S. Collis, R. Jackson, Z. Sherman, N. L. Hickmon, K. E. Kehoe, C. Godine, A. J. Sockol, A. King, M. T. Giansiracusa

3:00 P.M.

2.5 *The Supercell Polarimetric Observation Research Kit (SPORK): An Automated, Python-Based Algorithm for Examining Supercell Dual-Pol Signatures.* **Matthew B. Wilson**, Univ. of Nebraska, Lincoln, NE; N. R. Humrich, M. S. Van Den Broeke

3:15 P.M.

2.6 *Use of Python to Streamline and Refactor the WRF-Hydro Forcing Engine for Community Use.* **Logan Karsten**, NCAR, Boulder, CO; D. Gochis, Y. Zhang, R. Cabell

3:30 P.M.

2.7 *CLIMLAB 2.0: Lessons Learned and Future Roadmap for Interactive, Process-Oriented Climate Modeling.* **Brian E. J. Rose**, Univ. at Albany, SUNY, Albany, NY

2:00 P.M.—4:00 P.M.

10LIDAR

Session 2: HISTORICAL LIDAR PERSPECTIVES
(CENTENNIAL) –210C

Chair: John E. Yorks, NASA, Greenbelt, MD

2:00 P.M.

2.1 *From LITE to CALIPSO and Beyond: A Brief History of NASA Langley Research Center Spaceborne Lidar Missions and Measurements.* **Kathleen A. Powell**, NASA, Hampton, VA; M.A. Vaughan, D. M. Winker, C.A. Hostetler, C. Trepte, M. C. Pitts, D. C. Mangosing, L. R. Poole

2:30 P.M.

2.2 *One Lidar Scientist's Career Pathway and Vision for the Future.* **Matthew J. McGill**, NASA GSFC, Greenbelt, MD

3:00 P.M.

2.3 *A Nearly Half-Century History of High Spectral Resolution Lidar Development at the Univ. of Wisconsin.* **Edwin W. Eloranta**, Univ. of Wisconsin, Madison, WI

2:00 P.M.—4:00 P.M.

10R20

Session 3A: TESTBEDS TO ENABLE AND ACCELERATE TRANSITIONS OF R2O TO DECISION-MAKERS, END USERS, AND THE PUBLIC IN WEATHER, WATER, OR CLIMATE APPLICATIONS [E.G., HAZARDOUS WEATHER TESTBED (HWT)] AND HYDROMETEOROLOGICAL TESTBED (HMT)]—PART II –252A

Chairs: Chandra R. Kondragunta, NOAA/OAR/Office of Weather and Air Quality, Silver Spring, MD; James A. Nelson, NOAA Weather Prediction Center, College Park, MD

2:00 P.M.

3A.1 *The Weather Prediction Center Development and Training Branch: R2O Activities within the Hydrometeorological Testbed (HMT).* **James Alan Nelson**, Weather Prediction Center, College Park, MD

2:15 P.M.

3A.2 *The Seventh Annual Flash Flood and Intense Rainfall Experiment. Part II: An Objective Overview of the Experimental Models and Ensembles Used in FFaIR 2019.* **Benjamin Albright**, Systems Research Group, Inc., College Park, MD; S. Trojaniak, M. Erickson, M. Klein, J. A. Nelson

2:30 P.M.

3A.3 *The Seventh Annual Flash Flood and Intense Rainfall (FFaIR) Experiment. Part I: An Overview of the Subjective Verification of the Experimental Products Used in FFaIR 2019.* **Sarah Trojaniak**, Systems Research Group, Inc., College Park, MD; B. Albright, M. Erickson, M. Klein, J. A. Nelson Jr.

2:45 P.M.

3A.4 *SAR-FV3 Storm-Scale Ensemble Forecasts (CAPS SSEF) and Ensemble Consensus Products for the 2019 HMT FFaIR Experiment.* **Keith A. Brewster**, Univ. of Oklahoma, Norman, OK; N. Snook, F. Kong, M. Xue, T. A. Supinie, C. Zhang, K. W. Thomas

3:00 P.M.

3A.5 *Probabilistic Quantitative Precipitation Estimates with Ground-Based Radar Networks.* **Pierre-Emmanuel Kirstetter**, NSSL, Norman, OK; M. Simpson, J. Zhang, S. M. Martinaitis, J. J. Gourley, N. Indik

3:15 P.M.

3A.6 *A Path Toward Short-Term Probabilistic Flash Flood Prediction.* **Steven M. Martinaitis**, CIMMS/Univ. of Oklahoma and NOAA/NSSL, Norman, OK; J. J. Gourley, K. A. Wilson, N. Yussouf, K. Berry, H. Vergara, P. L. Heinselman, T. C. Meyer, J. W. Monroe, A. Vergara

3:30 P.M.

3A.7 *Advancement of Integrated Winter Weather Forecasts in the Great Lakes Region: Linking Operational Weather, Lake, and Ice Models and User Engagement.* **Ayumi Fujisaki-Manome**, Cooperative Institute for Great Lakes Research, Ann Arbor, MI; G. E. Mann, E. J. Anderson, P. Y. Chu, L. E. Fitzpatrick, G. A. Lang, E. P. James, S. G. Benjamin, C. Alexander, J. G. W. Kelley, Y. Chen, M. Rostaminia

3:45 P.M.

3A.8 *Montecito Mudslides 2018 Revisited.* **Diandong Ren**, Curtin Univ. of Technology, Perth, Australia

2:00 P.M.—4:00 P.M.

10R20

Session 3B: ADVANCES IN SATELLITE OBSERVATIONS, EARTH SCIENCE, AND OBSERVING TECHNOLOGIES THAT CAN COMPLEMENT THE HERITAGE OBSERVATION SYSTEMS AND POTENTIALLY LEAD TO ADVANCES IN NEXT-GENERATION OBSERVATION SYSTEMS –251

Chairs: Eric J. Fetzer, JPL/California Institute of Technology, Pasadena, CA; Stephen A. Mango, NOAA/NESDIS/Office of Projects, Planning and Analysis, Silver Spring, MD

2:00 P.M.

3B.1 *Establish Operational Earth Observation Data Continuity Using VIIRS and METimage.* **S. Uprety**, Univ. of Maryland/CISESS, College Park, MD; C. Cao, B. Zhang, X. Shao

2:15 P.M.

3B.2 *Preparing for the Next Generation of Hyperspectral Infrared Sounders.* **S. Kalluri**, NOAA/NESDIS/STAR, College Park, MD; C. Cao, F. Iturbide-Sanchez

2:30 P.M.

3B.3 *Validation of the Vapor In-Cloud Profiling Radar.* **M. Lebsock**, JPL/California Institute of Technology, Pasadena, CA; R. Roy, L. F. Millan, K. Cooper

2:45 P.M.

3B.4 *Airborne Lidar Observations of Water Vapor Profiles and Planetary Boundary Layer Heights—Prospects for Future SmallSat Missions.* **Amin R. Nehrir**, NASA, Hampton, VA; R. A. Barton-Grimley, S. A. Kooi, J. Collins, K. M. Bedka

3:00 P.M.

3B.5 *Toward a New Warning Method of Threats in Motion: Improving Warning Lead and Departure Times with Innovative Hazard Communication and Dissemination Techniques.* **Alyssa V. Bates**, CIMMS/Univ. of Oklahoma and NWS/Warning Decision Training Division, Norman, OK; G. J. Stumpf, K. E. Klockow-McClain, A. Gerard, J. G. LaDue, G. M. Schoor, P. T. Marsh, K. Nemunaitis-Berry, H. Obermeier, P. A. Campbell, K. M. Kuhlman, T. C. Meyer, T. M. Smith

2:00 P.M.—4:00 P.M.

8WRN / 48BROADCAST

Joint Session 9: THE CHALLENGES OF EFFECTIVE
MESSAGING FOR A WEATHER-READY NATION —153C

2:00 P.M.

J9.1 *Words to the Weatherwise.* **Alan Sealls**, Weatherthings, Mobile, AL

2:15 P.M.

J9.2 *Overcoming the Fear of Losing Scientific Expertise in Effective Messaging.* **Andrew Just**, NWS, Kansas City, MO; A. Foster

2:30 P.M.

J9.3 *Practice Makes Better: National Weather Service Training Center Methods for Helping Scientists Communicate Weather, Water, and Climate Information to Partners.* **Megan N. Taylor**, NWS, Kansas City, MO; J. Keeney

2:45 P.M.

J9.4 *Say What You Need to Say: How Unique Words Grab Attention and Save Lives.* **Jason C. Elliott**, NOAA/NWS, Sterling, VA

3:00 P.M.

J9.5 *Breaking the Grip of the Rip: Communicating the Risk of Deadly Rip Currents to the Public.* **Morgan Barry**, NWSFO, Mobile, AL; C. Lindsey, J. Beaman

3:15 P.M.

J9.6 *Understanding and Effectively Communicating Critical Information: A Case Review of an Inland Northwest Thunderstorm Event.* **Andy Brown**, NWS, Spokane, WA

3:30 P.M.

J9.7 *Improving Communication of Coastal Flood Warnings to Rural Alaska Communities.* **Edward Plumb**, NOAA/National Weather Service, Fairbanks, AK

2:00 P.M.—4:00 P.M.

8WXCLIMATE

Session 1: EXTREME WEATHER AT SEA: BRINGING
TWENTY-FIRST CENTURY WEATHER SERVICES
TO MARINERS —254A**Chairs:** J. M. Sienkiewicz, NOAA/NWS/Ocean Prediction Center, College Park, MD; Kathryn Gilbert, Ocean Prediction Center and Weather Prediction Center, NOAA/NWS, College Park, MD, , NCEP, College Park, MD; Darin Figurskey, NOAA, College Park, MD; Alison Agather, NOAA/NWS/Ocean Prediction Center, College Park, MD

2:00 P.M.

I.1 *Extreme Maritime Weather—Operational Forecasting Challenges.* **J. M. Sienkiewicz**, NOAA/NWS/Ocean Prediction Center, College Park, MD

2:15 P.M.

I.2 *Collection of Weather Observations via Shipboard Automatic Identification System (AIS).* **Brian Tetreault**, U.S. Army, Baltimore, MD

2:30 P.M.

I.3 *An Investigation of the Weather Impacts to Ships Transiting the Gulf Stream in Winter and Early Spring.* **Olivia R. Keefe**, NOAA/NWS, College Park, MD; F. Achorn, H. Fort, J. M. Sienkiewicz, J. Krekeler, R. Daniels

2:45 P.M.

I.4 *Building a Climatology of Extratropical Hurricane Force Lows in the North Atlantic and North Pacific Oceans.* **Jason Krekeler**, NWS, College Park, MD; T. Collins, J. M. Kells

3:00 P.M.

I.5 *Forecasting Marine Hazards with Limited Observations and Verification.* **Michael J. Folmer**, NWS, College Park, MD; J. D. Clark, J. M. Sienkiewicz

3:15 P.M.

I.6 *Gale, Gale, Storm: Playing Duck, Duck, Goose in the Southern Ocean.* **Jay Amster**, Sea Education Association, Woods Hole, MA

3:30 P.M.

I.7 *The Sinking of the Steam Ship El Faro: Examining the Causal or Contributing Factors Related to the Risks of Tropical Weather That Contributed to the Tragedy (Invited Presentation).* **Keith Fawcett**, U.S. Coast Guard, New Orleans, LA

2:00 P.M.—4:00 P.M.

8WXCLIMATE / 48BROADCAST / 8WRN

Joint Session 8: TRANSLATING WEATHER INTO
THE SPANISH LANGUAGE. PART II: ADDRESSING
THE TRANSLATION AND CONSISTENCY
PROBLEM IN THE SPANISH WEATHER WORLD
—252B**Chairs:** Gina Eosco, NOAA/OAR/OWAQ, Silver Spring, MD; Joseph Enrique Trujillo, CIMMS/NSSL, Norman, OK

2:00 P.M.

J8.1 *FIU—NOAA Spanish Language Hurricane Information Website.* **Erik Salna**, Extreme Events Institute, Florida International Univ., Miami, FL

2:15 P.M.

J8.2 *Bilingualism in the U.S. Melting Pot: Keeping People Safe and Adapting to Their Changing Ways.* **Irene Sans**, WFTV Channel 9 ABC, Orlando, FL; J. Gallardo

2:30 P.M.

J8.3 *Translating Watches and Warnings.* **Nelly Carreno**, Univision Dallas, Irving, TX

2:45 P.M.

J8.4 *Introducing the AMS Latinx Committee.* **Joseph Enrique Trujillo**, CIMMS/NSSL, Norman, OK

2:00 P.M.–4:00 P.M.

8WXCLIMATE / 5INTERNATIONAL

Joint Panel Discussion 1: THE OUTCOMES OF THE 2019 WMO CONGRESS: WHAT IS THE PATH FORWARD FOR INTERNATIONAL COOPERATION AND COORDINATION ACROSS THE WEATHER ENTERPRISE? (KEYNOTE ADDRESS AND INVITED PANEL) –212

Chair: Erica A. Grow, WNBC-TV, New York, NY

Panelists: Louis W. Uccellini, NOAA/NWS, Silver Spring, MD; Neil A. Jacobs, National Oceanic and Atmospheric Administration; Jim Anderson, Earth Networks, Germantown, MD; Kevin R. Petty, NCAR; Petteri Taalas, WMO, Geneva, Switzerland; Julie Dana, World Bank, Washington, DC

2:00 P.M.

JPDI.1 *Keynote Speaker and Panelist: Petteri Taalas, Secretary-General, World Meteorological Organization. Petteri Taalas, WMO, Geneva, Switzerland*

2:30 P.M.

Panel Discussion.

2:00 P.M.–3:00 P.M.

8MJO / TROPSYMP I

Joint Session 7: CONVECTION OVER THE MARITIME CONTINENT –254B

Chair: Eric D. Maloney, Colorado State Univ., Fort Collins, CO

2:00 P.M.

J7.1 *Early Observation and Modeling Results from the NASA Cloud, Aerosol, and Monsoon Processes Philippines Experiment (CAMP2Ex). D. J. Posselt, JPL, Pasadena, CA; J. S. Reid, S. van den Heever, J. Mace, L. Di Girolamo, L. D. Ziemba*

2:15 P.M.

J7.2 *Diurnal Forcing and Phase Locking of Gravity Waves in the Maritime Continent. James Ruppert, The Pennsylvania State Univ., University Park, PA; F. Zhang, X. Chen*

2:30 P.M.

J7.3 *Numerical Simulations of the Precipitation along the Coastal Areas of Sumatra Island. Kazuaki Yasunaga, Univ. of Toyama, Toyama, Japan; R. Okugawa*

2:45 P.M.

J7.4 *Characteristics of Convective Properties during Madden-Julian Oscillation (MJO) over the Maritime Continent Using Numerical Simulations at a Cloud-Permitting Scale with Assimilation of Satellite, Radar, and In Situ Observations. Zhaoxia Pu, Univ. of Utah, Salt Lake City, UT; Z. Cui, B. Zhu, Y. Wei, C. Zhang*

2:00 P.M.–3:45 P.M.

4PREDICTABILITY

Session 3: ERROR GROWTH AND PREDICTABILITY LIMITS –104C

Chair: Carolyn Reynolds, NRL, Monterey, CA

2:00 P.M.

3.1 *Mesoscale Convective Systems, Rossby Waves, and Error Growth in Global Numerical Weather Prediction. David B. Parsons, Univ. of Oklahoma, Norman, OK; S. P. Lillo, C. P. Rattray, C. M. Bruce*

2:15 P.M.

3.2 *Impact of the Mesoscale Range on Error Growth and the Limits to Atmospheric Predictability. Tsz Yan Leung, Univ. of Reading, Reading, UK; M. Leutbecher, S. Reich, T. G. Shepherd*

2:30 P.M.

3.3 *Is Weather Chaotic? Coexistence of Chaos and Order within a Generalized Lorenz Model. Bo-Wen Shen, San Diego State Univ., San Diego, CA; R. Pielke Sr., X. Zeng, J. J. Baik, T. Reyes, S. Faghieh-Naini, R. Atlas, J. Cui*

2:45 P.M.

3.4 *Moving beyond State Variables to Enabling Underlying Physical Processes for Increased Predictability. James R. Stalker, RESPR, Inc., Tolland, CT*

3:00 P.M.

3.5 *Modes of Synoptic-Scale Midlatitude Error Growth and Ramifications in Medium-Range Forecast Performance. Samuel P. Lillo, Univ. of Oklahoma, Norman, OK; D. B. Parsons*

3:15 P.M.

3.6 *Dynamical Ensembles: A Critical Assessment. Zoltan Toth, NOAA, Boulder, CO; J. Feng, M. Peña*

3:30 P.M.

3.7 *Sufficient Model Resolution for S2S Predictions. Prashant D. Sardeshmukh, CIRES/Univ. of Colorado and NOAA/ESRL/PSD, Boulder, CO; J. W. A. Wang*

2:00 P.M.–4:00 P.M.

FUTURESYP

Panel Discussion 2: AMS/NWA RONALD W. PRZYBYLINSKI RESEARCH OPERATIONS NEXUS (RON) MEETUP –205C

Chairs: Gregory J. Stumpf, CIMMS/Univ. of Oklahoma and NOAA/NWS/Meteorological Development Laboratory, Norman, OK; Rebecca Adams-Selin, AER, Omaha, NE

3:00 P.M.—4:00 P.M.

34HYDRO**Session 4A: SOIL-PLANT-ATMOSPHERE INTERACTIONS IN AMAZONIA –253C**

Chairs: Jose D. Fuentes, The Pennsylvania State Univ., University Park, PA; Courtney Schumacher, Texas A&M Univ., College Station, TX; Gilberto Fisch, Institute of Aeronautics and Space, São José dos Campos, Brazil

3:00 P.M.

4A.1 *Improvements on Understanding Rainfall in the Amazon Basin from LBA Field Campaigns and How Models Benefited from Enhanced Observations (Invited Presentation).* **Maria A. F. Silva Dias**, Universidade de Sao Paulo, São Paulo, Brazil

3:15 P.M.

4A.2 *Ecosystem Regulated Rainy Season Onset and Drought Variability over Amazonia.* **Rong Fu**, Univ. of California, Los Angeles, Los Angeles, CA

3:30 P.M.

4A.3 *Conditional Sampling, Event-Based Composites, and Observational Reynolds Ensemble Methods: Thirty Years of Parsing Data to Determine Vegetation–Atmosphere Feedbacks.* **David R. Fitzjarrald**, Univ. at Albany, SUNY, Albany, NY

3:45 P.M.

4A.4 *Interactions between the Amazonian rainforest and cumuli clouds: A large-eddy simulation, high-resolution ECMWF and observational intercomparison study.* **J. Vila-Guerau de Arellano**, Wageningen Univ., Wageningen, Netherlands; X. Wang, X. Pedruzo Bagazgoitia, M. Sikma, A. Agusti-Panareda, S. Boussetta, G. Balsamo, L. Machado, S. T. Martin, J. D. Fuentes, T. Gerken

3:00 P.M.—4:00 P.M.

34HYDRO**Session 4B: THE IMPORTANCE OF FORECASTS FOR MULTIOBJECTIVE RESERVOIR OPERATIONS –253A**

Chairs: David Paul Keeney, Bureau of Reclamation, Denver, CO; W. Josh Weiss, Hazen and Sawyer, Baltimore, MD; Kent Walker, Bureau of Reclamation, Denver, CO

3:00 P.M.

4B.1 *Supporting the Folsom Dam Water Control Manual Update through the Use of the National Weather Service Hydrologic Ensemble Forecast Service (HEFS) Hindcasts (Invited Presentation).* **Brett Whitin**, NWS, Sacramento, CA

3:15 P.M.

4B.2 *Forecast-Informed Flood Management: Reservoir Operations at Folsom Lake, California (Invited Presentation).* **Randi Field**, U.S. Bureau of Reclamation, Sacramento, CA

3:30 P.M.

4B.3 *A Risk-Based Decision Support System for Flood Operations of Lake Mendocino in Water Year 2019.* **Chris Delaney**, Sonoma Water, Santa Rosa, CA; M. Konieczki, R. K. Hartman, J. R. Mendoza, J. Jasperse, F. M. Ralph, C. Talbot

3:45 P.M.

4B.4 *New York City's Operations Support Tool (OST)—An Application of Forecast-Based Water Supply Operations.* **Adao H. Matonse**, New York City Environmental Protection, Gramhamsville, NY

3:00 P.M.—4:00 P.M.

33CVC / 22WXMOD / 15SOCIETY / 12AEROSOL Joint Panel Discussion 2: THE NEED FOR WATER DRIVING THE SCIENCE OF RAIN AND SNOW: PAST, PRESENT, AND FUTURE PANEL (CENTENNIAL) –105

Chair: Roy Rasmussen, NCAR, Boulder, CO

Panelists: Sarah Tessendorf, Univ. of Colorado Boulder, Boulder, CO; Robert M. Rauber, Univ. of Illinois, Urbana, IL; L. Ruby Leung, PNNL, Richland, WA; Dave Matthews, CEO Hydrometdss, LLC, Silverthorne, CO; Ethan Gutmann, NCAR, Boulder, CO

3:00 P.M.—4:00 P.M.

30WAF26NWP**Session 3A: ADVANCES IN DOWNSCALING OF WEATHER AND CLIMATE MODELS –257AB**

Chair: Erik S. Pytlak, Bonneville Power Administration, Portland, OR

3:00 P.M.

3A.1 *On the Urban Effects in High-Resolution Weather Forecast and Regional Climate Simulations.* **Tomas Halenka**, Charles Univ., Prague, Czech Republic; J. Karlicky, M. Belda, P. Huszar, T. Novakova

3:15 P.M.

3A.2 *Potential for Downscaling Precipitation Forecasts Using Orographic Precipitation Gradients in the Western United States.* **Lucas Bohne**, Univ. of Utah, Salt Lake City, UT; C. Strong, W. J. Steenburgh

3:30 P.M.

3A.3 *STAR-ESDM: High-Resolution Station- and Grid-Based Climate Projections.* **Anne M. K. Stoner**, Texas Tech Univ., Lubbock, TX; K. Hayhoe, I. Scott-Fleming

3:45 P.M.

3A.4 *Novel Approaches for Downscaling of 21st Century Precipitation Extremes –Focus over the Mediterranean & Mid-East.* **Pinhas Alpert**, Tel Aviv Univ., Tel Aviv, Israel

3:00 P.M.—4:00 P.M.

30WAF26NWP**Session 3B: ANALYSIS AND FORECASTING OF SEVERE THUNDERSTORMS AND ASSOCIATED HAZARDS. PART III –258A**

Chairs: Sam Ng, Metropolitan State Univ., Denver, CO; Alexander O. Tardy, NOAA/NWS, San Diego, CA

3:00 P.M.

3B.1 *Climatology of Tropical Cyclone Tornadoes in China from 2006 to 2018.* **Zhiyong Meng**, Peking Univ., Beijing, China; L. Bai, K. Sueki, G. Chen, R. Zhou

3:00 P.M.—4:00 P.M.

3:15 P.M.

3B.2 Does Ambient Deep-Tropospheric Vertical Wind Shear Influence Tornado Supercells in Tropical Cyclones? **Benjamin A. Schenkel**, Univ. of Oklahoma, Norman, OK; R. Edwards, M. C. Coniglio

3:30 P.M.

3B.3 Projecting the End-of-Century Severe Hail and Tornado Landscape across Eastern Colorado Using Synthetic Reports and Pseudo-Global Warming Approaches. **Samuel J. Childs**, Colorado State Univ., Fort Collins, CO; R. S. Schumacher

3:45 P.M.

3B.4 Observational Summary of the Effects of the Northeastern Alabama Plateaus on the Near-Storm Environment of Tornadoic Storms during VORTEX-SE. **Anthony W. Lyza**, Univ. of Alabama, Huntsville, AL; T.A. Murphy, B. T. Goudeau, P. Pangle, K. R. Knupp, R.A. Wade

3:00 P.M.—4:00 P.M.

21 AIRPOL

Session 4: GLOBAL-TO LOCAL-SCALE COUPLED METEOROLOGY AND ATMOSPHERIC CHEMISTRY MODELING. PART II –211

Chairs: Jonathan E. Pleim, EPA, Research Triangle Park, NC; Allison Ring, Univ. of Maryland, College Park, MD

3:00 P.M.

4.1 Initial Development of a NOAA Emissions and eXchange Unified System (NEXUS). **Patrick C. Campbell**, ARL, College Park, MD; B. Baker, R. Saylor, D. Tong, Y. Tang, P. Lee

3:15 P.M.

4.2 High-Resolution Global Coupled Chemistry–Meteorology Simulations Using the NASA GEOS Composition Forecast System: GEOS-CF. **K. Emma Knowland**, USRA/GESTAR NASA/GMAO, Greenbelt, MD; C.A. Keller, B. Duncan, E. Saunders, P. Wales, L. Ott, M. B. Follette-Cook, J. Liu, J. M. Nicely, S.A. Strode, S. Pawson, H. Ensz

3:30 P.M.

4.3 Incorporating Isotope into Atmospheric Chemistry Models. **Huan Fang**, Purdue Univ., West Lafayette, IN; G. Michalski

3:45 P.M.

4.4 Modeling Aerosol–Planetary Boundary Layer Interactions in East Asia. **Xin Huang**, Nanjing Univ., Nanjing, China; A. Ding, Z. Wang

3:00 P.M.—4:00 P.M.

11 ENERGY

Session 4: WIND FORECASTING. PART I –256

Chairs: John Zack, AWS Truepower LLC, Albany, NY; Jessica M. Tomaszewski, Univ. of Colorado, Boulder, CO

3:00 P.M.

4.1 Improving WRF-Solar Model for Wind Forecast over Complex Terrain. **Yunpeng Shan**, DOE, Upton, NY; Y. Liu, Q. Min

3:15 P.M.

4.2 Mountain Waves Impact Wind Power Generation. **Caroline Draxl**, National Renewable Energy Laboratory, Golden, CO; L.

4:00 PM–6:00 PM–HALL B

K. Berg, D. Chand, J. Lundquist, Y. Pichugina, J. Sharp, G. Wedam, J. Wilczak, R. Worsnop

3:30 P.M.

4.3 Advances in Subseasonal Prediction of 100-m Wind Speed in the Western United States. **Violeta Toma**, Climate Forecast Applications Network, Reno, NV; F. E. Hirata, M. D. Zuluaga, J. Curry

3:45 P.M.

4.4 Evaluation of NWP Models Using Scanning Lidar Measurements in Complex Terrain during the WFIP2 Experiment: Lessons Learned. **Yelena Pichugina**, CIRES/Univ. of Colorado, Boulder, CO; R. M. Banta, A. W. Brewer, S. Baidar, A. Choukulkar, B. J. McCarty, L. Berg, C. Draxl, H. J. S. Fernando, J. Kenyon, J. Lundquist, J. Olson, J. Sharp, M. T. Stoelinga, D. D. Turner, S. Wharton, J. Wilczak

3:00 P.M.—4:00 P.M.

8MJO / TROPSYMP I

Joint Session 10: SUBSEASONAL-TO-SEASONAL VARIABILITY AND PREDICTION OF TROPICAL CYCLONES –254B

Chair: Suzana Camargo, Lamont-Doherty Earth Observatory, Columbia Univ., Palisades, NY

3:00 P.M.

J10.1 Subseasonal Predictability of a Genesis Potential Index. **Rodrigo Bombardi**, Texas A&M Univ., College Station, TX; L. Trenary, K. Emanuel

3:15 P.M.

J10.2 The Relationship between Autumn Cold Surge Activity and Tropical Cyclones in the Eastern North Pacific. **Alex K. Mitchell**, Univ. at Albany, SUNY, Albany, NY; L. Bosart

3:30 P.M.

J10.3 The Impact of the MJO on NHC Tropical Cyclone Genesis Forecasts. **Eric S. Blake**, NOAA/NCEP/NHC, Miami, FL; P. J. Klotzbach, J. P. Cangialosi

3:45 P.M.

J10.4 The Relationship between the Madden–Julian Oscillation and Tropical Cyclone Rapid Intensification. **Sim D. Aberson**, NOAA/AOML/Hurricane Research Division, Miami, FL; J. Kaplan

SOLOMONSYMP

Poster Session 1: CLIMATE, ENVIRONMENTAL POLICY, OZONE, AND THE MIDDLE ATMOSPHERE—SUSAN SOLOMON SYMPOSIUM POSTERS

1 On the Chlorofluorocarbons Banked in Equipment: Contributions to Emissions and Impacts on the Ozone Layer and the Climate. **Megan Lickley**, MIT, Cambridge, MA; S. Solomon, S. Fletcher, G. Velders, J. S. Daniel, S.A. Montzka, M. Rigby, K. J. M. Lambert, K.A. Stone

2 The ABCs of Ozone Depletion and Global Warming: The Wisdom of Solomon. **Ross J. Salawitch**, Univ. of Maryland, College Park, College Park, MD; W. Tribett, L. McBride, A. Hope, T. Canty

- 3** *Evaluation of the Emissions Provided by the RCPs and SSPs Emission Scenarios.* **Claire Granier**, CNRS and NOAA/CIRES, Toulouse, France; N. Elguindi, T. Stavrakou
- 4** *Lessons from Montreal for Global Environmental Negotiations.* **Noelle Selin**, MIT, Cambridge, MA; F. Kinniburgh, H. Selin, M. Schreurs
- 5** *Climate Metrics for C3–C4 Hydrofluorocarbons (HFCs) Lacking Fundamental Experimental Measurements.* **James B. Burkholder**, NOAA, Boulder, CO; P. Marshall, P. P. Bera, J. S. Francisco, T. J. Lee
- 6** *The Enigmatic Growth of Atmospheric Methane.* **Lori Bruhwiler**, NOAA, Boulder, CO
- 7** *The Role of Heterogeneous Chemistry in Ozone Depletion and Recovery.* **Catherine A. Wilka**, MIT, Cambridge, MA; S. Solomon, K. Shah, K. A. Stone, D. E. Kinnison, M. Mills, A. Schmidt, R. R. Neely III
- 8** *Response of the Brewer–Dobson Circulation to an Abrupt CO₂ Increase.* **Natalia Calvo**, Univ. Complutense de Madrid, Madrid, Spain; D. R. Marsh, G. Chiodo, R. R. Garcia, L. M. Polvani
- 9** *Prediction of Northern Hemisphere Regional Surface Temperatures and the Cryosphere Using Stratospheric Ozone Information.* **Kane A. Stone**, MIT, Cambridge, MA; S. Solomon, D. E. Kinnison, C. F. Baggett, E. A. Barnes
- 10** *Climate Change Impacts of Antarctic Ozone Recovery.* **Brian Zambri**, MIT, Cambridge, MA; S. Solomon
- 11** *Revising the Ozone Depletion Potentials Metric for Short-Lived Chemicals such as CF₃I and CH₃I.* **Donald J. Wuebbles**, Univ. of Illinois, Urbana, IL; J. Zhang, D. E. Kinnison, A. Saiz-Lopez
- 12** *An Exceptional Summer during the South Pole Race of 1911–12.* **Ryan L. Fogt**, Ohio Univ., Athens, OH; S. Solomon, M. E. Jones, J. M. Jones, C. Goergens
- 13** *Aviation Footprint in a Warming Future Climate.* **Diandong Ren**, Curtin Univ. of Technology, Perth, Australia
- 14** *Ozone Variability in the Tropical TTL Derived from SHADOZ Profiles (1998–2017): Role of Convective Processes.* **Anne M. Thompson**, NASA GSFC, Greenbelt, MD; R. M. Stauffer, D. E. Kollonige
- 15** *Stratospheric Ozone in the Last Glacial Maximum.* **Mingcheng Wang**, Univ. of Washington, Seattle, WA; Q. Fu, S. Solomon, R. H. White, B. Alexander
- 16** *Temporal Evolution of the Bromine Alpha Factor in Future Atmospheres.* **J. Eric Klobas**, Harvard Univ., Cambridge, MA; D. M. Wilmouth, D. Weisenstein
- 17** *Stronger Stratospheric Temperature Changes Simulated with an Interactive Ozone Scheme.* **Pu Lin**, GFDL, Princeton, NJ; Y. Ming
- 18** *Observations of Elevated CFC-11 and CFC-12 over Hebei Province, China.* **Sarah Benish**, Univ. of Maryland, College Park, MD; R. J. Salawitch, X. Ren, H. He, R. R. Dickerson
- 19** *Is Interactive Ozone Chemistry Important to Representing Polar Cap Stratospheric Temperature Variability in Earth System Models?* **Harald E. Rieder**, Univ. of Natural Resources and Life Sciences, Vienna, Austria; G. Chiodo, J. M. Fritzer, C. Wienerroither, L. M. Polvani
- 20** *PSC Distributions and Composition Based on CALIOP Measurements from 2006 to 2018.* **Michael C. Pitts**, NASA Langley Research Center, Hampton, VA; L. R. Poole
- 21** *The Impact of Sudden Stratospheric Warmings (SSWs) on Stratosphere–Troposphere Exchange (STE) of Ozone (O₃) and Water Vapour (H₂O).* **Ryan S. Williams**, Univ. of Reading, Reading, UK; M. I. Hegglin, P. Jöckel, H. Garny
- 22** *The History of Stratospheric Ozone Research: From the First Atmospheric Measurements to Current Developments.* **Rolf Mueller**, Forschungszentrum Jülich, Jülich, Germany; J. U. Grooß
- 23** *Characterizing and Explaining Mesospheric Ozone.* **Anne K. Smith**, NCAR, Boulder, CO
- 24** *Long-Term Stratospheric Ozone Changes and Associated Climate Impacts in CMIP6 Simulations.* **Birgit Hassler**, DLR, Wessling, Germany; J. Keeble, A. Banerjee, S. Davis, O. Morgenstern, P. Nowack, G. Zeng
- 25** *Spatiotemporal Variations in the Relationship between Total Ozone and Meteorological factors in the Antarctic Stratosphere.* **Dha Hyun Ahn**, Yonsei Univ., Seoul, Korea, Republic of (South); T. J. Choi, J. Kim, S. J. Kim, J. H. Koo
- 26** *Modeling the Potential Impacts on Total-Column Ozone Recovery of the Recent, Unexpected Increases in CFC-11 emissions.* **James Keeble**, Univ. of Cambridge, Cambridge, UK
- 27** *Transport–Radiation Feedback Due to Ozone in the Tropical Tropopause Layer.* **Thomas Birner**, Ludwig-Maximilians-Univ. of Munich, Munich, Germany; E. J. Charlesworth, J. R. Albers
- 28** *The Asian Tropopause Aerosol Layer Mystery: Chemical and Physical Properties Inferred from Aircraft-Borne In Situ Measurements.* **Stephan Borrmann**, Max Planck Institute for Chemistry, Mainz, Germany
- 29** *Using Earth's Entropy Production Rate as a Global Climate Change Metric.* **Goodwin Gibbins**, Imperial College London, London, UK; J. D. Haigh
- 30** *Better Quantification of the Recent Unexpected Emission of CFC-11.* **Robert W. Portmann**, NOAA, Boulder, CO; E. A. Ray, J. S. Daniel, P. Yu, S. A. Montzka, G. S. Dutton
- 31** *Space Climate into the Twenty-First Century.* **Stanley C. Solomon**, NCAR, Boulder, CO; H. L. Liu, D. R. Marsh, J. M. McInerney, L. Qain, F. M. Vitt
- 32** *Constraining the Quantity of Tropospheric Air Irreversibly Transported to the Lower Stratosphere via Tropopause-Penetrating Convection with In Situ Observations.* **Jessica B. Smith**, Harvard Univ., Cambridge, MA
- 33** *Uncertainty in Ozone Trend Detection.* **Marianna Linz**, Harvard Univ., Cambridge, MA; J. L. Neu, P. Lin
- 34** *Comparison of Total NO₂ Vertical Column Density between WRF-Chem Simulation and Observations from the Pandora Spectrometer and Ozone Monitoring Instrument during the Lake Michigan Ozone Study in 2017.* **Chuan Feng**, Saint Louis Univ., Saint Louis, MO; J. Fishman

36EIP**Poster Session I: EIP POSTERS: DAY I**

Chairs: Kevin R. Tyle, Univ. at Albany, SUNY, Albany, NY; S. S. Lindstrom, Univ. of Wisconsin/CIMSS, Madison, WI

35A *Operational Meteorological Assimilation Data Ingest System (MADIS) Current Functionality and Planned Enhancements.* **Greg Pratt**, OAR, Boulder, CO; L. Benjamin

35 *Interactive and Accessible Satellite Meteorology with WebGL.* **Clayton Suplinski**, Univ. of Wisconsin–Madison Space Science and Engineering Center, Madison, WI; J. O. Robaidek

36 *Development of Interactive Virtual Environment for Hydrometeorological Visualization and Analysis.* **Branden Spooner**, Caribbean Institute for Meteorology and Hydrology, Bridgetown, Barbados; D. Farrell, S.A. Boyce, R. N. Walters

37 *Dashboards for Real-Time Monitoring of Winter Operations Activities and After-Action Assessment.* **Jairaj C. Desai**, Purdue Univ., West Lafayette, IN; J. K. Mathew, W. Kim, M. Liu, H. Li, J. D. Brooks, D. M. Bullock

38 *Impacts of Snow Squalls on Pennsylvania Roadways.* **Michael Colbert**, NOAA/NWS, State College, PA; B. Watson, J. Ceru, M. L. Jurewicz Sr., A. Andreson

39 *The Pennsylvania Pathfinder Project.* **Matthew Steinbugl**, NOAA/NWS, State College, PA

40 *Characteristics of Wind Shear in Three Recent Years at Incheon International Airport.* **Jae Won Lee**, KMA, Incheon, Korea, Republic of (South); S. K. KIM, K. Y. BYEN, J. KIM

42 *Using Total Lightning Data to Optimize Airport Shutdown Costs.* **Matt Mehallow**, Earth Networks, Germantown, MD; M. Hoekzema, M. Stock, J. Lapierre, C. Merrill

43 *Comparison of Infrasonic Wind Filter Designs for Airport Deployments.* **Bhushan Parab**, Univ. of Massachusetts, Amherst, MA; D. Westbrook, S. Nelson, D. Pepyne

34HYDRO**Poster Session I: FLOOD PREDICTION, ANALYSIS, DECISION SUPPORT, AND MANAGEMENT—POSTERS**

Chairs: David Gochis, NCAR, Boulder, CO; Kristie Franz, Iowa State Univ., Ames, IA

44 *A Physical Method of Estimating Water Fraction by Combining SMAP, Sentinel-1, and Landsat Measurements.* **Xinyi Shen**, Univ. of Connecticut, Storrs, CT; J. Liu, E. Anagnostou, A. Kettner, J. Galatonwicz

45 *Using Precipitable Water and Showalter Index Sounding Climatologies to Better Predict Heavy Rainfall Events in American Samoa and Developing a Flash Flood Threshold Based on Observed Gauge and Sounding Data.* **Taylor Pechacek**, Mississippi State Univ., Mississippi State, MS

46 *Utilizing Dual-Pol Digital Precipitation Rate to Predict Flash Flooding in Central Kentucky and Southern Indiana.* **Melissa Piper**, Iowa State Univ., Ames, IA; A. Schoettmer, T. Funk

47 *Heavy Rainfall Event in Central Vietnam in December 2018 and QPE/QPF at VNMHA.* **Kazuo Saito**, Japan Meteorological Business Support Center, Tokyo, Japan; D. D. Tien, M. K. Hung, L. Duc

48 *Leveraging the “Analysis of Record for Calibration” to Improve Precipitation and Temperature Inputs for Hydrologic Modeling.* **Tyler Madsen**, NOAA/NWS/Middle Atlantic River Forecast Center, State College, PA; S. M. Reed, T. Rodgers

49 *Assessment of Hydrologic Predictions Based on a Mix-and-Match Framework Using Multimodel and Multiprecipitation Forcing Data.* **Bong-Chul Seo**, Univ. of Iowa, Iowa City, IA; W. F. Krajewski, F. Quintero

50 *Generation of WRF-Hydro Probabilistic Streamflow Forecasts by Shifting Ensemble QPF Based on a Climatology of Forecast Rainfall Displacement Errors.* **Kyle K. Hugelback**, Iowa State Univ., Ames, IA; B. M. Kiel, W. A. Gallus Jr., K. J. Franz

51 *Statistical Comparison of the National Water Model Streamflow Guidance with non-USGS Stream Gauges on the Cottonwood River in Minnesota.* **Deborah K. Nykanen**, Minnesota State Univ., Mankato, MN; S. D. Buan, A. R. Thorstensen, C. C. Schmidt

52 *Application of WRF-Hydro for Retrospective Seasonal Streamflow Simulations Using WRF-Hydro at Lake George, New York.* **Mukul Tewari**, IBM Thomas J. Watson Research Center, Yorktown Heights, NY; C. D. Watson, A. B. Buoro, V. W. Moriarty, L. Treinish

53 *Simulation and Forecasting of Floods Based on the Asymmetric Laplace Unit Hydrograph Model (Case Study: Subbasin of Jahrom, Fars Province, Iran).* **Farahnaz Taghavi**, Institute of Geophysics, Univ. of Tehran, Tehran, Iran; H. Khaledi

54 *The Community WRF-Hydro Modeling System Updates to the New Version 5.1.1/National Water Model Version 2.0 and New Supporting Tools for Pre- and Postprocessing.* **Molly McAllister**, NCAR, Boulder, CO; D. J. Gochis, M. Barlage, R. Cabell, M. Casali, A. Dugger, K. FitzGerald, L. Karsten, J. McCreight, A. Rafieei Nasab, L. Read, K. Sampson, D. Yates, Y. Zhang

55 *Streamflow Prediction Combining WRF-Hydro Modeling with LSTM.* **Kyeungwoo Cho**, Yonsei Univ., Seoul, Korea, Republic of (South); Y. Kim

56 *Leveraging Novel Data Analytics for Clear Communication in South Carolina’s Extreme Precipitation and Flood Alert System.* **Katie L. Ward**, MetStat, Inc., Fort Collins, CO; T. W. Parzybok, B. Allen, V. Bahls, H. Mizzell, M. Griffin

57 *Counting on the Contingencies: How Quickly Evolving IDSS Strategies Enhanced Services during the Record Mississippi River Flood of Spring 2019.* **Jessica L. Brooks**, NWS, Davenport, IA

58 *Ice-Jam Flooding and NWS Decision Support Services in Northern New York and Vermont during January 2018.* **Jessica A. Neiles**, NWS, South Burlington, VT

59 *A Climatological Geospatial Analysis of Storm-Based Flash Flood Warnings across the CONUS.* **Katarina L. Christian**, CIMMS, Norman, OK; J. D. Hardy

60 *Decoupling the Hydroclimatological Conditions before and during the Recent Flooding Event in the Missouri River Basin.* **Manas Khan**, Univ. of Nebraska, Lincoln, NE; C. Wunderlin, P. Sarzaeim, W. Ou, F. Munoz-Arriola

61 *Implementation and Evaluation of Channel Infiltration in the NOAA National Water Model for Semiarid Environments.* **Timothy M. Lahmers**, The Univ. of Arizona, Tucson, AZ; P. Hazenberg, H. V. Gupta, C. L. Castro, D. J. Gochis, A. Dugger, D. Yates, L. Read, L. Karsten, Y. H. Wang, R. J. Zamora, B. A. Cosgrove

34HYDRO

Poster Session 2: LAND–ATMOSPHERE AND LAND–OCEAN INTERACTIONS—POSTERS

Chairs: Yongkang Xue, Univ. of California, Los Angeles, Los Angeles, CA; Michael Ek, NCAR, Boulder, CO; Craig R. Ferguson, Univ. at Albany, SUNY, Albany, NY; Randal Koster, USRA, Greenbelt, MD

62 *Effects of Lateral Flow on Surface–Atmosphere Feedbacks and Convection in a Coupled Mesoscale Atmospheric and Distributed Hydrologic Modeling System for a Semiarid Environment.* **Timothy M. Lahmers**, The Univ. of Arizona, Tucson, AZ; C. L. Castro, P. Hazenberg

63 *Using the U.S. Climate Reference Network to develop Gridded Soil Moisture Products over the Conterminous United States.* **Michael S. Buban**, NOAA/ARL/ATDD and CIMMS, Oak Ridge, TN; T. R. Lee, B. Baker, T. P. Meyers

64 *Appropriate Simulation of Vertical Soil Water Fluxes and Soil Moisture in Land Surface Schemes with Implications for Runoff Generation.* **Fred L. Ogden**, UCAR, Tuscaloosa, AL

65 *Self-Organized Surface Roughness in Snow.* **Kelly Kochanski**, Univ. of Colorado, Boulder, CO; R. Anderson, G. Tucker

66 *On the Land Surface, Soil Texture, and Water Budget.* **Eli Dennis**, CICS, College Park, MD; E. H. Berbery

67 *Evaluating Sources of Carbonyl Sulfide (OCS) through Remote Atmosphere Observations.* **Luke Schiferl**, LDEO, Palisades, NY; B. Barletta, B. C. Briggs, D. R. Blake, N. J. Blake, S. Meinardi, S. A. Montzka, J. E. Campbell, J. R. Stinecipher, P. Suntharalingam, R. Commane

68 *Land Surface Interactions with the Atmosphere over the Iberian Semi-Arid Environment (LIAISE): Closing the Terrestrial Water Cycle.* **Martin J. Best**, Met Office, Exeter, UK; A. A. Boone, J. Polcher, P. Quintana-Segui, J. K. Brooke, J. Cuxart, J. Bellevet, G. Canut-Rocafort, P. Le Moigne, J. Price

69 *Investigating the Land Surface–Atmosphere Response in Coupled MONC-JULES and Unified Model Mesoscale Simulations during the UK Spring–Summer 2018 Soil Moisture Dry-Down.* **Jennifer K. Brooke**, UKMO, Exeter, UK; M. J. Best, J. M. Edwards, A. Hill, A. Lock, S. Osborne

70 *Observed Land Surface Feedbacks on the Australian Monsoon System.* **Michael Notaro**, Univ. of Wisconsin, Madison, WI; Y. Yu

71 *Observations of Stable Isotopes in Rainwater in Madison, Wisconsin.* **S. S. Lindstrom**, Univ. of Wisconsin/CIMSS, Madison, WI; T. Shriver, D. Schoeller

72 *Global Climatology of Vegetation Aerodynamic Roughness for Momentum Using MODIS and ICESat Data Products.* **Jordan S. Borak**, Univ. of Maryland, College Park, College Park, MD; M. F. Jasinski, R. D. Crago

73 *Understanding the Role of Vegetation Dynamics and Anthropogenic-Induced Changes on the Terrestrial Water Cycle.* **Prasanth Valayamkunnath**, NCAR, Boulder, CO; W. C. Hession, F. Chen

74 *Contrasting Responses of Urban and Forest Surface Temperatures to Heat Waves.* **Liang Wang**, Boston Univ., Boston, MA; D. Li

75 *Modeling Irrigation Impacts on Atmospheric Conditions during the 2012 Historic Drought.* **Kierstin Rene Blomberg**, Univ. of Nebraska, Lincoln, NE; P. X. Flanagan, R. Mahmood, C. M. Rowe, M. J. Hayes

76 *The Impacts of Irrigated and Rainfed Agriculture on Near-Surface Atmosphere: Preliminary Results from GRAINEX.* **Emilee Lachenmeier**, High Plains Regional Climate Center, Lincoln, NE; R. Mahmood, T. Franz, E. Rappin, U. S. Nair, R. Pielke Sr., A. Kaulfus, C. Phillips, W. O. J. Brown, S. P. Oncley

77 *Lessons Learned from Modeling Irrigation from Field to Regional Scales.* **Xiaoyu Xu**, Nanjing Univ. of Information Science and Technology, Nanjing, China

78 *Reducing Forecasting Errors of Near-Surface Fields in the NCEP Global Forecast System.* **Weizhong Zheng**, IMSG and NOAA/NCEP/EMC, College Park, MD; J. S. Kain, J. Han, S. Moorthi, R. Sun, E. Strobach, H. Wei, F. Yang

79 *Effect of Correcting Biases in HRRR Nonprecipitation Forcing Fields for the National Water Model Configuration of WRF-Hydro.* **Joseph A. Grim**, NCAR, Boulder, CO; L. Karsten, D. J. Gochis

80 *Impact of High Spatial Resolution of LIS Analyses on COAMPS Forecasts.* **Xiaodong Hong**, NRL, Monterey, CA; S. Chen, S. Wang, J. Nachamkin

81 *Evaluating the Relative Contributions of Land Surface Fluxes toward Convective Boundary Layer Development at the ARM SGP Site: A Comparison of Observations and HRRR Output.* **Ryann Ashley Wakefield**, Univ. of Oklahoma, Norman, OK; D. D. Turner, J. B. Basara

82 *Data Assimilation Enhancements to Air Force Weather's Land Information System.* **Jerry William Wegiel**, SAIC, Offutt AFB, NE

83 *WRF NMEFC.* **Xiaojiang Song**, National Marine Environmental Forecasting Center, Beijing, China; I. Diallo, Y. Xue

34HYDRO

Poster Session 3: SOIL–PLANT–ATMOSPHERE INTERACTIONS IN AMAZONIA—POSTERS

Chairs: Jose Fuentes, The Pennsylvania State Univ., University Park, PA; Courtney Schumacher, Texas A&M Univ., College Station, TX; Gilberto Fisch, Institute of Aeronautics and Space, São José dos Campos, Brazil

84 *Deforestation Effects on Amazon Forest Resilience.* **Henrique de Melo Jorge Barbosa**, Univ. of São Paulo, São Paulo, Brazil; D. C. Zemp, C. F. Schleussner, A. Rammig

85 Analysis of the Shallow-to-Deep Convection Transition in GoAmazon Observations. **Yang Tian**, LLNL, Livermore, CA

86 Exploring the Risk of Climate-Change-Induced Forest Dieback in Amazonia Using Multimodel Ensemble Simulations. **Yelin Jiang**, Univ. of Connecticut, Tolland, CT; G. Wang, W. Liu, A. Erfanian

34HYDRO

Poster Session 4: THE IMPORTANCE OF FORECASTS FOR MULTIOBJECTIVE RESERVOIR OPERATIONS—POSTERS

Chairs: David Paul Keeney, Bureau of Reclamation, Denver, CO; W. Josh Weiss, Hazen and Sawyer, Baltimore, MD

87 Risk Management for Northeastern New Jersey Water Supplies. **Steven Nebiker**, HydroLogics, Chapel Hill, NC

88 Using Forecasts in Water Supply Management: History and Applications (Centennial). **Josh Weiss**, Hazen and Sawyer, Baltimore, MD; M. Rivera

88A Promoting Regional Security by Enabling Cooperative Management of the Nile River Basin through an Integrated Hydrologic Modeling Framework. **Mark D. Wahl**, U.S. Army Corps of Engineers, Vicksburg, MS; and A. Tavakoly, J. Smith, A. McNally, C. D. Peters-Lidard, A. Getirana, and M. Best

89 The Role of Groundwater Withdrawals on River Regulation: Example from the Columbia River Basin. **Hisham Eldardiry**, Pacific Northwest National Laboratory, Richland, WA; T. Zhou, M. Huang

33CVC

Poster Session 1: CLIMATE DYNAMICS—GENERAL

90 Examining Tropospheric Precursors to Sudden Stratospheric Warming Events from an Ensemble Perspective. **Michael E. Main**, Univ. at Albany, SUNY, Albany, NY; A. L. Lang

91 Application of Weighted Multimodel Ensemble Means: A Method to Manage Uncertainties between Climate Models. **Hamidreza Ahmadzadeh Araj**, Univ. Putra Malaysia, Serdang, Malaysia; A. Wayayok, A. Massah Bavani, A. Fikri Abdullah

92 Steppe Ecosystem and Climatic Variability (Western Algeria). **Bensmira Zaza**, Univ. of Mascara, Mascara, Algeria

93 Progress toward Modeling Three-Dimensional Lake Dynamics Driven by a Global General Circulation Model. **Brent M. Lofgren**, GLERL, Ann Arbor, MI

94 The Meridional Structure of the Effects of Global Warming on Atmospheric Radiative Cooling and Precipitation. **Charlotte Connolly**, Ohio Univ., Springfield, OH; A. Naeyegele, D. A. Randall

95 Quantifying the Contributions of the Stratospheric and Tropospheric Pathways toward the Acceleration of the Stratospheric Polar Vortex after Nuclear War. **Joshua L. Coupe**, Rutgers Univ., New Brunswick, NJ; C. Bardeen, A. Robock, O. B. Toon

96 A Study of Convergence Zones in South America: Definition and Variability in Present and Future Climate. **Gabriel M. P. Perez**, Univ. of Reading, Reading, UK; P. L. Vidale, N. P. Klingaman

97 Rapid Adjustments, Climate Feedbacks, and Polar Amplification in a Multimodel Aquaplanet Ensemble. **Rick D. Russotto**, LDEO, Palisades, NY; M. Biasutti

98 Multivariate Sensitivity Analysis of Orographic Precipitation within an Idealized Atmospheric River Environment. **D. J. Posselt**, JPL, Pasadena, CA; A. Morales, H. Morrison

99 Investigating Australian Monsoon Sensitivity to Large Volcanic Eruptions in the Last Millennium through Model-Proxy Synthesis. **Cali M. Pfleger**, WHOI, Woods Hole, MA; S. Murty, F. Horton, B. Monteleone, L. Giosan, G. Gaetani, R. Denniston, C. C. Ummenhofer

100 Regional and Seasonal Responses of Tropical Precipitation to Past Climate Changes. **Eric Mischell**, Brown Univ., Providence, RI

101 Recent Changes in the South America Low-Level Jet. **Charles Jones**, Univ. of California, Santa Barbara, CA

102 Spatiotemporal Variation Characteristics of Strong Winds in Korea during the Past 30 Years (1988–2017). **Baek-Jo Kim**, KMA, Gangneung, Korea, Republic of (South); H. U. Kim, J. Shim

103 Evolution of Arctic Oscillation in the Past 21 000 Years: A Modeling Study. **Xinyu Wen**, Peking Univ., Beijing, China; W. Liang

104 A Comparison of the Westerly Wind Bursts between the Positive Phase and the Negative Phase of the PDO. **Yunhao Shi**, Chinese Academy of Meteorological Science, Beijing, China; J. Su

105 An Information Theory–Based Evaluation of General Circulation Models Regarding Atmospheric Oscillations and Their Effects on the Carpathian Basin. **Judit Bartholy**, Eotvos Lorand Univ., Budapest, Hungary; E. Kristof, R. Hollos, R. Pongracz

106 The Processes That Drive the Temperature Anomalies of the Pacific–North American Teleconnection Pattern. **Joseph P. Clark**, The Pennsylvania State Univ., University Park, PA; S. Feldstein

106A Atmospheric Rivers during the East Asian Summer Monsoon: Subseasonal Variability and Their Hydrological Impacts. **Chanil Park**, Seoul National Univ., Seoul, Korea, Republic of (South); S. W. Son

33CVC

Poster Session 2: AFRICAN CLIMATE CHANGE AND VARIABILITY

Chairs: Kerry Cook, Univ. of Texas, Austin, TX; Edward K. Vizy, Austin, TX

107 The Role of Overturning Zonal Circulations in Determining the Seasonality of East African Precipitation. **Siyyu Zhao**, Univ. of Texas, Austin, TX

108 Anthropogenic Influences on the African Easterly Jet–African Easterly Wave System. **Emily Bercos-Hickey**, LBNL, Berkeley, CA; C. M. Patricola

109 Evolution of the Vertical Structure of the Saharan Air Layer during the Land–Ocean Transition Using MERRA-2 Global Analyses and Nu-WRF Model Simulations. **Jainn J. Shi**, NASA GSFC, Morgan State Univ./GESTAR, Greenbelt, MD; S. Braun, S. D. Nicholls, K. I. Mohr

110 Verifying Shifts in the Equatorial African Precipitation Cycle Using a New Seasonal Rainfall Model. **Molly M. Wieringa**, Harvard Univ., Cambridge, MA; S. T. Amdur IV

111 African Easterly Wave Characteristics: Climate Variability and Trends. **Yuan-Ming Cheng**, Univ. at Albany, SUNY, Albany, NY; C. D. Thorncroft, G. N. Kiladis

112 *Forecasting Seasonal Rainfall Characteristics in Rwanda Using the NextGen Python-Based Climate Predictability Tool.* **Asher Siebert**, IRI, Palisades, NY; M. Mbatia, N. Acharya, A. Gahigi, Á. Muñoz

113 *Historical and Projected Trends in Near-Surface Temperature Indices for 22 Locations in South Africa.* **Thabo Elias Makgoale**, South African Weather Service, Pretoria, South Africa; A. C. Kruger, H. Rautenbach, S. Mbatha, S. Ngwenya

114 *Climate Change and Population Growth Impacts on Surface Water Supply and Demand of Addis Ababa, Ethiopia.* **Bisrat Kifle Arsiso**, Ethiopian Civile Service Univ., Addis Ababa, Ethiopia

115 *Increasing Man-Made Air Pollution Reduces Rainfall in Southern West Africa.* **Gregor Pante**, Karlsruhe Institute of Technology, Karlsruhe, Germany; P. Knippertz, A. H. Fink, A. Kniffka

116 *Influence of Indian Ocean SSTs on the East African Short Rains.* **Weiran Liu**, The Univ. of Texas, Austin, TX; K. H. Cook, E. Vizi

117 *Shape of a Water Crisis: Practitioner Perspectives on Drought and Urban Water in South Africa.* **Coleen Vogel**, Univ. of the Witwatersrand, Johannesburg, South Africa; A. H. Lynch, G. Maree, Z. Bischoff-Mattson, D. Olivier, D. Terblanche

33CVC

Poster Session 4: LAND USE AND LAND COVER CHANGE—INTERACTIONS WITH WEATHER AND CLIMATE

118 *Simulating the Effects of Agricultural Land-Use Change on the Climate of the Northern North American Great Plains.* **Gabriel Bromley**, Montana State Univ., Bozeman, MT; T. Gerken, S. Albeke, P. Stoy

119 *Impacts of Future Land-Use Land Cover on Boundary Layer Development in the North-Central United States.* **Paul X. Flanagan**, Univ. of Nebraska, Lincoln, NE; R. Mahmood, T. Sohl, M. D. Svoboda, B. Wardlow, M. J. Hayes

120 *Spatial Variability in the Albedo-Derived Warming Effect of Afforestation.* **Maxwell Goodman**, LDEO, New York, NY

121 *The Climatic Impact of Projected Land-Use Change in Western Canada Simulated by a Convection-Permitting Regional Climate Model under RCP8.5.* **Zhenhua Li**, Univ. of Saskatchewan, Saskatoon, Canada; Y. Li, Z. Zhang

33CVC

Poster Session 5: THE DYNAMICS OF JET STREAMS AND STORM TRACKS IN PAST, PRESENT, AND FUTURE CLIMATES

122 *CYGNSS Wind Speed and Surface Heat Flux Observations of Low-Latitude Extratropical Cyclones and Fronts.* **Juan A. Crespo**, JPL, Pasadena, CA; C. Naud, D. J. Posselt

123 *Understanding the Dynamical and Thermodynamical Processes That Govern the Structure and Evolution of Persistent West Coast Cool Season Ridge Regimes.* **Tyler C. Leicht**, Univ. at Albany, SUNY, Albany, NY; L. F. Bosart

124 *The Role of Mean State Bias in a Climate Model on Atmospheric Blocking Frequency.* **Edward Kleiner**, Harvard Univ., Cambridge, MA; Z. Kuang, L. Wang, P.W. Chan

125 *Factors That Influence North Pacific Tropopause Folds and Their Changes in a Future Warmer Climate.* **Amy Hawes Butler**, CIRES/Univ. of Colorado, Boulder, CO; J. R. Albers, M. L. Breeden, J. Benjamin, A. Ortiz

126 *Testing Mechanisms of Jet Shift Using the Linear Response Function of an Idealized Dry GCM.* **Pak-Wah Chan**, Harvard Univ., Cambridge, MA; P. Hassanzadeh, Z. Kuang

33CVC

Poster Session 6: THE USE OF LARGE ENSEMBLES IN UNDERSTANDING CLIMATE VARIABILITY AND CHANGE

127 *Distinguishing Features of Ensemble Spread between Drought and Flood Years of Indian Summer Monsoon in the Past 58 Years (1958–2015) Reforecasts.* **Ravi Shukla**, COLA, Fairfax, VA; C. S. Shin

128 *An Investigation into the Role of External Forcing and Ocean Coupling on the Relationship between the Atlantic Multidecadal Oscillation and Vertical Wind Shear in the Main Development Region.* **Sydney M. Kramer**, RSMAS, Miami, FL; A. C. Clement, L. N. Murphy

129 *Scaling Relationships between Extreme Precipitation and Local Temperature: Contrasting for Binning Scaling and Trend Scaling.* **Qiaohong Sun**, Univ. of Victoria, Victoria, Canada; F.W. Zwiers, X. Zhang, G. Li

130 *Relative Contribution of Anthropogenic Forcing and Natural Processes to Rainfall Variability over Victoria, Australia.* **Surendra Rauniyar**, BoM, Docklands, Australia; S. Power

131 *Perturbed Parameter Ensembles of Idealized Experiments to Identify Plausible and Diverse Variants of a Model for Climate Change Projections.* **Ambarish V. Karmalkar**, Univ. of Massachusetts, Amherst, MA; D. Sexton, J. Murphy, B. B. Booth

132 *Summer Season Lengthening and Extreme Heat Wave Expansions over the Northern Hemisphere Assessed Using Multi-AGCM Large-Ensemble Simulations.* **Bo-Joung Park**, Pohang Univ. of Science and Technology, Pohang, Korea, Republic of (South); S. K. Min

133 *Volcanic Eruption Signals in Large Ensembles.* **Alan Robock**, Rutgers Univ., New Brunswick, NJ

134 *Assessing the Frequency, Duration, and Intensity of Heat Waves from a Dynamically Downscaled Initial-Conditions Large Ensemble.* **Martin Leduc**, Ouranos, Montreal, Canada; J. Jalbert, A. Mailhot, E. Pechenova, L. Huettenhofer, R. Ludwig, A. Frigon

33CVC

Poster Session 7: WESTERN NORTH AMERICAN CLIMATE: DIAGNOSIS, PREDICTION, AND IMPACTS AT SUBSEASONAL-TO-MULTIDECADAL SCALES

135 *Characteristics of Different Atmospheric River Types and Their Links with Extreme Precipitation over Western North America.* **Yaheng Tan**, Sun Yat-sen Univ., Guangzhou, China; S. Yang, F.W. Zwiers

136 *Large-Scale Influences on Atmospheric River–Induced Extreme Precipitation Events along the Coast of Washington State.* **Allison Collow**, USRA, Columbia, MD; H. Mersiovsky, M. Bosilovich, R. Koster

137 *On the Mechanisms of the Suppressed Pacific Decadal Oscillation in a Warming Climate.* **Yun Yang**, Beijing Normal Univ., Beijing, China

138 *Monthly Difference in the Prediction Skill of the Boreal Winter ENSO Response over North America in Coupled and Uncoupled NASA GEOS-5 Model Simulations.* **Young-Kwon Lim**, NASA GSFC, Greenbelt, MD; S. D. Schubert, Y. Chang

139 *Relating Zonal Variability in Sea Surface Temperature to the Structure of North Pacific Anticyclones.* **Jamin K. Rader**, SOARS, Boulder, CO; A. Walker, K. B. Karnauskas, L. Zhang

140 *Predictability of Two Types of El Niños Assessed by ECMWF System 5 and Its Impacts on Western North American Climate.* **Muhammad Azhar Ehsan**, Trieste, Italy

141 *Subseasonal-to-Seasonal Prediction of California Winter Precipitation and the Northern Pacific Jet Stream.* **Emily Becker**, RSMAS, Miami, FL; M. L'Heureux, M. K. Tippett

142 *Diminished Flows in Southwestern Snow-Fed Rivers: Assessing and Normalizing Climate Change Projections for Use in Heavily Managed Hydrologic Systems.* **David S. Gutzler**, Univ. of New Mexico, Albuquerque, NM; N. R. Bjarke, N. T. Townsend

143 *Large-Scale Circulation Context for Atmospheric Rivers: Influence of the North Pacific Oscillation–West Pacific Teleconnection.* **Justin D. Hicks**, Univ. of Maryland, College Park, MD; S. Nigam, A. Ruiz-Barradas, B. Guan

144 *Changing North American Circulation Patterns in the Last 100 Years.* **Jin-Ho Yoon**, Gwangju Institute of Science and Technology, Gwangju, Korea, Republic of (South); S. Y. Wang, J. H. Jeong

30WAF26NWP

Poster Session 1: 30 WAF/26 NWP MONDAY POSTER SESSION

145 *Evolution and Development Mechanisms of a Rare, Strong Arc-Shaped Squall Line Occurring in Northern Beijing in 2017.* **Yongguang Zheng**, National Meteorological Centre, Beijing, China; Q. Luo, M. Chen

146 *An Evaluation of Vertical Thermodynamic Profiles and Derived Stability Parameters from Parallel FV3- and Spectral-Model GFS Forecasts.* **Dillon V. Blount**, Univ. of Wisconsin, Milwaukee, WI; C. Evans, I. L. Jirak, A. R. Dean

147 *Exploring a Missed Convection Initiation Forecast by Assimilating GOES-16 Brightness Temperatures and WSR-88D Observations.* **Paul Mykolajchuk**, The Pennsylvania State Univ., University Park, PA; K. C. Eure, Y. Zhang, D. J. Stensrud, F. Zhang

148 *Radar-Based Investigation of Thunderstorm Outflow Speed versus Peak Wind Gusts.* **Angela J. Mose**, NOAA, Kokomo, IN

149 *Diagnosing Environmental Properties of the July 2018 Heavy Rainfall Event in Japan.* **Takashi Unuma**, JMA, Tokyo, Japan; T. Takemi

150 *Simultaneous Assimilation of WSR-88D and GOES-16 Observations to Improve Ensemble Forecasts of Convection Initiation.* **Keenan C. Eure**, The Pennsylvania State Univ., University Park, PA; P. Mykolajchuk, Y. Zhang, D. J. Stensrud, F. Zhang

151 *Understanding Frequent Lightning Environments over the NWS Albany, New York, County Warning Area.* **Christina Speciale**, National Weather Service, Albany, NY

152 *Verification of the Convection-Allowing Ensemble System over the Hindu Kush Himalaya Region during the 2018 and 2019 Premonsoon Severe Thunderstorm Seasons.* **J. L. Case**, ENSCO, Inc., Huntsville, AL; P. N. Gatlin, J. Srikishen, E. W. McCaul Jr.

153 *Investigating the Structure of Updraft Helicity in an Idealized Supercell Simulation.* **Jeffrey M. Milne**, CIMMS, Norman, OK; I. L. Jirak, H. E. Brooks

154 *A Meteorological Assessment of the Initial Development of the 19 July 2019 Wisconsin Derecho.* **William R. Borghoff**, NWS, Chanhassen, MN

155 *Analyzing Thunderstorms for Improved Lightning Safety.* **Jeff Lapierre**, Earth Networks, Germantown, MD; M. Stock

156 *Thunder-Day Climatology Using Modern Lightning Location Data.* **Michael Stock**, Earth Networks, Germantown, MD; J. Lapierre, M. Hoekzema, C. Merrill, M. Mehallow

157 *Exploring the Use of a Storm-Relative Time Height to Analyze Changes in the Preconvective Environment.* **Adam T. Hirsch**, Univ. of Missouri, Columbia, MO; P. S. Market

158 *The Catastrophic Case of Heavy Rainfall and Flash Flooding of 14–15 October 2018 in Southwestern France: A Multiscale Observational and Modeling Analysis.* **Olivier Caumont**, CNRM, Université de Toulouse, Météo-France, CNRS, Toulouse, France; F. Bouttier, C. Lebeaupin Brossier, A. Lovat, M. Mandement, O. Nuissier, O. Laurantin, J. Eeckman

159 *Analysis and Prediction of High-Impact Weather over Lake Victoria in East Africa.* **Rita D. Roberts**, NCAR, Boulder, CO; J. W. Wilson, A. Hartley, C. L. Bain

160 *Comparative Analyses of Nontornadic versus Tornadoic Quasi-Linear Convective Systems in Central Oklahoma 24–25 May 2019.* **Barry R. Bowers**, NOAA/NWS Forecast Office, Norman, OK; V. N. Mahale, T. T. Lindley, R. Smith

161 *Assimilation of Local Ground Stations and Radar Data to Improve the Prediction of the 9–10 September 2017 Thunderstorm in Livorno, Italy.* **Diego Cerrai**, Univ. of Connecticut, Storrs, CT; V. Capecci, S. Melani, L. Rovai, A. Antonini, A. Ricchi

162 *An Updated Severe Hail and Tornado Climatology for Eastern Colorado.* **Samuel J. Childs**, Colorado State Univ., Fort Collins, CO; R. S. Schumacher

163 *Use of WRF-HAILCAST to Produce a Dynamically Downscaled Hail Climatology.* **Chase Calkins**, AER, Lincoln, NE; R. Adams-Selin

164 *Hailstorms in Association with Cold-Core Lows in Brazil.* **Ernani L. Nascimento**, Universidade Federal de Santa Maria, Santa Maria, Brazil

165 *Comparison of One-Dimensional Pseudo-Lagrangian and Three-Dimensional Fully Lagrangian Trajectories when Forecasting Hail Size.* **Rebecca Adams-Selin**, AER, Omaha, NE

166 *Updating HAILCAST Hail Size Predictions in NSHARP.* **Nathan Aaron Dahl**, CIMMS, Norman, OK; R. Adams-Selin, R. E. D. Jewell, I. L. Jirak

167 *Simulating Self-Assembly of Tornado Storm Chasers Using Agent-Based Modeling.* **Alex J. Moxon**, Univ. of Wisconsin, Milwaukee, WI; P. Roebber, A. Seimon, J. Allen

168 *Examination of the Predictability of Nocturnal Tornado Events in the Southeastern United States.* **Ariel E. Cohen**, NWS, Miami, FL; R. C. Bunker, J. A. Hart, A. E. Gerard, K. E. Klockow-McClain, D. P. Nowicki

169 *Observed Relationship between Tornado Intensity and Pretornadic Mesocyclone Characteristics.* **Michael Frank Sessa**, Univ. of Illinois, Urbana, IL; R. J. Trapp, J. Einbinder

170 *Analyses of Quasi-Linear Convective System Tornado Characteristics, Environments, and Genesis Mechanisms.* **Devin Chehak**, Univ. of Illinois, Urbana, IL; R. J. Trapp

171 *On Improving Tornado Detection in the Northeastern United States via an Objective Radar and Near-Storm Environment Algorithm.* **Jonathan O'Brien**, NWS Mount Holly, New Jersey, Westampton, NJ; R. Jain, C. Shafer, L. R. Robertson, P. Fitzsimmons, V. Meola, A. Staarmann

172 *The Unusual Tornadoes in Chile in May 2019: Forecasting Challenges from the Synoptic, Mesoscale, and Subseasonal Scales.* **Bradford S. Barrett**, U.S. Naval Academy, Annapolis, MD; J. C. Marin, M. Jacques-Coper

173 *Short-Term Prediction of QLCS Mesovortices in the Southeast United States on 30 April 2017.* **Thomas J. Galarneau**, CIMMS, Norman, OK; M. B. Chasteen, M. J. Krocak

174 *Environmental Nuances and Convective Morphology during the 30 April 2017 Tornado Outbreak in the Southeastern United States.* **Manda B. Chasteen**, CIMMS/Univ. of Oklahoma and NOAA/OAR/NSSL, Norman, OK; T. J. Galarneau Jr., M. J. Krocak, Z. A. Brooke Zibton

175 *The Use of Updraft Helicity as a Severe Weather Surrogate for Convective Systems.* **Morris L. Weisman**, NCAR, Boulder, CO; R. A. Sobash, C. S. Schwartz, K. Manning Sr.

176 *Development of Unified Post Processing System (UPP) for FV3-Based Global, Regional, Hurricane, and Ensemble Systems.* **Wen Meng**, NOAA, College Park, MD; H. Y. Chuang, J. J. Levit

177 *Experimenting Model Blend at the Finnish Meteorological Institute.* **Leila Hieta**, Finnish Meteorological Institute, Helsinki, Finland; M. Partio, M. Vanhatalo, J. S. Ylhäisi, M. Laine

178 *Recent Upgrades of the Operational HRRR and GFS: Are Cool-Season Precipitation Forecasts Improving over the Mountain West?* **W. James Steenburgh**, Univ. of Utah, Salt Lake City, UT; M. Caron

179 *Evaluating the Rapid Refresh Numerical Weather Prediction Model in the Arctic.* **Matthew Bray**, NOAA, Boulder, CO; D. D. Turner, G. de Boer

180 *A Surface Temperature and Moisture Intercomparison Study of the Weather Research and Forecasting Model, In Situ Measurements, and Satellite Observations over the Atacama Desert.* **Ricardo Morais Fonseca**, Khalifa Univ. of Science and Technology, Abu Dhabi, United Arab Emirates; M. P. Zorzano-Mier, A. Azua-Bustos, C. González-Silva, F. J. Martin-Torres

181 *Wind Forecasts for Rocket and Balloon Launches at the Esrange Space Center Using the WRF Model.* **Ricardo Morais Fonseca**, Khalifa Univ. of Science and Technology, Abu Dhabi, United Arab Emirates; F. J. Martin-Torres, K. Andersson

182 *Verification of WRF Model Forecasts of Windstorms in Southwestern British Columbia.* **Bryan Jansens**, Univ. of British Columbia, Vancouver, Canada; J. Jeworrek, G. West, R. Stull

183 *Evaluation of the High Resolution Rapid Refresh (HRRR) Model Using Near-Surface Meteorological and Flux Observations.* **Temple R. Lee**, NOAA/ARL/ATDD and CIMMS, Oak Ridge, TN; M. S. Buban, D. D. Turner, T. P. Meyers, C. B. Baker

184 *Evaluation of the HRRR Model and COAMPS during Atmospheric River Events in California.* **Kevin J. Dougherty**, Univ. of Utah, Salt Lake City, UT; J. Nachamkin, J. Horel

184 WITHDRAWN

185 *The Use of METplus Verification and Diagnostic Capabilities for Evaluating Sea-Ice Predictions.* **Lindsay R. Blank**, NCAR, Boulder, CO; R. Grumbine, T. Jensen, J. J. Levit

186 *Machine Learning Enhancement of Spatial Lake-Effect Precipitation Forecasts.* **Thomas M. Gowan**, Univ. of Utah, Salt Lake City, UT; W. J. Steenburgh, D. J. Gagne II

187 *Systematic Comparison of Convection-Allowing Models during the 2017 NOAA HWT Spring Forecasting Experiment.* **Corey Potvin**, NOAA/OAR/NSSL, Norman, OK; J. R. Carley, A. J. Clark, L. J. Wicker, P. S. Skinner, A. E. Reinhart, B. T. Gallo, J. S. Kain, G. S. Romine, E. Aligo, K. A. Brewster, D. C. Dowell, L. M. Harris, I. L. Jirak, F. Kong, T. A. Supinie, K. W. Thomas, X. Wang, Y. Wang, M. Xue

188 *Correction of Temperature Forecast Using Spectral Analysis Method on Mountain Area.* **Min-Jong Song**, KMA, Seoul, Korea, Republic of (South); S. Y. Park, S. H. KIM, Y. H. Lee

189 *Forecast Skill of Varying WRF Resolutions and Physics Parameterization Combinations over the Finger Lakes and Long Island with Statistical Postprocessing.* **Marc J. Alessi**, Cornell Univ., Ithaca, NY; A. T. DeGaetano

190 *Analyzing Weather-Regime-Dependence of GFS Extended Precipitation Forecast Skill Based on the Convective Adjustment Time Scale.* **Malcolm T. Wilson**, NCAR, Boulder, CO; M. Wong, C. Schwartz

191 *Implementation of CAM-HAILCAST in the Stand-Alone Regional FV3.* **John M. Henderson**, AER, Lexington, MA; C. Calkins, T. Supinie, L. M. Harris, Y. Wang, R. Adams-Selin

192 *New Visualization Techniques, Verification Tools, and Results from the NWS Probabilistic Snowfall Experiment.* **Jeff S. Waldstreicher**, NOAA/NWS, Bohemia, NY; D. B. Radell

193 *Verification and Visualization of Ensemble Snowband Forecasts.* **Jacob T. Radford**, North Carolina State Univ., Raleigh, NC; G. M. Lackmann

194 *Rainband Array Formed on the Southern Part of Shikoku Island, Japan.* **Akira Nishii**, Kochi Univ., Kochi, Japan; K. Sassa

195 *A Large Eddy Simulation Study on Atmospheric Flows over Multiscale Terrain.* **Song-Lak Kang**, Gangneung-Wonju National Univ., Gangneung, Korea, Republic of (South); J. H. Ryu

196 *Orographic and Land Surface Impacts on Numerical Weather Forecasts When Simulating a Sudden Downwelling Event in a Medium-Sized Lake.* **Campbell D. Watson**, Thomas J. Watson Research Center, IBM, Yorktown Heights, NY; G. Auger, H. Kolar, L. A. Treinish

197 *Characterization and Probabilistic Discrimination between Hailstorm and Rainfall Events over Complex Terrain in a Tropical Environment Using Remote Sensors and In Situ Data.* **Juan Manuel Valencia**, Sistema de Alerta Temprana del Valle de Aburrá (SIATA), Medellín, Colombia; C. D. Hoyos Ortiz

198 *Anabatic Winds over a Steep Alpine Slope: Observations of the Turbulence Structure.* **Holly J. Oldroyd**, Univ. of California, Davis, CA; E. R. Pardyjak, M. B. Parlange

199 *Persistent Cold-Air Pools in Mountainous Areas: Distribution and Simulation.* **Xia Sun**, Univ. of Nevada, Reno, NV; S. Colgan, C. E. Ivey, H. A. Holmes

200 *Downscaling Precipitation Forecast with Super-High Resolution.* **Xufeng Guo**, Shanghai Em-Data Technology Co., Ltd., Shanghai, China; Z. Liu, H. Zuo, Y. Xiao, Z. Yan, C. Lu

201 *Development of the High-Resolution Japan Regional Reanalysis.* **Toshiki Iwasaki**, Tohoku Univ., Sendai, Japan; S. Fukui, K. Saito, H. Seko

202 *Projection and Possible Causes of Summer Precipitation in Eastern China Using Self-Organizing Maps.* **Zhihong Jiang**, Nanjing Univ. of Information Science and Technology, Nanjing, China; M. Li

203 *The Implementation of a High-Resolution Mesoscale Model Test Bed for the New York City Metropolitan Area.* **Anthony P. Praino**, IBM Thomas J. Watson Research Center, Yorktown Heights, NY; L. A. Treinish, C. D. Watson, M. Tewari

204 *Single-Suite Stochasticity for Thunderstorms: Can It Beat a Mixed-Physics Suite?.* **John R. Lawson**, CIMMS/NSSL, Norman, OK; C. K. Potvin, N. Yussouf, J. S. Kain

205 *The Effect of the North American Monsoon Anticyclone on Cross-Tropopause Convective Outflow.* **Corey E. Clapp**, Harvard Univ., Cambridge, MA; J. B. Smith, K. Bedka, J. G. Anderson

29 EDUCATION

Poster Session I: PRECOLLEGE INITIATIVES AND ENGAGEMENT IN ATMOSPHERIC EDUCATION POSTER SESSION

206 *A Case Study of How AMS Mentoring and Meetings Can Help Develop Young Meteorologists.* **Mackenzie Pavlik**, Concord-Carlisle High School, Concord, MA; M. B. Yarker, T. Ruggiero

207 *IBM's Storm Technical Council Outreach Program.* **Michael J. Ventrice**, The Weather Company, Andover, MA; C. Stiles, A. P. Praino

208 *STEM Education for Tomorrow's Workforce: Enabling Teachers to Engage Students in Standards-Based Investigations in the Context of Local Climate and Environmental Changes.* **Tamara Shapiro Ledley**, Earth and Climate Science, Needham, MA

209 *Integrating the Wedge Stabilization Game into Agricultural Education and Outreach Initiatives.* **Robert Simpson**, Univ. of Tennessee, Martin, TN; R. Tewari, J. E. Mehlhorn, B. Parr, N. Musunuru

210 *Using Local Examples of Wildlife Climate Adaptation to Start a Student-Centered, Nationwide Dialog on Climate Change.* **Anna E. Nesbitt**, Univ. of Illinois, Urbana, IL; D. F. Lawson, B. Whitehouse, D. E. Horton, K. T. Stevenson, M. N. Peterson, D. J. Wuebbles

211 *Communicating Weather Information to High School Students: What Do They Really Want?.* **Jeffrey A. Yuhas**, Morristown-Beard School, Morristown, NJ; M. DeSimone, E. Zakhary, S. Yuhas, K. Magnotta, D. Braunstein

212 *Building and Programming a High School CO₂ Monitoring System.* **Jeffrey A. Yuhas**, Morristown-Beard School, Morristown, NJ; M. R. Bednarek, K. Gonyea

213 *No Correlation between Precipitation Amounts (Rain Gauge) and Brightness Temperature (GOES-16 ABI, Band 13).* **Elena Garistina**, Citizen Science Education Program, Medford, NJ; V. Gorman, L. Michaels, M. Doshi, A. Fricke

214 *CIMSS Student Workshop: STEM before STEM was Cool.* **Maria Vasys**, CIMSS, Madison, WI; M. Mooney, D. Herndon, P. Janssen, I. Nasif

215 *Improving K–12 Instruction of Coastal Climatology and Tree-Ring Science with the Louisiana Sea Grant.* **Jill Trepanier**, Louisiana State Univ., Baton Rouge, LA; C. S. Tucker, P. Blanchard, J. R. Jordan, M. Schafer

216 *An Interactive Demonstration of MetPy's Declarative Language: Moving from GEMPAK to MetPy as the Primary Analysis and Visualization Tool of Atmospheric Scientists.* **Kevin H. Goebbert**, Valparaiso Univ., Valparaiso, IN; R. M. May, Z. S. Bruck

217 *Measuring Weather Together: The Role That Personal Weather Observations and Mentoring Partnerships Play in Engaging Students in Meteorology.* **William Owen**, Concord-Carlisle High School, Concord, MA; E. Rennert, M. Pavlik, A. Grant, L. Mccrory, M. Charde, T. Ruggiero

218 *Bonnets and Blizzards: Storytelling Makes Teaching Fun...and Effective!.* **Barbara Mayes Boustead**, NWS, Norman, OK

219 *The Climate Literacy and Energy Awareness Network (CLEAN).* **Kathryn Boyd**, CIRES, Boulder, CO; A. U. Gold, F. Niepold, S. Lynds, A. Morton, M. Bruckner, K. Kirk, C. Manning, P. Chandler, T. Shapiro Ledley

220 *Case Studies: The Perfect Vehicle to Drive Compelling Data into a Classroom.* **Margaret Holzer**, Rutgers Univ. and Chatham High School, New Brunswick, NJ

221 *NWS: Educating Users for Decisions Associated with Hurricanes.* **Joel Cline**, NOAA/NWS, Silver Spring, MD; D. P. Brown, R. Berg, D. Sharp

222 *Extreme Atlanta: Using Project-Based Learning to Enhance Student Scientific Abilities within the Context of an Interdisciplinary Climate Change/Urbanization Course.* **Zachary Handlos**, Georgia Institute of Technology, Atlanta, GA; E. Weigel

223 *Creating Microcommunities in Project Atmosphere through the Use of Blogs.* **Elizabeth Baugher**, American Meteorological Society, Washington, DC; W. Abshire, C. M. Kauffman

26PROBSTAT

Poster Session I: PROBABILITY AND STATISTICS POSTERS

224 *Snowfall Frequency Expressed by Regression Analysis with Logarithms.* **Hiroki Matsushita**, Civil Engineering Research Institute for Cold Region, Sapporo, Japan; W. Takahashi, J. Takahashi

225 *K-Means Cluster Analysis Identification of Idealized Relative Anomaly Patterns in Annual Total Precipitation across New England States' NCDC Climate Divisions Encompassing the 1895–2018 Period of Record.* **Charles J. Fisk**, Naval Base Ventura County, Point Mugu, CA

226 *Examining Relative Representativeness through Cross-Estimation of Atoll and TAO/TRITON Monthly Rainfall Data.* **Ethan Cook**, Univ. of Oklahoma, Norman, OK; J. S. Greene

227 *Extreme Wind Analysis: A Comprehensive Algorithm.* **Isabella Osetinsky-Tzidaki**, Israeli Consulting in Climatological Projects and Practices, Bat Yam, Israel; D. Venger

228 *Understanding the Sensitivity and Dynamical Origins of the Tails of Some Standard Ensemble Diagnostics.* **Justin G. McLay**, NRL, Monterey, CA; E. A. Satterfield

229 *Accounting for Model Error in Atmospheric Forecasts.* **William Crawford**, NRL, Monterey, CA; S. Frolov, N. P. Barton, J. G. McLay, C. Reynolds, C. H. Bishop

230 WITHDRAWN

24IOAS

Poster Session I: IOAS-AOLS POSTERS ON DATA ASSIMILATION AND OBSERVING SYSTEMS

Chair: S. J. Majumdar, Univ. of Miami, Miami, FL

231 *The Data Assimilation Research Testbed: Nonlinear Algorithms and Novel Applications for Community Ensemble Data Assimilation.* **Jeffrey L. Anderson**, NCAR, Boulder, CO; N. Collins, M. El Gharamti, T. J. Hoar, K. Raeder, F. Castruccio, J. Liang, J. Lin, J. McCreight, S. J. Noh, B. Raczka, A. RafieeiNasab

232 *Introduction of a Finite-Volume Cubed-Sphere Global Forecast System (FV3GFS) in the NOAA Global OSSE System—Result Comparisons to 3D-EnVar GFS.* **Sean P. F. Casey**, Cooperative Institute for Marine and Atmospheric Studies, Miami, FL; L. Cucurull, R. Atlas

233 *A Nonlinear Conditional Gaussian Framework for Extreme Events Prediction, State Estimation, and Uncertainty Quantification in Complex Dynamical System.* **Nan Chen**, Univ. of Wisconsin, Madison, WI; A. J. Majda

234 *Testing the Feature Alignment Technique (FAT) with Multiple Storms.* **Derek R. Stratman**, OU/CIMMS and NOAA/OAR/NSSL, Norman, OK; C. Potvin, L. J. Wicker

235 *Evaluation of Impacts from Real Observations and Their Simulated Counterparts Using the Historical Observing System Simulation Experiment Methodology.* **Daniel P. Tyndall**, NRL, Monterey, CA; D. Hodyss, C. M. Amerault, N. Baker, J. Nachamkin

236 *An Assessment of JMA Serial Observation Lines in the Northwestern Pacific in OSSE Studies with the GFDL Ensemble Coupled Data Assimilation System.* **Jae-Ho Lee**, Kongju National Univ., Kongju, Korea, Republic of (South); Y. S. Chang, S. Zhang

237 *Operational Implementation of Displacement Data Assimilation.* **Thomas Nehrkorn**, AER, Lexington, MA; J. Henderson, L. Liu, D. Kleist, T. Auligné, D. R. Stratman

238 *Improving Sea-Breeze Forecasting through the Assimilation of Coastal Observations.* **Eric Allen**, Univ. of Delaware, Newark, DE; D. E. Veron

239 *Importance of Environmental Conditions for the Sensitivity of GPS RO Data Assimilation on Tropical Cyclone Formation Simulation.* **Hsu-Feng Teng**, NCAR, Boulder, CO; Y. H. Kuo, J. M. Done, S. Y. Chen

241 *Assimilation of the GOES-16/17 Atmospheric Motion Vectors in the Hurricane Weather Forecasting (HWRF) Model.* **A. Lim**, CIMSS/Univ. of Wisconsin, Madison, WI; S. Nebuda, J. A. Jung, J. Daniels, W. Bresky, A. Mehra

242 *Local Particle Filter Implemented with Minor Modifications to the LETKF Code.* **Takemasa Miyoshi**, RIKEN, Kobe, Japan; S. Kotsuki, K. Kondo, R. Potthast

243 *Sensitivity Analysis of Observation Data in Numerical Weather Prediction over East China.* **Jia Wang**, Meteorological Observation Center of China Meteorological Administration, Beijing, China

244 *Boundary Layer Winds during Winters in the Interior of Alaska.* **John Mayfield**, Geophysical Institute and College of Natural Science and Mathematics, Fairbanks, AK; G. J. Fochesatto

245 *Determining Bulk Aerosol Absorption from Off-Axis Backscattering Using Rayleigh Beacon Laser Pulses.* **Julie Grossnickle**, Air Force Institute of Technology, Wright Patterson AFB, OH; S. Fiorino, K. Keefer, S. Zuraski, A. Archibald

246 *A First Evaluation of the OCEAN Temperature Profile Editor and Postprocessor.* **Casey R. Densmore**, WHOI, Woods Hole, MA; J. Drogowski, S. G. McAllister, G. M. Roviramelendez, S. J. Sun, E. R. Sanabia, S. R. Jayne

247 *Ground-Based Sounders as a Solution to Infrared Sounding in Cloudy Environments.* **David M. Loveless**, Univ. of Wisconsin, Madison, WI; T. J. Wagner, D. D. Turner, S. Ackerman

248 WITHDRAWN

249 *Continued Advancements and Upgrades to the Interactive Multisensor Snow and Ice Mapping System.* **Molly Smith**, U.S. National Ice Center, Suitland, MD; K. Berberich, W. Clark, D. McCormick, J. E. Upperman, M. Lowe, J. Woods, J. Smith, S. R. Helfrich

250 *A Study on the Synergistic Use of a Meteorological Imager for Improving Aerosol Type Classification and the Aerosol Retrieval Algorithm of GEMS.* **Sujung Go**, Yonsei Univ., Seoul, Korea, Republic of (South); J. Kim, M. Kim, S. Park, H. Lim, S. Lee

251 *Dry, Rapid Aerosol Downward Dispersion in Jet Streaks.* **James Newport**, Univ. of Maryland, College Park, MD; J. Cahill, M. Toscano, T. P. Canty, R. A. Kahn

252 *Integration of GOCI and AHI Yonsei Aerosol Optical Depth Products during Two Field Campaigns: 2016 KORUS-AQ and 2018 EMERG.* **Hyunkwang Lim**, Yonsei Univ., Seoul, Korea, Republic of (South); J. Kim, M. Choi, S. Go, S. Lee

253 *New Integration Approaches for MODIS C6.1 DT and DB Products over Land and Ocean.* **Jing Wei**, Beijing Normal Univ., Beijing, China; Z. Li

254 *The Pandora Spectrometer Instrument: 10 Years of Evolution.* **Alex Kotsakis**, NASA, Greenbelt, ME; F. Santos, A. Cede, N. Abuhassan, B. L. Lefer, L. Shalaby, J. Zykman, E. Spinei Lind, L. Valin, D. J. Williams, M. G. Kowalewski, J. Herman, R. Swap

255 *Power versus Performance Trade-Off Study for a Low-SWaP, UAV Mounted Radiometer for Ocean Salinity Applications.* **Daniel E. Mera Romo**, Univ. of Puerto Rico, Mayaguez, PR; R. A. Rodriguez Solis, R. Lorenzo

256 *Spatial Heterogeneity of Near-Surface Meteorology in the Vicinity of CHEESEHEAD 19 Flux Towers from Mobile Measurements.* **Loren White**, Jackson State Univ., Jackson, MS; S. Metzger, A. R. Desai

257 *Representation of Microscale Surface Turbulent Fluxes in the Planetary Boundary Layer: The Case of the Complex Heterogeneous Terrain of the Arctic Tundra.* **Douglas Keller**, École Polytechnique, Palaiseau, France; G. J. Fochesatto

258 *Diurnal Variation of the Planetary Boundary Layer Observed from GNSS Radio Occultation and Radiosonde Soundings over the Southern Great Plains.* **Kevin J. Nelson**, Texas A&M Univ., Corpus Christi, TX; F. Xie, C. O. Ao, M. I. Oyola

22ATCHEM

Poster Session I: 22ND ATM CHEM POSTER SESSION I

Chair: Jonathan Jiang, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA

259A *Dust Mineral Specific Heterogeneous Chemistry in NASA GISS Earth System Model “ModelE”.* **Jan P. Perlwitz**, Climate, Aerosol, and Pollution Research, LLC, Bronx, NY

259 *Evaluation of NAQFC Performance during an Air Pollution Episode in Maryland and the “Postmortem” Analysis Using WRF-CMAQ Simulations.* **Hao He**, Univ. of Maryland, College Park, MD; T. Canty, X. Ren, P. Lee, D. Tong, J. Dreessen, M. Woodman, R. R. Dickerson

260 *Long-Term Variations and Influencing Factors of Low-Visibility Events over the Coast of China.* **Rui Lyu**, Fudan Univ., Shanghai, China

261 *Effects of Aerosol Radiative Feedback during a Severe Smog Process Based on WRF-Chem Simulations.* **Shuxian Fan**, Nanjing Univ. of Information Science and Technology, Nanjing, China

262 *Estimating Fugitive Methane Emissions from Metering and Regulating Stations in Ohio.* **Vijaya Raghava Gorantla**, National Energy Technology Laboratory, Pittsburgh, PA; G. Bhandari, N. Pekney

263 *GreenLITE Measurements to Quantify Emissions from Oil Sands Processing: Alberta Case Study.* **Timothy Pernini**, AER, Lexington, MA; T. S. Zaccheo, J. T. Dobler, N. Blume

264 *Multiseason Thermogenic Methane Emission Fraction Determination from a Survey of Seven U.S. Cities.* **Cody Floerchinger**, Harvard Univ., Cambridge, MA; P. B. Shepson, K. Hajny, B. Daube, C. Sweeney, S. C. Wofsy

265 *Long-Term Variability and Source Signature of Gases Emitted from Oil and Natural Gas and Cattle Feedlot Operations in the Colorado Front Range.* **Ivan Ortega**, NCAR, Boulder, CO; J. W. Hannigan, R. R. Buchholz, G. Pfister

266 *Sexual Harassment in Atmospheric Science Field Campaigns: Does It Happen Here? How Do We Stop It?* **E.V. Fischer**, Colorado State Univ., Fort Collins, CO; B. Bloodhart, K. L. Rasmussen, M. Hastings, E. Marin-Spiotta, R. Barnes

267 *Impact of Fugitive Emissions from the Marcellus Basin on Northeastern U.S. Air Quality.* **Lee Thomas Murray**, Univ. of Rochester, Rochester, NY; M. Loman, E. M. Leibensperger, R. Commene, M. Sargent, S. C. Wofsy, J. W. Budney, R. Brandt, J. J. Schwab, E. Kort, S. M. Miller, A. Karion, K. Mueller, I. Lopez Coto, F. Vogel, D. Worthy

268 *Quantifying and Reducing Halocarbon Emissions at Academic Institutions.* **Martin J. Wolf**, MIT, Cambridge, MA; A. Meier, B. Nyland, S. Youn, D. Stump, W. Jacobs

269 *Evaluation of Online and Offline Regional Modeled CO₂ Transport with INFLUX Observations.* **Qingyu Wang**, Univ. of Oklahoma, Norman, OK; S. Crowell, X. M. Hu, K. J. Davis

270 *Detection of CH₄ Point Source Emissions in TROPOMI Data.* **Sean Crowell**, Univ. of Oklahoma, Norman, OK; E. DeAngeli

271 *Column CO₂ Retrievals from ACES Airborne Lidar Measurements during ACT-America: Case Study from Spring 2018 Campaign.* **Abigail M. Corbett**, SSAI, Hampton, VA; B. Lin, M. D. Obland, J. Campbell, S. A. Kooi, E. V. Browell

272 *Improved Line Positions and Intensities of the CO₂ Molecule for the HITRAN2020 Database.* **Ekaterina Karlovets**, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA; I. E. Gordon, L. S. Rothman, Y. Tan, G. C. Toon, A. Campargue, V. I. Perevalov, S. A. Tashkun

273 *Monitoring Urban Greenhouse Gases in Downtown Toronto Using Open-Path Fourier Transform Spectroscopy.* **Yuan You**, Univ. of Toronto, Toronto, Canada; B. Byrne, K. Strong, O. Colebatch, D. B. A. Jones, P. Fogal, R. Mittermeier, D. Worthy, D. W. T. Griffith

274 *Approximated Expression of the Hygroscopic Growth Factor for Polydispersed Aerosols.* **Chang Hoon Jung**, Kyungin Women's Univ., Incheon, Korea, Republic of (South); J. Lee, J. UM, Y. J. Yoon, Y. P. Kim

275 *Improvements to the Regional Deterministic Air Quality Analysis System for Surface Pollutants including AQHI at the Canadian Meteorological Center.* **Yulia Zaitseva**, Canadian Meteorological Centre, Dorval, Canada

276 *Wildfire-Driven Changes in the Abundance of Gas Phase Pollutants in Boise, Idaho, during Summer 2018.* **Emily Lill**, The Ohio State Univ., Waynesville, OH; J. Lindaas, J. Juncosa, T. Campos, F. Flocke, E. C. Apel, R. S. Hornbrook, A. J. Hills, K. Ullmann, N. J. Blake, A. Jarnot, W. Permar, L. Hu, A. J. Weinheimer, S. Hall, E. Fischer

277 *Biomass Burning-Induced Surface Darkening and Its Impact on Regional Meteorology in Eastern China.* **Rong Tang**, Joint International Research Laboratory of Atmospheric and Earth System Sciences, Nanjing, China; X. Huang, A. Ding

278 *Observational Constraints on Ambient Brown Carbon with IMPROVE Network Observations.* **Nicole June**, The Pennsylvania State Univ., University Park, PA; X. Wang, L. W. A. Chen, J. C. Chow, J. G. Watson, X. Wang, J. Mao

279 *Secondary Inorganic Particle Pollution under Different Weather Conditions over East China in December 2017: A Model Insight.* **Tianyi Wang**, Nanjing Univ., Nanjing, China; X. Huang, A. Ding

280 *Monitoring Air Quality in North Korea from Space.* **Heesung Chong**, Yonsei Univ., Seoul, Korea, Republic of (South); J. Kim, S. Lee, Y. Cho, J. H. Koo, Y. P. Kim, D. H. Ahn

281 *Effects of Transboundary Transport on Korean Aerosol Pollution: Application of Geostationary Satellite Observations.* **Seoyoung Lee**, Yonsei Univ., Seoul, Korea, Republic of (South); J. Kim, J. H. Koo, H. Lim, S. W. Kim

282 *Long-Term Variations in Winter PM_{10} Concentrations over East Asia Influenced by Large-Scale Atmospheric Circulations.* **Greem Lee**, Seoul National Univ., Seoul, Korea, Republic of (South); C. H. Ho, L. S. Chang, J. Kim, M. K. Kim, S. J. Kim

283 *Lagrangian Analysis of Ozone Production in the Baltimore–Washington Metropolitan Area Based on Air Parcel Trajectories and In Situ Airborne Measurements from the 2011 DISCOVER-AQ Campaign.* **Heather Arkinson**, Univ. of Maryland, College Park, MD; L. Brent, H. He, C. P. Loughner, J. W. Stehr, A. Weinheimer, R. R. Dickerson

284 *Understanding Ozone Pollution in Yrd from the Perspective of Diurnal Cycles in 2013–17.* **Jiawei Xu**, Nanjing Univ., Nanjing, China; N. Wang, Y. Li, X. Huang, A. Ding

285 *Early Results and New Insights into Tropospheric NO_2 Variability from a Network of Pandora Spectrometers in a Coastal Urban Environment.* **Taylor Jonathan Adams**, Boston Univ., Boston, MA; J. A. Geddes, G. G. Abad, A. H. Souri, C. Miller, C. R. Nowlan, Y. Jung, K. Chance

286 *Urban Air Quality: Revisiting the Case of Mexico City.* **Bernhard Rappenglueck**, Univ. of Houston, Houston, TX; A. Retama, O. O. Osibanjo, M. Jaimes-Palamera

287 *Finescale Air Quality Modeling over the Denver Area: Model Evaluation and Sensitivity Simulations.* **Kai Wang**, North Carolina State Univ., Raleigh, NC; Y. Zhang, P. Doraiswamy, S. H. Cho

288 *Coupling CMAQv5.3 with FV3 and Its Intercomparison with FV3-CMAQv5.0.2 for the Next Generation of the National Air Quality Forecasting Capability.* **Xiao-Yang Chen**, Raleigh, NC; Y. Zhang, D. Tong, P. Lee, Y. Tang, H. Pye, B. Murphy, D. Kang

21AIRPOL

Poster Session I: POSTER SESSION I

289 *A Coupled MPAS-CMAQ Modeling System.* **David Wong**, EPA, Research Triangle Park, NC

290 *Using WRF-STILT to Determine the Relative Contributions of U.S. and Mexican Emissions to High-Ozone Events in El Paso, Texas.* **J. Hegarty**, Atmospheric and Environmental Research, Lexington, MA; M. Mountain, A. McVey, M. Alvarado, T. Nehrkorn

291 *The Effects of Urban Geometry on Point-Source Scalar Plume Statistics: A Large Eddy Simulation Study.* **Robert H. Van Kleeck**, Univ. of Oklahoma, Norman, OK; S. T. Salesky

292 *The Impact of Small-Amplitude Perturbations to the Temporal Scales of Tracer Predictability in the Surface Layer over the Urban Environment.* **Yanle Lu**, Cornell Univ., Ithaca, NY; Q. Li, L. D. Monache, J. Weil

293 *Opportunistic Mobile Urban Sensing Technologies.* **Maider Llaguno-Munitxa**, Princeton Univ., Princeton, NJ; E. Bou-Zeid

294 *Taking Another Look at Low-Level Stratospheric Intrusions and Wildfire Development during CABOTS 2016.* **Jodie E. Clark**, San Jose State Univ., San Jose, CA; S. Chiao

295 *Understanding the Symbiotic Relationship Affecting Atmospheric Processes and Aerosols Concentrations in Reno, Nevada, from 2012 to 2019.* **S. Marcela Loria-Salazar**, Univ. of Oklahoma, Norman, OK; A. M. Sayer, L. Gao, J. Redemann, W. P. Arnott

296 *Atmospheric Pollution from Ships and Its Impact on Local Air Quality at a Port Site in South America.* **Taciana Toledo Almeida Albuquerque**, Federal Univ. of Minas Gerais, Belo Horizonte, Brazil; V. D. O. Mateus

297 *Implementing and Evaluating an Igor-Compatible Reactive Gaussian Plume Model.* **Zachary Edward Walker**, NOAA, Raleigh, NC

298 *Characterizing Intermittency in the Stable Arctic Atmospheric Boundary Layer.* **Mohammad Allouche**, Princeton Univ., Princeton, NJ; E. Bou-Zeid, J. D. Fuentes, M. Chamecki, O. C. Acevedo, S. Thanekar, C. Ansorge

299 *An Examination of Large Eddy Simulation-within-Large Eddy Simulation Framework over Heterogeneous Surface Conditions.* **Jung-Hee Ryu**, Gangneung-Wonju National Univ., Gangneung, Korea, Republic of (South); S. L. Kang

20SMOI

Poster Session I: POSTERS

300 *The Pond Hotplate Precipitation Measurement Sensor.* **Scott Landolt**, NCAR, Boulder, CO

301 *Airbus Perlan Project Mission II 2019 Season.* **Stormi Noll**, Univ. of Nevada, Reno, NV

302 *Leveraging Field Campaigns as Educational Resources.* **April L. Hiscox**, Univ. of South Carolina, Columbia, SC; A. R. Desai

303 *A Closer, Even Closer Look at Near-Surface and Surface-Layer Temperature Changes during the August 2017 Total Solar Eclipse.* **Paul Ruscher**, Lane Community College, Eugene, OR; M. Ruscher-Haqq, R. Haqq, J. Ruscher, C. Ruscher, E. Ruscher, A. Ruscher

304 *Interactive Online Training in Instrumentation and Measurement of Atmospheric Parameters.* **Richard D. Clark**, Millersville Univ., Millersville, PA; A. Rockwell, A. Stevermer, T. Campos, W.A. Cooper, J. A. Haggerty, H. Voemel, C.A. Wolff

305 *Determining Soil Temperature Differences on the Beaches of Bald Head Island with Relation to Sea Turtle Gender.* **Myleigh D. Neill**, State Climate Office of North Carolina, Raleigh, NC; S. P. Heuser, P. Hillbrand

306 *Comparison of Precipitation Characteristics across the Continental Divide in the Canadian Rockies.* **Charlie Hebert-Pinard**, UQAM, Montreal, Canada; J. M. Thériault

307 *Spatial Variability of Falling Snow.* **Samantha Frucht**, Cornell Univ., Ithaca, NY; A. Tokay, C. Pettersen, M. S. Kulie, W.A. Petersen, J. L. Pippitt, D.A. Marks, D. Beachler, D. B. Wolff

308 *NCAR/Earth Observing Laboratory's Scientific Data Services for Field Campaigns.* **Greg Stossmeister**, NCAR, Boulder, CO; J. Allison, C. Costanza, L. Cully, L. Echo-Hawk, E. Johnson, S. Loehrer, J. Scannell, C. B. Snyder, D. Stott, S. Stringer

309 *Exploring Sensitivities of Atmospheric Boundary Layer Parameters in the Southwestern United States Using Numerical Modeling and Observational Data.* **Ross E. Alter**, Cold Regions Research and Engineering Laboratory, U.S. Army Engineer Research and Development Center, Hanover, NH; G.W. Lyons, C. R. Hart, C. M. Hocut, B. G. Quinn

310 *Concurrent Radar and Aircraft Measurements of Florida Thunderstorm Cirrus Clouds.* **Nicholas J. Gapp**, Univ. of North Dakota, Grand Forks, ND; D. J. Delene, M. S. Gilmore, J. Schmidt, P. Harasti

311 *Observed Relationships between the Kinematics and Infrasound Sources within the 19 March Alabama Tornadoic Supercell.* **Michael R. Graham**, The Univ. of Alabama, Huntsville, AL; K. R. Knupp, R. Waxler, G. Frazier, C. Talmadge

312 *Integrated Sounding System Measurements at the CHEESEHEAD Campaign.* **William O. J. Brown**, NCAR, Boulder, CO

313 *135 Years of Daily Observations at the Blue Hill Meteorological Observatory.* **Michael J. Iacono**, AER, Lexington, MA; B. Turner, D. McCasland

314 *The 1941 Project: An Extreme Annual Precipitation Anomaly in the Preradiosonde Era.* **Sharon Sullivan**, NWS, Albuquerque, NM

315 *Development of a New Balloon-Borne Sensor Attached to a 400-MHz Radiosonde for Precipitation Particle Electric Charge Measurement.* **Kenji Suzuki**, Yamaguchi University, Yamaguchi, Japan; T. Sugidachi, K. Shimizu

316 *Developing Low-Cost Arduino-Based Snowpack Sensing Stations on Mountain Slopes to Improve Flooding and Avalanche Risk Assessment.* **Eric P. Kelsey**, Plymouth State Univ., Plymouth, NH

317 *Stratospheric Radar Observations of Convection and Precipitation.* **Pierre-Emmanuel Kirstetter**, Univ. of Oklahoma, Norman, OK; R. D. Palmer, D. J. Bodine, C. R. Homeyer, T.Y. Yu, M. I. Biggerstaff, H. B. Bluestein, S. M. Cavallo, B. L. Cheong, Y. Jung, J. McDaniel, N. Sakaeda, J. Salazar, X. Wang, M. B. Yearly, J. J. Gourley, K. Howard, W.A. Petersen, S. Tanelli, A. Martini, N. Viltard

318 *Use of Data-Based Calibration to Harmonize the Swedish Weather Radar Network.* **Qing Cao**, Enterprise Electronics Corporation, Enterprise, AL; M. Knight, D. Johnson, I. Carlsson

319 *Toward Eddy Covariance CO₂ Flux Measurement Capability on an Ocean Buoy.* **Jason M. Covert**, Univ. at Albany, SUNY, Albany, NY; S. D. Miller, D. Vandemark, M. Emond, S. Shellito, I. Bogoev, E. Swiatek

320 *SNO-Based Radiometric Bias Evaluation for Emulated Small Satellite Microwave Sensors.* **X. Shao**, CISESS and Astronomy/Univ. of Maryland, College Park, MD; X. Jing, B. Zhang, A. S. Sharma

321 *Sumoi-NPP CrIS/VIIRS Radiometric Intercomparison Study.* **Daniel DeSlover**, CIMSS, Madison, WI; D. C. Tobin, G. Quinn

322 *Long-Term Precipitation Observed by Vertically Pointing Radars.* **Paul E. Johnston**, CIRES/Univ. of Colorado and NOAA/ESRL/Physical Sciences Division, Boulder, CO

323 *Assessing Suomi-NPP OMPS Nadir Mapper Reflectance Accuracy Using SNO Observations with GOME-2.* **Ding Liang**, Global Science and Technology, College Park, MD; B. Yan, C. Pan, L. E. Flynn, C. T. Beck, N. Sun

324 *A Pressure-Based Reanalysis of Historical Western Pacific Typhoons.* **James Goodnight**, NOAA, Raleigh, NC; K. R. Knapp, C. J. Schreck III

325 *Agricultural Microclimate Auto-observatory.* **Hai Qiu**, Nanning Meteorological Service, Nanning, China

326 *Comparison of a Precipitable Water Vapor with GNSS and Compact Microwave Radiometer.* **Masahiro Minowa**, Furuno Electric Co., LTD., Nishinomiya, Japan; S. Inoue, Y. Takashima, T. Iwahori, H. Ogawa, T. Onishi, A. Kuwano-Yoshida, S. Oishi

327 *The Current Status of the FNMOC Operational Satellite Data Tropical Cyclone Web Page.* **Yiping Wang**, U.S. Navy/FNMOC, Monterey, CA; J. Tesmer, P. J. Mccrone, J. Vermeulen

328 *Exploring the Cloud Optical Depth Effect on ICESat-2's Surface Signal Determination.* **Bradley W. Klotz**, Applied Research Laboratories, Univ. of Texas, Austin, TX; J. Markel

329 *Aerosol Classification with the 532- and 1047-nm Lidar Depolarization Ratio.* **Yunhui Zheng**, Hexagon U.S. Federal, Lanham, MD

330 *Short-Time Prediction of Solar Power Output Changes with Omnidirectional Camera.* **Yuya Takashima**, Furuno Electric Co., Ltd., Nishinomiya, Japan; M. Minowa, T. Hanao, T. Kitamura, A. Ohori, N. Hattori

331 *Information Content of Hyperspectral Reflected Solar Spectra for Ice Cloud Retrievals.* **Jeffrey Mast**, Texas A&M Univ., College Station, TX; P. Yang, J. Ding

332 *Ice Particle Orientation: Implication on Ice Cloud Remote Sensing with Submillimeter Polarimetric Measurements.* **Adam Bell**, Texas A&M Univ., College Station, TX; P. Yang, D. L. Wu

333 *Tropical Cyclone Cloud Tops Observed by CALIOP, CPR, OMPS, and SAGE-III.* **Melody A. Avery**, NASA, Hampton, VA; M. R. Schoeberl, J. Kummer

334 *Flight Testing Fixed-Wing and Rotary-Wing UAVs for Atmospheric Boundary Layer Research.* **Brittany Jenio**, Univ. of Tennessee Space Institute, Tullahoma, TN; S. Brooks, T. Lee, E. J. Dumas Jr., M. Buban, C. B. Baker

383A *2019 Lightning Activity Review Using Vaisala's NLDN and GLD360 Networks.* **Casey McCullar**, Vaisala, Louisville, CO

336 *Improvement of Clear-Sky LST Monthly Products by Using Diurnal Temperature Cycle Model (DTC).* **Leiqiu Hu**, Univ. of Alabama, Huntsville, AL

337 *Unique Research Opportunities with the Army Research Lab's Atmospheric Science Center Meteorological Sensor Array.* **Robb M. Randall**, Army Research Laboratory, WSMR, NM

338 *The Univ. of Georgia Weather Network: Providing 30 Years of Data Products and Applications to Southeastern Climate Data Users.* **Pamela Knox**, Univ. of Georgia, Watkinsville, GA; G. Hoogenboom, M. Evans, E. Edenfield, S. Wright, T. Pittman

339 *Climatic Wind Tunnel Experiments for Weather Microphysics.* **Ismail Gultepe**, ECCC, Toronto, Canada; J. Komar, M. Agelin-Chaab, G. Elfstrom, A. J. Heymsfield

340 *Canadian Effort for Improved Precipitation—Present Status and Transfer Function Development.* **Eva Mekis**, EC, Toronto, Canada; C. D. Smith

341 *Analysis of a Long-Range Tornadoic Debris Signature Caused by a Violent Tornado in Havana, Cuba.* **William L. Churchill**, NWS, Key West, FL

342 *Relating Tornado Intensity with Surface Topography and Ground Cover Using Rapid-Scan Mobile Radar Observations and a Geographical Information System Framework.* **Jana Houser**, Ohio Univ., Athens, OH; N. McGinnis, K. M. Butler, H. B. Bluestein, J. C. Snyder

343 *Geophysical Retrievals during OLYMPLEX/RADEX Using the Advanced Microwave Precipitation Radiometer.* **Corey G. Amiot**, Univ. of Alabama, Huntsville, AL; T. J. Lang, S. Biswas

344 *On the Accuracy of Vaisala RS41 versus RS92 Upper-Air Temperature and Humidity Observations.* **Bomin Sun**, IMSG at NOAA/NESDIS/STAR, College Park, MD; A. L. Reale

345 *Frontal Modification of Atmospheric Boundary Layer Dynamics over Land in Midlatitudes.* **Nicholas Clark**, Texas Tech Univ., Lubbock, TX; S. Pal, T. R. Lee

346 *An Image-Based Instrument for Comprehensive Weather Observations.* **Baolei Lyu**, Huayun Sounding Meteorological Technological Corporation, Ltd., Beijing, China; J. Liu

347 *Observing System Simulation Experiment Studies Using Small UAVs in the Boundary Layer in a 3D Mesonet Configuration.* **Keith A. Brewster**, Univ. of Oklahoma, Norman, OK; A. D. Moore, F. H. Carr, V. M. Shenoy

348 *Toward the Optimization of Atmospheric Sampling Using Unmanned Aerial Systems: A Review of the Latest CopterSonde Design Improvements.* **Antonio R. Segales**, Univ. of Oklahoma, Norman, OK; B. R. Greene, T. M. Bell, W. Doyle, J. Martin, P. B. Chilson

349 *Wind Observations on the Morphology and Dynamics of Aeolian Barchanoid Dunes with Unmanned Aircraft.* **Victoria Natalie**, Oklahoma State Univ., Stillwater, OK; J. Jacob

350 *Atmospheric Sensing of Wildland Fire Plumes Using KHawk UASs.* **Haiyang Chao**, Univ. of Kansas, Lawrence, KS; J. Mat, H. Flanagan, P. Tian, S. Gowravaram

351 *USAF 53rd Weather Reconnaissance Squadron: The Past, Present, and Future.* **Katilyn Woods**, Air Force Reserve Command, Robins Air Force Base, GA

352 *Overview of CSWR RELAMPAGO Radar and Surface Observations.* **Karen A. Kosiba**, Center for Severe Weather Research, Boulder, CO; J. Wurman, S. W. Nesbitt, R. J. Trapp, M. R. Kumjian, R. S. Schumacher, D. A. Henc

353 *Planning for a Community UAS Sensor Calibration Facility.* **Terry Hock**, NCAR, Boulder, CO; S. Oncley, H. Voemel

354 *Design and Operation of Multirotor Unmanned Aerial Vehicle (UAV) Payload for Collecting Meteorological Data.* **Alex Clark**, IERUS Technologies, Owens Crossroads, AL; E. Trzcienski

355 *Leveraging "Virtual Sensing" for Real-Time Analysis and Weather Forecasting.* **Daniel Rothenberg**, ClimaCell, Boston, MA; Y. Gonczarowski, L. T. Peffers, L. Mariano, R. Goffer

19A1

Poster Session 1: AI FOR ENVIRONMENTAL SCIENCE POSTER SESSION I

Chairs: John K. Williams, The Weather Company, An IBM Business, Andover, MA; Zhonghua Zheng, Univ. of Illinois, Urbana, IL

356A *A Feature Extraction and Sequence Prediction Framework for N-Dimensional Data Structures: An Application for Subseasonal Rainfall and Streamflow Forecast.* **T.C. M. Martin**, Univ. of São Paulo, São Paulo, Brazil; G. M. P. Perez and H. R. Rocha

356 *U.S. Water Prices: A Machine Learning Approach.* **Quinn McColly**, Texas A&M Univ, Corpus Christi, TX; P. Tissot, D. Yoskowitz

357 *Gradient-Based Optimization to Reduce Uncertainty in Radar Rainfall Estimates Using Deep Learning Techniques and In Situ Measurements from Disdrometers.* **Haonan Chen**, Colorado State Univ. and NOAA/Earth System Research Laboratory, Fort Collins, CO; R. Cifelli, V. Chandrasekar

358 *A Volume-to-Point Approach of Radar-Based QPE.* **Chia-Chun Wu**, National Science and Technology Center for Disaster Reduction, New Taipei City, Taiwan; T. S. Yo, S. H. Su, C. W. Chang, H. C. Kuo

359 *Reconstruction of Severe Storms Observed by Weather Radars Using Recurrent Neural Networks.* **Cesar Beneti**, SIMEPAR-Parana Meteorological System, Curitiba, Brazil; C. Oliveira, S. Scheer, L. Calvetti

360 *Automated Detection of the Above-Anvil Cirrus Plume Severe Storm Signature with Deep Learning.* **Charles Liles**, NASA, Hampton, VA; K. M. Bedka, T. D. Smith, Y. X. Huang, R. Biswas, E. Xia, C. Dolan, A. Hosseini Jafari

361 *Exploring the Application of Machine Learning to Identification of Storm Objects.* **Patrick A. Campbell**, CIMMS/Univ. of Oklahoma and NOAA/NSSL, Norman, OK; K. L. Ortega, S. S. Williams, T. M. Smith

362 *MRMS-based Hail Sizing and Classification Using Different, Large Databases.* **Jose Efraim Aguilar Escamilla**, OU/CIMMS and NOAA/OAR/NSSL, Norman, OK; S. S. Williams, K. L. Ortega

363 *Developing a Hail Probability Product for the Probabilistic Hazards Information Framework.* **Kiel L. Ortega**, OU/CIMMS and NOAA/OAR/NSSL, Norman, OK; S. S. Williams

364 *A New Machine Learning–Based Tornado Detection Algorithm for the WSR-88D Network.* **Thea Sandmael**, CIMMS/Univ. of Oklahoma and NOAA/OAR/NSSL, Norman, OK; K. L. Elmore, B. R. Smith

365 *Comparison of Shallow and Deep Neural Network Water Temperature Predictions for Resource Management during Cold Stunning Events.* **Philippe Tissot**, Texas A&M Univ., Corpus Christi, TX; J. DeGrande, J. Williams, H. Kamangir, N. Durham, S. Bates

366 *Implementation of an Artificial Neural Network to Forecast Storm Surge Time Series.* **Alexandra N. Ramos-Valle**, Rutgers Univ., New Brunswick, NJ; E. N. Curchitser, C. L. Bruyère

367 *Seasonal Hurricane Forecasting Using Machine Learning.* **Timothy Hall**, Walkersville, MD; K. Hall

368 *Single-Station Forecasting from Deep Learning Methods.* **Nathaneal Beveridge**, Air Force Institute of Technology, Wright-Patterson AFB, OK; A. Geyer, R. C. Tournay

I8COASTAL

Poster Session I: POSTERS ON THE COASTAL ENVIRONMENT

369 *Nautical Chart Data Uncertainty Visualization as the Means for Integrating Bathymetric, Meteorological, and Oceanographic Information in Support of Coastal Navigation.* **Christos Kastrisios**, Center for Coastal and Ocean Mapping, Univ. of New Hampshire, Durham, NH; C. Ware, B. Calder, T. Butkiewicz, L. Alexander, O. Hauser

370 *Precision Navigation Case Study: Exploiting NOAA Web Services to Enhance Decision-Making in New York Harbor.* **Colleen Roche**, NOAA, Narragansett, RI

371 *Co-Occurring Coastal Flood Hazards in California: Extreme Waves and Landfalling Atmospheric Rivers.* **Andrea C. O'Neill**, USGS, Santa Cruz, CA; L. Erikson, P. Barnard

372 *An Analysis of the Long-Term Trends and Meteorological Drivers of Coastal Nuisance Flooding in Annapolis, Maryland.* **Alex Davies**, U.S. Naval Academy, Annapolis, MD; J. P. Smith, D. S. Mandell, G. Davis, L. E. Greenburg, A. R. Warnimont

373 *Statistical Analysis of HWRF Errors for Accuracy Assessment of Coupled Hydrodynamic Modelling Systems.* **Ali Abdolali**, NOAA, College Park, MD; M. Schneider, A. J. Van der Westhuysen, Z. Ma, A. Mehra

374 *Sensitivity Test to Atmospheric Forcing of Storm Surges in the Gulf of Mexico.* **Duanjun Lu**, Jackson State Univ., Jackson, MS; H. R. Shih, T. Black, A. Triplett

375 *An Interactive Web-Based GIS System to Evaluate Hurricane Inundation Impacts.* **Michael Rene Bednarek**, Morristown-Beard School, Morristown, NJ

376 *Trapped Edge Waves on the Northern Israeli Continental Shelf.* **Nir Haim**, Tel Aviv Univ., Tel Aviv, Israel

377 *Evaluation of URMA Wind Analysis Using HWRF and Additional Observation Records.* **Roshan Shrestha**, NOAA/NCEP/EMC, MSG, College Park, MD; G. DiMego, A. Mehra, M. Pondeva

378 *Advancing Sea Ice Modeling for a Coupled Storm Surge–Wave–Ice Forecast System for Alaska’s Western Coasts.* **Ayumi Fujisaki-Manome**, Cooperative Institute for Great Lakes Research, Ann Arbor, MI; H. Hu, C. Carufel, J. Wang, P. Y. Chu, J. Westerink, C. Janzen

379 *Evaporation Duct Height over the Arabian Sea Estimated from Surface-Layer Profiles Measurements.* **Qing Wang**, NPS, Monterey, CA; P. Montgomery, L. Bauer, D. P. Alappattu

380 *Variability of Optical Turbulence in the Coastal Marine Environment during CASPER-West.* **Benjamin Wauer**, Naval Postgraduate School, Monterey, CA; Q. Wang, R. Yamaguchi, J. Kalogiros

381 *Evaluating A Blending Algorithm for Atmospheric Refractivity Using CASPER Measurements.* **Kuan-Min Kang**, NPS, Monterey, CA; Q. Wang, H. J. Chen, D. P. Alappattu, R. Yamaguchi, P. Frederickson, T. Haack

I6IMPACTS

Poster Session I: MAJOR WEATHER IMPACTS OF 2019—POSTERS

382 *Analysis of the 3 July 2019 Kaiyuan, Liaoning, EF4 Tornado.* **Kefeng Zhu**, Nanjing Univ., Nanjing, China; M. Xue, K. Ouyang

383 *Unusual Arctic Lightning Detected in 2019.* **Casey McCullar**, Vaisala, Louisville, CO

384 *The Cape Cod Tornadoes of 23 July 2019: Integrating Research on Northeast Tornado Environments and Dual-Polarization Radar to Provide Increased Warning Lead Time.* **Hayden Frank**, NOAA/NWS Forecast Office, Norton, MA; J. W. Dellicarpini

385 *Prediction of 2019 High-Impact Hurricanes and Typhoons with COAMPS-TC.* **Jonathan R. Moskaitis**, NRL, Monterey, CA; W.A. Komaromi, J. D. Doyle

386 *Predictability of Various Dynamical Features during the 13–15 February 2019 Atmospheric River Event.* **Chad W. Hecht**, SIO/Univ. of California, La Jolla, CA; A. C. Michaelis, F. Cannon, A. C. Martin, B. K. Kawzenuk, M. D. Sierks, M. A. Fish, Z. Zhang, J. M. Cordeira, F. M. Ralph

387 *Impact of Environmental Risk Factors on Cardiovascular and Respiratory Mortality in California (1975–2010).* **Jose Riandes Gonzalez**, Institute of Astronomy, Geophysics and Atmospheric Sciences, São Paulo, Brazil

388 *An Overview of the Performance and Operational Applications of the MRMS and FLASH Systems in Recent Significant Urban Flash Flood Events.* **Alan E. Gerard**, NOAA/OAR/NSCL, Norman, OK; J. J. Gourley, K. W. Howard, S. M. Martinaitis, J. Zhang

15SOCIETY

Poster Session 1: 15SOCIETY POSTER SESSION I

389 *Algorithm Development for Smart Home Software: The Home Utility Management System.* **Russell P. Manser**, Texas Tech Univ., Lubbock, TX; B. C. Ancell

390 *Understanding Climate Impacts on Rice Production in China's Yangtze River Delta.* **You Wu**, Nanjing Univ. of Information Science and Technology, Nanjing, China; Z. Dong

391 *Synergizing NOAA's Value Tree to OSE, OSSE, and FSOI Studies to Better Inform NOAA's Observing System Investment Priorities..* **Louis E. Cantrell**, Profitable Weather, LLC, Laurel, MD; D. Helms, M. Yapur, L. Cucurull

392 *A Multicriteria Decision Analysis Approach to Inform Competitive Grant Proposal Selection Using the NOAA Value Tree.* **Louis E. Cantrell**, Profitable Weather, LLC, Laurel, MD; D. Helms, M. Yapur, M. Vincent

394 *Prioritizing Actions to Adapt America's Infrastructure for Climate Change—Overview.* **W. J. Capehart**, South Dakota School of Mines, Rapid City, SD; and M. Tye, J. Giovannettone, A. AghaKouchak, A. P. Barros, R. E. Beighley, E. M. Douglas, N. Fehrenbacher, R. C. Fields, A. R. Ganguly, J. Huang, L. Kaatz, N. Lin, D. Llewellyn, B. Lord, K. MacClune, R. Olsen, A. Pinson, T. Shi, and F. Vahedifard

395 *Prioritizing Actions to Adapt America's Infrastructure for Climate Change—Hydrometeorology.* **William Capehart**, South Dakota School of Mines & Technology, Rapid City, SD; J. Giovannettone, N. Lin, A. AghaKouchak, M. Tye

15URBAN

Poster Session 1: INTEGRATED URBAN SERVICES (IUS)—A PATHWAY TO SUSTAINABLE URBAN SYSTEMS (POSTER)

Chair: Chandana Mitra, Auburn Univ., Auburn, AL

396 *"Smart City Auburn" App—A Tool to Assess How Smart Your City Is.* **Chandana Mitra**, Auburn Univ., Auburn, AL; M. Shrestha

397 *Diurnal Variations of Summer Precipitation in the Xinjiang Region.* **Chunyan Chen**, Xinjiang Meteorological Observatory, Urumqi, China

398 *Change of Precipitation Characteristics in the City of Prague with Relation to Its Population Growth.* **Michal Zak**, Czech Hydrometeorological Institute, Praha, Czech Republic; V. Kveton

399 *Building Resilient Cities through Climate-Aware Urban Design: A Case Study for Istanbul.* **Muge Komurcu**, MIT, Cambridge, MA; J. Susskind, A. M. Berger, M. E. Camlibel, C. Avci

15URBAN

Poster Session 2: OUTCOME-FOCUSED URBAN CLIMATE RESEARCH FOR COMMUNITY RESILIENCE (POSTER)

Chairs: Ariane Middel, Arizona State Univ., Tempe, AZ; Peter Crank, Arizona State Univ., Tempe, AZ

400 *Identifying Areas Impacted by Extreme Heat Events in Worcester, Massachusetts.* **John Veneziano**, Worcester State Univ., Worcester, MA; N. Malakar

401 *Extreme Event Policy Windows and Media Engagement: Discourses on Hurricane Sandy, Urban Resilience, and Policy Outcomes in Boston and New York City.* **Erin Friedman**, The Graduate Center, City Univ. of New York, New York, NY; W. Solecki

402 *Mobilizing Community-Sourced Stories and Data to Improve Stormwater Infrastructure Design, Planning, and Emergency Preparedness.* **Julia Kumari Drapkin**, ISeeChange, New Orleans, LA

403 *Participatory Action Research to Explore Heat Exposure for Urban-Dwelling Older Adults in Boston: A Pilot Study.* **Leila Heidari**, Boston Univ. School of Public Health, Boston, MA; B. Trejo, M. Scammell, P. L. Kinney

404 *Cities under Climate Change—Coherence, Innovation, and Urbanity: Exploring the Human-Habitat Dimension toward the Adaptive Capacity.* **Tzen-Ying Ling**, tamkang Univ., Taipei, Taiwan

11HEALTH

Poster Session 1: BOARD ON ENVIRONMENT AND HEALTH POSTER SESSION—HEAT

405 *Building Community Heat Action Plans Story by Story: A Three-Neighborhood Case Study.* **David M. Hondula**, Arizona State Univ., Tempe, AZ; M. Guardaro, M. Messerschmidt, N. Grimm, C. Redman

406 *Development of a Heat Vulnerability Index for the Southeastern United States.* **Mahima Kumara**, Yale Univ., New Haven, CT; J. Rennie, M. Palecki

407 *Evaluating Heatwave Definitions Using Heat-Related Health Outcomes.* **Jagadeesh Puvvula**, Univ. of Nebraska Medical Center, Omaha, NE; A. M. Abadi, J. E. Bell

408 *Examining an Evolution of Extreme Temperature and Heat Index under a Changing Climate.* **Tanya L. Spero**, EPA, Research Triangle Park, NC; J. H. Bowden, C. G. Nolte, M. S. Mallard, A. M. Jalowska, G. M. Gray

409 *Heat Wave Occurrences over Senegal during Spring: Regionalization and Synoptic Patterns.* **Marie Jeanne G. Sambou**, Université Cheikh Anta Diop/LPAO-SF, Dakar, Senegal; S. Janicot, B. Pohl, D. Badiane, A. L. DIENG, A. T. Gaye

410 *Heat Wave with High Impact on Human Health under Global Warming.* **Miaoni Gao**, Nanjing Univ. of Information Science and Technology, Nanjing, China; J. Yang

411 *Heat Waves and Pregnancy Outcomes in the Metro-Atlanta Area during 2007-2017.* **G. Huang**, Spelman College, Atlanta, GA; F. Neal

412 *Hot Pockets: Rethinking the National Weather Service Approach to Heat Hazards in the Louisville Urban Heat Island.* **Kristine M. Chen**, Univ. of Oklahoma, Norman, OK; J. Sullivan, T. Funk

10LIDAR

Poster Session I: LIDAR POSTER SESSION

413 *A Method for Aerosol Layer Detection Using Polarized Micropulse Lidar Measurements.* **Jasper Lewis**, JCET, Greenbelt, MD; S. Lolli, J. R. Campbell, E. J. Welton

414 *The NASA Micro Pulse Lidar Network (MPLNET): Introduction of the New Version 3 Release.* **Ellsworth J. Welton**, NASA GSFC, Greenbelt, MD; J. R. Campbell, J. Lewis Jr., S. Lolli, S. Stewart, L. R. Belcher

415 *Low-Level Jet Water Vapor Transport Observed by Ground-Based and Airborne Lidars.* **Brian J. Carroll**, Univ. of Maryland, Baltimore, MD; B. Demoz, R. Delgado

416 *The European Network of Automatic Lidars and Ceilometers E-Profile: Validation through Earlinet/Actris Measurements and Potential for Satellite Cal/Val.* **Alexander Haefele**, Federal Office of Meteorology and Climatology, Payerne, Switzerland; R. Rüfenacht, L. Mona, N. Papagiannopoulos, M. Rosoldi, G. D'Amico, I. Mattis, A. Cazorla, L. Alados-Arboledas, J. L. Guerrero-Rascado, J. A. Bravo-Aranda, T. H. Virtanen, G. de Leeuw

417 *Exploring Mesoscale Variability of Water Vapor, Aerosol, Clouds, and Dynamics over West Coast Mountains Using Airborne Lidar Observations.* **Sandip Pal**, Texas Tech Univ., Lubbock, TX; A. R. Nehrir, K. M. Bedka, O. Gotchey, S. A. Kooi, J. Collins, R. A. Barton-Grimley

418 *Retrievals of Backscatter Coefficient and Mass Concentration of Particles with Coherent Doppler Lidars.* **Ludovic-Thobois**, LEOSPHERE, Saclay, France; R. Parmentier, J. P. Cariou

419 *Lidar Observation of PBL Height under Severe Air Pollution and Its Comparison with Radiosonde and Numerical Simulation.* **Yu Shi**, IAP, Beijing, China; F. Hu, W. Cheng

420 *Bias Correction of Long-Path CO₂ Observations in a Complex Urban Environment for Carbon Cycle Model Intercomparison.* **T Scott Zaccheo**, AER, Lexington, MA; J. T. Dobler, T. G. Pernini, N. Blume

421 *Case Study of Mixing Height Measurement from Commercially Available Ceilometers..* **Kenneth H. Underwood**, T&B Systems, Valencia, CA; D. Yoho

422 *Using an Airborne Doppler Wind Lidar to Evaluate Sampling and Data Processing Strategies Relevant to the PBL and a Future Space-Based System.* **G. David Emmitt**, Simpson Weather Associates, Inc., Charlottesville, VA; S. Greco

423 *Coherent Doppler Wind Lidar Data Processing Software and Wind Retrieval from the Aeolus Cal/Val Field Campaign.* **Zhaoyan Liu**, NASA Langley Research Center, Hampton, VA; M. J. Kavaya, K. M. Bedka

424 *Uncertainty of Backscatter Coefficients from In Situ Cloud Probe Measurements in Cirrus Clouds.* **Shawn Wagner**, Univ. of North Dakota, Grand Forks, ND; D. Delene

425 *Surface Winds Analysis in Support of CALIPSO Algorithms.* **Sharon Rodier**, SSAI, Hampton, VA; R. Ryan, M. A. Vaughan, Z. Liu, K. M. Bedka, C. Trepte

426 *Canada's New Lidar Network for Measurements of Clouds, Aerosols, Forest Fire Smoke, and Volcanic Ash.* **R. J. Sica**, Univ. of Western Ontario, London, Canada; J. P. Blanchet, R. Y. W. Chang, J. Drummond, A. Haefele, P. Hayes, E. McCullough, N. O'Neill, K. Strong, A. Wiacek, D. Woolford, D. Wunch

427 *An Evaluation of Doppler Lidar Wind Profiles at the Iqaluit and Whitehorse Supersites.* **Zen Mariani**, Environment and Climate Change Canada, Toronto, Canada; R. W. Crawford, B. Casati, S. Laroche, F. Lemay

428 *A Coherent Wind Lidar with Frequency-Modulated and Long-Duration Pulse: Principles and Experiments for Feasibility Study.* **Eiichi Yoshikawa**, Japan Aerospace Exploration Agency, Mitaka, Japan; H. Yamasuge, M. Aoki, H. Iwai, T. Ushio, S. Ishii

429 *TORUS Doppler Lidar and Radiosonde Wind Observation Intercomparison.* **Elizabeth N. Smith**, CIMMS, Norman, OK; M. Coniglio, S. Waugh

10R20

Poster Session I: 10R20 POSTER SESSION I

Chairs: Stephen A. Mango, NOAA/NESDIS/Office of Projects, Planning and Analysis, Silver Spring, MD; Eric Fetzer, JPL/California Institute of Technology, Pasadena, CA

430 *Land Cover Influence on Detection of Hail Swaths Using GOES Advanced Baseline Imager.* **Samantha L. Koehler**, NWS, Sioux Falls, SD; P. N. Schumacher, K. Gallo

431 *Adding Tropical Cyclone Genesis Verification Capabilities to the Model Evaluation Tools (MET+).* **Daniel J. Halperin**, Embry-Riddle Aeronautical Univ., Daytona Beach, FL; K. M. Newman, J. E. Halley Gotway, T. L. Jensen

432 *Improved Surface Analysis for 3D-RTMA.* **G. Ge**, CIRES and NOAA/ESRL/GSD, Boulder, CO; M. Hu, S. Benjamin, S. Weygandt, C. Alexander

433 *Research-to-Operations (R2O) Processes for Better Translation of Scientific Knowledge into Operational Algorithms.* **A. Russakoff**, IMISG, College Park, MD; B. Helgans, A. Ken, T. S. King, W. Wolf

434 *Capabilities of the EUMETSAT Polar System Second-Generation Ice Cloud Imager.* **T. Greenwald**, Univ. of Wisconsin Madison, WI; A. Heidinger

435 *New Technical Assessment of Haze and Visibility Observation.* **Jingli Wang**, Institute of Urban Meteorology, China Meteorological Administration, Beijing, China

8WXCLIMATE

Poster Session I: 8TH CONFERENCE ON WEATHER, WATER AND CLIMATE ENTERPRISE, POSTER SESSION

436 *Research on Error Correction and Integration Methods of Maximum and Minimum Temperature Forecasts Based on a Multimodel in Xinjiang.* **Lihong Jia**, Xinjiang Meteorological Observatory, Urumqi, China

437 *Atmospheric Circulation and Water Vapor Characteristics of Snowstorm Anomalies in Northern Xinjiang.* **Ruqi Li**, Xinjiang Meteorological Observatory, Urumqi, China

438 *Comparison Analysis on the Mesoscale Characteristics of Two Rainstorm Processes Caused by the Central Asian Vortex in the West of South Xinjiang.* **Ye Tang**, Xinjiang Meteorological Observatory, Urumqi, China

439 *Model for Engagement: 2019 NCEI Users' Conference.* **Annette Hollingshead**, Riverside Technology, Inc., Asheville, NC; M. J. Brewer; N. Jones; J. Dissen

440 *Toward a Long-Term (Multidecadal) Global Climate Change Derivatives Trading Facility.* **Harvey Stern**, Univ. of Melbourne, Melbourne, Australia

441 *The National Weather Service's Bilingual Weather and Climate Information Efforts: A Case Study of NWS San Juan's Twitter Use during Hurricane Irma.* **Camila Espina Young**, Univ. of Georgia, Athens, GA

8WRN

Poster Session I: 8WRN POSTERS

442 *Leveraging Known Impacts to Florida's Citrus Industry from Historical Hurricane and Hard-Freezing Events to Enhance Future Public Safety Messages.* **Kevin Rodriguez**, NOAA/National Weather Service, Melbourne, FL

443 *Capacity-Building Strategies to Improve the Resilience of the Community to Extreme Hydrometeorological Events: The Experience of the Medellin Early Warning System.* **Olga M. Ramirez**, Sistema de Alerta Temprana de Medellín y el Valle de Aburrá (SIATA), Área Metropolitana del Valle de Aburrá (AMVA), Medellín, Colombia; Y. A. Cardona, K. S. Yepes, X. F. Rojas, L. J. Mejía, C. D. Hoyos

444 *How Likely Is That Chance of Thunderstorms? A Study of the National Weather Service's Use of Words of Estimative Probability.* **Rachael N. Cross**, Univ. of Oklahoma, Norman, OK; E. D. Lenhardt, J. T. Ripberger, M. Krocak, H. Jenkins-Smith, C. Silva, S. Ernst

445 *Infusing Social Science into Public Outreach Programs at NWS Miami.* **Molly Merrifield**, National Weather Service, Miami, FL, Miami, FL; S. Miller, R. Molleda

8MJO / TROPSYMP I

Joint Poster Session I: EIGHTH SYMPOSIUM OF THE MJO AND SUBSEASONAL MONSOON VARIABILITY POSTER SESSION

446 *Tropical Cyclone Activity Prediction on Subseasonal Time Scales.* **Suzana J. Camargo**, Lamont-Doherty Earth Observatory, Columbia Univ., Palisades, NY; C. Y. Lee, F. Vitart, A. H. Sobel, M. K. Tippett, S. Wang, J. Camp

447 *The Influence of ENSO on Tropical Cyclone Impacts along the Pacific Coast of Mexico.* **Nicholas S. Grondin**, Univ. of Tennessee, Knoxville, TN; B. D. Keim

448 *Assessing PV Streamer Activity and Its Relationship with TC Predictability in Subseasonal Forecasts.* **Philippe P. Papin**, NRL, Monterey, CA; C. Reynolds, M. A. Janiga

449 *Tropical Cyclones in Current Seasonal Forecast Models.* **Daniel J. Befort**, Univ. of Oxford, Oxford, UK; K. I. Hodges, A. Weisheimer

450 *On the Predictability of 30-day Global Mesoscale Simulations of African Easterly Waves during Summer 2006: A View with the Generalized Lorenz Model.* **Bo-Wen Shen**, San Diego State Univ., San Diego, CA

451 *Large-Scale State and Evolution of the Atmosphere and Ocean during PISTON.* **Adam H. Sobel**, Columbia Univ., New York, NY; Z. K. Martin, S. Wang, J. Sprintall, E. Maloney

452 *The Diurnal Cycle of Rainfall and the Convectively Coupled Equatorial Waves over the Maritime Continent.* **Naoko Sakaeda**, Univ. of Oklahoma, Norman, OK; G. Kiladis, J. Dias

453 *Tidal Mixing Effects on Sea Surface Temperatures, Diurnal Rainfall and the Madden-Julian Oscillation in the Maritime Continent.* **John D. Steffen**, Woods Hole Oceanographic Institution, Woods Hole, MA; H. Seo

8MJO

Poster Session I: EIGHTH SYMPOSIUM OF THE MJO AND SUBSEASONAL MONSOON VARIABILITY POSTER SESSION

454 *Mean State Modulation of MJO Propagation: Role of Background Meridional Moisture Gradient.* **Daehyun Kang**, Univ. of Washington, Seattle, WA; D. Kim, M. S. Ahn

455 *Impact of Rossby and Kelvin Wave Components on MJO Eastward Propagation.* **Lu Wang**, Nanjing Univ. of Information Science & Technology, Nanjing, China; T. Li, T. Nasuno

456 *Fast and Slow MJO Modes Modulated by ENSO in Boreal Winter.* **Hong-Li Ren**, Beijing Climate Center, China Meteorological Administration, Beijing, China; Y. Wei

457 *MJO Simulation in CMIP6 Models: How Much Improvement Has Been Made from CMIP5 to CMIP6?* **Min-Seop Ahn**, Univ. of Washington, Seattle, WA; D. Kim, D. Kang, J. Lee, K. R. Sperber, P. J. Gleckler

458 *Interactions of Large-Scale Dynamics and Diabatic Heating in Multimodel MJO Simulations.* **Ashley L. Heath**, Iowa State Univ., Ames, IA; A. O. Gonzalez

459 WITHDRAWN

460 *Role of Air–Sea Interactions in the Intensifying and Decaying of an MJO Event over the North Indian Ocean.* **Bibhuti Sharan Keshav**, Indian Institute of Technology Bhubaneswar, Bhubaneswar, India; K. Landu

461 *Effect of Subseasonal Tropical Oscillations on Extreme Weather over the Indian Subcontinent.* **Kiranmayi Landu**, Indian Institute of Technology Bhubaneswar, Bhubaneswar, India; T. Zore, A. Subudhi

462 *Modulations of the Diurnal Cycle of Coastal Rainfall over South China Caused by the Boreal Summer Intraseasonal Oscillation.* **Xingchao Chen**, The Pennsylvania State Univ., University Park, PA; F. Zhang, J. Ruppert Jr.

463 *Convection–Vorticity Phase Relationship: Revisiting Simple Models of the Boreal Summer Intraseasonal Oscillation.* **Ding Ma**, Columbia Univ., New York, NY; S. Wang, A. H. Sobel

464 *Intraseasonal Modulation of the Schumann Resonances by the MJO, CCEWs, and EWs.* **Alejandro Jaramillo**, Universidad Nacional Autonoma de México, Mexico City, Mexico; A. I. Quintanar, J. Rodríguez-Camacho, M. Pazos, C. Dominguez

465 *Leaky Equatorial Waves.* **Lyubov Chumakova**, Univ. of Edinburgh, Edinburgh, UK

466 *Upward- and Downward-Propagating Kelvin Waves.* **Ahmed A. Shaaban**, Univ. at Albany, SUNY, Albany, NY; P. E. Roundy

467 *PV Budget Analysis on High-Resolution Simulations to Understand the Interaction of AEWs with Convection.* **Kelly Marie Nunez Ocasio**, The Pennsylvania State Univ., University Park, PA

468 *Does Jet Stream Sharpness Modulate the Downstream Response to Recurring Tropical Cyclones?* **Peter M. Finocchio**, National Research Council, Monterey, CA; J. D. Doyle

469 *The Impact of Tropical Forecast Skill on Extratropical Skill In Two S2S Weather Prediction Systems.* **George Kiladis**, NOAA, Boulder, CO; J. Dias

470 *Global Circulation Variability Associated with MJO Phase Speed.* **Alexander Tomoff**, Univ. at Albany, SUNY, Albany, NY; P. E. Roundy

471 *Madden–Julian Oscillation Enhances Phytoplankton Biomass in the Maritime Continent.* **Chiung-Wen June Chang**, Chinese Cultural Univ., Taipei, Taiwan; H. H. Hsu, W. Cheah, W. L. Tseng, L. C. Jiang

INTERNATIONAL / 4PREDICTABILITY
Joint Poster Session 1: INTRINSIC AND PRACTICAL
PREDICTABILITY OF GLOBAL WEATHER
PREDICTION: PROGRESS AND CHALLENGES
IN OBSERVATIONS, MODELING, AND DATA
ASSIMILATION

472 *Diagnosing Regional Low-Skill Forecasts in the FV3-Based GFS.* **Travis J. Elless**, IMSG at NOAA/NWS/NCEP/EMC, College Park, MD; D. T. Kleist

473 *Set-Theoretical Allegory on the Intrinsic Predictability of Weather Time Series.* **M. Jeremie Lafitte (Levitas)**, Metivdata, Safed, Israel

474 *Assessment of the Subseasonal Prediction Performance of the Mozambique Monsoon Rainfall and Its Modulation by the Madden–Julian Oscillation (MJO).* **Kenedy Cipriano Silvério**, Federal Univ. of Paraná (UFPR), Curitiba, Brazil; A. M. Grimm

475 *Northern Hemisphere Teleconnection Patterns Associated with Dominant Modes of Subseasonal Wintertime Precipitation in China.* **Yonghong Yao**, Nanjing Univ., Nanjing, China; Q. Wu

476 *Evaluation of Convectively Coupled Rossby–Gravity Waves in a Field Campaign in Four Reanalysis Products.* **Xiacong Wang**, LASG, Beijing, China

477 *Vertical Structure of Horizontal Scaling of Wind and Moisture Fields during South American Cold-Air Intrusions Considering Error Growth and Scale-Dependent Predictability.* **Masih Eghdami**, Duke Univ., Durham, NC; A. P. Barros

Tuesday, January 14

7:30 A.M.–6:00 P.M.	Registration–North Lobby
7:30 A.M.–6:00 P.M.	AMS Info Desk–North Lobby
7:30 A.M.–6:00 P.M.	Speaker Ready Room–102B
7:30 A.M.–6:00 P.M.	Member Services–North Lobby
7:30 A.M.–6:00 P.M.	Quiet Room–Westin Hotel, Commonwealth C
9:00 A.M.–10:00 A.M.	Guest Coffee–Westin Hotel, Hancock
9:00 A.M.–6:00 P.M.	Academic Family Tree–Hall B
9:00 A.M.–6:00 P.M.	Local Chapter Posters–Hall B
9:00 A.M.–6:00 P.M.	Historical Instruments Exhibit–Hall A
9:00 A.M.–6:00 P.M.	Exhibits and Poster Hall Open Poster Hall Open–Hall A & Hall B
10:00 A.M.–10:30 A.M.	Meet President Jenni Evans
10:00 A.M.–10:30 A.M.	AM Coffee Break–Meeting Room Foyers
12:00 P.M.–1:30 P.M.	Women in the Atmospheric Sciences Luncheon–205C
12:00 P.M.–1:30 P.M.	Lunch Break
12:15 P.M.–1:15 P.M.	Movie Viewing—Ozone Hole: How We Saved the Planet–255
1:00 P.M.–1:20 P.M.	Daily Weather Briefing
2:30 P.M.–3:00 P.M.	PM Coffee Break–Meeting Room Foyers
4:00 P.M.–6:00 P.M.	Formal Poster Viewing Reception–Hall B
7:00 P.M.–10:00 P.M.	Robert Dickinson Symposium Dinner

8:30 A.M.–10:00 A.M.

PRESESSIONS / 15 SOCIETY / 8WXCLIMATE Session 4: THE FUTURE OF EXTREME WEATHER FINANCIAL RISK MANAGEMENT. PART I –252B

Panelists: Shumeane Benford, City of Boston, Boston, MA; Adam B. Smith, NOAA/NCEI, Asheville, NC; Robert Muir-Wood, Risk Management Solutions, Newark, CA; Sepideh Yalda, Millersville Univ., Millersville, PA; F. Martin Ralph, SIO, La Jolla, CA; Fernando Miralles-Wilhelm, Univ. of Maryland and National Socio-Environmental Synthesis Center (SESYNC), College Park, MD

8:30 A.M.

Panel Discussion.

8:30 A.M.–10:00 A.M.

DICKINSONSYMP / 33CVC Joint Session 11: EARTH SYSTEM MODELING AND CLIMATE CHANGE (E.G., EARTH SYSTEM MODELING, REGIONAL CLIMATE MODELING, CLIMATE CHANGE, CARBON CYCLE). PART I –210C

Chair: Leo Donner, GFDL/NOAA, Princeton Univ., Princeton, NJ

8:30 A.M.

J11.1 *From Atmospheric Sciences to Ecology: Building an Interdisciplinary View of Climate.* **Gordon B. Bonan**, NCAR, Boulder, CO

9:00 A.M.

J11.2 *Changes in the Thermosphere/Ionosphere over the Past Century: Results from Whole Atmosphere Model Simulations.* **Joseph M. McNerney**, NCAR, Boulder, CO; S. C. Solomon, L. Qian, H. L. Liu, S. Nossal

9:15 A.M.

J11.3 *The GeoCarb Mission.* **Berrien Moore**, National Weather Center/Univ. of Oklahoma, Norman, OK; S. Crowell

9:30 A.M.

J11.4 *Extracting the Buoyancy-Driven Atlantic Meridional Overturning Circulation.* **Sarah Larson**, North Carolina State Univ., Raleigh, NC

9:45 A.M.

J11.5 *Toward Understanding the Shortwave Cloud Feedback in Climate Change: Exploring the Mechanisms of Extratropical Liquid Water Path Increase in Mixed-Phase Clouds in a Warming Climate.* **Michelle Elizabeth Frazer**, Princeton Univ., Princeton, NJ; Y. Ming

8:30 A.M.–10:00 A.M.

48BROADCAST Session 3: STATION SCIENTIST. PART I –204AB

Chair: Joe Murgo, WTAJ-TV, Altoona, PA

8:30 A.M.

Welcome from Local Broadcasters. **Christopher John Gloninger**, NBC 10 Boston, Boston, MA

8:45 A.M.

3.1 *Climate Change: A New Purpose For Meteorologists.* **Jeffrey R. Berardelli**, CBS News, New York, NY

9:00 A.M.

3.2 *Communicating Climate Change - The Market Exclusive You Do Not Want to Have!.* **Mike Nelson**, KMGH-TV, Denver, CO; B. Lindmeier

9:15 A.M.

3.3 *Creating Time for Innovation: High-Impact Ways to Communicate Climate and Go beyond the Daily Weather Forecast.* **Frank Mungeam**, Arizona State Univ., Phoenix, AZ

9:30 A.M.

3.4 *Taking the Next Step: Continuing the Conversation off Camera, in Your Work and Personal Life.* **Sarah Finnie Robinson**, Boston Univ., Boston, MA

9:45 A.M.

3.5 *Some Highlights and Insights of the CMIP6 Earth System Modeling Simulations for Station Scientists Discussing the Latest IPCC Reports.* **Chris E. Forest**, The Pennsylvania State Univ., University Park, PA

TUESDAY

8:30 A.M.–10:00 A.M.

36EPT

Session 4A: AWIPS SYSTEM UPDATES. PART I –157C

Chairs: William Roberts, OAR, Boulder, CO; J. E. Burks, CIRA, Huntsville, AL; Maxwell Grover, Univ. of Illinois, Champaign, Urbana, IL

8:30 A.M.

4A.1 *AWIPS Program Update and Strategy.* **Ronla K. Henry-Reeves**, NWS, Silver Spring, MD; A. Wallace, E. Mandel, S. S. Schotz, W. Sellers

9:00 A.M.

4A.2 *The Evolution of NWS AWIPS.* **Ronla K. Henry-Reeves**, NWS, Silver Spring, MD; E. Mandel, S. Jacobs, S. S. Schotz, W. Sellers, O. Nguyen

9:15 A.M.

4A.3 *NWS Satellite Broadcast Services—Setting a New Direction.* **Scott Jacobs**, NOAA/NWS, Silver Spring, MD; P. Kirkwood, K. Conaty, J. Casamento, P. Cragg

9:30 A.M.

4A.4 *National Centers AWIPS Migration Status.* **Steve Schotz**, NOAA/NWS, Silver Spring, MD; S. Jacobs, D. Plummer, J. E. Calkins, J. Anderson, E. M. Guillot, L. Byrle, J. Henry

9:45 A.M.

4A.5 *National Weather Service Hazard Services—Field Deployment and Vision.* **Mark Armstrong**, NWS, Silver Spring, MD

8:30 A.M.–10:00 A.M.

36EPT

Session 4B: INTERAGENCY COORDINATION WITHIN THE FEDERAL WEATHER ENTERPRISE –209

Chairs: C. Sim James, Office of the Federal Coordinator for Meteorology, Silver Spring, MD; Michael F. Bonadonna, Office of the Federal Coordinator for Meteorology, Silver Spring, MD

8:30 A.M.

4B.1 *OFCM 101: Overview of the Office of the Federal Coordinator for Meteorological Services and Supporting Research.* **Michael F. Bonadonna**, Office of the Federal Coordinator for Meteorology, Silver Spring, MD; C. S. James

8:45 A.M.

4B.2 *National Space Weather Coordination Activities: Forging a Partnership among U.S. Government, Commercial, and Academic Organizations to Improve National Space Weather Capabilities.* **Jaclyn R. Keshian**, Office of Science and Technology Policy, Washington, DC; M. F. Bonadonna

9:00 A.M.

4B.3 *Overview of the Committee for Operational Processing Centers (COPC).* **Carissa L. Klemmer**, NCEP, College Park, MD

9:15 A.M.

4B.4 *Federal Interagency Coordination for Research in the Arctic.* **Amy Holman**, NOAA, Anchorage, AK; S. Bowden, R. Crain

9:30 A.M.

4B.5 *A Targeted Operational Aircraft Reconnaissance Program Strategy for Improved Prediction of Atmospheric Rivers and Winter Storms.* **Vijay Tallapragada**, NOAA/NWS/NCEP/EMC, College Park, MD; F. M. Ralph, P. G. Black, X. Wu, T. J. Elless, A. Mehra, R. D. Torn

9:45 A.M.

4B.6 *The Operational Transition from Winter Storms Reconnaissance (2014) to Winter Season Reconnaissance.* **Jack Parrish**, NOAA Aircraft Operations Center, Lakeland, FL

8:30 A.M.–10:00 A.M.

34HYDRO

Session 5A: EXTREME RAINFALL AND HYDROLOGIC EXTREMES. PART I –253C

Chairs: John Nielsen-Gammon, Texas A&M Univ., College Station, TX; Kelly Mahoney, NOAA, Boulder, CO; Kenneth Kunkel, North Carolina State Univ., Raleigh, NC; National Centers for Environmental Information, Asheville, NC; Bill D. Kappel, Applied Weather Associates, Monument, CO

8:30 A.M.

5A.1 *Historical Flash Flood Trends from Hcdn Basins.* **Thomas E. Adams**, TerraPredictions, Blacksburg, VA; R. M. Vogel

8:45 A.M.

5A.2 *Climatology and Trends in Hourly Precipitation for the Southeast United States.* **Vincent Brown**, Southern Climate Impacts Planning Program, Baton Rouge, LA; B. D. Keim, A. W. Black

9:00 A.M.

5A.3 *Observed Climatological Relationships between Precipitable Water and Extreme Precipitation in the Contiguous United States.* **Kenneth E. Kunkel**, North Carolina Institute for Climate Studies, Asheville, NC; S. Stevens, L. E. Stevens, T. R. Karl

9:15 A.M.

5A.4 *Downscaling Extremes of Rainfall: Sensitivity to Gridded Observations and Downscaling Technique.* **Adrienne M. Wooten**, South Central Climate Adaptation Science Center, Univ. of Oklahoma, Norman, OK; K. W. Dixon, D. Adams-Smith, R. A. McPherson

9:30 A.M.

5A.5 *Changes in the Past and Future Extreme Precipitation within the Eastern United States Using Long Observation Record and Dynamically Downscaled Simulations from 2025 to 2100.* **Anna M. Jalowska**, EPA, Research Triangle Park, NC; T. L. Spero, J. H. Bowden, G. M. E. Gray

9:45 A.M.

5A.6 *Changes in Flash Flood–Producing Storms in the United States.* **Erin Mary Dougherty**, Colorado State Univ., Fort Collins, CO; K. L. Rasmussen

8:30 A.M.–10:00 A.M.

34HYDRO**Session 5B: LAND DATA ASSIMILATION
TECHNIQUES AND SYSTEMS. PART I –253A**

Chairs: Clara S. Draper, CIRES, Boulder, CO; Sujay Kumar, NASA/GSFC, Greenbelt, MD; Rolf H. Reichle, NASA GSFC, Greenbelt, MD; Youlong Xia, NCEP/EMC/IMSG, College Park, MD

8:30 A.M.

5B.1 *Land Data Assimilation: Making the Transition from States to Fluxes (Invited Presentation) (Centennial).* **Wade T. Crow**, USDA/ARS, Beltsville, MD

8:45 A.M.

5B.2 *Data Assimilation for Continuous Global Assessment of Severe Conditions over Terrestrial Surfaces: LDAS-Monde Status and Current Developments.* **C. Albergel**, CNRM, Toulouse, France; Y. Zheng, E. Dutra, B. Bonan, C. S. Draper, S. Munier, N. Rodríguez-Fernández, G. Balsamo, P. de Rosnay, J. Muñoz-Sabater, D. Fairbairn, J. C. Calvet

9:00 A.M.

5B.3 *Impact of Gauge-Based Precipitation Corrections on the Skill of SMAP Level-4 Soil Moisture Estimates.* **Rolf H. Reichle**, NASA GSFC, Greenbelt, MD; Q. Liu, J. V. Ardizzone, W. T. Crow, G. J. M. De Lannoy, J. S. Kimball, J. Kolassa, R. Koster

9:15 A.M.

5B.4 *Application of GLDAS Framework to the Next-Version Global Forecast System at NCEP.* **Youlong Xia**, NCEP/EMC/IMSG, College Park, MD; J. Meng, H. Wei, R. Yang, F. Yang, D. T. Kleist, V. Tallapragada

9:30 A.M.

5B.5 *Improving the Ensemble Representation of Model Uncertainty for Coupled Land–Atmosphere Data Assimilation.* **Clara S. Draper**, CIRES, Boulder, CO; P. Pegion, J. Whitaker

9:45 A.M.

5B.6 *Assimilating Multisatellite Snow Data in Ungauged Eurasia Improves the Asian Monsoon Seasonal Forecasts.* **Zong-Liang Yang**, Univ. of Texas, Austin, TX; P. Lin

8:30 A.M.–10:00 A.M.

33CVC**Session 4A: ARCTIC MIDLATITUDE LINKAGES.
PART I –150**

Chair: Gudrun Magnusdottir, Univ. of California, Irvine, CA

8:30 A.M.

4A.1 *Rapid Arctic Sea Ice Loss on the Synoptic Time Scale and Related Atmospheric Circulation Anomalies.* **Zhuo Wang**, Univ. of Illinois, Urbana, IL; J. E. Walsh, S. M. Szymborski, M. Peng

8:45 A.M.

4A.2 *The Driving of Intraseasonal Winter Sea Ice Decline over the Barents and Kara Seas.* **Steven Feldstein**, The Pennsylvania State Univ., University Park, PA; Z. Jiang, S. Lee

9:00 A.M.

4A.3 *An Observational Estimate of the Direct Atmospheric Response to the Arctic Sea Ice Loss.* **Claude Frankignoul**, Sorbonne Univ., Paris, France; A. Simon, G. Gastineau, Y. O. Kwon

9:15 A.M.

4A.4 *Detection of Signal in the Large-Scale Circulation Response to Arctic Sea-Ice Decline.* **Zachary M. Labe**, Univ. of California, Irvine, CA; Y. Peings, G. Magnusdottir

9:30 A.M.

4A.5 *Examining the Forecast Skill of the Synoptic-Scale Flow Associated with Arctic Cyclones.* **Daniel Keyser**, Univ. at Albany, SUNY, Albany, NY; K. A. Biernat, L. F. Bosart

9:45 A.M.

4A.6 *Quantification of Arctic Sea-Ice-Driven Atmospheric Circulation Variability in Coordinated Large Ensemble Hindcast Simulations.* **Yu-Chiao Liang**, WHOI, Woods Hole, MA; Y. O. Kwon, C. Frankignoul, G. Danabasoglu, S. Yeager, A. Cherchi, Y. Gao, G. Gastineau, R. Ghosh, J. Mecking, D. Peano, L. Suo, T. Tian

8:30 A.M.–10:00 A.M.

33CVC**Session 4B: EL NIÑO–SOUTHERN OSCILLATION
(ENSO) DYNAMICS, DIVERSITY, PREDICTION,
AND IMPACTS. PART I –154**

8:30 A.M.

4B.1 *Identifying Equatorial Pacific Subseasonal Wind Event Impacts and Statistically Forecasting ENSO SSTa Development from Moored-Buoy and Scatterometer Winds.* **Andrew M. Chiodi**, Univ. of Washington, JISAO, and NOAA/PMEL, Seattle, WA

8:45 A.M.

4B.2 *Different Types of El Niño Transition Processes One Year after Its Occurrence.* **Sang Wook Yeh**, Hanyang Univ., South Korea, Ansan, Korea, Republic of (South)

9:00 A.M.

4B.3 *Why does the CP El Niño Less Frequently Change into La Niña than the EP El Niño?* **Shan He**, Sun Yat-sen Univ., Guangzhou, China; J. Y. Yu, S. Yang, S. W. Fang

9:15 A.M.

4B.4 *A Constraint of ENSO Complexity by Tropical Pacific Mean State.* **Jin-Yi Yu**, Univ. of California, Irvine, CA; S. W. Fang

9:30 A.M.

4B.5 *ENSO Asymmetry in Amplitude and Duration in a Linear Model with State-Dependent Noise.* **Daniel J. Vimont**, Univ. of Wisconsin, Madison, WI; C. Martinez-Villalobos, M. Newman, C. Penland, J. D. Neelin

9:45 A.M.

4B.6 *ENSO Persistence Barrier and Its Impact Factors as Revealed in CMIP5 Simulations.* **Hong-Li Ren**, Beijing Climate Center, China Meteorological Administration, Beijing, China; B. Tian

TUESDAY

8:30 A.M.–10:00 A.M.

33CVC

Session 4C: SEASONAL-TO-DECADAL CLIMATE PREDICTION. PART III –151A**Chairs:** Steve Yeager, NCAR, Boulder, CO

8:30 A.M.

4C.1 *Decadal Predictability of Late Winter Precipitation in Western Europe through an Ocean–Jet Stream Connection.* **Isla R. Simpson**, NCAR, Boulder, CO; S. Yeager, K. McKinnon, C. Deser

8:45 A.M.

4C.2 *Enhancing Skill of Initialized Decadal Predictions Using a Dynamic Model of Drift.* **Balasubramanya T. Nadiga**, LANL, Los Alamos, NM

9:00 A.M.

4C.3 *Decadal Prediction with an Ensemble of Ocean Analyses.* **Leon Hermanson**, Met Office Hadley Centre, Exeter, UK; D. M. Smith, N. Dunstone, R. Eade

9:15 A.M.

4C.4 *Understanding the Signal-to-Noise Paradox in Seasonal-to-Decadal Climate Predictions.* **Wei Zhang**, RSMAS, Miami, FL; B. Kirtman

9:30 A.M.

4C.5 *Forecasting Implications of Abrupt North Atlantic Climate Changes.* **James Johnstone**, Climate Forecasting Applications Network, Seattle, WA

9:45 A.M.

4C.6 *Quality Assessment of Decadal Climate Predictions with EC-Earth.* **Simon Wild**, Barcelona Supercomputing Center, Barcelona, Spain; R. Bilbao, Y. Ruprich-Robert, J. C. Acosta Navarro, A. E. Amaral Ramos, L. P. Caron, R. Cruz-García, F. J. Doblas-Reyes, M. G. Donat, P. Ortega, V. Sicardi, E. Tourigny

8:30 A.M.–10:00 A.M.

30WAF26NWP / 8WRN / FUTURESYP

Joint Panel Discussion 3: FUTURE CHALLENGES IN WEATHER ANALYSIS AND FORECASTING (CENTENNIAL) –257AB**Moderators:** S. W. Bieda, NWSFO, Amarillo, TX; Ryan A. Lagerquist, CIMMS, Norman, OK

Panelists: Louis Uccellini, NOAA, Silver Spring, MD; Marshall Shepherd, Univ. of Georgia, Athens, GA; Yvette Richardson, Pennsylvania State Univ., University Park, PA; Peter Neiley, The Weather Company, an IBM Business, Andover, MA; Betty Davis, WPLG ABC 10, Miami-Dade, Pembroke Park, FL; Neil A. Jacobs, National Oceanic and Atmospheric Administration

8:30 A.M.

Panel Discussion

9:45 A.M.

Memorial for Bill Lapenta

8:30 A.M.–10:00 A.M.

29EDUCATION

Session 3: EFFECTIVE STRATEGIES FOR INCREASING MINORITY PARTICIPATION IN THE ATMOSPHERIC SCIENCES –258C**Chairs:** Reginald Blake, New York City College of Technology, Brooklyn, NY; Janet Liou-Mark, New York City College of Technology, City Univ. of New York, Brooklyn, NY

8:30 A.M.

3.1 *A Journey through NOAA's Cooperative Science Center in Atmospheric Science (NCAS) to a Career in Operations at the National Weather Service.* **Janae N. Elkins**, NWS, Jackson, MS; V. Morris, C. Woods, W. Parker, J. P. Moore III, L. D. White, E. Keys

8:45 A.M.

3.2 *Pathways for Increasing and Advancing Diversity, Inclusion, and Equity: Getting beyond the Check.* **Vankita Brown**, NOAA/ NWS, Silver Spring, MD; A. Brinson, J. Sims, C. Woods

9:00 A.M.

3.3 *This Just In: A Handbook on Running Research Experiences for Undergraduates (REU) Programs in the Geosciences.* **Valerie Sloan**, NCAR, Boulder, CO; B. C. Bruno, D. Dalbotten, R. Haacker

9:15 A.M.

3.4 *Broadening Participation in the Earth System Sciences—What Can Be Achieved through Strategic Investment, Policy Changes, and Individual Commitment?* **Rebecca Haacker**, NCAR, Boulder, CO; R. Centeno, C. Hannay, B. Hatheway, R. S. Hornbrook, A. J. Lauer, A. Maute, L. Medina Luna, K. Morgan, K. Morgan, J. Ristvey Jr., A. Rockwell, V. Sloan, O. Wilhelm

9:30 A.M.

3.5 *John Henryism: The Impacts of Toxic Research Environments on Well-Being and Scientific Productivity.* **Brandon Jones**, National Science Foundation, Alexandria, VA

9:45 A.M.

3.6 *20 Years of Increasing Minority Participation in Atmospheric Sciences—The Howard Univ. Program.* **Vernon R. Morris**, Howard Univ., Washington, DC

8:30 A.M.–10:00 A.M.

26PROBSTAT

Session 4: ENSEMBLE AND MULTIMODEL FORECASTING, INCLUDING POSTPROCESSING AND DECISION SUPPORT –260**Chairs:** Andrew Geyer, Air Force Institute of Technology, Wright-Patterson AFB, OH; Johnna Infanti, NOAA, College Park, MD; Elizabeth Satterfield, NRL, Monterey, CA

8:30 A.M.

4.1 *Multimodel Tropical Cyclone Wind Field Forecasting.* **Mark D. Powell**, Risk Management Solutions, Tallahassee, FL; M. E. Kozar

8:45 A.M.

4.2 *Use of Mixture-Model Clustering to Inform Tropical Cyclone Track Forecasts.* **Alex M. Kowaleski**, The Pennsylvania State Univ., University Park, PA; J. L. Evans

9:00 A.M.

4.3 *Improving Meteorological Development Laboratory (MDL) Station-Based Model Output Statistics (MOS) for Wind Speed and Wind Gusts through Daily Bias Correction, Objective Weighting, and Blending.* **David E. Rudack**, NOAA/NWS, Silver Spring, MD

9:15 A.M.

4.4 *Regime-Dependent Verification and Calibration of a 10-Member Convection-Permitting Ensemble during the 2019 HWT SFE.* **Soleil Cotterell**, Georgetown Univ., Washington, DC; A. Johnson, X. Wang

9:30 A.M.

4.5 *An Exploration of the Analog Ensemble Search Space Extension and Spatiotemporal Reconstruction.* **Laura Clemente-Harding**, The Pennsylvania State Univ., State College, PA; G. S. Young, G. Cervone, W. Hu, S. E. Haupt, L. Delle Monache

9:45 A.M.

4.6 *Improved Point Estimates of Probabilistic Moments for Non-Gaussian Multivariate Environmental Modeling and Uncertainty Analysis.* **Christina Tsai**, National Taiwan Univ., Taipei, Taiwan; C. H. Hung

8:30 A.M.–10:00 A.M.**25APPLIED**

Session 3: DECISION SUPPORT SERVICES AT SUBSEASONAL-TO-SEASONAL (S2S) TIME SCALES. PART I –153A

Chair: Rebecca Bolinger, Colorado State Univ., Fort Collins, CO

8:30 A.M.

3.1 *User Engagement and Discovery of Needs for Climate Service.* **Fiona Horsfall**, NOAA/NWS, Silver Spring, MD; M. Timofeyeva, J. C. Meyers, V. Silva, M. M. Hurwitz, J. Zdrojewski

8:45 A.M.

3.2 *Overview of the S2S-Decadal Climate Services and Information Database.* **James Sims**, NOAA/OFCM, Silver Spring, MD; R. Branham

9:00 A.M.

3.3 *Putting Short-Term Phenology Forecasts on the Map.* **Alyssa Rosemartin**, USA National Phenology Network, Tucson, AZ; T. M. Crimmins, K. Gerst, E. Posthumus

9:15 A.M.

3.4 *NWS Jackson, Mississippi, Week Two Hazardous Weather Impact Assessments.* **Thomas Winesett**, NWS, Jackson, MS; B. Bryant, E. E. Carpenter, D. Cox, C. Entremont, N. Fenner, D. Lamb

9:30 A.M.

3.5 *User's Perspective and Decision-Making Process Based on S2S Extreme Precipitation Forecast Products—What We Learned during the PRES2iP Workshop.* **Paulina Cwik**, Univ. of Oklahoma, Norman, OK; E. R. Martin, R. McPherson, H. Lazrus, J. C. Furtado, E. Mullens, C. M. Kuster, M. J. Lamkin (nee Wagner)

9:45 A.M.

3.6 *Using Seasonal Prediction to Improve Decision-making in Drought Monitoring.* **Rebecca Bolinger**, Colorado State Univ., Fort Collins, CO

8:30 A.M.–10:00 A.M.**24IOAS**

Session 4A: DATA ASSIMILATION: NEW DEVELOPMENTS IN METHODOLOGY. PART I –259A

Chair: Steven J. Greybush, The Pennsylvania State Univ., University Park, PA

8:30 A.M.

4A.1 *Frequently Cycled Data Assimilation with Global MPAS at Convective-Allowing Resolution.* **James P. Cipriani**, The Weather Company, Andover, MA; K. Dixon, B. A. Wilt

8:45 A.M.

4A.2 *Incorporation of a New Non-Gaussian Solver in the Static Component of the Hybrid GSI System.* **Karina Apodaca**, CIMAS/ Univ. of Miami and NOAA/AOML/HRD, Miami, FL; S. J. Fletcher, B. Ménétrier, H. Lin, S. Weygandt

9:00 A.M.

4A.3 *Data Assimilation as an Effective Approach of Downscaling Coarse-Resolution Remotely Sensed Solar-Induced Chlorophyll Fluorescence.* **Min Chen**, Pacific Northwest National Laboratory, College Park, MD; C. C. Chang, E. E. Kalnay, Y. Liu, G. R. Asrar

9:15 A.M.

4A.4 *Multiscale Assimilation of Radar Reflectivity.* **Jagdeep Singh Sodhi**, McGill Univ., Montreal, Canada; F. Fabry

9:30 A.M.

4A.5 *Assimilating All-Sky Infrared Brightness Temperatures in an Ensemble Data Assimilation System Using a Nonlinear Bias Correction Method.* **J. A. Otkin**, Univ. of Wisconsin, Madison, WI; R. Potthast, A. Lawless

9:45 A.M.

4A.6 *Adaptive Radial Velocity Assimilation in the Warn-on-Forecast System.* **Christopher A. Kerr**, CIMMS/NSSL, Norman, OK; L. J. Wicker, P. S. Skinner

8:30 A.M.–10:00 A.M.**24IOAS**

Session 4B: FIELD EXPERIMENTS: OBSERVATIONAL AND ASSIMILATION RESULTS –259B

Chair: Lisa Bucci, NOAA/AOML, Miami, FL

8:30 A.M.

4B.1 *Extended Impact of Global Hawk Dropsonde Observations for Four Tropical Cyclone Cases in 2016.* **Andrew C. Kren**, Univ. of Miami/CIMAS and NOAA/AOML/HRD, Miami, FL; B. Annane, J. A. Sippel, X. Wu, L. Cucurull, G. Wick

8:45 A.M.

4B.2 *Analysis of Convective Structure from APR-2 and the DAWN Wind Lidar during the 2017 Convective Processes Experiment (CPEX): Impact of Assimilating DAWN Winds on the Precipitation and Flow Structure.* **F. Joseph Turk**, JPL, Pasadena, CA; S. M. Hristova-Veleva, S. Zhang, Z. S. Haddad, G. D. Emmitt, S. Greco

8:30 A.M.–10:00 A.M.

9:00 A.M.

4B.3 *Observational and Modeling Analysis of Land–Atmosphere Coupling over Adjacent Irrigated and Rainfed Cropland during the GRAINEX Field Campaign.* **Eric Rappin**, Western Kentucky Univ., Bowling Green, KY; R. Mahmood, U. S. Nair, R. A. Pielke Sr., W. O. J. Brown, S. P. Oncley, J. Wurman, K. Kosiba, A. Kaulfus, C. Phillips, J. A. Santanello Jr., E. J. Kim, P. Lawston

9:15 A.M.

4B.4 *Impact of Data Assimilation on Simulations of Continental Shallow Cumulus near the ARM Southern Great Plains Site during HI-SCALE.* **Sheng-Lun Tai**, PNNL, Richland, WA; J. D. Fast, W. I. Gustafson Jr., D. Chand, Z. Feng, R. Newson

9:30 A.M.

4B.6 *Impacts of Assimilating Doppler Aerosol Wind (DAWN) Wind Measurements on Numerical Simulations of Tropical Convection during the NASA Convective Processes Experiment (CPEX).* **Zhaoxia Pu**, Univ. of Utah, Salt Lake City, UT; Z. Cui, G. D. Emmitt, S. Greco

9:45 A.M.

4B.5 *Assimilation of HIWRAP Wind Observations from Hurricane Matthew (2016).* **Brittany A. Dahl**, Univ. of Miami/CIMAS, Miami, FL; K. J. Sellwood, J. A. Sippel, A. Aksoy, C. N. Helms, G. M. Heymsfield, L. Cucurull, G. Wick

8:30 A.M.–10:00 A.M.

22ATCHEM

Session 4A:ACMAP:ATMOSPHERIC CHEMISTRY MODELING AND ANALYSIS PROGRAM. PART I –206B

Chairs: Richard Eckman, NASA, Washington, DC; Kenneth W. Jucks, NASA Headquarters, Washington, DC, , NASA, Washington, DC

8:30 A.M.

4A.1 *Using Long Records of HCl to Understand Dynamical Processes Affecting Lower-Stratospheric Ozone Trends.* **Anne R. Douglass**, NASA, Greenbelt, MD; S. E. Strahan, L. D. Oman, R. S. Stolarski

8:45 A.M.

4A.2 *Quantification of Stratospheric Ozone Recovery Due to Anthropogenic Halogens.* **Ross J. Salawitch**, Univ. of Maryland, College Park, MD; W. Tribett, P. Wales, A. Hope, L. McBride, T. P. Canty, S. M. Frith, J. W. Hannigan, E. Mahieu, M. Prignon, L. D. Oman, D. E. Kinnison, V. Fioletov

9:00 A.M.

4A.3 *The Effects of a 1998 Observing System Change on MERRA-2-Based Ozone Profile Simulations.* **Ryan M. Stauffer**, NASA Postdoctoral Program, Greenbelt, MD; A. M. Thompson, L. D. Oman, S. E. Strahan

9:15 A.M.

4A.4 *Diurnal Variations in Stratospheric ClO Measured from Mauna Kea.* **Gerald E. Nedoluha**, NRL, Washington, DC; R. M. Gomez, I. Boyd, H. Neal, A. Parrish, B. J. Connor, D. R. Allen, M. Santee

8:30 A.M.–10:00 A.M.

9:30 A.M.

4A.5 *Analysis of Halogen Heterogeneous Chemistry in the Stratosphere and Near-Tropopause Regions Using Satellite Observations and Model Information.* **Douglas E. Kinnison**, NCAR, Boulder, CO; B. Zambri, S. Solomon

9:45 A.M.

4A.6 *Stratospheric Water Vapor under Global Warming: Climate Feedback and Impacts on Stratospheric Temperature and Circulation.* **Feng Li**, USRA, Greenbelt, MD; P. A. Newman

8:30 A.M.–10:00 A.M.

22ATCHEM

Session 4B:AIR QUALITY IMPACTS FROM ENERGY PRODUCTION AND GENERATION. PART I –207

Chairs: Roisin Commane, Columbia Univ., Palisades, NY; Lee Murray, Univ. of Rochester, Rochester, NY; Luke Schiferl, LDEO, Palisades, NY

8:30 A.M.

4B.1 *Open-Path Laser-Based Remote Sensing for Broad-Area CO_2 and CH_4 Emissions Monitoring, with Specific Application to Diffuse Sources.* **Jeremy T. Dobler**, Fort Wayne, IN; N. Blume, T. G. Pernini, T. S. Zaccheo

8:45 A.M.

4B.2 *Evaluating Trends in Mobile CO_2 Emissions Using a Near-Surface, High-Density Urban Monitoring Network.* **Ronald Cohen**, Univ. of California, Berkeley, CA; J. Kim, A. J. Turner, A. A. Shusterman, P. J. Wooldridge, C. Newman, K. A. Worthington

9:00 A.M.

4B.3 *Expanding the Boston Region Carbon Monitoring System: First 18 Months of Regular Total-Column Observations.* **Jonathan E. Franklin**, Harvard Univ., Cambridge, MA; J. Chen, E. W. Gottlieb, J. W. Budney, B. C. Daube, S. C. Wofsy

9:15 A.M.

4B.4 *Tracking Urban Emissions of Greenhouse Gases during the East Coast Outflow (ECO) Experiment.* **Colm Sweeney**, NOAA, Boulder, CO; G. Plant, E. Kort, C. Floerchinger

9:30 A.M.

4B.5 *Mobile Laboratory Measurements of Ozone, NO_2 , and Submicron PM Downwind of NYC during the 2018 LISTOS Field Intensive.* **James J. Schwab**, Univ. at Albany, SUNY, Albany, NY; J. Zhang, M. Ninneman, E. Joseph, M. J. Schwab, B. Shrestha

9:45 A.M.

4B.6 *Modeling Impacts of Energy and Non-Energy-Related Sources on Urban Air Quality (Invited Presentation).* **Brian McDonald**, CIRES and NOAA/ESRL/Chemical Sciences Division, Boulder, CO; S. McKeen, M. Li, R. Ahmadov, G. Gkatzelis, M. Coggon, C. Warneke, J. B. Gilman, J. Peischl, G. J. Frost, T. Ryerson, M. Trainer

8:30 A.M.–10:00 A.M.

22WXMOD / 12AEROSOL**Joint Session 12: HISTORY OF ICE NUCLEATION RESEARCH AND ITS IMPACT ON WEATHER MODIFICATION (CENTENNIAL) –105**

Chairs: Sarah A. Tessendorf, NCAR, Boulder, CO; Ottmar Moehler, Institute of Technology, Karlsruhe, Germany

8:30 A.M.

J12.1 *Early Research into Artificial Aerosols as Ice Nucleants (Invited Presentation).* **Andrew Detwiler**, Univ. of North Dakota, Grand Forks, ND

9:00 A.M.

J12.2 *Some Past Research on Cloud Seeding Aerosols and a Future Outlook (Invited Presentation).* **Paul J. DeMott**, Colorado State Univ., Fort Collins, CO

9:30 A.M.

J12.3 *The Use of In Situ Ice Nucleus Measurements in Cloud Seeding Research.* **Bruce A. Boe**, Weather Modification International, Fargo, ND

9:45 A.M.

J12.4 *Ice Nucleation and Weather Modification Researches in the Meteorological Research Institute.* **Masataka Murakami**, MRI, Tsukuba, Japan; N. Orikasa, T. Tajiri, A. Saito

8:30 A.M.–10:00 A.M.

21AIRPOL**Session 5: LABORATORY AND FIELD EXPERIMENTS OF ATMOSPHERIC DISPERSION PROCESSES –211**

Chairs: David Heist, EPA, Research Triangle Park, NC; Tom Spicer, Univ. of Arkansas, Fayetteville, AR

8:30 A.M.

5.1 *Jack Rabbit 2: 3D Velocity and Concentration Field Measurements in a Scaled Water Channel Model.* **Ty Homan**, U.S. Military Academy, West Point, NY; N. Wilde, M. Owkes, M. Benson, C. Elkins

8:45 A.M.

5.2 *Simulated Flow and Dispersion of the Jack Rabbit II Field Experiment within EPA's Fluid Modeling Facility Wind Tunnel.* **Michael Pirhalla**, EPA, Durham, NC; D. Heist, S. Perry, L. Brouwer, S. R. Hanna, S. P. Arya, V. P. Aneja

9:00 A.M.

5.3 *A Wind Tunnel Study to Examine the Edge Effects of Roadway Barriers.* **David Heist**, EPA, Research Triangle Park, NC; S. Perry, L. Brouwer

9:15 A.M.

5.4 *Wind Tunnel Simulations of Urban Dispersion in Stable and Convective Conditions.* **Matteo Carpentieri**, Univ. of Surrey, Guildford, UK; D. Marucci

9:30 A.M.

5.5 *Three-Dimensional Flow Structure of a Simulated Atmospheric Boundary Layer Using a Modified Irwin Spire-Roughness Technique.* **Tom Spicer**, Univ. of Arkansas, Fayetteville, AR; J. Morris, J. Arthur

9:45 A.M.

5.6 *A SAVANT Case Study: Aerosol Transport in Drainage/Converging Flows at a Shallow Gully.* **Junming Wang**, Univ. of Illinois, Champaign, IL; D. A. R. Kristovich, A. Hiscox

8:30 A.M.–10:00 A.M.

20SMOI**Session 4: ADVANCING CLIMATE SCIENCE THROUGH THE APPLICATION OF MICROMETEOROLOGICAL THEORY AND TECHNIQUES –203**

Chair: Timothy J. Griffis, Univ. of Minnesota, Twin Cities, St. Paul, MN

8:30 A.M.

4.1 *Universal Scaling Law for Gas Transfer Velocities across Complex Interfaces.* **Gabriel G. Katul**, Duke Univ., Durham, NC; H. Liu, C. Manes

8:45 A.M.

4.2 *Impact of Climate Variations on Nitrous Oxide Emissions during Spring Wheat Growing Seasons in Eastern Canada—Micrometeorological Measurements, STICS Model Verification, and Long-Term Simulations.* **Elizabeth Pattey**, Agriculture and Agri-Food Canada, Ottawa, Canada; G. Jégo, J. Léonard

9:00 A.M.

4.3 *Recent Advances and an Overview of the Surface Renewal Method for Measuring Scalar Exchange.* **Kyaw Tha Paw U**, Univ. of California, Davis, CA; J. Clay, M. R. Mangan, M. I. McAuliffe, K. Suvočarev

9:15 A.M.

4.4 *Understanding and Managing Nitrous Oxide Emissions from Agricultural Soils: Knowledge Gained through Year-Round Micrometeorological Measurements.* **Claudia Wagner-Riddle**, Univ. of Guelph, Guelph, Canada

9:30 A.M.

4.5 *Toward an Annual Carbon Dioxide Budget for the Arctic Tundra.* **Elyn R. Humphreys**, Carleton Univ., Ottawa, Canada; G. Meyer, J. R. Melton, P. M. Lafleur

9:45 A.M.

4.6 *Sensitivity of Modeled Leaf Temperature to Canopy Radiative Transfer Formulations.* **Zachary Moon**, The Pennsylvania State Univ., University Park, PA; J. D. Fuentes

8:30 A.M.–10:00 A.M.

20ARAM**Session 4: SCALING DOWN THE WEATHER TO SUPPORT URBAN AIR MOBILITY –206A**

Chairs: Kevin Johnston, FAA, Washington, DC; Anders Jensen, NCAR, Boulder, CO

8:30 A.M.

4.1 *Weather Challenges for Emerging Modes of Aerial Transportation.* **Matthias Steiner**, NCAR, Boulder, CO; J. Boehnert, W. Deierling, A. Dumont, J. A. Grim, K. Ikeda, D. Jacobsen, T. Keller, C. Kessinger, G. Meymaris, D. Munoz Esparza, J. M. Pearson, J. O. Pinto, A. Rugg, H. Shin, K. Stone

8:45 A.M.

4.2 *Evolving the Helicopter Emergency Medical Services (HEMS) Tool.* **Stephanie Avey**, NWS/NCEP/AVC, Kansas City, MO; A. Cross, D. Vietor

9:00 A.M.

4.3 *Flying Safe in Dallas–Fort Worth—Meeting the Weather-Alerting Needs of Drone and Air Taxi Operators.* **Apoorva Bajaj**, Univ. of Massachusetts, Amherst, MA; B. Philips, E. Lyons, D. Westbrook, E. Huffman

9:15 A.M.

4.4 *Building Resolving Urban Microscale Weather for UAS/UAM Applications.* **Paul Bieringer**, Aeris, Louisville, CO; A. Annunzio, G. Bieberbach Jr., H. J. J. Jonker

9:30 A.M.

4.5 *Building-Resolving LES within the GPU-Accelerated FastEddy Model: Toward Street-Scale Weather Forecasting.* **Jeremy Sauer**, NCAR, Boulder, CO; D. Munoz-Esparza, H. Shin, R. D. Sharman, B. Kosovic, M. Steiner

9:45 A.M.

4.6 *Observations of the Microscale Urban Wind Field Impacting UAVs Using Scanning Doppler Lidar.* **Ludovic Thobois**, Leosphere, Saclay, France; D. Sathiyarayanan, R. Parmentier

8:30 A.M.–10:00 A.M.

19AI**Session 3A: AI APPLIED TO AIRBORNE OR SPACEBORNE EARTH OBSERVATION DATASETS –156A**

Chairs: James M. Kurdzo, MIT Lincoln Laboratory, Lexington, MA; Sid Boukabara, NOAA/NESDIS, College Park, MD

8:30 A.M.

3A.1 *NN Technique for Producing Consistent Ocean Color Data for Assimilation in Ocean Models.* **Vladimir Krasnopolsky**, NOAA, College Park, MD

8:45 A.M.

3A.2 *Machine Learning for inpainting QuikSCAT winds in Hawaii's Lee Region.* **William Chapman**, SIO, La Jolla, CA; T. J. Kilpatrick

9:00 A.M.

3A.3 *Using Deep Learning to Extract Regions of Interest (ROI) in Real Time from Geostationary Satellite Data.* **Christina Kumler**, NOAA, Boulder, CO; J. Stewart, D. Hall, M. Govett

9:15 A.M.

3A.4 *The Optimal Single-Scattering Properties for Retrieving Ice Cloud Properties Based on Machine Learning Techniques.* **Yi Wang**, Texas A&M Univ., College Station, TX; P. Yang, Y. Huang

9:30 A.M.

3A.5 *Neural Network Techniques for Hyperspectral IR Profiling of Cloudy Atmospheres.* **Adam B. Milstein**, MIT Lincoln Laboratory, Lexington, MA; W. J. Blackwell

9:45 A.M.

3A.6 *Optical Flow for Intermediate Frame Interpolation of Multispectral Geostationary Satellite Data.* **Thomas Vandal**, NASA/BAERI, Mountain View, CA; R. Nemani

8:30 A.M.–10:00 A.M.

19AI**Session 3B: HIGH-IMPACT WEATHER PREDICTION WITH AI –156B**

Chairs: Montgomery L. Flora, Univ. of Oklahoma, CIMMS, NSSL/NOAA, Norman, OK; Stephan R. Sain, Jupiter Intelligence, Boulder, CO

8:30 A.M.

3B.1 *Generating Ensemble-Derived Next-Day Probabilistic Severe Weather Forecasts with Machine Learning.* **Eric D. Loken**, CIMMS/Univ. of Oklahoma, Norman, OK; A. J. Clark

8:45 A.M.

3B.2 *Regional High-Impact Hail Forecasting Using Random Forests.* **Amanda Burke**, CAPS/Univ. of Oklahoma, Norman, OK; N. Snook, A. McGovern

9:00 A.M.

3B.3 *Using Machine Learning to Advance Next-Day Probabilistic Convective Hazard Prediction with Convection-Allowing Models.* **Ryan A. Sobash**, NCAR, Boulder, CO; D. J. Gagne II, C. S. Schwartz, D. A. Ahijevych

9:15 A.M.

3B.4 *Using Machine Learning to Improve Storm-Scale 1-h Probabilistic Forecasts of Severe Weather.* **Montgomery L. Flora**, Univ. of Oklahoma, CIMMS, NSSL/NOAA, Norman, OK; C. Potvin, P. Skinner, A. McGovern

9:30 A.M.

3B.5 *Local Severe Storm Warning in Preconvection Stage with High Temporal Resolution Measurements from Advanced Baseline Imager Onboard GOES-R Series.* **Zheng Ma**, CIMSS/Univ. of Wisconsin, Madison, WI; Z. Li, J. Li, J. Sun

9:45 A.M.

3B.6 *Multiprior LSTM (mpLSTM): Predicting Visibility with Uncertainties from Complex Background States.* **Yunlong Meng**, Shanghai Em-Data Technology Co., Ltd., Shanghai, China; Y. Xiao, F. Qi, H. Zuo, X. Guo, Z. Yan, C. Lu

8:30 A.M.–10:00 A.M.

I8COASTAL**Session 4: COUPLED FORECASTING OF EXTREME WEATHER AND COASTAL FLOOD EVENTS. PART III –158**

Chairs: Chester Huang, Department of the Interior, New Orleans, LA; Gregory Dusek, NOAA, Silver Spring, MD

8:30 A.M.

4.1 *Latest Developments in the NWS Sea Lake and Overland Surges from Hurricanes Model.* **Arthur A. Taylor**, NWS, Silver Spring, MD; H. Liu

8:45 A.M.

4.2 *Latest Developments in the NWS Probabilistic Extratropical Storm Surge Model.* **Huiqing Liu**, NWS, Silver Spring, MD; A.A. Taylor

9:00 A.M.

4.3 *Latest Developments in the NWS Probabilistic Tropical Cyclone Storm Surge Model.* **Tatiana D. Gonzalez**, NWS, Silver Spring, MD; A.A. Taylor

9:15 A.M.

4.4 *Efficient Wave–Surge Coupling with SLOSH-Wave for Hispaniola.* **Dongming Yang**, IMSG at NOAA/NWS/NCEP, College Park, MD; A. Van der Westhuisen, J. R. Rhome, C. Fritz

9:30 A.M.

4.5 *Development of a Coupled Hydrologic–Hydrodynamic–Wave Flood Forecasting System for Lake Champlain.* **Jesse Feyen**, GLERL, Ann Arbor, MI; D. Beletsky, D. Titze, L. Mason, E. J. Anderson, L. Read, W. Saunders, P.Y. Chu

9:45 A.M.

4.6 *iFLOOD: Multiscale–Multitemporal Total Water and Nearshore Waves Guidance System for the Chesapeake Bay and the National Capital Region.* **Arslaan Khalid**, George Mason Univ., Fairfax, VA; C. Ferreira, J. C. Elliott

8:30 A.M.–10:15 A.M.

I8HISTORY**Session 4: AMS CENTENNIAL MONOGRAPH—100 YEARS OF PROGRESS. PART I (CENTENNIAL) –104A**

Chairs: Lourdes Avilés, Plymouth State Univ., Plymouth, NH; Greg McFarquhar, Univ. of Oklahoma, Norman, OK

8:30 A.M.

4.1 *AMS: 100 Years of Supporting the Scientific Community.* **Keith Seitter**, American Meteorological Society, Boston, MA; J. Nathans, S. Mankins

8:45 A.M.

4.2 *100 Years of Progress in Atmospheric Observing Systems.* **Jeffrey L. Stith**, NCAR, Broomfield, CO; D. Baumgardner, J. Haggerty, R. M. Hardesty, W. C. Lee, D. Lenschow, P. Pilewski, M. Steiner, H. Vömel

9:00 A.M.

4.3 *Satellites View the World.* **Steven Ackerman**, CIMSS/AOS/Univ. of Wisconsin, Madison, WI

9:15 A.M.

4.4 *50 Years of Satellite Remote Sensing of the Ocean.* **Lee-Lueng Fu**, Jet Propulsion Laboratory, Pasadena, CA; T. Lee, W.T. Liu, R. Kwok

9:30 A.M.

4.5 *100 Years of Progress in Understanding the General Circulation of the Atmosphere.* **Isaac M. Held**, Princeton Univ., Princeton, NJ

9:45 A.M.

4.6 *100+ Years toward Understanding the Ocean Circulation.* **Carl Wunsch**, Massachusetts Institute of Technology, Cambridge, MA; R. Ferrari

10:00 A.M.

4.7 *Progress in Understanding the Dynamics of Coupled Atmosphere–Ocean Variability.* **David S. Battisti**, Univ. of Washington, Seattle, WA; D. J. Vimont, B. Kirtman

8:30 A.M.–10:00 A.M.

I7SPACEWX**Session 5: HANDLING VULNERABILITIES AND RISKS: POWER GRIDS, AVIATION, AND COMMUNICATION NETWORKS –205A**

Chairs: William Bauman, FAA NextGen Aviation Weather Division, Washington, DC; Robert Rutledge, NWS/SWPC, Boulder, CO

8:30 A.M.

5.1 *Federal Railroad Administration User Needs (Invited Presentation).* **Sam Alibrahim**, Federal Railroad Administration, Washington, DC

8:45 A.M.

5.2 *Magnetic Storm Geoelectric Hazard Maps and the Induction of Voltages on Power Grids.* **E. Joshua Rigler**, USGS, Denver, CO; J. J. Love, G. Lucas, P.A. Bedrosian, A. Kelbert

9:00 A.M.

5.3 *Lessons Learned in Latin America from the WMO/IICA Space Weather Services Initiative (Invited Presentation).* **Joaquim E. R. Costa**, INPE, Sao Jose dos Campos, Brazil; J. E. R. Costa, C. M. D. Nardin, J. Valdivia, S. Dasso, J. A. Gonzalez-Esparza, A. Meza, M. P. Natali, L. P. O. Mendoza

9:15 A.M.

5.4 *Challenges and Complexities of Space Weather Forecasting (Invited Presentation).* **William J. Murtagh**, NOAA, Boulder, CO

9:30 A.M.

5.5 *Exploratory Research on Defining Ionizing Radiation Effects on Flight Crews (Invited Presentation).* **Sonia Alvidrez**, FAA, Atlantic City, NJ

9:45 A.M.

5.6 *Space Weather Effects on Communications Systems (Invited Presentation).* **Mark MacAlester**, Cybersecurity and Infrastructure Security Agency, Arlington, VA

TUESDAY

8:30 A.M.–10:00 A.M.

I6GOESRJPSS / I0R2O / 8JCSDA / 3SMALLSATS
Joint Session I3: NATIONAL AND INTERNATIONAL
PROGRAM OVERVIEWS FOR ENVIRONMENTAL
SATELLITES (INVITED) –253B

Chairs: Mitch Goldberg, NOAA/NESDIS/JPSS, Lanham, MD; D. Lindsey, NOAA/NESDIS/GOES-R, Ft. Collins, CO

8:30 A.M.

J13.1 *A Future of Collaboration: The Continuing Evolution of a Global Integrated Observing System (Invited Presentation).* **Stephen Volz**, NOAA, Silver Spring, MD

9:00 A.M.

J13.2 *Joint Polar Satellite System (JPSS): Building on Past Satellite Successes to Ensure a Bright Future! (Invited Presentation).* **Greg Mandt**, JPSS, Lanham, MD

9:15 A.M.

J13.3 *GOES East Meets West (Invited Presentation).* **P. Sullivan**, NOAA, Greenbelt, MD

9:30 A.M.

J13.4 *The EUMETSAT Satellite Programs—A Cornerstone of the Space-Based Global Observing System (Invited Presentation).* **K. Holmlund**, European Organisation for Exploitation of Meteorological Satellites, Darmstadt, Germany; P. Schluessel, J. Grandell, D. Klaes, R. Munro, B. Bojkov

9:45 A.M.

J13.5 *Current Status and Future Plan of the KMA Satellite Program (Invited Presentation).* **Hyun-Kyung Kim**, National Meteorological Satellite Center, Korea Meteorological Administration

8:30 A.M.–10:00 A.M.

I5SOCIETY
Panel Discussion I: POLICY LEADERSHIP IN
WEATHER, WATER, AND CLIMATE. PART I –
BALLROOM EAST

Moderators: Paul A. T. Higgins, AMS, Washington, DC; Michael Moloney, American Institute of Physics, College Park, MD; Shali Mohleji, IBM, Washington, DC

8:30 A.M.

Introductory Remarks.

8:45 A.M.

PD1.1 *Policy Leadership in Weather, Water, and Climate: Part I.* **David Kenny**, CEO and Chief Diversity Officer at Nielsen, Boston, MA

9:00 A.M.

Panel Discussion.

8:30 A.M.–10:00 A.M.

I5SOCIETY
Session 4A: BEYOND THE SPECIFICS:
REFLECTIONS AND INSIGHTS ON THE BIGGER
PICTURE –152

Chairs: Donald J. Wuebbles, Univ. of Illinois, Urbana, IL; Julie L. Demuth, NCAR, Boulder, CO

8:30 A.M.

4A.1 *We Hear User Requirements but Are We Listening?* **Michael C. Kruk**, KBR, Inc., Asheville, NC; R. R. Heim Jr., R. S. Vose

8:45 A.M.

4A.2 *Calls to Action in Retrospect: Hurricane Michael Survivors Describe Best Practices and Lessons Learned.* **Laura Myers**, Center for Advanced Public Safety, Univ. of Alabama, Tuscaloosa, AL; J. Senkbeil, T. Johnstone, J. L. Fieaux, J. Pullin, W. Dobbs, J. P. Camp, L. Powell

9:00 A.M.

4A.3 *NWS Service Assessments: A Social, Behavioral, and Economic Science Review.* **Michael S. Michaud**, Univ. of Delaware, Newark, DE; J. Trainor

9:15 A.M.

4A.4 *Understanding Service Assessments as Enterprise Learning Tools: Reflections from the Road Well Traveled.* **Susan A. Jasko**, University of Alabama, Tuscaloosa, AL

9:30 A.M.

4A.5 *Representing People in Severe Weather Warning Systems.* **Brenda Philips**, Univ. of Massachusetts, Amherst, MA; D. Westbrook, J. Trainor, E. Lyons, C. League, A. Bajaj

9:45 A.M.

Discussion.

8:30 A.M.–10:00 A.M.

I5SOCIETY
Session 4B: THE STORM INSIDE: THE PERSONAL
SIDE OF COMMUNICATING HAZARDOUS
WEATHER INFORMATION. PART I –151B

Chairs: Richard Smith, NOAA/NWS, Norman, OK; Christina Crowe, NOAA/NWS, Kansas City, MO

8:30 A.M.

4B.1 *Boiling Point: NWS Employees and Mental Illness.* **Crystal Worley**, NWS, Cheyenne, WY

8:45 A.M.

4B.2 *Implementing Physical Health Best Practices into High-Impact Weather Operations.* **Melissa J. Lamkin**, CIMMS, Norman, OK; B. Mayes Boustead, J. G. Gibbs

9:00 A.M.

4B.3 *Postevent Deployment Activities for the Beauregard, Alabama, Tornado.* **Christopher B. Darden**, NOAA/NWS, Calera, AL

9:15 A.M.

4B.4 *A Psychologist and a Meteorologist Walk into a Bar: A Candid Discussion of Mental Health in Personal and Meteorological Contexts.* **Matthew J. Bolton**, Saint Leo Univ., Saint Leo, FL; R. DePodwin

9:30 A.M.

Discussion.

8:30 A.M.–10:00 A.M.

I | URBAN

Session 4: AIR QUALITY AND HEALTH IMPACTS IN URBAN ENVIRONMENT –104B

Chairs: Robert Bornstein, Institute of Urban Meteorology, China Meteorological Administration, Beijing, China; Haider Taha, Altostratus, Inc., Martinez, CA

8:30 A.M.

4.1 *An Adjoint Probability Inverse Modelling Method for Air Pollutant Source Determination with Applications to a Complex Urban Environment.* **Yi Wang**, NCAR, Boulder, CO; Y. Xue, J. C. Knievel, Z. Zhai

8:45 A.M.

4.2 *The Environmental Neighborhoods of Cities and Their Spatial Extent.* **Elie Bou-Zeid**, Princeton Univ., Princeton, NJ; M. Llaguno Munitxa

9:00 A.M.

4.3 *High-Resolution Assessment of Pedestrian Exposure to Air Pollution in a Real Urban Hot Spot.* **Jose Luis Santiago**, CIEMAT, Research Center for Energy, Environment and Technology, Madrid, Spain; R. Borge, B. Sanchez, C. Quaassdorff, D. de la Paz, A. Martilli, E. Rivas, F. Martin

9:15 A.M.

4.4 *Urban Spatial Monitoring of Pollutants Using Light-Rail-Based Sensor Systems.* **Alexander A. Jacques**, Univ. of Utah, Salt Lake City, UT; D. L. Mendoza, E. T. Crosman, L. E. Mitchell, B. Fasoli, J. C. Lin, J. D. Horel

9:30 A.M.

4.5 *Studying the Interrelationships between Urban Tropospheric NO₂ and Downwelling Radiation on Ozone and Aerosol Formation..* **Barry Gross**, City College and the CUNY Graduate Center, New York, NY; F. Moshary, M. Layachi

9:45 A.M.

4.6 *What Have Studies on Urban Greenhouse Gas Emissions Taught Us about Urban Meteorological Simulations?* **Kenneth J. Davis**, The Pennsylvania State Univ., University Park, PA; N. Balashov, Z. Barkley, A. Deng, L. Diaz-Isaac, S. Feng, B. Gaudet, T. Lauvaux, N. Miles, Y. Pan, S. Richardson, D. P. Sarmiento

8:30 A.M.–10:00 A.M.

I | AEROSOL

Session 4: AEROSOL-CLOUD INTERACTIONS IN WARM CLOUDS. PART I –208

Chairs: Alison Nugent, ANL, Lemont, IL; Virendra Gbate, Argonne National Laboratory, Lemont, IL; Hanii Takahashi, JIFRESSE, Univ. of California, Pasadena, CA

8:30 A.M.

4.1 *Aerosol First Indirect Effects: Uncertainties and Influential Factors as Inferred from Ample Measurements.* **Jianjun Liu**, Univ. of Maryland, College Park, MD

8:45 A.M.

4.2 *Two Missing Key Ingredients in Unlocking the Aerosol and Warm Cloud Interactions (Invited Presentation).* **Youtong Zheng**, Univ. of Maryland, College Park, MD

9:00 A.M.

4.3 *Physical Properties of Marine Aerosols and Influences by Meteorology during the CFOG Campaign.* **Nicole A Chisholm**, Dalhousie Univ., Halifax, Canada; B. Nagare, C. Wainwright, E. D. Creegan, H. J. S. Fernando, R. Y. W. Chang

9:15 A.M.

4.4 *Constraining Responses of Cloud and Precipitation to Aerosol Perturbations: Satellite Observations and Global Climate Models.* **Takuro Michibata**, Kyushu Univ., Kasuga, Japan; K. Suzuki, T. Takemura

9:45 A.M.

4.5 *Differences in Aircraft-Observed Cloud Microphysical Properties between Along-Wind and Cross-Wind Flight Paths during ACE-ENA.* **Xiquan Dong**, Institute of Heavy Rain, CMA, Wuhan, Wuhan, China; D. Ward, P. Wu, X. Zheng, B. Xi

8:30 A.M.–10:00 A.M.

I | ENERGY

Session 5: RESOURCE ASSESSMENT. PART I –256

Chairs: Angel McCoy, Bureau of Ocean Energy Management, Sterling, VA; Jeffrey Freedman, Univ. at Albany, Albany, NY

8:30 A.M.

5.1 *Consistency of Reanalysis Data for Wind Resource Assessment.* **Matthew Livingston**, RESurety, Inc., Boston, MA; J. Newman, C. Ostridge, S. Hall

8:45 A.M.

5.2 *Suitability of Reanalysis Data for Wind Plant Revenue Estimation.* **Jennifer F. Newman**, RESurety, Inc., Boston, MA; M. Livingston, C. Ostridge, S. Hall, A. Perry

9:00 A.M.

5.3 *Characterization of Surface-Layer Turbulence Using Scanning Lidar Data at the WFIP-2 Site.* **Raj K. Rai**, PNNL, Richland, WA; R. Newsom, L. K. Berg, C. M. Kaul, J. D. Mirocha, A. Choukulkar, A. W. Brewer, Y. Pichugina, R. Banta

9:15 A.M.

5.4 *The Cost of Shear Uncertainty in an Era of Higher Hub Heights.* **Daniel A. Pollak**, RESurety, Boston, MA; M. Larkin

9:30 A.M.

5.5 *Solar Shape: An Indication of Future Solar Value.* **Will Harrop**, RESurety, Inc., Boston, MA; M. Putnam, D. L. Oates

9:45 A.M.

5.6 *Improving the Accuracy of the National Solar Radiation Database (NSRDB) using High-Resolution Data.* **Manajit Sengupta**, National Renewable Energy Laboratory, Golden, CO; A. Habte, Y. Xie, G. Buster, G. Maclaurin, M. Rossol, M. J. Foster, A. K. Heidinger

8:30 A.M.–10:00 A.M.

I I HEALTH

Session 4: UNDERSTANDING, PREDICTING, AND PROVIDING EARLY WARNING FOR CLIMATE-SENSITIVE INFECTIOUS DISEASES –153B

Chairs: Hunter Jones, NOAA, Silver Spring, MD; Kacey Ernst, The Univ. of Arizona, Phoenix, AZ; Jean-Paul Chretien, OSTP, Washington D.C.

8:30 A.M.

4.1 Seasonal Forecasts for Climate-Sensitive Infectious Diseases: Experimental Federal Efforts. **John Balbus**, National Institute of Environmental Health Sciences, Bethesda, MD; C. Rublee, H. M. Jones

8:45 A.M.

4.2 CHIKRisk App: Global Mapping and Predicting Chikungunya Risk. **Radina Soebiyanto**, GSFC, Greenbelt, MD; A. Anyamba, R. Damoah, W. Thiaw, K. Linthicum

9:00 A.M.

4.3 Diagnostic Study of Seasonal Prediction of Malaria: Case of Senegal, West Africa. **Ibrahima Diouf**, NOAA/NWS/NCEP, Climate Prediction Center, College Park, MD; W. M. Thiaw, P. H. KAMSU-TAMO

9:15 A.M.

4.4 Forecasting Infectious Diseases Both with and without Climate Forcing. **Jeffrey Shaman**, Columbia Univ., New York, NY

9:30 A.M.

4.5 Modeling the Seasonal Risk of *Aedes aegypti* Transmitted Viruses under Current and Projected Future Climate in the Tropical Americas. **Cory W. Morin**, Univ. of Washington, Seattle, WA

9:45 A.M.

4.6 The Effect of Weather and Population Factors on Dengue Fever Incidence in Saudi Arabia. **Kholood K. Altassan**, Univ. of Washington, Seattle, WA; C. Morin, J. J. Hess

8:30 A.M.–10:00 A.M.

I OR2O

Panel Discussion I: BEST PRACTICES, PRIVATE–PUBLIC PARTNERSHIPS, AND MULTICOMMUNITY EFFORTS FOR THE TRANSITION OF R2O IN THE WEATHER, WATER, AND CLIMATE ENTERPRISES INCLUDING SUCCESSES, FAILURES, AND LESSONS LEARNED—PART I [PANEL DISCUSSION] –252A

Moderator: Craig McLean, NOAA/OAR, Silver Spring, MD

8:30 A.M.

PD1.1 A Simplified NCEP Prediction Suite for the NWS (Invited Presentation). **Brian Gross**, NOAA/NWS/NCEP, College Park, MD

8:30 A.M.

PD1.2 Transitioning Research to Operations: A Program and Laboratory Perspective. **John V. Cortinas**, OAR, Miami, FL

8:30 A.M.

PD1.3 Toward an Operational NOAA GEO Hyperspectral Infrared Sounder. **Dr. Elsayed R Talaat**, NOAA, Silver Spring, MD; L. W. Uccellini, S. M. Volz

8:30 A.M.

PD1.4 Experiences with Tech Transfer from the Perspective of a Foot Soldier in OAR. **Heather D. Reeves**, OU/CIMMS and NOAA/OAR/NSSL, Norman, OK

8:30 A.M.

PD1.5 Operationalizing New Radar Technology Developed by Industry. **Nicolas Powell**, Raytheon Corporation, Colorado Springs, CO; K. F. Brueske, C. P. McCarroll

9:00 A.M.

Panel Discussion.

8:30 A.M.–10:00 A.M.

I OR2O

Session 4: R2O PROGRESS IN GNSS RADIO OCCULTATIONS AND REFLECTOMETRY FOR NUMERICAL WEATHER PREDICTION, IONOSPHERIC STUDIES AND PREDICTION, AND OCEAN SURFACE PROPERTIES –25I

Chairs: Shu-Peng (Ben) Ho, NOAA/NESDIS/STAR, College Park, MD; C. Cao, NOAA/NESDIS/STAR, College Park, MD

8:30 A.M.

4.1 RO Data Exploitation to Optimize the Impact of COSMIC-2 to Improve Global and Hurricane Numerical Weather Forecasts at NOAA. **Lidia Cucurull**, NOAA/AOML, Miami, FL; K. Rosado, R. A. Anthes, R. J. Purser

8:45 A.M.

4.2 GNSS-RO Data Assimilation Advancement and Implementation at JCSDA and NCEP. **Hui Shao**, JCSDA, College Park, MD; H. Zhang, S. Dutta, F. vandenbergh, J. Yoe, A. Collard, D. Kleist, T. Auligné

9:00 A.M.

4.3 The 17-year Radio Occultation Meteorology Satellite Application Facility (ROM SAF) Radio Occultation Climate Data Record. **Kent B. Lauritsen**, Danish Meteorological Institute, Copenhagen, Denmark; H. Gleisner, J. Nielsen, S. Syndergaard

9:15 A.M.

4.4 Intercomparison of Hyperspectral Infrared Sounders with Simulated Radiances from GNSS-RO Inputs. **Erin M. Lynch**, CICS, College Park, MD; F. Iturbide-Sanchez, S. P. Ho, C. Cao

9:30 A.M.

4.5 Error Assessments in the GNSS Radio Occultation Excess Phase/Bending Angle Calculation. **B. Zhang**, CISS/ESSIC, Univ. of Maryland, College Park, MD; S. P. Ho, X. Shao, C. Cao

9:45 A.M.

4.6 NOAA Integrated Cal/Val System for Radio Occultation Performance Monitoring and Data Quality Assurance. **Xinjia Zhou**, GST Inc., Greenbelt, MD; S. P. Ho, C. Cao

8:30 A.M.–10:00 A.M.

8WXCLIMATE**Panel Discussion 2: SAVING MORE LIVES AND LIVELIHOODS IN THE NEXT CENTURY: THE ERA OF OPERATIONAL ECOLOGICAL FORECASTING –254A****Moderator:** Marie C. Colton, Hydros, LLC, Midlothian, VA**Panelists:** Gary C. Matlock, NOAA, Silver Spring, MD; Michael Dietze, Boston Univ., Boston, MA; Ru Morrison, Northeastern Regional Association of Coastal and Ocean Observing Systems (NERACOOS), Portsmouth, NH

8:30 A.M.

Panel Discussion.

8:30 A.M.–9:15 A.M.

8JCSDA**Session 1: LAND, OCEAN, AND CRYOSPHERE DATA ASSIMILATION –254B****Chairs:** Kevin Garrett, STAR, College Park, MD; Andrew Fox, NCAR, Boulder, CO

8:30 A.M.

I.1 *Land Data Assimilation at the JCSDA: Plans and Progress.* **Andrew M. Fox**, UCAR, Boulder, CO

8:45 A.M.

I.2 *Toward Coupled Data Assimilation in the NASA GEOS System: Developments in the Ocean Context.* **Ron Gelaro**, NASA/GSFC, Greenbelt, MD; R. B. Mahajan, G. Vernieres, T. Sluka, S. Akella

9:00 A.M.

I.3 *Sea–Ice Ocean Coupled Assimilation at the JCSDA: Preliminary Results of a JEDI-Based Data Assimilation System for the Marine Component of the NOAA/EMC Coupled Model.* **Guillaume Vernieres**, NOAA, College Park, MD; T. Sluka, H. Ebrahimi, R. B. Mahajan, S. Flampouris, J. Kim, J. Meixner, J. Kuang, S. Paturi

8:30 A.M.–10:00 A.M.

5INTERNATIONAL**Session 1: DROUGHT IN THE AMERICAS: PARTNERSHIPS AND COOPERATION ACROSS BOUNDARIES –212****Chair:** Roger Pulwarty, NOAA, Boulder, CO

8:30 A.M.

I.1 *Comparison of Spatiotemporal Trends on Drought Characteristics Using Meteorological Drought Indices (SPI and EDI) in the United States.* **Won-Ho Nam**, Hankyong National Univ., Anseong, Korea, Republic of (South); T. Kim

8:45 A.M.

I.2 *The Coordination between Ibero-American Networks on Water, Weather, and Climate Change.* **Jorge Tamayo**, AEMET, Valencia, Spain

9:00 A.M.

I.3 *The Drought Information System for Southern South America.* **Guillermo Podesta**, Independent Scholar, Key Biscayne, FL; M. Skansi, C. Saulo, V. Silva, J. Baez Benitez, M. Renom, O. Leal de Moraes, R. Rodas, R. S. Pulwarty, R. Stefanski, J. Camacho, F. Assis Diniz, G. Carrasco, G. Sampaio, R. Gutierrez Cisterna

9:15 A.M.

I.4 *Building Weather Awareness Through Innovative Public-Private Partnerships.* **Matthew Alto**, AccuWeather, State College, PA

9:30 A.M.

I.5 *Mitigating Climate Impacts on Society: Climate Services Toolkit Coordination, Development, and Implementation.* **Marina Timofeyeva**, NOAA/NWS, Silver Spring, MD; R. Pulwarty, P. Hechler, A. Hovsepyan, M. Dilley, J. P. Ceron

8:30 A.M.–10:00 A.M.

4PREDICTABILITY / 30WAF26NWP / 24IOAS / 5INTERNATIONAL**Joint Session 14: JOINT SESSION ON SCALE INTERACTIONS AND PREDICTABILITY—IN MEMORY OF FUQING ZHANG: PART I –104C****Chair:** Kerry Emanuel, Massachusetts Institute of Technology, Cambridge, MA

8:30 A.M.

J14.1 *The Role of Observations in Advancing Earth Science Prediction (Invited Presentation) (Core Science Keynote).* **G. L. Stephens**, JPL, Pasadena, CA

9:00 A.M.

J14.2 *Data Assimilation and Ensembles: Two Invaluable Tools to Increase Predictability and Quantify Uncertainty (Invited Presentation).* **Roberto Buizza**, Scuola Superiore Sant'Anna, Pisa, Italy

9:30 A.M.

J14.3 *Forecast Error Growth of Convective Processes through Nonlinear Interaction between Dynamical and Moisture Initialization Uncertainties (Invited Presentation).* **Masashi Minamide**, JPL, Pasadena, CA; F. Zhang, D. J. Posselt

8:30 A.M.–10:00 A.M.

TROPSYMPI**Session 1: TROPICAL CYCLONE RESEARCH AND FORECASTING. PART I: PREDICTION –205B****Chairs:** Eric Blake, NHC, Miami, FL; Scott Braun, NASA GSFC, Greenbelt, MD

8:30 A.M.

I.1 *Recent Progress and Challenges in Tropical Cyclone Intensity Prediction Using COAMPS-TC.* **James D. Doyle**, NRL, Monterey, CA; J. R. Moskaitis, Y. Jin, W. A. Komaromi, S. Chen, H. Jin, A. Reinecke, Q. Zhao, D. P. Stern

8:30 A.M.–10:00 A.M.

8:45 A.M.

I.2 *A Gridded Version of the National Hurricane Center Official Forecasts to Support Operations at National Centers and Weather Forecast Offices. Part I: Model Formulation.* **M. DeMaria**, NOAA/NWS/NHC, Miami, FL; P. Santos Jr., M. Onderlinde, G. Demaria, O. Ostwald

9:00 A.M.

I.3 *Hurricane Forecast Improvement Program (HFIP) Next-Generation Strategies: Reengineering the Hurricane Analysis Forecast System (HAFS).* **Dorothy M. Koch**, NOAA/NWS/NCEP, Silver Spring, MD; F. D. Marks, E. Rappaport, S. Gopalakrishnan, V. Tallapragada, A. Mehra, N. Lett, S. Upadhayay

9:15 A.M.

I.4 *NOAA's Intensity Forecasting Experiment: Past, Present, and Future.* **R. F. Rogers**, NOAA/AOML/HRD, Miami, FL

9:30 A.M.

I.5 *Development of a Convection-Permitting Air–Sea Coupled Ensemble Data Assimilation System for Tropical Cyclone Prediction.* **Xingchao Chen**, The Pennsylvania State Univ., University Park, PA; F. Zhang

9:45 A.M.

I.6 *A Probabilistic, Large-Ensemble Approach to Tropical Cyclone Forecasting.* **Jonathan Lin**, MIT, Cambridge, MA; K. A. Emanuel, J. L. Vigh

8:30 A.M.–10:00 A.M.

MIDDLESYMP

Session 1: 100 YEARS OF PROGRESS IN UNDERSTANDING THE MIDDLE ATMOSPHERE. PART I –255

Chairs: Sean M. Davis, NOAA/ESRL, Boulder, CO; Rei Ueyama, NASA, Moffett Field, CA

8:30 A.M.

I.1 *A Breathtaking Discovery (Literally): Taking It to the Next Layer.* **Thomas Birner**, Ludwig-Maximilians-Univ. of Munich, Munich, Germany

9:00 A.M.

I.2 *The Stratospheric Mean Meridional Circulation.* **Karen H. Rosenlof**, NOAA/ESRL, Boulder, CO

9:30 A.M.

I.3 *The Quasi-Biennial Oscillation and Predictability.* **M. Joan Alexander**, NorthWest Research Associates, Boulder, CO; L. A. Holt

8:30 A.M.–10:00 A.M.

SLSSYMPOSIUM I

Session 1: FIELD OBSERVATIONS OF PHYSICAL PROCESSES TO UNDERSTAND SEVERE STORMS –258B

Chairs: John Allen, Central Michigan Univ., Mt. Pleasant, MI; Pamela Heinselman, NSSL, Norman, OK, NSSL, Norman, OK

8:30 A.M.

I.1 *Mesoscale Convective Systems in Nature and in Models.* **Matthew D. Parker**, North Carolina State Univ., Raleigh, NC

10:30 A.M.–12:00 P.M.

8:45 A.M.

I.2 *Low-Level Winds in Tornadoes.* **Karen A. Kosiba**, Center for Severe Weather Research, Boulder, CO; J. Wurman, P. Robinson

9:00 A.M.

I.3 *Targeted Observation by Radars and UAS of Supercells (TORUS): Summary of the 2019 Field Campaign.* **Adam L. Houston**, Univ. of Nebraska, Lincoln, NE; B. Argrow, M. C. Coniglio, E. W. Frew, E. N. Rasmussen, C. C. Weiss, C. L. Ziegler

9:15 A.M.

I.4 *TORUS 2019 Highlights from the TTUKa Mobile Doppler Radars.* **Christopher C. Weiss**, Texas Tech Univ., Lubbock, TX; A. Schueth, A. L. Houston

9:30 A.M.

I.5 *How Environmental Streamwise Vorticity Modulates the Streamwise Vorticity Current.* **Alex Schueth**, Texas Tech Univ., Lubbock, TX; C. C. Weiss

9:45 A.M.

I.6 *Spring 2019 Aboveground Thermodynamic Observations in Convective Storms from Balloon-Borne Probes Acting as Pseudo-Lagrangian Drifters.* **Elissa A. Bartos**, The Pennsylvania State Univ., University Park, PA; P. M. Markowski, Y. P. Richardson

9:15 A.M.–10:00 A.M.

8JCSDA

Session 2: FUNDAMENTALLY NEW DEVELOPMENTS WITH THE CRTM –254B

Chairs: Daryl T. Kleist, NCEP, College Park, MD; Guillaume Vernieres, UCAR, Boulder, CO

9:15 A.M.

2.1 *Community Radiative Transfer Model, Version 3.0: Progress and Science Highlights.* **Benjamin T. Johnson**, UCAR/JCSDA, College Park, MD; P. Stegmann, J. Rosinski

9:30 A.M.

2.2 *Enhancing CRTM in Absorption, Single-Scattering Properties, and Multiple-Scattering Calculation with Polarization.* **Ping Yang**, Texas A&M Univ., College Station, TX; J. Ding, M. Saito, J. J. Coy

9:45 A.M.

2.3 *Invariance and Symmetry Methods in the Development of a Polarized CRTM.* **Patrick Stegmann**, UCAR, Hyattsville, MD

10:30 A.M.–12:00 P.M.

PRESESSIONS / 15SOCIETY

Session 6: BRIDGING THE GULF BETWEEN METEOROLOGISTS AND HUMANITARIAN OPERATIONS –210AB

Panelists: Lori Peek, Univ. of Colorado, Boulder, CO; Henry Huntington, Weather and Society, Eagle River, AK

10:30 A.M.–12:00 P.M.

PRESESSIONS / 15SOCIETY / 8WXCLIMATE
Session 5: THE FUTURE OF FINANCIAL WEATHER
AND CLIMATE RISK MANAGEMENT. PART II:
CLIMATE EXTREMES –252B

Panelists: Carl Spector, City of Boston, Boston, MA; Phillip Duffy, Woods Hole Research Center, Falmouth, MA; Chris Goolgasian, Wellington Management, Boston, MA; Michael Chen, PanAgora Asset Management, Boston, MA; Roger Grenier, AIR and Verisk Analytics, Boston, MA; Suzana Camargo, Lamont-Doherty Earth Observatory, Columbia Univ., Palisades, NY

10:30 A.M.

Panel Discussion.

10:30 A.M.–12:00 P.M.

DICKINSONSYMP / 34HYDRO
Joint Session 15: LAND SURFACE MODELING
AND REMOTE SENSING (E.G., INTEGRATION OF
REMOTE SENSING DATA WITH LAND MODELING,
LAND MODEL DEVELOPMENT, LAND COVER/
LAND-USE CHANGE) –210C

Chair: Xubin Zeng, The Univ. of Arizona, Tucson, AZ

10:30 A.M.

J15.1 *Challenges in Modeling Biosphere–Atmosphere Interactions.*
Inez Fung, Univ. of California, Berkeley, CA

11:00 A.M.

J15.2 *Multidecadal MODIS and VIIRS Climate Products.* **Crystal Schaaf**, Univ. of Massachusetts, Boston, MA; Z. Wang, A. Elmes, Q. Sun, A. Erb, F. Gao, W. Lucht, A. Strahler

11:15 A.M.

J15.3 *The Remote Effects of Tibetan Plateau Spring Land Temperature on Global Summer Precipitation—The GEWEX/GASS/LS4P First Phase Activity.* **Yongkang Xue**, Univ. of California, Los Angeles, CA; I. Diallo, T. Yao, A. A. Boone, X. Zeng, Y. Liu, W. K. M. Lau, C. Ardilouze, Q. Bao, J. Feng, W. Guo, D. Klocke, M. S. Koo, X. Li, Z. Lin, S. K. Saha, F. Vitart, R. Senan, C. Shi, Y. Takaya, Q. Tang, H. Wei, M. Zhao, T. LS4P Team

11:30 A.M.

J15.4 *Lessons Learned from IPHEX—Challenges to the Representation of Low-Level Aerosol–Cloud–Precipitation Interactions in Models.* **Ana P. Barros**, Duke Univ., Durham, NC; S. P. Chavez, Y. Duan

11:45 A.M.

J15.5 *A Review of the Global Soil Property Maps for Earth System Models.* **Wei Shangguan**, Sun Yat-sen Univ., Guangzhou, China; Y. Dai

10:30 A.M.–12:00 P.M.

48BROADCAST
Panel Discussion 1: STATION SCIENTIST. PART II –204AB

Moderator: Joe Murgo, WTAJ-TV, Altoona, PA

Panelists: Bernadette Woods Plackey, Climate Central, Princeton, NJ; Ed Maibach, George Mason Univ., Fairfax, VA

10:30 A.M.

PD1.1 *Attributing Extreme Weather Events to Climate Change.* **J. Marshall Shepherd**, Univ. of Georgia, Athens, GA

11:00 A.M.

PD1.2 *Crafting the Climate Story: Best Practices in Climate Communication for Meteorologists.* **Bernadette Woods Plackey**, Climate Central, Princeton, NJ; E. Maibach

10:30 A.M.–12:00 P.M.

36EIP
Session 5A: AWIPS SYSTEM UPDATES. PART II –157C

Chairs: William F. Roberts, NOAA, Boulder, CO; J. E. Burks, CIRA, Huntsville, AL; Maxwell Grover, Univ. of Illinois, Urbana, IL

10:30 A.M.

5A.1 *Improving the Software Development Life Cycle for NWS AWIPS.* **Scott Jacobs**, NOAA/NWS, Silver Spring, MD; A. Rivera, K. P. Johnson, R. Peter, S. S. Schotz, E. Mandel, W. Sellers

10:45 A.M.

5A.2 *A Cloud Environment for AWIPS Development, Testing, and Training: Update and Future Plans.* **Scott Jacobs**, NOAA/NWS, Silver Spring, MD; A. Rivera, K. S. Sperow, J. E. Burks, D. A. Morris, W. Sellers

11:00 A.M.

5A.3 *National Weather Service AWIPS Developer Training Course.* **J. E. Burks**, CIRA, Huntsville, AL

11:15 A.M.

5A.4 *New Approaches to AWIPS Configuration Training in the National Weather Service Using Hazard Services.* **Eric P. Jacobsen**, CIMMS/Univ. of Oklahoma and NWS/OCLO/WDTD, Norman, OK; M. A. Magsig, D. A. Morris

11:30 A.M.

5A.5 *Advancing Advanced Weather Interactive Processing System (AWIPS) Capabilities and Methods at Center Weather Service Units (CWSUs) through Collaboration and Teamwork.* **David Tomalak**, Tomalak, NWS, Arvada, CO

11:45 A.M.

5A.6 *Using AWIPS for Product Development at the Weather Prediction Center.* **Diana R. Stovern**, CIRES, Boulder, CO; J. A. Nelson Jr.

10:30 A.M.–12:00 P.M.

36EIP
Session 5B: GIS AND THE FOUR CS OF
CONTEXTUALIZE, COLLABORATE, CONVEY, AND
CLOUD –209

Chairs: John B. Settlermaier, NOAA/NWS, Fort Worth, TX; Daniel P. Pisut, Esri, Redlands, CA

10:30 A.M.

5B.1 *Contextualizing, Collaborating on, and Conveying NWS Information with Geographic Information Systems (GIS).* **Kari L. Sheets**, NWS, Bohemia, NY; S. Gilbert, A. Hardy, N. Parikh, D. Rinker

TUESDAY

10:30 A.M.–12:00 P.M.

10:45 A.M.

5B.2 *Blending GIS Tools to Generate Visualizations for Drought.* Gov. **Rocky G. Bilotta**, ISciences and NOAA/NESDIS/National Centers for Environmental Information, Asheville, NC; S. Ansari, A. M. Courtright

11:00 A.M.

5B.3 *Communicating Risks and Impacts of Probabilistic Precipitation Forecasts and River Stage.* **Jennifer Boehnert**, NCAR, Boulder, CO; T. Hopson, E. Riddle

11:15 A.M.

5B.4 *Leveraging Cloud-Based Data for Generating Multisensor Flood Maps in Myanmar.* **Amanda M. Weigel**, Univ. of Alabama, Huntsville, AL; K. Markert, F. Chisthie, T. Mayer, A. Haag, B. Bhandari, M. Kwant, W. van Verseveld, D. Saah, P. Towashiraporn, K. Phongsapan, K. Matheswaran

11:30 A.M.

5B.5 *Earth, Air, Fire, and Water: Integrating Visualization of Weather and Land Processes with Mapservices.* **Sam Batzli**, Univ. of Wisconsin, Madison, WI; D. Parker, R. Dengel, N. Bearson

11:45 A.M.

5B.6 *An Integrated GIS and Big Data Platform for Meteorological Disaster Risk Management and Its Application.* **Guofu Wang**, BCC, Beijing, China; Y. Li, S. Sun, W. Hou, A. Feng

10:30 A.M.–12:00 P.M.

34HYDRO

Session 6A: EXTREME RAINFALL AND HYDROLOGIC EXTREMES. PART II –253C

Chairs: John W. Nielsen-Gammon, Texas A&M Univ., College Station, TX; Kelly Mahoney, NOAA, Boulder, CO; Kenneth Kunkel, North Carolina State Univ., Raleigh, NC; Bill D. Kappel, Applied Weather Associates, Monument, CO

10:30 A.M.

6A.1 *Climate Context of the 2018–19 Mississippi River and Tributaries Floods.* **James Noel**, NWS, Wilmington, OH; T. Rench, M. Wheeler, B. M. Astifan, J. Grascchel, C. B. Loveland, S. D. Buan, K. Low, E. T. Jones

10:45 A.M.

6A.2 *The Historical 2018–19 Mississippi River Flood Event: A NWS Lower Mississippi River Forecast Center (LMRFC) Perspective.* **Suzanne Van Cooten**, Lower Mississippi River Forecast Center, Slidell, LA; J. S. Grascchel, D. Welch, J. Smith, A. Hayes-Patterson, G. Tillis-Nash, D. Schlotzhauer, C. D. Pearce, A. Roberts, M. J. Czikowsky, E. Nipper, J. F. Lesko, K. Roth

11:00 A.M.

6A.3 *An Overview of the 9 January 2018 Extreme Flash Flood and Debris Flow Event in Montecito, California.* **Jayme L. Laber**, NOAA/NWS, Oxnard, CA

11:15 A.M.

6A.4 *A National Extreme Storm Database for Infrastructure Assessments.* **John England**, U.S. Army Corps of Engineers,

10:30 A.M.–12:00 P.M.

Lakewood, CO; G. W. Hayes III, C. D. McWilliams, B. P. Mulcahy, T. W. Parzybok, M. Mika

11:30 A.M.

6A.5 *An Evaluation of NOAA Atlas 14 for Extreme Rainstorms in Colorado and the United States.* **Robert D. Jarrett**, Flood and Paleoflood Science, LLC, Lakewood, CO

11:45 A.M.

6A.6 *Empirical Relationships for Regional Quantification of Probable Maximum Precipitation (PMP) and Probable Maximum Floods (PMF).* **Bill D. Kappel**, Applied Weather Associates, Monument, CO; B. D. Keim, G. V. Sabol, E. Caudill, S. Gaungul, N. Haws, J. Keeling

10:30 A.M.–12:00 P.M.

34HYDRO

Session 6B: LAND DATA ASSIMILATION TECHNIQUES AND SYSTEMS. PART II –253A

Chairs: Clara S. Draper, USRA, Columbia, MD; Sujay Kumar, GSFC, Greenbelt, MD; Rolf Reichle, NASA, Greenbelt, MD; Youlong Xia, NCEP/EMC/IMSG, College Park, MD

10:30 A.M.

6B.1 *SMOS Neural Network Soil Moisture Data Assimilation (Invited Presentation).* **Nemesio Rodríguez-Fernández**, CNRS, Toulouse, France; P. de Rosnay, F. Aires, C. Albergel, M. Drusch, Y. Kerr, C. Prigent, S. Mecklenburg, J. Muñoz Sabater, P. Richaume

10:45 A.M.

6B.2 *Assimilation of Vegetation Optical Depth Retrievals from Passive Microwave Radiometry.* **Sujay V. Kumar**, NASA GSFC, Greenbelt, MD; T. Holmes, R. de Jeu, R. Bindlish, C. Peters-Lidard

11:00 A.M.

6B.3 *A Monte Carlo–Based Adaptive Kalman Filtering Framework for Soil Moisture Data Assimilation.* **Alexander Gruber**, KU Leuven, Heverlee, Belgium; G. J. M. De Lannoy, W. Crow

11:15 A.M.

6B.4 *Reduced Adjoint Variational Data Assimilation for Estimation of Soil Moisture Profile.* **Leila Farhadi**, George Washington Univ., Washington, DC; P. Heidari, U. Altaf

11:30 A.M.

6B.5 *Introducing a Hybrid Ensemble and Variational Data Assimilation Method for Improved Hydrologic Predictability.* **Hamid Moradkhani**, Univ. of Alabama, Tuscaloosa, AL; P. Abbaszadeh, K. Gavahi

11:45 A.M.

6B.6 *Hydro-DART: Ensemble Streamflow Assimilation with WRF-Hydro and the Data Assimilation Research Testbed.* **Timothy J. Hoar**, NCAR, Boulder, CO; M. El Gharamti, J. McCreight, S. Noh, A. Rafieeinasab

10:30 A.M.–12:00 P.M.

33CVC

**Session 5A: ARCTIC MIDLATITUDE LINKAGES.
PART II –150****Chair:** Brian Rose, Univ. of Albany, SUNY, Albany, NY

10:30 A.M.

5A.1 *The Role of a Tropopause Polar Vortex in the January 2019 Arctic Outbreak.* **Samuel P. Lillo**, Univ. of Oklahoma, Norman, OK; S. M. Cavallo, D. B. Parsons, C. P. Riedel

10:45 A.M.

5A.2 *Examining the Relationship between Tropopause Polar Vortices and Stratospheric Variability.* **Cameron R. Paquette**, Univ. at Albany, SUNY, Albany, NY; A. L. Lang

11:00 A.M.

5A.3 *A Comparison of the Predictability of Arctic and Atlantic Basin Cyclones.* **Peyton K. Capute**, Univ. at Albany, SUNY, Albany, NY; R. D. Torn

11:15 A.M.

5A.4 *The Role of the Tropically Excited Arctic Warming Mechanism on the Warm Arctic Cold Continent Surface Air Temperature Trend Pattern.* **Joseph P. Clark**, The Pennsylvania State Univ., University Park, PA; S. Lee

11:30 A.M.

5A.5 *Relation between Arctic Moisture Flux and Tropical Temperature Biases in CMIP5 Simulations and Its Fingerprint in RCP8.5 Projections.* **Sukyoung Lee**, The Pennsylvania State Univ., University Park, PA; C. Woods, R. Caballero

11:45 A.M.

5A.6 *Influence of Northward Heat Transport on Arctic Amplification in the Community Earth System Model Version 1 Large Ensemble.* **Young-Oh Kwon**, WHOI, Woods Hole, MA; L. Fleming, R. Vargas-Martes, G. Gebbie, H. Furey

10:30 A.M.–12:00 P.M.

33CVC

**Session 5B: EL NIÑO–SOUTHERN OSCILLATION
(ENSO) DYNAMICS, DIVERSITY, PREDICTION.
AND IMPACTS. PART II –154****Chair:** Stephen Baxter, NOAA/CPC, College Park, MD

10:30 A.M.

5B.1 *The Randomness of Extreme El Niño Events.* **Alexey Fedorov**, Yale Univ., New Haven, CT; S. Yu

10:45 A.M.

5B.2 *Governing Processes of Extreme El Niño and Implications for Future Projections.* **Agus Santoso**, Univ. of New South Wales, Sydney, Australia; W. Cai, G. Wang

11:00 A.M.

5B.3 *ENSO Precipitation Variations Using Passive Microwave and Radar Observations from TRMM and GPM.* **Jian-Jian Wang**, Univ. of Maryland, College Park, MD; R. F. Adler

11:15 A.M.

5B.4 *Climatology and Variability of Warm and Cold Fronts over North America.* **John T. Allen**, Central Michigan Univ., Mount Pleasant, MI; R. A. Lagerquist, A. McGovern

11:30 A.M.

5B.5 *On the Seasonality and Linearity of the El Niño Teleconnection to the Amundsen Sea Region.* **Amanda Maycock**, Univ. of Leeds, Leeds, UK; Y. Y. S. Yiu

11:45 A.M.

5B.6 *Impacts of the Combined Effect of ENSO Regimes and MJO on Daily Precipitation over the Amazon Basin: A Focus on Southern Peruvian Highland.* **Juan C. Sulca**, Instituto Geofísico del Perú, Lima, Peru; V. Mayta

10:30 A.M.–12:00 P.M.

33CVC

**Session 5C: SEASONAL-TO-DECADAL CLIMATE
PREDICTION. PART IV –151A****Chairs:** Steve Yeager, NCAR, Boulder, CO; Sarah Larson, North Carolina State Univ., Raleigh, NC

10:30 A.M.

5C.1 *Reliability and Usability of Climate Predictions and Projections.* **Daniel J. Belfort**, Univ. of Oxford, Oxford, UK; C. H. O'Reilly, D. MacLeod, A. Weisheimer

10:45 A.M.

5C.2 *Isolating a Coupled Climate Signal Using the Interactive Ensemble Modeling Approach to Study Climate Variability and Dynamic Processes in the North Pacific Ocean.* **Natalie Perlin**, Univ. of Miami, Miami, FL; B. Kirtman

11:00 A.M.

5C.3 *Exploring Seasonal-to-Decadal Predictability of Climate Extremes by Combining High-Resolution Climate Modeling with Big Data Analytics (Invited Presentation).* **Ping Chang**, Texas A&M Univ., College Station, TX; D. Fu, S. Yeager, W. C. Hsu, G. Danabasoglu, L. Wu, S. Zhang

11:30 A.M.

5C.4 *Using the Ocean to Identify Forecasts of Opportunity for Decadal Prediction.* **Benjamin A. Toms**, Colorado State Univ., Fort Collins, CO; E. A. Barnes, J. Hurrell

11:45 A.M.

5C.5 *Understanding the Role of Decadal Climate Prediction for Flood Risk and Water Resource Management.* **James M. Done**, NCAR, Boulder, CO; T. Das, H. Lazrus, R. E. Morss, A. Munévar, E. Towler, M. Tye

10:30 A.M.–12:00 P.M.

30WAF26NWP

Session 4A: ADVANCES IN DYNAMICS AND PHYSICS OF NUMERICAL WEATHER MODELS. PART I –257AB

Chairs: Jessie C. Carman, OAR, Silver Spring, MD; Louisa Nance, NCAR and Developmental Testbed Center, Boulder, CO

10:30 A.M.

4A.1 Vertical Resolution Requirements for NWP models.

William C. Skamarock, NCAR, Boulder, CO; C. Snyder, J. Klemp, S. H. Park

10:45 A.M.

4A.2 The Navy's Next-Generation NEPTUNE Modeling System.

James D. Doyle, NRL, Monterey, CA; A. Reinecke, J. Michalakes, K. C. Viner, S. Gabersek, M. Martini, D. D. Flagg, D. R. Ryglicki, A. Huang, F. X. Giraldo

11:00 A.M.

4A.3 Dynamics–Physics Coupling in the New GEM Dynamical Core with Height-Based Vertical Coordinates. **Syed Zahid Husain**, EC, Dorval, Canada; C. Girard, A. Qaddouri

11:15 A.M.

4A.4 Vertical Extension of NCEP FV3 for Whole Atmospheric Modeling. **Sajal K. Kar**, NOAA/NWS/NCEP, College Park, MD; H. M. H. Juang, A. Kubaryk

11:30 A.M.

4A.5 Upgrade of Land Surface Processes in JMA's Operational Global NWP Model. **Takashi Nabetani**, JMA, Tokyo, Japan; T. Tokuhira, C. Matsukawa, H. Yonehara

11:45 A.M.

4A.6 A Generalized Z-Grid Numerical Prediction Model for Improving Stability and Efficiency. **Yuanfu Xie**, Chinese Academy of Meteorological Sciences, Beijing, China

10:30 A.M.–12:00 P.M.

30WAF26NWP

Session 4B: ANALYSIS AND FORECASTING OF WINTER WEATHER. PART I –258A

Chair: Martin A. Baxter, Central Michigan Univ., Mount Pleasant, MI

10:30 A.M.

4B.1 Application of Recent Northeast Cool-Season CSTAR Conceptual Models to Three March 2018 Snowstorms Impacting Eastern New York and Western New England. **Thomas A. Wasula**, NOAA/NWS, Albany, NY; M. S. Evans

10:45 A.M.

4B.2 Use of Gridded Snowfall from NOAA's Office of Water Prediction at the Weather Prediction Center. **Gregory W. Carbin**, NOAA/NWS/Weather Prediction Center, College Park, MD; G. Fall, D. Petersen

11:00 A.M.

4B.3 How Should Snow Squall Warnings Be Verified? **Peter C. Banacos**, NWS, Burlington, VT

11:15 A.M.

4B.4 Maximizing Interactive Decision Support Services for Road Maintenance and Visitors at Yosemite National Park by Identifying Biases in HRRR Snow-Level Predictions. **Kristian Mattarochia**, NWS, Hanford, CA

11:30 A.M.

4B.5 Characteristics of Sea-Effect Precipitation Systems in the Heavy Snow Region of Japan. **W. James Steenburgh**, Univ. of Utah, Salt Lake City, UT; P. G. Veals, T. West, T. M. Gowan, S. Nakai

11:45 A.M.

4B.6 What Allows Some Freezing Rain Events to Persist for Many Hours? A Focus on Dynamic and Thermodynamic Processes. **Christopher D. McCray**, McGill Univ., Montréal, Canada; J. R. Gyakum, E. H. Atallah

10:30 A.M.–12:00 P.M.

29EDUCATION / 8EARLYCAREER / DEISYMP

Joint Session 16: LEARNING DOES NOT STOP AFTER COLLEGE: CONTINUING EDUCATION AND MENTORING IN METEOROLOGY –258C

Chairs: Shakila Merchant, NOAA Center for Earth System Sciences and Remote Sensing Technologies, New York, NJ; Jared Rennie, NCICS/North Carolina State Univ., Asheville, NC

10:30 A.M.

J16.1 Becoming a Stormbreaker at Cape Canaveral: A First-Hand Look at the U.S. Air Force's Early Career Program for Civilian Meteorologists. **Brian Cizek**, U.S. Air Force, CCAFS/Patrick AFB, FL

10:45 A.M.

J16.2 Effective Strategies to Engage Atmospheric Scientists in Online Professional Development: Meeting the Demands of a Rapidly Changing Workforce. **Morgan Brown Yarker**, Yarker Consulting, Cedar Rapids, IA; M. D. S. Mesquita

11:00 A.M.

J16.3 Encountering Sexism in the Field: How to Maintain Composure as an Expert, while Shutting down Toxic Behavior. **Kathleen M. Magee**, National Weather Service, Huntsville, AL; A. Ravenscraft

11:15 A.M.

J16.4 AMS Early Career Leadership Academy. **Matthew C. Lacke**, Jefferson County Department of Health, Birmingham, AL; R. DePodwin, A. K. Anderson-Frey, J. Rennie, A. R. Cook, C. Vagasky, B. V. Smoliak, M. Newberry Jr.

11:30 A.M.

Panel Discussion.

10:30 A.M.–12:00 P.M.

26PROBSTAT

Session 5: NOVEL METHODS IN VERIFICATION –260

Chairs: Tara Jensen, NCAR, Boulder, CO; Jason J. Levit, NOAA, College Park, MD; Michelle Harold, NCAR, Boulder, CO

10:30 A.M.

5.1 Background Fit to Satellite Observations. **William F. Campbell**, NRL, Monterey, CA

10:45 A.M.

5.2 *Understanding Forecast Verification from a Design of Experiments Perspective.* **Jeffrey A. Smith**, Army Research Laboratory, White Sands Missile Range, NM; J. W. Raby, J. L. Cleveland, R. S. Penc

11:00 A.M.

5.3 *Next-Generation Air Force Weather Metrics via Bayes Cost Analysis.* **Brandon M. Bailey**, Air Force Institute of Technology, Wright-Patterson AFB, OH; A. J. Geyer

11:15 A.M.

5.4 *Hypothesis Tests of Approximate Equality for Evaluating Forecasts as Functional Objects.* **Leif Ellingson**, Texas Tech Univ., Lubbock, TX; D. Bandara, S. Ghosh

11:30 A.M.

5.5 *The Model Evaluation Tools (MET): Recent Additions and Enhancements.* **John E. Halley Gotway**, NCAR, Boulder, CO; T. L. Jensen, R. G. Bullock, H. Soh, D. W. Fillmore, J. Prestopnik

10:30 A.M.–12:00 P.M.**25APPLIED**

Session 4: DECISION SUPPORT SERVICES AT SUBSEASONAL-TO-SEASONAL (S2S) TIME SCALES. PART II –153A

Chair: Emily Becker, RSMAS, Miami, FL

10:30 A.M.

4.1 *From Drought to Floods: Communicating Climate Impacts of the Middle East and Southwest Asia Winter 2018/19.* **Andrew D. Lahr**, US Air Force, Asheville, NC

10:45 A.M.

4.2 *Water Security Indicators Web-Application.* **Kayla A. Cotterman**, U.S. Army Corps of Engineers, Vicksburg, MS; D. Baston, J. Brinks, S. D. Christensen, M. W. Farthing, M. P. Geheran, T. M. Parris, M. Rashid, A. M. Rhodes, K. H. Sparrow, M. D. Wahl, E. M. Yeates

11:00 A.M.

4.3 *NASA's Seasonal Hydrological Forecast System for Improved Food Insecurity Early Warning in Africa.* **K. R. Arsenault**, NASA GSFC/SAIC, Greenbelt, MD; A. Hazra, S. Shukla, A. McNally, A. Getirana, C. D. Peters-Lidard, S. V. Kumar, R. Koster, B. F. Zaitchik, K. Slinski, C. C. Funk, J. P. Verdin

11:15 A.M.

4.4 *Subseasonal Prediction for Water Management: Reclamation Forecast Rodeo I and II.* **Ken Nowak**, U.S. Bureau of Reclamation, Denver, CO; J. Beardsley, L. D. Brekke, I. Ferguson, D. Raff

11:30 A.M.

4.5 *Utilizing Climate Predictions for Health.* **Amanda Quintana**, U.S. Global Change Research Program, Washington, DC; H. M. Jones, J. Balbus

11:45 A.M.

4.6 *Being Weather Ready Starts with Being Climate Smart.* **Marina Timofeyeva**, NOAA/NWS, Silver Spring, MD; F. Horsfall, J. C. Meyers, V. Silva, M. M. Hurwitz, J. Zdrojewski

10:30 A.M.–12:00 P.M.**24IOAS**

Session 5A: DATA ASSIMILATION: NEW DEVELOPMENTS IN METHODOLOGY. PART II –259A

Chair: Daryl T. Kleist, NCEP, College Park, MD

10:30 A.M.

5A.1 *Hybrid-Gain versus Hybrid-Covariance Data Assimilation.* **Jeffrey S. Whitaker**, NOAA/Earth System Research Laboratory, Boulder, CO; S. G. Penny

10:45 A.M.

5A.2 *Adaptive Localization for Satellite Radiance Observations in Global and Regional Models.* **Lili Lei**, Nanjing Univ., Nanjing, China; J. S. Whitaker, J. Anderson, Z. M. Tan

11:00 A.M.

5A.3 *Analysis and Design of Covariance Inflation Methods Using Spectral Transformations.* **Le Duc**, JAMSTEC, Yokohama-City, Japan; K. Saito, D. Hotta

11:15 A.M.

5A.4 *Multigrid Beta Function Approach for Modeling of Background Error Covariance in the Real-Time Mesoscale Analysis (RTMA).* **Miodrag Rancic**, MSG, College Park, MD; R. J. Purser, M. Pondeva, G. Zhao, R. Yang, S. Levine, R. B. Mahajan, J. R. Carley

11:30 A.M.

5A.5 *Strongly Coupled Land–Atmosphere Data Assimilation and Its Influence on Weather Forecasting.* **Zhaoxia Pu**, Univ. of Utah, Salt Lake City, UT; L. F. Lin

11:45 A.M.

5A.6 *Efforts to Evaluate Shortwave Observations from the CrIS Hyperspectral Infrared Instrument in the NOAA Global Data Assimilation System.* **Erin Jones**, UMD CISESS at NOAA/NESDIS/STAR, College Park, MD; C. Barnett, Y. Ma, K. Garrett, K. Ide, S. A. Boukabara

10:30 A.M.–12:00 P.M.**24IOAS**

Session 5B: VERTICAL CHARACTERIZATION FROM SATELLITE SOUNDERS: CONTRIBUTIONS TO IMPROVE OUR UNDERSTANDING OF THERMODYNAMICS, CONVECTION, SEVERE WEATHER, AIR QUALITY, AND CLIMATE CHANGE –259B

Chair: Mayra I. Oyola, JPL, Pasadena, CA

10:30 A.M.

5B.1 *Atmospheric Profiling with Microwave Sounders—From Top to Bottom.* **B. Lambriksen**, Jet Propulsion Laboratory, Pasadena, CA

10:45 A.M.

5B.2 *Passive Microwave Split-Step Retrievals of the Vertical Structure of Condensed Water and Water Vapor in Deep Convective Clouds.* **Ziad S. Haddad**, JPL, Pasadena, CA; R. Sawaya, O. O. Sy, S. Kacimi

10:30 A.M.–12:00 P.M.

11:00 A.M.

5B.3 *Calibration, Validation, and Science Results from PAZ Polarimetric Radio Occultations.* **Chi O. Ao**, JPL, Pasadena, CA; R. Padulles, F. J. Turk, M. de la Torre Juárez, K. N. Wang, E. Cardellach

11:15 A.M.

5B.4 *Atmospheric Response to Ocean Mesoscale Eddies.* **Xiaosu Xie**, JPL, Pasadena, CA; W. T. Liu

11:30 A.M.

5B.5 *Using Averaging Kernels (AKs) for Validation of IR Sounder EDRs: Application to the NOAA Unique Combined Atmospheric Sounding System (NUCAPS).* **N. R. Nalli**, IMSG at NOAA/NESDIS/STAR, College Park, MD; A. Gambacorta, C. Tan, L. Zhou

11:45 A.M.

5B.6 *An Assessment of GNOS Radio Occultation Data.* **Yan Liu**, Numerical Weather Prediction Center, China Meteorological Administration, Beijing, China

10:30 A.M.–12:00 P.M.

22ATCHEM

Session 5A:ACMAP:ATMOSPHERIC CHEMISTRY MODELING AND ANALYSIS PROGRAM. PART II –206B

Chairs: Richard Eckman, NASA, Washington, DC; Kenneth Jucks, NASA, Washington, DC,

10:30 A.M.

5A.1 *Orographic Gravity Waves and Their Diagnosed Effects on Transport in High-Resolution Models and Satellite Observations.* **M. Joan Alexander**, NorthWest Research Associates, Boulder, CO; L. A. Holt, L. Coy, W. M. Putman

10:45 A.M.

5A.2 *Using Aura Microwave Limb Sounder Measurements to Place the 2017 Asian Summer Monsoon Observed by the StratoClim Campaign into Context.* **Michelle L. Santee**, JPL, Pasadena, CA; N. J. Livesey, J. L. Neu, G. L. Manney, M. J. Schwartz, L. F. Millan

11:00 A.M.

5A.3 *Using Multiple Satellites and Models to Estimate Atmospheric Composition and Source Magnitude Changes of Aerosols over the Past Two Decades: Regions of Increase, Decrease, and High Variability.* **Jason Blake Cohen**, Sun Yat-sen Univ., Guangzhou, China

11:15 A.M.

5A.4 *Multiangle Aerosol Remote Sensing: From Research Algorithm to Applications.* **Ralph Kahn**, NASA GSFC, Greenbelt, MD; J. A. Limbacher, V. J. B. Flower, M. D. Friberg, K. T. Junghenn

11:30 A.M.

5A.5 *Interactions between Pollution Aerosols and Asian Winter Monsoon Strength and Their Connections with the Climate Variability.* **Mian Chin**, NASA GSFC, Greenbelt, MD; H. Bian

11:45 A.M.

5A.6 *A Development of an OMI Assimilation System for Aerosol Analysis and Forecasts over the Saharan Desert and the Arctic Region.* **Jianglong Zhang**, Univ. of North Dakota, Grand Forks, ND; P. Xian, J. S. Reid, R. Spurr, E. J. Hyer, P. R. Colarco

10:30 A.M.–12:00 P.M.

10:30 A.M.–12:00 P.M.

22ATCHEM

Session 5B: AIR QUALITY IMPACTS FROM ENERGY PRODUCTION AND GENERATION. PART II –207

Chairs: Roisin Commene, Columbia Univ., Palisades, NY; Lee Murray, Univ. of Rochester, Rochester, NY; Luke Schiferl, LDEO, Palisades, NY

10:30 A.M.

5B.1 *Emissions and Near-Field Concentrations of VOCs from Oil and Gas Operations in Colorado (Invited Presentation).* **Jeffrey Collett**, Colorado State Univ., Fort Collins, CO; A. Hecobian, Y. Zhou, K. B. Benedict, A. Ng, R. Hurrell, E. Lachenmayer, A. Clements, A. P. Sullivan, K. Shonkwiler, J. Ham

11:00 A.M.

5B.2 *Avoided Warming from Oil and Gas Methane Mitigation.* **Ilissa Ocko**, Environmental Defense Fund, Washington, DC; S. P. Hamburg

11:15 A.M.

5B.3 *SCOPE: Monitoring Offshore Air Quality Near Oil and Gas Operations in the Gulf of Mexico in May 2019.* **Ryan M. Stauffer**, NASA Postdoctoral Program, Greenbelt, MD; A. M. Thompson, D. E. Kollonige, N. Abuhassan, R. Swap, N. Dacic, V. Maisonet-Montanez, R. Delgado, J. H. Flynn, H. Ensz

11:30 A.M.

5B.4 *Summer 2019 Observations of Acyl Peroxy Nitrates from Carlsbad Caverns National Park.* **E. V. Fischer**, Colorado State Univ., Fort Collins, CO; K. B. Benedict, A. P. Sullivan, L. Naimie, Y. Zhou, J. L. Collett Jr., B. C. Sive, A. J. Prenni, J. Juncosa, I. B. Pollack, E. Cope, B. A. Schichtel

11:45 A.M.

5B.5 *Effectiveness of Renewable Energy Policy for Air Pollution Reductions: Evidence from Wind Power in the United States.* **Minghao Qiu**, MIT, Cambridge, MA; C. Zigler, N. Selin

10:30 A.M.–12:00 P.M.

22WXMOD

Session 3: NATURAL CHARACTERISTICS AND SEEDABILITY OF CLOUDS –105

Chairs: Frank McDonough, NCAR, Boulder, CO; Matthew D. Cann, Univ. of Colorado, Boulder, CO

10:30 A.M.

3.1 *Sources of Updrafts in Orographic Cloud Systems over the Payette Mountains of Idaho—Results from the SNOWIE Project.* **Kaylee Heimes**, Univ. of Illinois, Urbana, IL; T. Zaremba, R. M. Rauber, B. Geerts

10:45 A.M.

3.2 *How Do Small-Scale Updrafts Such as KH Waves Affect the Seedability of Clouds near Complex Terrain?* **Coltin D. Grasmick**, Univ. of Wyoming, Laramie, WY; B. Geerts, R. M. Rauber

11:00 A.M.

3.3 *The Role of Generating Cells in Natural Ice Production and Supercooled Liquid Water Depletion.* **Sarah A. Tessendorf**, NCAR, Boulder, CO; K. Ikeda, R. M. Rasmussen, J. French, R. M. Rauber

11:15 A.M.

3.4 *Evaluation of Glaciogenic Seeding Condition over the Mountains in Utah.* **Binod Pokharel**, Utah State Univ., Logan, UT; S.Y. Wang, H. Gu, C. Hasenyager, J. Serago, Z. Rieck, R. R. Gillies

11:30 A.M.

3.5 *Study of the Basic Conception and Assessment Method of Atmospheric Water and Cloud Water Resources.* **Yuquan Zhou**, Chinese Academy of Meteorological Science, Beijing, China; M. Cai Jr., C. Tan Jr., Z. Hu Sr.

11:45 A.M.

3.6 *Aircraft Observation Research on Macro- and Microphysics Characteristics of Continental Cumulus Clouds at Different Development Stages.* **Cai Zhaoxin**, Weather Modification Office of Shanxi Province, taiyuan, China

10:30 A.M.–12:00 P.M.**21 AIRPOL**

Session 6: MODELING COMPLEX AND HYPERLOCAL AIR POLLUTION METEOROLOGICAL PHENOMENA –211

Chairs: Vlad Isakov, U.S. EPA, Research Triangle Park, NC; Jeffrey Weil, National Center for Atmospheric Research, Boulder, CO

10:30 A.M.

6.1 *Making Sense of Multiple Boundary Layer Meteorological Observations during the Jack Rabbit II Chlorine Field Experiment.* **Steven Hanna**, Hanna Consultants, Kennebunkport, ME

10:45 A.M.

6.2 *The Integral Dense-Gas Dispersion Model (IDDM) and Comparisons with the Jack Rabbit II Experiments.* **Jeffrey Weil**, National Center for Atmospheric Research, Boulder, CO; S. Alessandrini

11:00 A.M.

6.3 *Real-Time Modeling of Air Quality Estimates due to Traffic Emissions at Hyperlocal Scales.* **Saravanan Arunachalam**, Univ. of North Carolina, Chapel Hill, NC; C. Seppanen, B. Naess, M. Breen, V. Isakov

11:15 A.M.

6.4 *The Implications of Temporal and Spatial Averaging in Hazardous Airborne Material Dispersion Calculations for Human Impacts Modeling within a Hyperlocal Environment.* **Paul E. Bieringer**, Aeris, Louisville, CO; A. Annunzio, H. J. J. Jonker, G. Bieberbach Jr.

11:30 A.M.

6.5 *High-Resolution Modeling of Black Carbon in West Oakland.* **Sofia Dagmar Hamilton**, Univ. of California, Berkeley, CA; R.A. Harley

11:45 A.M.

6.6 *Neighborhood-Scale Urban Dispersion Modelling Using a Canopy Approach.* **Lewis P. Blunn**, Univ. of Reading, Reading, UK; O. Coceal, R. S. Plant, J. F. Barlow, H. W. Lean, S. I. Bohnenstengel

10:30 A.M.–12:00 P.M.**20SMOI**

Session 5: AIRCRAFT RECONNAISSANCE AND RESEARCH: THE PAST, PRESENT, AND FUTURE –203

Chair: Richard G. Henning, NOAA Aircraft Operations Center, Lakeland, FL

10:30 A.M.

5.1 *The Next-Generation Wyoming King Air Research Aircraft: Plans and Opportunities.* **Jeffrey French**, Univ. of Wyoming, Laramie, WY; B. Geerts, S. M. Murphy, Z. Wang, D. Caulton, M. Burkhart, J. R. Snider, S. J. Haimov, M. Deng, L. D. Oolman, D. M. Plummer, N. Mahon

10:45 A.M.

5.2 *Improving Access to Past and Present NASA Airborne Research Data and Information.* **Stephanie M. Wingo**, NASA MSFC and USRA, Huntsville, AL; D. Smith, C. Davis, R. Ramachandran

11:00 A.M.

5.3 *Anticipated Benefits of Gulfstream-550 Tail Doppler Radar Measurements on Tropical Cyclone Prediction.* **Kelly Ryan**, NOAA/AOML and Univ. of Miami, Miami, FL; J.A. Sippel, L. Bucci, L. Cucurull

11:15 A.M.

5.4 *Development of Real-Time Visualizations and Research Tools through Integration of NOAA Hurricane Hunter Aircraft Data.* **Nicholas E. Johnson**, Univ. of Alabama and NOAA/AOML/HRD, Miami, FL; J. Zawislak

11:30 A.M.

5.5 *History and Future of Dropsonde Technology Developed at NCAR.* **Holger Voemel**, NCAR, Boulder, CO; T. Hock, D. Lauritsen, J.A. Smith, M. Goodstein, C. Arendt, L. Tudor, J. Stack

11:45 A.M.

5.6 *Optimizing Dropwindsonde Levels for Data Assimilation.* **Kathryn Sellwood**, Univ. of Miami CIMAS and NOAA/AOML, Miami, FL; J.A. Sippel, A. Aksoy

10:30 A.M.–12:00 P.M.**20ARAM**

Session 5: ADVANCEMENTS IN THE ANALYSIS AND PREDICTION OF TURBULENCE FOR AVIATION, RANGE, AND AEROSPACE OPERATIONS –206A

Chairs: Wiebke Deierling, NCAR, Boulder, CO; Han-Chang Ko, Yonsei Univ., Seoul, Korea, Republic of (South)

10:30 A.M.

5.1A *Update on the Graphical Turbulence Guidance Nowcast (GTGN).* **Tammy J. Flowe**, FAA, Washington, DC; M. D. Eckstein, W. Watts, M. S. Wandishin, G. Meymaris, J. Pearson, J.A. Craig, J. Bracken

10:45 A.M.

5.2 *Deriving Operationally Useful Turbulence Measurements from ADS-B Reports.* **Larry Cornman**, NCAR, Boulder, CO

5.1 **WITHDRAWN**

11:00 A.M.

5.3 *Utility of Gravity Wave Regions Identified in GOES Water Vapor Imaginary for Verifying Turbulence Forecasts.* **Tanya R. Peevey**, NOAA/ESRL/GSD and CSU/CIRA, Boulder, CO; D. M. Mueller, K. R. Fenton Jr., M. S. Wandishin, P. Hamer

11:15 A.M.

5.4 *Climatology of the Estimated Eddy Dissipation Rate (EDR) Using the 1-Hz Wind Observations from In Situ Flight Data.* **Jung-Hoon Kim**, Seoul National Univ., Seoul, Korea, Republic of (South); J. M. Kim, S. H. Kim, H. Y. Chun

11:30 A.M.

5.5 *UTLS Turbulence Forecasting with NWP Models at 1-km Grid Spacing: The “Unexpected” True Consequences of PBL Diffusion.* **Domingo Munoz-Esparza**, NCAR, Boulder, CO; R. D. Sharman, S. B. Trier

11:45 A.M.

5.6 *Increased Light, Moderate, and Severe Clear-Air Turbulence in Response to Climate Change.* **Paul D. Williams**, Univ. of Reading, Reading, UK

10:30 A.M.–12:00 P.M.**19AI / 33CVC / 26PROBSTAT****Joint Session 17: AI AND CLIMATE: IMPACT AND OPPORTUNITIES –156C**

Chairs: Auroop Ganguly, Northeastern Univ., Boston, MA; Karthik Kashinath, LBNL, Berkeley, CA

10:30 A.M.

J17.1 *Viewing Climate Signals through an AI Lens (Core Science Keynote).* **Elizabeth A. Barnes**, Colorado State Univ., Fort Collins, CO; I. Ebert-Uphoff, J. Hurrell, C. W. Anderson, D. Anderson

11:00 A.M.

J17.2 *Evaluation of Data-Driven Causality Discovery Methods among Dominant Climate Modes.* **Mengxi Wu**, Brown Univ., Providence, RI; S. R. Hussung, S. Mahmud, A. Sampath, P. Guo, J. Wang

11:15 A.M.

J17.3 *Deep Learning Semantic Segmentation for Climate Change Precipitation Analysis.* **Mr Prabhat**, LBNL, Berkeley, CA; A. Lou, E. Chandran, J. Biard, K. Kunkel, M. F. Wehner, K. Kashinath

11:30 A.M.

J17.4 *The Future of Severe Thunderstorms in the United States—Insights from Combining Deep Learning and High-Resolution Modeling.* **Maria J. Molina**, NCAR, Boulder, CO; D. J. Gagne II, A. F. Prein

11:45 A.M.

J17.5 *Downscaling Climate Model Data for Energy and Crop Modelling Using Self-Organizing Maps.* **Andrew Polasky**, The Pennsylvania State Univ., University Park, PA; J. L. Evans, J. Fuentes

10:30 A.M.–12:00 P.M.**19AI****Session 4: AI APPLICATIONS FOR THE DETECTION OF EARTH SCIENCE PHENOMENA –156A**

Chairs: Christina Kumler, NOAA/ESRL and CIRES, Boulder, CO; Sid Boukabara, NOAA/NESDIS, College Park, MD; Aaron Kaulfus, Univ. of Alabama, Huntsville, AL

10:30 A.M.

4.1 *Detecting Cloud Cover in Webcam Images Using Neural Networks: A Nowcasting Application.* **Thomas Nipen**, Norwegian Meteorological Institute, Oslo, Norway; E. Myrland, M. Pejcoch, C. Lussana, I. A. Seierstad

10:45 A.M.

4.2 *Rapid Hailstone Characterization: A 3D Computer Vision Shape Analysis Model.* **Stan Biryukov**, Understory Weather, Madison, WI; K. Jero, A. Kubicek, E. Hewitt, J. Leonard

11:00 A.M.

4.3 *Topological Data Analysis and Machine Learning Methods for Pattern Detection in Spatiotemporal Climate Data.* **Karthik Kashinath**, LBNL, Berkeley, CA; G. Muszynski, M. F. Wehner, V. Kurlin, M. Prabhat, J. Balewski

11:15 A.M.

4.4 *Analysis and Application of Mesoscale Radar Scenes during Severe Weather Events.* **Alex M. Haberie**, Louisiana State Univ., Baton Rouge, LA; W. S. Ashley, V. A. Gensini, M. Karpinski

11:30 A.M.

4.5 *Deep Learning Approach for the Detection of Areas Likely for Convection Initiation.* **Jebb Q. Stewart**, NOAA, Boulder, CO; C. Kumler, D. Hall, M. W. Govett

11:45 A.M.

4.6 *Using Deep Learning to Create a Long-Term Climatology of Warm and Cold Fronts.* **Ryan A. Lagerquist**, CIMMS, Norman, OK; J. T. Allen, A. McGovern

10:30 A.M.–12:00 P.M.**18COASTAL****Session 5: COUPLED FORECASTING OF EXTREME WEATHER AND COASTAL FLOOD EVENTS. PART IV –158**

Chairs: Alan Blumberg, Stevens Institute of Technology, Hoboken, NJ; Jesse Feyen, GLERL, Ann Arbor, MI

10:30 A.M.

5.1 *High-Resolution Global Coastal Flood Forecasting across the Power Spectral Density Function from 10^{-2} to 10^2 cpd.* **Joannes Jacobus Westerink**, Univ. of Notre Dame, Notre Dame, IN; W. Pringle, K. J. Roberts, D. Wirasaet, M. T. Contreras Vargas, E. Myers III, S. Moghimi, S. V. Vinogradov, A. Van der Westhuysen, A. Abdolali

10:45 A.M.

5.2 *Revisiting Implementations of the Finite-Element Shallow Water Flow Model Based on the Generalized Wave Continuity Equation in Spherical Coordinates.* **Damrongsak Wirasaet**, Univ. of Notre Dame, Notre Dame, IN; W. Pringle, J. Westerink

11:00 A.M.

5.3 *Advanced Hydrodynamic Models for Tide and Storm Predictions: A High-Resolution Channel to Basin-Scale Unstructured Grid for the U.S. East and Gulf of Mexico Coasts.* **Maria Teresa Contreras**, Univ. of Notre Dame, Notre Dame, IN; J. Westerink, W. Pringle, D. Wirasaet, K. J. Roberts, E. Myers III, S. Moghimi, S.V. Vinogradov, A. Van der Westhuysen, A. Abdolali

11:15 A.M.

5.4 *Studies on Parameterizations of Sea Ice Effect in a Storm Surge Model for Western Alaska.* **Guoming Ling**, Univ. of Notre Dame, Notre Dame, IN; D. Wirasaet, J. Westerink, D. H. Richter, B. Joyce, W. Pringle, M. T. Contreras Vargas, K. R. Steffen, C. N. Dawson, A. Fujisaki-Manome, E. Myers III, S. Moghimi, S.V. Vinogradov, A. Van der Westhuysen, A. Abdolali, R. Grumbine

11:30 A.M.

5.5 *Skill and Spread Assessment of an Ensemble-Based Coastal and Inland Flood Forecast System.* **Hoda el Safty**, Stevens Institute of Technology, Hoboken, NJ; P. Orton, Z. Chen, S.V. Vinogradov, J. K. Miller, R. Datla, M. Hajj

11:45 A.M.

5.6 *Impact of Tropical Cyclone Landfall Angle on Storm Surge.* **Alexandra N. Ramos-Valle**, Rutgers Univ., New Brunswick, NJ; C. L. Bruyère, E. N. Curchitser

10:30 A.M.–12:15 P.M.**18HISTORY****Session 5: AMS CENTENNIAL MONOGRAPH—100 YEARS OF PROGRESS. PART II (CENTENNIAL) –104A**

Chairs: Greg McFarquhar, Univ. of Oklahoma, Norman, OK; Lourdes Avilés, Plymouth State Univ., Plymouth, NH

10:30 A.M.

5.1 *100 Years of Progress in Boundary Layer Meteorology: A Condensed Version.* **Margaret LeMone**, NCAR, Boulder, CO; W. M. Angevine, C. S. Bretherton, F. Chen, J. Dudhia, E. Fedorovich, K. Katsaros, D. Lenschow, L. Mahrt, E. G. Patton, J. Sun, M. Tjernstrom, J. Weil

10:45 A.M.

5.2 *100 Years of Progress in Gas-Phase Atmospheric Chemistry Research.* **Timothy J. Wallington**, Ford Motor Company, Dearborn, MI; J. H. Seinfeld, J. R. Barker

11:00 A.M.

5.3 *100 Years of Progress in Cloud Physics, Aerosols, and Aerosol Chemistry.* **Sonia M. Kreidenweis**, Colorado State Univ., Fort Collins, CO; M. D. Petters, U. Lohmann

11:15 A.M.

5.4 *100 Years of Earth System Model Development.* **D.A. Randall**, Colorado State Univ., Fort Collins, CO; C. Bitz, G. Danabasoglu, A. S. Denning, P. Gent, A. Gettelman, S. Griffies, P. Lynch, H. Morrison, R. Pincus, J. Thuburn

11:30 A.M.

5.5 *100 Years of Progress in Forecasting and NWP Applications.* **Stan Benjamin**, NOAA/Earth System Research Laboratory, Boulder, CO; J. M. Brown, G. Brunet, P. Lynch, K. Saito, T.W. Schlatter

11:45 A.M.

5.6 *Radiative Forcing of Climate: The Historical Evolution of the Radiative Forcing Concept, the Forcing Agents and Their Quantification, and Applications.* **Venkatachalam Ramaswamy**, NOAA, Princeton, NJ

12:00 P.M.

5.7 *100 Years of Progress in Applied Meteorology.* **Sue Ellen Haupt**, NCAR, Boulder, CO; R. M. Rauber, B. Carmichael, J. C. Knievel, J. Cogan, S. Hanna, M. Askelson, J. M. Shepherd, M. Alfonso Fragomeni, N. Debbage, B. Johnson, B. Kosovic, S. McIntosh, F. Chen, K. Miller, M. Williams, S. Drobot

10:30 A.M.–12:00 P.M.**17SPACEWX****Session 6: R2O2R: USER NEEDS AND PRIORITIES. PART I –205A**

Chairs: Larisa Goncharenko, Massachusetts Institute of Technology, Westford, MA; Patrick Dandenault, JHUAPL, Gaithersburg, MD; Larisa Goncharenko, Massachusetts Institute of Technology, Westford, MA

10:30 A.M.

6.1 *Applying NASA SpO2R's R2O2R Paradigm to Space Weather: MAG4 Applications and Assessment at SWPC.* **A. LeRoy**, Univ. of Alabama, Huntsville, AL; S. Dahl, D. A. Falconer, R. E. Allen, C. D. Fry

10:45 A.M.

6.2 *Federal Aviation Administration User Needs: Space Weather R2O2R (Invited Presentation).* **William H. Bauman**, FAA, Washington, DC

11:00 A.M.

6.3 *Transition of WAM-IPE to NOAA Operations: Current Capabilities and Future Potential (Invited Presentation).* **Tim Fuller-Rowell**, NOAA, Boulder, CO; N. Maruyama, H. Wang, Z. Li, T.W. Fang, G. Millward, A. Kubaryk, M. Fedrizzi, V.A. Yudin, M. Codrescu, D. Fuller-Rowell, P. Richards, A. D. Richmond

11:15 A.M.

6.4 *The Challenge of O2R and R2O for Space Weather and What We Are Doing about It (Invited Presentation).* **James Spann**, NASA, Washington, DC; C. Wallace, M. Wiltberger, J.V. Jenniges

11:30 A.M.

6.5 *U.S. Air Force Space Weather O2R Priorities (Invited Presentation).* **Janelle V. Jenniges**, U.S. Air Force, Washington, DC; M. Farrar

11:45 A.M.

6.6 *HamSCI: Space Weather Operational Resources and Needs of the Amateur Radio Community (Invited Presentation).* **Nathaniel A. Frissell**, Univ. of Scranton, Scranton, PA; P. J. Erickson, E. S. Miller, W. Liles, H. W. Silver, R. C. Luetzelshwab, T. Skov

10:30 A.M.–12:00 P.M.

16GOESRJPS

Session 4: GEOSTATIONARY LIGHTNING MAPPER (GLM)—USER APPLICATIONS AND RESEARCH. PART I –253B

Chairs: K. M. Calhoun, NOAA/NSSL, Norman, OK; Chad Gravelle, NOAA/NWS Operations Proving Ground, Kansas City

10:30 A.M.

4.1 *Over a Year on Orbit with Two Lightning Mappers: Lessons Learned.* **C. E. Tillier**, Lockheed Martin, Palo Alto, CA; S. F. Edgington, M. Anderson

10:45 A.M.

4.2A *Automated and Objective Thunderstorm Identification and Tracking Using Operational Geostationary Lightning Mapper (GLM) Data.* **Kelley M. Murphy**, Univ. of Alabama, Huntsville, AL; L. D. Carey, C. J. Schultz, N. Curtis

11:00 A.M.

4.2 *Is There a Total Lightning Precursor Signal for Nonsupercell Tornadoes?* **Edward Szoke**, CIRA, Boulder, CO; D. Bikos, K. Hilburn, R. Cox, D. Barjenbruch, P. Schlatter

11:15 A.M.

4.3 *An Evaluation of the Impact of Assimilating GLM-Observed Total Lightning Data on Short-Term Forecasts of High-Impact Convective Events.* **Junjun Hu**, CIMMS/Univ. of Oklahoma, NOAA/OAR/NSSL, Norman, OK; A. Fierro, Y. Wang, J. Gao, E. R. Mansell

11:30 A.M.

4.4 *Seasonal and Diurnal Variation of Lightning over China with Geostationary Lightning Mapping Imager Observations.* **Sheng Chen**, Sun Yat-sen Univ., Guangzhou, China; J. Hu

11:45 A.M.

4.5 *Applications of GOES GLM Data in Western Colorado and Eastern Utah.* **Michael Charnick**, NWS, Grand Junction, CO

10:30 A.M.–12:00 P.M.

15SOCIETY

Panel Discussion 2: POLICY LEADERSHIP IN WEATHER, WATER, AND CLIMATE. PART II – BALLROOM EAST

Moderators: Paul A. T. Higgins, AMS, Washington, DC; Shali Mohleji, Washington, DC, IBM, Washington, DC; Michael Henry, American Institute of Physics, College Park, MD

Panelists: Kelvin Droegemeier, White House Office of Science & Technology Policy; Neil Jacobs, Assistant Secretary of Commerce for Environmental Observation and Prediction, Washington DC, DC

10:30 A.M.

Introductory Remarks.

10:45 A.M.

PD2.1 *Policy Leadership in Weather, Water, and Climate: Part 2.* **Kelvin Droegemeier**, Director of the White House Office of Science and Technology Policy, Washington, DC

11:00 A.M.

Panel Discussion.

10:30 A.M.–12:00 P.M.

15SOCIETY

Panel Discussion 3: THE STORM INSIDE: THE PERSONAL SIDE OF COMMUNICATING HAZARDOUS WEATHER INFORMATION. PART II –151B

Moderators: Richard Smith, NOAA/NWS, Norman, OK; Christina Crowe, NOAA/NWS, Kansas City, MO

10:30 A.M.

Introductory Remarks.

10:30 A.M.

PD3.1 *The Storm Inside: The Personal Side of Communicating Hazardous Weather Information.* **Richard Smith**, NOAA/NWS, Norman, OK; C. Crowe

10:45 A.M.

Panel Discussion.

10:30 A.M.–12:00 P.M.

15SOCIETY

Panel Discussion 4: BACK TO THE FUTURE: TRANSITIONING SOCIAL AND BEHAVIORAL SCIENCE INTO THE NEXT 100 YEARS –152

Chairs: Gina M. Eosco, NOAA, Silver Spring, MD; Jennifer Sprague-Hilderbrand, NOAA, Silver Spring, MD

10:30 A.M.

Introductory Remarks.

10:45 A.M.

PD4.1 *Back to the Future: A Community Discussion on Transitioning Social and Behavioral Science into the Next 100 Years.* **Gina M. Eosco**, NOAA, Silver Spring, MD; M. Olson, J. Sprague-Hilderbrand

11:00 A.M.

PD4.2 *The Transition Puzzle: How Operational Meteorologists Can Champion Social Science R20.* **Jennifer Sprague-Hilderbrand**, NOAA, Silver Spring, MD; G. M. Eosco, M. Olson

11:15 A.M.

Panel Discussion.

10:30 A.M.–12:00 P.M.

15URBAN

Session 5: URBAN INFLUENCE ON PRECIPITATION –104B

Chair: Dev Niyogi, Purdue Univ., West Lafayette, IN

10:30 A.M.

5.1 *Effects of a Variety of WRF Urbanization Schemes on the Simulation of a Bifurcating Thunderstorm over Beijing.* **Jingjing Dou**, Institute of Urban Meteorology, China Meteorological Administration, Beijing, China; E. Gutierrez, S. Miao, J. Gonzalez, R. Bornstein

11:00 A.M.

5.2 *Impacts of Urbanization on the Occurrence and Spatial Distribution of Precipitation in Varying Kinematic and Thermodynamic Environments.* **Thomas R Hultquist**, NWS, Chanhassen, MN

11:15 A.M.

5.3 *Understanding the Role of Urbanization on the Diurnal Cycle of Precipitation in a Tropical City Using an Ensemble Approach.* **Andrés Simón-Moral**, National Univ. of Singapore, Singapore; V. Q. Doan, A. Dipankar, C. Sánchez, M. Roth, X. Y. Huang

11:30 A.M.

5.4 *Cloud Morphology and Microphysics of Precipitation Events during Interseasonal Phases of Monsoon over Mumbai, India.* **Kaustav Chakravarty**, IITM, Pune, India; G. devi, J. Mohmmad, K. S. Hosalikar, G. Pandithurai, P. Patel, D. Niyogi

11:45 A.M.

5.5 *Validating Flood Model Simulations Using Camera Information and Crowd Source Information.* **Emma L. Levin**, Jupiter Intelligence, New York, NY; A. F. Blumberg, B. Weatherhead, V. Rodriguez, V. Ramaswamy, F. Saleh

10:30 A.M.–12:00 P.M.**12AEROSOL****Session 5: AEROSOL–CLOUD INTERACTIONS IN WARM CLOUDS. PART II –208**

Chairs: Alison Nugent, ANL, Lemont, IL; Virendra Ghate, Rutgers Univ., New Brunswick, NJ; Hanii Takahashi, UCLA/JPL, Pasadena, CA

10:30 A.M.

5.1 *Observations Pertaining to Precipitation within the Northeast Pacific Stratocumulus-to-Cumulus Transition.* **Mampi Sarkar**, RSMAS, Miami, FL; P. Zuidema, B. Albrecht, V. Ghate, J. B. Jensen, J. Mohrmann, R. Wood

10:45 A.M.

5.2 *Assessments of Aerosol and Cloud Properties among Observations and Models during the NASA ORACLES Field Campaign.* **Ian Chang**, Univ. of Oklahoma, Norman, OK; J. Redemann, S. P. Burton, H. Chen, M. S. Diamond, S. J. Doherty, Y. Feng, R. A. Ferrare, G. Ferrada, C. Flynn, L. Gao, M. Kacenelenbogen, S. E. LeBlanc, K. Longo, M. Mallet, K. Meyer, K. Pistone, P. E. Saide, K. S. Schmidt, M. Segal Rozenhaimer, Y. Shinozuka, R. Wood, P. Zuidema, S. Christopher

11:00 A.M.

5.3 *Observational Understanding of Aerosol–Cloud Interaction Based on In Situ Aircraft Measurements in Northern China.* **Chuanfeng Zhao**, Beijing Normal Univ., Beijing, China

11:15 A.M.

5.4 *Radiative Heating from Biomass Burning Aerosol and Its Impact on Cloud Structure in the Southeast Atlantic.* **Allison Collow**, USRA, Columbia, MD; M. Miller, L. Trabachino

11:30 A.M.

5.5 *Cloud Edges and Aerosol–Cloud Interactions.* **Yangang Liu**, Brookhaven National Laboratory, Upton, NY; C. Lu

11:45 A.M.

5.6 *Aerosols of Different Sources on Marine Boundary Cloud Properties and Drizzle Formation.* **Yuan Wang**, California Institute of Technology, Pasadena, CA; X. Zheng, X. Dong, B. Xi, P. Wu, Y. L. Yung

10:30 A.M.–11:00 A.M.**11ENERGY****Session 6: RESOURCE ASSESSMENT. PART II –256**

Chairs: Bradfield Lyon, Univ. of Maine, Orono, ME; Jennifer Newman, REsurety, Inc, Boston, MA

10:30 A.M.

6.1 *The Dual Angle Solar Harvest (DASH) Method: An Alternative Method for Organizing Large Solar Panel Arrays That Optimizes Both Harvested Solar Energy and Constrained Spaces.* **Jennifer Lynn Kafka**, Rutgers Univ., New Brunswick, NJ; M. Miller

10:45 A.M.

6.2 *Climatology of Surface Winds in the Indonesian Seas Based on Satellite Observations and Reanalysis Data.* **Inovasita Alifdini**, Hirotsaki Univ., Hirotsaki, Japan; T. Shimada, A. Wirasatriya

10:30 A.M.–12:00 P.M.**11HEALTH / 15SOCIETY****Joint Session 18: HEALTH ECONOMIC IMPACTS OF EXTREME WEATHER EVENTS AND ECOSYSTEM CHANGE –153B**

Chair: Shubhayu Saha, Centers for Disease Control and Prevention, Atlanta, GA

10:30 A.M.

J18.1 *Adaptation to Urban Heat Waves under Deep Climate and Socioeconomic Uncertainties.* **Rui Shi**, Johns Hopkins Univ., Baltimore, MD

10:45 A.M.

J18.2 *Direct Economic Cost of Future Heat Death Estimates for India under Climate Change and Population Scenarios.* **Gulrez Shah Azhar**, RAND Corporation, Santa Monica, CA; J. Madrigano, G. Ryan, S. Saha, R. Vardavas

11:00 A.M.

J18.3 *Estimating the Health-Related Costs of Ten Climate-Sensitive U.S. Events during 2012.* **Vijay Limaye**, New York, NY; W. Max, J. Constible, K. Knowlton

11:15 A.M.

J18.4 *Monitoring the Health Costs of Heat-Related Illnesses and Deaths in Arizona.* **Laura C Fox**, Arizona Department of Health Services, Phoenix, AZ; M. Roach

11:30 A.M.

J18.5 *U.S. Billion Dollar Weather and Climate Disasters over the Last 40 Years (1980–2019)—In Historical Context.* **Adam B. Smith**, NOAA/NCEI, Asheville, NC; D. S. Arndt

11:45 A.M.

J18.6 *Valuation of Community Resilience to the Health Impacts of Extreme Weather.* **Jaime Madrigano**, RAND Corporation, Arlington, VA; T. Ruder, R. Chari

10:30 A.M.–12:00 P.M.

10PYTHON

Session 3: VISUALIZATION AND DATA DISCOVERY USING PYTHON. –157AB

Chair: Johnny Lin, Univ. of Washington Bothell, Bothell, WA

10:30 A.M.

3.1 *MetPy 1.0: An Upgrade from GEMPAK for Twenty-First Century Atmospheric Science Data Analysis and Visualization.* **Ryan M. May**, UCAR/Unidata, Boulder, CO; Z. S. Bruick, K. H. Goebbert

10:45 A.M.

3.2 *Developing Real-Time Datasets for the NOAA Science on a Sphere.* **Daniel Vignoles**, NCEP, College Park, MD

11:00 A.M.

3.3 *Design and Implementation of the Model Analysis Platform for Energy Systems.* **Michael Ewens Kelleher**, ORNL, Oak Ridge, TN; M. Ashfaq, K. J. Evans

11:15 A.M.

3.4 *Data Exploration with PyFerret.* **Eugene F. Burger**, PMEL, Seattle, CA; K. M. Smith, A. Manke

11:30 A.M.

3.5 *Dredging Data Discovery with Dataslayer.* **Thomas Kallstrom Martin**, Vicksburg Catholic School, Vicksburg, MS; S. Dent, J. E. Ross, H. Dozier, A. Strelzoff

10:30 A.M.–12:00 P.M.

10R2O

Session 5A: BEST PRACTICES, PRIVATE–PUBLIC PARTNERSHIPS, AND MULTICOMMUNITY EFFORTS FOR THE TRANSITION OF R2O IN THE WEATHER, WATER, AND CLIMATE ENTERPRISES INCLUDING SUCCESSES, FAILURES, AND LESSONS LEARNED—PART II –252A

Chairs: John Pereira, Raytheon, Silver Spring, MD; Margaret Caulfield, NOAA/NESDIS (Retired), Townsend, DE

10:30 A.M.

5A.1 *The Unified Forecast System: Improving Research to Operations.* **Richard B. Rood**, Univ. of Michigan, Ann Arbor, MI; H. L. Tolman

10:45 A.M.

5A.2 *Unified Forecast System Development and Operational Implementation Plans at NCEP/EMC.* **Vijay Tallapragada**, NOAA/NWS/NCEP, College Park, MD

11:00 A.M.

5A.3 *A Community Workflow for the Stand-Alone Regional (SAR) Configuration of the FV3.* **Gerard Ketefian**, NOAA/ESRL/GSD and Univ. of Colorado/CIRES, Boulder, CO; J. Beck, C. Alexander, L. Reames, G. Gayno, D. Heinzeller, L. Pan, T. Smirnova, J. Purser, D. Jovic, T. Black, J. Abeles, J. Wolff, L. Carson, J. Schramm, M. J. Kavulich Jr., J. R. Carley, B. T. Blake

11:15 A.M.

5A.4 *Collaborative Efforts on the Transition of MRMS Multisensor Precipitation Estimation from Research to Operations.* **Steven M. Martinaitis**, CIMMS/Univ. of Oklahoma and NOAA/NSSL, Norman, OK; A. P. Osborne, M. Simpson, C. Langston, J. Zhang, K. W. Howard

11:30 A.M.

5A.5 *Enabling an Operational, Coupled Modelling and Observing System to Assess Water Quality in the Lake George, New York, Watershed.* **Lloyd Treinish**, IBM Thomas J. Watson Research Center, Yorktown Heights, NY; C. D. Watson, G. Auger, E. Dow, M. Tewari, M. Henderson, A. Praino, M. R. Kelly, V. W. Moriarty, J. Ma, M. Passow, A. Costa Nogueira Jr., A. B. Buoro, H. Kolar

11:45 A.M.

5A.6 *Lessons Learned from a Multisector Partnership for Severe Weather Warning Research to Operations.* **Brenda J. Philips**, Univ. of Massachusetts, Amherst, MA; V. Chandrasekar, E. Lyons, A. Bajaj, A. Everly

10:30 A.M.–12:00 P.M.

10R2O

Session 5B: EMERGING TECHNOLOGIES FOR EARTH OR SPACE SCIENCES TO ADDRESS UNMET, TARGETED NEEDS/REQUIREMENTS IN THE RESEARCH OR OPERATIONAL COMMUNITIES –251

Chairs: Martin Yapur, NOAA/NESDIS/Office of Projects, Planning and Analysis, Silver Spring, MD; Eric Miller, NOAA/NESDIS/Office of Projects, Planning and Analysis, Silver Spring, MD

10:30 A.M.

5B.1 *Flying a U.S. Hyperspectral IR Sounder at GEO: Trade Study and Business Case.* **Elsayed Talaat**, NOAA/NESDIS, Silver Spring, MD; L. W. Uccellini, D. Whiteley, P. Weir, P. E. Ardanuy, S. E. Sussan, D. Vassiliadis

11:00 A.M.

5B.2 *Flying a U.S. Hyperspectral IR Sounder at GEO: New Potential for U.S. Economic Benefits.* **Elsayed Talaat**, NOAA/NESDIS, Silver Spring, MD; M. Grasso, D. Whiteley, P. Weir, C. Lauer, J. Adkins, P. E. Ardanuy, S. E. Sussan, D. Vassiliadis

11:30 A.M.

5B.3 *Initial Results from Airborne Tests of the Compact Midwave Imaging System.* **M. A. Kelly**, Applied Physics Laboratory/The Johns Hopkins Univ., Laurel, MD; D. L. Wu, J. D. Boldt, A. C. Goldberg, I. Papusha, J. L. Carr, R. Demajistre, A. K. Heidinger, R. O. Stoffer

10:30 A.M.–12:00 P.M.

8WXCLIMATE**Session 2: RECREATING THE STORM: HOW METEOROLOGY SUPPORTS DISASTER RECOVERY AND FORENSICS –254A**

Chairs: Stephen Maloney, Federal Reserve Bank, Washington, DC; Thomas Bedard, AccuWeather Enterprise Solutions, Wichita, KS

10:30 A.M.

2.1 *Lessons Learned from over 25 Years as a Forensic Meteorologist.* **Elizabeth J. Austin**, WeatherExtreme Ltd., Incline Village, NV

10:45 A.M.

2.2 *Recon with the Wind: Applying Hazard Reconstruction and Postevent Reconnaissance to Substantiate and Improve Tropical Cyclone Catastrophe Models.* **Philip Allen Feiner**, Risk Management Solutions, Hoboken, NJ

11:00 A.M.

2.3 *Doing Battle as a Forensic Meteorologist.* **Lee E. Branscome**, Climatological Consulting Corporation, Palm Beach Gardens, FL

11:15 A.M.

Panel Discussion. **Stephen Maloney**, Federal Reserve Bank, Washington, DC

10:30 A.M.–12:00 P.M.

8WRN**Session 2: NWS EVOLVE: IDSS AND THE COLLABORATIVE FORECAST PROCESS –153C**

10:30 A.M.

2.1 *Preparing the Future NWS Workforce for Impact Based Decision Support Services (IDSS).* **Richard S. Bandy**, NWS, Silver Spring, MD; K. Edwards

10:45 A.M.

2.2 *NWS IDSS Program Update.* **Katherine Edwards**, NWS, Silver Spring, MD

11:00 A.M.

2.3 *IDSS Performance Metrics.* **Vankita Brown**, NOAA/ NWS, Silver Spring, MD; M. B. Scotten, T. Axford, K. M. Barjenbruch, T. L. Brown-Harris, B. Garcia, K. James, V. Preston, S. Runnels, K. Stellman, D. Sharp, S. Smith, L. D. Williams, C. Woods, D. C. Young

11:15 A.M.

2.4 *Pounding a Dendritic Peg into a Square Hole—National Weather Service Impacts Based Decision Support Services' Role in Federal Agency-Led Incident Response.* **Matt Solum**, NWS, Salt Lake City, UT; S. Carpenter

11:30 A.M.

2.5 *The Evolving Role of the NWS Science and Operations Officer: Preparing Offices on New Methods of Hazardous Weather Communication.* **S.W. Bieda**, NWSFO, Amarillo, TX; D. Hawblitzel, T. T. Lindley, T. M. Ryan

11:45 A.M.

2.6 *On a Collaborative Forecast Process in the U.S. National Weather Service.* **John J. Brost**, NOAA/NWS Southern Region Headquarters, Fort Worth, TX; D. C. Young, S. F. Piltz

10:30 A.M.–12:00 P.M.

8JCSDA**Session 3: CONTRIBUTIONS TO THE JOINT EFFORT FOR DATA ASSIMILATION INTEGRATION (JEDI) –254B**

Chairs: Ben Johnson, JCSDA, College Park, MD; James Yoe, NWS/NCEP and JCSDA, College Park, MD

10:30 A.M.

3.1 *JEDI Project Overview.* **Yannick Trémolet**, Joint Center for Satellite Data Assimilation, Boulder, CO

10:45 A.M.

3.2 *Testing Framework in JEDI.* **Maryam Abdi-Oskouei**, UCAR, Boulder, CO; Y. Trémolet

11:00 A.M.

3.3 *Met Office Plans for Next-Generation Observation Preprocessing and Data Assimilation.* **Dale Barker**, Met Office, Exeter, UK; C. Piccolo, A. Lorenc, M. Wlasak, S. Sandbach, B. Candy, J. Eyre, M. Forsythe, C. Harlow, D. Simonin

11:15 A.M.

3.4 *Working With JEDI—An Outside Perspective.* **Christopher W. Harrop**, CIRES/Univ. of Colorado, Boulder, CO; I. Jankov, L. Trailovic, M. W. Govett

11:30 A.M.

3.5 *Progress Toward Variational Data Assimilation for the Model for Prediction across Scales (MPAS) within the Joint Effort for Data Assimilation Integration (JEDI).* **Chris Snyder**, NCAR, Boulder, CO; Z. Liu, M. Abdi-Oskouei, T. Auligné, J. Ban, B. J. Jung, J. Guerrette, Y. Trémolet, S. Vahl, Y. Wu

11:45 A.M.

3.6 *Full-Resolution Cycled Data Assimilation with FV3-JEDI.* **D. Holdaway**, UCAR, Boulder, CO; Y. Trémolet

10:30 A.M.–12:00 P.M.

6HPC**Session 1: PREPARING FOR EXASCALE COMPUTING –155**

Chair: Marc Cotnoir, CSRA, Inc., Fairfax, VA

10:30 A.M.

1.1 *HPC Requirements for NWP Approaching Exascale at the U.S. Navy.* **John Michalakes**, UCAR/NRL, Monterey, CA; T. R. Whitcomb, A. Reinecke, D. Sidoti

10:45 A.M.

1.2 *Addressing HPC Challenges in the Development of Global, Cloud-Resolving Weather Prediction Models.* **Mark W. Govett**, NOAA/ESRL, Boulder, CO

10:30 A.M.–12:00 P.M.

11:00 A.M.

1.3 *Bridging HPC and Data Analytics for NWP—ECMWF: Present and Future.* **Tiago Quintino**, ECMWF, Reading, UK; J. Hawkes, S. Smart, B. Raoult, P. Bauer

11:15 A.M.

1.4 *Performance Evaluation of the Weather Research and Forecasting (WRF) Model on the DOE Summit Supercomputer.* **Gökhan Sever**, ANL, Argonne, IL; J. Adie, S. Posey, C. Catlett

10:30 A.M.–12:00 P.M.

5INTERNATIONAL

Session 2: ANTARCTICA—A SIGNIFICANT ROLE IN GLOBAL CLIMATE AND A CRUCIAL PLACE OF INTERNATIONAL METEOROLOGICAL AND OCEANOGRAPHIC COOPERATION –212

Chair: John Le Marshall, Bureau of Meteorology, Melbourne, AU

10:30 A.M.

2.1 *Five Decades of Meteorological Satellites—Five Decades of Australian and U.S. Collaboration in Satellite Meteorology.* **John F. Le Marshall**, BoM, Docklands, Australia; W. L. Smith Sr., G. Kelly, G. Mills

11:00 A.M.

2.2 *Connecting Antarctica to the Tropics: Understanding and Predicting Subseasonal Bridges to the Southern Hemisphere Atmosphere and Cryosphere.* **Bradford S. Barrett**, U.S. Naval Academy, Annapolis, MD; G. R. Henderson, I. R. Simpson, C. Jackson, A. Bess

11:15 A.M.

2.3 *The Antarctic Mesoscale Prediction System: Support for the International Antarctic Enterprise.* **Jordan G. Powers**, NCAR, Boulder, CO; K. W. Manning

11:30 A.M.

2.4 *Atmospheric Dynamics Footprint on the January 2016 Ice Sheet Melting in West Antarctica.* **Xiaoming Hu**, Sun Yat-sen Univ., Guangzhou, China; S. A. Sejas, M. Cai, Z. Li, Y. Song

11:45 A.M.

2.5 *Antarctic Convective Oscillations in Climate Models.* **Anand Gnanadesikan**, The Johns Hopkins Univ., Baltimore, MD

10:30 A.M.–12:00 P.M.

4PREDICTABILITY / 30WAF26NWP / 24IOAS /**5INTERNATIONAL**

Joint Session 19: JOINT SESSION ON SCALE INTERACTIONS AND PREDICTABILITY—IN MEMORY OF FUQING ZHANG: PART II –104C

Chair: Sharanya Majumdar, Univ. of Miami/RSMAS, Miami, FL

10:30 A.M.

J19.1 *Impermeability and Constraints on Tropical–Extratropical and Interhemispheric Communication (Invited Presentation).* **Peter J. Webster**, Georgia Institute of Technology, Atlanta, GA; V. Toma, C. D. Hoyos, S. Ortega, G. L. Stephens, G. N. Kiladis

11:00 A.M.

J19.2 *Ensemble Prediction and Predictability of Extreme Weather on Subseasonal-to-Seasonal Time Scales Using Circulation Regimes (Invited Presentation).* **David M. Straus**, George Mason Univ., Fairfax, VA; K. Pegion

10:30 A.M.–12:00 P.M.

11:30 A.M.

J19.3 *Atmospheric Predictability of the Tropics, Middle Latitudes, and Polar Regions Explored through Global Storm-Resolving Simulations (Invited Presentation).* **Falko Judt**, NCAR, Boulder, CO

10:30 A.M.–12:00 P.M.

TROPSYMPI

Session 2: TROPICAL CYCLONE RESEARCH AND FORECASTING. PART II: OBSERVATION –205B

Chairs: Zhuo Wang, Univ. of Illinois, Urbana, IL; Chun-Chieh Wu, National Taiwan Univ., Taipei, Taiwan

10:30 A.M.

2.1 *Space-Based Precipitation Measurements in Tropical Cyclones: Past, Present, and Future.* **Scott A. Braun**, NASA GSFC, Greenbelt, MD

10:45 A.M.

2.2 *An Overview of NASA TROPICS Applications and Early Adopter Program.* **E. Berndt**, NASA MSFC, Huntsville, AL; J. P. Dunion, W. Blackwell, S. A. Braun, D. S. Green

11:00 A.M.

2.3 *An Examination of Local Shear, Vortex Tilt, and Tropical Cyclone Intensity Change Using Airborne Radar Observations.* **Michael S. Fischer**, NOAA/AOML/HRD, Miami, FL; R. F. Rogers, P. Reasor

11:15 A.M.

2.4 *Sampling Hurricanes Using a Small Unmanned Aircraft System.* **Joseph J. Cione**, AOML, Miami, FL; G. H. Bryan, R. J. Dobosy, J. A. Zhang, G. de Boer, A. Aksoy, J. B. Wadler, E. A. Kalina, B. A. Dahl, K. E. Ryan, J. Neuhaus, E. Dumas, F. D. Marks, A. Farber, T. Hock, X. Chen

11:30 A.M.

2.5 *Use of Targeted High-Altitude Dropsonde Observations from Unmanned and Manned Aircraft to Test Tropical Cyclone Operational Forecast Improvement.* **Peter Gerard Black**, I.M. Systems Group, Miami, FL; V. Tallapragada, A. Mehra, X. Wu, G. Wick, R. D. Torn

11:45 A.M.

2.6 *The Unique Observations of Hurricane Michael (2018), Theory for Rapid Intensification, and Implications for Future Research.* **Joshua B. Wadler**, Univ. of Miami, Miami, FL; J. A. Zhang, R. F. Rogers, B. Jaimes, L. K. Shay, J. Zawislak

10:30 A.M.–12:00 P.M.

MIDDLESYMP

Session 2: 100 YEARS OF PROGRESS IN UNDERSTANDING THE MIDDLE ATMOSPHERE. PART II –255

Chairs: Sean M. Davis, NOAA/ESRL, Boulder, CO; Rei Ueyama, NASA, Moffett Field, CA

10:30 A.M.

2.1 *The Arctic Polar Vortex and Its Impacts.* **Mark Baldwin**, Univ. of Exeter, Exeter, UK

11:00 A.M.

2.2 *Stratospheric Aerosols: New Tricks for Old Dogs.* **Owen Brian Toon**, Univ. of Colorado, Boulder, CO

11:30 A.M.

2.3 *The Antarctic Polar Vortex, Stratospheric Ozone, and Its Impacts.* **Seok-Woo Son**, Seoul National Univ., Seoul, Korea, Republic of (South)

10:30 A.M.–12:00 P.M.**SLSSYMPOSIUM I****Session 2: MODELING OF PHYSICAL PROCESSES TO UNDERSTAND SEVERE STORMS –258B**

Chairs: C. Alexander, NOAA, Boulder, CO; Corey Potvin, NOAA/OAR/NSSL, Norman, OK

10:30 A.M.

2.1 *A 10-m Resolution Quarter-Trillion Gridpoint Tornadic Supercell Simulation.* **Leigh Orf**, Univ. of Wisconsin, Madison, WI

10:45 A.M.

2.2 *Evaluating the Effective Inflow Layer and Supercell Updraft Intensity in a Variety of Realistic Environments.* **Christopher J. Nowotarski**, Texas A&M Univ., College Station, TX; J. M. Peters

11:00 A.M.

2.3 *“Volatility of Tornado Genesis” and Modes of Storm-Scale Variability in VORTEX2 Near- and Far-Field Environments.* **Matthew D. Flounoy**, Univ. of Oklahoma, Norman, OK; E. Rasmussen, M. C. Coniglio

11:15 A.M.

2.4 *Quasi-Linear Convective Systems over Topographically Complex Coastal Regions.* **Kelly Lombardo**, The Pennsylvania State Univ., University Park, PA; F.Wu

11:30 A.M.

2.5 *Influences on Hail Size as Inferred from Hailstone Growth Trajectory Model Calculations.* **Matthew R. Kumjian**, The Pennsylvania State Univ., University Park, PA; K. Lombardo

11:45 A.M.

2.6 *The Impacts of “Business as Usual” Climate Change on Supercell Thunderstorms.* **Matthew Gropp**, Univ. of North Carolina, Charlotte, NC; C. E. Davenport

11:00 A.M.–12:00 P.M.**II ENERGY****Session 7: WIND FORECASTING. PART II –256**

Chairs: Benjamin Frechette, Maxar Technologies, Gaithersburg, MD; Caroline Draxl, National Renewable Energy Laboratory, Golden, CO

11:00 A.M.

7.1 *Using High Temporal and Spatial Resolution Forecasts to Predict Ramps for the Wind Power Industry.* **Simon-Philippe Breton**, EC, Montréal, Canada; F. Petrucci

11:15 A.M.

7.2 *Neural Network Approach for Wind Forecasting.* **John Buckheit**, SUNY, Stony Brook, NY; Y. Liu

11:30 A.M.

7.3 *The Power Curve Working Group’s Assessment of Wind Turbine Power Performance Prediction Methods.* **Joseph C.Y. Lee**, National Renewable Energy Laboratory, Golden, CO; P. Stuart, A. Clifton, M. J. Fields, J. Perr-Sauer, L. Williams, L. Cameron, T. Geer, P. Housley

11:45 A.M.

7.4 *Wind Energy Forecasting Using a Three-Dimensional Planetary Boundary Layer Parameterization.* **Timothy W Juliano**, NCAR, Boulder, CO; P. Jimenez Munoz, B. Kosovic, S. E. Haupt

1:30 P.M.–2:30 P.M.**DICKINSONSYMP****Session 1: LARGE-SCALE ATMOSPHERIC DYNAMICS (E.G., PLANETARY WAVES, ATMOSPHERIC CIRCULATIONS) –210C**

Chair: Richard Rood, Univ. of Michigan, Ann Arbor, MI

1:30 P.M.

1.1 *100 Years of Research in Large-Scale Atmospheric Dynamics: Progress, Challenges, and Future Directions.* **Ángel Adames-Corraliza**, Ann Arbor, MI

2:00 P.M.

1.2 *Scale-Dependent Variability in Global Analyses and Prediction Models.* **Nedjeljka Žagar**, Universität of Hamburg, Hamburg, Germany

2:15 P.M.

1.3 *Regionally Varying Assessments of Upper-Level Tropical Width in Reanalyses and CMIP5 Models Using a Tropopause Break Metric.* **Elinor R. Martin**, South Central Climate Adaptation Science Center, Norman, OK; C. R. Homeyer, R. A. McKinzie, K. M. McCarthy, T. Xian

1:30 P.M.–2:30 P.M.**48BROADCAST****Session 4: THE FUTURE OF LOCAL TV NEWS/ WEATHER: BUILDING TRUST AND VIEWERSHIP THROUGH INNOVATIONS –204AB**

Chair: Danielle Breezy, WKRN-TV, Nashville, TN

1:30 P.M.

4.1 *The Graphics Boom—How Not to Go Bust: The Sequel.* **Todd Glickman**, WCBS Newsradio 880, New York, NY; C. Allen

1:45 P.M.

4.2 *Meteorology Marketing.* **Tim Heller**, HellerWeather, Houston, TX

2:00 P.M.

4.3 *Forecasting with POPs... and Helping Users Understand Them.* **Gannon M. Medwick**, WECT, Wilmington, NC

2:15 P.M.

4.4 *Bringing Advanced Scientific Imagery to the Studio: Options for Scientists and Broadcasters.* **Matthew A. Rogers**, CIRA, Fort Collins, CO; S. D. Miller, K. Micke

1:30 P.M.–2:30 P.M.

36EIP**Session 6A: CLOUD COMPUTING FOR ENVIRONMENTAL DATA PROCESSING AND DISPLAY: PROMISE VERSUS PRACTICE. PART I –157C**

Chairs: Eugene Burger, NOAA/ERL/PMEL, Seattle, WA; Tiffany C. Vance, NOAA, Silver Spring, MD; Kevin R. Tyle, Univ. at Albany, SUNY, Albany, NY

1:30 P.M.

6A.1 *Cloud Promise versus Practice: Real-World Examples of High-Performance Data Management.* **Kirk Kern**, Americas NetApp, Inc., Vienna, VA; M. J. Schmitt

1:45 P.M.

6A.2 *Effective Software Engineering for Application Development in the Cloud.* **Jebb Q. Stewart**, NOAA, Boulder, CO

2:00 P.M.

6A.3 *Migration to Cloud and Path to Modernization for the Joint Polar Satellite System Data Production System.* **J. M. Olson**, Raytheon Intelligence, Information, and Services, Aurora, CO; S. M. Kern, E. A. Greene, S. W. Miller, D. B. Han, A. Drew

2:15 P.M.

6A.4 *Environmental Data Processing on AWS.* **Zachary L. Flamig**, Amazon Web Services, Chicago, IL; J. Flasher, A. Pinheiro Privette

1:30 P.M.–2:30 P.M.

36EIP**Session 6B: VISUALIZATION TECHNIQUES FOR CLIMATOLOGY AND METEOROLOGY WITH NEW DATA. PART I –209**

Chairs: J. T. Johnson, DTN, Norman, OK; Steven R. Chiswell, Savannah River National Laboratory, Aiken, SC; S. S. Lindstrom, Univ. of Wisconsin/CIMSS, Madison, WI; Daniel Vignoles, NCEP, College Park, MD

1:30 P.M.

6B.1 *Utilizing the NOAA Weather and Climate Toolkit to Create Compelling Visualizations.* **S. Ansari**, NOAA/NESDIS/National Centers for Environmental Information, Asheville, NC

1:45 P.M.

6B.2 *Localized Hourly Lightning Climatology Heatmaps: A Visual Tool for Evaluating Lightning Risk.* **Noel S. Keene**, NWS, Medford, OR; C. Z. Smith

2:00 P.M.

6B.3 *Visual Comparator: An Interactive Tool for Dynamic Spatiotemporal Comparative Visualizations.* **Nihanth W. Cherukuru**, NCAR, Boulder, CO; T. Scheitlin

2:15 P.M.

6B.4 *Exploring Satellite Observations in Virtual Reality.* **Patrick C. Meyers**, Univ. of Maryland, College Park, College Park, MD; M. Quick, D. Li, E. Lee, S. D. Rudlosky, B. Brawn-Cinani, A. Varshney

1:30 P.M.–2:30 P.M.

34HYDRO**Session 7: EXTREME RAINFALL AND HYDROLOGIC EXTREMES. PART III –253C**

Chairs: John W. Nielsen-Gammon, Texas A&M Univ., College Station, TX; Kelly Mahoney, NOAA, Boulder, CO; Kenneth Kunkel, North Carolina State Univ., Raleigh, NC; Bill D. Kappel, Applied Weather Associates, Monument, CO

1:30 P.M.

7.1 *The Nature of Extreme Rainfall and Hydrologic Extremes: Perspectives from the Past 100 Years (Part I) (Core Science Keynote) (Invited Presentation) (Centennial).* **James A. Smith**, Princeton Univ., Princeton, NJ

2:00 P.M.

7.2 *The Connection between Extreme Rainfall and Hydrologic Extremes in the San Francisco Bay Area.* **Yingzhao Ma**, Colorado State Univ., Fort Collins, CO; V. Chandrasekar, R. Cifelli, H. Chen

2:15 P.M.

7.3 *Changes in Peak Streamflow and Its Associated Rainfall across the Hawaiian Islands from 1970 to 2005.* **Yu-Fen Huang**, Univ. of Hawaii at Manoa, Honolulu, HI; Y. P. Tsang, A. M. Strauch, H. M. Clilverd

1:30 P.M.–2:30 P.M.

34HYDRO / 30WAF26NWP / 26PROBSTAT**Joint Session 20: PROBABILISTIC HYDROMETEOROLOGICAL FORECASTING AND UNCERTAINTY ANALYSIS. PART I –253A**

Chairs: Huiling Yuan, Nanjing Univ., Nanjing, China; Kristie Franz, Iowa State Univ., Ames, IA; Shugong Wang, NASA GSFC/SAIC, Greenbelt, MD; Christopher J. Melick, 557th Weather Wing, Offutt Air Force Base, NE

1:30 P.M.

J20.1 *A Historical Perspective on Hydrometeorological Forecasting and Uncertainty Analysis (Core Science Keynote) (Invited Presentation) (Centennial).* **Qingyun Duan**, Hohai Univ., Nanjing, China; H. Yuan, K. Franz

2:00 P.M.

J20.2 *What Makes a “Good” Probabilistic Forecast?* **K. Scharfenberg**, NWS, Boulder, CO; A. Bol, R. Graham, P. L. Heinselman, T. Alcott, H. E. Brooks, P. Skinner, K. Hoogewind, A. Lamers

2:15 P.M.

J20.3 *Deeper Insights into Winter Weather via Probabilistic Snowfall Forecasts from The Weather Company.* **James I. Belanger**, The Weather Company, Brookhaven, GA; J. K. Williams, J. P. Koval, J. McDonald, P. Bayer, N. McGillis, L. Howard, R. L. Weeks

1:30 P.M.–2:30 P.M.

33CVC

Session 6A: ATMOSPHERIC RIVERS: GLOBAL SCIENCE AND APPLICATIONS. PART I –150**Chair:** Bin Guan, Univ. of California, Los Angeles, Pasadena, CA

1:30 P.M.

6A.1 *A Climatology of Atmospheric Rivers and Associated Precipitation for the Seven U.S. National Climate Assessment Regions.***Emily A. Slinskey**, Portland State Univ., Portland, OR; P. Loikith, D. E. Waliser, B. Guan

1:45 P.M.

6A.2 *Atmospheric River Scale Captures Economic Flood Impacts.***Thomas W. Corringham**, SIO/UCSD, La Jolla, CA; F. M. Ralph, A. Gershunov, D. Cayan, C. Talbot

2:00 P.M.

6A.3 *A Climatology of Atmospheric Rivers over the Northeast United States.***Jason M. Cordeira**, Plymouth State Univ., Plymouth, NH; A. N. Kaminski, N. D. Metz, M. Duncan, K. Bachli, M. Ericksen, I. Glade, C. Roberts, C. Evans

2:15 P.M.

6A.4 *Forecast Errors and Uncertainties in Atmospheric Rivers.***David A. Lavers**, ECMWF, Reading, UK; M. J. Rodwell, D. S. Richardson, A. Subramanian, F. M. Ralph, J. D. Doyle, C. Reynolds, R. Torn, V. Tallapragada, F. Pappenberger

1:30 P.M.–2:30 P.M.

33CVC

Session 6B: EL NIÑO–SOUTHERN OSCILLATION (ENSO) DYNAMICS, DIVERSITY, PREDICTION, AND IMPACTS. PART III –154**Chair:** Stephen Baxter, NOAA/CPC, College Park, MD

1:30 P.M.

6B.1 *ENSO Transition Complexity and Its Underlying Dynamics in CMIP6 Models.* **Shih-Wei Fang**, Univ. of California, Irvine, CA; J. Y. Yu

1:45 P.M.

6B.2 *Precursors of ENSO Diversity in the NCAR CESM2 Climate Model.* **Antonietta Capotondi**, NOAA/ESRL, Boulder, CO

2:00 P.M.

6B.3 *Diversity of El Niño Events and Its Impact on East Asian Summer Monsoon Precipitation.* **Jianjun Xu**, Guangdong Ocean Univ., Zhanjiang, China; S. Yuan, H. Xu

2:15 P.M.

6B.4 *The Longitude of Tropical Pacific Deep Convection: A Perspective on ENSO Diversity and Implications for Western U.S. Hydroclimate.* **Christina M. Patricola**, LBNL, Berkeley, CA; I. N. Williams, J. P. O'Brien, M. D. Risser, A. M. Rhoades, T. O'Brien, P. Ullrich, D. Stone, W. D. Collins

1:30 P.M.–2:30 P.M.

33CVC / 11HEALTH

Joint Session 21: UNDERSTANDING THE HAZARDS OF HEAT WAVES TO ADDRESS THE RISKS TO HUMAN AND ANIMAL HEALTH –151A**Chairs:** Kerry Cook, Univ. of Texas, Austin, TX; Wassila Thiaw, CPC/NOAA, College Park, MD

1:30 P.M.

J21.1 *Impact of Tropical Modes of Variability on Sahelian Heat Waves: A Case Study in April 2003.* **Kiswendsida H. Guigma**, Univ. of Sussex, Brighton, UK; F. Guichard, P. Peyrillé, M. C. Todd, J. Barbier, Y. Wang

1:45 P.M.

J21.2 *Mechanisms Associated with Daytime and Nighttime Heat Waves over the United States.* **Natalie Thomas**, USRA, Columbia, MD; M. Bosilovich, A. Collow, R. D. Koster, S. D. Schubert, A. Dezfali, S. Mahanama

2:00 P.M.

J21.3 *How Dry Soil Moisture Extremes Exacerbate Heat Waves over the Contiguous United States.* **David O. Benson**, George Mason Univ., Fairfax, VA; P. A. Dirmeyer

2:15 P.M.

J21.4 *The Hurricane Heat Trail Effect on Caribbean Heat Waves..* **Theodore Allen**, Caribbean Institute for Meteorology and Hydrology, Bridgetown, Barbados; Z. Guido, P. A. M. Lazaro, M. Y. Lichtveld, S. J. Mason, J. Henderson

1:30 P.M.–2:30 P.M.

30WAF26NWP

Session 5A: ADVANCES IN DYNAMICS AND PHYSICS OF NUMERICAL WEATHER MODELS. PART II –257AB**Chairs:** Jessie C. Carman, OAR, Silver Spring, MD; Louisa Nance, NCAR and Developmental Testbed Center, Boulder, CO

1:30 P.M.

5A.1 *Evaluation of Boundary Layer Structure in NWP Models.* **Robert G. Fovell**, Univ. at Albany, SUNY, Albany, NY

1:45 P.M.

5A.2 *Modeling Large- and Small-Lake Temperature and Ice Evolution in the RAP/HRRR Models.* **E. P. James**, Cooperative Institute for Research in Environmental Sciences, Boulder, CO; T. G. Smirnova, S. Benjamin, P. Y. Chu, E. J. Anderson, G. E. Mann, A. Fujisaki

2:00 P.M.

5A.3 *Development of Multiple-Nest Capability in the Operational Global Forecast System.* **Xuejin Zhang**, NOAA/AOML/HRD, Miami, FL; W. Ramstrom, A. Hazelton, L. Harris, T. Black, S. Gopalakrishnan, F. Marks

2:15 P.M.

5A.4 *Evaluating Simulated Microphysics in the Pacific Northwest: Evidence for a Warm-Rain Problem.* **Robert Conrick**, Univ. of Washington, Seattle, WA; C. F. Mass

1:30 P.M.–2:30 P.M.

30WAF26NWP

Session 5B: ANALYSIS AND FORECASTING OF
WINTER WEATHER. PART II –258A**Chair:** Christopher McCray, McGill Univ., Montreal, Canada

1:30 P.M.

5B.1 *Influence of Atmospheric Rivers on Long-Duration Freezing Rain Events in Eastern North America.* **Douglas Miller**, Univ. of North Carolina, Asheville, NC

1:45 P.M.

5B.2 *The Influence of Diabatic Heating on the Development of Two North American Jet Superposition Events.* **Andrew C. Winters**, Univ. of Colorado, Boulder, CO

2:00 P.M.

5B.3 *Extreme Cold-Season Precipitation Regimes in Eastern North America: A Multiscale Dynamic–Thermodynamic Analysis.* **John R. Gyakum**, McGill Univ., Montreal, Canada; E. H. Atallah, Y. Low

2:15 P.M.

5B.4 *The Intense High Plains “Bomb” Cyclone of 12–14 March 2019.* **Lance F. Bosart**, Univ. at Albany, SUNY, Albany, NY; T. C. Leicht, A. K. Mitchell

1:30 P.M.–2:30 P.M.

29EDUCATION

Session 4: SEE IT, HEAR IT, TOUCH IT—INFORMAL
WEATHER EDUCATION OUTREACH –258C**Chairs:** Danny E. Mattox, Univ. of Oklahoma, Norman, OK; Erik Salna, Extreme Events Institute, Florida International Univ., Miami, FL

1:30 P.M.

4.1 *“Show Me” El Nino.* **Joe Witte**, Aquent, Pasadena, CA

1:45 P.M.

4.2 *FIU Extreme Events Institute Informal Weather Education Outreach.* **Erik Salna**, Extreme Events Institute, Florida International Univ., Miami, FL

2:00 P.M.

4.3 *Linking Undergraduate Education to Service and Outreach: Twenty Years of Hands-On Outreach and Fun at Valparaiso Univ. MET Field Day.* **Teresa M. Bals-Elsholz**, Valparaiso Univ., Valparaiso, IN; A. J. Stepanek, D. C. Goines

2:15 P.M.

4.4 *Bilingual Science Communication and Outreach during Scientific Field Campaigns.* **Lorena Medina Luna**, NCAR, Boulder, CO; D. Zietlow, Z. Fuchs

1:30 P.M.–2:30 P.M.

26PROBSTAT / 19AI

Joint Session 22: HYBRID MACHINE LEARNING
AND STATISTICAL APPROACHES –260**Chairs:** Stephan R. Sain, Jupiter Intelligence, Boulder, CO; Dorit Hammerling, Colorado School of Mines, Golden, CO

1:30 P.M.

J22.1 *Using Artificial Neural Networks for Generating Probabilistic Subseasonal Precipitation Forecasts over California.* **Michael Scheuerer**, CIRES, Boulder, CO; M. B. Switanek, T. M. Hamill, R. Worsnop**J22.2** WITHDRAWN

1:45 P.M.

J22.3 *The Long-Term Frontal System Variation for Future Climate Projections with Machine Learning Weather Classifier.* **Shih-Hao Su**, Chinese Culture Univ., Taipei, Taiwan; T. S. Yo, C. W. Chang, Y. C. Yu, J. L. Chu

2:00 P.M.

J22.4 *Statistical–Physical Microphysics Parameterization Schemes: A Proposed Framework for Physically Based Microphysics Schemes That Learn from Observations.* **Marcus van Lieer-Walqui**, Columbia Univ. and NASA GISS, New York, NY; H. Morrison, M. R. Kumjian, K. J. Reimel, O. P. Prat, S. Lunderman, M. Morzfeld

1:30 P.M.–2:30 P.M.

25APPLIED

Session 5: NOAA 1991–2020 CLIMATE NORMALS:
CURRENT PLANS AND FUTURE DIRECTIONS –153A**Chair:** Michael A. Palecki, NOAA/NESDIS/National Centers for Environmental Information, Asheville, NC

1:30 P.M.

5.1 *NOAA 1991–2020 U.S. Normals.* **Michael A. Palecki**, NOAA/NESDIS/National Centers for Environmental Information, Asheville, NC

1:45 P.M.

5.2 *ENSO Normals: A New U.S. Climate Normals Product Conditioned by ENSO Phase and Intensity and Accounting for Secular Trends.* **Anthony Arguez**, NOAA/NESDIS/NCEI, Asheville, NC; M. A. Palecki, C. J. Schreck III, A. H. Young, A. K. Inamdar

2:00 P.M.

5.3 *Alternative Precipitation Normals Based on NEXRAD Quantitative Precipitation Estimates.* **B. R. Nelson**, NOAA/NESDIS/National Centers for Environmental Information, Asheville, NC; O. P. Prat, A. Arguez

2:15 P.M.

5.4 *Canada’s Project for the 1991–2020 Climate Normals.* **Charles K. Paterson**, MSC, Downsview, Canada

1:30 P.M.–2:30 P.M.

24IOAS**Session 6A: ADVANCES IN ENSEMBLE-BASED DATA ASSIMILATION METHODOLOGIES FOR HIGHLY NONLINEAR AND LARGE-DIMENSIONAL SYSTEMS. PART II –259A****Chair:** D. J. Posselt, JPL, Pasadena, CA**1:30 P.M.****6A.1** *Recent Development of Multiscale and Multiresolution Data Assimilation in Hybrid EnVar for Global and Regional Numerical Weather Prediction.* **X. Wang**, Univ. of Oklahoma, Norman, OK; J. K. Kay, B. Huang, J. Feng, Y. Wang, D. T. Kleist, T. Lei**1:45 P.M.****6A.2** *Application of a Generalized Ensemble Filter for Estimating Terrestrial Carbon Budgets across the Contiguous United States.* **Hamze Dokoochaki**, Boston Univ., Boston, MA; A. Raiho, B. Morrison, S. Serbin, M. Dietze**2:00 P.M.****6A.3** *A Comparative Convective Study between the Local Particle Filter and Ensemble Kalman Filter with the Gridpoint Statistical Interpolation System.* **Joel McAuliffe**, CIMMS/Univ. of Oklahoma and NOAA/NSSL, Norman, OK; L. J. Wicker, T. A. Jones, J. Poterjoy**2:15 P.M.****6A.4** *Assimilating 200 Years of Weather: The Twentieth-Century Reanalysis Version 3 System.* **Laura C. Slivinski**, CIRES/Univ. of Colorado and NOAA/ESRL/Physical Sciences Division, Boulder, CO; G. P. Compo, J. S. Whitaker, P. D. Sardeshmukh

1:30 P.M.–2:30 P.M.

24IOAS**Session 6B: SPECIAL SESSION ON COSMIC-2. PART I –259B****Chair:** Richard A. Anthes, UCAR, Boulder, CO**1:30 P.M.****6B.1** *COSMIC-2 Mission Overview and Status.* **W. Xia-Serafino**, NESDIS, Silver Spring, MD; V. Chu**1:45 P.M.****6B.2** *Performance of the TGRS Radio Occultation Instrument.* **T. K. Meehan**, JPL, Pasadena, CA; J. Y. Tien, T. M. Roberts**2:00 P.M.****6B.3** *FORMOSAT-7/COSMIC-2 Radio Occultation Data Processing Status and Results.* **Jan-Peter Weiss**, UCAR, Boulder, CO**2:15 P.M.****6B.4** *Validation of COSMIC-2 Space Weather Science Products.* **Paul R. Straus**, The Aerospace Corporation, Los Angeles, CA

1:30 P.M.–2:30 P.M.

22ATCHEM**Session 6: CORE SCIENCE KEYNOTE PRESENTATIONS. PART I –206B****1:30 P.M.****6.1** *100 Years of Research in Atmospheric Chemistry (Core Science Keynote).* **Guy Brasseur**, NCAR, Boulder, CO**2:00 P.M.****6.2** *Atmospheric Chemistry Research at NASA: From the Space Act to the Clean Air Act and Beyond (Core Science Keynote).* **Richard-Eckman**, NASA, Washington, DC

1:30 P.M.–2:30 P.M.

22WXMOD**Session 4: STUDIES RELATED TO HYGROSCOPIC SEEDING –105****Chairs:** Lulin Xue, NCAR, Boulder, CO; Binod Pokharel, Utah State Univ., Logan, UT**1:30 P.M.****4.1** *Modelling the Precipitation Enhancement by Hygroscopic Cloud Seeding in Warm and Mixed-Phase Clouds Using UCLALES-SALSA.* **Juha Tonttila**, Finnish Meteorological Institute, Kuopio, Finland; A. Afzalifar, H. Kokkola, S. Romakkaniemi**1:45 P.M.****4.2** *Seeding Effects on Summertime Mixed-Phase Convective Clouds over the United Arab Emirates Simulated Using CReSS with Simple Hygroscopic Seeding Scheme.* **Youko Yoshizumi**, Institute for Space-Earth Environmental Research, Nagoya Univ., Nagoya, Japan; M. Murakami, S. Tsujino, K. Hasegawa, A. Sakakibara, A. Hashimoto, T. Shinoda, M. Kato**2:00 P.M.****4.3** *Simulating Aerosol–Cloud Interactions during Hygroscopic Seeding.* **Sisi Chen**, NCAR, Boulder, CO; L. Xue**2:15 P.M.****4.4** *An Idealized Modeling Study to Examine the Potential Impacts of Seeding Ordinary Convective Clouds with Pollution-Sized Hygroscopic Particles.* **William R. Cotton**, Colorado State Univ., Fort Collins, CO; R. Walko

1:30 P.M.–2:30 P.M.

21AIRPOL**Session 7: DEVELOPMENT OF NEW MODELS AND PARAMETERIZATIONS FOR ATMOSPHERIC DISPERSION –211****Chairs:** Paul Bieringer, Aeris, Louisville, CO; Vlad Isakov, U.S. EPA, Research Triangle Park, NC**1:30 P.M.****7.1** *A New Dispersion Model for Highly Buoyant Plumes in the Convective Boundary Layer.* **Jeffrey Weil**, National Center for Atmospheric Research, Boulder, CO

1:30 P.M.–2:30 P.M.

1:45 P.M.

7.2 *Machine Learning Models for Replacing Monin–Obukhov Similarity Theory Based Surface Layer Parameterization.* **Branko Kosovic**, National Center for Atmospheric Research, Boulder, CO; T. C. McCandless, D. J. Gagne II, T. Brumett, S. E. Haupt

2:00 P.M.

7.3 *CFD-Aided Building Downwash Parameterization and Evaluation Using Wind Tunnel and Field Measurement Databases.* **Bo Yang**, Cornell Univ., Ithaca, NY; M. Zhang

2:15 P.M.

7.4 *Near-Wall Representation in Large-Eddy Simulation Using a One-Dimensional Stochastic Model.* **Livia S. Freire**, Univ. of Sao Paulo, São Carlos, Brazil; M. Chamecki

1:30 P.M.–2:30 P.M.

20SMOI

Session 6: INTEGRATED INSTRUMENTATION AND OBSERVING SYSTEMS FOR ALL APPLICATIONS—GROUND BASED –203

Chair: Joshua Lave, National Center for Atmospheric Research, Boulder, CO

1:30 P.M.

6.1 *The Stony Brook Univ.–Brookhaven National Laboratory Radar Observatory: Facilities, Instrumentation, and Applications.* **Pavlos Kollias**, Stony Brook Univ., Stony Brook, NY; M. Oue, E. P. Luke, A. Sneddon, B. Puigdomenech, M. Lang, B. A. Colle, D. A. Knopf

1:45 P.M.

6.2 *The Northern Alabama Ground-Based Remote Sensing Mesoscale Network.* **Kevin Knupp**, Univ. of Alabama, Huntsville, AL; R. Wade, A. W. Lyza, T. Coleman

2:00 P.M.

6.3 *Merged Observatory Data Files (MODFs) for the Year of Polar Prediction: Turning Observations from Multiple Platforms into a Single Modeler-Ready Product.* **Leslie M. Hartten**, CIRES/Univ. of Colorado and NOAA/ESRL/PSD, Boulder, CO; E. Akish, C. A. Smith, T. Uttal, B. Casati, J. J. Day, S. J. S. Khalsa, A. Solomon, G. Svensson

2:15 P.M.

6.4 *Modernizing a Mesonet. Part I: Text Mesonet Installation and Wiring.* **Kantave M. Greene**, Texas Water Development Board, Austin, TX

1:30 P.M.–2:30 P.M.

20ARAM

Session 6: JOHN T. MADURA SESSION ON DEVELOPING WEATHER TECHNOLOGIES TO SUPPORT RANGE OPERATIONS THROUGH R2O AND O2R PATHWAYS –206A

Chairs: Jason Knievel, NCAR, Boulder, CO; Stephen Mackey, DOT, Cambridge, MA

1:30 P.M.

6.1 *History and Future Challenges in Aerospace Meteorology (Invited Presentation).* **Ryan K. Decker**, MSFC, Huntsville, AL

1:30 P.M.–2:30 P.M.

1:45 P.M.

6.2 *An Integrated Approach to Analyzing Ascent Abort Ground Track Sea Conditions for Crewed Space Vehicles.* **Robert E. Barbre**, Jacobs Space Exploration Group, Huntsville, AL; K. M. Altino, K. L. Burns

2:00 P.M.

6.3 *Nowcast of Atmospheric Ionizing Radiation for Aviation Safety (NAIRAS) Model: Physics Updates and Operational Improvements.* **Christopher J. Mertens**, NASA, Hampton, VA; G. Gronoff

2:15 P.M.

6.4 *Development of Trend Analysis Techniques for Aviation and Range Operations Weather Hazards from Continuous Remote Sensing Observations.* **Kimberly A. Reed**, Radiometrics Corporation, Boulder, CO; B. Conway, B. M. Lund, T. Wilfong, R. Ware, J. Baumgardner

1:30 P.M.–2:30 P.M.

19AI

Session 5A: AI FOR ENVIRONMENTAL SCIENCE. PART III –156A

Chair: Carlos F. Gaitan, Benchmark Labs, San Diego, CA

1:30 P.M.

5A.1 *A Hybrid Empirical–Bayesian Artificial Neural Network Model of Salinity in the San Francisco Bay–Delta Estuary.* **Christine S. Lew**, Tetra Tech, Lafayette, CA

1:45 P.M.

5A.2 *Utilizing Multimedia Modeling and Machine Learning to Assess Dissolved Oxygen as a Proxy for Hypoxia in Lake Erie.* **Christina Feng Chang**, Univ. of Connecticut, Storrs, CT; M. Astitha, V. Garcia, C. Tang, P. Vlahos, D. Wanik, J. Yan

2:00 P.M.

5A.3 *Using Convolutional Neural Networks for the Prediction of Groundwater Levels.* **Maximilian Nölscher**, German Federal Institute for Geosciences and Natural Resources, Berlin, Germany; M. Rückl, S. Broda

2:15 P.M.

5A.4 *Using Machine Learning to Predict Complete Winter Ice Cover of a Freshwater Lake.* **Campbell D. Watson**, Thomas J. Watson Research Center, IBM, Yorktown Heights, NY; G. Auger, M. Tewari, L. A. Treinish

1:30 P.M.–2:30 P.M.

19AI

Session 5B: ENVIRONET –156BC

Chairs: Karthik Kashinath, LBNL, Berkeley, CA; Karthik Mukkavilli, Environet

1:30 P.M.

5B.1 *Environet: A Project Update.* **Surya Karthik Mukkavilli**, Montreal Institute for Learning Algorithms, Montreal, Canada

1:45 P.M.

5B.2 *ClimateNet: Bringing the Power of Deep Learning to Weather and Climate Sciences via Open Datasets and Architectures.* **Karthik Kashinath**, LBNL, Berkeley, CA; M. Mudigonda, K. Yang, J. Chen, A. Greiner, M. Prabhat

2:00 P.M.

5B.3 *Community Earth System Science Datasets from NCAR.* **David John Gagne**, NCAR, Boulder, CO; R. D. Loft, N. Flyer

2:15 P.M.

5B.4 *IceNet: A Large-Scale Dataset for Tracking Ice Flow Using Unsupervised Learning with Adversarial Networks.* **Yimeng Min**, Montreal Institute for Learning Algorithms, Montreal, Canada; S. K. Mukkavilli, Y. Bengio

1:30 P.M.–2:30 P.M.

I8COASTAL**Session 6: DOWNSCALING MODELS (PARCEL SCALE)—ATMOSPHERE, LAND, AND OCEAN –158**

Chairs: Alan Blumberg, Stevens Institute of Technology, Hoboken, NJ; Art Miller, Scripps Institution of Oceanography, La Jolla, CA

1:30 P.M.

6.1 *The Wind Downscaling Modeling Framework for NOAA's Coastal-Act Project.* **Anil Kumar**, NOAA, College Park, MD; A. Mehra, G. DiMego, A. Chawla, M. Zaizhong, J. Kain, A. Vanderwesthuysen, S. Moghimi, E. Myers III, S.V. Vinogradov

1:45 P.M.

6.2 *Improved Wind Turbine Parameterizations in LES of Large Wind Farms Using Vorticity Dynamics.* **Carl R. Shapiro**, The Johns Hopkins Univ., Baltimore, MD; D. F. Gayme, C. Meneveau

2:00 P.M.

6.3 *Large Eddy Simulation of an Entire Tropical Cyclone.* **Hiroshi Niino**, The Univ. of Tokyo, Kashiwa, Japan; J. Ito, T. Oizumi

2:15 P.M.

6.4 *Challenges for Mesoscale Numerical Models in the Littoral Environment.* **David D. Flagg**, NRL, Monterey, CA; J. D. Doyle, B. K. Haus, H. C. Graber, J. H. MacMahan, D. G. Ortiz-Suslow, L. Shen, Q. Wang, N. J. Williams, R. Beach

1:30 P.M.–2:30 P.M.

I8HISTORY**Session 6: AMS CENTENNIAL MONOGRAPH—I00 YEARS OF PROGRESS. PART III (CENTENNIAL) –104A**

Chairs: Lourdes Avilés, Plymouth State Univ., Plymouth, NH; Greg McFarquhar, Univ. of Oklahoma, Norman, OK

1:30 P.M.

6.1 *Extratropical Cyclones: A Century of Research on Meteorology's Centerpiece.* **Lance F. Bosart**, Univ. at Albany, SUNY, Albany, NY; D. M. Schultz, B. A. Colle, H. C. Davies, C. Dearden, D. Keyser, O. Martius, P. Roebber, W. J. Steenburgh, H. Volkert, A. C. Winters

1:45 P.M.

6.2 *100 Years of Progress in Tropical Cyclone Research.* **Kerry Emanuel**, Massachusetts Institute of Technology, Cambridge, MA

2:00 P.M.

6.3 *100 Years of Research on Mesoscale Convective Systems.* **Robert A. Houze**, Univ. of Washington, Seattle, WA

2:15 P.M.

6.4 *A Century of Progress in Severe Convective Storm Research and Forecasting.* **Harold E. Brooks**, NOAA/NSSL, Norman, OK

1:30 P.M.–2:30 P.M.

I7SPACEWX**Session 7: R2O2R: USER NEEDS AND PRIORITIES. PART II –205A****1:30 P.M.**

7.1 *Advancing Forecasting and Warning Services through a Space Weather Prediction Testbed (Invited Presentation).* **Clinton-Wallace**, NOAA, Boulder, CO

1:45 P.M.

7.2 *Next Steps in Establishing Benchmarks for Extreme Space Weather Events (Invited Presentation).* **Geoffrey D. Reeves**, LANL, Los Alamos, NM

2:00 P.M.

7.3 *GPS Navigation Errors during Auroral-Induced Signal Disruptions.* **Meghan LeMay**, Boston Univ., Boston, MA; J. Semeter, S. Mrak, A. Coster

2:15 P.M.

7.4 *Preparing Professionals in Space Weather Science, Policy, and Communication: Minor and Graduate Certificate Programs at Millersville Univ.* **Richard D. Clark**, Millersville Univ., Millersville, PA; T. Skov, M. Cook

1:30 P.M.–2:30 P.M.

I6GOESRJPSS**Session 5: SPECIAL TOPICS. PART I –253B**

Chairs: M. L. Jamilkowski, Aerospace Corporation, Greenbelt, MD; Renee LeDuc Clarke, Narayan Strategy, Washington, DC

1:30 P.M.

5.1 *GEONETCast Americas (GNC-A): Status and Use Case Activities.* **N. Donoho**, NOAA/NESDIS, Suitland, MD; D. Souza

1:45 P.M.

5.2 *Usage of the VIIRS and Other Instruments and Other Channels in Disaster Response and Monitoring.* **W. Straka**, CIMSS, Madison, WI; S. D. Miller, S. Li, M. Goldberg, B. Sjoberg

5.3 **WITHDRAWN****2:00 P.M.**

5.4 *Passive Microwave Remote Sensing and 5G: Key Aspects of Adjacent Band Operation in the MMW Bands.* **David Kunkee**, The Aerospace Corporation, Los Angeles, CA; D. Lubar

1:30 P.M.–2:30 P.M.

I5SOCIETY**Lecture 2: WALTER ORR ROBERTS LECTURE –151B****1:30 P.M.**

L2.1 *Severe Thunderstorms and Their Impacts: Past, Present, and Future.* **Walker S. Ashley**, Northern Illinois Univ., DeKalb, IL

1:30 P.M.–2:30 P.M.

15 SOCIETY

Session 5: ECONOMICS OF THE WEATHER, WATER, AND CLIMATE ENTERPRISE. PART I –152

Chairs: Jeffrey Lazo, Jeffrey K. Lazo Consulting LLC, Gunnison, CO; William Hooke, American Meteorological Society, Washington, DC

1:30 P.M.

5.1 *Characterizing and Quantifying the Socioeconomic Benefits of GOES-R Observations.* **Jeffrey Lazo**, Jeffrey K. Lazo Consulting LLC, Gunnison, CO; D. Lubar, M. L. Jamilkowski

1:45 P.M.

5.2 *Estimating the Economic Impact of the Tornado Warning Improvement and Extension Program on Businesses.* **Kimberly E. Klockow-McClain**, Cooperative Institute for Mesoscale Meteorological Studies/National Severe Storms Laboratory, Norman, OK; K. M. Simmons, A. Boehmer, S. Howard

2:00 P.M.

5.3 *Attempting to Value Something (IDSS) So Invaluable.* **Jennifer Sprague-Hilderbrand**, NOAA, Silver Spring, MD; J. Tuell, V. Brown, M. B. Scotten, C. Lauer

2:15 P.M.

5.4 *Observing for Society: Benefits, and Applications of NOAA's Observing Systems.* **Kristen N. Schepel**, CollabraLink Technologies/NOAA, Silver Spring, MD

1:30 P.M.–2:30 P.M.

15 URBAN

Session 6: CLIMATE CHANGE ADAPTATION STRATEGIES FOR COASTAL URBAN TROPICAL ENVIRONMENTS –104B

Chair: Chandana Mitra, Auburn Univ., Auburn, AL

1:30 P.M.

6.1 *Adaptation Choices among Residents of Urban Coastal Areas.* **Malgosia Madajewicz**, Columbia Univ., New York City, NY; P. Orton, F. Zhang

1:45 P.M.

6.2 *Climate-Resilient Caribbean Cities: The Grenada Case.* **Patrick Lamson-Hall**, New York Univ., New York, NY

2:00 P.M.

6.3 *On the Energy Sustainability of Active and Passive Building-Integrated Technologies in the Context of Changing Climate for a Tropical Coastal City.* **Rabindra Pokhrel**, City College of New York, CUNY, New York, NY; J. Gonzalez

2:15 P.M.

6.4 *Modeling the Impacts of Urban Green and Cool Roofs on Surface Climate.* **Linying Wang**, Boston Univ., Boston, MA; M. Huang, D. Li

1:30 P.M.–2:30 P.M.

12 AEROSOL / 33 CVC

Joint Session 23: AEROSOL-CLIMATE INTERACTIONS FROM REGIONAL TO GLOBAL SCALE. PART I –208

Chair: Yuan Wang, California Institute of Technology, Pasadena, CA

1:30 P.M.

J23.1 *Deciphering Aerosol Effects on Climate from the Global to Regional Scales (Invited Presentation).* **Venkatachalam Ramaswamy**, NOAA, Princeton, NJ

1:45 P.M.

J23.2 *Enhanced Land-Sea Warming Contrast Elevates Aerosol Pollution in a Warmer World (Invited Presentation).* **Robert J. Allen**, Univ. of California, Riverside, CA; T. Hassan, C. Randles, H. Su

2:00 P.M.

J23.3 *Investigating Meteorological Influences on $PM_{2.5}$ in Future Earth System Model Simulations with Superparameterized Convection.* **Alison Banks**, Univ. of Georgia, Athens, GA; G. J. Kooperman, Y. Xu

2:15 P.M.

J23.4 *Significant Impacts of African Wildfire Aerosols on Mid- and High-Latitude Climates in the Northern Hemisphere.* **Huiping Yan**, Nanjing Univ. of Information Science and Technology, Nanjing, China; B. Wang, Z. Zhu, J. Luo, Y. Qian, Y. Jiang

1:30 P.M.–2:30 P.M.

11 ENERGY

Session 8: OFFSHORE WIND –256

Chairs: Angel McCoy, Bureau of Ocean Energy Management, Sterling, VA; Joseph F. Brodie, Rutgers Univ., New Brunswick, NJ

1:30 P.M.

8.1 *Mesoscale-to-Microscale Coupling for Wind Energy Applications: What Features of the Offshore Environment Are Needed for Multiscale Modeling?* **Sue Ellen Haupt**, NCAR, Boulder, CO; B. Kosovic, W. J. Shaw, L. K. Berg, M. J. Churchfield, J. D. Mirocha

1:45 P.M.

8.2 *Validation of Offshore Wind Fields Using Hub-Height Buoy Observations.* **Lindsay M. Sheridan**, PNNL, Richland, WA; W. J. Shaw, R. K. Newsom, L. K. Berg

2:00 P.M.

8.3 *Status of Offshore Wind Energy Development in the United States and the Area Identification Process.* **Angel McCoy**, Bureau of Ocean Energy Management, Sterling, VA

2:15 P.M.

8.4 *Air-Sea Interaction Challenges for Offshore Wind Energy.* **Will Shaw**, Richland, WA; L. K. Berg, C. Draxl, V. P. Ghate, J. D. Mirocha, P. Muradyan, M. Optis, D. D. Turner, J. M. Wilczak

1:30 P.M.–2:30 P.M.

I I HEALTH

Session 5: WEATHER, CLIMATE, AND OUR MENTAL HEALTH –153B

Chair: Kristie L. Ebi, Univ. of Washington, Seattle, WA

1:30 P.M.

5.1 *Expressions of Resilience: Personal Responses to an Extreme Weather Event.* **Ashley A. Anderson**, Colorado State Univ., Fort Collins, CO

1:45 P.M.

5.2 *Landslides, Displacement, and Mental Well-Being in Indonesia.* **Kate Burrows**, Yale Univ., New Haven, CT; D. Pelupessy, M. Desai, M. L. Bell

2:00 P.M.

5.3 *Mental Health and Heat: Risk and Mitigation in Arid and Urban Climates.* **Peter Crank**, Arizona State Univ., Tempe, AZ; D. M. Hondula, D. J. Sailor

2:15 P.M.

5.4 *The Interplay of Weather, Health, and Vulnerability: Psychophysiological Perspectives.* **Matthew J. Bolton**, Saint Leo Univ., Saint Leo, FL; H. M. Mogil

1:30 P.M.–2:30 P.M.

I 0PYTHON

Lecture 4: INTERACTIVE TUTORIALS IN PYTHON. PART I: A TASTE OF MACHINE LEARNING AND DEEP LEARNING WITH PYTHON –157AB

1:30 P.M.–2:30 P.M.

I 0R2O

Session 6A: BEST PRACTICES, PRIVATE-PUBLIC PARTNERSHIPS, AND MULTICOMMUNITY EFFORTS FOR THE TRANSITION OF R2O IN THE WEATHER, WATER, AND CLIMATE ENTERPRISES INCLUDING SUCCESSES, FAILURES, AND LESSONS LEARNED—PART III –252A

Chairs: Margaret Caulfield, NOAA/NESDIS (Retired), Townsend, DE; Adam Steckel, NOAA/NESDIS/Office of Projects, Planning and Analysis, Silver Spring, MD

1:30 P.M.

6A.1 *Emphasizing Research Transitions in a Notice of Funding Opportunity.* **Matthew C. Mahalik**, NOAA/OAR/OWAQ, Silver Spring, MD; K. Boyd, B. Lapenta, J. Opatz

1:45 P.M.

6A.2 *Evolving R2O in the Era of “Big Data” Meteorology.* **J. Gerth**, SSEC/UW-Madison, Madison, WI

2:00 P.M.

6A.3 *Streamlining Research to Operations by Utilizing Best Practices with NOAA’s VLab.* **Kenneth S. Sperow**, CIRA NOAA/ NWS, Arroyo Grande, CA; J. E. Burks, S. B. Smith

2:15 P.M.

6A.4 *Using the Jointly Branded ANSI Compliant Standard as a Form of R2O to Improve Poststorm Assessments of Damaging Wind.* **J. G. LaDue**, NOAA/NWS/Office of Chief Learning Officer/Warning Decision Training Division, Norman, OK; M. Levitan, C. standohar-Alfano, D. B. Roueche, P. Scott, T. M. Brown-Giammanco, A. Womble, J. Wurman, F. T. Lombardo, C. D. Karstens, C. J. Peterson, W. Coulbourne

1:30 P.M.–2:30 P.M.

I 0R2O

Session 6B: SIGNIFICANT ROLE OF CALIBRATION/ VALIDATION IN THE TRANSITION OF RESEARCH TO OPERATIONS TO PROVIDE THE SCIENCE-TO- OPERATIONS-TO-SOCIETAL BENEFITS –251

Chairs: Erin Lynch, NOAA/NESDIS/STAR, College Park, MD; Jennifer Webster, NOAA/NESDIS/Office of Projects, Planning and Analysis, Silver Spring, MD

1:30 P.M.

6B.1 *SmallSat Data Quality Assurance in the Transition from Research to Operations.* **C. Cao**, NOAA/NESDIS/STAR, College Park, MD; X. Shao, K. J. Garrett, S. P. Ho, F. Iturbide-Sanchez, P. Weir

1:45 P.M.

6B.2 *Calibration and Validation of NOAA-20 Advanced Technology Microwave Sounder for Weather Forecasting.* **Q. Liu**, STAR, College Park, MD; H. Yang, N. Sun

2:00 P.M.

6B.3 *Thermodynamic Climatology of the Disturbed Stratospheric Polar Vortex Used for Statistical Optimization of Radio Occultation Data.* **Zhen Zeng**, UCAR, Boulder, CO; S. Sokolovskiy

2:15 P.M.

6B.4 *Development of a WPC “Practically Perfect” Verification as a Product for the Excessive Rainfall Outlook.* **Michael J. Erickson**, NOAA/NWS/Weather Prediction Center, College Park, MD; B. Albright, J. A. Nelson

1:30 P.M.–3:00 P.M.

8WXCLIMATE

Session 3A: A SURVEY OF OBSERVATIONAL NEEDS FOR THE WEATHER ENTERPRISE –254A

Chair: Jerald A. Brotzge, Univ. at Albany, SUNY, Albany, NY

1:30 P.M.

3A.1 *Results of a Survey of Observational Needs for the Weather Enterprise.* **Frederick H. Carr**, Univ. of Oklahoma, Norman, OK

2:00 P.M.

3A.2 *Observational Needs: A Perspective from the National Weather Service.* **Thomas J. Cuff**, NWS, Silver Spring, MD

2:15 P.M.

3A.3 *Evolving the NOAA’s Satellite Observing System Architecture to Align with Evolving Needs.* **Karen St. Germain**, NESDIS, Silver Spring, MD

2:30 P.M.

Panel Discussion.

1:30 P.M.–3:00 P.M.

8WXCLIMATE

**Session 3B: DEFINING CLIMATE SERVICES—
WHERE WE WERE 10 YEARS AGO VERSUS WHERE
WE ARE NOW –252B**

1:30 P.M.

Panel Discussion.

12:00 A.M.

*Defining Climate Services – Where We Were 10 Years Ago vs. Where
We Are Now.*

1:30 P.M.–2:30 P.M.

8WRN

**Session 3: NWS EVOLVE: IDSS, THE
COLLABORATIVE FORECAST PROCESS, AND THE
WHOLE OFFICE CONCEPT –153C**

1:30 P.M.

3.1 *A Weather-Ready Nation: Are We There Yet?* **John E. Ten
Hoeve**, NOAA/NWS, Silver Spring, MD; P. Robertson

1:45 P.M.

3.2 *Bringing Together Sector Perspectives on Implementing IDSS.*
Katherine Edwards, NOAA/NWS, Silver Spring, MD

2:00 P.M.

3.3 *National Weather Service Evolve and the Whole Office
Concept.* **Keith M. Stellman**, NWS, Peachtree City, GA; D.
Cavanaugh, J. Bielinski, J. Stark, A. R. Patrick, B. A. Klimowski, M.
Kreller, D. Blondin

2:15 P.M.

3.4 *Risk Reduction Testing to Ensure a Successful Collaborative
Forecast Process Demonstration.* **Ronla K. Henry-Reeves**, NWS,
Silver Spring, MD; J. E. Lee

1:30 P.M.–2:30 P.M.

8JCSDA

**Session 4: ASSIMILATION OF AEROSOL
OBSERVATIONS –254B**

Chairs: Ron Gelaro, NASA/GSFC, Greenbelt, MD; Yannick
Trémolet, Joint Center for Satellite Data Assimilation, Boulder, CO

1:30 P.M.

4.1 *Aerosol Impacts on Satellite Radiance Assimilation.*
Benjamin Ruston, NRL, Monterey, CA; J. Campbell, P. Xian, J.
Zhang, O. Kalashnikova

1:45 P.M.

4.2 *Progress Toward Global Aerosol Analysis Capabilities at NCEP.*
Cory R. Martin, RedLine Performance Solutions at NCEP
EMC, College Park, MD; D. T. Kleist, A. Collard, S. Lu, S. W. Wei, M.
Pagowski, I. Stajner

2:00 P.M.

4.3 *Evaluating the Impact of Assimilating Aerosol Optical
Depth Observations on Dust Forecasts over North Africa and the
East Atlantic Using Different Data Assimilation Methods.* **Shu-Hua
Chen**, Univ. of California, Davis, CA; Y. Choi, C. C. Huang, K. Earl,
C. Y. Chen, C. S. Schwartz, T. Matsui

2:15 P.M.

4.4 *Developing an Ensemble-Based Aerosol Assimilation System
with JEDI.* **Mariusz Pagowski**, Colorado Univ. Boulder, CO; D.
Holdaway, C. R. Martin, D. T. Kleist, S. Kondragunta

1:30 P.M.–2:30 P.M.

6HPC

**Session 2: LEVERAGING INDUSTRY HPC
CAPABILITIES TO ADVANCE EARTH SYSTEM
PREDICTION –155**

Chair: Gerry Creager, Oklahoma Univ./CIMMS, and NOAA/
NSSL, Norman, OK

1:30 P.M.

2.1 *An Implementation of MPAS-Atmosphere Running on GPUs.*
Raghu Raj Prasanna Kumar, NVIDIA, Santa Clara, CA; M.
Duda, S. Suresh, T. Hutchinson, J. Wong

1:45 P.M.

2.2 *A Multiplatform, Cloud-Enabled Mesoscale Model for Business
Solutions.* **Anthony P. Praino**, IBM Thomas J. Watson Research
Center, Yorktown Heights, NY; L. A. Treinish, C. D. Watson

2:00 P.M.

2.3 *Emerging Technologies and Cray's New Shasta System for
Weather, Water, and Climate.* **Ilene L. Carpenter**, Cray Inc.,
Arvada, CO

2:15 P.M.

2.4 *Weather Forecast Application Portability Using Container
Technology.* **Kevin Kelly**, Rescale, Inc., San Francisco, CA; C.
Ramirez, G. Creager, R. Herban

1:30 P.M.–2:30 P.M.

5INTERNATIONAL

**Session 3: SUBSEASONAL-TO-SEASONAL
PREDICTIONS AND PREDICTABILITY: PAST
PROGRESS AND FUTURE PROSPECTS ACROSS
THE INTERNATIONAL COMMUNITY—PART I –212**

1:30 P.M.

3.1 *Predictive Skill of African Easterly Waves in the ECMWF
Subseasonal-to-Seasonal Reforecasts.* **Weiwei Li**, NCAR, Boulder,
CO; Z. Wang

1:45 P.M.

3.2 *Soil Moisture as a Potential Source of Predictability for West
African Summer Rainfall.* **Muhammad Ashfaqur Rahman**, The
Abdus Salam International Center for Theoretical Physics (ICTP),
Trieste, Italy; M. A. Abid, F. Kucharski

2:00 P.M.

3.3 *Influence of the North Atlantic Oscillation on the Forecast Skill of the Madden-Julian Oscillation.* **Hai Lin**, EC, Dorval, Canada; Z. Huang

2:15 P.M.

3.4 *Land-Atmosphere Interactions May Have Exacerbated the Drought and Heat Wave over Northern Europe during Summer 2018.* **Paul A. Dirmeyer**, George Mason Univ., Fairfax, VA; G. Balsamo, E. Blyth, R. Morrison, H. M. Cooper

1:30 P.M.–2:30 P.M.

TROPSYMPI / 33CVC**Joint Session 24: WOMEN IN THE TROPICS –205B**

Chairs: Kelly Marie Nunez Ocasio, The Pennsylvania State Univ., University Park, PA; Courtney Schumacher, Texas A&M Univ., College Station, TX

Speaker: Jenni L. Evans, The Pennsylvania State Univ., University Park, PA

1:30 P.M.

Introductory Remarks by AMS President Jenni Evans.

1:30 P.M.

J24.1 *Women in the Tropics: Contributions to Our Understanding of Tropical Cyclones in Vertical Wind Shear.* **Kristen L. Corbosiero**, Univ. at Albany, SUNY, Albany, NY

1:45 P.M.

J24.2 *Contributions of Women in the English-Speaking Caribbean to Tropical Meteorology Operations, Education, Research, and Applications.* **Arlene G. Laing**, Caribbean Meteorological Organization, Port of Spain, Trinidad and Tobago; K. A. Caesar, A. Sealy, R. Mahon, T. S. Stephenson

2:00 P.M.

J24.3 *Leaving the Tropics to Study the Tropics.* **Suzana J. Camargo**, Lamont-Doherty Earth Observatory, Columbia Univ., Palisades, NY

2:15 P.M.

J24.4 *Combining Observational Studies and Numerical Modeling to Further the Understanding and Prediction of Convective Systems in the Tropics: The Role of Brazilian Scientist Maria a. F. Silva Dias.* **Ligia Bernardet**, CU/CIRES at NOAA/GSD, Boulder, CO; L. M.V. Carvalho

1:30 P.M.–2:30 P.M.

MIDDLESYMP

Session 3: 100 YEARS OF PROGRESS IN UNDERSTANDING THE MIDDLE ATMOSPHERE. PART III –255

Chairs: Rei Ueyama, NASA, Moffett Field, CA; Sean M. Davis, NOAA/ESRL, Boulder, CO

1:30 P.M.

3.1 *What's New with the Tropical Tropopause Layer?* **William J. Randel**, NCAR, Boulder, CO

2:00 P.M.

3.2 *The Role of the Stratosphere in Understanding Future Climate Change.* **Amanda Maycock**, Univ. of Leeds, Leeds, UK

1:30 P.M.–2:30 P.M.

SLSSYMPI

Session 3: HISTORY AND EVOLUTION OF THE FORECASTING AND WARNING PROCESS AND ITS CHALLENGES –258B

Chairs: Julie Demuth, NCAR, Boulder, CO; Alicia Klees, The Pennsylvania State Univ., University Park, PA

1:30 P.M.

3.1 *Generating Probabilistic Severe Timing Information from SPC Outlooks Using the HREF.* **Israel L. Jirak**, NOAA/NWS/NCEP/Storm Prediction Center, Norman, OK; M. S. Elliott, C. D. Karstens, R. S. Schneider, P. T. Marsh, W. F. Bunting

1:45 P.M.

3.2 *Reducing the Number of Tornado Warnings in Hurricanes while Enhancing Alert Messages.* **David W. Sharp**, NOAA/National Weather Service, Melbourne, FL; J. Combs, J. Smith

2:00 P.M.

3.3 *Short-Term Tornado Prediction via Deep Learning on 3D Multiscale Data.* **Ryan A. Lagerquist**, CIMMS, Norman, OK; A. McGovern, C. R. Homeyer, D. J. Gagne II, T. M. Smith

2:15 P.M.

3.4 *Are Multiday Tornado and Hail Events More Predictable?* **Kimberly Hoogewind**, CIMMS, Norman, OK; V. A. Gensini, R. J. Trapp, H. E. Brooks

3:00 P.M.–4:00 P.M.

DICKINSONSYMP / 33CVC / 22WXMOD

Joint Session 25: AEROSOL APPROACHES TO CLIMATE ENGINEERING (E.G., RESULTS FROM CLIMATE MODELING, USING ANALOGS SUCH AS VOLCANIC ERUPTIONS AND SHIP TRACKS, AND DEVELOPMENT OF TECHNOLOGY TO ACTUALLY IMPLEMENT SOLAR GEOENGINEERING) –210C

Chair: Alan Robock, Rutgers Univ., New Brunswick, NJ

3:00 P.M.

J25.1 *Current and Future Research Directions of Aerosol Climate Engineering.* **Simone Tilmes**, NCAR, Boulder, CO

3:30 P.M.

J25.2 *The North Atlantic Climate Response to Stratospheric Sulfate Geoengineering.* **James Hurrell**, Colorado State Univ., Fort Collins, CO; L. Sun, K. Dagon

3:45 P.M.

J25.3 *An Evaluation of Cirrus Cloud Thinning through Improved Integration of Satellite Retrievals and Climate Modeling.* **David L. Mitchell**, DRI, Reno, NV; Y. Tomii, F. Hosseinpour, J. Mejia

3:00 P.M.–4:00 P.M.

48BROADCAST**Session 5: KNOWING AND GROWING YOUR AUDIENCE –204AB****Chair:** Cheryl Nelson, WTKR-TV, Norfolk, VA**3:00 P.M.****5.1** *Using Online Weather Forecasting Games and Data as an Educational Tool.* **Richard Jaycobs**, CX Futures Exchange, L.P., New York, NY; A. Wing**3:15 P.M.****5.2** *Partner With Census.* **Laura Furgione**, NWS, Silver Spring, MD**3:45 P.M.***Discussion.*

3:00 P.M.–4:00 P.M.

36EIP**Session 7A: CLOUD COMPUTING FOR ENVIRONMENTAL DATA PROCESSING AND DISPLAY: PROMISE VERSUS PRACTICE. PART II –157C****Chairs:** Eugene Burger, NOAA/ERL/PMEL, Seattle, WA; Tiffany C. Vance, NOAA, Silver Spring, MD; Kevin R. Tyle, Univ. at Albany, SUNY, Albany, NY**3:00 P.M.****7A.1** *DyNamo: Scalable Weather Workflow Processing in the Academic Multicloud.* **Eric Lyons**, Univ. of Massachusetts Amherst, Amherst, MA; M. Zink, A. Mandal, C. Wang, P. Ruth, C. Radhakrishnan, G. Papadimitriou, E. Deelman, K. Thareja, I. Rodero**3:15 P.M.****7A.2** *Cloud Native Data Processing and Visualizations Techniques for Earth Science Data.* **Ajinkya Kulkarni**, Univ. of Alabama, Huntsville, AL; H. Conover, A. Marouane, T. Berendes, B. Ellingson, G. T. Stano, S. J. Graves**3:30 P.M.****7A.3** *Distributing WDSS-II Data on Google Cloud.* **Valliappa-Lakshmanan**, Valliappa Lakshmanan, Bellevue, WA; S. Glass, T. Smith, A. Campbell**3:45 P.M.****7A.4** *Cloud Computing Support for the Weather Research and Forecasting Model.* **Kelly K. Werner**, NCAR, Boulder, CO; J. G. Powers, D. Gill

3:00 P.M.–4:00 P.M.

36EIP**Session 7B: VISUALIZATION TECHNIQUES FOR CLIMATOLOGY AND METEOROLOGY WITH NEW DATA. PART II –209****Chairs:** J. T. Johnson, DTN, Norman, OK; Steven R. Chiswell, Savannah River National Laboratory, Aiken, SC; S. S. Lindstrom, Univ. of Wisconsin, Madison, WI; Daniel Vignoles, NCEP, College Park, MD**3:00 P.M.****7B.1** *Web-Based GRIB2 Visualization Techniques at the Aviation Weather Testbed.* **Austin Cross**, NOAA/NWS/NCEP/Aviation Weather Center, Kansas City, MO**3:15 P.M.****7B.2** *Novel Web-Based Tools for the Visualization of High-Impact Weather Forecasts with Convection-Allowing Ensembles.* **Ryan A. Sobash**, NCAR, Boulder, CO; B. Roberts, P. S. Skinner**3:30 P.M.****7B.3** *Incorporating and interpreting Drone Measurements for Decision-Based Applications.* **Steven R. Chiswell**, Savannah River National Laboratory, Aiken, SC

3:00 P.M.–4:00 P.M.

34HYDRO**Session 8: EXTREME RAINFALL AND HYDROLOGIC EXTREMES. PART IV –253C****Chairs:** John W. Nielsen-Gammon, Texas A&M Univ., College Station, TX; Kelly Mahoney, NOAA, Boulder, CO; Kenneth Kunkel, North Carolina State Univ., Raleigh, NC; Bill D. Kappel, Applied Weather Associates, Monument, CO**3:00 P.M.****8.1** *Progress on Flash Flood Verification and Excessive Rainfall Related QPF Products from the HRRR Model.* **E. P. James**, Cooperative Institute for Research in Environmental Sciences, Boulder, CO; T. Alcott, C. Alexander, M. Erickson**3:15 P.M.****8.2** *Twenty-First-Century Tools for Extreme Rainfall and Flood Prediction in Colorado.* **Bill McCormick**, Division of Water Resources, Colorado Department of Natural Resources, Denver, CO; M. Perry**3:30 P.M.****8.3** *Process-Focused, Multiscale, Integrated Hydrometeorological Assessments toward Understanding National Water Model Forecasts: A Case Study of the 27 May 2018 Ellicott City Flood.* **Kelly Mahoney**, NOAA, Boulder, CO; F. Viterbo, J. C. Elliott, D. Gochis, R. Cifelli, L. Read, B. A. Cosgrove, F. Salas, B. Bates, A. Dugger**3:45 P.M.****8.4** *Toward Near-Real-Time Forecast Flood Inundation Map Services.* **Fernando Salas**, NOAA/NWS, Silver Spring, MD; B. Bates, M. Stone, S. Crawley, D. Giardino, B. A. Cosgrove, D. Djokic, M. J. Glaudemans, D. Jones, E. Clark, T. Graziano

3:00 P.M.—4:00 P.M.

34HYDRO / 30WAF26NWP / 26PROBSTAT
Joint Session 26: PROBABILISTIC
HYDROMETEOROLOGICAL FORECASTING AND
UNCERTAINTY ANALYSIS. PART II –253A

Chairs: Huiling Yuan, Nanjing Univ., Nanjing, China; Kristie Franz, Iowa State Univ., Ames, IA; Shugong Wang, NASA GSFC/SAIC, Greenbelt, MD; Christopher J. Melick, 557th Weather Wing, Offutt Air Force Base, NE

3:00 P.M.

J26.1 *Contribution of Infiltration Process Uncertainty on the Simulation of Terrestrial Water and Energy Budgets.* **Shugong Wang**, NASA GSFC/SAIC, Greenbelt, MD; S.V. Kumar, D. M. Mocko, J.W. Wegiel, C. D. Peters-Lidard

3:15 P.M.

J26.2 *Integrating Entropy and Copulas for Precipitation Gauging Network Optimization Based on Information Balancing Strategy.* **Heshu Li**, Nanjing Univ., Nanjing, China; D. Wang, Y. Wang

3:30 P.M.

J26.3 *Improving Water Forecasting with Bayesian Averaging of Multiple Forecasts.* **Ali Jozaghi**, Univ. of Texas at Arlington, Arlington, TX; M. Ghazvinian, D. J. Seo, Y. Zhang, E. Welles, S. Reed, M.A. Fresch

3:45 P.M.

J26.4 *Evaluation of Probabilistic Convective Precipitation Forecasts over South China Using the GRAPES Convective-Scale Ensemble.* **Jing Chen**, Chinese Meteorological Administration, Beijing, China

3:00 P.M.—4:00 P.M.

33CVC
Session 7A: ATMOSPHERIC RIVERS: GLOBAL
SCIENCE AND APPLICATIONS. PART II –150

Chair: Bin Guan, Univ. of California, Los Angeles, Pasadena, CA

3:00 P.M.

7A.1 *Atmospheric River Influences on Extreme Rainfall in Taiwan.* **Lexi Henny**, Univ. at Albany, SUNY, Albany, NY; C. Thorncroft, H. H. Hsu, L. F. Bosart

3:15 P.M.

7A.2 *Future Projections of Precipitation and Atmospheric Rivers in the Middle East.* **Elias Massoud**, NASA JPL, Pasadena, CA; T. Massoud, D. E. Waliser

3:30 P.M.

7A.3 *Atmospheric Rivers and Cyclone Clustering from Reanalyses and High-Resolution Model Simulations.* **Sergey Gulev**, P. P. Shirshov Institute of Oceanology, Moscow, Russian Federation; N. Tilina, P. Verezhenskaya, A. Gavrikov, M. Krinitsky

3:45 P.M.

7A.4 *Large-Scale Controls of Landfalling North Pacific Atmospheric Rivers across a CESM2 Hierarchy.* **James J. Benedict**, Univ. of Miami, Fort Collins, CO; A. Clement, B. Medeiros

3:00 P.M.—4:00 P.M.

33CVC
Session 7B: COMMUNICATING CLIMATE CHANGE –154

Chairs: Robert Korty, Texas A&M Univ., College Station, TX; Markeya Thomas, Climate Nexus, New York, NY

3:00 P.M.

7B.1 *Climate.Gov Social Media Engagement Strategy for Increasing Climate Communication and Dialogue.* **Tom E. Di Liberto**, CollabraLink Inc, Silver Spring, MD; D. Herring, R. Lindsey, F. Niepold

3:15 P.M.

7B.2 *How to Help Me Get Your Research Right.* **Kait Parker**, The Weather Company, Brookhaven, GA

3:30 P.M.

7B.3 *Investigating Connections between the Need for Cognitive Closure and Climate Change Concern.* **Margaret Orr**, Univ. of Georgia, Athens, GA; A. Grundstein, A. E. Stewart

3:45 P.M.

7B.4 *Encouraging Planners and Decision-Makers to Embrace Uncertainty in Climate Model Projections for Adaptation Planning.* **Derek H. Rosendahl**, South Central Climate Adaptation Science Center, Univ. of Oklahoma, Norman, OK; A. M. Wootten, R. A. McPherson, E. Kuster, E. Mullens, A. Bryan

3:00 P.M.—4:00 P.M.

33CVC / TROPSYMP I
Joint Session 27: WOMEN IN THE TROPICS. PART II –151A

Chairs: Kelly Nunez Ocasio, The Pennsylvania State Univ., University Park, PA; Jenni L. Evans, The Pennsylvania State Univ., University Park, PA

3:00 P.M.

Introductory Remarks by AMS President Jenni Evans.

3:00 P.M.

J27.1 *The Availability and Reliability of Precipitation and Zonal Wind Estimates over Africa.* **Sharon E. Nicholson**, Florida State Univ., Tallahassee, FL

3:15 P.M.

J27.2 *Multiscale Nature of Tropical Influence on Precipitation Variability in Southern South America.* **Carolina Vera**, Univ. of Buenos Aires, Buenos Aires, Argentina

3:30 P.M.

J27.3 *Women's Careers Fostered by the Large-Scale Biosphere Atmosphere Experiment in Amazonia—LBA.* **Maria A. F. Silva Dias**, Universidade de Sao Paulo, Barueri, Brazil

3:45 P.M.

J27.4 *Projecting Regional Climate Change in the Tropics.* **Kerry H. Cook**, Univ. of Texas, Austin, TX

3:00 P.M.—4:00 P.M.

30WAF26NWP

Session 6A: ADVANCES IN DYNAMICS AND PHYSICS OF NUMERICAL WEATHER MODELS. PART III –257AB

Chairs: Louisa Nance, NCAR and Developmental Testbed Center, Boulder, CO; Rebecca Adams-Selin, AER, Omaha, NE

3:00 P.M.

6A.1 *Linking NEPTUNE with NAVDAS-AR: A Cycling NWP System Coupling a 3D Spectral Element Model and 4DVar Data Assimilation.* **Kevin Viner**, NRL, Monterey, CA; D. R. Ryglicki, P.A. Reinecke, J. Doyle, B. S. Chua

3:15 P.M.

6A.2 *Combining the Common Community Physics Package with a Single-Column Model to Drive NWP Physics Advancements.* **Grant J. Firl**, NCAR and the Developmental Testbed Center, Boulder, CO; D. Heinzeller, L. Xue, L. Bernardet

3:30 P.M.

6A.3 *Advances in Model Physics for the Next Implementation of the GFS (GFSv16).* **John S. Kain**, NOAA, College Park, MD; S. Moorthi, F. Yang, R. Yang, H. Wei, Y. Wu, Y. T. Hou, H. M. Lin, V. A. Yudin, J. C. Alpert, V. Tallapragada, R. Sun

3:45 P.M.

6A.4 *The Ice Particle and Aggregate Simulator (IPAS): Investigating Aggregate Properties Using a Multifaceted Modeling Approach.* **Vanessa M. Przybylo**, Univ. at Albany, SUNY, Albany, NY; K. Sulia, C. G. Schmitt, Z. J. Lebo

3:00 P.M.—4:00 P.M.

30WAF26NWP

Session 6B: ANALYSIS AND FORECASTING OF WINTER WEATHER. PART III –258A

Chair: Sam Ng, Metropolitan State Univ., Denver, CO

3:00 P.M.

6B.1 *Measurements of Hazardous Winter Precipitation in the St. Lawrence River Valley.* **Mathieu Lachapelle**, UQAM, Montreal, Canada; J. M. Thériault

3:15 P.M.

6B.2 *Microphysical Characteristics of Snowbands along the U.S. Northeast Coast Using In Situ Surface and Radar Observations and Simulations.* **Brian A. Colle**, Stony Brook Univ., Stony Brook, NY; M. Oue, P. Kollias

3:30 P.M.

6B.3 *Lessons Learned from the Real-Time Implementation of the Spectral Bin Classifier Surface Precipitation Type Algorithm.* **Andrew A. Rosenow**, CIMMS/Univ. of Oklahoma and NOAA/NSSL, Norman, OK; H. D. Reeves

3:45 P.M.

6B.4 *The Relationship between Simulated Reflectivity and Precipitation across Different Microphysics Schemes in a Banded Snowfall Event.* **Martin A. Baxter**, Central Michigan Univ., Mount Pleasant, MI

3:00 P.M.—4:00 P.M.

29EDUCATION

Panel Discussion 2: CONFERENCE ON EDUCATION ROUNDTABLE: WHERE DO WE GO FROM HERE? –258C

Chairs: Reginald Blake, New York City College of Technology, Brooklyn, NY; Jeffrey A. Yuhas, Morristown-Beard School, Morristown, NJ

3:00 P.M.—4:00 P.M.

26PROBSTAT / 24IOAS / 8JCSDA

Joint Session 28: STATISTICAL ESTIMATION METHODS FOR PARAMETERS OF OBSERVING AND ASSIMILATION SYSTEMS: THEORY AND PRACTICE –260

Chair: Dan Hodyss, NRL, Washington, DC

3:00 P.M.

J28.1 *Observation-Based Cloud and Precipitation Properties from Spaceborne Measurements Using a Parallel Bayesian Retrieval Framework.* **D. J. Posselt**, JPL, Pasadena, CA; B. D. Wilson, R. L. Storer, E. L. Nelson, N. Niamsuwan, S. Tanelli

3:15 P.M.

J28.2 *A New Adaptive Hybrid Ensemble Kalman Filter and Optimal Interpolation.* **Mohamad El Gharamti**, NCAR, Boulder, CO

3:30 P.M.

J28.3 *Quality Assessment and Impact of High-Resolution GOES-16 AMVs into the GSI-EnKF-Based WoFS.* **S. Mallick**, CIMMS, NOAA/ NSSL, Norman, OK; T. A. Jones, K. H. Knopfmeier, P. Skinner, D. C. Dowell

3:45 P.M.

J28.4 *Impact of Bias in the Marine Air Temperature Observation Set on Atmospheric Reanalyses.* **Jim Carton**, Univ. of Maryland, College Park, MD; S. Akella

3:00 P.M.—4:00 P.M.

25APPLIED

Panel Discussion 1: NOAA 1991–2020 CLIMATE NORMALS: CURRENT PLANS AND FUTURE DIRECTIONS—PANEL DISCUSSION –153A

Chair: Michael A. Palecki, NOAA/NESDIS/National Centers for Environmental Information, Asheville, NC

3:00 P.M.—4:00 P.M.

24IOAS

Session 7A: ADVANCES IN ENSEMBLE-BASED DATA ASSIMILATION METHODOLOGIES FOR HIGHLY NONLINEAR AND LARGE-DIMENSIONAL SYSTEMS. PART III –259A

Chair: Jonathan Poterjoy, Univ. of Maryland, College Park, MD

3:00 P.M.

7A.1 *Advances in Ensemble-Based Data Assimilation for Planetary Atmospheres Applications.* **Steven J. Greybush**, The Pennsylvania State Univ., University Park, PA; H. E. Gillespie

3:15 P.M.

7A.2 *Toward Higher-Resolution Limited-Area Ensemble-Based Data Assimilation for NWP at Environment and Climate Change Canada.* **Jean-Francois Caron**, EC, Dorval, Canada; S. J. Baek, M. Buehner, P. L. Houtekamer

3:30 P.M.

7A.3 *Using Climate HRRRE Ensemble Perturbations for Improving GSI Hybrid 3D-EnVar Surface Analysis.* **M. Hu**, NOAA/GSD, Univ. of Colorado/CIRES, and Developmental Testbed Center, Boulder, CO; D. C. Dowell, S. Weygandt, C. Alexander, S. Benjamin, J. R. Carley

3:45 P.M.

7A.4 *Comparison of the Ensemble Adjustment Kalman Filter (EAKF) and Rank Histogram Filter (RHF) with WRF-DART for Two Convective Cases over the Great Plains Region.* **Derek Hodges**, Univ. of Utah, Salt Lake City, UT; Z. Pu, J. L. Anderson

3:00 P.M.—4:00 P.M.**24IOAS****Session 7B: SPECIAL SESSION ON COSMIC-2. PART II –259B**

Chair: Richard A. Anthes, UCAR, Boulder, CO

3:00 P.M.

7B.1 *Performance Assessment and Verification of FORMOSAT-7/ COSMIC-2 GNSS Neutral Atmospheric Radio Occultation Data.* **William S Schreiner**, UCAR, Boulder, CO; S. Sokolovskiy, J. P. Weiss, J. J. Braun, R. A. Anthes, Y. H. Kuo, D. C. Hunt, Z. Zeng, T. K. Wee, T. Vanhove, J. Sjoberg, H. K. Huelsing

3:15 P.M.

7B.2 *COSMIC-2 Product Validation at NESDIS/STAR Using Global Radiosonde Observations.* **S. P. Ho**, NOAA/NESDIS/STAR/SMCD, College Park, MD; X. Zhou, B. Zhang, C. Chao

3:30 P.M.

7B.3 *Evaluating the Impact of COSMIC-2 RO on Regional Numerical Weather Prediction Using a High-Resolution Hybrid 3D-EnVar System at CWB.* **Jing-Shan Hong**, Central Weather Bureau, Taipei, Taiwan; Y. H. Kuo, Y. J. Chen, W. J. Chen, I. H. Chen, S. Y. Jiang

3:45 P.M.

7B.4 *Calibration and Validation of COSMIC-2 Radio Occultation Data: Error Statistics Estimated through Comparison with Other Datasets.* **Jeremiah Sjoberg**, UCAR, Boulder, CO; R. A. Anthes, T. Rieckh, T. K. Wee, S. Sokolovskiy, D. Hunt

3:00 P.M.—4:00 P.M.**22ATCHEM****Session 7: CORE SCIENCE KEYNOTE PRESENTATIONS. PART II –206B****3:00 P.M.**

7.1 *Atmospheric Chemistry: A Century of Expanding Scientific Discovery and Societal Relevance (Core Science Keynote).* **Ronald G. Prinn**, Massachusetts Institute of Technology, Cambridge, MA

3:30 P.M.

Q&A Session .

3:00 P.M.—4:00 P.M.**21AIRPOL****Session 8: AIR QUALITY FORECASTING –211**

Chairs: Brian Eder, EPA, Research Triangle Park, NC; Saravanan Arunachalam, Univ. of North Carolina at Chapel Hill, NC

3:00 P.M.

8.1 *Evaluation of FV3 for Use with Air Quality Applications.* **Jeff McQueen**, NOAA/NWS/NCEP/EMC, College Park, MD; J. Huang, L. Pan, P. Shafran, H. C. Huang, J. S. Kain, P. Lee, Y. Tang, D. Tong, I. Stajner, J. Tirado-Delgado

3:15 P.M.

8.2 *Diagnosing Summertime PM_{2.5} Biases of the CMAQ Model Driven by the FV3GFS.* **Benjamin Yang**, NOAA/NWS/NCEP, College Park, MD; J. Huang, J. McQueen

3:30 P.M.

8.3 *Understanding the Impact of Meteorology on Ozone in 334 Cities of China.* **Ping Kang**, Chengdu Univ. of Information Technology, Chengdu, China; X. Zhang, C. Hu

3:45 P.M.

8.4 *Improving Air Quality Predictions in New Delhi during the Crop-Residue Burning Season via Chemical Data Assimilation.* **Rajesh Kumar**, NCAR, Boulder, CO; S. Ghude, C. Jena, S. Alessandrini, M. K. Biswas, R. Nanjundiah

3:00 P.M.—4:00 P.M.**20SMOI****Session 7: INTEGRATED INSTRUMENTATION AND OBSERVING SYSTEMS FOR ALL APPLICATIONS—REMOTE BASED –203**

Chair: Reid Hansen, Scintec, Boulder, CO

3:00 P.M.

7.1 *Weather Satellite Follow-On: Microwave (WSF-M) Design and Predicted Performance.* **David Newell**, Ball Aerospace, Boulder, CO

3:15 P.M.

7.2 *Radiometric Correction of Digital UAS Multispectral Imagery Using Free and Open Satellite Surface Reflectance Images.* **Saket Gowravaram**, Univ. of Kansas, Lawrence, KS; H. Chao, A. L. Molthan, N. Brunzell, T. Zhao

3:30 P.M.

7.3 *Planning for LOTOS: A New Lower-Troposphere Observing System.* **Terry Hock**, NCAR, Boulder, CO; S. Oncley, T. M. Weckwerth, B. Stephens, A. Rockwell, W. O. J. Brown, W. C. Lee, V. Grubišić

3:45 P.M.

7.4 *Estimating Ground-Level PM_{2.5} Concentrations from Satellite AOD in Central China Using Seasonal-Differential Geographically and Temporally Weighted Regression Model during 2015–17.* **Han Ding**, NSFC, Nanjing, China; R. K. Kanike, T. Zhao

3:00 P.M.—4:00 P.M.

20ARAM**Session 7: STUDIES INVOLVING AVIATION
IMPACTS TRANSLATION MODELING –206A**

Chairs: Mark Worris, MIT Lincoln Laboratory, Lexington, MA; Steve Abelman, American Airlines, Ft. Worth, TX

3:00 P.M.

7.1 *A Historical Perspective on the Integration of Weather Information into Air Traffic Management Decision Support Tools (Invited Presentation).* **James E. Evans**, MIT Lincoln Laboratory, Lexington, MA

3:30 P.M.

7.2 *Airline Operational Performance as It Relates to TAFs.* **Benjamin D. Dillahun**, Southwest Airlines Co., Dallas, TX; J. C. Cohen

3:45 P.M.

7.3 *Impact-Based Decision Support Services for the National Airspace System: A Case Study of Two High-Impact Thunderstorm Events on Traffic Flow Management.* **Brandon A. Smith**, NOAA/NWS, Warrenton, VA; D. Bieger, J. Carr Jr., M. T. Eckert, K. Struckmann, B. Waranauskas

3:00 P.M.—4:00 P.M.

19AI**Session 6: HISTORY OF AI IN ENVIRONMENTAL
SCIENCE (CENTENNIAL) –156BC**

Chairs: Philippe Tissot, Texas A&M Univ., Corpus Christi, TX; Sue Ellen Haupt, NCAR, Boulder, CO

3:00 P.M.

6.1 *The History of AI in the Environmental Sciences (Core Science Keynote).* **Sue Ellen Haupt**, NCAR, Boulder, CO

3:30 P.M.

6.2 *AI Applications to the Earth Sciences: 35 Years through the Lens of the AMS Artificial Intelligence Committee.* **Philippe E. Tissot**, Texas A&M Univ., Corpus Christi, TX

3:45 P.M.

Panel Discussion.

3:00 P.M.—4:00 P.M.

18COASTAL**Session 7: 50 YEARS OF MARINE WIND AND WAVE
FORECASTING –158**

Chairs: John Guiney, NOAA/NWS, Bohemia, NY; Andre Van der Westhuysen, IMSG at NOAA/NWS/NCEP/EMC, College Park, MD

3:00 P.M.

7.1 *Kinematic Analysis of Ocean Winds: Past, Present, and Future.* **Andrew T. Cox**, Oceanweather, Inc., Stamford, CT

3:15 P.M.

7.2 *Development of Numerical Wind-Wave Forecasting and Hindcasting Technology: Contributions by Vincent Cardone.* **Charles L. Vincent**, Univ. of Miami, Coral Gables, FL

3:30 P.M.

7.3 *The NOPP Project: Forecasting of Winds, Waves, and Surge during Hurricane Katrina—A Retrospective.* **Hans C. Graber**, Univ. of Miami, Coral Gables, FL

3:45 P.M.

7.4 *Recent Advances in Modeling Coastal Waves.* **Donald T. Resio**, Univ. of North Florida, Jacksonville, FL

3:00 P.M.—4:15 P.M.

18HISTORY**Session 7: AMS CENTENNIAL MONOGRAPH—100
YEARS OF PROGRESS. PART IV (CENTENNIAL) –104A**

Chairs: Greg McFarquhar, Univ. of Oklahoma, Norman, OK; Lourdes Avilés, Plymouth State Univ., Plymouth, NH

3:00 P.M.

7.1 *100 Years of Progress in Understanding the Stratosphere and Mesosphere.* **P. Baldwin**, Univ. of Exeter, NORTHCOTE HOUSE, THE QUEENS DRIVE, UK

3:15 P.M.

7.2 *100 Years of Progress in Mesoscale Planetary Boundary Layer Meteorological Research.* **David A. R. Kristovich**, ISWS/Prairie Research Institute/Univ. of Illinois, Champaign, IL; E. S. Takle, G. S. Young, A. Sharma

3:30 P.M.

7.3 *100 Years of Progress on Mountain Meteorology Research.* **Ronald B. Smith**, Yale Univ., New Haven, CT

3:45 P.M.

7.4 *100 Years of Progress in Polar Meteorology.* **John E. Walsh**, Univ. of Alaska Fairbanks, Fairbanks, AK; D. H. Bromwich, J. E. Overland, M. C. Serreze, K. R. Wood

4:00 P.M.

7.5 *100 Years of Progress in Hydrology.* **Christa Peters-Lidard**, NASA, Greenbelt, MD; F. Hossain, L. R. Leung, N. McDowell, M. Rodell, F. J. Tapiador, F. J. Turk, A. W. Wood

3:00 P.M.—4:00 P.M.

17SPACEWX**Session 8: SPACE WEATHER AT SOLAR MINIMUM
AND WHAT'S TO COME: SOLAR CYCLE 25
PREDICTIONS –205A**

Chairs: Robert Rutledge, NWS/SWPC, Boulder, CO; Scott McIntosh, NCAR, Boulder, CO

3:00 P.M.

8.1 *Space Weather Effects on GPS Scintillation at Middle Latitudes.* **Joshua Semeter**, Boston Univ., Boston, MA; S. Mrak, T. Nishimura

3:15 P.M.

8.2 *Timing Terminators: Forecasting Sunspot Cycle 25 Onset and Activity Levels (Invited Presentation).* **Robert J. Leamon**, Univ. of Maryland, College Park, MD; S. McIntosh

3:30 P.M.

8.3 *As One Solar Cycle Fades, Another Begins (Invited Presentation).* **W. Dean Pesnell**, NASA, Greenbelt, MD

3:45 P.M.

8.4 *The Origin of Magnetic Flux Ropes Observed at 1 AU from the Sun.* **Nariaki Nitta**, Lockheed Martin Advanced Technology Center, Palo Alto, CA; T. Skov

3:00 P.M.—4:00 P.M.**I6GOESRJPSS**

Session 6: GEOSTATIONARY LIGHTNING MAPPER (GLM)—USER APPLICATIONS AND RESEARCH. PART II –253B

Chairs: Samantha Edgington, Lockheed Martin, Palo Alto, CA; Steven J. Goodman, GOES-R Program Office/TGA,, Owens Cross Roads, AL

3:00 P.M.

6.1 *GLM Use, Feedback, and Development in the Hazardous Weather Testbed.* **K. M. Calhoun**, NSSL, Norman, OK; E. Bruning, C. J. Schultz, T. C. Meyer

3:15 P.M.

6.2 *Assimilation of GLM Data Together with Ground-Based Lightning Observations for Improved Storm Spin-Up in the High Resolution Rapid Refresh.* **A. Back**, NOAA/ESRL/GSD and CIRA/ Colorado State Univ., Boulder, CO; S. Weygandt, M. Hu, D. M. Kingfield, G. Ge, C. R. Alexander, S. Benjamin, E. P. James

3:30 P.M.

6.3 *Relating ABI Products to GLM Sensor Characteristics and Performance.* **Kevin Thiel**, Univ. of Oklahoma/CIMMS/SOM and NOAA/OAR/NSSL, Norman, OK; K. M. Calhoun, A. E. Reinhart, D. R. MacGorman

3:45 P.M.

6.4 *Utilizing Low-Frequency Ground-Based Lightning Locating Networks to Simulate Optical Lightning Observations of Geostationary Satellites.* **Felix Erdmann**, CNRM, Toulouse, France; E. Defer, O. Caumont, R. L. Holle, S. Pedebay

3:00 P.M.—4:00 P.M.**I5SOCIETY**

Panel Discussion 5: REFLECTING ON THE PAST, PRESENT, AND FUTURE OF NWS SERVICE ASSESSMENTS: INTEGRATING SOCIAL SCIENCE INTO A MULTIDISCIPLINARY APPROACH TO LINK INFORMATION TO KNOWLEDGE AND SOCIETY –151B

Moderators: Vankita Brown, NOAA/NWS, Silver Spring, MD; Logan Johnson, NWS, Seattle, WA

Panelists: Cindy Woods, NOAA/NWS, Silver Spring, MD; Vankita Brown, NOAA/NWS, Silver Spring, MD; Ayeisha Brinson, Office of the Chief Economist, NOAA, Silver Spring, MD; Chris Ellis, NOS, Charleston, SC; Logan Johnson, NWS, Seattle, WA; Suzanne Van Cooten, NOAA/ NSSL, Norman, OK; Leticia D. Williams, NCAS, Washington, DC

3:00 P.M.

Introductory Remarks. **Vankita Brown**, NOAA/NWS, Silver Spring, MD

3:00 P.M.

PD5.1 *Reflecting on the Past, Present, and Future of NWS Service Assessments: Integrating Social Science into a Multidisciplinary Approach to Link Information to Knowledge and Society.* **Vankita Brown**, NOAA/NWS, Silver Spring, MD; A. Brinson, C. Ellis, J. Garmon, L. Johnson, M. J. Moreland, L. D. Williams, C. Woods, S. Van Cooten

3:15 P.M.

Panel Discussion.

3:00 P.M.—4:00 P.M.**I5SOCIETY**

Session 6: ECONOMICS OF THE WEATHER, WATER, AND CLIMATE ENTERPRISE. PART II –152

Chairs: Jeffrey Lazo, Jeffrey K. Lazo Consulting LLC, Gunnison, CO; William Hooke, American Meteorological Society, Washington, DC

3:00 P.M.

6.1 *Application of NOAA's NCEI Climate and Weather Data to Economic Sectors.* **Amanda Rycerz**, Acclimatise North America, Asheville, NC

3:15 P.M.

6.2 *Identifying the Socioeconomic Value of NOAA's Data and Services: Connecting NOAA's Value Tree Model to End Users and the Economy.* **Joseph Conran**, Riverside Technology, Inc., Silver Spring, MD; A. Pratt, D. Helms, T. Vo Dinh, M. Grasso, J. Adkins, A. Brinson, C. Lauer, S. J. Tajeron

3:30 P.M.

6.3 *Using Microeconomics to Measure the Societal Benefits of Information in Weather Enterprise Decision-Making.* **Bethany Mabee**, Resources for the Future, Washington, DC; Y. Kuwayama

3:45 P.M.

6.4 *Bringing the NOAA Value Tree into the Present: The NOSIA Content Refresh Project.* **Aaron Pratt**, Riverside Technology, Inc., Silver Spring, MD; D. Helms, L. Cantrell Jr., L. McCulloch, S. J. Tajeron, J. Goldstein, J. Conran

3:00 P.M.—4:00 P.M.**I5URBAN**

Session 7: WEATHER FORECASTING FOR CITIES: RECENT ADVANCES AND CASE STUDIES –104B

Chair: Valéry Masson, Meteo-France/CNRS, Toulouse, France

3:00 P.M.

7.1 *WMO Research Demonstration Project: Paris Olympic Games 2024.* **Valery Masson**, Météo-France/CNRS, Toulouse, France; E. de Coning, P. Steinle, R. Roberts, R. S. Sokhi

3:15 P.M.

7.2 *A New Fully Coupled Model for Improving the Representation of Urban Heterogeneous Hygrothermal Processes.* **Mahdad Talebpour**, Univ. of Maryland, Baltimore, MD; C. Welty, E. Bou-Zeid

3:00 P.M.—4:00 P.M.

3:30 P.M.

7.3 *Adaptation and Evaluation of a PV Model for Urban Climate Modeling Systems.* **Jannik Heusinger**, TU Braunschweig, Braunschweig, Germany; A. M. Broadbent, S. Krayenhoff, S. Weber

3:45 P.M.

7.4 *A Modeling Study of the Interaction between the Cold Air Pool and Urban Structures: The Madrid Case.* **Alberto Martilli**, Centro de Investigaciones Energéticas, Medioambientales and Tecnológicas, Madrid, Spain; B. Sanchez, D. Rasilla, F. Allende, G. Pappaccogli, F. Fernandez

3:00 P.M.—4:00 P.M.**I2AEROSOL / 33CVC**

Joint Session 29: AEROSOL-CLIMATE INTERACTIONS FROM REGIONAL TO GLOBAL SCALE. PART II –208

Chairs: Yuan Wang, California Institute of Technology, Pasadena, CA; Bin Guan, Univ. of California, Los Angeles, Pasadena, CA

3:00 P.M.

J29.1 *Temporal Changes in the Radiative Forcing of Aerosol–Radiation Interaction (Invited Presentation).* **Gunnar Myhre**, CICERO, Oslo, Norway

3:15 P.M.

J29.2 *Synergistic Approach to Estimate Aerosol Direct Radiative Forcing from Active Satellite Observations.* **D. Henderson**, Univ. of Wisconsin, Madison, WI; T. S. L'Ecuyer, A. Matus, T. Takemura

3:30 P.M.

J29.3 *The Separate Influence of Anthropogenic Aerosols and Greenhouse Gases on Forced Changes in the Global Energy and Water Cycles.* **Damien Irving**, Univ. of New South Wales, Sydney, Australia; J. Church, J. Zika, S. Wijffels

3:45 P.M.

J29.4 *Background Conditions Influence the Estimated Cloud Radiative Effects of Anthropogenic Aerosol Emissions from Different Source Regions.* **Chien Wang**, CNRS/UPS, Toulouse, France; B. Grandey

3:00 P.M.—4:00 P.M.**I1ENERGY**

Panel Discussion 1: POLICY ROUNDTABLE –256

Moderator: Jeffrey Freedman, Univ. at Albany, Albany, NY

3:00 P.M.—4:00 P.M.**I1HEALTH**

Session 6: MANAGING EXTREME HEAT'S HEALTH RISK –153B

Chair: Kacey Ernst, The Univ. of Arizona, Phoenix, AZ

3:00 P.M.

6.1 *Heat Wave Warnings and Other Potential Ways to Prevent Heat-Related Illnesses and Death.* **Marie O'Neill**, Michigan School of Public Health, Ann Arbor, MI

3:00 P.M.—4:00 P.M.

3:15 P.M.

6.2 *The Climate and Health Monitor and Outlook—Integrated Information to Manage Heat's Health Impacts.* **Hunter M. Jones**, NOAA, Silver Spring, MD; S. Saha, J. Trtanj

3:30 P.M.

6.3 *Progress Toward and Next Steps in Characterizing the Health Risks of Extreme Heat Events (EHEs) in Canada.* **Rebecca Christina Stranberg**, Health Canada, Ottawa, Canada; M. MacDonald, C. Hebbert, E. Lavigne, S. Donaldson, V. J. Gallant, M. Meunier, M. Malik, T. Herath

3:45 P.M.

6.4 *A Triangulated Evaluation of Cooling Center Effectiveness for Protecting Public Health in Yuma, Arizona.* **David M. Hondula**, Arizona State Univ., Tempe, AZ; M. C. Roach, L. Harlow-Smith, H. Putnam, A. X. Andresen, M. Orta, C. Tirdea, K. Snyder

3:00 P.M.—4:00 P.M.**I0R20 / 19AI**

Joint Session 30: TRANSITIONING ARTIFICIAL INTELLIGENCE (AI) PREDICTION SYSTEMS TO OPERATIONS –251

Chairs: John K. Williams, The Weather Company, An IBM Business, Andover, MA; Daniel Rothenberg, ClimaCell Inc., Boston, MA

3:00 P.M.

J30.1 *AI for Earth: Building an Extensible, Distributed API Pipeline Platform for Artificial Intelligence.* **Patrick Flickinger**, Microsoft, Redmond, WA

3:15 P.M.

J30.2 *Lightning Prediction for Space Launch Using Machine Learning Based on Electric Field Mills and Lightning Detection and Ranging Data.* **Anson Cheng**, Air Force Institute of Technology, Wright-Patterson AFB, OH; A. J. Geyer

3:30 P.M.

J30.3 *Predicting Weather Conditions Utilizing Artificial Neural Networks for C-17 Mission Planning.* **Garrett A Alarcon**, Air Force Institute of Technology, Wright-Patterson AFB, OH; A. J. Geyer

3:45 P.M.

J30.4 *Artificial Intelligence–Based Ensemble Modeling for Correction of GPM IMERG Precipitation Product over the Brahmaputra River Basin.* **MD Abul Ehsan Bhuiyan**, Univ. of Connecticut, STORRS, CT; N. K. Biswas, R. Raihan Sayeed Khan, S. J. Ilham, C. witharana

3:00 P.M.—4:00 P.M.**I0PYTHON**

Session 5: PYTHON IN OPERATIONS AND RESEARCH TO OPERATIONS. PART I –157AB

Chair: Jingyin Tang, IBM, Atlanta, GA

3:00 P.M.

5.1 *From NCL to Python: The Triumphs (and Struggles) of Upgrading a Tropical Monitoring Page for Air Force Operations.* **Jared Rennie**, North Carolina Institute for Climate Studies, Asheville, NC; C. J. Schreck III, K. F. Havener, J. W. Budai, J. D. Jackson, R. B. Kiess

3:15 P.M.

5.2 *CROW: Python-based Configuration Toolbox for Operational and Development Workflows.* **Jian Kuang**, IMISG, College Park, MD; K. L. Friedman, S. Trahan, T. McGuinness, K. R. Hammett, M. D. Iredell, A. Chawla

3:30 P.M.

5.3 *Identifying Atmospheric Model Trends and Tendencies Using Observations and Analyses.* **Daniel P. Nielsen**, FNMOC, Monterey, CA; M. Hutchins, R. C. Lee

3:45 P.M.

5.4 *Python-Based Workflow Management of NCEP Global Ensemble Forecast System.* **Xianwu Xue**, SRG at NOAA/NWS/NCEP/EMC, College Park, MD; D. Hou, W. Kolczynski Jr., Y. Zhu, B. Fu, X. Zhou, E. Sinsky, W. Li, H. Guan, B. Cui

3:00 P.M.—4:00 P.M.**10R2O**

Session 7: BEST PRACTICES, PRIVATE-PUBLIC PARTNERSHIPS, AND MULTICOMMUNITY EFFORTS FOR THE TRANSITION OF R2O IN THE WEATHER, WATER, AND CLIMATE ENTERPRISES INCLUDING SUCCESSES, FAILURES, AND LESSONS LEARNED—PART IV –252A

Chairs: David Helms, NOAA/NESDIS/Office of Projects, Planning and Analysis, Silver Spring, MD; Jennifer Webster, NOAA/NESDIS/Office of Projects, Planning and Analysis, Silver Spring, MD

3:00 P.M.

7.1 *The Significant Role of Verification in Achieving More Automated Routine Forecast Production in Australia.* **Michael Foley**, BoM, Melbourne, Australia; A. Farrell, M. Collopy, D. Griffiths, N. Loveday

3:15 P.M.

7.2 *Enabling the Verification and Validation of Environmental Prediction Systems Using the Model Evaluation Tool Software Suite and Amazon Web Services.* **Jason J. Levit**, NWS, College Park, MD; T. Jensen, B. Strong, K. S. Sperow, D. P. Ruth

3:30 P.M.

7.3 *AWIPS2 Transition at the National Hurricane Center.* **Christopher Mello**, NWS/NCEP, Miami, FL

3:45 P.M.

7.4 *Developing a Lake-Effect Snow Climatology for the Southern Lake Erie Snowbelt.* **Dallas McKinney**, Western Kentucky Univ., Bowling Green, KY

3:00 P.M.—4:00 P.M.**8WXCLIMATE**

Panel Discussion 3: WEATHER DATA: HOW MUCH DO WE NEED AND WHO PAYS? –254A

Moderator: Curtis H. Marshall, NWS, Silver Spring, MD

Panelists: Taylor Jordan, NOAA, Washington, DC; Brent Blevins, U.S. House of Representatives, Washington, DC; Brian D'Agostino, San Diego Gas and Electric, San Diego, CA

3:00 P.M.

PD3.1 *Weather Data: How Much Do We Need and Who Pays?* **Curtis H. Marshall**, NWS, Silver Spring, MD; B. Blevins, B. D'Agostino, T. Jordan

3:00 P.M.—4:00 P.M.**8WXCLIMATE**

Session 4: ADVANCES IN MODEL TECHNOLOGIES FOR HIGH-RESOLUTION S2S PREDICTIONS –252B

Chairs: Bradford Johnson, Florida State Univ., Tallahassee, FL; Bonnie R. Brown, Trivector Services, Inc./NOAA/OAR, Silver Spring, MD

3:00 P.M.

4.1 *GEOS S2S Version 3: The New GMAO High-Resolution Seasonal Prediction System (Invited Presentation).* **Andrea Molod**, NASA GSFC, Greenbelt, MD

3:15 P.M.

4.2 *Subseasonal-to-Seasonal Predictions with the Navy Global Coupled Model (Invited Presentation).* **Neil P. Barton**, NRL, Monterey, CA; C. A. Reynolds, E. J. Metzger, J. G. Richman, W. Crawford, M. Flatau, P. Hogan, G. Jacobs, M. A. Janiga, J. McLay, J. Ridout, B. Ruston, T. R. Whitcomb, S. Frolov, D. Eleuterio

3:30 P.M.

4.3 *Convective-Permitting Modeling for Retrospective Subseasonal-to-Seasonal (S2S) Forecasting Using the Framework of the Coordinated Regional Ensemble Downscaling Experiment (CORDEX) (Invited Presentation).* **Christopher L. Castro**, Palo Alto, CA; H. I. Chang, M. S. Bukovsky, A. F. Prein

3:45 P.M.

4.4 *High-Resolution and Ultra-High-Resolution Modeling in the Energy Exascale Earth System Model (E3SM) (Invited Presentation).* **L. Ruby Leung**, PNNL, Richland, WA; D. C. Bader, P. Caldwell, M. A. Taylor

3:00 P.M.—4:00 P.M.**8WRN**

Session 4: FACETS ADVANCES AND PROJECT ACHIEVEMENTS –153C

3:00 P.M.

4.1 *e-FACETS: Leveraging Research, Experimentation, and Collaboration to Execute the Expansion of FACETS across Multiple Environmental Threats and Time Scales.* **Sarah Perfater**, NOAA/OAR/OWAQ, Silver Spring, MD; G. M. Eosco, D. L. Carlis, A. E. Gerard, N. P. Kurkowski

3:15 P.M.

4.2 *Interoffice Collaboration: Current NWS Practice and Implications for a Probabilistic Hazard Information (PHI) Future.* **Kimberly E. Klockow-McClain**, Cooperative Institute for Mesoscale Meteorological Studies/National Severe Storms Laboratory, Norman, OK; G. J. Stumpf, A. V. Bates, J. LaDue, A. E. Gerard

3:30 P.M.

4.3 *Some Practical Considerations for Visualization and Operational Interpretation of Probabilistic Guidance from the Warn-on-Forecast System.* **Patrick S. Skinner**, CIMMS, Norman, OK; K. A. Wilson, P. L. Heinselman, J. J. Choate, B. C. Matilla, N. Yussouf, T. T. Lindley, B. R. Bowers

3:00 P.M.—4:00 P.M.

3:45 P.M.

4.4 *Multiple Radar/Multiple Sensor (MRMS) System: Next-Generation Optimization and Enhancement Project.* **Alan E. Gerard**, NOAA/OAR/NSSL, Norman, OK; J. Brogden, J. J. Gourley, K. W. Howard, S. M. Martinaitis, H. D. Reeves, A. E. Reinhart, J. Zhang

3:00 P.M.—4:00 P.M.

8JCSDA

Session 5: ASSIMILATION USING NEW SATELLITE SENSORS AND/OR NEW AND IMPROVED TECHNIQUES –254B

Chairs: Ben Ruston, NRL, Monterey, CA; Francois Vandenbergh, Joint Center for Satellite Data Assimilation, Boulder, CO, , UCAR, Boulder, CO

3:00 P.M.

5.1 *Optimizing Satellite Data Assimilation: QC and Observation Error Studies.* **Hui Shao**, JCSDA, College Park, MD; A. Collard, D. Kleist, T. Auligné

3:15 P.M.

5.2 *Impact and Performance Evaluation of Hyperspectral (CrIS, IASI, and GIRS) Sounding Retrieval in Numerical Weather Prediction (NWP) Systems: Study of Short-Term and Short-Range Quantitative Precipitation Forecasts (QPFs) in the CONUS and Southeast China.* **Qi Zhang**, Hampton Univ., Hampton, VA; W. L. Smith Sr.

3:30 P.M.

5.3 *A Comparison of Different Bias Correction Methods on the Assimilation of High-Resolution All-Sky GOES-16 ABI Radiances to Improve Convective Initiation Forecasts.* **X. Wang**, Univ. of Oklahoma, Norman, OK; K. Chandramouli, A. Johnson, J. A. Otkin, J. S. Whitaker

3:45 P.M.

5.4 *Specification of the Moisture Mass and Wind Field in the Southern Hemisphere Using GNSS and EOS Data.* **John F. Le Marshall**, BoM, Docklands, Australia; D. S. Howard, R. Norman, Y. Xiao, J. A. Jung, S. Rennie, C. Tingwell, D. Ren, T. Morrow, J. Daniels, X. Wang

3:00 P.M.—4:00 P.M.

6HPC

Session 3: HPC IN THE CLOUD FOR WEATHER, WATER, AND CLIMATE –155

Chair: Gerry Creager, Oklahoma Univ./CIMMS, and NOAA/NSSL, Norman, OK

3:00 P.M.

3.1 *Challenges and Solutions of Numerical Weather Prediction on the Cloud.* **S. M. Iman Gohari**, ClimaCell, Boston, MA; M. Marchand, J. D. Berman, L. T. Peffers

3:15 P.M.

3.2 *Computational Evaluation of Commercial Cloud HPC with a Global Atmospheric Model.* **Daniel J. Arevalo**, DeVine Consulting, Fremont, CA; T. R. Whitcomb

3:00 P.M.—4:00 P.M.

3:30 P.M.

3.3 *Operational Weather Forecasting Using Commercial Cloud Computing.* **Kevin Kelly**, Rescale, Inc., San Francisco, CA; C. Ramirez

3:45 P.M.

3.4 *Leveraging Cloud Computing and Software Container Technologies to Create a Portable End-to-End Numerical Weather Prediction System.* **Kate Fossell**, NCAR, Boulder, CO; J. Wolff, J. H. Gotway, M. Harrold, M. J. Kavulich Jr.

3:00 P.M.—4:00 P.M.

5INTERNATIONAL

Session 4: SUBSEASONAL-TO-SEASONAL PREDICTIONS AND PREDICTABILITY: PAST PROGRESS AND FUTURE PROSPECTS ACROSS THE INTERNATIONAL COMMUNITY—PART II –212

3:00 P.M.

4.1 *Exploring the Predictability of Boreal Winter Subseasonal Peak Precipitation over the South China Sea and Maritime Continent in the S2S Database.* **Mong-Ming Lu**, National Taiwan Univ., Taipei, Taiwan; W. Y. H. Tsai, C. H. Sui

3:15 P.M.

4.2 *Weak El Niño and Winter Climate in the Mid- to High-Latitude Eurasia.* **Zhiwei Wu**, Fudan Univ., Shanghai, China

4.3 WITHDRAWN

3:00 P.M.—4:00 P.M.

TROPSYMPI / 8MJO

Joint Session 31: TROPICAL CONVECTION. PART I –205B

Chairs: Allison A. Wing, Florida State Univ., Tallahassee, FL; Torri Giuseppe, Univ. of Hawai'i at Mānoa, Honolulu, HI

3:00 P.M.

J31.1 *What Does Convective Organization Look Like in a GCM?* **Courtney Schumacher**, Texas A&M Univ., College Station, TX

3:15 P.M.

J31.2 *Comparing Convective Self-Aggregation in Idealized Models to Observed Moist Static Energy Variability near the Equator.* **Tom Beucler**, Univ. of California, Irvine, CA; T. H. Abbott, T. W. Cronin, M. S. Pritchard

3:30 P.M.

J31.3 *Cold Pools and the Organization of Tropical Convection in Global Cloud-System Resolving Simulations.* **Steven K. Krueger**, Univ. of Utah, Salt Lake City, UT; M. Khairoutdinov

3:45 P.M.

J31.4 *A Simple Framework for Understanding Slow, Convectively Coupled Circulations.* **Kerry Emanuel**, Massachusetts Institute of Technology, Cambridge, MA

3:00 P.M.—4:00 P.M.

MIDDLESYMP**Session 4: FUTURE OF THE MIDDLE ATMOSPHERE: ANTICIPATING CHANGE AND IDENTIFYING SCIENTIFIC NEEDS FOR BETTER UNDERSTANDING –255**

Chair: Mark R. Schoeberl, Science and Technology Corporation, Columbia, MD

3:00 P.M.

4.1 *Future Changes to Stratospheric Composition and Their Impacts.* **David Fahey**, Louisville, CO

3:30 P.M.

Panel: “Grand Questions” and Needs in Middle Atmospheric Sciences: Panel Discussion.

3:00 P.M.—4:00 P.M.

SLSSYMPOSIUM I**Session 4: NEXT FRONTIERS OF SLS UNDERSTANDING AND APPLICATIONS OF NEW TOOLS –258B**

Chairs: Manda Chasteen, CIMMS, Norman, OK; Kelly Lombardo, The Pennsylvania State Univ., University Park, PA

3:00 P.M.

4.1 *Some Good or Foolish Ideas, with Farm Names, Concerning the Future of Adaptable Radar Networks for Severe Storm Observations.* **Josh Wurman**, Center for Severe Weather Research, Boulder, CO; K.A. Kosiba, B. Pereira

3:15 P.M.

4.2 *Next-Generation Satellite Observations of Severe Local Storms: Can We now Detect Storm-Scale Rotation from Space?* **D.T. Lindsey**, NOAA/NESDIS, Fort Collins, CO

3:30 P.M.

4.3 *Convection-Allowing Medium-Range Severe Weather Guidance from a Variable-Resolution Global Ensemble.* **Craig S. Schwartz**, NCAR, Boulder, CO; R.A. Sobash

3:45 P.M.

4.4 *Robust Observational Support of the Hypothesized Connection between Rotating Updraft Width and Tornado Intensity.* **Robert J. Trapp**, Univ. of Illinois, Urbana, IL; G. Marion, M. F. Sessa, D. Chehak, S.W. Nesbitt

DICKINSONSYMP**Joint Poster Session 1: EARTH SYSTEM MODELING AND CLIMATE CHANGE—POSTERS (JOINT BETWEEN THE ROBERT DICKINSON SYMPOSIUM AND THE 33RD CONFERENCE ON CLIMATE VARIABILITY AND CHANGE)**

Chair: Leo Donner, GFDL/NOAA, Princeton Univ., Princeton, NJ

478 *Simulation of Wet and Dry West African Monsoon Rainfall Seasons Using the Weather Research and Forecasting Model.* **Kehinde Olufunso Ogunjobi**, Federal Univ. of Technology, Akure, Ondo State, Nigeria; I. Gbode, V. Ajayi, J. Dudhia

479 *Added Value of Very High Resolution in the Present and Future Climate Simulations over South Korea Using the WRF Modeling System.* **Liying Qiu**, Hong Kong Univ. of Science and Technology, Hong Kong SAR, China; E. S. Im

480 *Simulated Influence of Solar Spectral Irradiance on the East Asian Monsoon Rainband on the Decadal Scale and the Mechanism.* **Qi Zhong**, China Meteorological Administration Training Center, Beijing, China; L. Zhao, Z. Xiao

481 *Assessment of Projected Change in Temperature, Precipitation, and Related Variables over South America Using CMIP5.* **Valerie Maria Thaler**, Portland State Univ., Portland, OR; P. Loikith, L.A. Pampuch, C. R. Mechoso

482 *Improved Delta-Eddington Approximation for Optically Thin Clouds.* **Tong Ren**, Texas A&M Univ., College Station, TX; P. Yang, G. Tang, X. Huang, E. Mlawer

483 *Analysis of Radiative Forcing Effects by Oceanic Phytoplankton and Spatiotemporal Variation during 2001–10.* **Jian Wei**, Texas A&M Univ., College Station, TX; P. Yang, P. Chang

484 *Climatic Effects of Freezing–Thawing and Snow Melting over the Tibetan Plateau and Application in Seasonal Predictability.* **Chenghai Wang**, Lanzhou Univ., Lanzhou, China; K. Yang, F. Zhang, K. Li, J. Li, J. Jiang, R. Cheng, J. Shen

485 *Dynamical Downscaling of Near-Term Internal Climate Variability and Change for the Main Hawaiian Islands Using WRF Ensemble Simulations.* **Katrina Fandrich**, Univ. at Albany, SUNY, Albany, NY; O. Elison Timm, T.W. Giambelluca, C. Zhang

486 *Role of Snow on the Spring Leaf Onset in the Tundra Ecosystems with NCAR CLM5.* **Yeonjoo Kim**, Yonsei Univ., Seoul, Korea, Republic of (South); H. Seo

487 *Regional Impacts of Global Warming on Extreme Heat Stress Based on Regional Climate Projections.* **Eun-Soon Im**, The Hong Kong Univ. of Science and Technology, Kowloon, Hong Kong; T. Nguyen-Xuan, L. Qiu

488 *Evaluating the Regional Impact of Aircraft Emissions on Climate.* **Jun Zhang**, Univ. of Illinois, Urbana, IL; D. J. Wuebbles

489 *Vegetation–Climate Interactions in a Warming Climate over Asia.* **Guiling Wang**, Univ. of Connecticut, Storrs, CT; W. Liu, M. Yu

490 *Climatology for Precipitation in Brazil by the BAM Model.* **Caroline Bresciani**, Federal Univ. of Santa Maria, Santa Maria, Brazil; S. E. T. Ferraz, N. T. Boiaski, D. L. Herdies

491 *Application of Weighted Multimodel Ensemble Means: A Method to Manage Uncertainties between Climate Models.* **Hamidreza Ahmadzadeh Araj**, Univ. Putra Malaysia, Serdang, Malaysia; A. Wayayok, A. Massah Bavani, C. B. S. Wayayok, A. Fikri Abdullah

492 *An Assessment of the Spinup Time for Soil Moisture over the Iberian Peninsula by Using a Regional Climate Model.* **Juan José Rosa-Cánovas**, Univ. of Granada, Granada, Spain; M. García-Valdecasas Ojeda, P. Yeste, E. Romero-Jiménez, S. R. Gámiz-Fortis, Y. Castro-Díez, M. J. Esteban-Parra

493 *Linking Air Quality, Meteorology, and Hydrology Models with Water Quality Model.* **Chunling Tang**, EPA, Durham, NC; J. Lynch

494 *Cumulative Impacts of Human-Induced Changes on Carbon Cycle Extremes.* **Bharat Sharma**, ORNL, Oak Ridge, TN; F. M. Hoffman, J. Kumar, A. Ganguly

495 *Investigating CESM I Ability to Capture Heat Waves.* **Anthony Wilson**, UCAR, Boulder, CO; J. Caron, B. Medeiros

496 *Hydrological Response of the Duero River Basin under Present and Future Climate.* **Patricio Yeste**, Univ. of Granada, Granada, Spain; M. García-Valdecasas Ojeda, E. Romero-Jiménez, J. J. Rosa-Cánovas, S. R. Gámiz-Fortis, Y. Castro-Díez, M. J. Esteban-Parra

497 *Estimating Air–Sea Carbon Flux Uncertainty over the Tropical Pacific: Importance of Winds and Wind Analysis Uncertainty.* **Andrew M. Chiodi**, Univ. of Washington, JISAO, and NOAA/PMEL, Seattle, WA; J. P. Dunne, D. E. Harrison

498 *Multiple Equilibria in a Fully Coupled Carbon–Climate Model.* **Brian E. J. Rose**, Univ. at Albany, SUNY, Albany, NY; F. Zhu

499 *End-of-Century Climate Change Projections in the U.S. Lower Midwest Region.* **Fengpeng Sun**, Univ. of Missouri, Kansas City, MO; L. Zhu, K. Reed, J. Wei

500 *An Integrated Framework to Model Nitrogen Leaching and Riverine Nitrogen Export in a Land Surface Model: San Antonio and Guadalupe Basins.* **Seungwon Chung**, Univ. of Texas, Austin, TX; Z. L. Yang, A. Tavakoly

501 *Climate Change Projections in RegCM CORDEX-CORE Simulations via Koeppen–Trewartha Climate Classification.* **Tomas Halenka**, Charles Univ., Prague, Czech Republic; M. Belda, R. CORDEX-CORE Team

502 *Hadley Cell Expansion: Separating Eddy and Mean Flow Responses to Forcings.* **Nicholas A. Davis**, NCAR, Boulder, CO; T. Birner

DICKINSONSYMP

Poster Session 1: LARGE-SCALE ATMOSPHERIC DYNAMICS—POSTERS

Chair: Richard Rood, Univ. of Michigan, Ann Arbor, MI

503 *Mode-Decomposed Equation Diagnosis for Atmospheric Blocking Development.* **Masaru Inatsu**, Hokkaido Univ., Sapporo, Japan

504 *Seasonal and Annual Changes of the Regional Tropical Belt in GPS-RO Measurements and Reanalysis Datasets.* **Jan Luan**, Indiana Univ., Bloomington, IN; P. W. Staten, C. O. Ao, Q. Fu

505 *Formation Mechanism of North Pacific Blocking: Comparison between Winter and Summer.* **Jaeyoung Hwang**, Seoul National Univ., Seoul, Korea, Republic of (South); S. W. Son, P. Martineau

506 *Regional Attribution of Tropical Expansion.* **Paul W. Staten**, Indiana Univ., Bloomington, IN; K. M. Grise, S. M. Davis, K. B. Karnauskas, N. A. Davis

507 *Preferred Equilibrium Solutions of the Barotropic Vorticity Equation.* **Yaokun Li**, Beijing Normal Univ., Beijing, China

DICKINSONSYMP

Joint Poster Session 2: LAND SURFACE MODELING AND REMOTE SENSING—POSTERS (JOINT BETWEEN THE ROBERT DICKINSON SYMPOSIUM AND THE 34TH CONFERENCE ON HYDROLOGY)

Chair: Xubin Zeng, The Univ. of Arizona, Tucson, AZ

508 *Toward a New Subgrid Structure of Vegetation Canopies in Land Surface Modeling.* **Hua Yuan**, Sun Yat-sen Univ., Guangzhou, China; Y. Dai, R. E. Dickinson, S. Zhang, W. Shangguan, S. Liu, X. Lu, N. Wei

509 *What Have We Learned about Land Skin Temperature?* **Menglin S. Jin**, Univ. of Maryland, College Park, MD; S. Liang, J. M. Shepherd

510 *Desert Amplification and Its Diurnal Cycle.* **Liming Zhou**, Univ. at Albany, SUNY, Albany, NY

511 *Modeling Variably Saturated Flow in Stratified Soils with Explicit Tracking of Wetting Front and Water Table Locations.* **Shupeng Zhang**, Sun Yat-sen Univ., Guangzhou, China; Y. Dai, H. Yuan, N. Wei

512 *Warming Pattern of Surface and Air Temperature over China during the Last Five Decades and Its Representation in the Atmospheric Reanalyses Abstract.* **Kaicun Wang**, Beijing Normal Univ., Beijing, China; C. Zhou, J. Du

513 *A Microbial-Explicit Soil Organic Carbon Decomposition Model (MESDM) Coupled with Noah-MP: Development and Testing in Semiarid Grasslands.* **Xia Zhang**, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China; G. Y. Niu

514 *Ground Heat Flux Determination Based on Near-Surface Soil Thermodynamics Estimated from In Situ Measurements.* **Huiling Yuan**, Nanjing Univ., Nanjing, China; B. Wu, S. P. Oncley, F. Chen

515 *Improving Mesoscale Weather Simulations through Updated Land-Use and Vegetation Information.* **Hossein Lotfi**, Mississippi State Univ., Starkville, MS; J. L. Dyer

516 *Integrated Soil Physical Schemes in Land Surface Modeling over the Tibetan Plateau.* **Baoqiang Wu**, Nanjing Univ., Nanjing, China; H. Yuan, F. Chen, M. Barlage

517 *Physically Constrained Inversion of Radiative Transfer Models in L Band for High-Resolution Retrievals of Soil Moisture and Vegetation Optical Depth from Space.* **Ardehshir Ebtehaj**, Univ. of Minnesota Twin Cities, Minneapolis, MN; L. Gao, M. Sadeghi

518 *Exploring Topography-Based Methods for Downscaling Precipitation for Use in Earth System Modeling.* **Teklu K. Tesfa**, PNNL Hydrology Group, Richland, WA; L. Y. R. Leung, S. Ghan

519 *Finescale Variability in Vegetation Cover over the Southern Great Plains Using High-Resolution Satellite Images: A Case Study.* **Duli Chand**, PNNL, Richland, WA; L. K. Berg, J. Tagerstad, C. N. Long, A. A. Matthews, S. L. Tai, Z. Yang, J. D. Fast

520 *Implementation and Evaluation of Plant Hydraulics and Hydraulic Redistribution in the Common Land Model (CoLM).* **Xingjie Lu**, Sun Yat-sen Univ., Guangzhou, China; S. Zhu, S. Zhang, N. Wei, H. Yuan, W. Shangguan, S. Liu, Y. Dai

521 *Evaluation of Soil Thermal Conductivity Schemes for Use in Land Surface Modeling.* **Nan Wei**, Sun Yat-sen Univ., Guangzhou, China; Y. Dai, H. Yuan, S. Zhang, W. Shangguan, S. Liu, X. Lu

522 *How Does Land Affect Atmospheric Processes at Diurnal to Seasonal Scales?* **Xubin Zeng**, The Univ. of Arizona, Tucson, AZ; J. S. Welty, P. D. Broxton

523 *Why Do Land Surface Models Produce a Low Ratio of Transpiration to Evapotranspiration?* **Guo-Yue Niu**, The Univ. of Arizona, Tucson, AZ; L. Chang, Y. Fang

524 *Future Resilient Land-Use Visions for Valdivia, Chile.* **Ahmed Mustafa**, The New School, New York, NY; E. Cook, T. McPhearson, O. Barbosa, T. Munoz-Erickson, M. Berbés-Blázquez, N. Grimm, D. M. Iwaniec

525 *Develop the Plant Hydrodynamics in the Noah-MP Land Surface Model.* **Lingcheng Li**, The Univ. of Texas, Austin, TX; Z. L. Yang, A. M. Matheny, H. Zheng, S. C. Swenson, D. Lawrence, M. Barlage, B. Yan

DICKINSONSYMP / 33CVC / 22WXMOD
Joint Poster Session 3: STUDIES RELATED TO CLIMATE ENGINEERING—POSTERS

526 *Radiative Forcing and Stratospheric Heating by Stratospheric Aerosols: Sensitivity to Microphysics, Cloud Radiative Properties, and Radiative Parameterizations.* **John A. Dykema**, Harvard Univ., Cambridge, MA; D. W. Keith

527 *Steered Stratospheric Aerosol Injection: Aircraft and Operation Design, Economic and Environmental Impact.* **I. E. de Vries**, Stockholm Univ., Stockholm, Sweden; M. Janssens, S. J. Hulshoff

528 *Evaluation of Tornadic Environments for Japan Using Multiple Data Sources and Their Potential Responses under Future Climate Change.* **Sho Kawazoe**, JAMSTEC, Yokohama, Japan; M. Fujita, S. Sugimoto, Y. Okada, S. Watanabe, M. Inatsu

48BROADCAST
Poster Session 1: COPING WITH TWENTY-FIRST-CENTURY ISSUES—POSTERS

529 *Construction of the All-Media Meteorological Communication System in China.* **Li Ao**, China Meteorological Administration, Beijing, China

530 *How MyRadar Is Tackling the Transition to Digital Media for Reliable Weather Information.* **Leslie Hudson**, ACME AtronOmatic, LLC, Orlando, FL; S. Lauber, M. Linden, S. Garimella

36EIP
Poster Session 2: EIP POSTERS: DAY 2

Chairs: Kevin R. Tyle, Univ. at Albany, SUNY, Albany, NY; S. S. Lindstrom, Univ. of Wisconsin, Madison, WI

531A *Improving Microburst Detection and Warning with Polarimetric Weather Radar.* **Qing Cao**, Enterprise Electronics Corporation, Enterprise, AL; M. Knight, A. V. Ryzhkov, P. Zhang

531 *Progress Toward Integrated Tools for NWS National Centers.* **Nathan Hardin**, CIRA/Colorado State Univ. and NOAA/OAR/ESRL/GSD, Boulder, CO; D. Nietfeld, D. M. Kingfield, J. M. Sienkiewicz, F. Achorn, J. A. Nelson

532 *Data Visualization for All! Videos for Unidata's Integrated Data Viewer.* **Jessica Michael Blunt**, UCAR, Boulder, CO; Y. Ho

533 *Completing the Meteorological Archive Missing Data at the Daily and Subdaily Time Scales.* **Isabella Osetinsky-Tzidaki**, Israeli Consulting in Climatological Projects and Practices, Bat Yam, Israel

534 *PODPAC: The Easy Way to Analyze Earth Science Data in the Cloud.* **Matthaus P. Ueckermann**, Creare LLC, Hanover, NH; J. Bieszczad, M. Shapiro, D. R. Callender, D. Sullivan, D. Entekhabi

535 *Overview of the U.S. National Ice Center: History, Mission, Products, and Services.* **Kevin Berberich**, U.S. National Ice Center, Suitland, MD; H. Quilenderino, D. McCormick

537 *CF Conventions for netCDF: Support for Data Access, Analysis, and Visualization.* **Ethan Davis**, UCAR, Boulder, CO; G. Castela, D. Hassell, J. K. Hausman, A. Jelenak, D. Lee, K. M. O'Brien

538 *The Interleaved Ensemble Map.* **Samu Karanko**, Foreca Ltd, Espoo, Finland; J. Hyväti, J. M. Tilli

539 *Enhanced Marine Awareness through Real-Time Processing of Crowd-Sourced Mobile Device Observations.* **Marc Shapiro**, Creare LLC, Hanover, NH; J. Bieszczad, E. Desjardins, D. R. Callender, B. A. Colle

34HYDRO / 33CVC / 25APPLIED / 15SOCIETY / 11HEALTH
Joint Poster Session 1: FROM DROUGHTS TO DELUGES—LEARNING FROM PRACTITIONERS HOW TO VALUE THE HUMAN HEALTH AND SOCIETAL IMPACTS OF HYDROLOGIC DISASTERS—POSTERS

Chairs: Hunter Jones, NOAA, Silver Spring, MD; Jesse Bell, Univ. of Nebraska Medical Center, Omaha, NE; Amanda Sheffield, NOAA, Boulder, CO; Mike Hobbins, CIRES, Boulder, CO

540 *Rainfall as a Driver of Waterborne Disease: Ecohydrological Perspectives.* **Andrea Rinaldo**, Ecole Polytechnique Fédérale Lausanne, Lausanne, Switzerland

541 *Floods and Droughts Management: The Extreme Event and Its Human and Physical Impacts.* **Mohammed-Said Karrouk**, Hassan II Univ. of Casablanca, Casablanca, Morocco

34HYDRO / 30WAF26NWP / 26PROBSTAT
Joint Poster Session 2: PROBABILISTIC HYDROMETEOROLOGICAL FORECASTING AND UNCERTAINTY ANALYSIS—POSTERS

Chairs: Huiling Yuan, Nanjing Univ., Nanjing, China; Kristie Franz, Iowa State Univ., Ames, IA; Shugong Wang, NASA GSFC/SAIC, Greenbelt, MD; Christopher J. Melick, 557th Weather Wing, Offutt Air Force Base, NE

542 *Thermodynamical Outlook on Machine Learning.* **M. Jeremie Lafitte (Levitas)**, Metivdata, Safed, Israel

544 *Investigation of the Added Value of Using Statistically Postprocessed GEFS Ensemble Forecasts as Alternative Forcings for the WRF-Hydro National Water Model (NWM).* **Michael Scheuerer**, CIRES, Boulder, CO; F. Viterbo, M. Hughes, A. R. Thorstensen

543 WITHDRAWN

545 *Merging Soil Moisture Multimodel Products Based on Dynamic Bayesian Model Averaging.* **Yong Chen**, School of Atmospheric Sciences, Nanjing, China; H. Yuan

546 *The Uncertainty of GFS over Eastern Asia: Error Analysis and Correction Using an Optical Flow Method.* **Xue Zhong Wang**, National Univ. of Defense Technology, Nanjing, China; J. Wang, H. Huang, W. Zhang, B. Hu, F. Lin

547 *Streamflow Forecasting Using a Long Short-Term Memory Network.* **Lingling Ni**, Nanjing Univ., Nanjing, China; D. Wang, J. Wu

548 *A Multiscale Postprocessing Technique for Short-to-Long-Range Ensemble Streamflow Prediction.* **Babak Alizadeh**, Univ. of Texas, Arlington, TX; R. A. Limon, D. J. Seo, H. Lee, J. D. Brown

549 *Evaluation of GloFASv2 Hydrological Forecast Skill at the Global Scale.* **David A. Lavers**, ECMWF, Reading, UK; S. Harrigan, E. Zsoter, L. Alfieri, C. Prudhomme, H. Cloke, D. S. Richardson, P. Salamon, E. Stephens, F. Pappenberger

550 *Seasonal Forecasts of Early Summer Rainfall at Stations in South China Using Statistical Downscaling and BMA.* **Zheng Lu**, State Key Laboratory of Earth Surface Processes and Resource Ecology, Beijing Normal Univ., Beijing, China; Y. Guo, J. Zhu

551 *A Coupled Rainfall–Runoff Hydrometric Network Design Method Based on Information Theory.* **Wenqi Wang**, Nanjing Univ., Nanjing, China; D. Wang, Y. Wang

552 *How Circulation Adjustment Affects the Axial Error of the Precipitation Forecast.* **Hong Huang**, National Univ. of Defense Technology, Nanjing, China; Y. Liu, W. Zhang, J. Wang, X. Z. Wang

553 *Reducing Bias in Flash Drought Forecasts by Optimizing Parameters in Noah-MP Multiple Parameterization Schemes.* **Ye Tian**, Nanjing Univ. of Information Science and Technology, Nanjing, China; Z. L. Yang, J. Liang

34HYDRO**Poster Session 5: ADVANCES IN EVAPORATION AND EVAPORATIVE DEMAND—POSTERS**

Chairs: Daniel McEvoy, DRI, Reno, NV; Christopher Hain, NASA MSFC, Huntsville, AL; Gabriel Senay, USGS, Sioux Falls, SD; M. C. Anderson, USDA-ARS, Beltsville, MD

554 *An Open-Source Modeling Suite for Estimating Evapotranspiration at Regional and Field Scales.* **M. A. Schull**, CICS, College Park, MD; C. R. Hain, M. C. Anderson, F. Gao, X. Zhan, S. Akasheh, C. M. U. Neale

555 *Development of a Global Evaporative Stress Index Based on Thermal and Microwave LST toward Improved Monitoring of Agricultural Drought.* **Christopher Hain**, NASA Marshall Space Flight Center, Huntsville, AL; M. C. Anderson, J. A. Otkin, T. Holmes, F. Gao

556 *Incorporating Evapotranspiration Processes in the Rainfall–Runoff–Inundation (RRI) Model and Validating the Model Outputs with the MODIS and GLEAM Evapotranspiration Products.* **Abdul Wahid Mohamed Rasmy**, International Centre for Water Hazard and Risk Management, Tsukuba-shi, Ibaraki-ken, Japan; T. Sayama, T. Koike

557 *Improved Sap Flow Sensor Design for Compensation Heat Pulse and Thermal Dissipation Methodology.* **Justin Oreste Beslity**, SUNY-ESF, Syracuse, NY; S. B. Shaw, J. D. Fridley, J. E. Drake

558 *Climatological Controls on Congo Basin Transpiration.* **David Crowhurst**, Univ. of Oxford, Oxford, UK; S. Dadson, R. Washington

560 *Relating Water Stress to Yield Estimates Using Thermal Remote Sensing: An Application across the U.S. Corn Belt.* **Yang Yang**, USDA-ARS, Beltsville, MD; M. C. Anderson, F. Gao, Y. Yang, W. Dulaney

561 *Monitoring Evapotranspiration in the Intermountain West.* **Peter Goble**, Colorado State Univ., Fort Collins, CO; R. S. Schumacher, R. Bolinger, S. D. Hilberg

561 *Assessment of Agricultural Feedbacks in Noah-MP-Crop Land Surface Model on Regional Crop-Yield Simulations.* **Sajad Jamshidi**, Purdue Univ., West Lafayette, IN; D. Niyogi

34HYDRO**Poster Session 6: EXTREME RAINFALL AND HYDROLOGIC EXTREMES—POSTERS**

Chairs: John W. Nielsen-Gammon, Texas A&M Univ., College Station, TX; Kelly Mahoney, NOAA, Boulder, CO; Kenneth Kunkel, North Carolina State Univ., Raleigh, NC; Bill D. Kappel, Applied Weather Associates, Monument, CO

562 *Who Received the Most Rain Today? An Analysis of Daily Precipitation Extremes in the Contiguous United States Using CoCoRaHS and COOP Reports.* **Peter Goble**, Colorado State Univ., Fort Collins, CO; R. S. Schumacher

563 *Update of the Sacramento County Intensity–Duration–Frequency Curves.* **David Curtis**, WEST Consultants Inc., Folsom, CA; L. K. Cunha, G. Booth, H. Huber, S. Rehman

564 *Radar-Based Hydrologic Modeling and Site-Specific Storm Analyses: A Case Study in Ohio.* **Ermann Caudill**, Stantec Consulting Services Inc., Lexington, KY

565 *WRF-Hydro Streamflow Simulations in the Lake Mendocino Watershed during Extreme Precipitation Events.* **Rachel Weihs**, Scripps Institution of Oceanography, Univ. of California, San Diego, CA; E. Sumargo, H. McMillan, F. M. Ralph

566 *Extreme Precipitation Analysis for Engineering Applications: Analyzing, Moving, Scaling, and Stochastically Generating Storms.* **Tye W. Parzybok**, MetStat, Inc., Fort Collins, CO; M. Schaefer, K. Ward

567 *Assessing the Relationship between Low-Frequency Oscillations of Global Hydro-Climate Indices and Long-Term Precipitation throughout the United States.* **Jason Giovannettone**, Dewberry, Silver Spring, MD; Y. Zhang

568 *Developing a Subseasonal-to-Seasonal Extreme Precipitation Events Database for the Contiguous United States.* **Ty Dickinson**, Univ. of Oklahoma, Norman, OK; M. B. Richman, J. C. Furtado

569 *Flash Flood Severity Index (FFSI): Operational Application in the Field.* **Amanda J. Schroeder**, NOAA/NWS, Fort Worth, TX; R. Smith, J. Dunn, P. Yura

570 *FLASH Performance and Situational Awareness Methods during Catastrophic Flash Flooding Events.* **John Wetenkamp**, NWS, La Crosse, WI

571 WITHDRAWN

572 *Developing Metrics for Mesoscale Precipitation Discussions.* **Emily J. Blumenauer**, NCEP, College Park, MD; J. A. Nelson

573 *March 2019 Rapid Snowmelt, Heavy Rain, and Ice Jams Lead to Catastrophic Mid-America Spring Flooding and the Evacuation of the NWS Omaha, Nebraska, Office.* **Catherine M. Zapotocny**, NOAA/NWS Omaha/Valley, Valley, NE; D. Pearson, B. Barjenbruch, P. Fajman

574 *Forecasting Heavy Rainfall Events through the Synthesis of Ingredients-Based Diagnostics.* **Michael D. Pletcher**, Univ. of Maryland, College Park, MD; M. Klein, A. Orrison, D. Roth, J. A. Nelson Jr., M. Erickson

575 *Flash Flooding Events across the Mount Holly County Warning Area amid the Evolving Landscape of Science, Technology, and Society.* **Valerie Meola**, NWS Mount Holly, New Jersey, Westampton, NJ; C. Shafer, R. Kruzdlo

576 *An Integrated Approach for a Real-Time Forecasting and Risk Assessment of the Cascading Extreme Storm Triggered Flood Inundation.* **Mengye Chen**, Univ. of Oklahoma, Norman, OK

577 *Linkages between Extreme Precipitation in Northern California and Atmospheric Blocking over the North Pacific.* **Benjamin J. Moore**, NOAA, Boulder, CO; A. B. White, D. J. Gottas

578 *Characterization of Convective Precipitation Events Leading to Severe Weather—Impacts in Vulnerable Regions of South America.* **Manuel D. Zuluaga**, Climate Forecast Applications Network, Reno, NV; S. Gomez, D. A. Suarez, L. Herrera, C. D. Hoyos, Y. Cardona

579 *Analysis of Extreme Short-Term Heavy Rainfall Characteristics during the Mei-Yu Period in Jiangsu Province.* **Yi Li**, Jiangsu Institute of Meteorological Sciences, Key Laboratory of Transportation Meteorology, CMA, Nanjing, China; Y. Zheng

580 *Causation Analysis of the “21st May” Torrential Rain in the West of Southern Xinjiang in 2018.* **Xia Yang**, Xinjiang Meteorological Observatory, Urumqi, China; Y. Zhang Sr., B. Yu, H. Mu Sr.

581 *Meteorological “Cause” and Characteristics of Widespread Heavy Precipitation Events in the Texas Gulf Basin: 2003–18.* **Esther Mullens**, Univ. of Florida, Gainesville, FL

582 WITHDRAWN

583 *Diabatic Heating’s Influences on the Dynamics of Two Types of Extreme Precipitation Events in the Northeast United States.* **David W. Coe**, Univ. of Massachusetts, Lowell, MA; L. Agel, M. Barlow

584 *Diverse Synoptic Patterns of Warm-Season Heavy Rainfall Events in South Korea.* **Chanil Park**, Seoul National Univ., Seoul, Korea, Republic of (South); J. Kim, S. W. Son, J. W. Roh, E. C. Chang, D. H. Cha, J. H. Kim

585 *Utilizing a Self-Organizing Map to Identify Synoptic Patterns in Heavy Precipitation Events in the Northeastern United States.* **Caitlin C. Crossett**, Univ. of Vermont, Burlington, VT; L. A. L. Dupigny-Giroux, A. Bombles, D. M. Rizzo, A. K. Betts

586 *Radar Analyses of the Physics of Extreme Rainfall Events.* **Ryan C. Bunker**, Univ. of Oklahoma, Norman, OK; C. R. Homeyer

587 *A Climatological Analysis of Aridity Trends in the U.S. Great Plains.* **Raquel Dominguez**, CAPS, Norman, OK; R. A. Wakefield, J. I. Christian, J. B. Basara

588 *The Role of Anthropogenic Climate Change in the Intensification of Extreme Precipitation over North America.* **Megan C. Kirchmeier-Young**, EC, Toronto, Canada; X. Zhang

589 *Extreme Precipitation Trends and Weather System Influences.* **Kenneth E. Kunkel**, North Carolina Institute for Climate Studies, Asheville, NC

590 *Future Change of Wet Days in the Central and Southern Peruvian Andes during Austral Summer Using CMIP5 Models.* **Juan C. Sulca**, Instituto Geofísico del Peru, Lima, Peru; W. Buytaert, R. Zubieta

591 *The Disturbing Recent Heavy Precipitation Trend across Parts of the Upper Mississippi River Valley.* **Dan Baumgardt**, NWS, La Crosse, WI

592 *AQPI: Improved Operational Response to Precipitation Events in the San Francisco Bay Area.* **Greg Pratt**, OAR, Boulder, CO; R. Cifelli, L. E. Johnson

593 *Projected Trends of Great Plains Extreme Rainfall Return Intervals Using CMIP5 LOCA Ensembles.* **William Capehart**, South Dakota School of Mines and Technology, Rapid City, SD; H. Sieverding, L. Graunke, L. Kunza

594 *On Exploring Trends in Atmospheric River Induced Precipitation Extremes on the U.S. West Coast.* **Leo Triet Pham**, Michigan State Univ., East Lansing, MI; L. Luo

595 *Probabilities of Rainfall-Induced Landslides in Climate Change Scenarios.* **Antonino Cancelliere**, Univ. of Catania, Catania, Italy; D. J. Peres

596 *Net Benefits to Crop Yields from Intensifying Hourly Rainfall.* **Corey Lesk**, Columbia Univ., New York, NY; E. D. Coffel, R. M. Horton

597 *Projected Changes to Extreme Runoff and Precipitation Events for a Downscaled Simulation over the Western United States.* **Melissa L. Wrzesien**, Univ. of North Carolina, Chapel Hill, NC; T. M. Pavelsky

34HYDRO

Poster Session 7: LAND DATA ASSIMILATION TECHNIQUES AND SYSTEMS—POSTERS

Chairs: Clara S. Draper, USRA, Columbia, MD; Sujay Kumar, GSFC, Greenbelt, MD; Rolf Reichle, NASA, Greenbelt, MD; Youlong Xia, NCEP/EMC/IMSG, College Park, MD

598 *Assimilation of Remotely Sensed LAI into CLM4CN Using DART.* **Xiaolu Ling**, Insititute for Climate and Global Change Research, Nanjing Univ., Nanjing, China

599 *Coupled Land–Atmosphere Data Assimilation in the NOAA Operational Weather Prediction Models—Rapid Refresh (RAP) and High-Resolution Rapid Refresh (HRRR).* **Tatiana G. Smirnova**, NOAA/ESRL/GSD and CIRES/Univ. of Colorado, Boulder, CO; S. Benjamin, M. Hu, E. P. James

600 *Comparison and Evaluation of the Noah 3.6 and Noah-MP Skin Temperature Products as Candidate Variables for Assimilation of Remotely Sensed Measurements.* **John B. Eylander**, U.S. Army Corps of Engineers, Hanover, NH

601 *Impact of SMAP Soil Moisture Data Assimilation on Soil Moisture and on Warm Season Convection Forecasts.* **Clay B. Blankenship**, USRA, Huntsville, AL; J. L. Case, C. R. Hain

602 *Data Assimilation Improves the Performance of the Iowa Flood Center Real-Time Streamflow Predictions..* **Felipe Quintero**, Univ. of Iowa, Iowa City, IA; W. F. Krajewski, B. C. Seo, M. Rojas

603 *Satellite Soil Moisture Assimilation for Improved Forecasts of the Great Plains Low-Level Jet.* **Craig R. Ferguson**, Univ. at Albany, SUNY, Albany, NY; S. Agrawal, G. Xia, M. A. Campbell, D. A. Burrows, L. F. Bosart

604 *Eastern Asian Regional Reanalysis for Surface Meteorological Variables in 1979–2018.* **Lei Bai**, Wuhan Univ. of Technology, Wuhan, China

605 *Enhancement of NCA-LDAS Version 3 through Multisensor, Multivariate Data Assimilation.* **Natthachet Tangdamrongsub**, Univ. of Maryland/Earth System Science Interdisciplinary Center/ NASA GSFC, College Park, MD; M. F. Jasinski, J. S. Borak, S. V. Kumar, D. Mocko

606 *Assimilation of Leaf Area Index in a Multi-Land Surface Model System to Improve Water Flux and Storage Estimations.* **Viviana Maggioni**, George Mason Univ., Fairfax, VA; X. Zhang, A. Rahman, P. Houser, T. Sauer, S. Kumar, D. Mocko

607 *Observational Experiment of Land–Atmosphere Interactions in Typical Semiarid Areas: A Case Study in Dingxi.* **Wang Sheng**, Institute of Arid Meteorology, CMA, Lanzhou, China; Y. Li, Y. Xia

608 *Data Assimilation of Remotely Sensed Soil Moisture in Hydrological Modeling to Improve Flood Forecasting.* **Khaled Mohammed**, Universite de Sherbrooke, Sherbrooke, Canada; R. Leconte, M. Trudel

33CVC

Poster Session 10: COMMUNICATING CLIMATE CHANGE

609 *Preparing to Adapt: Are People's Expectations in Line with Climate Projections?* **Carley M. Eschliman**, Cornell Univ., Ithaca, NY; E. Kuster, J. T. Ripberger, A. M. Wooten

610 *The U.S. and Global Climate Conditions for 2019.* **Ahira Sanchez-Lugo**, NOAA/NESDIS/NCEI, Asheville, NC; K. Gleason, R. R. Heim Jr., C. Fenimore, S. Applequist, D. S. Arndt

611 *Developing Record Temperature Ratio Indices for the United States and the Globe.* **Anthony Arguez**, NOAA/NESDIS/NCEI, Asheville, NC; I. Durre, K. Gleason, R. S. Vose

612 *Sharing Native Wisdom and Climate Data to Enhance Resilience of Water Resources and Traditional Agriculture on Reservation Lands.* **Maureen McCarthy**, DRI, Reno, NV; K. Bocinsky, C. Albano, M. D. Dettinger

33CVC

Poster Session 11: EL NIÑO–SOUTHERN OSCILLATION (ENSO) DYNAMICS, DIVERSITY, PREDICTION, AND IMPACTS

613 *The Influence of Wintertime SST Variability in the Western North Pacific on ENSO Diversity.* **Boniface Fosu**, Georgia Institute of Technology, Atlanta, GA; J. He, S. Y. Wang

614 *Reanalysis of the Extended Multivariate ENSO Index.* **Eric Webb**, Univ. of North Carolina—Charlotte, Charlotte, NC; B. Magi

615 *The Niño Dipole Index.* **John W. Nielsen-Gammon**, Texas A&M Univ., College Station, TX; S. Meyer, A. Zbaske

616 *Unusual Anomaly Pattern of the 2015/16 El Niño Induced by the 2014 Warm Condition.* **Wenxiu Zhong**, Sun Yat-sen Univ., Guangzhou, China; W. Cai, X. Zheng, S. Yang

617 *Influence of South Pacific Subtropical Dipole on ENSO.* **Faming Wang**, Chinese Academy of Sciences, Qingdao, China; J. Zheng

618 *Toward Understanding the Suppressed ENSO Activity during the Mid-Holocene in PMIP2 and PMIP3 Simulations.* **Weipeng Zheng**, Institute of Atmospheric Physics, Beijing, China

619 *ENSO-Induced GPP Extremes Simulated by the CMIP6 Models.* **Min Xu**, ORNL, Oak Ridge, TN; F. M. Hoffman, N. O. Collier, S. Mahajan, J. Mao, P. Levine

33CVC

Poster Session 12: SEASONAL-TO-DECADAL CLIMATE PREDICTION

Chairs: Stephen Yeager, National Center for Atmospheric Research, Boulder, CO, , NCAR, Boulder, CO; Sarah Larson, North Carolina State Univ., Raleigh, NC

620 *The Internal Atmospheric Noise and Decadal Predictability of Surface Temperature, Precipitation, and Extremes.* **Wei Zhang**, RSMAS, Miami, FL; B. Kirtman

621 *The Pacific Decadal Precession and Its Relationship to Tropical and Extratropical North Pacific Decadal Variability in the CMIP6 Models.* **Matthew H. Rogers**, Univ. of Oklahoma, Norman, OK; J. C. Furtado

622 *Looking for Seasonal Forecasts of Opportunity in the NMME.* **Sarah Strazzo**, Embry-Riddle Aeronautical Univ., Daytona Beach, FL; E. J. Becker, D. Collins, J. Infanti

623 *Earth's Climate Variability over 7 Years from CrIS Brightness Temperature, OMPS Ozone, CarbonTracker CO₂, and MERRA-2.* **Ester Nikolla**, CIMSS, Madison, WI; R. Knuteson, M. Feltz, H. Revercomb, D. C. Tobin, D. Deslover

33CVC**Poster Session 8: ARCTIC MIDLATITUDE LINKAGES**

624 *Challenges in Simulating the Influence of Arctic Amplification on Midlatitude Extreme Weather.* **Judah Cohen**, AER, Lexington, MA

625 *Diagnosing Factors Influencing the Forecast Skill of Two Intense Arctic Cyclones in Early June 2018.* **Kevin A. Biernat**, Univ. at Albany, SUNY, Albany, NY; D. Keyser, L. F. Bosart

626 *Impacts of Regional Sea Ice Loss—A Global Response.* **Leon Hermanson**, Met Office Hadley Centre, Exeter, UK; R. Eade, D. M. Smith, N. Dunstone

627 WITHDRAWN

628 *Large-Scale Midlatitude–Polar Flow Interactions Leading to Rapid Surface Ice Melt over Greenland and Sea Ice Volume Loss over the Arctic Ocean in June 2019.* **Lance F. Bosart**, Univ. at Albany, SUNY, Albany, NY; K. A. Biernat, D. Keyser

629 *Northern Hemisphere Continental Snow Cover during Transitional Seasons: Linking the Arctic and Midlatitudes.* **David A. Robinson**, Rutgers Univ., Piscataway, NJ; T. W. Estilow

630 *Quantifying the Impact of Atmospheric Blocking on the Mean State of the North Atlantic Sector of the Arctic.* **Gina Henderson**, U.S. Naval Academy, Annapolis, MD; B. S. Barrett, T. Mote, N. Cartwright

631 *Sinuosity as a Metric for Quantifying Tropospheric Polar Vortex Modification Associated with Arctic Cyclones.* **Mansour El Riachy**, Univ. at Albany, SUNY, Albany, NY; L. F. Bosart, D. Keyser

632 *Unraveling of Impacts of Sea-Ice Loss on Extratropical Cold Winters.* **Yeon-Soo Jang**, Pohang Univ. of Science and Technology, Pohang, Korea, Republic of (South); J. S. Kug

633 *Very Strong Correlation between the Northern Hemisphere Jet Response and Arctic-Minus-Subtropical Warming across CMIP5 Models.* **Nicholas Golden**, Univ. of North Carolina, Charlotte, NC; J. Scheff

33CVC**Poster Session 9: ATMOSPHERIC RIVERS: GLOBAL SCIENCE AND APPLICATIONS**

636 *Lightning Characteristics Associated with Atmospheric Rivers Affecting the Continental United States Using the GOES-16/17 Geostationary Lightning Mappers.* **Bin Guan**, Univ. of California, Los Angeles, Pasadena, CA; D. E. Waliser, F. M. Ralph

637 *How Bad Could It Get? Future AR Flooding Scenarios in the San Francisco Bay Area.* **Alison F. C. Bridger**, San Jose State Univ., San Jose, CA; S. Chiao, D. Nguyen

638 *Aerosol and Hydrometeor Concentrations during Rain-on-Snow Events of Atmospheric Rivers in Northern California.* **Samuel Liner**, San Jose State Univ., San Jose, CA; J. M. Ryoo, S. Chiao

639 *Atmospheric Rivers in An Ever-Changing Climate.* **Ashton Cutright**, The Univ. of Arizona, Tucson, AZ

640 *Investigating the July 2018 Mid-Atlantic Floods with NASA GMAO Forecast and Reanalysis Models.* **Gary Partyka**, NASA, Greenbelt, MD; A. Collow, M. Bosilovich, J. V. Ardizzone

641 *Subseasonal Forecasts of Water Vapor Transport Associated with Atmospheric River over the Western United States.* **Zhenhai Zhang**, SIO, La Jolla, CA; M. DeFlorio, A. Subramanian, L. Delle Monache, F. M. Ralph

30WAF26NWP**Poster Session 2: 30 WAF/26 NWP TUESDAY POSTER SESSION**

642 *Verification of Convection-Allowing Initial Condition Ensemble Modeling Systems with WRF-ARW.* **Russell P. Manser**, Texas Tech Univ., Lubbock, TX; B. C. Ancell

643 *Designing a Process for Selecting, Vetting, and Implementing Physics Innovations in a Community Modeling Paradigm.* **John S. Kain**, NOAA, College Park, MD; L. R. Bernardet, V. Tallapragada, F. Yang, G. Manikin, R. Vasic, J. Doyle, C. Bretherton, G. Grell, J. Olson, S. Moorthi, A. Cheng, J. Dudhia, L. K. Bengtsson, J. W. Bao, M. Harrold

644 *Toward Consistent Physical Constant Sets for Interoperable Earth System Models.* **Sue Chen**, NRL, Monterey, CA; R. Montuoro, L. Marx, S. Goldhaber, N. P. Barton, T. J. Campbell, C. DeLuca, B. Li, D. McCarren, J. Meixner, M. Vertenstein, N. Zadeh, J. Infanti, B. R. Brown, R. Dunlap, G. Theurich

645 *Verification of the Physics Suite Testing for GFS v1.6 Using the Model Evaluation Tools.* **Michelle Harrold**, NCAR, Boulder, CO; J. K. Wolff, M. Zhang, T. Hertneky, L. Bernardet, J. K. Henderson, L. R. Blank, W. Li, L. Pan, G. Firl, T. Jensen

646 *An Evaluation of Common Community Physics Package (CCPP) Physics Suites across Scales.* **Kathryn M. Newman**, NCAR, Boulder, CO; T. J. Hertneky, E. A. Kalina, M. Harrold, L. Pan, G. Firl, E. D. Grell, L. Carson, M. Ek

647 *One-Stop Shopping for Physics across Scales: From a Single-Column Model to Three-Dimensional Configurations for Weather and S2S.* **Linlin Pan**, NOAA/GSD, Univ. of Colorado/CIRES, and Developmental Testbed Center, Boulder, CO; L. Bernardet, D. Heinzeller, E. Kalina, G. Firl, E. Grell, K. Newman, L. Carson, G. Grell

648 *Coupling FLAKE with GFSv1.5.* **Yihua Wu**, NCEP, College Park, MD; J. Wang, J. S. Kain, V. Tallapragada

649 *The Effect of Moist Physics and Resolution on Baroclinic Wave Evolution in an Idealized Simulation.* **Kurtis Allen Schubeck**, Florida State Univ., Tallahassee, FL

650 *Weather Forecasting with a Nonhydrostatic Global Atmospheric Prediction System on a Cubed-Sphere Grid.* **SongYou Hong**, KIAPS, Seoul, Korea, Republic of (South)

651 *Challenges in Improving the Representation of Mesoscale Kinetic Energy in NWP Models.* **Jih-Wang Aaron Wang**, CIRES, Boulder, CO; P. D. Sardeshmukh

652 *Evaluation of the Performance of the WRF Model over the United Arab Emirates.* **Ricardo Morais Fonseca**, Khalifa Univ. of Science and Technology, Abu Dhabi, United Arab Emirates; M. Temimi, M. Weston, N. R. Nelli, M. S. Thota, V. Valappil

653 Sensitivity of Summer Convective Precipitation to Dynamical Core Configurations in the GEM Model. **Rabah Aider**, Recherche en Prévision Numérique, Environment and Climate Change Canada, Dorval, Canada; S. Gaudreault

654 Toward an Optimal Configuration of Dynamics and Physics for GEFS v1.2. **Bing Fu**, NCEP, College Park, MD; X. Zhou, Y. Zhu, J. Peng, D. Hou

655 Grid Refinement in a Global Spectral Element Model. **Alex Reinecke**, NRL, Monterey, CA; M. Martini, J. Michalakes, J. D. Doyle, D. D. Flagg, A. Huang, D. R. Ryglicki

656 NWP Prediction at ESRL/GSD: Overview of Global Modeling Development Activities. **Georg A. Grell**, NOAA/ESRL/GSD, Boulder, CO; H. C. Barnes, S. Sun, L. Bernardet, R. Montuoro, H. Li, B. W. Green, T. G. Smirnova, L. Zhang, J. Olson, R. Ahmadov, R. Bleck

657 Full Velocity Field Reconstruction on Icosahedral Grids for Shallow-Water Models. **Yonggang G. Yu**, CIRES, Boulder, CO; N. Wang, Y. Xie, M. W. Govett

658 Development and Performance of the GFDL Global Prediction System—SHIELD. **Linjong Zhou**, NOAA/GFDL, Princeton Univ., Princeton, NJ; S. J. Lin, L. Harris, K. Gao, B. Xiang, M. A. Bender, J. H. Chen

659 Evaluating and Tuning Orographic Gravity Wave Drag Parameterizations in Atmospheric NWP Models. **Michael D. Toy**, NOAA/ESRL/GSD and CIRES/Univ. of Colorado, Boulder, CO; J. B. Olson, T. G. Smirnova, J. S. Kenyon, J. M. Brown, G. A. Grell

660 Implementation of CLUBB in COAMPS. **Yi Jin**, NRL, Monterey, CA; S. Wang

661 A Comparison of Multi- versus Single-Dynamic Core Multiphysics Ensemble Designs for Convection-Allowing Forecasting Initialized by the Multiscale EnVar Data Assimilation System. **Nicholas A. Gasperoni**, Univ. of Oklahoma, Norman, OK; X. Wang

662 Classification of Weather Patterns over the East Asia Region Using Clustering Analysis. **Young-Jun Cho**, NIMS, KMA, Seogwipo-si, Korea, Republic of (South); H. C. Lee, B. Lim, S. B. Kim

663 Classification of Heat Wave Weather Patterns for Probabilistic Ensemble Medium-Range Forecasts in South Korea. **Hyeon-Cheol Lee**, NIMS, KMA, Seogwipo-si, Korea, Republic of (South)

664 Using a Coupled FV3GFS–FVCOM Modeling System to Improve Lake-Effect Snowfall Forecasts. **David M. Wright**, Univ. of Michigan, Ann Arbor, MI; C. Jablonowski, A. Fujisaki-Manome, P. Y. Chu, E. J. Anderson, G. E. Mann, B. M. Lofgren

665 Unified Forecast System: Considerations for Transition to Operations. **Ivanka Stajner**, NOAA/NWS/NCEP, College Park, MD; T. Jensen, G. Manikin, J. J. Levit, V. Tallapragada, F. Yang, R. Treadon

666 Implementation of Radar Data Assimilation Capabilities within Ensemble–Variational Hybrid GSI for the Stand-Alone Regional FV3-Based Convection-Allowing Forecasting System. **Chong-Chi Tong**, CAPS, Norman, OK; Y. Jung, C. Liu, M. Xue

667 A Climatology of Snow-to-Liquid Ratios in Alaska. **David E. Levin**, NOAA/NWS, Juneau, AK

668 The Case of Cold-Air Damming in Response to Topographical Influence Created by the Ozark Plateau. **Jon Bongard**, Univ. of Missouri, Columbia, MO; P. S. Market, J. Hunter

669 A Comparison of Boundary Layer Parameterizations and Sensitivity to Vertical Resolution with the 3-km FV3 Stand-Alone Regional Model for a Lake-Effect Snow Event. **Edward Strobach**, IMSG and NOAA/NCEP/EMC, College Park, MD; E. Aligo, J. R. Carley

670 WRF Simulation, PBL Sensitivity, and Analysis of the December 2013 New England Ice Storm. **Julia M. Simonson**, Univ. of Maine, Orono, ME; S. D. Birkel, K. A. Maasch, P. A. Mayewski, B. Lyon, A. M. Carleton

671 The 30 January 2019 Northeast U.S. Snow Squall Event: An Operational Perspective. **Jonathan O'Brien**, NWS Mount Holly, New Jersey, Westampton, NJ

672 Traffic Fatalities in Winter: An Evaluation of Weather Regimes and NWS Guidance during Killer Storms. **Joseph Burzdak**, Western Connecticut State University, Danbury, CT; A. A. Rosenow, H. D. Reeves, S. L. Handler

673 An Overview on the 13 March 2019 Explosive Cyclogenesis Event over Southern Colorado and the Impact-Based Decision Support Service Provided by the National Weather Service Weather Forecast Office in Pueblo, Colorado. **Klint T. Skelly**, NWS, Pueblo, CO; G. Heavener

674 Analyzing Winter Weather and Climate Trends of the Ski Resorts in North Carolina through the Use of Community Collaborative Rain, Hail, and Snow Network (CoCoRaHS) Stations. **Danika Leigh Mosher**, East Tennessee State Univ., Jonesborough, TN; T. A. Joyner, I. E. Luffman

675 Environmental Controls on Banded versus Cellular Organization of Mesoscale Snow Squalls in Western South Dakota. **Leanna Bender**, South Dakota School of Mines and Technology, Rapid City, SD; A. J. French

676 Winter Storms and Associated Precipitation Causing Power Outages over the Province of New Brunswick, Canada. **Julien Chartrand**, UQAM, Montréal, Canada; J. M. Thériault

677 Importance of Physical Parameterization for Snowfall Forecasts: Implications from a Case Study of Heavy Snowfall over the Southern Coast of Japan. **Ginga Akimoto**, JMA, Tokyo, Japan

678 Assessing the Predictability of WRF Precipitation Forecasts for the Bay Area. **Paul Zechiel**, San Jose State Univ., San Jose, CA; S. Chiao

679 NOAA's National Snowfall Analysis: Technical Description and Evaluation. **Greg Fall**, NOAA/NWS, Chanhassen, MN; K. H. Sparrow

680 A Climatological Analysis of Snowband Predictability in Northeast Winter Storms Including Case Studies. **Mark Nissenbaum**, Florida State Univ., Tallahassee, FL; R. E. Hart

681 Improving the Snow-to-Liquid Ratio and Snowfall Forecasts in the Western United States. **Michael Wessler**, Univ. of Utah, Salt Lake City, UT; J. Steenburgh

682 Intraseasonal Variability of Cloud Cover in Midlatitudes during Boreal Winter. **Reona Satoh**, Fukuoka Univ., Fukuoka, Japan; N. Nishi, H. Mukougawa

683 *Assimilation of GPM-Retrieved Surface Meteorology Variables for Two Winter Storms.* **X. Li**, Univ. of Alabama, Huntsville, AL; J. Srikrishen, J. B. Roberts, W.A. Petersen, C. R. Hain

684 *Evaluation of Hourly Snow-to-Liquid Ratio Algorithms for the U.S. Air Force.* **Christopher J. Melick**, 557th Weather Wing, Offutt Air Force Base, NE; W.T. Sedlacek, S. Augustyn, R. J. Craig, G. Brooks, D. L. Keller, S. Rentschler, E. Kuchera, C. Hoover, J. Foote, M.A. Baxter

685 *Formation and Evolution of the Strong Great Lakes New Year's Eve 2017 Mesovortex.* **Nathan Marsili**, NOAA/NWS, Syracuse, IN

686 *The Influence of Turbulence Parameterizations on the 2 March 2018 Snowstorm.* **Matthew T. Vaughan**, Univ. at Albany, SUNY, Albany, NY; R. G. Fovell

687 *Characterizing and Constraining Uncertainty Associated with Surface and Boundary Layer Turbulent Fluxes in Simulations of Lake-Effect Snowfall.* **Justin Minder**, Univ. at Albany, SUNY, Albany, NY; W. M. Bartolini

688 *Exploring the Predictability of Synoptically Induced Cold-Air Damming in the Eastern United States.* **Thomas Hopson**, NCAR, Boulder, CO; J. C. Knievel, M. Frediani

689 *Evaluation of Winter Weather Prediction during Extreme Snowfall Events.* **Michael Walters**, Univ. of Connecticut, Storrs, CT; J. Yang, M. Koukoulou, M. Astitha

690 *1-Month-Lead Predictability of Asian Summer Monsoon Indices Based on the Zonal Winds Using the APCC Multimodel Ensemble.* **Joong-Bae Ahn**, Pusan National Univ., Busan, Korea, Republic of (South); H. J. Park, V. Kryjov

691 *The Current Development Status of the Next Seasonal Ensemble Prediction System (JMA/MRI-CPS3). Part II.* **Jotaro Chiba**, JMA, Tokyo, Japan

692 *Subseasonal Bias and Skill in FV3 Simulations Using Two Different Physics Suites.* **Benjamin W. Green**, CIRES, Boulder, CO; S. Sun, G. A. Grell, S. G. Benjamin

693 *Progress on the Development of a Coupled Forecast System for Subseasonal-to-Seasonal Prediction at NCEP/EMC.* **Bin Li**, IMSG at NOAA/NWS/NCEP/EMC, College Park, MD; J. Meixner, J. Wang, D. Worthen, L. Stefanova, J. Wang, S. Saha, S. Moorthi, R. Grumbine, A. Chawla, A. Mehra

694 *A Shift Toward Probabilistic Seasonal Forecasts at The Weather Company, an IBM Business.* **Michael J. Ventrice**, The Weather Company, Andover, MA; J. Belanger, T. Crawford, J. Williams

695 *Accelerating Subseasonal-to-Seasonal Modeling and Improving Week-3–4 Forecasts with the Unified Forecast System: Plan and Progress.* **Y. Xue**, NOAA/NWS, Silver Spring, MD; D. M. Koch, V. Tallapragada, D. DeWitt, T. Hamill, J. Kinter, C. Stan, L. Harris, J. C. Carman

696 *Sensitivity of the 2012 Arctic Cyclone to Sea Ice and Atmospheric Initial Conditions.* **Tomer Burg**, Univ. of Oklahoma, Norman, OK; S. M. Cavallo

697 *Medium-Range Predictability of Historical Extreme Precipitation Events Associated with Mid- to Upper-Tropospheric Flow Reversal.* **Shawn M. Milrad**, Embry-Riddle Aeronautical Univ., Daytona Beach, FL; E. Atallah, J. Gyakum

29 EDUCATION

Poster Session 2: EDUCATIONAL OUTREACH POSTER SESSION

698 *The American Meteorological Society's Early Career Leadership Academy.* **Mona Behl**, The Univ. of Georgia, Athens, GA

699 *Using Alternative Technology Formats to Efficiently Reach Underserved Areas of the Community.* **Erik M. Heden**, NOAA, Newport, NC; S. Spiegler

700 *Increasing Minorities in Atmospheric Science through Geoscience Experiences (I.M.A.G.E.) Program at Jackson State Univ.* **Janae N. Elkins**, NOAA, Flowood, MS; D. Carroll-Smith

701 *Strengthening Participation in the Atmospheric Sciences: Providing Underrepresented Students with Communication Strategies for Multicultural Mentoring.* **Leticia D. Williams**, NCAS, Washington, DC

702 *'Tis a Time for Transformation in Earth and Environmental Sciences Education—NGSS, CTE, and STEM.* **Paul Ruscher**, Lane Community College, Eugene, OR

703 *Effective Multi-Institutional Partnerships to Broadening Participation in Earth System Sciences: The Haskell–NCAR Environmental Assessment Training.* **Jerry Cycone**, NCAR, Boulder, CO; J. Brewer, C. Marshall, J. T. Johnson, R. Haacker

704 *Securing Private and Federal Partnerships to Support Undergraduate Geoscience Workforce Internships for Minorities.* **Janet Liou-Mark**, New York City College of Technology, City Univ. of New York, Brooklyn, NY; R. Blake, J. Rivera

705 *Preparing Students of Color for a Career Pathway in STEM through a Geoscience Undergraduate Research Program.* **Janet Liou-Mark**, New York City College of Technology, City Univ. of New York, Brooklyn, NY; R. Blake, H. Norouzi, J. Rivera

706 *Look at the Sky and Tell the Weather: Contributions to Meteorology of Eric Sloane.* **Michael J. Passow**, Lamont-Doherty Earth Observatory, Palisades, NY

707 *Real People, Real Climate, Real Changes: A Traveling Exhibition Reaches Broad Audiences in Order to Engage Communities in Discussions about Impacts and Solutions.* **Becca Hatheway**, UCAR, Boulder, CO; R. Haacker, L. Medina Luna, D. Zietlow, L. S. Gardiner, R. Henson, K. Dagon

708 *WeatherBlur: Connecting Students, Scientists, and Communities to Their Local Weather Data.* **Margaret B. Curtis**, NWS, Gray, ME; N. Becker, R. Clark Uchenna, R. Kermish-Allen, L. Venger, S. Dickson, P. Matrai

709 *Mentoring New Meteorologists in the National Weather Service to Meet the Evolve Initiative.* **Matthew E. Anderson**, NOAA/NWS, Morristown, TN; D. Hotz

710 *Authentic Student Research Experiences with GLOBE Clouds.* **Marile Colon Robles**, SSAI, Hampton, VA; J. Bourgeault, J. R. Bouwman, J. Taylor, T. R. Harte, T. M. Rogerson

711 *Summer Camp on Severe Storms and Monsoon Meteorology—Engaging Students.* **Dorothea Ivanova**, Embry-Riddle Aeronautical Univ., Prescott, AZ; C. N. James, M. Sinclair

712 *The GOES-16/17 Virtual Science Fair.* **Margaret Mooney**, CIMSS/Univ. of Wisconsin, Madison, WI; V. Gorman, K. Loach, T. J. Schmit, M. M. Gunshor, D. T. Lindsey

713 *The SSEC Equity Tech Camp.* **S. S. Lindstrom**, Univ. of Wisconsin–Madison/CIMSS, Madison, WI; M. Mooney, S. Batzli, C. Suplinks, D. Hoese, L. Orf, K. Bah, B. Pierce

714 *Collaborative Research between Lake Nona High School and the 45th Weather Squadron: Year 5.* **William P. Roeder**, 45th Weather Squadron, Cape Canaveral AFS, FL; K. J. Chaffin, W. A. Ulrich

25APPLIED

Poster Session 1: CLIMATE TOOLS: SHOWCASE OF NEW CLIMATE DATA TOOLS AND SERVICES

Chair: Robb M. Randall, Army Research Laboratory, WSMR, NM

715 *Cluster Analysis Resolution of Diurnal Climatological Wind Pattern Modes Utilizing K Means—A Case Study with Boston, Massachusetts: Data (Logan International Airport, 1945–2019).* **Charles J. Fisk**, Naval Base Ventura County, Point Mugu, CA

716 *Aligning Climate Models with Stakeholder Needs: A Decision Tool for Communicating Future Rainfall Uncertainties to South Florida Decision-Makers.* **Johnna Infanti**, Univ. of Miami/RSMAS, Miami, FL; B. Kirtman, C. Polsky

717 *Climatological Data Applied in a Rules-Based Tactical Decision Aid.* **Subing Zeng**, U.S. Department of Defense, Adelphi, MD

718 *The Hydrologic Engineering Center's Meteorological Visualization and Utility Engine (HEC-MetVue): A Program for Processing, Visualizing, and Analyzing Observed and Forecast Climate Products..* **Fauwaz Hanbali**, Hydrologic Engineering Center, Davis, CA; C. DeChant

719 *Climate4Cities: City Data Explorer Tools Demonstration.* **Natalie A. Umphlett**, Univ. of Nebraska, Lincoln, NE; M. Shulski, T. Abdel-Monem, Z. Tang, F. Uhlarik

720 *Interactive Tools That Localize Climate Change for the Public.* **Bernadette Woods Placky**, Climate Central, Princeton, NJ; S. Sublette

721 *Recent Additions to Reanalysis Holdings at NCAR's Research Data Archive.* **Riley Conroy**, NCAR, Boulder, CO; D. Stepaniak, R. Dattore, C. F. Shih, D. Schuster

722 *Using Hourly Observed Data Web Services: A Climatology of Wind Chill and Heat Index in the Continental United States.* **Bryan Peake**, ISWS, Griffith Dr, IL; R. A. Wolf, T. Rieck, M. S. Timlin

723 *Consumer-Driven Data Delivery at the Oklahoma Mesonet.* **Michael D. Klatt**, Univ. of Oklahoma, Norman, OK

724 *The International Surface Pressure Databank Version 4: Data Access and User Services.* **Thomas A. Cram**, NCAR, Boulder, CO; D. Schuster, G. P. Compo, C. McColl

725 *The American Association of State Climatologists: Advancing the Development and Delivery of Science-Based Climate Services.* **Glenn Kerr**, American Association of State Climatologists, Asheville, NC

726 *Impact of Climate Fluctuations on North Atlantic Iceberg Counts.* **Richard W. Dixon**, Texas State Univ., San Marcos, TX

727 *Estimation of Sampling Efficiency of the Big Spring Number Eight (BSNE) Sampler at Different Heights Based on Sand Particle Size in the Taklimakan Desert.* **Qing He**, BMRC, Urumqi, China

728 *The Colorado Climate Center: Climate Monitoring, Climate Research, and Climate Services for Colorado.* **Russ S. Schumacher**, Colorado State Univ., Fort Collins, CO; R. Bolinger, P. Goble, N. Newman, H. Reges, Z. Schwalbe, D. Talmadge, J. Turner, N. J. Doesken

21AIRPOL

Poster Session 2: POSTER SESSION II

729 *A Forecast Evaluation of Planetary Boundary Layer Height over the Ocean.* **David A. Lavers**, ECMWF, Reading, UK; A. Beljaars, D. S. Richardson, M. J. Rodwell, F. Pappenberger

730 *The Complex Terrain Measurement and Modeling Project of Land–Atmosphere Energy Exchanges (COMPLEX) Experiment.* **Laura Herrera**, Sistema de Alerta Temprana de Medellín y el Valle de Aburrá (SIATA), Medellín, Colombia; C. D. Hoyos

731 *Sensitivity of the k - ϵ Turbulence Parameterization to Atmospheric Stability.* **Xiping Zeng**, Army Research Laboratory, Adelphi, MD; Y. Wang, B. MacCall

732 *Land Use and Land Cover Change–Induced Surface Temperature Anomalies: The Scale Issue.* **Dan Li**, Boston Univ., Boston, MA

733 *On the Impact of the 2019 Mississippi and Missouri River Valley Flooding on Boundary Layer Dynamics over the Great Plains.* **Sandip Pal**, Texas Tech Univ., Lubbock, TX; T. Lee

734 *Development of an In Situ Probe to Observe Finescale Stable Atmospheric Boundary Layer Turbulence.* **Christopher M. Hocut**, U.S. Army Research Laboratory, White Sands Missile Range, NM; E. Kit, D. Liberzon, H. J. S. Fernando

20ARAM

Poster Session 1: POSTER SESSION I: PROPERTIES, DETECTION, PREDICTION, AND MITIGATION OF AVIATION WEATHER HAZARDS

Chair: Vijay Tallapragada, NOAA/NWS/NCEP/EMC, College Park, MD

735 *Climatological Properties of Reported Cloud-to-Ground Lightning for Alaska from Several Lightning Detection Systems.* **Andrew J. Kochenash**, NOAA/NWS/Meteorological Development Laboratory and CIRA / Colorado State Univ., Silver Spring, MD; J. P. Charba, J. E. Ghirardelli, P. E. Shafer, F. G. Samplatsky

736 *Analysis of Convectively Induced Turbulence (CIT) within the Shallow Convections in Seoul, South Korea.* **Jung-Hoon Kim**, Seoul National Univ., Seoul, Korea, Republic of (South); N.W. Lee, S.W. Baek, G.W. Lee

737 *Incorporation of a 3D Mosaicked Hydrometeor Classification Algorithm into the Multi-Radar Multi-Sensor System.* **Heather D. Reeves**, CIMMS/Univ. of Oklahoma and NOAA/NSSL, Norman, OK; S. Handler, A. Eddy

738 *Using GLM in the Aviation Weather Center.* **Brian P. Pettegrew**, CIRA/Colorado State Univ., Kansas City, MO; S. Minnick, A. Terborg

739 *Blending Extrapolation and R3R Forecast.* **Ming Fang**, MSG, Silver Spring, MD; R. Chen, J. Cheng, Y. Weng, S. Liu, W. Guo, L. Jiang, Y. Jin, M. Yao

740 *Analysis and Automated Detection of Ice Crystal Icing Conditions Using Geostationary Satellite Datasets and In Situ Ice Water Content Measurements.* **B. Scarino**, SSAI, Hampton, VA; K. M. Bedka, C. R. Yost, L. Nguyen, J. W. Strapp, T. Ratvasky, K. Khlopenkov, R. Bhatt, D. A. Spangenberg, R. Palikonda

741 *The Impact of Extreme Weather on the National Airspace System.* **Tyler Scott Harrington**, FAA, Washington, DC

742 *Comparison of Aircraft Observations to Assess Cloud Phase Conditions during the BAIRS II Campaign.* **Michael F. Donovan**, MIT Lincoln Laboratory, Lexington, MA; D. J. Smalley, E. R. Williams, J. M. Kurdzo, B. J. Bennett

743 *Developing a Climatologically Derived Probabilistic Global Turbulence Forecast.* **Alex P. Korner**, CIRA/Colorado State Univ., Kansas City, MO; B. P. Pettegrew, M. Strahan

744 *Observations of Supercooled Drizzle Production in a Wintertime, Orographic Cloud.* **Adam Majewski**, Univ. of Wyoming, Laramie, WY; J. French

745 *Application of Atmospheric Turbulence Estimated Using the Thorpe Analysis Method and Operational Radiosonde Data in the United States to Aviation Turbulence.* **Han-Chang Ko**, Yonsei Univ., Seoul, Korea, Republic of (South); H. Y. Chun, R. D. Sharman

746 *Statistics and Evaluations of Low-Level Turbulence near Boseong, South Korea.* **Jiwoo Lee**, Seoul National Univ., Seoul, Korea, Republic of (South); J. H. Kim

747 *Case Analysis of the Generation Mechanism for a Clear-Air Turbulence (CAT) Encounter near Tokyo on 30 October 2018.* **Ha-Neul Kim**, Seoul National Univ., Seoul, Korea, Republic of (South); J. H. Kim

748 *Quantifying Spatial Separation Error in Tropospheric Wind Measurements.* **Nathan Curtis**, NASA, Huntsville, AL; R. E. Barbre Jr., F. B. Leahy

749 *The Atmospheric Flow at the Alcantara Space Center—In Situ Observations, Modeling, and Wind Tunnel Essays.* **Gilberto Fisch**, Institute of Aeronautics and Space, São José dos Campos, Brazil; C. P. F. Francisco, A. C. Avelar, E. G. Valentim, K. Klippel, N. C. Reis Jr., B. Hulle

750 *A Climatology of Lake Breezes at O'Hare International Airport.* **Ryan North**, SUNY Oswego, Oswego, NY

751 *Pilot Report System Modernization.* **Robert Avjian**, The MITRE Corporation, McLean, VA; M. Fronzak, D. Strand

752 *DTN's High Ice Water Forecasts.* **Donald W. McCann**, Overland Park, KS; W. Hyduke

I7SPACEWX

Poster Session I: NEW INSTRUMENTS, PLATFORMS, AND INITIATIVES FOR SPACE WEATHER: POSTERS

Chairs: Scott McIntosh, NCAR, Boulder, CO; Alexander Engell, NextGen Federal Systems, Havre de Grace, MD

753 *The Solar Polar Observing Constellation (SPOC) Mission: Combining Polar Exploration with Operational Space Weather Monitoring.* **Thomas Berger**, Univ. of Colorado at Boulder, Boulder, CO; N. Bosanac, T. Smith, N. Duncan, G. Wu, E. Turner, N. Hurlburt, C. Korendyke

754 *The CubeSat Mission for Studying Solar Particles (CuSP).* **Mihir I Desai**, Southwest Research Institute, San Antonio, TX

755 *Analysis of High-Resolution Wind Fields of the Upper Atmosphere Observed with a Multistatic Meteor Radar Network.* **Samantha Carlson**, Millersville Univ., Millersville, PA; R. Volz, J. Chau, J. M. Urco, J. Vierinen

756 *Imaging of Solar Photospheric Magnetic Fields Using Photonic Magnetographs.* **Neal Hurlburt**, Lockheed Martin ATC, Palo Alto, CA; G. Chriqui, J. Mobilia, S. J. B. Yoo, T. Hoeksema

757 *SWxTREC: An Emerging Community Resource for Integrative Space Weather Data Access and Model/Algorithm R2O Promotion.* **Christopher Pankratz**, Univ. of Colorado, Boulder, CO; T. Baltzer, G. Lucas, J. Craft, T. E. Berger, J. Knuth, E. K. Sutton, D. Baker, A. N. Jaynes

758 *The Univ. of Colorado's Space Weather Technology Research and Education Center Space Weather Portal—A Tool for Lowering the Barrier to Data Access.* **Thomas Baltzer**, Univ. of Colorado, Boulder, CO; J. Knuth, D. Lindholm, C. Pankratz, T. E. Berger

759 *SWxTREC Testbed: Facilitating Model/Algorithm R2O and O2R Development within a Cloud Computing Environment.* **Greg Lucas**, Univ. of Colorado, Boulder, CO; J. Craft, C. Pankratz, E. K. Sutton, T. E. Berger

760 *Calibration/Validation Efforts for Magnetospheric Plasma Sensor—Low Energy: The New Plasma Instrument Onboard NOAA's GOES-16/-17 Satellites.* **Athanasios Boudouridis**, NOAA-NCEI, Boulder, CO; B. Kress, J. Rodriguez

761 *GPS: A Constellation Mission Measuring Solar Energetic Protons and the Electron Radiation Belts.* **Steven Morley**, LANL, Los Alamos, NM; M. Carver, Y. Chen

762 *New Space Weather Measurements from MACAWS: Monitors for Alaskan and Canadian Auroral Weather in Space (MACAWS).* **Anthea Coster**, MIT, Westford, MA; S. Sazykin, A. N. Newheart, D. Hampton, S. Skone, R. Varney, A. Reimer, K. Lynch

763 *Using a Ground-Based Coronagraph as an Early Warning System for Solar Energetic Particle Events.* **Barbara J. Thompson**, GSFC, Greenbelt, MD; O. C. St. Cyr, M. D. Galloy, J. Burkepile, G. de Toma, W. T. Thompson, I. G. Richardson, A. Posner

764 *Combined Next-Generation X-ray and EUV Observations with the FIERCE Mission Concept.* **Albert Y. Shih**, GSFC, Greenbelt, MD; L. Glesener, S. Christe, K. Reeves, S. Gburek, M. Alaoui, J. Allred, W. Baumgartner, A. Caspi, B. Dennis, J. Drake, L. Golub, K. Goetz, S. Guidoni, I. Hannah, L. Hayes, G. Holman, A. Inglis, J. Ireland, G. Kerr, J. Klimchuk, S. Krucker, D. McKenzie, C. Moore, S. Musset, J. Reep, D. Ryan, P. Saint-Hilaire, S. Savage, D. B. Seaton, M. Stęślicki, T. Woods

765 *Solar Cruiser and PELE—Getting ahead of the Space Weather Problem.* **Scott McIntosh**, NCAR, Boulder, CO

766 *Leveraging Commercial Cubesat Constellations for Auroral Science: A Case Study.* **Jonathan Brent Parham**, Boston Univ., Boston, MA; J. Semeter

767 *Coordinated Ionospheric Reconstruction CubeSat Experiment (CIRCE) Mission Update.* **Andrew Nicholas**

17SPACEWX

Poster Session 2: SPACE WEATHER RESEARCH AND TECHNOLOGY: POSTERS

Chairs: Barbara Thompson, NASA, Greenbelt, MD; Richard A. Behnke, Science Prime, Vienna, VA

768 *Comparison of Van Allen Probes Energetic Electron Data with Corresponding GOES-15 Measurements: 2012–18.* **D. N. Baker**, Univ. of Colorado Boulder, Boulder, CO; H. Zhao, X. Li, S. G. Kanekal, A. N. Jaynes, B. Kress, J. R. Rodriguez, H. J. Singer, S. G. Claudepierre, S. G. Claudepierre, J. F. Fennell

769 *Ensemble Data Assimilation for the RAM-SCB Model.* **Humberto C. Godinez**, LANL, Los Alamos, NM; S. Morley, M. G. Henderson, V. K. Jordanova

770 *A New Empirical Model for Ionospheric Total Electron Content.* **Cole A. Tamburri**, Boston College, Newton, MA; L. Goncharenko, W. Rideout, A. Coster

771 *Plasma Wave Observations during Geomagnetic Storms with MMS.* **Erin Radermacher**, LASP, Boulder, CO; M. E. Usanova, N. Ahmadi

772 *The Space Weather Living History Program: Interviews with SWx Innovators.* **Carolyn Y. Ng**, ADNET Systems Inc., Greenbelt, MD; B. J. Thompson, T. D. Cline

773 *NOAA Space Weather Prediction Center Solar Energetic Particle Event Forecast Skill.* **Noah A. Stitely**, Millersville Univ., Millersville, PA; H. Bain, D. Biesecker

774 *The Latest on the Reconstruction of the Sunspot Number.* **W. Dean Pesnell**, NASA, Greenbelt, MD; F. Clette, L. Lefevre

775 *National Oceanic and Atmospheric Administration's Space Weather Services—Our Nation's First Line of Defense against Space Weather Storms.* **Jennifer Meehan**, NOAA, Silver Spring, MD; W. J. Murtagh

776 *Influence of Tropical Cyclones on Total Electron Content.* **Joanna Williams**, Air Force Institute of Technology, Wright-Patterson AFB, OH; B. Urbancic, R. C. Tournay, O. A. Nava, H. R. Tseng

777 *Physics-Informed Machine Learning with Autoencoders and LSTM for Probabilistic Space Weather Modeling and Forecasting.* **Richard Joseph Licata**, West Virginia Univ., Morgantown, WV; P. M. Mehta

778 *Nowcasting of Auroral Electron Precipitation Using an Artificial Neural Network.* **Amin Taziny**, Univ. of Colorado, Boulder, CO; E. Camporeale

779 *On the Generation of Probabilistic Forecasts from Deterministic Models.* **Enrico Camporeale**, CIRES, Boulder, CO; X. Chu, O. Agapitov, J. Bortnik

780 *Using Unsupervised Machine Learning to Explore New Classification of Sunspot Active Regions.* **Sara Housseal**, Millersville Univ., Millersville, PA; T. E. Berger, V. Deshmukh

15SOCIETY

Poster Session 2: 15SOCIETY POSTER SESSION II

781 *The Integrated Warning Team Toolkit: A Modern Solution for Engaging Partners to Deliver Consistent, Actionable Messaging in an Evolving Weather Enterprise.* **Nicole Peterson**, NWS, Pocatello, ID

782 *The OK-FIRE Mesonet Platform as a Hazard Communication Tool for Decision-Makers and Fire Managers.* **Monica O. Mattox**, Univ. of Oklahoma, Norman, OK

783 *The National Weather Service Forensic Services Program.* **Lora Wilson**, NOAA, Silver Spring, MD

784 *Communication Challenges: Coastal Stakeholders and Climate Tools.* **Marisa Karpinski**, Louisiana State Univ., Baton Rouge, LA; R. Edwards, A. Miller, B. Keim, A. M. Haberlie, T. Boukovidis

785 *An Examination of Traffic Accidents during Falling and Blowing Snow in Northern Indiana.* **Daniel Burow**, Univ. of Tennessee, Knoxville, TN; C. Atkinson

786 *Coastal Alabama & FORTIFIED Home: A Windstorm Resilience Success Story.* **Virginia G. Silvis**, Insurance Institute for Business and Home Safety, Richburg, SC; I. M. Giammanco, F. Malik

15URBAN

Poster Session 3: AIR QUALITY AND HEALTH IMPACTS IN THE URBAN ENVIRONMENT (POSTER)

Chairs: Robert Bornstein, Institute of Urban Meteorology, China Meteorological Administration, Beijing, Beijing, China; Haider Taha, Altostratus, Inc., Martinez, CA

787 *Association between Malaria and Local Climate Variability In Jos, North-Central, and Kano, Northwest, Nigeria.* **Ademola Akinbobola**, Federal Univ. of Technology, Akure, Nigeria; S. Aliyu, E. C. Okogbue

788 *Characterization of Black Carbon—Containing Fine Particles in Beijing during Summertime: Contrast between SP-AMS and HR-AMS.* **Junfeng Wang**, Harvard Univ., Cambridge, MA

789 Development of Source Object-Based Model for Emissions (SOME) for Multiscale Anthropogenic Emissions in Urban Environments. **Ju-Wan Woo**, Kongju National Univ., Gongju, Korea, Republic of (South); J. H. Lee, S. H. Lee

790 Flows over Urban Areas—A Comparison between Laboratory and Mathematical Modeling Results. **Chun-Ho Liu**, Univ. of Hong Kong, Pokfulam, Hong Kong; Z. Wu, Z. Mo, W. Li, J. Xie, H. Pan

791 Statistical Characteristics of the Morphological Parameters of Chinese Cities and the Application in WRF Model. **Yong Sun**, Nanjing Univ., Nanjing, China; N. Zhang

792 The Impacts of the Uncertainties of Land Surface Information on the Urban Heat Island Attribution Analysis in the Yangtze River Delta Urban Agglomeration, China. **Congyuan Li**, Nanjing Univ., Nanjing, China; N. Zhang

I5URBAN

Poster Session 4: OBSERVATIONS AND FIELD STUDIES OF URBAN CLIMATE AND PROCESSES (POSTER)

Chair: Shiguang Miao, Institute of Urban Meteorology, China Meteorological Administration, Beijing, China

793 The Role of Green Areas in Temperature and the Urban Heat Island in a Case Study of a Renovated District in the Capital City of Hungary. **Rita Pongracz**, Eotvos Lorand Univ., Martonvasar, Hungary; C. Dian, J. Bartholy, A. Talamon

794 UFEAST-3D: Urban Forest Effects on Anisotropy and Surface Temperature in 3D. **James A. Voogt**, Department of Geography, Univ. of Western Ontario, London, Canada; S. Krayenhoff, B. Bailey

I5URBAN

Poster Session 5: REMOTE SENSING FOR URBAN METEOROLOGY (SATELLITE BASED AND GROUND BASED) (POSTER)

Chair: James A. Voogt, Department of Geography, Univ. of Western Ontario, London, Canada

795 Long-Term Spatial–Temporal Analysis of Land Cover and Land Surface Temperature Changes in Chatham County, Georgia. **Mariana Alfonso Fragomeni**, Univ. of Connecticut, Storrs, CT

796 Impacts of Increased Urbanization on Surface Temperature and Vegetation over Bengaluru, India. **Heather S. Sussman**, Univ. at Albany, State Univ. of New York, Albany, NY; A. Raghavendra, L. Zhou

797 Analysis of Impervious Surface Cover and Land Surface Temperature over Key Cities in Southwest, Nigeria. **Kehinde Olufunso Ogunjobi**, Federal Univ. of Technology, Akure, Ondo State, Nigeria; S. C. Erhabor

798 Analyzing the Relationship between the Urban Thermal Environment and the Local Climate Zone in a Tropical Country: A Case Study of Singapore in 2018. **Ran Wang**, Chinese Univ. of Hong Kong, Shatin, Hong Kong

799 The Allometric Scaling of Thermal Emissions from Temperate and Tropical Cities. **Mukhtar Abdulrasheed**, Univ. of Birmingham, Birmingham, UK

I0PYTHON

Poster Session 1: POSTERS I

800 A One-Stop Shop for Atmospheric Science Python: The Unidata Python Training Site. **Zachary S. Bruick**, UCAR, Boulder, CO; R. M. May, K. H. Goebbert

801 Remote Sensing Products for Nowcasting at the National Meteorological Service of Argentina: Research to Operations Using Open Source Tools. **Martin Rugna**, National Meteorological Service, Buenos Aires, Argentina; M. Zeitune, P. Lohigorry, H. Ciminari, L. Vidal, J. J. Ruiz, A. Arruti

802 Evaluation, Verification, and Deployment of Real-Time Experimental Tropical Cyclone Applications. **Alan Brammer**, CIRA/Colorado State Univ., Fort Collins, CO; K. D. Musgrave, M. DeMaria

803 Identifying and Tracking Cloud Clusters from Satellite Imagery Using Python. **Shawn M Cheeks**, Princeton Univ., Princeton, NJ

I0R2O

Poster Session 2: I0R2O POSTER SESSION II

Chairs: Eric J. Fetzer, JPL/California Institute of Technology, Pasadena, CA; Stephen A. Mango, NOAA/NESDIS/Office of Projects, Planning and Analysis, Silver Spring, MD

804 Transition of Research to Operations within the Framework of CREWS-Burkina Faso Project. **Thierry Lefort**, NWS, TOULOUSE, France

805 Improving Hurricane Forecasting—An Example of How NOAA Makes Coordinated Observing System Portfolio Decisions. **Becky Baltes**, DOC, Silver Spring, MD; D. Helms, E. J. Miller, L. McCulloch, H. S. Kim, M. Grasso, C. Lauer, L. Cucurull

806 NOAA's Emerging Technologies Workshop. **Meredith Wagner**, Integrated System Solutions, Dunn Loring, VA; A. Steckel, J. Conran, D. Helms

807 Results and Verification for Machine-Learning-Based HREFv2 and HRRRE Hail Forecasts from the Spring and Summer of 2019. **Nathan Snook**, CAPS, Norman, OK; A. Burke, A. McGovern, D. J. Gagne II

8JCSDA

Poster Session 1: POSTER SESSION FOR THE EIGHTH AMS SYMPOSIUM ON THE JOINT CENTER FOR SATELLITE DATA ASSIMILATION (JCSDA)

Chair: James Yoe, NWS/NCEP and JCSDA, College Park, MD

808 Assimilation of All-Sky Water Vapor Channel GOES-16 Radiances into the Warn-on-Forecast System. **Thomas A. Jones**, CIMMS/Univ. of Oklahoma and NOAA/NSSL, Norman, OK; X. Wang, N. Yussouf, K. H. Knopfmeier, P. S. Skinner, A. E. Reinhart, D. C. Dowell, W. L. Smith Jr., P. Minnis, R. Palikonda

809 Developments in Tools for Monitoring Observation Sensitivity in the Global Forecast System. **Andrew Eichmann**, NOAA, College Park, MD; J. C. Alpert, K. Kumar

810 *Assimilation of Precipitation-Affected Radiance in NCEP FV3 Hybrid Data Assimilation System.* **Emily Liu**, Joint Centers for Satellite Data Assimilation, Boulder, MD; A. Collard, D.T. Kleist, P. Stegmann, B.T. Johnson

811 *Identifying and Quantifying Temperature-Dependent Biases in the CRTM Ocean Emissivity Model Using the NCEP Global Data Assimilation System.* **J.A. Jung**, CIMSS, Madison, WI; N. R. Nalli, A. Collard, M. Goldberg

812 *Potential Impacts of Assimilating All-Sky Satellite Infrared Radiances on Convection-Permitting Analysis and Prediction of Tropical Convection.* **Man-Yau ("Joseph") Chan**, Pennsylvania State Univ., State College, PA; X. Chen, F. Zhang

813 *Assessing the Performance of SNPP CrIS SDR Data with ICVS.* **X. Jin**, SSAI, College Park, MD; B. Yan, N. Sun, F. Iturbide-Sanchez

814 WITHDRAWN

815 *Assimilation of VIIRS Aerosol Optical Depth Information in the RAP and HRRR System to Improve Smoke, Visibility, and Weather Forecasts.* **A. Back**, NOAA/ESRL/GSD and CIRA/Colorado State Univ., Boulder, CO; R. Ahmadov, M. Pagowski, E. P. James, G. Grell, C. R. Alexander, S. S. Weygandt

816 *Influences of Aerosols on Global Radiance Data Assimilation.* **Shih-Wei Wei**, Univ. at Albany, SUNY, Albany, NY; S. Lu, R. Grumbine, A. Collard, J. Wang, P. Bhattacharjee, Q. Liu, T. Zhu

817 *Preliminary Evaluation of the COSMIC-2 GNSS Radio Occultation Data Using Multiple Forward Operators in JEDI UFO.* **H. Zhang**, JCSDA/COSMIC, Boulder, CO; F. vandenberghé, H. Shao, J. G. Yoe

818 *Assimilation of GOES ABI, CrIS-FSR, and Other New Radiance Data in RAP Version 5.* **H. Lin**, CIRA/Colorado State Univ. and NOAA/ESRL/GSD, Boulder, CO; S. Weygandt, M. Hu, H. Wang, J. M. Brown, A. Back, C. Alexander, S. G. Benjamin

819 *Using Machine Learning to Derive Linearized Physical Parameterizations.* **D. Holdaway**, NASA, Greenbelt, MD; V. Marchais, T. Auligné

820 *A Model for Polarized Microwave Radiative Transfer in the CRTM.* **T. Greenwald**, Univ. of Wisconsin, Madison, WI; B. Johnson, R. Bennartz

821 *The Inclusion of Aerosol Impacts on the Forecasting of African Easterly Waves That Develop into Hurricanes.* **Dustin Grogan**, Univ. at Albany, SUNY, Albany, NY; S. Lu, S.W. Wei, S. P. Chen

822 *Recent and New GNSSRO Missions: Quality Assessment and Comparative Data Assimilation Study.* **F. vandenberghé**, Joint Center for Satellite Data Assimilation, Boulder, CO; S. Dutta, H. Zhang, S. Albergel, H. Shao, J. G. Yoe

823 *Estimates of Lightning-Generated NO_x from Geostationary Satellite (GOES-16) GLM Observations for Use in Air Quality Models.* **Arastoo Pour Biazar**, Univ. of Alabama, Huntsville, AL; P. Cheng, Y. Wu, A. T. White, M. Khan, R. T. McNider

824 *Temperature-Dependent Infrared Sea Surface Effective-Emissivity (IRSSE) Model: Theoretical Development and Validation.* **N. R. Nalli**, MSG at NOAA/NESDIS/STAR, College Park, MD; J. A. Jung, B. T. Johnson, T. Zhu, M. Chen, L. Zhou, P. J. Gero, R. O. Knuteson

825 *Real-Time Ocean Monitoring at the Joint Center for Satellite Data Assimilation: A Testbed for Ice–Ocean DA Development and Evaluation.*

Travis Sluka, UCAR, Boulder, CO; G. Vernieres, R. B. Mahajan

826 *Quantification of Uncertainty in Water Vapor Atmospheric Motion Vectors, and the Effect on Data Assimilation and OSSEs.* **D. J. Posselt**, JPL, Pasadena, CA; H. Su, L. Wu, M. Minamide, H. Nguyen, K. J. Mueller, J. Teixeira, W. McCarty

827 *CRTM Improvement toward the Assimilation of SW IR Radiances.* **Yingtao Ma**, UMD CISESS at NOAA/NESDIS/STAR, College Park, MD; K. Garrett, K. Ide, C. D. Barnett, E. Jones, K. E. Lukens

828 *Update on JCSDA Impact of Observing Systems Project.* **F. vandenberghé**, Joint Center for Satellite Data Assimilation, Boulder, CO; S. Dutta, D. Hahn, H. Zhang, S. Albergel, D. Holdaway, T. Auligné, R. B. Mahajan

6HPC

Poster Session I: HPC POSTER SESSION

Chair: Timothy S. Sliwinski, Group NIRE, Lubbock, TX, Texas Tech Univ., Lubbock, TX

829 *The Multiyear Reanalysis of Remotely Sensed Storms: Past, Present, and Future.* **Skylar S. Williams**, OU/CIMMS and NOAA/OAR/NSSL, Norman, OK; K. L. Ortega, A. E. Reinhart, T. M. Smith

830 *Cortex: An Open Source Framework for Dynamic Network Simulations at Scale.* **Taha Azzaoui**, Univ. of Massachusetts, Lowell, MA; V. de Almeida

831 *Efficient Multigrid Poisson Equation Solvers in High-Performance Computing for Global Weather Models.* **Yuanfu Xie**, Chinese Academy of Meteorological Sciences, Beijing, China; N. Wang

TROPSYMPI

Poster Session I: TROPICAL CONVECTION: POSTER SESSION

832 *Lightning Density and Thunderstorm Initiation in the Lake Victoria Region in East Africa.* **K. S. Virts**, NASA, Huntsville, AL; S. J. Goodman

833 *On the Water Vapor Isotopic Composition of Cold Pools in Tropical Boundary Layers.* **Giuseppe Torri**, Univ. of Hawai'i, Honolulu, HI

834 *Observations of a Diurnal Pulse within the Cirrus Canopy of Typhoon Kong-rey (2018).* **Benjamin C. Trabling**, Colorado State Univ., Fort Collins, CO; M. M. Bell

835 *Improving Model Representation of Interactions between Moisture and Tropical Convection.* **Brandon O. Wolding**, NOAA/ESRL, Boulder, CO; J. Dias, G. Kiladis, F. Ahmed, E. Maloney, M. Branson

836 *Easterly Wave Contributions to Seasonal Rainfall over the Tropical Americas in Observations and a Regional Climate Model.* **Christian Dominguez**, Centro de Ciencias Atmosfericas, UNAM, Mexico City, Mexico; J. Done, C. L. Bruyère

837 *Tropical Cyclone Interactions with the Madden–Julian Oscillation in the Indian Ocean.* **Jeffrey D. Thayer**, Univ. of Illinois, Urbana, IL; D. A. Hince

- 838** *Representing Moist Convection with a Collection of Linear Response Functions.* **Zhiming Kuang**, Harvard Univ., Cambridge, MA
- 839** *Assessing Shallow Meridional Circulations over the East Atlantic ITCZ and West African Monsoon Regions.* **Lidia Huaman**, Texas A&M Univ., College Station, TX; E. Buttitta, C. Schumacher
- 840** *Organizational Modes of Mesoscale Convective Systems Associated with Warm-Sector Heavy Rainfalls.* **Sa Li**, Peking Univ., Beijing, China; Z. Meng
- 841** *Sensitivity of the Walker Circulation to Convective Entrainment in a Changing Climate.* **Margaret L. Duffy**, MIT, Cambridge, MA; P.A. O’Gorman
- 842** *Evaluating the Microphysical and Dynamical Impacts of Saharan Dust Plumes on Tropical Cyclones across the Tropical Atlantic Basin.* **Jordan Rabinowitz**, Univ. of Missouri, Columbia, MO
- 843** *Diurnal Cycle of Coastal Convection in the South China Sea Region and Modulation by the Boreal Summer Intraseasonal Oscillation.* **Weixin XU**, Sun Yat-sen Univ., Zhuhai, China; S.A. Rutledge, K. Chudler
- 844** *An Investigation of Dust Impacts on Local Convective Processes over Puerto Rico.* **Nathan Hosannah**, CUNY LaGuardia Community College, Long Island City, NY; J. E. Gonzalez
- 845** *Thresholds for Atmospheric Convection in Amazonian Rainforests.* **Mengxi Wu**, Brown Univ., Providence, RI; J. E. Lee
- 846** *How Tropical Convection Couples High Moist Static Energy over Land and Ocean.* **Yi Zhang**, Princeton Univ., Princeton, NJ; S. Fueglistaler
- 847** *Mechanisms Controlling Rainfall over Idealized Tropical Islands in Radiative–Convective Equilibrium.* **Martin Velez-Pardo**, MIT, Cambridge, MA; T.W. Cronin, P. Molnar
- 848** *Phenomenological Paradigm for Midtropospheric Cyclogenesis in the Indian Summer Monsoon.* **Ayantika Dey Choudhury**, IITM, Pune, India; R. Krishnan, M.V. S. Ramarao, R. Vellore, M. Singh, B. E. Mapes
- 849** *Can Shifting Cloud Radiative Effects Influence Tropical Stratification Changes?* **Timothy M. Merlis**, McGill Univ., Montreal, Canada; Y. Li, A.A. Wing

TROPSYMPI

Poster Session 2: TROPICAL CYCLONES RESEARCH AND FORECASTING: POSTER SESSION I

- 850A** *Multiscale Interaction and Barotropic Instability at the Subtropical High Lead to the Sudden Typhoon Recurvature in the Northwestern Pacific.* **X. San Liang**, Nanjing Institute of Meteorology, Nanjing, China; J. Ma, Y. Rong
- 850** *A Recent Reversal in the Poleward Shift of Western North Pacific Tropical Cyclones.* **Yuan Sun**, National Univ. of Defense Technology, Nanjing, China; Z. Zhong, Y. Shen
- 851** *The Air–Sea Response during Hurricane Irma’s (2017) Rapid Intensification over the Amazon–Orinoco River Plume as Measured by Atmospheric and Oceanic Observations.* **Johna E. Rudzin**, NRC/NRL, Monterey, CA; S. Chen, E. R. Sanabia, S. R. Jayne
- 852** *Idealized Simulations of the Brown Ocean Effect—Sensitivity to Land Use and Soil Moisture Availability.* **Andrew Michael Thomas**, The Univ. of Georgia, Athens, GA; J.A. Santanello, M. Shepherd
- 853** *A Synoptic Climatology of Tropical Cyclones Affecting Southeast South Carolina and Southeast Georgia.* **Abigail R. Pettett**, NWS, North Charleston, SC
- 854** *A Climatology of the Extratropical Flow Response to Recurring Atlantic Tropical Cyclones.* **Allison Lynn Brannan**, Florida State Univ., Tallahassee, FL; J. M. Chagnon
- 855** *Pathways to Tropical Cyclogenesis in Rotating Radiative–Convective Equilibrium Simulations.* **Jacob D. Carstens**, Florida State Univ., Tallahassee, FL; A.A. Wing
- 856** *On the Contributions of Incipient Vortex Circulation and Environmental Moisture to Tropical Cyclone Expansion.* **Jonathan Martinez**, Colorado State Univ., Fort Collins, CO; C. C. Nam, M. M. Bell
- 857** *Analysis of Tornadic and Nontornadic Convective Cell Environments during Hurricane Harvey.* **Justin R. Spotts**, Texas A&M Univ., College Station, TX; C. J. Nowotarski, S. Overpeck, B. Filipiak, R. Edwards
- 858** *High-Resolution Atmospheric Motion Vector Fields of Typhoon Revealed by GF-4 Images.* **Jingsong Yang**, Second Institute of Oceanography, MNR, Hangzhou, China; J. Liu, G. Zheng, J. Wang, L. Ren
- 859** *Using Observational In Situ Argo Float Data to Analyze Amazon–Orinoco Plume Structure and Its Impact on Atlantic Hurricane Activity.* **Xiao Yu**, College Station, TX; R. Saravanan
- 860** *Estimation of the Tropical Cyclone Diurnal Cycle Using Simulated Observations from the TROPICS NASA Earth Venture Mission.* **Erika L. Duran**, Univ. of Alabama, Huntsville, AL; E. Berndt
- 861** *Application of Statistical Methods to Improving Model Predictions of Rapid Intensification in Tropical Cyclones.* **Ivy C. MacDaniel**, Austin Peay State Univ., Clarksville, TN; C. M. Rozoff, J. L. Vigh
- 862** *Characteristics of Upper-Tropospheric Jets during Tropical Cyclone Intensity Change.* **Levi Cowan**, Florida State Univ., Tallahassee, FL; R. E. Hart
- 863** *WRF Modeling of Historical Landfalling New England Tropical Cyclones: Design and Climatology.* **Ryan Remondelli**, Florida State Univ., Tallahassee, FL; R. E. Hart
- 864** *WRF Modeling of Historical Landfalling New England Tropical Cyclones: Statistical and Meteorological Analysis and Implied Predictability.* **Ryan Remondelli**, Florida State Univ., Tallahassee, FL; R. E. Hart
- 865** *A Climatology of Tropical Cyclone Wind Field Asymmetry Postlandfall and an Examination of the Factors Influencing That Evolution.* **Justin A. McReynolds**, Florida State Univ., Tallahassee, FL; R. E. Hart
- 866** *A Gridded Version of the National Hurricane Center Official Forecasts to Support Operations at National Centers and Weather Forecast Offices. Part II: Validation.* **Pablo Santos**, NOAA/NWS, Miami, FL; O. Ostwald, G. Demaria, M. DeMaria, M. Onderlinde, J. Rogers

867 *Secondary Eyewall Formation in an Idealized Axisymmetric Model.* **Rohini Shivamoggi**, MIT, Cambridge, MA; K. A. Emanuel

868 *Validation of Probabilistic Wind Speed Forecasts for the 2017 and 2018 Hurricane Seasons.* **Kevin Bachmann**, Univ. at Albany, SUNY, Albany, NY; R. D. Torn

869 *Climate Change Influences on the Extratropical Transition of North Atlantic Tropical Cyclones.* **Chunyong Jung**, North Carolina State Univ., Raleigh, NC; G. M. Lackmann

870 *Exploring Inland Tropical Cyclone Rainfall and Tornadoes under Future Climate Conditions through a Case Study of Hurricane Ivan.* **Dereka Carroll-Smith**, NCAR, Boulder, CO; R. J. Trapp, J. Done

871 *Growing Representation of Women in NOAA Tropical Cyclone Reconnaissance Research: Part I.* **Kelly Ryan**, NOAA/AOML and Univ. of Miami, Miami, FL; L. Bucci

872 *The Mechanism for Extremely Active Tropical Cyclone Activities in Summer 2018 over the WNP and SCS: Joint Effects of the Decaying La Niña Events and the Intraseasonal Oscillation.* **Lijuan Chen**, BCC, Beijing, China

873 *Effects of Hurricane Strikes on Neotropical Lizard Morphology.* **Alex M. Kowaleski**, The Pennsylvania State Univ., University Park, PA; C. Donihue

874 *Probabilistic Prediction of North Atlantic Hurricane Track and Intensity.* **Christopher Dickson**, Climate Forecast Applications Network, Atlanta, GA; J. Curry

875 *The Influence of Coupled Model Sea Surface Temperature Biases on Tropical Cyclone Environmental Conditions.* **Hunter Tubbs**, Univ. of Maine, Orono, ME; B. Lyon, S. J. Camargo

876 *Growing Representation of Women in NOAA Tropical Cyclone Reconnaissance Research: Part II.* **Lisa Bucci**, NOAA/AOML, Miami, FL; K. Ryan

877 *The Dependence of the Tropical Cyclone Response to Moderate Vertical Wind Shear on the Initial Storm Intensity.* **Peter M. Finocchio**, National Research Council, Monterey, CA; R. Ríos-Berrios

878 *A Preliminary Analysis of the RIPA and SPICE Models for the 2019 Hurricane Season.* **Kate D. Musgrave**, CIRA/Colorado State Univ., Fort Collins, CO; J. A. Knaff, C. R. Sampson

879 *Real-Time Mobile Radar Hurricane Wind Retrievals during Landfall.* **A. Addison Alford**, Univ. of Oklahoma, Norman, OK; M. I. Biggerstaff, G. D. Carrie

880 *Reevaluating the Effect of the Tropical Cyclone Environment on Intensity.* **Justin Palmer Stow**, CIRA, Fort Collins, CO; C. J. Slocum, J. Knaff

881 *Application of a Subsetting Ensemble Postprocessing Method on the HWRF-Based Ensemble Prediction System.* **Zhan Zhang**, EMC, College Park, MD; W. Wang, L. Zhu, B. Liu, K. Wu, A. Mehra, V. Tallapragada

33CVC / 8MJO / MIDDLESYMP

Joint Poster Session 2: MIDDLE ATMOSPHERE SYMPOSIUM

882 *Simulating Spring Final Warmings in Historical Runs of CMIP6 Models.* **Brent A. Mcdaniel**, Kennesaw State Univ., Kennesaw, GA

883 *The Response of the Polar Vortex to Tropospheric Temperature Eddies in an Idealized General Circulation Model.* **Thomas S. Ehrmann**, LLNL, Livermore, CA; S. J. Colucci

884 *Sudden Stratospheric Warming and Vortex Intensification Monitoring at the Climate Prediction Center.* **Craig S. Long**, NOAA, College Park, MD; A. H. Butler, H. T. Lee

885 *Using Time Series Motifs to Examine Preconditioning of the Stratospheric Polar Vortex.* **Zachary D. Lawrence**, CIRES, Boulder, CO; G. L. Manney

886 *An Equivalent Latitude Formulation of the Stratospheric Northern Annular Mode.* **Zachary D. Lawrence**, CIRES, Boulder, CO; G. L. Manney

887 *Different Predictability and Surface Impacts of Two Recent Split Stratospheric Vortex Events.* **Amy Hawes Butler**, CIRES/Univ. of Colorado, Boulder, CO; Z. D. Lawrence, S. H. Lee, S. P. Lillo, C. S. Long

888 *An Examination of Sudden Stratospheric Warming Characteristics and Their Relationship to Cold-Air Outbreaks over the United States.* **Paul Panhans**, Univ. at Albany, SUNY, Albany, NY; A. L. Lang

889 *Slow Eastward-Propagating Planetary Waves prior to Sudden Stratospheric Warmings.* **C. Todd Rhodes**, Coastal Carolina Univ., Conway, SC; V. Limpasuvan, Y. J. Orsolini

890 *Trends and Variability in the Northern Hemisphere Stratospheric Polar Vortex over the Last 100+ Years.* **Jason C. Furtado**, Univ. of Oklahoma, Norman, OK; B. A. Jarrett, C. Narotsky

891 *Impact of Convectively Detained Ice Crystals on the Tropical Upper Troposphere and Lower Stratosphere.* **Rei Ueyama**, NASA, Moffett Field, CA; E. J. Jensen, L. Pfister, M. Krämer, M. R. Schoeberl

892 *Modeling Upper-Troposphere and Lower-Stratosphere Water Vapor from the Monsoons.* **Mark R. Schoeberl**, Science and Technology Corporation, Columbia, MD; E. J. Jensen, W. Randel, R. Ueyama, L. Pfister, A. Dessler

893 *Satellite and Balloonsonde Observations of the Vertical Structure and Long-Term Variability of Moisture in the Upper Troposphere and Lower Stratosphere at Costa Rica and Comparisons with Large-Scale Model Simulations.* **Henry Selkirk**, USRA, Greenbelt, MD; H. Vömel, R. M. Stauffer, J. N. Lee, D. Barahona, M. Manyin

894 *Variability in Tropical Tropopause Layer Temperatures from Intraseasonal-to-Interannual Time Scales.* **Zane K. Martin**, Columbia Univ., New York, NY; S. Wang, A. H. Sobel

895 *Characterizing Spatial and Temporal Sampling Uncertainty in the SWOOSH Database.* **Ekaterina Lezine**, Brown Univ., Winston Salem, NC; S. M. Davis, K. H. Rosenlof

896 *Creating Long-Term Climate Data Records Using Transfer Functions: Methodology and Application for SAGE II, MIPAS, and OMPS Ozone Profile Datasets.* **Alexandra Laeng**, Karlsruher Institut für Technologie, Karlsruhe, Germany; V. Sofieva, N. Kramarova, T. von Clarmann, G. Stiller, K. A. Walker, L. Froidevaux, J. Zawodny, J. Plieninger

897 *Homogeneity of Ozone Data from MERRA-2 and ERA-5.* **Peter Krizan**, Institute of Atmospheric Physics, Prague, Czech Republic; M. Kozubek, J. Lastovicka

898 *Zonally and Seasonally Resolved Ozone Response to the MJO and ENSO in Aura Satellite Measurements of the Upper Troposphere Lower Stratosphere.* **Olga V. Tweedy**, USRA/NASA Postdoctoral Program, Greenbelt, MD; L. D. Oman, D. W. Waugh

899 *Ozone Variability and Trends in the Upper Troposphere–Lower Stratosphere Using Multiple Tropopause Definitions and Observation Techniques.* **Thierry Leblanc**, JPL, Wrightwood, CA; L. F. Millan, I. Petropavlovskikh, P. Hoor, G. L. Manney, H. Boenish, A. Zahn

900 *Insights into Tropical Ozone Profiles, Biases, and Uncertainties Using 20 Years of SHADOZ Reprocessed Data.* **Debra E. Kollonige**, SSAI at NASA GSFC, Greenbelt, MD; A. M. Thompson, R. M. Stauffer, M. Allaart, A. Peters

901 *Validation of SAGE III/ISS Stratospheric Water Vapor.* **Sean M. Davis**, NOAA/ESRL, Boulder, CO

902 *A Novel Method for Aerosol Product Evaluation for the Stratospheric Aerosol and Gas Experiment (SAGE): Converting Extinction to Backscatter.* **T. Knepp**, NASA, Hampton, VA; M. M. Roell, L. Thomason, D. E. Flittner

903 *SAGE III ISS Aerosol Measurements in the Context of Contemporaneous Satellite Observations.* **K. R. Leavor**, SSAI, Hampton, VA; D. E. Flittner, M. M. Roell

904 *Upcoming Improvements to the SAGE III/ISS Retrieval.* **David B. Huber**, SSAI, Hampton, VA; D. E. Flittner, R. Damadeo, L. Thomason, C. A. Hill, A. F. Rowell, R. Manion, M. Heitz, C. B. Hulsey, M. A. LaRosee, K. R. Leavor, M. M. Roell

905 *Stratospheric Aerosol and Gas Experiment III on the International Space Station (SAGE III/ISS) V5.1 Science Data Validation: Ozone and Water Vapor.* **Susan Kizer**, SSAI, Hampton, VA; M. M. Roell, D. E. Flittner, R. Damadeo, L. Thomason, K. R. Leavor, T. Knepp, C. Roller, D. Hurst, E. Hall, A. Jordan, P. Cullis, B. Johnson, R. Querel

906 *HAPS (High Altitude Pseudo Satellite) UAS for Atmospheric Research—Demonstration and Outlook.* **Karen H. Rosenlof**, NOAA/ESRL, Boulder, CO; R. S. Gao, T. Thornberry, A. W. Rollins, P. Hall, J. R. Walker

907 *The Long-Lived Plume of the Pacific Northwest PyroCb Event: MLS Observations and Modeling of Composition Evolution.* **M. J. Schwartz**, JPL/California Institute of Technology, Pasadena, CA; H. C. Pumphrey, P. Yu, G. P. Kablick III

908 *Carbon Dioxide in the Polar Stratosphere from AIM/SOFIE Measurements.* **Jia Yue**, Hampton Univ., Hampton, VA; Y. Su, M. Hervig, B. T. Marshall, A. K. Smith, R. R. Garcia, J. M. Russell III

909 *The Brewer–Dobson Circulation during the Last Glacial Maximum.* **Qiang Fu**, Univ. of Washington, Seattle, WA; R. H. White, M. Wang, P. Lin

910 *Decomposing the Brewer–Dobson Circulation Response to an Abrupt $4 \times \text{CO}_2$ Perturbation.* **Amanda Maycock**, Univ. of Leeds, Leeds, UK; A. Chrysanthou, M. Chipperfield

911 *A Moments View of Climatology and Variability of the Asian Summer Monsoon Anticyclone.* **Michelle L. Santee**, JPL, Pasadena, CA; G. L. Manney, Z. D. Lawrence, M. J. Schwartz, K. Wargan

912 *A Diagnostic Equation for the Tendency of Lapse-Rate-Tropopause Heights and Its Application.* **Masashi Kohma**, Univ. of Tokyo, Tokyo, Japan; K. Sato

913 *Correcting a Fundamental Mistake in Radiation Physics Shows How the Middle Atmosphere Plays the Primary Role in Determining How Effectively Earth Is Heated by Sun.* **Peter L. Ward**, U.S. Geological Survey (Retired), Jackson, WY

914 *Using TRMM-Derived Latent Heating to Estimate Momentum Flux from Convection-Induced Gravity Waves into the Lower Stratosphere.* **Chuntao Liu**, Texas A&M, Corpus Christi, TX

915 *The Buffer Zone of the Quasi-Biennial Oscillation: Formation and Variability.* **Aaron L. Match**, Princeton Univ., Princeton, NJ; S. Fueglistaler

916 *Seasonal and Latitudinal Variability of High-Frequency Gravity Waves in the Lower Stratosphere.* **Aditi Sheshadri**, Stanford Univ., Stanford, CA; E. A. Lindgren, R. W. Carver

917 *Revisiting the Quasi-Biennial Oscillation.* **Hamid A. Pahlavan**, Univ. of Washington, Seattle, WA; Q. Fu, J. M. Wallace, G. N. Kiladis

SLSSYMPOSIUM I

Poster Session I: SEVERE LOCAL STORMS SYMPOSIUM: POSTER SESSION

918 *High-Temporal-Resolution Observations of Tornado Genesis Using the Atmospheric Imaging Radar.* **Casey B. Griffin**, Univ. of Nebraska—Lincoln, Lincoln, NE; D. J. Bodine, A. Mahre, R. D. Palmer

919 *Analysis of Tornado Genesis Failure Using Rapid-Scan Data from the Atmospheric Imaging Radar.* **Kyle Pittman**, Northern Illinois Univ., DeKalb, IL; A. Mahre, C. B. Griffin, D. Bodine

920 *On Tornado Genesis in Two Supercells in Oklahoma in the Spring of 2019 as Documented by a Rapid-Scan, X-Band, Polarimetric, Mobile Doppler Radar (RaXPoL).* **Howard B. Bluestein**, Univ. of Oklahoma, Norman, OK; T. A. Greenwood, D. W. Reif, Z. B. Wienhoff

921 *High-Temporal-Resolution X-Band Polarimetric Radar Analysis of the 20 May 2013 Moore, Oklahoma, Supercell during Tornado Genesis and Tornado Intensification.* **Clarice N. Dyson**, Univ. of Oklahoma, Norman, OK; D. J. Bodine, R. D. Palmer

922 *Rapid-Scan, Polarimetric Radar Observations of the Dissipation of a Violent Tornado on 9 May 2016 Near Sulphur, Oklahoma.* **Michael M. French**, Stony Brook Univ., Stony Brook, NY; K. E. McKeown, K. S. Tuftedal, H. B. Bluestein, Z. B. Weinhoff

923 *Storm-Scale Polarimetric Radar Signatures Associated with Tornado Dissipation in Supercells.* **Jacob H. Segall**, Stony Brook Univ., East Setauket, NY; M. French, D. Kingfield, J. C. Snyder

924 *Observation of Tornadoes Using a Compact Polarimetric X-Band Weather Radar.* **Takuo Kashiwa**, Furuno Electric Co., Ltd., Nishinomiya, Japan; T. Takaki, M. Minowa, H. Nakajima, K. Sassa, V. Chandrasekar

925 *Polarimetric Characteristics of Tornadoic Debris Fallout during the 28 May 2019 Lawrence/Kansas City, Kansas, Tornado.* **Erik Wang**, Phillips Academy, Andover, MA; D. J. Bodine, J. M. Kurdzo, J. Barham, C. Bowman, P. Pietrycha

926 *Observations of ZDR Columns in Supercells in 2019 by a Mobile, Dual-Polarized, Phased-Array Radar.* **Robin Tanamachi**, Purdue Univ., West Lafayette, IN; A. T. LaFleur, M. Sharma, S. J. Frasier, W. Heberling, C. Wolsieffer, L. Warner, R. E. Nelson

927 *Observed Bulk Hook-Echo Drop-Size Distribution Evolution in Supercell Tornadoogenesis and Tornadoogenesis Failure.* **Kristofer S. Tuftedal**, Stony Brook Univ., Stony Brook, NY; M. M. French, D. M. Kingfield, J. C. Snyder

928 *Comparison of Simulated Rain DSDs and Polarimetric Signatures with Disdrometer and Radar Observations in the 31 March 2016 Southeast U.S. Tornado Outbreak during Vortex-SE.* **Daniel T.-Dawson**, Purdue Univ., West Lafayette, IN; R. Tanamachi, Y. Jung, J. Labriola, B. J. Putnam, M. Xue, P. L. Heinselman, K. H. Knopfmeier, E. R. Mansell, L. J. Wicker

929 *Radar Climatology of Precipitation Features in Close Proximity to Supercell Tornadoic Storms.* **Preston Pangle**, Univ. of Alabama Huntsville, AL; K. Knupp, B. T. Goudeau

930 *An Updated Mobile-Radar-Based Climatology of Tornadoes.* **Josh Wurman**, Center for Severe Weather Research, Boulder, CO; P. Robinson, T. White, K. A. Kosiba

931 *Weather Radar Analysis of Severe Storms Depth in Southern Brazil and Paraguay.* **Leonardo Calvetti**, Universidade Federal de Pelotas, Pelotas, Brazil; C. Beneti, P. A. Mello, W. F. Coelho, J. Báez

932 *Hail Size and Dual-Polarization Doppler on Wheels Radar Observations during RELAMPAGO.* **Matthew R. Kumjian**, The Pennsylvania State Univ., University Park, PA; P. Maldonado, B. Ribeiro, J. S. Soderholm, N. McCarthy, K. Lombardo, K. A. Kosiba, J. Wurman, L. Machado, P. Salio

933 *Analysis of Hailstone Physical Properties from the IBHS Field Project 2012–17.* **Laura Shedd**, The Pennsylvania State Univ., University Park, PA; M. R. Kumjian, I. M. Giammanco, T. M. Brown-Giammanco, R. Maiden

934 *Understanding Hailstone Characteristics and Contributing Factors over the U.S. Southern Great Plains.* **Jiwen Fan**, PNNL, Richland, WA; J. H. Jeong, C. R. Homeyer, Z. Hou

935 *An Extended Hail Climatology for Sydney, Australia, Derived from a Storm Database, Radar Reflectivity, Reanalysis, and Sounding Data.* **Kellie R. Cook**, Macquarie Univ., Sydney, Australia; K. K. W. Cheung, F. Ji

936 *Impacts of Urbanization on Hail and Tornado Characteristics of a Severe Convective Storm.* **Yun Lin**, PNNL, Richland, WA; J. Fan, J. H. Jeong, Y. Zhang

937 *TORUS in the Clear Air: Preconvection Observations from an Airborne and Mobile Radar Perspective.* **Anthony E. Reinhart**, OU/CIMMS and NOAA/OAR/NSSL, Norman, OK; E. N. Smith, C. L. Ziegler, C. C. Weiss

938 *TORUS in the Clear Air: Preconvection Observations from a Profile and Transect Perspective.* **Elizabeth N. Smith**, CIMMS, Norman, OK; A. Reinhart, M. Coniglio, C. L. Ziegler

939 *Doppler Wind Lidar in the Inflow of Supercells: Synthesis of Observations from Mini-MPEX and TORUS 2019.* **Michael Coniglio**, NSSL, Norman, OK; E. N. Smith, D. D. Turner

940 *Investigating Windsong Observations in Supercells.* **Madeline R. Diedrichsen**, Univ. of Nebraska, Lincoln, NE; M. D. Flournoy, E. N. Rasmussen

941 *Influences of Anvil Shading on the Evolution of the Supercell Environment and Updraft Accelerations during the Nocturnal Transition.* **Marc Bremenkamp**, Texas A&M Univ., College Station, TX; C. J. Nowotarski

942 *Are Supercells Resistant to Entrainment because of Their Rotation?* **John M. Peters**, NPS, Pacific Grove, CA; C. J. Nowotarski, G. L. Mullendore

943 *Testing a Physics-Based Model of the Thermodynamic Environment in Supercell Simulation Experiments.* **Daniel R.-Chavas**, Purdue Univ., West Lafayette, IN; D. T. Dawson II

944 *New Perspectives on the Influence of Lifting Condensation Level on Low-Level Outflow and Rotation in Simulated Supercells.* **Matthew C. Brown**, Texas A&M Univ., College Station, TX; C. J. Nowotarski

945 *Development and Evolution of a High Theta-E Outflow Air Mass.* **Jason M. Keeler**, Central Michigan Univ., Mount Pleasant, MI

946 *Properties of Cold Pools Observed during the VORTEX-SE: Meso18–19 Field Campaign.* **Jessica M. McDonald**, Texas Tech Univ., Lubbock, TX; C. C. Weiss, A. J. Hill

947 *An Investigation of Hydrometeor Latent Cooling upon Cold Pool Formation, Sustainment, and Properties.* **Holly M. Mallinson**, Univ. of Illinois, Urbana, IL; S. Lasher-Trapp

948 *Microphysical and Dynamic Effects of Mixed-Phase Hydrometeors in Simulated Mesoscale Convective Storms Using a Bin Microphysics Model with Explicit Melting.* **Kevin Kacan**, NWS, White Lake, MI; Z. Lebo

949 *Effects of Horizontal Grid Spacing and Inflow Environment on Cyclic Mesocyclogenesis in NSSL's Warn-on-Forecast System (WOFS).* **Kelsey C. Britt**, CIMMS/Univ. of Oklahoma, Norman, OK; P. S. Skinner, P. L. Heinselman, K. H. Knopfmeier

950 *Assimilating Near-Surface Observations from a Portable Mesoscale Network of StickNet Platforms during VORTEX-SE with the High-Resolution Rapid Refresh Ensemble.* **Aaron J. Hill**, Colorado State Univ., Fort Collins, CO; C. C. Weiss, D. C. Dowell

- 951** *Using Ensemble Sensitivity Analysis to Identify Storm-Scale Characteristics Associated with Tornado Potential in High-Resolution Idealized Supercells.* **Abby L. Hutson**, Texas Tech Univ., Lubbock, TX; C. C. Weiss
- 952** *An Idealized Modeling Study of the Nontornadic and Tornadoic Supercells Intercepted by VORTEX2 on 10 June 2010.* **Alicia Klees**, The Pennsylvania State Univ., University Park, PA; Y. Richardson
- 953** *Detection and Estimation of Multiscale Complex Spatiotemporal Processes in Tornadoic Supercells from Multiparameter Radar Simulations and Observations.* **Lawrence Frank**, UCSD, La Jolla, CA; V. L. Galinsky, L. Orf, D. Bodine
- 954** *A Numerical Study on a Tornado That Formed in a Quasi Linear Convective System over Kanto Plain in Japan.* **Eigo-Tochimoto**, Univ. of Tokyo, Kashiwa, Japan; H. Niino
- 955** *Tornadoogenesis within a Supercell Storm near a Mei-Yu Frontal System in Eastern China: Dynamical Analyses Based on a Tornado-Resolving Real-Data Simulation.* **Shiqi Wang**, Univ. of Oklahoma, Norman, OK; M. Xue, J. Min
- 956** *Understanding How Complex Terrain Impacts Tornado Dynamics Using a Suite of High-Resolution Numerical Simulations.* **Martin A. Satrio**, Univ. of Oklahoma, Norman, OK; D. J. Bodine, A. E. Reinhart, T. Maruyama, F.T. Lombardo
- 957** *Turbulence Memory's Possible Influence on Tornado Intensity.* **Aaron Wang**, The Pennsylvania State Univ., University Park, PA; Y. Pan, P. Markowski
- 958** *Hydraulic Jump Dynamics in an Above-Anvil Cirrus Plume in a 50-m Resolution Simulated Supercell.* **Leigh Orf**, Univ. of Wisconsin, Madison, WI; M. O'Neill
- 959** *Lagrangian Trajectory Analysis of Severe Convective Storms Using Variable Lossy Compression.* **Kelton T. Halbert**, Univ. of Wisconsin/CIMSS, Madison, WI; L. Orf
- 960** *Observational Analysis of Supercells in Landfalling TC Yagi in 2018.* **Jingyi Wen**, Peking Univ., Beijing, China; Z. Meng
- 961** *Mechanism Analysis and Numerical Simulations of a Series of Back-Building Supercells.* **Jianhua Dai**, Shanghai Central Meteorological Observatory, Xuhui, Shanghai, China; M. Sun, Y. Chang, H. Chen, J. Zhu
- 962** *Assessing Anomalous Propagation of Convective Storms in Complex Terrain Using a Combined Dual-Doppler and Modeling Approach.* **Anna del Moral**, Univ. of Barcelona, Barcelona, Spain; T. M. Weckwerth, T. Rigo, M. M. Bell, M. C. Llasat
- 963** *Observational Analysis of a Surface-Based Bow Echo Transitioning to Elevated Convection over Complex Terrain.* **Amanda-Penning**, South Dakota School of Mines and Technology, Rapid City, SD; A. J. French
- 964** *Polarimetric Radar and VDRAS investigation of a Bow Echo after a Squall Line Merged with a Convective Cell.* **Kun Zhao**, Nanjing Univ., Nanjing, China; W. C. Lee, H. Huang, A. Zhou
- 965** *Lift in the Vertical Shear of Southerly Jet: A Mechanism of Nocturnal Convection in the Absence of Boundaries.* **Qi Hu**, Univ. of Nebraska, Lincoln, NE; G. Limpert
- 966** *The Spatial and Temporal Variations in the Nocturnal Low-Level Jet and Its Role in the Initiation and Maintenance of Mesoscale Convective Systems.* **Christopher P. Rattray**, Univ. of Oklahoma, Norman, OK; D. B. Parsons, A. Shapiro
- 967** *The Sensitivity of Simulated Summer MCS Activity to Select WRF Parameters.* **Victor A. Gensini**, Northern Illinois Univ., DeKalb, IL; A. M. Haberlie, W. S. Ashley, R. S. Schumacher
- 968** *Climatological Applications of Daily Practically Perfect Severe Weather Hindcasts.* **Victor A. Gensini**, Northern Illinois Univ., DeKalb, IL; A. M. Haberlie, P.T. Marsh
- 969** *A Machine Learning Approach to Severe Thunderstorm Downburst Prediction across Phoenix, Arizona.* **Luke LeBel**, Univ. at Albany, SUNY, Albany, NY; P. Iniguez, J. Rogers
- 970** *A Machine Learning Tool to Provide Probabilities That Thunderstorm Wind Damage Reports Are Due to Severe Intensity Winds.* **Elizabeth Tirone**, Iowa State Univ., Ames, IA; W. A. Gallus Jr., S. Pal, S. Dutta, R. Maitra, J. L. Newman, E. S. Weber
- 971** *"Worst Since Sandy": An Examination of the Straight-Line Wind Event in New Jersey on 22 July 2019.* **Michael A. Favetta**, WeatherPrep, LLC, Cedar Knolls, NJ; M. Powers
- 972** *A Discussion of Infrasound for Tornado Monitoring: Signal Propagation and Detection in the Context of a Field Campaign in Northern Alabama.* **Roger Waxler**, Univ. of Mississippi, Univ., MS; G. Frazier, C. Hetzer, C. Talmadge
- 973** *Using Overshooting Top Area to Discriminate the Potential for Large, Intense Tornadoes.* **Geoffrey Marion**, Univ. of Illinois, Urbana, IL; R. J. Trapp, S. W. Nesbitt
- 974** *Lightning Cessation Characteristics between Severe and Nonsevere Storms Using Polarimetric Radar Data.* **Ari D. Preston**, Northern Vermont Univ., Lyndonville, VT
- 975** *An Analysis of the Performance of the Houston Lightning Mapping Array during a Period of Intense Convection over the Houston Metropolitan Area during Hurricane Harvey.* **Timothy Logan**, Texas A&M Univ., College Station, TX
- 976** *The Lightning and Dual-Polarization Radar Characteristics of Three Hail-Accumulating Thunderstorms.* **Robinson W. Wallace**, Univ. of Colorado at Boulder, Boulder, CO; K. Friedrich, W. Deierling, E. A. Kalina, P.T. Schlatter
- 977** *Efficient Tornado-Producing QLCS Events: Challenges and Best Practices for Damage Surveys.* **Thomas Winesett**, NWS, Jackson, MS; D. Lamb, C. Entremont
- 978** *Observation and Modeling of Hurricane Maria for Damage Assessment.* **Rabindra Pokhrel**, City College of New York, CUNY, New York, NY; S. del Cos, J. P. Montoya Rincon, E. Glenn, J. Gonzalez
- 979** *The Challenges of Surveying Tornado Damage after a Major Hurricane.* **Lance Franck**, National Weather Service, Tallahassee, FL; J. P. Camp
- 980** *Limits Using the EF Scale for Nontornadoic Wind Damage.* **Jeffrey S. Evans**, NOAA/NWS/Weather Forecast Office, Dickinson, TX
- 981** *A Comparison of Three Wind Speed Estimation Techniques Based on Tornado-Induced Treefall Patterns.* **Christopher M. Godfrey**, Univ. of North Carolina, Asheville, NC; C. D. Karstens, D. Rhee, C. J. Peterson, F.T. Lombardo

982 *Demonstrating a Future Application of the Wind Speed Estimation Standard to Tornadoes.* **J. G. LaDue**, NOAA/NWS/Office of Chief Learning Officer/Warning Decision Training Division, Norman, OK; M. Levitan, T. Marshall, T. M. Brown-Giammanco, A. Womble, J. Wurman, F. T. Lombardo, C. D. Karstens, W. Coulbourne, K. James, J. Robinson

983 *An Automated Photogrammetric Approach to the Estimation of Near-Surface Tornado Wind Speeds.* **Daniel Butler**, Central Michigan Univ., Mount Pleasant, MI; J. T. Allen, A. Seimon

984 *Simulating Tornado Probability and Tornado Wind Speed Based on Statistical Models.* **Ariel E. Cohen**, NWS, Miami, FL; J. B. Cohen, R. L. Thompson, B. T. Smith, B. M. Baerg, W. P. Gargan, A. E. Gerard, C. J. Schultz

985 *Impacts of Distance from the Nearest Radar, Time of Day, Resident Population, and Season on Severe Warning Performance. Part I: CONUS Perspective.* **Janice M. Maldonado-Jaime**, NWS, Sioux Falls, SD; A. P. Ferguson, P. N. Schumacher

986 *Impacts of Distance from the Nearest Radar, Time of Day, Resident Population, and Season on Severe Warning Performance. Part II: Regional Analysis.* **Alex P. Ferguson**, NWS, Amarillo, TX; J. M. Maldonado-Jaime, P. N. Schumacher

987 *Exploring Supportive Analytics in the Performance Evaluation of NWS Tornado Warnings.* **Gregory M. Schoor**, NWS/AFSO/FSD, Norman, OK; K. D. Skow, J. G. Gibbs

988 *Hazard Services: An Information-Centric Modernization to the National Weather Service Watch/Warning/Advisory Program and Beyond.* **D. M. Kingfield**, CIRES/Univ. of Colorado Boulder and NOAA/OAR/ESRL/GSD, Boulder, CO; C. V. Dreisbach, K. Goertz, C. Golden, S. Gui, Y.

Guo, T. L. Hansen, N. Hardin, T. J. LeFebvre, J. L. Mahoney, K. L. Manross, S. Murphy, D. Nietfeld, J. E. Ramer, R. Weingruber, S. Williams, S. Zhuo

989 *Immersive Testing and Evaluation of NWS Hazard Services via NRAP (NOAA's Rotational Assignment Program).* **Shane Kearns**, NWS, Newport, NC

990 *Analyzing the Accuracy of the National Weather Service Central Region Tornado Events in Storm Data and Developing Techniques for Database Improvements.* **Rodney A. Donavon**, NWS, Johnston, IA; C. Cogil

991 *Using DCIN and DCAPE to Evaluate Severe Surface Winds in a Case of Elevated Convection.* **Paula Sumrall**, Univ. of Missouri, Columbia, MO

992 *Environments of High-Incidence Area for Tornadoes in China and a Comparison with Its Counterparts in the United States.* **Ruilin Zhou**, Peking Univ., Beijing, China; Z. Meng, L. Bai

993 *On the Prediction of a Violent Tornado Outbreak in Central Oklahoma on 20–21 May 2019.* **Thomas J. Galarneau**, CIMMS, Norman, OK; A. J. Clark, E. J. Szoke

994 *Identifying Teleconnections between Southeastern U.S. Tornado Outbreaks and Daily Climate Indices.* **Matthew C. Brown**, Texas A&M Univ., College Station, TX; C. J. Nowotarski

995 *Midtropospheric Patterns and Historic Tornado Outbreaks.* **Paulina Cwik**, Univ. of Oklahoma, Norman, OK; M. B. Richman, R. A. McPherson

996 *A Systematic Way of Tornado Outbreak Classification.* **Paulina Cwik**, Univ. of Oklahoma, Norman, OK; R. A. McPherson, H. Brooks

Wednesday, January 15

7:30 A.M.–6:00 P.M.	Registration–North Lobby
7:30 A.M.–6:00 P.M.	AMS Info Desk–North Lobby
7:30 A.M.–6:00 P.M.	Speaker Ready Room–102B
7:30 A.M.–6:00 P.M.	Quiet Room–Westin Hotel, Commonwealth C
7:30 A.M.–6:00 P.M.	Member Services–North Lobby
9:00 A.M.–10:00 A.M.	Guest Coffee–Westin Hotel, Hancock
9:00 A.M.–6:00 P.M.	Academic Family Tree–Hall B
9:00 A.M.–6:00 P.M.	Historical Instruments Exhbi
9:00 A.M.–6:30 P.M.	Exhibits and Poster Hall Open–Hall A & Hall B
9:00 A.M.–6:30 P.M.	Local Chapter Posters–Hall B
10:00 A.M.–10:30 A.M.	AM Coffee Break–Meeting Room Foyers
10:00 A.M.–10:30 A.M.	Meet President Jenni Evans
12:00 P.M.–1:30 P.M.	Wayne Schubert Luncheon
12:00 P.M.–1:30 P.M.	Lunch Break
12:15 P.M.–1:45 P.M.	Presidential Town Hall: Confronting Bullying, Discrimination, and Harassment in the Geosciences–210AB
1:00 P.M.–5:00 P.M.	AMS Oral History Project
1:00 P.M.–1:20 P.M.	Daily Weather Briefing
1:00 P.M.–6:00 P.M.	Free Legal Consultations (provided by the Climate Science Legal Defense Fund)
1:30 P.M.–4:00 P.M.	Symposium on Diversity, Equity, and Inclusion Workshop on Work Climate: Responding to Sexual Harassment–205C
2:30 P.M.–3:00 P.M.	PM Coffee Break–Meeting Room Foyers
4:00 P.M.–6:00 P.M.	Formal Poster Viewing Reception–Hall B
5:30 P.M.–6:30 P.M.	Exhibit Hall Networking Reception–Hall A
6:30 P.M.–9:00 P.M.	Centennial Celebration–BCEC Ballroom

8:30 A.M.–10:00 A.M.

SCHUBERTSYMP

Session 1: MOIST PROCESSES RANGING FROM STRATOCUMULUS TO DEEP CONVECTION –210C

Chairs: Richard H. Johnson, Colorado State Univ., Fort Collins, CO; Alex Omar Gonzalez, Iowa State Univ., Ames, IA

8:30 A.M.

I.1 *I've Looked at Clouds from Both Sides Now.* **James J. Hack**, ORNL, Oak Ridge, TN

8:45 A.M.

I.2 *A Personal Perspective on Wayne Schubert's Contributions to Our Knowledge and Understanding of Cloud-Topped Boundary Layers.* **Bruce Albrecht**, Univ. of Miami, Miami, FL

9:00 A.M.

I.3 *Potential Vorticity in Mesoscale Convective Systems.* **Christopher A. Davis**, NCAR, Boulder, CO

9:15 A.M.

I.4 *Controls on Water Vapor in the Presence of Deep Convection.* **D.A. Randall**, Colorado State Univ., Fort Collins, CO

9:30 A.M.

I.5 *Equatorial Convectively Coupled Waves and Indonesia Floods.* **Maria K. Flatau**, NRL, Monterey, CA; P. J. Flatau, D. B. Baranowski, B. Latos, T. Lefort

9:45 A.M.

I.6 *Constraints on Tropical Convection and Precipitation in a Changing Climate.* **Peter Webster**, Georgia Institute of Technology, Atlanta, GA; C. Hoyos, V. Toma, G. L. Stephens

8:30 A.M.–10:00 A.M.

36EPT / 10PYTHON / 10R20 / 6HPC

Joint Session 32: COMMON TECHNOLOGY

REVIEW—PAST, PRESENT, AND FUTURE –157C

Chairs: Nazila Merati, Merati and Associates, Seattle, WA; Scott Jacobs, NOAA/NWS, Silver Spring, MD; Timothy S. Sliwinski, Texas Tech Univ., Lubbock, TX; Scott Collis, Argonne National Laboratory, Argonne, IL; Margaret Caulfield, NOAA/NESDIS (Retired), Townsend, DE

8:30 A.M.

J32.1 *Aviation Weather—40 Years of Trying to Enhance Decision Support.* **Jeffrey S. Tongue**, Suffolk County Community College, Brentwood, NY

8:45 A.M.

J32.2 *Evolution of NWS Forecaster Environmental Information Processing Systems.* **Gregg Grosshans**, NOAA, Norman, OK

9:00 A.M.

J32.3 *Humans over the Forecast Loop at The Weather Company, an IBM Business.* **James Lidrbauch**, The Weather Company, Andover, MA

9:15 A.M.

J32.4 *Implementing Facets: Presenting the Most Recent Updates and Testing Results for Hazard Services-PHI.* **Kevin L. Manross**, CIRA/Colorado State Univ. and NOAA/OAR/ESRL/GSD, Boulder, CO; Y. Guo, G. J. Stumpf, T. C. Meyer, D. M. Kingfield, A. V. Bates, D. Nietfeld, T. L. Hansen

9:30 A.M.

J32.5 *Development of a Display Tool to Quality Control Weather Balloon Data for Space Launch Vehicles Using Python.* **Jessica Kaitlyn Headley**, Jacobs Space Exploration Group, MSFC, AL; C. M. Sayre Jr., J. C. Brenton

WEDNESDAY

9:45 A.M.

J32.6 *ESPDs: Over 1 Billion Served—Three Years of Operations for the Environmental Satellite Processing and Distribution System.* **George Wilkinson**, Solers, Greenbelt, MD; R. Baker, D. M. Beall, R. Niemann, S. Walsh, M. Leach, T. Kowalski, S. Causey

8:30 A.M.–10:00 A.M.**36EPT****Session 8B: RADAR TECHNOLOGIES AND APPLICATIONS. PART I –155**

Chairs: Kurt D. Hondl, NOAA/NSSL, Norman, OK; Michael J. Istok, NOAA/NWS, Silver Spring, MD; Mark B. Yeary, Univ. of Oklahoma, Norman, OK

8:30 A.M.

8B.1 *An Update on the Advanced Technology Demonstrator at the National Severe Storms Laboratory.* **Sebastian M. Torres**, CIMMS, Norman, OK; C. D. Curtis, E. Forren, S. Gregg, I. R. Ivic, J. R. Mendoza, D. Schwartzman, C. Schwarz, D. Wasielewski, A. Zahrai

8:45 A.M.

8B.2 *Distributed Beams: A Technique to Reduce the Scan Time of an Active Rotating Phased-Array Radar System.* **David Schwartzman**, CIMMS, Norman, OK; S. M. Torres

9:00 A.M.

8B.3 *Experimental Validation of the Multibeam Technique for Rapid-Scan, Meteorological Phased-Array Radar.* **Mark E. Weber**, Cooperative Institute for Mesoscale Meteorological Studies, Norman, OK; V. Melnikov, D. Zrnic, K. Hondl, R. R. Zellner, B. Hudson

9:15 A.M.

8B.4 *Weather Calibration Efforts on the Advanced Technology Demonstrator.* **Igor R. Ivic**, Univ. of Oklahoma/NSSL, Norman, OK; D. Schwartzman

9:30 A.M.

8B.5 *Estimating the Value of Weather Radars in Reducing Flash Flood Casualties.* **John Y. N. Cho**, MIT Lincoln Laboratory, Lexington, MA; J. M. Kurdzo

9:45 A.M.

8B.6 *NLFM Radar Waveform Generation Using a Neural Network Approach to Rapidly Predict Bezier Curve Shape.* **James M. Kurdzo**, MIT Lincoln Laboratory, Lexington, MA; J. Y. N. Cho, B. L. Cheong, R. D. Palmer

8:30 A.M.–10:00 A.M.**34HYDRO****Session 9: ADVANCES IN EVAPORATION AND EVAPORATIVE DEMAND. PART I –253C**

Chairs: Daniel McEvoy, DRI, Reno, NV; Christopher Hain, NASA Marshall Space Flight Center, Huntsville, AL; Gabriel Senay, USGS, Sioux Falls, SD; M. C. Anderson, USDA-ARS, Beltsville, MD

8:30 A.M.

9.1 *Historical Perspective on the Science and Estimation of Evapotranspiration for Operational Water Management, Systems Design, Research, and Monitoring—Successful Evolutions (Centennial).* **Richard Allen**, Univ. of Idaho, Kimberly, ID; A. Kilic

8:45 A.M.

9.2 *OpenET: Filling the Biggest Gap in Water Data for the Western United States (Invited Presentation).* **Forrest Melton**, NASA ARC-CREST, Moffett Field, CA; J. Huntington, R. Grimm, J. Herring, D. Rollinson, T. A. Erickson, M. Hall, R. Allen, M. C. Anderson, P. Blankenau, B. Daudert, C. Doherty, J. Fisher, M. Friedrichs, A. Guzman, C. R. Hain, G. Halverson, J. Harding, L. Johnson, Y. Kang, A. Kilic, C. Morton, M. Ozdogan, P. Revelle, M. Schull, G. Senay, Y. Yang

9:00 A.M.

9.3 *Challenges and Successes in Automated Calibration and Operation of Extreme Condition Models such as the METRIC Model in OpenET.* **Ayse Kilic**, Univ. of Nebraska, Lincoln, NE; P. Revelle, P. Blankenau, R. Allen, C. Morton, J. Huntington, D. Ozturk, B. Kamble, R. Trezza, T. A. Erickson, C. W. Robison

9:15 A.M.

9.4 *Trends in Regional Evapotranspiration and Food Production Systems in New Mexico.* **Hatim M. E. Geli**, New Mexico State Univ., Las Cruces, NM; C. Hain, M. C. Anderson

9:30 A.M.

9.5 *Projected Changes in Reference Evapotranspiration in California and Nevada: Implications for Drought and Wildland Fire Danger.* **Daniel J. McEvoy**, DRI, Reno, NV; D. W. Pierce, J. Kalansky, D. Cayan

9:45 A.M.

9.6 *Enhancing Reservoir Evaporative Loss Estimates: A Multipronged Approach to Monitoring Surface Water Evaporation in Texas.* **D. Nelun Fernando**, Texas Water Development Board, Austin, TX; J. L. Cotter, R. Anderson, J. Zhu, A. Weinberg

8:30 A.M.–10:00 A.M.**34HYDRO / 33CVC / 25APPLIED / 15SOCIETY / 11HEALTH****Joint Session 33: FROM DROUGHTS TO DELUGES—LEARNING FROM PRACTITIONERS HOW TO VALUE THE HUMAN HEALTH AND SOCIETAL IMPACTS OF HYDROLOGIC DISASTERS –253A****8:30 A.M.**

J33.1 *Extremes, Health, and Change: Developing a Collaborative Framework between Research and Management (Invited Presentation).* **Roger Pulwarty**, NOAA, Boulder, CO; J. Balbus, C. Dresser

8:45 A.M.

J33.2 *Droughts and Health in the United States: An Evaluation of Knowledge.* **Jesse Eugene Bell**, Univ. of Nebraska Medical Center, Omaha, NE

9:00 A.M.

J33.3 *Advancing Drought Early Warning Systems: Using Recent Drought to Develop New Partnerships with Public Health Communities.* **Amanda M. Sheffield**, NOAA, Boulder, CO; J. E. Bell, V. Deheza

9:15 A.M.

J33.4 *Systems Responding to Disasters: The Intersection between Health, Extreme Events, and the Entities That Respond to Them.* **Keith Hansen**, Univ. of Nebraska Medical Center, Omaha, NE; R. Lookadoo

9:30 A.M.

J33.5 *The Impact of Natural Disasters on Human Mobility and Health (Invited Presentation).* **Caroline O. Buckee**, Harvard School of Public Health, Boston, MA

9:45 A.M.

J33.6 *Drought and All-Cause Mortality in All Age Groups in Nebraska.* **Azar Mohammad Abadi kamarei**, Univ. of Nebraska Medical Center, Omaha, NE; Y. Gwon, J. E. Bell

8:30 A.M.–10:00 A.M.**33CVC / DICKINSONSYMP**

Joint Session 35: EARTH SYSTEM MODELING AND CLIMATE CHANGE (E.G., EARTH SYSTEM MODELING, REGIONAL CLIMATE MODELING, CLIMATE CHANGE, CARBON CYCLE). PART II –150

Chair: Leo Donner, GFDL/NOAA, Princeton Univ., Princeton, NJ

8:30 A.M.

J35.1 *Evaluation of the Arctic Atmospheric Circulation in CMIP6.* **Mark W. Seefeldt**, CIRES/Univ. of Colorado, Boulder, CO; J. J. Cassano, E. Valkonen, E. N. Cassano

8:45 A.M.

J35.2 *How Different Is the Arctic Sea-Ice Condition Revealed by CMIP6 Models?* **Muyin Wang**, NOAA/OAR/PMEL, Seattle, WA; J. E. Overland

9:00 A.M.

J35.3 *Understanding Projected Uncertainties in the Northern Winter Climate: Role of the Interhemispheric Sea Surface Temperature Gradient and Arctic Sea Ice Cover.* **Ho-Nam Cheung**, Sun Yat-sen Univ., Zhuhai, China; N. Keenlyside, T. Koenigk, S. Yang, T. Tian, Z. Xu, Y. Gao, F. Ogawa, N. E. Omrani, S. Qiao, W. Zhou

9:15 A.M.

J35.4 *Antarctic Ice Sheet–Climate Feedbacks under High Future Carbon Emissions.* **Shaina Rogstad**, Univ. of Massachusetts, Amherst, MA; A. Condron, R. DeConto, D. Pollard

9:30 A.M.

J35.5 *Ocean Optics Can Modulate the Cooling of the Southern Ocean under Doubled CO₂ by Affecting Mixed Layer Dynamics.* **Anand Gnanadesikan**, Johns Hopkins Univ., Baltimore, MD; M. A. Pradal, G. E. Kim

9:45 A.M.

J35.6 *Validating CMIP/AMIP Calculations with Global Precipitation Observations during the Satellite Era: Means, Trends, and Intensity Changes.* **Robert F. Adler**, Univ. of Maryland, College Park, MD; G. Gu

8:30 A.M.–10:00 A.M.**33CVC / 8MJO**

Joint Session 34: MONSOON DYNAMICS: VARIABILITY, CHANGE, AND IMPACTS –154

Chair: Kerry Cook, Univ. of Texas, Austin, Austin, TX

8:30 A.M.

J34.1 *Opposite-Phase Changes of Precipitation Annual Cycle over Land and Ocean under Global Warming.* **L. Ruby Leung**, PNNL, Richland, WA; F. Song, J. Lu, F. Liu

8:45 A.M.

J34.2 *Understanding of the Roles of Global Warming and Natural Variability on Monsoon Rainfall.* **Kyung-Ja Ha**, Center for Climate Physics, Institute for Basic Science, Busan, Korea, Republic of (South)

9:00 A.M.

J34.3 *The Bridging Role of Eurasian Winter Snow in the Relationship between East Asian Winter and Summer Monsoons.* **Mengmeng Lu**, Harvard Univ., Cambridge, MA; Z. Kuang, S. Yang, Z. Li, H. Fan

9:15 A.M.

J34.4 *Current and Future Variations of the Monsoons of the Americas in a Warming Climate.* **Christopher L. Castro**, Palo Alto, CA; S. Pascale, L. M. V. Carvalho, D. K. Adams, I. Cavacanti

9:30 A.M.

J34.5 *Model Performance in Simulating Global Monsoon Features: Skill Evolution across CMIP Generations.* **Luz Adriana Gómez**, Universidad Nacional de Colombia, Medellín, Colombia; D. C. Cruz, C. D. Hoyos, P. J. Webster

9:45 A.M.

J34.6 *Sensitivity of Monsoon Precipitation on Local Evaporation and Large-Scale Circulations Using Cloud-Permitting Model.* **Sourav Taraphdar**, New York Univ. Abu Dhabi, Abu Dhabi, United Arab Emirates; O. Pauluis

8:30 A.M.–10:00 A.M.**30WAF26NWP / 20ARAM**

Joint Session 36: ADVANCES IN DATA ASSIMILATION, VERIFICATION, AND PROBABILISTIC FORECASTING OF AVIATION WEATHER HAZARDS –257AB

Chairs: Stephanie Avey, AWC, Kansas City, MO; Stanley B. Trier, NCAR, Boulder, CO

8:30 A.M.

J36.1 *1955–2019: How NWP Has Evolved to Improve Safety and Efficiency for Aviation (Invited Presentation).* **Stan Benjamin**, NOAA/Earth System Research Laboratory, Boulder, CO; J. M. Brown

9:00 A.M.

J36.2 *Development of and Implementation Strategies for the Unified Forecast System at NCEP to Assist with Forecasting Aviation Weather Hazards.* **Vijay Tallapragada**, NOAA/NWS/NCEP, College Park, MD; G. S. Manikin, J. R. Carley, M. E. Pyle

9:15 A.M.

J36.3 *Use of Storm-Scale Ensemble Data Assimilation for Initializing the Deterministic HRRR and Use of HRRR Storm-Scale Ensemble Forecasts to Provide Probabilistic Aviation Hazard Guidance.* **Steve Weygandt**, NOAA/ESRL/GSD, Boulder, CO; D. C. Dowell, G. Ge, T. T. Ladwig, C. Alexander, M. Hu, E. James, J. S. Kenyon, I. Jankov, T. Smirnova, J. B. Olson, S. G. Benjamin

9:30 A.M.

J36.4 *A Commercial Airline's Use of The Weather Company/IBM's Current Condition Assimilation System for Flight Operations in the Caribbean.* **Joseph P. Koval**, The Weather Company, Atlanta, GA; B. Krajewski, D. Winn, I. Rahman

9:45 A.M.

J36.5 *The Analysis of Short-Term Operational Wind Forecasts and Implications for Aircraft Operations in Terminal Areas.* **Timothy Bonin**, MIT Lincoln Laboratory, Lexington, MA; W. J. Dupree, R. F. Ferris, D. D. Moradi, D. Clark

8:30 A.M.–10:00 A.M.

30WAF26NWP

Session 7A: ADVANCES IN RADAR USAGE FOR WEATHER ANALYSIS AND FORECASTING. PART I –258A

Chair: Gregory J. Stumpf, CIMMS/Univ. of Oklahoma and NOAA/NWS/Meteorological Development Laboratory, Norman, OK

8:30 A.M.

7A.1 *Assimilation of Dual-Pol Radar Data into a Supercell Storm with a Variational Data Assimilation Scheme.* **Jidong Gao**, NOAA/NSSL, Norman, OK; M. Pan, G. Zhang, Y. Wang, P. L. Heinselman, C. Cui

8:45 A.M.

7A.2 *Tools to Improve Tornado Warning Performance for Supercells: Z_{DR}/K_{DP} Separation and Size-Sorting Signals.* **M. L. Jurewicz**, NOAA/NWS, State College, PA; S. Loeffler, M. R. Kumjian, M. French, C. M. Gitro

9:00 A.M.

7A.3 *Impact of Assimilating Clear-Air Radial Velocity Observations on the Forecasting of Supercell Thunderstorm: An Observing System Simulation Experiment Study.* **Yongjie Huang**, Univ. of Oklahoma, Norman, OK; X. Wang, C. Kerr, A. Mahre, T. Y. Yu, D. J. Bodine

9:15 A.M.

7A.4 *An Analysis of Z_{DR} Arc Characteristics in a Large Sample of Supercell Storms.* **Matthew B. Wilson**, Univ. of Nebraska, Lincoln, NE; M. S. Van Den Broeke

9:30 A.M.

7A.5 *Using Characteristics of Tornadoic Debris Signatures to Estimate Tornado Intensity.* **Samuel Emmerson**, Univ. of Oklahoma, Norman, OK; S. E. Nelson, R. L. Thompson

9:45 A.M.

7A.6 *Probability of Detection of SPLASH Using Polarimetric Radar.* **Aaron M. Ward**, NWSFO, Amarillo, TX; M. R. Kumjian, S. W. Bieda III, M. J. Bunkers

8:30 A.M.–10:00 A.M.

30WAF26NWP

Session 7B: ANALYSIS AND FORECASTING OF FIRE WEATHER –151A

Chairs: S. W. Bieda, NWSFO, Amarillo, TX; Ryan A. Lagerquist, CIMMS, Norman, OK

8:30 A.M.

7B.1 *From a Pyrocumulus to a Severe Thunderstorm: An Environmental Analysis of an Anomalous Southern Plains Wildfire.* **Kaitlin Ann Rutt**, NWSFO, Amarillo, TX; S. W. Bieda III, A. Ward, B. J. Simpson, T. T. Lindley, N. J. Nauslar, B. Curran, S. J. Fano, P. J. Ware

8:45 A.M.

7B.2 *Coupled Weather–Fire Model Simulations of Extreme Winds and Fire Behavior during Recent Windstorm-Driven Wildfire Events.* **Janice L. Coen**, NCAR, Boulder, CO; W. Schroeder

9:00 A.M.

7B.3 *Using North American Regional Reanalysis Composites to Identify and Forecast Fire-Effective Synoptic Features in the Southern Great Plains.* **Matthew Ryan Beitscher**, Saint Louis Univ., St. Louis, MO; T. T. Lindley, C. M. Gravelle, C. Graves

9:15 A.M.

7B.4 *Lightning-Ignited Fires in the Northwest United States and SPC Dry Thunderstorm Precipitation Thresholds.* **Abby E. Sebol**, NWS/Storm Prediction Center, Norman, OK; E. M. Leitman, M. S. Elliott

9:30 A.M.

7B.5 *High-Resolution Future Projection of U.S. Wildfire Potential Trends.* **Emily K. Brown**, Centre College, Danville, KY; J. Wang, Y. Feng

9:45 A.M.

7B.6 *Next-Generation OK-FIRE Modeling System.* **Michael D. Klatt**, Univ. of Oklahoma, Norman, OK

8:30 A.M.–10:00 A.M.

29EDUCATION

Session 5: UNIV. EDUCATION INITIATIVES –258C

Chairs: Rick DiMaio, Northern Illinois Univ., Romeoville, IL; Jon M. Nese, The Pennsylvania State Univ., University Park, PA

8:30 A.M.

5.1 *The Joint Msc. Degree Program in Environmental Meteorology Offered by the Universities of Trento (Italy) and Innsbruck (Austria): First Outcomes and Future Developments.* **Dino Zardi**, Univ. of Trento, Trento, Italy

8:45 A.M.

5.2 *At the Intersection of Medicine and Environmental Health Policy: Creation of a Novel Climate and Health Science Policy Fellowship for Physicians.* **Caitlin Rublee**, Univ. of Colorado, Aurora, CO; C. Sorensen, J. Lemery

9:00 A.M.

5.3 *New Activities Supporting Atmospheric Science Education Research within the AMS Community.* **Wendy Abshire**, American Meteorological Society, Washington, DC; D. Charlevoix, L. Sample McMeeking

9:15 A.M.

5.4 *A Medium-Range Forecast Contest to Bridge the Gap between Academia and the Private Sector.* **Steven G. Decker**, Rutgers Univ., New Brunswick, NJ; D. Margolin, E. O'Neill, L. LeBel, Z. Mages, R. Haas, L. Trabachino, N. J. Schiraldi, T. Burg

9:30 A.M.

5.5 *Engaging Undergraduates in K–12 STEM Education through High-Altitude Ballooning: The LIFT Project.* **Philip Bergmaier**, Univ. of Wyoming, Laramie, WY; T. Kilty, S. McBride, K. Kilty, A. Burrows, K. Muir Welsh

9:45 A.M.

5.6 *Experiential Learning in Meteorology: Field Studies of Convection and Severe Storms.* **Jana B. Houser**, Ohio Univ., Athens, OH

8:30 A.M.–10:00 A.M.**26PROBSTAT / 30WAF26NWP / 19AI****Joint Session 37: PHYSICAL INTERPRETABILITY IN MACHINE LEARNING –260**

Chairs: Elizabeth Satterfield, NRL, Monterey, CA; Philippe Tissot, Texas A&M Univ., Corpus Christi, TX

8:30 A.M.

J37.1 *Multiresolution Cluster Analysis—Addressing Trust in Climate Classification.* **Derek DeSantis**, LANL, Los Alamos, NM; P. Wolfram, B. Alexandrov

8:45 A.M.

J37.2 *Understanding What Deep Learning Has Learned about Tornadoes.* **Ryan A. Lagerquist**, CIMMS, Norman, OK; A. McGovern, D. J. Gagne II, C. R. Homeyer, T. M. Smith

9:00 A.M.

J37.3 *Selected Methods from Explainable AI to Improve Understanding of Neural Network Reasoning for Environmental Science Applications.* **Imme Ebert-Uphoff**, CIRA–Colorado State Univ., Fort Collins, CO; K. Hilburn, B. A. Toms, E. A. Barnes

9:15 A.M.

J37.4 *Emulation of Bin Microphysical Processes with Machine Learning.* **David John Gagne**, NCAR, Boulder, CO; C. C. Chen, A. Gettelman

9:30 A.M.

J37.5 *Using Physically Interpretable Neural Networks to Discover Modes of Climate and Weather Variability.* **Benjamin A. Toms**, Colorado State Univ., Fort Collins, CO; E. A. Barnes, I. Ebert-Uphoff

9:45 A.M.

J37.6 *Lessons Learned Using ML for Knowledge Discovery in the Atmospheric Sciences.* **Amy McGovern**, Univ. of Oklahoma, Norman, OK

8:30 A.M.–10:00 A.M.**25APPLIED****Session 6: CLIMATE EXTREMES OF 2019: IMPACTS IN THE NORTH CENTRAL REGION. PART I –153A**

Chairs: Natalie Umphlett, Univ. of Nebraska, Lincoln, NE; Laura M. Edwards, South Dakota State Univ., Aberdeen, SD

8:30 A.M.

6.1 *The Curious Case of 2019: A Year of Extremes in the Black Hills.* **Keith D. Sherburn**, NOAA/NWS, Rapid City, SD

8:45 A.M.

6.2 *Multiple Historical Flooding Events Impact the Heart of Nebraska in 2019.* **Shawn Rossi**, NOAA, Hastings, NE

9:00 A.M.

6.3 *The Historic 2019 Missouri River Basin Flooding: A Survey of Predictions and Communications.* **Kevin Low**, NOAA/NWS, Pleasant Hill, MO

9:15 A.M.

6.4 *A Hydrometeorological Assessment of the Historic 2019 Flood of Nebraska and Iowa.* **Paul X. Flanagan**, Univ. of Nebraska, Lincoln, NE; R. Mahmood, N. Umphlett, E. Hacker, C. Hacker, W. Sorensen, C. J. Stiles, D. Pearson, P. Fajman

9:30 A.M.

6.5 *Spatiotemporal Diagnostics of Major Crops's Vulnerability in the Northern High Plains.* **Parisa Sarzaeim**, Univ. of Nebraska, Lincoln, NE; W. Ou, L. Alves, F. Munoz-Arriola

9:45 A.M.

6.6 *From Cattle to Corn: South Dakota Agricultural Production Challenges in 2019.* **Laura M. Edwards**, South Dakota State Univ., Aberdeen, SD

8:30 A.M.–10:00 A.M.**24IOAS****Session 8: SATELLITE DATA ASSIMILATION FOR HIGH-IMPACT WEATHER –259A**

Chair: Sean P. F. Casey, Cooperative Institute for Marine and Atmospheric Studies, Miami, FL

8:30 A.M.

8.1 *Assimilation of GOES-16 Satellite Geostationary Lightning Mapper Lightning Flash Rate Data for the Analysis and Forecasting of Convective Storms Using EnKF and En3DVar Hybrid Methods (Invited Presentation).* **Ming Xue**, CAPS, Norman, OK; R. Kong, A. Fierro, C. Liu, Y. Jung, E. R. Mansell, D. R. MacGorman

9:00 A.M.

8.2 *The Impact of Assimilating Cloud Information from ABI on Hurricane and Local Severe Storm Forecasts.* **Deming Meng**, Univ. of Wisconsin, Madison, WI; P. Wang, J. Li, Y. Chen, S. Wangzong, A. Heiding, A. Walther, Z. Li

9:15 A.M.

8.3 *CYGNSS Data Impact on Global Analyses of Ocean Surface Winds.* **S. Mark Leidner**, Atmospheric and Environmental Research, Norman, OK; S. J. Majumdar, J. Hegarty, B. D. McNoldy

9:30 A.M.

8.4 *Assessing the Impact of ADM-Aeolus HLOS Wind Observations in the Predictability of Tropical Cyclones in NOAA's FV3GFS.* **Karina Apodaca**, CIMAS/Univ. of Miami and NOAA/AOML/HRD, Miami, FL; L. Cucurull, J. Dunnion, L. Bucci, H. Liu, K. Garrett

9:45 A.M.

8.5 *Assimilation of All-Sky AMSU-A and GMI Radiances with the NCEP GSI-Based Ensemble-Variational Hybrid Data Assimilation System: Impact on Numerical Simulations of Hurricane Florence (2018).* **Zhaoxia Pu**, Univ. of Utah, Salt Lake City, UT; C. Feng

8:30 A.M.–9:00 A.M.

23ASLI

Session 1: WELCOME AND INTRODUCTION –259B

Chair: Elizabeth Fish, Univ. of Miami Libraries, Coral Gables, FL

8:30 A.M.

Welcoming Remarks. **Elizabeth Fish**, Univ. of Miami Libraries, Coral Gables, FL

8:30 A.M.–10:00 A.M.

22WXMOD / DICKINSONSYMP / 33CVC

Joint Session 38: STUDIES RELATED TO CLIMATE ENGINEERING –105

Chairs: Alan Robock, Rutgers Univ., New Brunswick, NJ; Simone Tilmes, NCAR, Boulder, CO

8:30 A.M.

J38.1 Meteorological Response to CO₂ Sequestration and Storage in Antarctica. **Andrea Orton**, Purdue Univ., West Lafayette, IN; E. M. Agee, M. E. Baldwin

8:45 A.M.

J38.2 Climate Impacts from Explosive Volcanic Eruptions, Solar Radiation Change, and CO₂ Increase. **Wenchang Yang**, Princeton Univ., Princeton, NJ; G. A. Vecchi, S. Fueglistaler, L. W. Horowitz, D. Luet, Á. Muñoz

9:00 A.M.

J38.3 Geoengineering Model Intercomparison Project (GeoMIP) Progress Report and Future Plans. **Alan Robock**, Rutgers Univ., New Brunswick, NJ; B. Kravitz

9:15 A.M.

J38.4 Consistent Weakening of the Extratropical Storm Tracks in an Idealized Solar Geoengineering Scenario. **Charles G. Gertler**, MIT, Cambridge, MA; P. A. O'Gorman

9:30 A.M.

J38.5 Sulfate Geoengineering Impacts on Agriculture. **Lili Xia**, Rutgers Univ., New Brunswick, NJ; A. Robock, J. Jägermeyr, S. Tilmes

8:30 A.M.–10:00 A.M.

22ATCHEM

Session 8A: ACMAP: ATMOSPHERIC CHEMISTRY MODELING AND ANALYSIS PROGRAM. PART III –206B

Chairs: Richard Eckman, NASA, Washington, DC; Kenneth Jucks, NASA, Washington, DC

8:30 A.M.

8A.1 Inferring the Lifetime of NO_x and Aerosol from Space-Based Observations. **Ronald Cohen**, Univ. of California, Berkeley, CA; Q. Zhu, C. Li

8:45 A.M.

8A.2 Estimates of Lightning NO_x Production Based on High-Resolution OMI NO₂ Retrievals over the Continental United States. **Xin Zhang**, Nanjing Univ. of Information Science and Technology, Nanjing, China; Y. Yin, R. Van Der A, J. Lapierre

9:00 A.M.

8A.3 NO_x Production by Lightning as Inferred Using NO₂ Slant Columns from GCAS during the GOES-R Validation Campaign. **Dale Allen**, Univ. of Maryland, College Park, MD; K. E. Pickering, L. N. Lamsal, S. J. Janz, M. G. Kowalewski, M. Quick, R. J. Blakeslee, W. J. Koshak

9:15 A.M.

8A.4 Inverse Modelling of Natural NO_x Emissions and Implications for Ozone in the United States. **Qiyang Yan**, Georgia Institute of Technology, Atlanta, GA; Y. Wang, J. Li, C. Smeltzer

9:30 A.M.

8A.5 Policy-relevant Applications of OMI NO₂ and TROPOMI NO₂ Satellite Data: Estimating NO_x Emissions and Inferring CO₂ Emissions. **Daniel Goldberg**, ANL, Lemont, IL; Z. Lu, D. G. Streets, B. De Foy, D. Griffin, C. McLinden, F. Liu, L. N. Lamsal, T. Oda, H. Eskes, B. Duncan, N. A. Krotkov

9:45 A.M.

8A.6 Anthropogenic Carbon Emission Constraints from CO and NO₂ Data Streams. **Avelino F. Arellano**, The Univ. of Arizona, Tucson, AZ; W. Tang, B. Gaubert

8:30 A.M.–10:00 A.M.

22ATCHEM

Session 8B: BOUNDARY LAYER PROCESSES AND BIOGEOCHEMISTRY IN AMAZONIA –207

8:30 A.M.

8B.1 Atmospheric Aerosols over the Amazon Basin: Composition, Microphysics, Sources, and Sinks (Invited Presentation). **Meinrat O. Andreae**, Scripps Institution of Oceanography, Univ. of California, San Diego, CA

8:45 A.M.

8B.2 The Close Links between the Biological Functioning of Amazonia Forest and Climate (Invited Presentation). **Paulo Artaxo**, Univ. of São Paulo, São Paulo, Brazil; H. M. J. Barbosa, L. Rizzo, S. Carbone

9:00 A.M.

8B.3 Urban Pollution Greatly Enhances Formation of Natural Aerosols over the Pristine Amazon (Invited Presentation). **Manishkumar Shrivastava**, PNNL, Richland, WA; M. O. Andreae, P. Artaxo, H. M. J. Barbosa, L. K. Berg, J. Brito, J. Ching, R. Easter, J. Fan, J. D. Fast, Z. Feng, J. Fuentes, M. Glasius, A. H. Goldstein, E. G. Alves, H. Gomes, A. Guenther, S. H. Jathar, S. Kim, Y. Liu, S. Lou, S. T. Martin, V. F. McNeil, A. medeiros, J. Shilling, S. Springston, R. A. F. Souza, J. A. Thornton, G. I. VanWertz, L. D. Yee, R. Ynoue, R. A. Zaveri, A. Zelenyuk, C. Zhao, S. S. de Sá, D. Gu

9:15 A.M.

8B.4 The Biogenic Volatile Organic Compound Environment of a Tropical Rain Forest in Central Amazonia (Invited Presentation). **Paul Stoy**, Univ. of Wisconsin, Madison, WI; A. M. Trowbridge, T. Gerken, M. Chamecki, J. D. Fuentes

9:30 A.M.

8B.5 Oxidation of Isoprene and Monoterpenes as a Function of Nitrogen Oxides in the Amazon Rain Forest. **Zachary Moon**, The Pennsylvania State Univ., University Park, PA; D. Wei, J. D. Fuentes, M. Chamecki, G. G. Katul, W. H. Brune, J. J. Orlando

9:45 A.M.

8B.6 *Intermediate-Scale Heterogeneity in Volatile and Semivolatile Organic Compounds over the Near-Canopy Atmosphere in Central Amazonia.* **Jianhuai Ye**, Harvard Univ., Cambridge, MA; C. E. Batista, I. O. Ribeiro, P. C. Guimarães, A. S. S. Medeiros, R. G. Barbosa, R. L. Oliveira, S. Duvoisin Jr., K. J. Jardine, D. Gu, A. B. Guenther, K. A. McKinney, L. D. Martins, R. A. F. Souza, S. T. Martin

8:30 A.M.–10:00 A.M.**21AIRPOL / 11HEALTH****Joint Session 39: AIR POLLUTION HEALTH IMPACTS ASSESSMENTS –211**

Chairs: Karin Ardon-Dryer, Texas Tech Univ., Lubbock, TX; Ananya Roy, Environmental Defense Fund, Washington, DC

8:30 A.M.

J39.1 *Five Decades of Particulate Air Pollution Health Effects Research and the Focus on PM_{2.5}.* **Douglas W. Dockery**, Harvard Chan School of Public Health, Boston, MA; J. D. Spengler

8:45 A.M.

J39.2 *Recent Advances in Assessing Health Impacts of Air Pollution within Cities Worldwide.* **Susan C. Anenberg**, George Washington Univ., Washington, DC

9:00 A.M.

J39.3 *Modeling Wildland Fire-Specific PM_{2.5} for Uncertainty-Aware Health Impact Assessments.* **Xiangyu Jiang**, Univ. at Buffalo, SUNY, Buffalo, NY; E. H. Yoo

9:15 A.M.

J39.4 *Disparities in the Health Burden of Air Pollution on the Hyperlocal Scale: Case Study for the California Bay Area.* **Ananya Roy**, Environmental Defense Fund, Washington, DC; V. Southerland, M. Harris, S. Anenberg

9:30 A.M.

J39.5 *Using Machine Learning Regression to Model Ambient Ultrafine Particle Concentrations along a Runway Trajectory near a Major Airport.* **Kevin J. Lane**, Boston Univ., Boston, MA; M. Simon, C. Kim, J. I. Levy

9:45 A.M.

J39.6 *Nrf2 Protects against Diverse PM_{2.5} Components-Induced Mitochondrial Oxidative Damage in Lung Cells.* **Michal Pardo**, Weizmann Institute of Science, Rehovot, Israel

8:30 A.M.–10:00 A.M.**20SMOI****Session 8: INNOVATIVE MEASUREMENTS –203**

Chairs: Michelle Rose Spencer, Metropolitan State Univ. of Denver, Denver, CO; Kelsey Frey, Metropolitan State Univ. of Denver, Denver, CO

8:30 A.M.

8.1 *Observing Profiles of Advection, Vorticity, and Divergence from Ground-Based Networks of Thermodynamic and Kinematic Profilers.* **T. J. Wagner**, CIMSS, Madison, WI; D. D. Turner, W. G. Blumberg

8:45 A.M.

8.2 *The Japanese Balloon-Borne Radiosondes for Cloud/Precipitation Particle Imaging Measurements: Scientific Overview and Remodeling Plan to Migrate Radiowave Frequency from 1680 to 400 MHz.* **Kensaku Shimizu**, Meisei Electric Co., Ltd., Isesaki, Japan; M. Fujiwara, K. Suzuki

9:00 A.M.

8.3 *Autonomous Direct Covariance Flux Systems for Use on Enhanced Surface Moorings and Expendable Platforms over the Open Ocean.* **James B. Edson**, WHOI, Woods Hole, MA; C. A. Clayson, J. Toole, J. T. Farrar

9:15 A.M.

8.4 *Designing an Integrated Sensor System for Deployment in the Polar Regions.* **Justin Lentz**, NCAR, Boulder, CO; S. D. Landolt, M. W. Seefeldt, T. Nylén

9:30 A.M.

8.5 *Can VAD and DVAD Provide More Information?* **Wen-Chau Lee**, NCAR, Boulder, CO; H. Cheng

9:45 A.M.

8.6 *Designing and Testing a Camera System for Capturing Hail in Natural Free Fall.* **Kiel L. Ortega**, OU/CIMMS and NOAA/OAR/NSSL, Norman, OK; S. Waugh

8:30 A.M.–10:00 A.M.**20ARAM****Session 8: SESSION ON ADVANCEMENTS IN THE ANALYSIS AND PREDICTION OF AIRCRAFT ICING AND METHODS/TOOLS FOR ICING MITIGATION –206A**

Chairs: Stephanie DiVito, FAA, Atlantic City International Airport, NJ; Darcy Jacobson, NCAR, Boulder, CO

8:30 A.M.

8.1 *NEXRAD Dual-Polarimetric Hazard Products for Aviation.* **David J. Smalley**, MIT Lincoln Laboratory, Lexington, MA; M. F. Donovan, E. R. Williams, B. J. Bennett, J. M. Kurdzo, R. F. Ferris

8:45 A.M.

8.2 *Drop Size Distribution Retrieval from Polarimetric Radar Data to Enhance the Spectral Bin Classification in Detecting Icing Conditions.* **Nathan T. Lis**, CIMMS/Univ. of Oklahoma and NOAA/NSSL, Norman, OK; H. D. Reeves, A. A. Rosenow, G. Zhang

9:00 A.M.

8.3 *Dual-Polarization Radar Icing Algorithm (RadIA): Verification/Validation with Research Flights and Application at Military Test Ranges.* **David J. Serke**, NCAR, Boulder, CO; C. Kessinger, S. A. Tessendorf, A. Korolev, I. Heckman, J. French, J. Knievel, J. A. Haggerty, D. Albo

9:15 A.M.

8.4 *Comparison of Airborne In Situ Icing Observations to Icing Algorithm Output and Aviation Forecasts in the Southern Ocean.* **Cory A. Wolff**, NCAR, Broomfield, CO; J. A. Haggerty, D. R. Adriaansen, R. J. Potts, C. Lethlean, G. McFarquhar, W. Wu

8:30 A.M.–10:00 A.M.

9:30 A.M.

8.5 *Initial Steps Toward a Next-Generation Current Icing Product Algorithm.* **Daniel R. Adriaansen**, NCAR, Boulder, CO; J. A. Haggerty, A. Rugg, D. Serke

9:45 A.M.

8.6 *Assessing the Cloud Structures of a 1980 Icing Accident Using In Situ Data from a Research Aircraft and a High-Resolution Model.* **Frank McDonough**, DRI, Reno, NV; J. F. Mejia

8:30 A.M.–10:00 A.M.

19AI

Session 7A: AI IN RADAR OBSERVATIONS –156C

Chairs: Sarvesh Garimella, ACME AtronOmatic, LLC, Portland, OR; Alex M. Haberlie, Louisiana State Univ., Baton Rouge, LA

8:30 A.M.

7A.1 *An AI Approach for Generating Instantaneous Rain Rates from Volumetric Radar Scans.* **Sarvesh Garimella**, ACME AtronOmatic, LLC, Portland, OR

8:45 A.M.

7A.2 *Radar Quantitative Precipitation Estimate Results Using a Convolution Neural Network.* **Micheal Simpson**, NOAA/NSSL, Norman, OK; J. Zhang, K. W. Howard

9:00 A.M.

7A.3 *Machine Learning Techniques for Radar-Based Hail Size Prediction.* **Skylar S. Williams**, OU/CIMMS and NOAA/OAR/NSSL, Norman, OK; K. L. Ortega

9:15 A.M.

7A.4 *An Investigation of Two Machine Learning Radar-Based Hail Discrimination Algorithms.* **Kimberly L. Elmore**, CIMMS/Univ. of Oklahoma and NOAA/OAR/NSSL, Norman, OK; K. L. Ortega, J. C. Snyder

9:30 A.M.

7A.5 *Assessment of Two Techniques Used to Identify ZDR Arcs Automatically in Radar Observations.* **Allison T. LaFleur**, Purdue Univ., West Lafayette, IN; R. Tanamachi, R. E. Nelson

9:45 A.M.

7A.6 *Locating Bird Roosts Using NEXRAD Radar Data and Image Segmentation.* **Katherine Avery**, Univ. of Oklahoma, Norman, OK; A. McGovern, E. Bridge, J. F. Kelly

8:30 A.M.–10:00 A.M.

19AI

Session 7B: DEEP LEARNING APPLICATIONS FOR ENVIRONMENTAL SCIENCE. PART II –156A

Chair: Surya Karthik Mulkavilli, Montreal Institute for Learning Algorithms, Montreal, Canada

8:30 A.M.

7B.1 *Multisource Data Integration under a Deep Learning Framework to Improve Streamflow Forecast Ability.* **Dapeng Feng**, The Pennsylvania State Univ., University Park, PA; C. Shen, K. Fang

8:30 A.M.–10:00 A.M.

8:45 A.M.

7B.2 *Using Deep Learning to Detect Atmospheric Rivers across Climate Datasets and Resolutions.* **Ankur Mahesh**, Lawrence Berkeley National Lab, Berkeley, CA; T. A. O'Brien, K. Kashinath, M. Mudigonda, M. Prabhat, C. A. Shields, J. J. Rutz, L. R. Leung, A. E. Payne, F. M. Ralph, M. Wehner, W. D. Collins

9:00 A.M.

7B.3 *A Comparison of Deep Learning, Shallow Neural Networks, and Principal Component Analysis Based Approaches to Thunderstorm Prediction.* **Hamid Kamangir**, Texas A&M Univ., Corpus Christi, TX; P. E. Tissot, W. G. Collins, S. A. King

9:15 A.M.

7B.4 *Detecting and Classifying Tornado Damage Utilizing Deep Neural Networks and UAS-Based Imagery.* **Melissa A. Wagner**, Arizona State Univ., Tempe, AZ; Z. Chen, J. Das, R. K. Doe, R. S. Cervený

9:30 A.M.

7B.5 *Using Deep Learning to Predict Error Growth in Model Forecasts.* **Christopher P. Rattray**, Univ. of Oklahoma, Norman, OK; D. B. Parsons

8:30 A.M.–10:00 A.M.

18COASTAL

Session 8: HAZARD ASSESSMENT AND PREDICTION IN THE COASTAL MARINE ENVIRONMENT. PART II –158

Chairs: Mona Behl, The Univ. of Georgia, Athens, GA; Jesse Feyen, GLERL, Ann Arbor, MI

8:30 A.M.

8.1 *C-FOG Observations: Mechanisms of Coastal Fog Genesis.* **Harindra J. S. Fernando**, Univ. of Notre Dame, Notre Dame, IN; I. Gultepe, C. E. Dorman, E. Pardyjak, D. H. Richter, Q. Wang, S. Hoch, S. Gabersek, T. Bullock, R. Chang

8:45 A.M.

8.2 *Hurricane Impact on Visibility.* **Ismail Gultepe**, ECCC, Toronto, Canada; H. J. S. Fernando, E. Pardyjak, S. Hoch, A. J. Heymsfield

9:00 A.M.

8.3 *Impact of Turbulent Mixing Driven by Fog-Top Cooling on the Development of Sea Fog.* **Yue Yang**, Ocean Univ. of China, Qingdao, China

9:15 A.M.

8.4 *Addressing Meteotsunamis in NWS Operational Forecasts.* **Michael Angove**, NOAA, Silver Spring, MD; G. Dusek, L. Kozlosky

9:30 A.M.

8.5 *Advancing the Detection of Meteotsunamis through the Rapid Detection of Atmospheric Anomalies Using NDBC Coastal Weather Buoys.* **John Wasserman**, NOAA/NDBC, Stennis Space Center, MS; S. DiNapoli, D. Pounder, C. Hall

9:45 A.M.

8.6 *NWS Response to the Atlantic Coast Meteotsunami of 15 May 2018.* **Lewis Kozlosky**, NWS, Silver Spring, MD; M. Angove

8:30 A.M.–10:00 A.M.

I7SPACEWX

Session 9: ENSEMBLE MODELING AND DATA ASSIMILATION IMPROVING FORECAST ACCURACY –205A

Chairs: Robert Robinson, Catholic Univ. of America, Greenbelt, MD; Barbara J. Thompson, NASA, Greenbelt, MD

8:30 A.M.

9.1 “Ensemble Modeling” of the September 2017 CME Event Observed at Earth, STEREO-A, and Mars (Invited Presentation).

Christina O. Lee, Space Sciences Laboratory, Univ. of California, Berkeley, CA; J. G. Luhmann, M. L. Mays

8:45 A.M.

9.2 Identifying Critical Input Parameters for Accurate Drag-Based Coronal Mass Ejection Arrival Time Predictions. **Christina Kay**, Catholic Univ. of America, Greenbelt, MD; L. Mays, C. Verbeke

9:00 A.M.

9.3 Physics-Informed Machine Learning for Data Assimilation in High-Dimensional Space Weather Models. **Piyush Mukesh Mehta**, West Virginia Univ., Morgantown, WV; R. J. Licata III

9:15 A.M.

9.4 Predictability and Observability of the Upper Atmosphere (Invited Presentation). **Tomoko Matsuo**, Univ. of Colorado, Boulder, CO

9:30 A.M.

9.5 Predicting Space Weather Impacts on the North American Power Grid Using Perturbed-Input Ensemble Modeling. **Steven Morley**, LANL, Los Alamos, NM; D. Welling, M. Engel, M. Rivera, M. G. Henderson

9:45 A.M.

9.6 Bayesian Parameter Estimation in Geospace Modeling (Invited Presentation). **Enrico Camporeale**, NOAA, Boulder, CO; M. D. Cash, H. J. Singer

8:30 A.M.–10:00 A.M.

I6GOESRJPS

Session 7A: ADVANCED PLANNING AND SYSTEM ARCHITECTURES FOR NEXT-GENERATION WEATHER ENTERPRISE—SPACE ARCHITECTURE –253B

Chairs: Karen St. Germain, NOAA/NESDIS/OSAAP, Silver Spring, MD; Frank W. Gallagher, NOAA/NESDIS/OSAAP, Silver Spring, MD

8:30 A.M.

7A.1 The Future of NOAA’s Satellite Observing and Data Information Systems. **K. St. Germain**, NOAA/NESDIS/OSAAP, Silver Spring, MD; S. M. Volz, F.W. Gallagher III, P. Jasper, M. W. Maier, M. Van Woert

8:45 A.M.

7A.2 Investing in NOAA’s New Space Architecture in Low Earth Orbit. **F.W. Gallagher**, NESDIS, Silver Spring, MD; K. St. Germain, D. Spencer, G. Mandt, S. Walters, T. Walsh, M. W. Maier, P. Jasper

9:00 A.M.

7A.3 What Follows GOES-R? **P. Sullivan**, NOAA, Greenbelt, MD; F.W. Gallagher III, S.A. Boukabara, D. T. Lindsey, E. Grigsby

9:15 A.M.

7A.4 Assessing the Potential Inclusion of an Infrared Hyperspectral Radiometric Spectrometer in the Next-Generation GEO Weather Satellite Constellation. **Edward Grigsby**, NASA, Greenbelt, MD; P. Sullivan, D. T. Lindsey, J. McCorkle, A. Krimchansky

9:30 A.M.

7A.5 The Case for Improved Spatial Resolutions on the Next Geostationary Imager. **M. M. Gunshor**, CIMSS, Madison, WI; T. J. Schmit, A. Wimmers, C. Schmidt, C. S. Velden, A. K. Heidinger, A. S. Bachmeier, S. S. Lindstrom, W. P. Menzel

9:45 A.M.

7A.6 Exploring Remote Sensing Payload Hosting on Alternative Near-Space and Space-Based Platforms. **Kevin Garrett**, STAR, College Park, MD; L. Wang, L. Liu, K. Ide, F. He

8:30 A.M.–10:00 A.M.

I6GOESRJPS

Session 7B: USING AI (ARTIFICIAL INTELLIGENCE) TO EXPLOIT SATELLITE EARTH OBSERVATIONS –255

Chairs: S.A. Boukabara, NOAA/NESDIS/STAR, College Park, MD; Ron Birk, The Aerospace Corporation, Columbia, MD

8:30 A.M.

7B.1 Learning Convective Cloud Regimes over the Asian Monsoon Area. **Peng-Jen Chen**, National Taiwan Univ., Taipei, Taiwan; W. T. Chen, C. M. Wu

8:45 A.M.

7B.2 Retrieving Fraction of Clear-Sky Irradiance in Near-Real Time Using Multiple GOES-16/17 Channels for North and South America. **Daniel B. Kirk-Davidoff**, UL, Albany, MD; S. Young, J. Black

9:00 A.M.

7B.3 Addressing Cloud-Height Retrieval Improvements with Convolutional Neural Networks. **Anthony Wimmers**, CIMSS, Madison,

9:15 A.M.

7B.4 Pixel-Based Smoke Detection Using Machine Learning for Next-Generation Geostationary Satellite Imagery. **Aaron Kaulfus**, Univ. of Alabama, Huntsville, AL; M. Ramasubramanian, I. Gurung, M. Maskey, R. Ramachandran, U. Nair

9:30 A.M.

7B.5 Development of a Machine Learning-Based Radiometric Bias Correction for NOAA’s Microwave Integrated Retrieval System (MiRS). **Yan Zhou**, CISS, College Park, MD; C. Grassotti, R. Honeyager, S. Liu, Y. K. Lee, X. Liang, Q. Liu

9:45 A.M.

Discussion.

8:30 A.M.–10:00 A.M.

I5SOCIETY

Panel Discussion 6: LESSONS LEARNED FROM HEALTH COMMUNICATION: CONSIDERING THE WEATHER COMMUNICATION IMPLICATIONS OF CONFLICTING INFORMATION AND THE FUTURE OF MESSAGE CONSISTENCY IN THE WEATHER ENTERPRISE –I51B

Chairs: Castle Adam Williams, Univ. of Georgia, Athens, GA; Kimberly E. Klockow-McClain, CIMMS, Norman, OK

Panelists: Joshua D. Eachus, WBRZ, Baton Rouge, LA; Caroline MacDonald, Mississippi State Univ., Mississippi State, MS; Corey Pieper, NWS, Fort Worth, TX; Joseph Enrique Trujillo, CIMMS/ NSSL, Norman, OK; Elizabeth Petrun Sayers, RAND Corporation, Santa Monica, CA

8:30 A.M.

Introductory Remarks.

8:45 A.M.

PD6.1 *Lessons Learned from Health Communication: Considering the Weather Communication Implications of Conflicting Information and the Future of Message Consistency in the Weather Enterprise.*

Castle Adam Williams, Univ. of Georgia, Athens, GA; K. E. Klockow-McClain, R. A. Peppler, G. Eosco

9:00 A.M.

Panel Discussion.

8:30 A.M.–10:00 A.M.

I5SOCIETY

Session 7: TOWARD INFRASTRUCTURE STANDARDS FOR A CHANGING CLIMATE: NATIONAL AND GLOBAL PERSPECTIVES –I52

Chairs: Francisco Munoz-Arriola, Univ. of Nebraska, Lincoln, NE; Anna M Wilson, SIO, La Jolla, CA

8:30 A.M.

7.1 *Civil Engineering Standards and a Changing Climate.* **J. Rolf Olsen**, Institute for Water Resources, U.S. Army Corps of Engineers, Charlottesville, VA

8:45 A.M.

7.2 *Incorporating Climate Resilience into Public Infrastructure Planning Worldwide.* **Phillip A Pasteris**, Jacobs Engineering, Portland, OR; L. Van der Tak, T. Jantzen, T. Das

9:00 A.M.

7.3 *Climate Aspects in Urban Land-Use Planning.* **Martin Fabisch**, Univ. of Kaiserslautern, Kaiserslautern, Germany; M. S. Henninger

9:15 A.M.

7.4 *Extreme Precipitation Volatilities and Its Implication for Critical Infrastructures in India.* **Shahzaib Khan**, Indian Institute of Technology Gandhinagar, Gandhinagar, India; D. Upadhyay, U. Bhatia

9:30 A.M.

7.5 *Historical and Projected Future Changes in Potential Moisture Damage in Building Envelopes across Canada.* **Abhishek Gaur**, National Research Council Canada, Ottawa, Canada; H. Lu, M. Armstrong, M. Lacasse

9:45 A.M.

7.6 *Resilience of Hierarchical Network-of-Lifeline Networks under Compound Weather Extremes.* **Mary Warner**, Northeastern Univ., Boston, MA; N. Yadav, D. Skurka, U. Bhatia, V. Rao, K. Clark, S. Chatterjee, J. Gao, A. R. Ganguly

8:30 A.M.–10:00 A.M.

I5URBAN

Session 8A: MODELING, OBSERVATIONS, AND MITIGATION OF EXTREME HEAT IN CITIES. PART I –I04B

Chair: Jorge E. Gonzalez, City College of New York, New York, NY

8:30 A.M.

8A.1 *Heat and Thermal Stress Mitigation Strategies Evaluated over Montreal and Toronto, Canada.* **Sylvie Leroyer**, Environment and Climate Change Canada, Dorval, Canada; S. Bélair, N. Alavi, R. Munoz-alpizar, O. Nikiema, I. Popadic

8:45 A.M.

8A.2 *The Influence of Solar Panel Roof on Urban Thermal Environment and Cooling Energy Demand during a Heat Wave Event in 2017.* **Yongwei Wang**, Nanjing Univ. of Information Science and Technology, Nanjing, China; F. Chen, X. Hao, F. Wang

9:00 A.M.

8A.3 *Compounding Risk Factors Affecting Heat Wave Severity in Southern California Urban Regions.* **G. Hulley**, JPL, Pasadena, CA; B. Dousset, B. H. Kahn

9:15 A.M.

8A.4 *Machine Learning Downscaling of Extreme Heat Events in New York City.* **Alexis Hoffman**, Jupiter Intelligence, Boulder, CO; L. Madaus, J. Pullen, J. Hacker

9:30 A.M.

8A.5 *Mitigating the Urban Heat Island Effect with Cool and Green Roofs: A Case Study on a Heat Wave Event in the Kansas City Metropolitan Area.* **Fengpeng Sun**, Univ. of Missouri, Kansas City, MO; K. Reed

9:45 A.M.

8A.6 *Adapting to Extreme Heat: Social, Infrastructure, and Atmospheric Impacts of Air Conditioning Adoption in Megacities.* **Harold Gamarro**, City College of New York, New York, NY; L. E. Ortiz, J. E. Gonzalez

8:30 A.M.–10:00 A.M.

I 5URBAN

Session 8B: URBAN CANOPY AND BOUNDARY LAYER PROCESSES: OBSERVATION AND MODELING. PART I –104C

Chairs: Alberto Martilli, Centro de Investigaciones Energéticas, Medioambientales and Tecnológicas, Madrid, Spain; Brian Freitag, Univ. of Alabama, Huntsville, AL

8:30 A.M.

8B.1 *Evaluation of Multiple Planetary Boundary Layer Parameterizations and Urban Canopy Models for Simulation of Near-Surface Meteorological Conditions in Miami during the Landfall of Hurricane Irma (2017).* **Eric A. Hendricks**, NCAR, Boulder, CO; J. C. Knier, D. S. Nolan, Y. Wang

8B.1 WITHDRAWN

8:45 A.M.

8B.2 *Numerical Analysis of Turbulence in an Idealized Urban Environment.* **Tim Nagel**, CNRM, Toulouse, France; R. Schoetter, V. Masson, C. Lac, F. Auguste

9:00 A.M.

8B.3 *The Budget of Turbulence Kinetic Energy and Heat in the Urban Roughness Sublayer.* **Amir A. Aliabadi**, Univ. of Guelph, Guelph, Canada; M. Moradi

9:15 A.M.

8B.4 *A Multi-Layer Urban Canopy Meteorological Model with Trees (BEP-Tree): Street Tree Impacts on Pedestrian-Level Climate.* **Scott Krayenhoff**, Univ. of Guelph, Guelph, Canada; T. Jiang, A. Christen, A. Martilli, T. Oke, B. Bailey, N. Nazarian, J. A. Voogt, M. Giometto, A. Stastny, B. Crawford

9:30 A.M.

8B.5 *Assessing Wintertime Energy Consumption for Urban Heating in an Alpine City.* **Lorenzo Giovannini**, Univ. of Trento, Trento, Italy; G. Pappacogli, D. Zardi, A. Martilli

8:30 A.M.–10:00 A.M.

I 2AEROSOL

Session 6: ADVANCES IN OBSERVATIONAL AND MODELING STUDIES OF THE ROLE OF MINERAL DUST IN THE EARTH SYSTEM. PART I –208

Chairs: Bing Pu, Univ. of Kansas, Lawrence, KS; Hongbin Yu, NASA Goddard Space Flight Center, Greenbelt, MD; Xiaohong Liu, Univ. of Wyoming, Laramie, WY; Zhibo Zhang, Univ. of Maryland, Baltimore, MD

8:30 A.M.

6.1 *Large Variability of Springtime African Dust in Recent Decades: A Consistent Characterization from Multiple Remote Sensing Observations.* **Hongbin Yu**, NASA GSFC, Greenbelt, MD; T. Yuan, H. Bian, M. Chin, Q. Tan, Z. Zhang, P. Ginoux

8:45 A.M.

6.2 *Predictability of Extreme Dust Events in South Florida.* **Samantha Kramer**, RSMAS, Miami, FL; B. Kirtman, P. Zuidema, F. Ngan

9:00 A.M.

6.3 *A New Retrieval Algorithm of the Thermal Infrared Optical Depth of Dust Based on the Combined CALIOP and IIR Observations.* **Zhibo Zhang**, Univ. of Maryland, Baltimore, MD; J. Zheng, A. Garnier, H. Yu, P. Dubuisson, J. Pelon

9:15 A.M.

6.4 *Advances and Limitations of Nighttime Dust Aerosol Optical Depth Retrieval Using VIIRS Day–Night Band.* **Jared W. Marquis**, Univ. of North Dakota, Grand Forks, ND; J. Zhang, S. D. Miller, S. Jaker, J. S. Reid, A. Barreto

9:30 A.M.

6.5 *Does Mineral Dust Fertilize the Amazon Basin and the Atlantic Ocean? (Invited Presentation).* **Cassandra J. Gaston**, RSMAS, MIAMI, FL; A. E. Barkley, J. M. Prospero, N. Mahowald, D. S. Hamilton, K. J. Poppendorf, A. M. Oehlert, A. Pourmand, A. Gatineau, K. Panichou, P. Blackwelder

8:30 A.M.–10:00 A.M.

I 1 ENERGY

Session 9: SOLAR FORECAST IMPROVEMENT PROJECTS. PART I –256

Chair: Eric E. Wertz, Maxar Technologies, Gaithersburg, MD

8:30 A.M.

9.1 *The Solar Forecast Arbiter: An Open Source Evaluation Framework for Solar Forecasting.* **William F. Holmgren**, The Univ. of Arizona, Tucson, AZ; C. W. Hansen, A. Tuohy, J. Sharp, A. T. Lorenzo, L. J. Boeman, A. Wigington, D. Larson, Q. Wang, A. Golnas

8:45 A.M.

9.2 *Enhancing WRF-Solar to Provide Solar Irradiance Probabilistic Forecasts under All-Sky Conditions.* **Ju-Hye Kim**, NCAR, Boulder, CO; P. A. Jimenez, M. Sengupta, J. Yang, J. Dudhia, Y. Xie

9:00 A.M.

9.3 *Sensitivity Study for Forecasting Variables of WRF-Solar Using a Tangent Linear Approach.* **Jaemo Yang**, National Renewable Energy Laboratory, Golden, CO; M. Sengupta, Y. Xie, P. A. Jimenez, J. H. Kim

9:15 A.M.

9.4 *Solar Forecasts during Broken Cloud Conditions: Improvements in WRF-Solar v2.* **Larry K. Berg**, PNNL, Richland, WA; Y. Liu, B. Kosovic, P. Jimenez, V. Martin, J. McCaa, L. Riihimaki

9:30 A.M.

9.5 *Solar Irradiance in the WRF-Solar Simulations Using a New Microphysics Parameterization.* **Xin Zhou**, Brookhaven National Laboratory, Upton, NY; Y. Liu, W. Lin, S. Endo, S. Yoo

9:45 A.M.

9.6 *Finite-Surface Integration Algorithm for the Forecasting of Cloudy-Sky Direct Normal Irradiance in the Circumsolar Region.* **Yu Xie**, National Renewable Energy Laboratory, Golden, CO; M. Sengupta, Y. Liu, H. Long, Q. Min, W. Liu

8:30 A.M.–10:00 A.M.

I | HEALTH / I5SOCIETY / DEISYMP

Joint Session 40: LIVING IN A WORLD OF RAPID GLOBAL ENVIRONMENTAL CHANGES: THE INTERSECTION OF ENVIRONMENTAL DISASTERS, HUMAN HEALTH, AND VULNERABLE POPULATIONS (COSPONSORED BY THE BOARD ON WOMEN AND MINORITIES) –153B

Chair: Aaron J. Piña, Aeris LLC, Louisville, CO

8:30 A.M.

J40.1 *Rainfall Variability and Incidence of Malaria in Infants in Rural Areas of the Abia North Senatorial District, Southeastern Nigeria.* **Felix Ike**, Abia State Univ., Uturu, Nigeria; A. A. Abah, C. R. Ottah, A. Eludoyin, V. O. Nwaugo

8:45 A.M.

J40.2 *Ensuring Future Mental Balance in the Meteorological Community: Per Climate Change on Extreme Weather and Climate-Related Events.* **Jason B. Wright**, DOC/NOAA/NWS Nashville, TN, Old Hickory, TN; R. Garcia-Hiraldo, A. D. Hoon

9:00 A.M.

J40.3 *Heat Adaptation among India's Vulnerable Populations.* **Gulrez Shah Azhar**, RAND Corporation, Santa Monica, CA; G. Ryan

9:15 A.M.

J40.4 *Climate Resilience in a Coastal City in Ecuador: Linking Disaster Risk Reduction and Urban Health in Duran.* **Mercy J. Borbor-Cordova**, Escuela Superior Politecnica del Litoral, Guayaquil, Ecuador; M. D. P. Cornejo-Rodriguez, A. Valdiviezo, G. Menoscal, D. Ochoa, M. Arias-Hidalgo, D. Matamoros, G. Ger, I. Nolivos, G. Rincon

9:30 A.M.

J40.5 *Convergence Science in an Age of Environmental Extremes.* **Lori Peek**, University of Colorado Natural Hazards Center, Boulder, CO

9:45 A.M.

J40.6 *Social Vulnerability and Perceived Risk of Floods.* **Sharon Harlan**, Northeastern Univ., Boston, MA; E. Mack, M. Sarango, T. Stephens

8:30 A.M.–10:00 A.M.

I | LIDAR

Session 3: ADVANCES IN DATA ASSIMILATION AND FORECAST MODELING USING LIDAR –209

Chair: Tammy M. Weckwerth, NCAR, Boulder, CO

8:30 A.M.

3.1 *A 1D-Var Reanalysis of ERA5 Assimilating Raman Lidar Measurements of Temperature and Relative Humidity.* **R. J. Sica**, Univ. of Western Ontario, London, Canada; S. Mahagammulla Gamage, A. Haeefe, G. Martucci

8:45 A.M.

3.2 *Impact of Lidar Data Assimilation on Planetary Boundary Layer Wind and PM_{2.5} Prediction over Taiwan.* **Shu-Chih Yang**, National Central Univ., Jhongli City, Taiwan; L. C. Wang, C. H. Hsu, F.Y. Cheng, S. H. Wang

9:00 A.M.

3.3 *Sea-Breeze Front Observations with Water Vapor Lidar and Doppler Lidar at Tokyo Bay—Case Study of Local Heavy Rainfall on 19 August 2017.* **Tetsu Sakai**, MRI, Tsukuba, Japan; S. Yoshida, T. Nagai, T. Kawabata, K. Shiraishi, Y. Shoji

9:15 A.M.

3.4 *Differences in the Evolution of Volcanic and Pyrocumulonimbus Stratospheric Aerosol Plumes as Observed by CALIOP and CATS Satellite Lidar.* **Kenneth Christian**, GSFC, Greenbelt, MD; J. E. Yorks, V. Aquila

9:30 A.M.

3.5 *Quantifying the Impact of Intense Pyroconvection on Stratospheric Aerosol Loading.* **D.A. Peterson**, NRL, Monterey, CA; J. R. Campbell, E. J. Hyer, M. D. Fromm, T. Van, C. Bennese, M. Berman

9:45 A.M.

3.6 *A New Method to Retrieve PBLH from Lidar under Different Thermodynamic Conditions: Algorithm Development and Application.* **Tianning Su**, Univ. of Maryland, College Park, MD; Z. Li

8:30 A.M.–10:00 A.M.

I | R2O

Session 8A: IMPROVING R2O AND O2R IN THE 0–18-H FORECAST RANGE LINKING RESEARCH AND OPERATIONS TO FORECASTERS' NEEDS—PART I –252A

Chairs: Young-Joon Kim, NWS, Silver Spring, MD; Tara Jensen, NCAR, Boulder, CO

8:30 A.M.

8A.1 *Linking Weather Research and Operations to Field Forecasting Needs through Operational Requirements: An Example with Mesoscale Analysis.* **Young-Joon Kim**, NWS, Silver Spring, MD; M. A. Tew

9:00 A.M.

8A.2 *Implications for Operational Nowcasting and Short-Range Forecasting from NOAA Moving to a Unified Forecast System.* **Hendrik L. Tolman**, NOAA, Silver Spring, MD

9:15 A.M.

8A.3 *A Description of the v2.8 RTMA/URMA Upgrade and Progress toward 3D RTMA.* **J. R. Carley**, NOAA, College Park, MD; M. Pondeca, S. Levine, X. Zhang, M. T. Morris, S. Flampouris, A. M. Gibbs, Y. Lin, Y. Luo, G. Zhao, R. J. Purser, M. Rancic, E. Colón, C. R. Alexander, S. S. Weygandt, M. Hu, G. Ge

9:30 A.M.

8A.4 *The Final Rapid Refresh and High-Resolution Rapid Refresh Operational Implementation.* **C. Alexander**, NOAA, Boulder, CO; D. C. Dowell, M. Hu, J. Olson, T. Smirnova, T.T. Ladwig, S. Weygandt, J. S. Kenyon, E. P. James, H. Lin, G. A. Grell, G. Ge, T. Alcott, S. Benjamin, J. M. Brown, M. D. Toy, R. Ahmadov, A. Back, J. D. Duda, M. B. Smith, J. A. Hamilton, B. D. Jamison, I. Jankov, D. D. Turner

9:45 A.M.

8A.5 *Verification of Wind Forecasts from the High-Resolution Rapid Refresh.* **Ethan M. Collins**, Univ. of Wyoming, Laramie, WY; Z. J. Lebo, B. Geerts, R. Capella, R. Cox

8:30 A.M.–10:00 A.M.**10R20**

Session 8B: SPECIAL SESSION: COLLABORATIONS BETWEEN NATIONAL WEATHER SERVICE SCIENCE AND OPERATIONS OFFICERS (SOOS)/DEVELOPMENT AND OPERATIONS HYDROLOGISTS (DOHS) TO ENHANCE THE TRANSITION OF RESEARCH INTO FORECAST OPERATIONS [INVITED SPEAKERS] –251

Chairs: Tim McClung, NOAA, Silver Spring, MD; David Myrick, NOAA/NWS/STI/Meteorological Development Laboratory, Silver Spring, MD

8:30 A.M.

8B.1 *Improving Field-Driven R20 in the NWS through SOO–DOH collaboration.* **Louis W. Uccellini**, NOAA/National Weather Service, Silver Spring, MD; D. T. Myrick

8:45 A.M.

8B.2 *The Near Storm Environment Awareness (NSEA) Project.* **David Hotz**, Morristown, TN; A. Anderson, J. W. Dellicarpini, C. Entremont, S. J. Keighton, P. T. Marsh, J. S. Schaumann, M. Sutton, T. J. Turnage, J. R. Wiedenfeld

9:00 A.M.

8B.3 *Field Assessment and Integration of National Water Model Output into National Weather Service River Forecast Center Operations.* **Scott D. Lindsey**, NWS/Alaska-Pacific River Forecast Center, Anchorage, AK; A. MacNeil, T. Dixon, E. T. Jones, J. Lhotak, B. Cosgrove

9:15 A.M.

8B.4 *SOO Satellite Training Advisory Teams (STATs).* **B. Ward**, NWS, Honolulu, HI; F. Alsheimer, N. Eckstein

9:30 A.M.

8B.5 *Extreme Precipitation Forecasting: Enhancing Situational Awareness to Potential High-Impact Events.* **James Alan Nelson**, Weather Prediction Center, College Park, MD; D. R. Stovern, M. Klein, S. Czyzyk, E. Nipper, J. W. Zeitler, K. Landry

9:45 A.M.

8B.6 *SOO Contributions to EMC's Model Evaluation Group.* **Geoffrey S. Manikin**, NOAA/NWS/NCEP/EMC, College Park, MD; I. L. Jirak, M. Klein

8:30 A.M.–10:00 A.M.**8WXCLIMATE****Panel Discussion 4: A METEOROLOGIST'S ROLE IN HAZARDOUS MATERIALS RESPONSE –252B**

Moderators: Thomas Bedard, AccuWeather Enterprise Solutions, Wichita, KS; Melissa Huffman, National Weather Service, Dickinson, TX

Panelists: Lance Wood, NOAA, Dickinson, TX; Paige Doelling, NOAA Office of Restoration and Recovery, DC; Jarod Toczko, U.S. Coast Guard, Galveston, TX; Jeffery Evans, NOAA, Dickinson, TX; Jeff Lindner, Harris County Flood Control District, Houston, TX; Scott Runyon, DTRA Reachback, Ft. Belvoir, VA; Matt Lanza, Cheniere Energy, Houston

8:30 A.M.

Panel Discussion.

8:30 A.M.–10:00 A.M.**8WXCLIMATE****Session 5: QUANTIFYING THE VALUE OF COMMERCIAL DATA SOURCES FOR PUBLIC SERVICE –254A**

Chair: Jerald A. Brotzge, Univ. at Albany, SUNY, Albany, NY

8:30 A.M.

5.1 *Integration of NYS Mesonet Data Into New York Daily Operations.* **Nick P. Bassill**, Univ. at Albany, Albany, NY; C. Thorncroft, J. A. Brotzge

8:45 A.M.

5.2 *Extracting Value from Large Meteorological Datasets in a Cloud Delivery Environment where Data Volume Is Measured in Dollars.* **Christopher Beighton**, Met Office, Exeter, UK

9:00 A.M.

5.3 *Real-Time Forecasts and Observing System Experiments in the CASA Dallas–Fort Worth Testbed.* **Keith A. Brewster**, Univ. of Oklahoma, Norman, OK; M. T. Morris, F. H. Carr, K. W. Thomas, A. Bajaj, E. J. Lyons, B. J. Philips

9:15 A.M.

5.4 *From Investment to Operation: A Comparison of Public and Private Business Models.* **Buck Lyons**, WeatherFlow Inc., Scotts Valley, CA; W. Callahan, C. Fiebrich, S. Woll

9:30 A.M.

5.5 *"It Depends"—Optimizing the Mix of Public and Private Data.* **Steve Woll**, Synoptic Data Public Benefit Corporation, Scotts Valley, CA

8:30 A.M.–10:00 A.M.

8WRN

Session 5: HURRICANE STUDIES AND OTHER TROPICAL PROGRAMMATIC ACHIEVEMENTS –153C

8:30 A.M.

5.1 *Identifying Common Themes and Gaps in the National Weather Service Tropical Product Suite.* **Jessica Fieux**, NWS, Tallahassee, FL; J. L. Schauer, D. Manning

8:45 A.M.

5.6 *The National Hurricane Center's Outreach and Education Season.* **John Cangialosi**, NOAA/NWS/NCEP/National Hurricane Center, Miami, FL

9:00 A.M.

5.3 *Using Direct and Indirect Fatalities Associated with Hurricane Michael to Change Future Messaging.* **Jessica Fieux**, NWSFO, Tallahassee, FL; J. P. Camp, L. Myers

9:15 A.M.

5.4 *Sustained Ocean Observations with Underwater Gliders in Support of Hurricane Intensity Forecasts.* **Gustavo Goni**, Miami, FL; T. Miles, J. Morell, D. Hernandez, S. Glenn, B. LaCour, G. Kuska, C. Edwards, R. Domingues, F. Bringas, P. Chardon, G. R. Halliwell Jr., H. S. Kim, M. LeHenaff

9:30 A.M.

5.5 *The Hurricane Risk Calculator: Working toward Enhancing Our Nation's Readiness, Responsiveness, and Resilience to Hurricanes through Probabilistic Risk Frameworks for Evacuation Decision Support.* **Jonathan L. Vigh**, NCAR, Boulder, CO; D. J. Smith, B. R. Ellingwood, J. Lin, D. O. Prevatt, D. Roueche, B. Brown, D. T. Hahn, J. M. Collins, J. M. Done, G. Wong-Parodi, P. A. Kucera, C. Wang, J. J. Alland, T. Kloetzke, C. M. Rozoff, E. A. Hendricks, A. A. Merdjanoff, C. Arthur, M. Ge, Y. P. Sheng, K. Emanuel, S. J. Weaver

9:45 A.M.

5.2 *What If Hurricane Michael Struck Houston? An Examination of Inland Wind Damage.* **Jeff Evans**, National Weather Service Houston/Galveston, Dickinson, TX

8:30 A.M.–10:00 A.M.

TROPSYMP I

Session 3: TROPICAL CYCLONE RESEARCH AND FORECASTING. PART III: CLIMATE AND THEORY –205B

Chairs: Robert G. Nystrom, IMSG Inc., Fairfax, VA; Xiaodong Tang, Nanjing Univ., Nanjing, China

8:30 A.M.

3.1 *Statistical–Dynamical Downscaling Projections of Tropical Cyclone Activity in a Warming Climate: Two Diverging Genesis Scenarios.* **Adam H. Sobel**, Columbia Univ., New York, NY; C. Y. Lee, S. J. Camargo, M. K. Tippett

8:45 A.M.

3.2 *Past and Future Hurricane Intensity Change along the U.S. East Coast: Anthropogenic Forcing versus Internal Variability.* **Mingfang Ting**, Lamont-Doherty Earth Observatory, Columbia Univ., Palisades, NY; J. P. Kossin, S. Camargo, C. Li

9:00 A.M.

3.3 *The Role of WISHE in the Rapid Intensification of Tropical Cyclones.* **Chun-Chieh Wu**, National Taiwan Univ., Taipei, Taiwan; C. J. Cheng

9:15 A.M.

3.4 *The Importance of Radiative Feedbacks in Tropical Cyclogenesis.* **Allison A. Wing**, Florida State Univ., Tallahassee, FL; J. Ruppert Jr., X. Tang, E. L. Duran

9:30 A.M.

3.5 *Formation and Maintenance of Tropical Cyclone Spiral Bands in Idealized Numerical Simulations.* **Diamilet Perez-Betancourt**, MIT, Cambridge, MA; K. A. Emanuel

9:45 A.M.

3.6 *Investigating Tropical Cyclone Rapid Intensification Using Idealized Simulations with Realistic Initial Vortices.* **Daniel P. Stern**, UCAR/NRL, Monterey, CA; J. D. Doyle, J. L. Vigh

8:30 A.M.–10:00 A.M.

FUTURESYP

Panel Discussion 3: DEVELOPMENT OF AUTOMATED FORECASTING TOOLS: TYPES AND THE HUMAN ROLE IN THEIR DESIGN –258B

Moderators: Neil A. Stuart, NOAA/NWS, Albany, NY; Robert Hoffman, Florida Institute of Human and Machine Cognition, Pensacola, FL

Panelists: Gregory West, Univ. of British Columbia, Vancouver, Canada; Daniel Nietfeld, NOAA/OAR/ESRL/GSD, Boulder, CO; Patrick Market, Univ. of Missouri, Columbia, MO; Falko Judt, NCAR, Boulder, CO

8:30 A.M.–10:00 A.M.

CLIMATEPOLICY

Panel Discussion 1: CLIMATE CHANGE IMPACTS, TIPPING POINTS, AND THE EVIDENCE FOR URGENCY –254B

Moderator: John Keller, Weather Analytics, Inc., Winchester, MA

Panelists: Jonathan G. Fairman, Athenium Analytics, Dover, MA; Susan Solomon, MIT, Cambridge, MA; Gavin Schmidt, NASA GISS, New York City, MA; Dan Rothman, MIT, Cambridge, MA; Jerry Mitrovica, Harvard Univ., Cambridge, MA

8:45 A.M.–10:00 A.M.

48BROADCAST

Session 6: WEATHER AND CLIMATE, OBSERVING, FORECASTING, COMMUNICATIONS, AND DECISIONS: WHAT WE HAVE LEARNED AND WHERE WE ARE HEADING –204AB

Chairs: Robert Ryan, McLean, VA; Tim Heller, HellerWeather, Houston, TX

8:45 A.M.

6.1 *CG and Me: Using Lightning Data to Enhance Weather Coverage.* **Chris Vagasky**, Vaisala, Inc., Louisville, CO

9:00 A.M.

6.2 *The Meteorological Merger of Science and Communications at Penn State.* **Jon M. Nese**, The Pennsylvania State Univ., University Park, PA; R. M. Lydick

9:15 A.M.

6.3 *The History of Commercial Weather Sector Innovation and Challenges of the Future.* **Joel N. Myers**, AccuWeather Inc., State College, PA

9:30 A.M.

6.4 *Weather Forecasting - What Have We Learned and Where We Are Headed.* **Pat Feldhausen**, The Weather Company, Andover, MA

9:45 A.M.

6.5 *Broadcast Meteorologists' Role in Launching the New Certified AMS Teacher (CAT) Program.* **Wendy Abshire**, American Meteorological Society, Washington, DC; M. McCann, D. Charlevoix, J. S. Malmberg, K. Savoie

8:45 A.M.–10:00 A.M.**18HISTORY****Session 8: REMARKABLE METEOROLOGISTS AND THEIR CONTRIBUTIONS. PART I –104A**

Chairs: William Henneberg, Commodity Weather Group, LLC, Bethesda, MD; Lourdes Avilés, Plymouth State Univ., Plymouth, NH

8:45 A.M.

8.1 *Dr. Tetsuya Fujita: Perspectives from Japan.* **Jennifer Henderson**, CIRES, Boulder, CO

9:00 A.M.

8.2 *"The Educated Woman Can Successfully Lead a Double Life": Pauline Morrow Austin's Life in Science at the Dawn of Radar Meteorology.* **Roger D. Turner**, Science History Institute, Carlisle, PA

9:15 A.M.

8.3 *Anne Louise Beck and the "Cutting Edge of Forecasting" in 1921.* **Jamison Hawkins**, Lockheed Martin, Arlington, VA

9:30 A.M.

8.4 *Too Near for Dreams: Exploring the Life of Cleveland Abbe.* **Sean Potter**, Washington, DC

9:45 A.M.

8.5 *Albert Defant (Trento 1884–Innsbruck 1974)—An Eclectic and Borderless Figure of Meteorologist, Oceanographer, and Climatologist.* **Dino Zardi**, Univ. of Trento, Trento, Italy

9:00 A.M.–10:00 A.M.**23ASLI****Session 2: THE SCHOLARLY COMMUNICATION LANDSCAPE AND THE ATMOSPHERIC SCIENCES –259B**

Chair: Joyce Shaw, Univ. of Southern Mississippi, Ocean Springs, MS

9:00 A.M.

2.1 *Bibliometric Analysis of Data from a Statewide Meteorological Observation Network.* **Bradley G. Illston**, Oklahoma Mesonet/Oklahoma Climatological Survey/Univ. of Oklahoma, Norman, OK

9:15 A.M.

2.2 *A Study of Monographs with Lapsed Copyright in the Atmospheric Sciences.* **Linda Musser**, The Pennsylvania State Univ., University Park, PA

9:30 A.M.

2.3 *Citation Analysis of AMS Journals for Collection Development and Publishing Decisions.* **Stacy Bruss**, NOAA, Boulder, CO

9:45 A.M.

2.4 *Opening Doors: An Exploration of Open Access Policies in Atmospheric Science Journal Publishing.* **Elise Gowen**, The Pennsylvania State Univ., University Park, PA

10:30 A.M.–12:00 P.M.**PRESESSIONS / 33CVC / 15SOCIETY****Session 7: AN ENGINEER, A CLIMATOLOGIST, AND A SOCIAL SCIENTIST WALK INTO A BAR: TOUGH CHOICES ON A WARMING PLANET –210AB**

Panelists: Jill Engel-Cox, Joint Institute for Strategic Energy Analysis, NREL, Boulder, CO; Lori Peek, Univ. of Colorado, Boulder, CO; Brenda Ekwurzel, Union of Concerned Scientists, Washington

10:30 A.M.–12:00 P.M.**SCHUBERTSYMP****Session 2: TROPICAL CYCLONES. PART I –210C**

Chairs: Chungu Lu, NSF, Alexandria, VA; Tom Guinn, Daytona Beach, FL

10:30 A.M.

2.1 *The Polygonal Eyes of Wayne Schubert.* **Richard Rotunno**, NCAR, Boulder, CO

2.2 *WITHDRAWN*

10:45 A.M.

2.2A *What Is Cooling the Tropopause above Tropical Cyclones?* **Thomas Birner**, Ludwig-Maximilians-Univ. of Munich, Munich, Germany; L. Rivoire, J.A. Knaff

11:00 A.M.

2.3 *The Inner-Core Thermodynamics of the Tropical Cyclone Boundary Layer.* **Gabriel Williams**, College of Charleston, Charleston, SC

11:15 A.M.

2.4 *Potential Vorticity Mixing, Dynamic Efficiency of Latent Heat Release, and the Rapid Intensification of Super typhoon Haiyan (2013).* **H.-C. Kuo**, National Taiwan Univ., Taipei, Taiwan; S. Tsujino

11:30 A.M.

2.5 *Recent Observational Support for Schubert's Tropical Cyclone Conceptual Frameworks.* **Michael M. Bell**, Colorado State Univ., Fort Collins, CO

11:45 A.M.

2.6 *Eyewalls, Rainbands, and Clouds in Tropical Cyclones.* **Robert A. Houze**, Univ. of Washington, Seattle, WA

10:30 A.M.–12:00 P.M.

48BROADCAST Session 7: CHALLENGES IN THE CHANGING MEDIA WORLD –204AB

Chair: Mike Nelson, KMGH-TV, Denver, CO

10:30 A.M.

7.1 *Marrying a Meteorologist—Work–Life Balance in a 24/7 Weather Industry.* **Kerrin A Jeromin**, WeatherNation, Centennial, CO; S. E. Glazier

10:45 A.M.

7.2 *When the Local TV Station Shuts down, the Newspaper Fills the Broadcast Meteorology Gap.* **Joseph A. Martucci**, The Press of Atlantic City, Pleasantville, NJ

11:00 A.M.

7.3 *Social Media: Science, Art, and Ethics for the Broadcast Meteorologist Linking Information to Society.* **Gerald J. Mulvey**, Univ. of the Incarnate Word, San Antonio, TX; K. Deleon

11:15 A.M.

7.4 *When Climate Communication Requires a Security Guard.* **Kait Parker**, The Weather Company, Brookhaven, GA

11:30 A.M.

7.5 *Negativity in the Newsroom.* **Cheryl Nelson**, WTKR-TV and Prepare with Cher, LLC, Norfolk, VA

11:45 A.M.

7.6 *Do (Weather) Girls Just “Wanna Have Fun?”: A Survey of Broadcast Meteorologist Stereotypes and Experiences.* **Nyssa Perryman Rayne**, Univ. of Nevada, Reno, NV; P. F. Starrs, M. Swindle, S. Rayne

10:30 A.M.–12:00 P.M.

36EIP Session 9A: APPLICATION OF AUTONOMOUS OBSERVING PLATFORMS TO ENHANCE OUR UNDERSTANDING OF THE ATMOSPHERE AND OCEAN: OBSERVATIONS, IMPACTS, INDICATORS, AND UNDERSTANDING CHANGE –157C

Chairs: Randall Bass, FAA, Washington, DC; Michael Grogan, The Weather Company/IBM, Brookhaven, GA; Melissa A. Wagner, Arizona State Univ., Tempe, AZ

10:30 A.M.

9A.1 *Using Airborne Lidar Data to Characterize Local Surface Features and Their Influence on Wind Observations.* **Alex Gallagher**, Univ. at Albany, SUNY, Albany, NY; R. G. Fovell

10:45 A.M.

9A.2 *The Role of sUAS for Poststorm Damage Assessment in the National Weather Service: Past Successes, Current Initiatives, and Future Plans of the Eastern Region Drone Team.* **Michael B. Sporer**, NOAA/NWS, Blacksburg, VA; R. F. Morales Jr.

11:00 A.M.

9A.3 *Hyperspatial Multispectral Analysis of Tornado Damage in the High Plains.* **Melissa A. Wagner**, Arizona State Univ., Tempe, AZ; R. K. Doe

11:15 A.M.

9A.4 *Identification and Analysis of Microscale Hydrologic Impacts and Hazards Using Unmanned Aerial Systems.* **Jamie L. Dyer**, Mississippi State Univ., Mississippi State, MS; R. J. Moorhead II

11:30 A.M.

9A.5 *Saildrone Data Handling: Workflow from Drone to Desktop.* **Eugene F. Burger**, PMEL, Seattle, CA; C. Meinig, C. W. Mordy, J. N. Cross, E. D. Cokelet, M. Cronin, D. Peacock, K. M. O'Brien, A. Manke, N. Lawrence-Slavas

11:45 A.M.

9A.6 *The DESIS Hyperspectral Sensor on the International Space Station: A Novel, Automatically Taskable Platform for Monitoring Ocean Plastics and Understanding Ocean Currents.* **Amanda O'Connor**, Teledyne Brown Engineering, Huntsville, AL; E. Esen

10:30 A.M.–12:00 P.M.

36EIP Session 9B: RADAR TECHNOLOGIES AND APPLICATIONS. PART II –155

Chairs: Kurt D. Hondl, NOAA/NSSL, Norman, OK; Michael J. Istok, NOAA/NWS, Silver Spring, MD; Mark B. Yeary, Univ. of Oklahoma, Norman, OK

10:30 A.M.

9B.1 *A Comparison of Scan Speedup Strategies and Their Effect on Rapid-Scan Weather Radar Data Quality.* **Andrew Mahre**, Univ. of Oklahoma, Norman, OK; T. Y. Yu, D. J. Bodine

10:45 A.M.

9B.2 *X-Band Phased-Array Weather-Radar Polarimetry Testbed: Tilted Aperture Bias Correction Results.* **William Heberling**, Univ. of Massachusetts, Amherst, MA; S. J. Frasier, C. Wolsieffer, J. Adam

11:00 A.M.

9B.3 *X-Band Radar Observations of the Angular Dependence of Specific Differential Phase above the Brightband.* **Joshua M. Hampton**, Univ. of Leeds, Leeds, UK; D. Dufton, L. Bennett, R. R. Neely III

11:15 A.M.

9B.4 *Using a Regression Filter to Mitigate Ground Clutter Echoes and Improve Signal Statistics.* **J. C. Hubbert**, NCAR, Boulder, CO; G. Meymaris, M. J. Dixon, U. Romatschke

11:30 A.M.

9B.5 *A Man-Portable Doppler Radar System for Short-Range Military Weather Detection.* **Timothy Maese**, Basic Commerce and Industries, Inc., Moorestown, NJ

11:45 A.M.

9B.6 *Portable Bistatic Weather Radar.* **Timothy Maese**, Basic Commerce and Industries, Inc., Moorestown, NJ

10:30 A.M.–12:00 P.M.

34HYDRO**Session 10A: ADVANCES IN EVAPORATION AND EVAPORATIVE DEMAND. PART II –253C**

Chairs: Daniel McEvoy, DRI, Reno, NV; Christopher Hain, NASA MSFC, Huntsville, AL; Gabriel Senay, USGS, Sioux Falls, SD; M. C. Anderson, USDA-ARS, Beltsville, MD

10:30 A.M.

10A.1 *Advances in Modeling Evapotranspiration: An Overview of Theoretical and Experimental Contributions (Centennial).* **William P. Kustas**, USDA-ARS, Beltsville, MD

10:45 A.M.

10A.2 *A Retrospective View of the Application of Global Gridded Reference Evapotranspiration (Invited Presentation).* **J. P. Verdin**, U.S. Agency for International Development, Washington, DC; G. Senay, M. Hobbins, D. McEvoy, A. McNally, T. Magadzire

11:00 A.M.

10A.3 *Using High-Spatiotemporal Thermal Satellite ET Retrievals to Monitor Vineyard Water Use and Water Stress across Multiple California Vineyards.* **Kyle Knipper**, USDA-ARS, Beltsville, MD; W. P. Kustas, M. C. Anderson, M. M. Alsina, C. R. Hain, J. G. Alfieri, J. H. Prueger, F. Gao, A. McElrone, N. Bambach-Ortiz, L. G. McKee, L. Sanchez

11:15 A.M.

10A.4 *The Vertical Structure of Turbulent Eddies over Vineyards.* **Joseph G. Alfieri**, USDA-ARS, Beltsville, CA; W. P. Kustas, J. Prueger, L. E. Hipps

11:30 A.M.

10A.5 *The Importance of Scale-Dependent Groundwater Processes in Land–Atmosphere Interactions over the Central United States.* **Michael Barlage**, NCAR, Boulder, CO; F. Chen, G. Miguez-Macho, Z. Zhang

11:45 A.M.

10A.6 *A Growing Role for Microwave Observations in Estimating Evaporation from Space.* **Thomas R. H. Holmes**, NASA GSFC, Greenbelt, MD; C. R. Hain, M. C. Anderson

10:30 A.M.–12:00 P.M.

34HYDRO**Session 10B: SNOW PROCESSES AND MELT DETECTION THROUGH REMOTE SENSING, MODELING, AND DATA ASSIMILATION –253A**

Chairs: Elias Deeb, Army Engineer Research and Engineering Center, Hanover, NH; Melissa L. Wrzesien, Univ. of North Carolina, Chapel Hill, NC; Carrie Vuyovich, NASA Goddard Space Flight Center, Greenbelt, MD

10:30 A.M.

10B.1 *A Review of Snow Cover Analysis: Potential Technologies for Planning and Risk-Based Assessment (Invited Presentation) (Centennial).* **Robert E. Davis**, U.S. Army Cold Regions Research and Engineering Laboratory, Hanover, NH

10:45 A.M.

10B.2 *Airborne Snow Depth Retrieval for Improved Hydrological Modeling in the Black Hills of South Dakota.* **Joshua K. Roundy**, Univ. of Kansas, Lawrence, KS; Y. Zhang, E. Arnold

11:00 A.M.

10B.3 *Toward the Development of a Diagnostic Blowing Snow Visibility Model Based on Snow Surface Characteristics and History.* **Theodore Letcher**, ERDC-CRREL, U.S. Army Corps of Engineers, Hanover, NH; C. P. Polashenski, S. LeGrande

11:15 A.M.

10B.4 *Effect of Snow Water Equivalent (SWE) from the Different Land Surface and Hydrologic Models in a Streamflow Hydrograph.* **Chandana Gangodagamage**, Univ. of Maryland, College Park, MD

11:30 A.M.

10B.5 *Timing of Snow Melt and Refreeze Events in the Northern United States (2003—Present) from Passive Microwave Satellite Observations.* **Samuel Tuttle**, Mount Holyoke College, South Hadley, MA

11:45 A.M.

10B.6 *How are Snow Droughts and Their Impacts Changing across the World? (Invited Presentation).* **Laurie S. Huning**, Univ. of California, Irvine, CA; A. AghaKouchak

10:30 A.M.–12:00 P.M.

3CVC / DICKINSONSYMP**Joint Session 41: EARTH SYSTEM MODELING AND CLIMATE CHANGE (E.G., EARTH SYSTEM MODELING, REGIONAL CLIMATE MODELING, CLIMATE CHANGE, CARBON CYCLE). PART III –154**

Chair: Richard Rood, Univ. of Michigan, Ann Arbor, MI

10:30 A.M.

J41.1 *Future Climate Projections in the French West Indies: Regional Climate, Tropical Cyclones, and Storm Waves.* **Ali Belmadani**, Météo-France, Fort-de-France, France; F. Chauvin, P. Cantet, P. C. Dutrieux, C. Decourcelle, A. Dalphinnet, P. Palany

10:45 A.M.

J41.2 *Extreme Precipitation in the Present and Future Climate over a Topographically Complex Region in a Tropical Environment.* **Diana Carolina Cruz**, Universidad Nacional de Colombia, Medellín, Colombia; L. A. Gómez, C. D. Hoyos, D. A. Suarez, D. A. Hernandez, L. A. Sanchez, J. A. Ospina

11:00 A.M.

J41.3 *How Well Do CMIP5/CMIP6 Models Simulate Northeast U.S. Extreme Precipitation and Its Associated Circulation?* **Laurie Agel**, Univ. of Massachusetts, Lowell, MA; M. Barlow, D. W. Coe, J. Polonia

11:15 A.M.

J41.4 *Attributing Snowpack Biases over the Contiguous U.S. in Four United States CMIP6 Models to Temperature and Precipitation Biases.* **Michael Brunke**, The Univ. of Arizona, Tucson, AZ; J. S. Welty, X. Zeng

10:30 A.M.–12:00 P.M.

11:30 A.M.

J41.5 *Dynamical Forecasts of Tropical Terrestrial Carbon Fluxes with the NASA S2S Retrospective Forecast System.* **Eunjee Lee**, USRA/NASA Goddard, Greenbelt, MD; F.W. Zeng, L. Ott, R. Koster, S. Shukla, A. Hazra, K. R. Arsenault, J. Joiner

11:45 A.M.

J41.6 *Comparison of CMIP6 Historical Simulations and Future Projected Warming to an Empirical Model of Global Climate.* **Laura McBride**, Univ. of Maryland, College Park, MD; A. Hope, T. Canty, W. Tribett, B. Bennett, R. J. Salawitch

10:30 A.M.–12:00 P.M.

33CVC / 22WXMOD

Panel Discussion 1: ETHICS AND GOVERNANCE OF WEATHER MODIFICATION AND GEOENGINEERING PANEL DISCUSSION –105

Chairs: Sarah A. Tessendorf, NCAR, Boulder, CO; Isla R. Simpson, NCAR, Boulder, CO

10:30 A.M.

PDI.1 *The Framework and Management of a Multistate Weather Modification Agreement (Invited Presentation).* **Mohammed Mahmoud**, Central Arizona Project, Phoenix, AZ

10:45 A.M.

PDI.2 *Governance Issues Related to Solar Geoengineering Research and Deployment (Invited Presentation).* **Joshua Horton**, Harvard Univ., Cambridge

11:00 A.M.

PDI.3 *Values and Methodological Decisions in Climate Intervention Research (Invited Presentation).* **Monica A. Morrison**, Indiana Univ. at Bloomington, Bloomington, IN

11:15 A.M.

Discussion/Q&A.

10:30 A.M.–12:00 P.M.

33CVC

Session 8A: IDENTIFYING THE CLIMATE CHANGE SIGNAL IN WEATHER EVENTS. PART 1 –150

Chairs: Christina M. Patricola, LBNL, Berkeley, CA; Stephanie Herring, NOAA, Silver Spring, MD; Kenneth E. Kunkel, North Carolina Institute for Climate Studies, Asheville, NC

10:30 A.M.

8A.1 *On the Increased Frequency of U.S. Extreme Daily Precipitation Events (Invited Presentation).* **Martin Hoerling**, NOAA/ESRL/PSD, Boulder, CO; L. Smith, J. K. Eischeid, X.W. Quan

10:45 A.M.

8A.2 *Anthropogenic Impacts on the Exceptional Precipitation of 2018 in the Mid-Atlantic United States.* **Jonathan M. Winter**, Dartmouth College, Hanover, NH; H. Huang, E. C. Osterberg, J. S. Mankin

11:00 A.M.

8A.3 *Dynamic Amplification of Extreme Precipitation Sensitivity.* **Adam H. Sobel**, Columbia Univ., New York, NY; J. Nie, S. Wang, D. Shaevitz

10:30 A.M.–12:00 P.M.

11:15 A.M.

8A.4 *Different Human Influences on the Joint Changes in Temperature, Rainfall, and Aridity (Invited Presentation).* **Céline Bonfils**, LLNL, Livermore, CA; B. D. Santer, J. C. Fyfe, K. Marvel, T. Phillips, S. Zimmerman

11:30 A.M.

8A.5 *Drought Attribution in North America.* **Megan C. Kirchmeier-Young**, EC, Toronto, Canada; H. Wan

11:45 A.M.

8A.6 *From Peer to Public Review—Toward Operationalizing Extreme Event Attribution (Invited Presentation).* **Friederike E. L. Otto**, Environmental Change Institute, Univ. of Oxford, Oxford, UK

10:30 A.M.–12:00 P.M.

30WAF26NWP

Session 8A: ANALYSIS AND FORECASTING OF MESOSCALE WEATHER PHENOMENA. PART 1 –151A

Chair: Andrew C. Winters, Univ. of Colorado, Boulder, CO

10:30 A.M.

8A.1 *Hand Analysis in a Digital Age.* **Barbara Mayes Boustead**, NWS, Norman, OK; H. Wells, R. Edwards, J. M. Boustead

10:45 A.M.

8A.2 *Mesoscale Processes Influencing Convective Morphology during the 26–27 April 2011 Tornado Outbreak.* **Manda B. Chasteen**, CIMMS/Univ. of Oklahoma and NOAA/OAR/NSSL, Norman, OK; S. E. Koch

11:00 A.M.

8A.3 *On the Changes in MCS Cold Pool Characteristics Due to Simultaneous Changes in Horizontal and Vertical Grid Spacing in WRF Runs.* **Brian Joseph Squitieri**, Iowa State Univ., Ames, IA; W.A. Gallus Jr.

11:15 A.M.

8A.4 *Sensitivity of Boundary Layer Characteristics and Related Low-Level Jet Behavior to Planetary Boundary Layer Schemes in the WRF Model for Several MCS Cases.* **Michael J. Garberoglio**, Iowa State Univ., Ames, IA; W.A. Gallus Jr.

11:30 A.M.

8A.5 *Analysis of Back-Building Convection in Simulations with a Strong Low-Level Stable Layer.* **Stacey M. Hitchcock**, Univ. of Melbourne, Melbourne, Australia; R. S. Schumacher

11:45 A.M.

8A.6 *General Features of Radar-Observed Boundary Layer Convergence Lines and Their Associated Convection over a Sharp Vegetation-Contrast Area.* **Yipeng Huang**, Xiamen Meteorological Bureau, Xiamen, China; Z. Meng, W. Li, L. Bai, X. Meng

10:30 A.M.–12:00 P.M.

30WAF26NWP

Session 8B: SEVERE WEATHER: PREDICTABILITY, UNCERTAINTY, AND BEST USE OF FORECAST INFORMATION. PART I –258A

Chairs: Marina Astitha, Univ. of Connecticut, Storrs, CT; Malaquias Pena, SAIC and EMC/NCEP/NOAA, Camp Springs, MD; Bruce Telfeyan, 557 Weather Wing, Offutt AFB, NE

10:30 A.M.

8B.1 *Revising Hazard Intensity Information in Storm Prediction Center Outlooks: A Hazardous Weather Testbed Experiment.* **Race Clark**, CIMMS/Univ. of Oklahoma and NOAA/NWS/SPC, Norman, OK; I. L. Jirak, P.T. Marsh, R. Schneider, B. T. Gallo

10:45 A.M.

8B.2 *A Review of NCEP's Convection-Allowing Model Guidance for the 20 May 2019 Southern Plains High-Risk Day.* **Logan C. Dawson**, I.M. Systems Group, Inc. and NOAA/NWS/NCEP/EMC, College Park, MD; A. M. Bentley, T.A. Dorian, G. S. Manikin

11:00 A.M.

8B.3 *Extended U.S. Tornado Outbreak during Late May 2019: A Forecast of Opportunity.* **Victor A. Gensini**, Northern Illinois Univ., DeKalb, IL; D. Gold, J. Allen, B. S. Barrett

8B.4 WITHDRAWN

11:15 A.M.

8B.4A *A Comparison of the Current and Next Version of the HRRR for Some Recent High-Impact Mesoscale Events.* **E. Szoke**, NOAA/ESRL/GSD and CIRA, Boulder, CO; C. Alexander, J. Brown, T. Alcott

11:30 A.M.

8B.5 *Using an Improved Object-Based Probabilistic Methodology to Optimize CAM Ensemble Design for Severe Weather Forecasting Applications.* **Andrew C. Wilkins**, Univ. of Oklahoma, Norman, OK; A. Johnson, X. Wang

11:45 A.M.

8B.6 *Compared to What? Establishing Environmental Baselines for Tornado Warning Skill.* **Alexandra K. Anderson-Frey**, Univ. of Washington, Seattle, WA; H. E. Brooks

10:30 A.M.–12:00 P.M.

30WAF26NWP

Session 8C: ADVANCES IN CLOUD- AND CONVECTION-RESOLVING NUMERICAL WEATHER MODELS. PART I –257AB

Chairs: Rebecca Adams-Selin, AER, Omaha, NE; May Wong, NCAR, Boulder, CO

10:30 A.M.

8C.1 *Rapid Refresh (RAP) and High Resolution Rapid Refresh (HRRR) Model Development.* **C. Alexander**, NOAA, Boulder, CO; D. C. Dowell, M. Hu, J. Olson, T. Smirnova, T. Ladwig, S. Weygandt, J. S. Kenyon, E. James, H. Lin, G. Grell, G. Ge, T. Alcott, S. Benjamin, J. M. Brown, M. D. Toy, R. Ahmadov, A. Back, J. D. Duda, M. B. Smith, J. A. Hamilton, B. D. Jamison, I. Jankov, D. D. Turner

10:45 A.M.

8C.2 *Development of a Real-Time, HRRR-Like SAR-FV3 System at NOAA/ESRL/GSD.* **Jeff Beck**, NOAA/ESRL/GSD and CSU/CIRA, Boulder, CO; G. Ketefian, C. Alexander, L. Reames, G. Gayno, D. Heinzeller, L. Pan, T. Smirnova, J. Purser, D. Jovic, T. Black, J. R. Carley

11:00 A.M.

8C.3 *How Do Forecasts from WRF-ARW and Stand-Alone Regional FV3 Compare?* **John M. Brown**, NOAA/Earth System Research Laboratory, Boulder, CO; J. Beck, G. Ketefian, D. Heinzeller, B. D. Jamison, T. G. Smirnova, J. Olson, J. Kenyon, S. Weygandt, C. Alexander, G. A. Grell, S. Benjamin

11:15 A.M.

8C.4 *The Impacts of Global Convection-Permitting Resolution across Scales: From Tropical Convection to Global Subseasonal Teleconnections.* **Nicholas Weber**, Univ. of Washington, Seattle, WA; C. F. Mass

11:30 A.M.

8C.5 *IBM GRAF—Scale-Aware Convective Forecast Evaluation and Improvements.* **Brett A. Wilt**, The Weather Company, Andover, MA; W. Wang

11:45 A.M.

8C.6 *Revisiting Sensitivity to Horizontal Grid Spacing in Convection-Allowing Models over the Central-Eastern United States Using a Large Dataset.* **Craig S. Schwartz**, NCAR, Boulder, CO; R. A. Sobash

10:30 A.M.–12:00 P.M.

29EDUCATION

Session 6: INNOVATIVE TEACHING STRATEGIES IN UNIV. INSTRUCTION –258C

Chairs: Rick DiMaio, Northern Illinois Univ., Romeoville, IL; Jon M. Nese, The Pennsylvania State Univ., University Park, PA

10:30 A.M.

6.1 *Increasing Self-Efficacy by Helping Students Become Self-Regulated Learners in Sophomore- and Junior-Level Meteorology Courses.* **Wendilyn J. Flynn**, Univ. of Northern Colorado, Greeley, CO

10:45 A.M.

6.2 *Exposing Undergraduate Students to Numerical Weather Prediction through the Use of Software Containers and Cloud Computing.* **Jamie K. Wolff**, NCAR, Boulder, CO; S. Ng, K. R. Fossell, J. E. Halley Gotway, M. Harrold, M. J. Kavulich Jr.

11:00 A.M.

6.3 *Improving Active Learning in Aviation Meteorology.* **Rob Eicher**, Embry-Riddle Aeronautical Univ., Daytona Beach, FL; D. J. Halperin, T. A. Guinn

11:15 A.M.

6.4 *Student-Driven Hyperlocal Weather Forecasting on Social Media: AthensGaWeather at The Univ. of Georgia.* **John A. Knox**, The Univ. of Georgia, Athens, GA; L. Blocker, R. Garmong

10:30 A.M.–12:00 P.M.

11:30 A.M.

6.5 *Building NWS–Univ. Partnerships through Experiential Education: NWS Topeka Meteorologists in the Univ. of Kansas Classroom.* **Ariel E. Cohen**, NWS, Miami, FL; A. C. Hennecke, B. M. Baerg, W. P. Gargan, J. L. Prieto, K. D. Skow, D. A. Rahn

11:45 A.M.

6.6 *Leveraging Advice from Industry Professionals in the Creation of a Course in Broadcast Meteorology.* **Martin A. Baxter**, Central Michigan Univ., Mount Pleasant, MI; W. R. Sykes Jr., A. J. Bajjey, S. J. Droope

10:30 A.M.–12:00 P.M.

26PROBSTAT**Session 6: THE HISTORY AND IMPACT OF OPERATIONAL POSTPROCESSING AND CURRENT STATUS. PART I (CENTENNIAL) –260**

Chairs: Bob Glahn, NOAA, Silver Spring, ME; Barbara Brown, NCAR, Boulder, CO

10:30 A.M.

6.1 *Operational NWP Postprocessing—The Early Years (Invited Presentation).* **Bob Glahn**, NOAA/NWS/Meteorological Development Laboratory, Silver Spring, MD

10:45 A.M.

6.2 *Postprocessing Weather Prediction Model Output in the U.S. National Weather Service: Model Output Statistics from 1972 to 2012 (Invited Presentation).* **J. Paul Dallavalle**, Retired, Davidsonville, MD

11:00 A.M.

6.3 *Statistical Postprocessing of Operational NWP Output—A Canadian Retrospective and Perspective (Invited Presentation).* **Laurence Wilson**, Environment and Climate Change Canada, Westmount, Canada; B. Casati

11:30 A.M.

6.4 *Statistical Postprocessing Methods for Operational Tropical Cyclone Forecasting (Invited Presentation).* **M. DeMaria**, NOAA/NWS/NHC, Miami, FL

11:45 A.M.

6.5 *Model Postprocessing beyond the Realm of Weather and into Climate Prediction: Operational Experience at the Climate Prediction Center (Invited Presentation).* **David A. Unger**, Innovim, College Park, MD; D. Collins, S. Baxter, A. Kumar

10:30 A.M.–12:00 P.M.

25APPLIED**Session 7: CLIMATE EXTREMES OF 2019: IMPACTS IN THE NORTH CENTRAL REGION. PART II –153A**

Chairs: Natalie A. Umphlett, Univ. of Nebraska, Lincoln, NE; Laura M. Edwards, South Dakota State Univ., Aberdeen, SD

10:30 A.M.

7.1 *CPC 2019 Forecasts of Climate Extremes in the Northern Plains.* **David DeWitt**, NOAA/NWS, College Park, MD; J. Gottschalck

10:30 A.M.–12:00 P.M.

10:45 A.M.

7.2 *Agricultural Impacts of the Spring and Summer Extremes of 2019.* **Dennis Today**, Agricultural Research Service, Ames, IA; D. Peck, D. Kluck, C. Felkley

11:00 A.M.

7.3 *2019 Upper Missouri Basin—Runoff, Reservoir Regulation, and Monitoring Network.* **Kevin R. Grode**, U.S. Army Corps of Engineers, Omaha, NE

11:15 A.M.

7.4 *Record-Setting 12-month Precipitation Totals in the Midwest in 2019.* **Michael S. Timlin**, ISWS, Champaign, IL

11:30 A.M.

7.5 *Seasonal Climate Outlooks for Midwest Agriculture: Applying NOAA CPC Outlooks for the Midwest/Plains Agricultural Community.* **Dennis Today**, Agricultural Research Service, Ames, IA; C. Felkley, E. Kistner-Thomsa

10:30 A.M.–12:00 P.M.

24IOAS**Session 9: RADAR DATA ASSIMILATION FOR CONVECTIVE FORECASTING –259A**

Chair: X. Wang, Univ. of Oklahoma, Norman, OK

10:30 A.M.

9.1 *Radar Data Assimilation for Convective Forecasting: Status and Challenges (Invited Presentation).* **Juanzen Sun**, NCAR, Boulder, CO

11:00 A.M.

9.2 *Optimal Temporal Frequency of NSSL Phased-Array Radar Observations for an Experimental Warn-on-Forecast System.* **Derek R. Stratman**, OU/CIMMS and NOAA/OAR/NSSL, Norman, OK; N. Yussouf, Y. Jung, T. A. Supinie, M. Xue, P. S. Skinner, B. J. Putnam

11:15 A.M.

9.3 *Assimilation of Dual-Pol Quality-Controlled Radial Velocity Data in the NOAA Operational Convective-Scale Forecast System.* **G. Ge**, CIRES and NOAA/ESRL/GSD, Boulder, CO; M. Hu, S. Weygandt, C. Alexander

11:30 A.M.

9.4 *Improvement of the WRF-LETKF Radar Data Assimilation System for Heavy Rainfall Prediction Involving Multiscale Interactions.* **Shu-Chih Yang**, National Central Univ., Jhongli City, Taiwan; H. W. Cheng

11:45 A.M.

9.5 *Direct Assimilation of Radar Reflectivity within the NOAA Operational Hybrid EnVar System to Improve High-Impact Weather Forecasts: Development of the Convective-Scale Static Background Error Covariance.* **Yongming Wang**, Univ. of Oklahoma, Norman, OK; X. Wang

10:30 A.M.–12:00 P.M.

23ASLI

Session 3: KEYNOTE ADDRESSES AND AMS
PUBLISHING UPDATE –259B**Chair:** Linda Musser, The Pennsylvania State Univ., University Park, PA

10:30 A.M.

3.1 *AMS: The Last 100 Years (Invited Presentation).* **Jinny Nathans**, American Meteorological Society, Boston, MA

10:45 A.M.

3.2 *The Journal of the Future and the Curation of Scientific Information (Invited Presentation).* **Keith Seitter**, American Meteorological Society, Boston, MA

11:15 A.M.

3.3 *AMS Publications Update.* **Gwendolyn Whittaker**, American Meteorological Society, Boston, MA; M. Friedman

10:30 A.M.–12:00 P.M.

22ATCHEM

Session 9A:ACMAP:ATMOSPHERIC CHEMISTRY
MODELING AND ANALYSIS PROGRAM. PART IV –206B**Chairs:** Richard Eckman, NASA, Washington, DC; Kenneth Jucks, NASA, Washington, DC

10:30 A.M.

9A.1 *A Novel-Sector-Based Inversion to Update NO_x , SO_2 , and CO Emissions at the Process Level Using Satellite Observations.* **Zhen Qu**, Univ. of Colorado, Boulder, CO; D. Henze, H. Worden, N. Theys, W. Wang

10:45 A.M.

9A.2 *Assessing the Impact of African Emissions on Tropical Atmospheric Composition.* **Roisin Commame**, Columbia Univ., Palisades, NY; L. Schiferl, E. A. Marais, B. Daube, H. M. Allen, E. C. Apel, B. Barletta, D. R. Blake, N. J. Blake, J. D. Crounse, R. S. Hornbrook, M. J. Kim, K. McKain, S. Meinardi, E. A. Ray, C. Sweeney, P. O. Wennberg, S. C. Wofsy

11:00 A.M.

9A.3 *Evaluating NASA GEOS Simulation of Transatlantic Dust Transport and Deposition with Satellite Remote Sensing Products.* **Hongbin Yu**, NASA GSFC, Greenbelt, MD; H. Bian, Q. Tan, M. Chin, D. Kim

11:15 A.M.

9A.4 *Impact of Amazon Fire on Forest Productivity.* **Huisheng Bian**, NASA GSFC/Univ. Maryland, Baltimore County/JCET, Greenbelt, MD; F. W. Zeng, D. Barahona, E. Lee, M. Chin, R. Koster, P. Colarco, A. Darmanov, J. Joiner, Y. Yoshida

11:30 A.M.

9A.5 *Global Measurements of Isoprene from Space: Constraints on Emissions and Atmospheric Oxidation.* **Kelley C. Wells**, Univ. of Minnesota, St. Paul, MN; D. B. Millet, V. H. Payne, M. J. Deventer, E. S. Edgerton, J. D. Fuentes, J. A. de Gouw, M. Graus, C. Warneke, A. Wisthaler

11:45 A.M.

9A.6 *Effects of Emission Reduction during the Last Three Decades on Particle Properties and Direct and Indirect Aerosol Radiative Forcing over the United States.* **Fangqun Yu**, Univ. at Albany, SUNY, Albany, NY; G. Luo

10:30 A.M.–12:00 P.M.

22ATCHEM

Session 9B: AIR QUALITY FORECASTING OF
POLLUTION EPISODES. PART I –207**Chairs:** Pablo E. Saide, Univ. of California, Los Angeles, CA, , Univ. of California, Los Angeles, CA; Yu Gu, Univ. of California, Los Angeles, CA; Hui Su, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA

10:30 A.M.

9B.1 *Overview of Air Quality and Aerosol Predictions at NOAA/ National Weather Service.* **Ivanka Stajner**, NOAA/NWS/NCEP, College Park, MD; J. McQueen, J. Huang, H. C. Huang, L. Pan, P. Bhattacharjee, D. M. Koch, J. M. Tirado, P. Lee, Y. Tang, D. Tong, P. C. Campbell, B. Baker, J. M. Wilczak, I. V. Djalalova, G. A. Grell, L. Zhang, G. J. Frost, S. A. McKeen, S. Kondragunta

10:45 A.M.

9B.2 *Forecast and Evaluation of High-Aerosol Events Using Operational Global Forecast Models at NOAA/National Weather Service.* **Partha Bhattacharjee**, NOAA/NWS/NCEP/EMC, and IMISG, College Park, MD; L. Zhang, L. Pan, G. Grell, J. McQueen, I. Stajner

11:00 A.M.

9B.3 *Advancing National Air Quality Forecasts through Emission Data Assimilation (Invited Presentation).* **Daniel Tong**, George Mason Univ., Fairfax, VA; P. Lee, Y. Tang, B. Baker, P. C. Campbell, R. Saylor, T. Chai, L. N. Lamsal, N. A. Krotkov, C. Li, S. Kondragunta, G. Carmichael, D. Henze, J. McQueen, J. Huang, I. Stajner

11:15 A.M.

9B.4 *Application of Satellite-Constrained Chemical Lateral Boundary Conditions to NOAA's Air Quality Forecast Capability—A Case Study in Support of FIREX-AQ.* **Zhining Tao**, USRA, Greenbelt, MD; Y. Tang, H. Bian, D. Tong, B. Baker, P. Lee, J. McQueen, I. Stajner

11:30 A.M.

9B.5 *Model Simulation of the Air Quality Impact of Record-Breaking Southern California Wildfires in December 2017.* **Yu Gu**, Univ. of California, Los Angeles, CA; H. Shi, B. Zhao, Z. Jiang, Z. Li, Y. Chen, J. Jiang, M. Lee, K. N. Liou, J. L. Neu, V. Payne, H. Su, Y. Wang, M. Witek, J. Worden

10:30 A.M.–12:00 P.M.

21AIRPOL**Session 9: WILDFIRES ATTRIBUTES AND AIR POLLUTION IMPACTS IN A CHANGING CLIMATE –211**

Chairs: Uma Shankar, Univ. of North Carolina, Chapel Hill, NC; O. Russell Bullock, EPA, Research Triangle Park, NC

10:30 A.M.

9.1 *The BB-FLUX Project: How Much Fuel Goes up in Smoke?* **Rainer Volkamer**, Univ. of Colorado at Boulder, Boulder, CO; N. Kille, C. Lee, K. J. Zarzana, T. Koenig, R. Nutter, B. J. Howard, C. Knote, T. L. Campos, L. D. Oolman, D. M. Plummer, M. Deng, Z. Wang, R. Ahmadov, B. Pierce, F. Obersteiner, A. Zahn, T. Goulden, B. Hass, A. Hudak, J. Restaino, R. D. Ottmar

10:45 A.M.

9.2 *Recent Trends in Central African Fires and Possible Drivers.* **Yan Jiang**, Univ. at Albany, SUNY, Albany, NY; L. Zhou, A. Raghavendra

11:00 A.M.

9.3 *Remote Sensing for the Characterization of Fire Processes from the NASA ER-2 Aircraft.* **Olga V. Kalashnikova**, JPL, Pasadena, CA; J. A. Al-Saadi, F. C. Seidel, M. Garay

11:15 A.M.

9.4 *Synergistic Observations of Wildfire Smoke Transport and Impact on Air Quality in New York City during the Summer 2018 LISTOS Campaign.* **Yonghua Wu**, City College of New York, New York, NY; A. R. Nehrir, X. Ren, S. A. Kooi, G. Gronoff, T. A. Berkoff, J. Huang, M. Arend, B. Gross, F. Moshary

11:30 A.M.

9.5 *Projected Impacts of Wildfire Emissions on Air Quality by Midcentury in the U.S. Southeast.* **Uma Shankar**, Univ. of North Carolina, Chapel Hill, NC; D. McKenzie, J. P. Prestemon, B. H. Baek, M. Omary, D. Yang, A. Xiu, K. Talgo, W. Vizuet

11:45 A.M.

9.6 *The Utility of Disparate Large-Eddy-Simulation Models in Revealing Complex Flow Characteristics due to Wildfires.* **Nadya Moiseeva**, Univ. of British Columbia, Vancouver, Canada

10:30 A.M.–12:00 P.M.

20ARAM / 30WAF26NWP**Joint Session 42: STATISTICAL METHODS FOR OPTIMIZED AVIATION HAZARD DETECTION AND PREDICTION –206A**

Chairs: Ken Stone, NCAR, Boulder, CO; Alex P. Korner, NOAA/NWS/NCEP, Kansas City, MO

10:30 A.M.

J42.1 *Statistical Methods for Diagnosing Aviation Hazards and Their Likelihood from Numerical Weather Prediction Models: Past, Present, and Future (Invited Presentation).* **Judy E. Ghirardelli**, NOAA/National Weather Service, Silver Spring, MD

11:00 A.M.

J42.2 *Gridded LAMP Ceiling Height and Visibility Guidance for Alaska.* **Adam D. Schnapp**, CIRA, Silver Spring, MD; B. Glahn, J. E. Ghirardelli, A. Bogusz

11:15 A.M.

J42.3 *Development of LAMP Convection and Cloud-to-Ground Lightning Forecast Guidance for Alaska and Beyond.* **Jerome Charba**, NOAA/NWS, Silver Spring, MD; F. G. Samplatsky, P. E. Shafer, J. E. Ghirardelli, A. J. Kochenash

11:30 A.M.

J42.4 *Satellite Cloud Vertical Cross-Section Products and User-Engaged Improvement for Aviation Weather Applications.* **Y. J. Noh**, CIRA, Fort Collins, CO; S. D. Miller, J. M. Haynes, C. J. Seaman, J. H. Kim, A. Heidinger

11:45 A.M.

J42.5 *Volcanic Ash Forecast Verification Using HYSPLIT and Satellite Ash Observations Identified by VOLCAT.* **Allison M. Ring**, ARL, College Park, MD; A. Crawford, B. J. B. Stunder, J. Sieglaff, M. J. Pavolonis

10:30 A.M.–12:00 P.M.

20SMOI**Session 9: UTILIZING UAS SYSTEMS FOR WEATHER OBSERVATIONS. PART I –203**

Chair: Duncan Axisa, Droplet Measurement Technologies, Longmont, CO

10:30 A.M.

9.1 *Meteodrones—Influence of UAV Data on Short-Term Fog and Cloud Forecasting.* **Martin Fengler**, Meteomatics Ltd., St. Gallen, Switzerland; C. Schluchter, L. Hammerschmidt

10:45 A.M.

9.2 *Analysis of Arctic Stable Boundary Layers during the ISOBAR Field Campaign.* **Brian R. Greene**, Univ. of Oklahoma, Norman, OK; S. T. Kral, P. B. Chilson, J. Reuder, B. Wrenger

11:00 A.M.

9.3 *Anticipating the Impact of Wind on UAS-Based Atmospheric Profiling in the Lower Atmosphere.* **Phillip B. Chilson**, Univ. of Oklahoma, Norman, OK; K. Williams, T. M. Bell, B. R. Greene, D. Tripp

11:15 A.M.

9.4 *Assessing Deep Convection Initiation in a Mountain-Valley System Using Unmanned Aircraft System Observations.* **Alex Erwin**, Univ. of Nebraska, Lincoln, NE; A. Houston

11:30 A.M.

9.5 *Toward Improving Wind Speed Estimates from an Ascending Rotary-Wing UAS.* **Tyler M. Bell**, Univ. of Oklahoma, Norman, OK; A. R. Segales, B. R. Greene, P. B. Chilson

11:45 A.M.

9.6 *Exploring the Future of Hurricane Reconnaissance Using Small Unmanned Aircraft Systems.* **Joseph J. Cione**, AOML, Miami, FL

10:30 A.M.–12:00 P.M.

19AI

**Session 8: AI FOR ENVIRONMENTAL SCIENCE.
PART IV –156A****Chair:** Auroop R. Ganguly, Northeastern Univ., Boston, MA

10:30 A.M.

8.1 *Predicting Storm Prediction Center Watch Likelihood Using Machine Learning.* **David Harrison**, CIMMS/Univ. of Oklahoma and NOAA/NWS/Storm Prediction Center, Norman, OK; A. McGovern, C. D. Karstens

10:45 A.M.

8.2 *EnSOMble Forecasting: Analyzing Simulated Supercell Environments from Convection-Allowing Models Using Self-Organizing Maps.* **Burkely T. Gallo**, CIMMS/Univ. of Oklahoma and NOAA/NWS/SPC, Norman, OK; A. K. Anderson-Frey, M. L. Flora

11:00 A.M.

8.3 *Wind Variability Analysis for the Kuwait Region Using Self-Organizing Maps.* **Steven M. Naegele**, The Pennsylvania State Univ., University Park, PA; T. C. McCandless, S. E. Haupt, G. S. Young, S. J. Greybush

11:15 A.M.

8.4 *Evaluation of a Hybrid Modeling Approach to Predict the Atmospheric State by Blending Numerical Modeling and Machine Learning.* **Troy J. Arcomano**, Texas A&M Univ., College Station, TX; I. Szunyogh, B. Hunt, E. Ott

11:30 A.M.

8.5 *A Short-Term Hail Prediction System Based on Numerical Weather Modeling and Machine Learning.* **Chandrasekar Radhakrishnan**, Colorado State Univ., Fort Collins, CO; V. Chandrasekar, A. Kubicek, J. Krzak, E. Hewitt

11:45 A.M.

8.6 *Development of a Radar-Identified Storm Cell and Track Dataset for Storm Motion Distributions and Machine Learning Applications.* **Dianna M. Francisco**, Univ. of Oklahoma/CIMMS and NOAA/NSSL, Norman, OK; T. M. Smith, K. M. Calhoun, P. A. Campbell

10:30 A.M.–12:00 P.M.

19AI / TROPSYMPI

**Joint Session 43: TROPICAL CYCLONE ANALYSIS
AND PREDICTION WITH MACHINE LEARNING I
–156BC****Chairs:** Jebb Stewart, NOAA/ESRL, Boulder, and CIRA/Colorado State Univ., Fort Collins, CO; Eric D. Loken, CIMMS/Univ. of Oklahoma, Norman, OK

10:30 A.M.

J43.1 *Using Geostationary Imagery to Peer through the Clouds Revealing Hurricane Structure.* **C. J. Slocum**, CIRA, Fort Collins, CO; J. Knaff

10:45 A.M.

J43.2 *Probabilistic Rapid Intensification Prediction with Convolutional Neural Networks and HWRF.* **David John Gagne**, NCAR, Boulder, CO; C. M. Rozoff, J. L. Vigh

11:00 A.M.

J43.3 *A Review of Support Vector Machine Performance on Tropical Cyclone Intensity Prediction with Imbalanced Datasets.* **Mu-Chieh Ko**, NOAA/AOML/HRD, Miami, FL; M. Kubat, S. G. Gopalakrishnan, F. D. Marks

11:15 A.M.

J43.4 *Combining Artificial Intelligence and Physics-Based Modeling Techniques to Improve Hurricane Track and Intensity Forecasting.* **Narges Shahroudi**, Riverside Technology, Inc., and NOAA/NESDIS/STAR, College Park, MD; E. Maddy, S. A. Boukabar, V. M. Krasnopolsky, R. N. Hoffman

11:30 A.M.

J43.5 *Using Evolutionary Programming to Generate Improved Tropical Cyclone Intensity Forecasts.* **Jesse Schaffer**, Univ. of Wisconsin, Milwaukee, WI; P. Roebber, C. Evans

11:45 A.M.

J43.6 *An Updated Atlantic Basin Tropical Cyclone Rapid Intensification Scheme Using Machine Learning and Operational Forecast Data.* **Andrew Mercer**, Mississippi State Univ., Mississippi State, MS; A. D. Grimes, K. M. Wood

10:30 A.M.–12:00 P.M.

18COASTAL

**Session 9: HAZARD ASSESSMENT AND
PREDICTION IN THE COASTAL MARINE
ENVIRONMENT. PART III –158****Chairs:** Mona Behl, The Univ. of Georgia, Athens, GA; Alan Blumberg, Stevens Institute of Technology, Hoboken, NJ

10:30 A.M.

9.1 *Storm Tide Pathways: A Collaborative Effort to Mitigate the Impacts of Coastal Flooding.* **Joseph W. Dellicarpini**, NOAA/NWS Forecast Office, Norton, MA; M. Borrelli, S. Mague

10:45 A.M.

9.2 *Storm Surge Barrier Closure Frequency, Duration, and Trapped River Flooding Analysis.* **Ziyu Chen**, Stevens Institute of Technology, Hoboken, NJ; P. Orton, T. Wahl**9.3** WITHDRAWN

11:00 A.M.

9.4 *Comparison of Ocean Wave Data for Dimensioning of Coastal Protection Measures in the Vietnamese Mekong Delta Region.* **Roderick van der Linden**, Karlsruhe Institute of Technology, Karlsruhe, Germany; A. H. Fink, M. Zemmann, F. Nestmann

11:15 A.M.

9.5 *The Lattice Boltzmann Method for Ocean Oil Spill Propagation Modeling and Simulation—A Comparison Study of the Navier–Stokes Model and the Advection Diffusion Model.* **Zhanyang Zhang**, Graduate Center, City Univ. of New York, New York, NY; T. Schaefer, M. E. Kress

11:30 A.M.

9.6 *Response to the Emerging Algal Toxin Threat in the Arctic.* **Kristine Holderied**, NOAA, Homer, AK; A. Holman, K. Lefebvre, R. Matsui, M. McCammon, G. Sheffield

10:30 A.M.–11:15 A.M.

18HISTORY

Session 9: REMARKABLE METEOROLOGISTS AND THEIR CONTRIBUTIONS. PART II –104A

Chairs: William Henneberg, Commodity Weather Group, LLC, Bethesda, MD; Lourdes Avilés, Plymouth State Univ., Plymouth, NH

10:30 A.M.

9.1 *Bringing Collections Together for Online Discovery and a Cooperative Digital Exhibit: Walter Orr Roberts, NCAR, the Univ. of Colorado, and a Spirit of Collaboration.* **Laura Hoff**, National Center for Atmospheric Research, Boulder, CO

10:45 A.M.

9.2 *Numerical Weather Prediction from the Mind of von Neumann to Reality and Beyond.* **William J. Martin**, NOAA/NWS, Greer, SC

11:00 A.M.

9.3 *Photography, Sir Walter Hartley, and the Discovery of Atmospheric Ozone.* **Terrence R. Nathan**, Univ. of California, Davis, CA

10:30 A.M.–11:45 A.M.

17SPACEWX

Session 10: PANEL: SMALL BUSINESS INNOVATION RESEARCH (SBIR) FOR SPACE WEATHER –205A

Chair: James Spann, NASA, Washington, DC

10:30 A.M.

10.1 *NASA's SBIR Space Weather R2O/O2R Technology Development Opportunity (Invited Presentation).* **Barbara L. Giles**, NASA Goddard Space Flight Center, Greenbelt, MD; J. Spann, G. Fowler, C. D. Fry, R. Hakimzadeh, A. J. Mannucci, C. J. Mertens, L. Parker, E. J. Semones, Y. Zheng

10:45 A.M.

10.2 *On the Doorstep of Global Aviation Radiation Environment Operational Monitoring through Agency and Industry Partnerships.* **W. Kent Tobiska**, Space Environment Technologies, Pacific Palisades, CA

11:00 A.M.

10.3 *Developing New Tools for Space Weather Science and Applications.* **Tibor Torok**, Predictive Science Inc., San Diego, CA; P. Riley

11:15 A.M.

10.4 *Enabling Real-Time Geoelectric Field Forecasts with Machine Learning.* **Jesse Richard Woodroffe**, Quantitative Scientific Solutions, Arlington, VA

11:30 A.M.

10.5 *Development of a Comprehensive Tool for Monitoring, Assessing, and Responding to Space Weather Impacts to Satellites.* **J. C. Green**, Space Hazards Applications, LLC, Golden, CO; R. A. Quinn, T. P. O'Brien III, Y. Shprits, J. Likar, A. Kellerman, S. Huston, P. P. Whelan, N. Reker

10:30 A.M.–12:00 P.M.

16GOESRJPSS

Session 8A: ADVANCED PLANNING AND SYSTEM ARCHITECTURES FOR THE NEXT-GENERATION WEATHER ENTERPRISE—GROUND ARCHITECTURE –253B

Chairs: Frank W. Gallagher, NOAA/NESDIS/OSAAP, Silver Spring, MD; Ramesh Rangachar, NOAA/NESDIS/OSAAP The Aerospace Corporation, El Segundo, CA

10:30 A.M.

8A.1 *NESDIS Data Agnostic Cloud Computing Solution.* **Kathryn Shontz**, NESDIS, Silver Spring, MD; M. Dalal, K. St. Germain, I. Parker, K. S. Casey

10:45 A.M.

8A.2 *Evolution of NESDIS Ground and Services.* **Michael Stringer**, NOAA, Silver Spring, MD

11:00 A.M.

8A.3 *Current Status, Challenges, and Opportunities for NOAA Satellite Data Distribution.* **Ramesh Rangachar**, NOAA/NESDIS/OSAAP The Aerospace Corporation, El Segundo, CA; X. Li, K. St. Germain, F.W. Gallagher III, K. Shontz

11:15 A.M.

8A.4 *Enterprise Data Management (EDM) and Enterprise Product Generation (EPG) Proving Ground in the Amazon Web Services (AWS) Cloud—Final Report.* **Rich Baker**, Solers, Greenbelt, MD; P. MacHarrie, H. Phung, J. Hansford, S. Causey, J. Sobanski, S. Walsh, M. Leach, R. Niemann, D. M. Beall

11:30 A.M.

8A.5 *A Service-Oriented Reference Architecture for NOAA Satellite Calibration and Validation System Development and Integration.* **X. Li**, NOAA/NESDIS, Silver Spring, MD; K. St. Germain, F.W. Gallagher III, M. Stringer, G. Serafino

11:45 A.M.

8A.6 *NOAA Satellite Ground Architecture Study.* **S. Marley**, The Aerospace Corporation, Silver Spring, MD; K. St. Germain, F.W. Gallagher III, X. Li, R. Rangachar

10:30 A.M.–12:00 P.M.

16GOESRJPSS

Session 8B: THE PAST, PRESENT, AND FUTURE OF SATELLITE CLIMATE DATA RECORDS. PART I –255

Chairs: Imke Durre, NOAA/NESDIS/NCEI, Asheville, NC; CZ. Zou, NESDIS, College Park, MD

10:30 A.M.

8B.1 *The Global Precipitation Climatology Project (GPCP)—Means, Variations, and Trends over the Satellite Era.* **Robert F. Adler**, Univ. of Maryland, College Park, MD; J. J. Wang, G. Gu, G. J. Huffman

10:45 A.M.

8B.2 *AMSU Climate Data Records and Their Use in Hydrological Climate Studies.* **James G. Beauchamp**, Cooperative Institute for Satellite Earth System Studies, College Park, MD; R. R. Ferraro, Y. You

11:00 A.M.

8B.3 *The Reprocessed SNPP and JPSS Satellite Observations.* **CZ. Zou**, NESDIS, College Park, MD

11:15 A.M.

8B.4 *Evaluating the NASA Aqua MODIS/SNPP VIIRS Climate Data Record Continuity Cloud Products.* **K. Meyer**, NASA GSFC, Greenbelt, MD; S. Platnick, R. E. Holz, S. Dutcher, N. Amarasinghe

11:30 A.M.

8B.5 *AVIIRS Dark Target Operational Product to Continue the MODIS Aerosol Record.* **Virginia R. Sawyer**, SSAI, Greenbelt, MD; R. Levy, S. Mattoo, G. Cureton, Y. Shi, L. Remer

11:45 A.M.

8B.6 *Data of Earth's Radiation Budget Components from Russian Satellite Radiometers IKOR-M.* **Maksim Yu. Cherviakov**, National Research Saratov State Univ., Saratov, Russian Federation; A. Spiryakhina, Y. Surkova, E. Kulkova

10:30 A.M.–12:00 P.M.**15 SOCIETY**

Session 8: TOWARD INFRASTRUCTURE STANDARDS FOR A CHANGING CLIMATE: SECTORS AND APPROACHES –152

Chairs: J Rolf Olsen, U.S. Army Corps of Engineers, Alexandria, VA, American Society of Civil Engineers, Reston, VA; Francisco Munoz-Arriola, Univ. of Nebraska–Lincoln, Lincoln, NE; Anna M Wilson, SIO, La Jolla, CA

10:30 A.M.

8.1 *Designing Resilient Networks in the Water Sector in an Uncertain Climate.* **Roger Pulwarty**, NOAA, Boulder, CO; I. Linkov

10:45 A.M.

8.2 *Toward Greater Resilient Water Infrastructure to Future Hydrometeorological Extremes: Lessons from Oroville Dam and Hurricane Harvey.* **Anna M. Wilson**, SIO, La Jolla, CA; R. Cifelli, A. Dufour, T.W. Parzybok, M. Dettinger, J.A. Vano, F. Munoz-Arriola, K.A. Miller

11:00 A.M.

8.3 *Historical and Projected Extreme Snow Accumulation and Melt Events for Infrastructure Design Using the NA-CORDEX Ensemble of Regional Climate Models.* **Eunsang Cho**, Univ. of New Hampshire, Durham, NH; R. McCrary, J. M. Jacobs

11:15 A.M.

8.4 *Toward the Integration of Hydrometeorological and Climate Complexities in Standards for Resilient Infrastructure Design.* **Francisco Munoz-Arriola**, Univ. of Nebraska, Lincoln, NE; P. Sarzaeim, C. Wunderlin, M. Khan, W. Ou, H. Greer

11:30 A.M.

8.5 *Applying Climate Change Information to Hydrologic and Hydraulic Design of Transportation Infrastructure.* **Jennifer M. Jacobs**, Univ. of New Hampshire, Durham, NH; R. Kilgore, A. Stoner, K. Hayhoe, C. J. Anderson, W. Thomas, D. B. Thompson

11:45 A.M.

8.6 *Projected Impact of Climate Change to Asphalt Pavement Performance in the United States.* **Anne M. K. Stoner**, Texas Tech Univ., Lubbock, TX; J. E. Sias, J. M. Jacobs, K. Hayhoe, I. Scott-Fleming

10:30 A.M.–12:00 P.M.**15 URBAN**

Session 9A: MODELING, OBSERVATIONS, AND MITIGATION OF EXTREME HEAT IN CITIES. PART II –104B

Chair: Jorge E. Gonzalez, City College of New York, New York, NY

10:30 A.M.

9A.1 *Impacts of Urbanization on Extreme Weather: Long-Term WRF Simulations at Cloud-Resolving Scale over the Eastern United States.* **Chandan Sarangi**, PNNL, Richland, WA; Y. Qian, L. R. Leung, B. Yang, Y. Liu, Z. Feng

10:45 A.M.

9A.2 *CFD Study of Heat Transfer between Building Envelopes and Airflows during a Heat Wave.* **Esther Rivas**, CIEMAT, Research Center for Energy, Environment and Technology, Madrid, Spain; A. Martilli, J. L. Santiago, F. Meier, B. Sanchez, F. Martin

11:00 A.M.

9A.3 *Heat Wave Exposure of People Serving by the Public Emergency Health System in PAC District.* **Luz A. Cardenas-Jiron**, Univ. of Chile, Santiago, Chile; C. Jara

11:15 A.M.

9A.4 *Coinfluence of Green Space and Blue Space on Urban Outdoor Comfort by Using a Dense Urban Observation Network.* **Leiqiu Hu**, Univ. of Alabama, Huntsville, AL; Q. Li

11:30 A.M.

9A.5 *Optimizing Passive Daytime Radiative Cooling Technologies for Building Energy Savings and Urban Heat Mitigation.* **David J. Sailor**, Arizona State Univ., Tempe, AZ; J. Anand, A. Baniassadi

11:45 A.M.

9A.6 *The Long-Term Changes of Urban Heat Island Intensity and Thermal Stress Conditions in the Moscow Megacity.* **Mikhail Varentsov**, Lomonosov Moscow State Univ., Moscow, Russian Federation; P. Konstantinov, N. Shartova

10:30 A.M.–12:00 P.M.**15 URBAN**

Session 9B: URBAN CANOPY AND BOUNDARY LAYER PROCESSES: OBSERVATION AND MODELING. PART II –104C

Chairs: Alberto Martilli, Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas, Madrid, Spain; Brian Freitag, Univ. of Alabama, Huntsville, AL

10:30 A.M.

9B.1 *Hard State of the Urban Canopy Layer Turbulence and Its Self-Similar Multiplicative Cascade Models.* **Fei Hu**, IAP, Beijing, China; Y. Shi, W. Cheng

10:30 A.M.–12:00 P.M.

10:45 A.M.

9B.2 *Investigating Wake Characteristics of Tall Buildings in a Realistic Urban Canopy Using Wind Tunnel Modeling and Doppler Lidar Measurements.* **Janet F. Barlow**, Univ. of Reading, Reading, UK; D. Hertwig, H. Gough, N. E. Theeuwes, C. S. B. Grimmond, C. W. Kent, W. Lin, A. Robins, P. Hayden

11:00 A.M.

9B.3 *Challenges in Representing the Vertical Control Volume of Urban Canyons in Earth System Models.* **Meng Huang**, Nanjing Univ. of Information Science and Technology, Nanjing, China; F. Chen

11:15 A.M.

9B.4 *High-Resolution In Situ Measurements of Three-Dimensional Kinematic Properties of an Urban Boundary Layer Using an Instrumented Unmanned Aerial System.* **Kevin A. Adkins**, Embry-Riddle Aeronautical Univ., Daytona Beach, FL; A. Sescu, C. Swinford, N. Rentzke

11:30 A.M.

9B.5 *Toward Improving the Representation of Urban Processes in the HRRR Model: A Coupling of the MYNN Scheme with BEP+BEM.* **David Melecio-Vazquez**, City College of New York, New York, NY; J. B. Olson, J. S. Kenyon, G. A. Grell, P. Ramamurthy, M. Arend, J. Gonzalez

11:45 A.M.

9B.6 *The Vertical City Weather Generator (VCWG 1.0).* **Amir A. Aliabadi**, Univ. of Guelph, Guelph, Canada; M. Moradi, B. Dyer, A. Nazem, M. K. Nambiar, M. R. Nahian, B. Bueno, C. Mackey, S. Vasanthakumar, N. Nazarian, E. S. Krayenhoff, L. K. Norford

10:30 A.M.–12:00 P.M.

12AEROSOL

Session 7: ADVANCES IN OBSERVATIONAL AND MODELING STUDIES OF THE ROLE OF MINERAL DUST IN THE EARTH SYSTEM. PART II –208

Chairs: Bing Pu, Univ. of Kansas, Lawrence, KS; Hongbin Yu, NASA, Greenbelt, MD; Xiaohong Liu, Univ. of Wyoming, Laramie, WY; Zhibo Zhang, Univ. of Maryland, Baltimore, MD

10:30 A.M.

7.1 *Tropical North Atlantic Dust Increases the Prevalence of Deep Convective Clouds: Diurnal Patterns Offer Clues as to Why.* **Lauren M. Zamora**, Univ. of Maryland, College Park, MD; R. Kahn

10:45 A.M.

7.2 *Climate Models Miss Most of the Warming Coarse Dust in the Atmosphere.* **Adeyemi Adebisi**, Univ. of California, Los Angeles, CA; J. F. Kok

11:00 A.M.

7.3 *Sources of Mineral Dust Aerosol to the Cirrus-Forming Regions of the Upper Troposphere.* **Karl D. Froyd**, CIRES, Boulder, CO; P. Yu, C. A. Brock, A. Kupc, D. Murphy, G. P. Schill, C. J. Williamson

11:15 A.M.

7.4 *Identifying Dust Events and Deposition over the North Pacific Ocean Using the Entire MODIS Data Records and MERRA-2.* **Y. Shi**, JCET, Baltimore, MD; L. Remer, H. Yu, M. Behrenfeld, T. Westberry

10:30 A.M.–12:00 P.M.

11:30 A.M.

7.5 *Response of Dust Emissions in the Southwestern North America to Trends in Vegetation Cover over the Twenty-First Century: Implications for Air Quality.* **Yang Li**, Harvard Univ., Cambridge, MA; L. J. Mickley, J. Kaplan

11:45 A.M.

7.6 *Description and Evaluation of the FENGSHA Dust Emission Model in FV3GFS-Chem.* **Rick Saylor**, NOAA, Oak Ridge, TN; B. Baker, D. Tong, K. Schepanski

10:30 A.M.–11:30 A.M.

11ENERGY

Session 10: SOLAR FORECAST IMPROVEMENT PROJECTS. PART II –256

Chair: Jennifer Lynn Kafka, Rutgers Univ., New Brunswick, NJ

10:30 A.M.

10.1 *Solar Radiation “Anomalies”: Their Occurrence Frequency and Underlying Conditions.* **Yangang Liu**, Brookhaven National Laboratory, Upton, NY; W. Liu, Y. Xie

10:45 A.M.

10.2 *Probabilistic Forecasts for Solar Uncertainty Management and Mitigation for Exceptional Reliability in Grid Operations (SUMMER-GO).* **Stephen D. Jascourt**, Maxar, Gaithersburg, MD; C. Cassidy, E. E. Wertz, T. Hartman

11:00 A.M.

10.3 *Attributing Causes to Biases in Shortwave Radiation from NOAA’s 3-km High Resolution Rapid Refresh (HRRR) Model Using NOAA’s High Quality Surface Radiation Measurement Network.* **Kathleen Lantz**, CIRES/Univ. of Colorado, Boulder, CO; J. Sedlar, L. Riihmaki, D. D. Turner, J. Olson, J. Kenyon, E. Hall, C. Herrera, G. B. Hodges, J. Wendell

11:15 A.M.

10.4 *Improvements in the RAP/HRRR Modeling Systems for Renewable Energy Forecast Applications.* **Jaymes S. Kenyon**, CIRES, Univ. of Colorado, and NOAA/ESRL, Boulder, CO; J. Olson, S. G. Benjamin, D. D. Turner, M. Marquis, W. M. Angevine, E. P. James, R. Ahmadov, T. T. Ladwig, D. C. Dowell, J. M. Brown, M. D. Toy, C. Alexander, G. A. Grell

10:30 A.M.–12:00 P.M.

11HEALTH

Session 7: CLIMATE IMPACTS ON SOCIETIES: THROUGH A REGIONAL PERSPECTIVE –153B

Chairs: Andy Morse, Univ. of Liverpool, Liverpool, UK; Kristie L. Ebi, Univ. of Washington, Seattle, WA

10:30 A.M.

7.1 *Killer Heat: Projections of Extreme Heat for the Twenty-First Century Provide Local-Scale Tools for Communities to Act on Climate.* **Astrid Caldas**, Union of Concerned Scientists, Washington, DC; K. Dahl, E. Spanger-Siegfried, R. Licker, J. T. Abatzoglou

10:45 A.M.

7.2 *Impact of Climate Shocks and Conflict Events on Acute Malnutrition in Children under Five.* **Molly E Brown**, Univ. of Maryland, College Park, MD; D. Backer, K. Grace

11:00 A.M.

7.3 *Projections of Future Changes in U.S. Violent Crime under Global Warming.* **Ryan D. Harp**, CIRES, Boulder, CO; K. B. Karnauskas

11:15 A.M.

7.4 *Real-Time Climate Information for Heat–Health Early Warning for Africa.* **Wassila Mamadou Thiaw**, NOAA, College Park, MD

11:30 A.M.

7.5 *Improving Access to Multimodel Rainfall and River Stage Forecasts in Eastern Africa and Northern India.* **Emily Riddle**, NCAR, Boulder, CO; T. M. Hopson, J. Boehnert, M. Gebremichael, S. Priya, Y. Tanaka, D. Singh

11:45 A.M.

7.6 *Climate Change, Social Instability, and Human Health.* **Christopher Boyer**, Univ. of Washington, Seattle, WA; K. L. Ebi, S. Sellers, J. J. Hess

10:30 A.M.–12:00 P.M.

10PYTHON

Session 6: TEACHING, TRAINING, OUTREACH, AND BUILDING COMMUNITIES AROUND PYTHON –157AB

Chair: Scott Collis, Argonne National Laboratory, Argonne, IL

10:30 A.M.

6.1 *What Can Science Learn from Open Source? (Invited Presentation) (Core Science Keynote).* **Ryan P. Abernathey**, Columbia Univ., Palisades, NY

11:00 A.M.

6.2 *Data Carpentry for Atmosphere and Ocean Scientists.* **Damien Irving**, Univ. of New South Wales, Sydney, Australia

11:15 A.M.

6.3 *Using Jupyter Notebook Server and Python to Teach Undergraduate Climate Data Analysis.* **Karen M. Shell**, Oregon State Univ., Corvallis, OR

11:30 A.M.

6.4 *MOS Parse: Library for Converting MOS Datasets to Machine Learning Formats.* **Hannah Aizenman**, Graduate Center, CUNY, Rego Park, NY; O. Lucero, T. Schiminovich, M. Grossberg

10:30 A.M.–12:00 P.M.

10LIDAR

Session 4: LIDAR NETWORK AND FIELD CAMPAIGN APPLICATIONS –209

Chair: Javier Fochesatto, Geophysical Institute, Univ. of Alaska, Fairbanks, Fairbanks, AK

10:30 A.M.

4.1 *The Evolution of Lidar Networks: A U.S. Perspective.* **Ellsworth J. Welton**, NASA GSFC, Greenbelt, MD

11:00 A.M.

4.2 *Initial Characterization of a Compact Ceilometer for the Ameriflux Network.* **David M. Sonnenfroh**, Physical Sciences Inc., Andover, MA; S. Bender, A. Richardson

11:15 A.M.

4.3 *Initial Observations from the MicroPulse DIAL (MPD) Network Demonstration Project.* **Tammy M. Weckwerth**, NCAR, Boulder, CO; S. M. Spuler, D. D. Turner, M. Hayman, R. A. Stillwell, K. Repasky

11:30 A.M.

4.4 *Tolnet Ozone and Aerosol Observations during Past Major Campaigns.* **M. Newchurch**, Univ. of Alabama, Huntsville, AL; S. Kuang, B. Wang, R. J. Alvarez II, T. Berkoff, G. Chen, G. Gronoff, M. S. Johnson, A. O. Langford, T. Leblanc, T. J. McGee, C. Senff, M. Shook, J. T. Sullivan, K. B. Strawbridge

11:45 A.M.

4.5 *Applications of the New V3 NASA MPLNET Rain-Masking Algorithm: Aerosol–Cloud Interaction Studies.* **Simone Lolli**, SSAI, Lanham, MD; G. Vivone, E. J. Welton, J. Lewis Jr., J. Campbell, G. Pappalardo

10:30 A.M.–12:00 P.M.

10R20

Panel Discussion 2: NOAA PRACTICES AND POLICIES ENABLING R20 ACTIVITIES TO SUPPORT END-USER NEEDS—PANEL DISCUSSION [INVITED PRESENTATIONS] –251

Moderator: Martin Yapur, NOAA/NESDIS/Office of Projects, Planning and Analysis, Silver Spring, MD

10:30 A.M.

PD2.1 *Foundational Data and Analyses to Inform the NOAA Emerging Technology Workshop and R20 (Invited Presentation).* **Thanh Vo**, NESDIS/TPIO, ISS, Inc., Silver Spring, MD; M. Yapur

10:30 A.M.

PD2.2 *Research to Commercialization: Meeting the Mission and Increasing Return on Investment (Invited Presentation).* **Kelly Wright**, NOAA, Silver Spring, MD

10:30 A.M.

PD2.3 *Decision Support at Regional Scales: Connecting Products and Technologies to User Needs within a NOAA Services Framework (Invited Presentation).* **Ellen L. Mecray**, NOAA, Norton, MA

10:30 A.M.

PD2.4 *Addressing R20 and International Collaboration to Implement Global Ocean Observations for Society and Economy (Invited Presentation).* **Sidney Walter Thurston**, NOAA, Silver Spring, MD

10:30 A.M.

PD2.5 *Supporting Mechanisms for R20 within NOAA's Unified Forecast System (UFS) (Invited Presentation).* **Dorothy Koch**, NOAA/NWS, Silver Spring, MD; D. L. Carlis, W. Pryor

10:30 A.M.

PD2.6 *Enabling Environmental Modeling R20 in NOAA (Invited Presentation).* **Dorothy Koch**, NOAA, Silver Spring, MD; H. L. Tolman, G. C. Matlock, R. B. Rood, D. Carlis, D. T. Myrick, P. J. Stone

10:30 A.M.

PD2.7 *NOAA-20 JPSS Algorithms: Recent Experience and Lessons That Enable Transition to Operation Rapidly (Invited Presentation).* **L. Zhou**, NOAA/NESDIS/JPSS, Lanham, MD

10:30 A.M.

Panel Discussion.

10:30 A.M.–12:00 P.M.**10R20**

Session 9: IMPROVING R20 AND O2R IN THE 0–18-H FORECAST RANGE LINKING RESEARCH AND OPERATIONS TO FORECASTERS' NEEDS—PART II –252A

Chairs: C. Alexander, NOAA, Boulder, CO; Pamela Heinselman, NSSL, Norman, OK

10:30 A.M.

9.1 *Evaluating the Role of the Mesoanalyst in Severe Weather Impacts-Based Decision Support Services: Part I—Science Focus.* **Ariel E. Cohen**, NWS, Miami, FL; R. L. Thompson, M. Foster, K. L. Crandall, C. M. Gravelle, J. M. Laflin, K. J. Runk

10:45 A.M.

9.2 *National Blend of Models Update and Performance during High-Impact Events.* **Cammye Sims**, NOAA/NWS, Silver Spring, MD; D. C. Young, M. A. Tew, J. P. Craven

11:00 A.M.

9.3 *Experimental LAMP 1-h Probability of Precipitation Guidance for the CONUS in Support of the National Weather Service's National Blend of Models.* **Phillip E. Shafer**, NOAA/NWS, Silver Spring, MD; J. Charba, F. G. Samplatsky

11:15 A.M.

9.4 *Probabilistic Hazard Information for Severe Convective Storms in FACETS—Progress and Plans.* **Travis M. Smith**, OU/CIMMS and NOAA/NSSL, Norman, OK; K. M. Calhoun, P. A. Campbell, K. L. Ortega, A. Reinhart, D. M. Francisco, R. B. Steeves, K. E. Klockow-McClain, K. Berry, S. S. Williams, A. McGovern, R. A. Lagerquist, T. C. Meyer, G. J. Stumpf, A. E. Gerard

11:30 A.M.

9.5 *The Use of the METplus Verification and Diagnostic Capability in Short-Term Forecast Evaluation.* **Tara Jensen**, NCAR, Boulder, CO; J. Halley Gotway, C. P. Kalb, L. R. Blank, D. R. Adriaansen, D. W. Fillmore

11:45 A.M.

9.6 *Multi-Radar Multi-Sensor Version 20: Optimization and Research Strategy.* **Anthony E. Reinhart**, OU/CIMMS and NOAA/OAR/NSSL, Norman, OK; J. W. Brogden, S. M. Martinaitis, S. B. Cocks, T. M. Smith, J. Zhang, H. D. Reeves, K. W. Howard, A. E. Gerard

10:30 A.M.–12:00 P.M.**8WXCLIMATE**

Session 6: INTEGRATING DECISION SUPPORT AND SERVICE DELIVERY TO ENSURE USE-INSPIRED PRODUCTS AND SERVICES. PART I –252B

Chair: Stephanie D. Sipprell, NWS Central Region Headquarters, Kansas City, MO

10:30 A.M.

6.1 *An Impact-Based Decision Support Service Common Operating Picture for the Record-Breaking Cold in January 2019.* **Stephanie D. Sipprell**, NWS Central Region Headquarters, Kansas City, MO; A. Foster

10:45 A.M.

6.2 *The NWS Central Region Roadmap to Building a Common Operating Picture to Deliver Decision Support Services.* **Andy Foster**, NWS Central Region Headquarters, Kansas City, MO

11:00 A.M.

6.3 *From Products to Services: Engaging Beach Managers to Improve Coastal Resilience in the Great Lakes Region through Scenario Planning.* **Omar C. Gates**, Univ. of Michigan, Ann Arbor, MI; E. A. Theuerkauf, A. Phillips, A. C. Anderson, D. A. R. Kristovich, L. Briley

11:15 A.M.

6.4 *Snow Days, Severe Storms, and Soccer Games: A Coordinated Response to School Safety.* **Tom Bedard**, AccuWeather Enterprise Solutions, Wichita, KS; R. DePodwin

11:30 A.M.

6.5 *WFO Jackson, Mississippi, Expands On-Site Support Role for Mississippi State Partners.* **Joanne Culin**, NWS, Flowood, MS

11:45 A.M.

6.6 *Graphical Hazardous Weather Outlook (GHW): A Graphical Display of Weather Hazard Risk for IDSS.* **Andy Foster**, NWS Central Region Headquarters, Kansas City, MO; D. R. Deroche, G. M. Schoor

10:30 A.M.–12:00 P.M.**8WRN**

Session 6: WEATHER-READY NATION HIGH-PRIORITY AREAS: HAZARD SIMPLIFICATION, IDSS, AND PROBABILISTIC FORECASTING –153C

10:30 A.M.

6.1 *Testing a Selected Prototype For Change: NWS Hazard Simplification Project.* **Eli Jacks**, NOAA/NWS, Silver Spring, MD; D. Nagele

10:45 A.M.

6.2 *Simplifying and Clarifying National Weather Service (NWS) Flood Products via the NWS Hazard Simplification Project.* **Daniel Roman**, NOAA/NWS, Silver Spring, MD

11:00 A.M.

6.3 *Evaluating the Role of the Mesoanalyst in Severe Weather Impacts Based Decision Support Services. Part III—Messaging Focus.* **Matthew Foster**, NOAA/NWS Operations Proving Ground, Kansas City, MO; k. Runk, C. M. Gravelle, J. M. Laflin, A. E. Cohen, R. L. Thompson, K. L. Crandall

11:15 A.M.

6.4 *An Evolving Operational Paradigm for Extratropical Storm Surge and Coastal Inundation at the National Weather Service.* **Allison L. Allen**, NOAA/NWS, Silver Spring, MD; J. Rhome, K. McMahon, D. Wright, J. L. Schauer, A. Luscher

11:30 A.M.

6.5 *The Future Is Here: Incorporating Mesoscale Forecasts into Predictions for a Flood Disaster in the Rio Grande Valley of Texas.* **Barry S. Goldsmith**, NWSFO, Brownsville, TX; M. J. Brady, T. R. Speece, C. D. Birchfield, J. J. Schroeder, A. Lamers

11:45 A.M.

6.6 *Expert Judgment versus Yours: Understanding Local Flood Risk Perceptions.* **Amber J. Liggett**, Millersville Univ., Millersville, PA; S. Yalda, K. E. Klockow-McClain

10:30 A.M.–12:00 P.M.**6HPC**

Panel Discussion: CHALLENGES FACING HPC CENTERS SUPPORTING WEATHER, WATER, AND CLIMATE –212

Moderator: Marc Cotnoir, CSRA, Inc., Fairfax, VA

10:30 A.M.

Panel Discussion.

10:30 A.M.–12:00 P.M.**FUTURESYP**

Panel Discussion 4: THE EVOLVING ROLE OF THE HUMAN IN WEATHER PREDICTION AND COMMUNICATION: USE OF AUTOMATED FORECASTING TOOLS VERSUS HUMANS –258B

Moderators: Neil A. Stuart, NOAA/NWS, Albany, NY; Robert Hoffman, Florida Institute of Human and Machine Cognition, Pensacola, FL

Panelists: Gail Hartfield, NOAA/NWS, Raleigh, NC; Bruce Telfeyan, 557 Weather Wing, Offutt AFB, NE; Jeffrey Fries, 1st Weather Group (ACC), Offutt AFB, NE; Jerry Shields, Ontario Ministry of Natural Resources and Forestry, Peterborough, Canada

10:30 A.M.–12:00 P.M.**TROPSYMPI / 34HYDRO**

Joint Session 44: TROPICAL CYCLONE RAINFALL: PHYSICS, IMPACTS, AND PREPAREDNESS –205B

Chairs: Jennifer C. DeHart, Colorado State Univ., Fort Collins, CO; Rosimar Ríos-Berrios, NCAR, Boulder, CO

10:30 A.M.

J44.1 *Characteristics of Recent Prolific Daily Rainfall Associated with Tropical Cyclones Impacting the Southern and Eastern United States.* **Gregory W. Carbin**, NOAA/NWS/Weather Prediction Center, College Park, MD; A. Lamers, D. Roth

10:45 A.M.

J44.2 *Variations in the Intensity and Spatial Extent of Tropical Cyclone Precipitation.* **Danielle Touma**, Univ. of California, Santa Barbara, Santa Barbara, CA; S. Stevenson, S. J. Camargo, D. E. Horton, N. S. Diffenbaugh

11:00 A.M.

J44.3 *Examining Storm Asymmetries in Recent Tropical Cyclones Using Polarimetric Radar Observations.* **Anthony C. Didlake**, The Pennsylvania State Univ., University Park, PA; M. R. Kumjian, C. N. Laurencin

11:15 A.M.

J44.4 *Probabilistic Intense Rainfall Predictions from Landfalling Tropical Cyclones Using a Convective-Scale Ensemble Data Assimilation System.* **Nusrat Yussouf**, CIMMS/Univ. of Oklahoma and NOAA/NSSL, Norman, OK; T. A. Jones, P. S. Skinner

11:30 A.M.

J44.5 *What if Hurricane Harvey Happened Here? How Boston Wet Weather Scenarios Are Used for Planning Flood Emergency Responses.* **Baxter E. Vieux**, Vieux & Associates, Inc., Norman, OK; C. Jewel, C. Wilson

11:45 A.M.

J44.6 *Real-Time Analysis of the 2019 Mozambique Flood Using Satellite Rainfall and the Global Flood Monitoring System (GFMS).* **Robert F. Adler**, Univ. of Maryland, College Park, MD; N. Zhou, G. Gu, H. Wu

10:30 A.M.–12:00 P.M.**CLIMATEPOLICY**

Panel Discussion 2: THE PROMISE OF CLIMATE MITIGATION AND RESTORATION THROUGH TRANSFORMATIVE TECHNOLOGIES –254B

Moderator: Harold Hedelman, Business Climate Leaders, Coronado, CA

Panelists: Klaus Lackner, Arizona State Univ., Tempe, AZ; Rick Parnell, Foundation for Climate Restoration, RSP Investments, Washington, DC; Michelle Wyman, National Council for Science and the Environment, Washington, DC; Philip Duffy, Woods Hole Research Center, Falmouth, MA; Leslie Field, Ice911 Research

11:15 A.M.–12:00 P.M.

18HISTORY**Session 10: CHARLES BROOKS AND THE HISTORY BEFORE THE AMS –104A**

Chairs: Lourdes Avilés, Plymouth State Univ., Plymouth, NH; William Henneberg, Commodity Weather Group, LLC, Bethesda, MD

11:15 A.M.

10.1 *Dr. Charles Franklin Brooks' Career Is Forever Intertwined with Blue Hill Observatory and the American Meteorological Society.* **William Minsinger**, Blue Hill Observatory Science Center, Readville, MA

11:30 A.M.

10.2 *While the American Meteorological Society Was Founded in 1919, There Was a Very Active Meteorological Community before the National Organization Came Together.* **Jinny Nathans**, American Meteorological Society, Boston, MA

11:45 A.M.

10.3 *The Blue Hill Adventures of the Brooks Family.* **Jinny Nathans**, American Meteorological Society, Boston, MA

11:30 A.M.–12:00 P.M.

11ENERGY**Session 11: SOLAR FORECASTING. PART I –256**

Chair: John Zack, AWS Truepower LLC, Albany, NY

11:30 A.M.

11.1 *MAD-WRF for Solar Irradiance Nowcasting.* **Pedro A. Jimenez**, NCAR, Boulder, CO; G. Thompson, J. Dudhia, J. Lee, C. Snyder

11:45 A.M.

11.2 *Integration of Total-Sky Imager Data with a Physics-Based Smart Persistence Model for Intrahour Forecasting of Solar Radiation (PSPI).* **Andrew Kumler**, National Renewable Energy Laboratory, Golden, CO; Y. Xie, Y. Zhang, R. Yang, X. Jin, M. Sengupta, Y. Liu

11:45 A.M.–12:00 P.M.

17SPACEWX**Session 11: NEW INSTRUMENTS, PLATFORMS, AND INITIATIVES FOR SPACE WEATHER. PART I –205A**

Chairs: Alexander Engell, NextGen Federal Systems, Havre de Grace, MD; Scott McIntosh, NCAR, Boulder, CO

11:45 A.M.

11.1 *Formalizing Citizen Science: Creating a New Paradigm in Space Weather Policy.* **Michael Cook**, Apogee Engineering, LLC, Bellevue, NE; T. Skov, M. Dodge, P. de Leon, M. Gilmore

12:15 P.M.–1:15 P.M.

PRESTHM**Session 2: CONFRONTING BULLYING, DISCRIMINATION, AND HARASSMENT IN THE GEOSCIENCES –210AB**

Panelists: Brittany Bloodhart, California State Univ., San Bernardino, CA; Jenni L. Evans, The Pennsylvania State Univ., University Park, PA; Antonia Franco, Santa Cruz Museum of Art and History, Santa Cruz, CA; Keith Seitter, American Meteorological Society, Boston, MA; Billy Williams, AGU, Washington, DC

12:15 P.M.–1:15 P.M.

10R20**Session: LINKING THE FORECASTING NEEDS TO SOLUTIONS OF THE ANALYSIS AND NOWCAST (0-18 HOUR FORECAST) THROUGH THE REQUIREMENTS OF THE NATIONAL WEATHER SERVICE –252A**

Panelists: Bruce Smith, NWS, Gaylord, MI; Vijay Tallapragada, NOAA/NWS/NCEP, College Park, MD; C. Alexander, NOAA, Boulder, CO

1:30 P.M.–2:30 P.M.

SCHUBERTSYMP**Session 3: TROPICAL CYCLONES. PART II –210C**

Chairs: Rosana Nieto Ferreira, East Carolina Univ., Greenville, NC; Eric Hendricks, National Security Applications Program, NCAR, Boulder, CO

1:30 P.M.

3.1 *Wayne Schubert's Contributions to Balanced Vortex Dynamics.* **Kerry Emanuel**, Massachusetts Institute of Technology, Cambridge, MA

1:45 P.M.

3.2 *Observations and the Evolution of Tropical Cyclone Vortex Dynamics.* **F. D. Marks**, NOAA/AOML, Miami, FL

2:00 P.M.

3.3 *The Impact of Tropical Cyclone Research on Operational Forecasting.* **M. DeMaria**, NOAA/NWS/NHC, Miami, FL

2:15 P.M.

3.4 *The Role of Tropical Cyclones in the Global Energy Budget.* **Greg Holland**, NCAR, Boulder, CO; A. Prein

1:30 P.M.–2:30 P.M.

48BROADCAST**Session 8: COPING WITH TWENTY-FIRST-CENTURY ISSUES. PART I –204AB**

Chair: Matt Elwell, KBZK/KXLF, Bozeman, MT

1:30 P.M.

8.1 *Reflection on the Development of the Meteorological Broadcast Industry under the Background of Omni-Media in China.* **Liang Huang**, Jiangsu Meteorological Service Center, Nanjing, China; S. Pei, Y. Wang

1:45 P.M.

8.2 *Challenges In the Changing Media World.* **Rodney Thompson**, The Weather Company, Andover, MA

2:00 P.M.

8.3 *Turn on the Volume: How to Get Someone to Watch Your Online Forecast.* **Kait Parker**, The Weather Company, Brookhaven, GA

2:15 P.M.

8.4 *The Future of TV Weather: Building Trust and Viewership through Innovation.* **Rodney Thompson**, The Weather Company, Andover, MA

1:30 P.M.–2:30 P.M.**36EIP**

Session 10A: SOFTWARE ENGINEERING AND CYBERINFRASTRUCTURE FOR ENVIRONMENTAL PROCESSING –157C

Chairs: William Roberts, OAR, Boulder, CO; Steven R. Chiswell, Savannah River National Laboratory, Aiken, SC

1:30 P.M.

10A.1 *The Public Release of Build-Script-Unified NCEP Libraries and Utilities on GitHub.* **Mark Iredell**, EMC, College Park, MD; H. Lei, D. Zhang, B. Vuong, G. Vandenberghe, G. Gayno

1:45 P.M.

10A.2 *Development of the NCEPLIBS Umbrella to Service the Operational Modeling and Community Research.* **Hang Lei**, NOAA/NCEP/EMC and IMSG, College Park, MD; M. Iredell, G. Vandenberghe, A. Chawla

2:00 P.M.

10A.3 *The Fishnet Approach of Data Quality Control at SRNL.* **Stephen Weinbeck**, Savannah River National Laboratory, Aiken, SC; E. Bell, J. T. Hamilton, A. Kail, A. Riveria-Giboyeaux, C. H. Hunter

2:15 P.M.

10A.4 *Data Ecosystem for the Joint ESA–NASA Multimission Algorithm and Analysis Platform.* **Aaron Kaulfus**, Univ. of Alabama Huntsville, AL; K. Bugbee, A. Whitehurst, J. Le Roux, A. Barciauskas, L. Duncanson, M. Laval, R. Ramachandran, M. Maskey

1:30 P.M.–2:30 P.M.**36EIP**

Session 10B: RADAR TECHNOLOGIES AND APPLICATIONS. PART III –155

Chairs: Kurt D. Hondl, NOAA/NSSL, Norman, OK; Michael J. Istok, NOAA/NWS, Silver Spring, MD; Mark B. Yeary, Univ. of Oklahoma, Norman, OK

1:30 P.M.

10B.1 *NEXRAD Radar Product Improvement—Update 2020.* **Michael J. Istok**, NOAA/NWS, Silver Spring, MD

1:45 P.M.

10B.2 *VAD Analysis with the Inclusion of the Deformation Term.* **Dusan Zrnic**, NOAA/NSSL, Norman, OK; R. M. Rabin, X. Qin, K. Nai

2:00 P.M.

10B.3 *The Impact of the Radar Differential Phase upon Transmission on the Polarimetric Variables.* **Valery Melnikov**, CIMMS, Norman, OK

2:15 P.M.

10B.4 *Review of Operational Applications of Polarimetric Tornado Debris Signatures.* **David Bodine**, Univ. of Oklahoma, Norman, OK; C. B. Griffin, S. M. Torres, B. L. Cheong, R. D. Palmer, C. Fulton

1:30 P.M.–2:30 P.M.**34HYDRO**

Lecture 3: 2020 HORTON LECTURE –253C

1:30 P.M.

L3.1 *Human–Water Interactions in Urban Systems: Challenges and Opportunities in the Twenty-First Century (Centennial).* **Terri Hogue**, Colorado School of Mines, Golden, CO

1:30 P.M.–2:30 P.M.**33CVC**

Session 9A: IDENTIFYING THE CLIMATE CHANGE SIGNAL IN WEATHER EVENTS. PART II –150

Chairs: Christina M. Patricola, LBNL, Berkeley, CA; Stephanie Herring, NOAA, Silver Spring, MD; Kenneth E. Kunkel, North Carolina Institute for Climate Studies, Asheville, NC; Danielle Touma, Univ. of California, Santa Barbara, CA

1:30 P.M.

9A.1 *Attribution Studies of North Atlantic Hurricane Activity (Invited Presentation).* **Suzana J. Camargo**, Lamont-Doherty Earth Observatory, Columbia Univ., Palisades, NY; C. Y. Lee, A. H. Sobel, M. K. Tippett, M. Ting, L. Trenary, J. P. Kossin, T. DelSole, C. Li

1:45 P.M.

9A.2 *Understanding Recent and Near-Term Future Changes in Australian Tropical Cyclones.* **Cindy L. Bruyère**, NCAR, Boulder, CO

2:00 P.M.

9A.3 *Trends in U.S. Large Hail Frequency.* **Brian H. Tang**, Univ. at Albany, SUNY, Albany, NY; V. A. Gensini, C. R. Homeyer

2:15 P.M.

9A.4 *Signatures of Climate Change in Weather Metrics Important for Catastrophe Model Development.* **Peter J. Sousounis**, Boston, MA

1:30 P.M.–2:30 P.M.**33CVC**

Session 9B: UNDERSTANDING EXTREME AND COMPOUND WEATHER EVENTS. PART I –154

Chair: Isla Simpson, National Center for Atmospheric Research, Boulder, CO

1:30 P.M.

9B.1 *On the Relationship between Temperature Anomalies and U.S. Tornado Frequency.* **Kimberly Hoogewind**, CIMMS, Norman, OK; H. E. Brooks

1:45 P.M.

9B.2 *Investigating the Geographic Controls of Severe Local Storm Environments: From Real World to Reduced Complexity.* **Kevin A. Reed**, Stony Brook Univ., SUNY, Stony Brook, NY; F. Li, D. R. Chavas

2:00 P.M.

9B.3 *Future Changes in Snowstorms over North America.* **Walker S. Ashley**, Northern Illinois Univ., DeKalb, IL; A. M. Haberie, V.A. Gensini

2:15 P.M.

9B.4 *Examining a Synoptic Climatology of Northeast U.S. Snow Events.* **Tomer Burg**, Univ. of Oklahoma, Norman, OK

1:30 P.M.–2:30 P.M.**30WAF26NWP****Session 9A: ADVANCES IN CLOUD- AND CONVECTION-RESOLVING NUMERICAL WEATHER MODELS. PART II –257AB**

Chairs: Rebecca Adams-Selin, AER, Omaha, NE; Glen Romine, NCAR, Boulder, CO

1:30 P.M.

9A.1 *Evaluating the Boundary Layer Environment and Convective Storm Evolution from 3-km, Limited-Area FV3 Simulations at the 2019 Hazardous Weather Testbed.* **Tomer Burg**, EMC, College Park, MD; L. C. Dawson, G. Manikin, J. R. Carley, B. T. Blake

1:45 P.M.

9A.2 *Using a Stochastic Parameter Perturbation to Represent Process-Based Uncertainty in a Microphysics Parameterization.* **Maria Frediani**, NCAR-RAL, Boulder, CO; G. Thompson, J. Berner, J. A. Otkin, S. M. Griffin, F. Kong

2:00 P.M.

9A.3 *Comparison of Error Growth Characteristics in Convection-Permitting Ensembles.* **May Wong**, NCAR, Boulder, CO; C. S. Schwartz, G. S. Romine

9A.4 **WITHDRAWN****2:15 P.M.**

9A.4A *Evaluation of Multiple Planetary Boundary Layer Parameterization Schemes in Southeast U.S. Cold Season Severe Thunderstorm Environments.* **Ariel E. Cohen**, NWS, Miami, FL; S. M. Cavallo, M. C. Coniglio, H. E. Brooks, I. L. Jirak, A. E. Gerard

1:30 P.M.–2:30 P.M.**30WAF26NWP****Session 9B: NUMERICAL MODELING OF WILDFIRE AND WILDFIRE IMPACTS –151A**

Chairs: S. W. Bieda, NWSFO, Amarillo, TX; Ryan A. Lagerquist, CIMMS, Norman, OK

1:30 P.M.

9B.1 *The 2017 Thomas Wildfire: Observations and Coupled Weather–Wildland Fire Modeling of Both Wind-Driven and Plume-Driven Fire Behavior during an Extended Santa Ana Event.* **Janice L. Coen**, NCAR, Boulder, CO; L. P. Coulter, P. Riggan, G. Schag, W. Schroeder, D. Stow, R. Tissell

1:45 P.M.

9B.2 *Gridded Fuel Moisture Content Prediction System Utilizing Machine Learning Models Based on MODIS Satellite Observations.* **Tyler C. McCandless**, NCAR, Boulder, CO; B. Kosovic, W. Petzke, P. A. Jimenez, S. Massie, A. Anderson, A. DeCastro, S. E. Haupt

2:00 P.M.

9B.3 *A Wildland Fire Spotting Parameterization for the Weather Research and Forecasting Model.* **Timothy W Juliano**, NCAR, Boulder, CO; M. E. B. Frediani, B. Kosovic, J. C. Knievel, P. Jimenez Munoz, D. Muñoz-Esparza

2:15 P.M.

9B.4 *Southern California's Woolsey and Hill Fires: An Analysis of Fire Weather Conditions and High-Resolution Model Output to Improve Weather Forecasts and Decision Support Services.* **Todd Hall**, NOAA/NWS, Oxnard, CA

1:30 P.M.–2:30 P.M.**30WAF26NWP****Session 9C: SEVERE WEATHER: PREDICTABILITY, UNCERTAINTY, AND BEST USE OF FORECAST INFORMATION. PART II –258A**

Chairs: Marina Astitha, Univ. of Connecticut, Storrs, CT; Malaquias Pena, SAIC and EMC/NCEP/NOAA, Camp Springs, MD; Bruce Telfeyan, 557 Weather Wing, Offutt AFB, NE

1:30 P.M.

9C.1 *Dynamics and Predictability of Sting-Jet Storm “Egon” over Continental Europe: Impact of Surface Properties and Model Resolution.* **Peter Knippertz**, Karlsruhe Institute of Technology, Karlsruhe, Germany; L. Eisenstein, F. Pantillon

1:45 P.M.

9C.2 *Developing an Accumulating Hail Climatology for the National Weather Service in Hanford, California.* **Colin McKellar**, NWS, Hanford, CA

2:00 P.M.

9C.3 *A New Ensemble Simulation Analysis Considering Water Vapor Update History for Line-Shaped Rainband Heavy Rainfall Forecasting.* **Nana Kuroda**, Kyoto Univ., Kyoto City, Japan; K. Yamaguchi, E. Nakakita

2:15 P.M.

9C.4 *Vorticity Power Law in a Simulated Tornado Supercell.* **Huaqing Cai**, U.S. Army Research Laboratory, White Sands Missile Range, NM; L. Bai, Z. Meng

1:30 P.M.–2:30 P.M.**29EDUCATION****Session 7: EXPERIENTIAL LEARNING FOR UNDERGRADUATES IN THE ATMOSPHERIC SCIENCES –258C****1:30 P.M.**

7.1 *Equipping Meteorologists to Effectively Use Social Media to Link to Society.* **Kristina Deleon**, Univ. of the Incarnate Word, San Antonio, TX; G. J. Mulvey, K. A. Mulvey

1:45 P.M.

7.2 *Experiential Learning for Undergraduates in Greenland.* **Perry J. Samson**, Univ. of Michigan, Ann Arbor, MI; M. Flanner, J. Bassis, S. Patrick, R. Clauer

2:00 P.M.

7.3 *From Storm Chasing to Air Racing: How Summer Experiential Learning Courses Have Enhanced the Embry-Riddle Undergraduate Meteorology Experience.* **Shawn M. Milrad**, Embry-Riddle Aeronautical Univ., Daytona Beach, FL; T.A. Guinn, D. J. Halperin, C. Herbster, D. Schaum

2:15 P.M.

7.4 *SIATA's Operational Group: Experiences Learned from a Local Risk Management Strategy.* **Lina Isabel Ceballos**, Sistema de Alerta Temprana de Medellín y el Valle de Aburrá, Área Metropolitana del Valle de Aburrá, Medellín, Colombia; M.A. Ochoa, C. D. Hoyos

1:30 P.M.–2:30 P.M.**26PROBSTAT****Session 7: THE HISTORY AND IMPACT OF OPERATIONAL POSTPROCESSING AND CURRENT STATUS. PART II (CENTENNIAL) –260**

Chairs: Bob Glahn, NOAA/NWS, Silver Spring, MD; Barbara Brown, NCAR, Boulder, CO

1:30 P.M.

7.1 *History and Current Status of the Localized Aviation MOS Program (LAMP) Statistical Postprocessing System for Short-Term Weather Forecast Guidance (Invited Presentation).* **Judy E. Ghirardelli**, NOAA/National Weather Service, Silver Spring, MD

2:00 P.M.

7.2 *Evolving Guidance to Support NWS Field Operations (Invited Presentation).* **David P. Ruth**, NWS, Silver Spring, MD

2:15 P.M.

7.3 *An Historical Overview of NOAA's National Blend of Models (NBM) (Invited Presentation).* **David E. Rudack**, NOAA/NWS, Silver Spring, MD

1:30 P.M.–2:30 P.M.**25APPLIED****Session 8: STATE CLIMATE OFFICES: APPLYING CLIMATOLOGICAL EXPERTISE TO SERVE AT THE STATE AND LOCAL LEVELS AS A PART OF THE NATIONAL CLIMATE SERVICES PARTNERSHIP. PART I –153A**

Chair: Glenn Kerr, American Association of State Climatologists, Asheville, NC

1:30 P.M.

8.1 *National Climate Services Partnership: A National Perspective.* **Tamara G. Houston**, NOAA/NESDIS/National Centers for Environmental Information, Asheville, NC; M. J. Brewer

1:45 P.M.

8.2 *Regional Climate Services: Example from the Northeast Regional Climate Center.* **Art DeGaetano**, Cornell Univ., Ithaca, NY

2:00 P.M.

8.3 *The State Climate Office of North Carolina.* **Kathie D. Dello**, North Carolina State Univ., Raleigh, NC; D. Bertrand, C. N. Davis, S. P. Heuser, A. Hiatt, J. A. McGuire, M. D. Neill, N. Parker, R. V. Ward

2:15 P.M.

8.4 *Locals Trusting Locals: Applied State Climate Services.* **David A. Robinson**, Rutgers Univ., Piscataway, NJ; M. R. Gerbush

1:30 P.M.–2:30 P.M.**24IOAS****Session 10: NUMERICAL ANALYSIS AND PREDICTION EXPERIMENTS INVOLVING OBSERVATIONS: DATA IMPACT AND OBSERVATION SENSITIVITY TESTS. PART I –259A**

Chair: Zhaoxia Pu, Univ. of Utah, Salt Lake City, UT

1:30 P.M.

10.1 *Experiments Using Atmospheric River Reconnaissance Dropsondes.* **Carolyn Reynolds**, NRL, Monterey, CA; R. Stone, J. D. Doyle, N. L. Baker, R. Langland, P. P. Papin, F. M. Ralph, D. A. Lavers

1:45 P.M.

10.2 *Forecasting North American Monsoon Precipitation with Data Assimilation.* **C. Bayu Risanto**, The Univ. of Arizona, Tucson, AZ; C. L. Castro, A. F. Arellano Jr., L. Mendoza-Fierro, J. M. Moker Jr.

2:00 P.M.

10.3 *An Ignition Point Sensitivity Study of the WRF-Fire Model: An Analysis of Wildfire Area and Location for the Indian Valley Fire.* **Ebone D. Smith**, UCAR, Boulder, CO; A. DeCastro, A. R. S. Anderson, C. Chew

2:15 P.M.

10.4 *Factors Influencing Ensemble Sensitivity-Based Targeted Observing Predictions at Convection-Allowing Resolutions.* **Aaron J. Hill**, Colorado State Univ., Fort Collins, CO; C. C. Weiss, B. C. Ancell

1:30 P.M.–2:00 P.M.**23ASLI****Session 4: ASLI CHOICE BOOK AWARDS –259B**

Chair: Elizabeth Fish, Univ. of Miami Libraries, Coral Gables, FL

1:30 P.M.

Introductory Remarks.

1:30 P.M.–2:30 P.M.

22ATCHEM**Session 10A:ACMAP:ATMOSPHERIC CHEMISTRY MODELING AND ANALYSIS PROGRAM. PART V –206B**

Chairs: Richard Eckman, NASA, Washington, DC; Kenneth Jucks, NASA, Washington, DC

1:30 P.M.

10A.1 *Evaluating a Bottom-Up Inventory of Oil and Natural Gas Emissions with OMI and TROPOMI Satellite Retrievals.* **Meng Li**, CIRES and NOAA/ESRL/Chemical Sciences Division, Boulder, CO; B. McDonald, C. Francoeur, B. Dix, J. A. de Gouw, J. Peischl, J. B. Gilman, C. Warneke, P. F. Levelt, H. Eskes, J. P. Veefkind, T. B. Ryerson, G. J. Frost, M. Trainer

1:45 P.M.

10A.2 *New and Improved Emissions Estimates of Ozone Depleting Substances and Their Replacement Compounds.* **Qing Liang**, NASA, Greenbelt, MD; E. L. Fleming, P. A. Newman

2:00 P.M.

10A.3 *Downscaling Emissions and Chemistry Transport Model Simulations with Multisensor Satellite Data.* **J. Wang**, Univ. of Iowa, Iowa City, IA; Y. Wang

2:15 P.M.

10A.4 *Development of Satellite-Constrained Pollution Emissions for Improved Simulation of Global Tropospheric Composition.* **Fei Liu**, USRA, Greenbelt, MD; S. Smith, K. E. Knowland, J. Joiner, C. McLinden, V. Fioletov, C. A. Keller, C. Li, L. N. Lamsal

1:30 P.M.–2:30 P.M.

22ATCHEM**Session 10B:AIR QUALITY FORECASTING OF POLLUTION EPISODES. PART II –207**

Chairs: Yu Gu, Univ. of California, Los Angeles, Los Angeles, CA; Pablo Saide, Univ. of California, Los Angeles, CA; Hui Su, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA

1:30 P.M.

10B.1 *Developing the Capability to Provide Surface Aerosol and Trace Gas Concentrations at Spatial Scales between 100 m and 2 km Needed to Support Human and Ecosystem Health Studies (Invited Presentation).* **Jonathan Jiang**, JPL, Pasadena, CA; M. Lee, Z. Li, M. Witek, M. Minamide, J. Neu, H. Su, V. Payne, J. Worden

1:45 P.M.

10B.2 *Probabilistic Forecasts of Ozone and $PM_{2.5}$ from the Community Multiscale Air Quality (CMAQ) Model.* **Irina V. Djalalova**, CIRES, Boulder, CO; J. Wilczak, T. M. Hamill, M. Scheuerer, D. Allured, J. Huang, J. McQueen, I. Stajner, J. Tirado-Delgado

2:00 P.M.

10B.3 *WRF-Chem Modeling of Lake Michigan Summertime Ozone Air Quality: Optimization of Meteorology and Its Impact on Air Quality Forecasts.* **Maryam Abdi-Oskouei**, UCAR, Boulder, CO; G. R. Carmichael, M. Christiansen, A. C. Czarnetzki, G. Ferrada, B. Pierce, B. Roozitalab, N. Sobhani, C. O. Stanier

2:15 P.M.

10B.4 *Evaluation of Offline-Coupled FV3GFS–CMAQ over the United States in Support of the Next Generation of the National Air Quality Forecast Capability.* **Yang Zhang**, Raleigh, NC; X. Y. Chen, K. Wang, D. Tong, P. Lee, H. Pye, B. S. Murphy, D. Kang

1:30 P.M.–2:30 P.M.

22WXMOD / 12AEROSOL**Joint Session 45:ANTHROPOGENIC IMPACTS ON CLOUDS, PRECIPITATION, AND CLIMATE –105**

Chairs: Greg McFarquhar, Univ. of Oklahoma, Norman, OK; Sisi Chen, NCAR, Boulder, CO

1:30 P.M.

J45.1 *Contributions of Urban Land and Anthropogenic Aerosols of Houston to Convective intensity and Precipitation of a Deep Convective Storm.* **Jiwen Fan**, PNNL, Richland, WA; Y. Zhang, Z. Li, D. Rosenfeld

1:45 P.M.

J45.2 *Substantial Cloud Brightening from Shipping in Subtropical Stratocumulus Clouds.* **Michael S. Diamond**, Univ. of Washington, Seattle, WA; H. M. Director, A. Possner, R. Wood

2:00 P.M.

J45.3 *Simulation of Aerosol Indirect Effects on Wintertime Stratocumulus Clouds over Northwestern Pacific.* **Jen-Ping Chen**, National Taiwan Univ., Taipei, Taiwan; C. K. Wu

2:15 P.M.

J45.4 *Does the Flooding of a Depression East of the Caspian Sea Have an Impact on Local Weather and Climate?* **Oliver Branch**, Univ. of Hohenheim, Stuttgart, Germany; V. Wulfmeyer

1:30 P.M.–2:30 P.M.

21AIRPOL**Session 10:ADVANCEMENTS AND NEEDS IN DISPERSION MODELING. PART I –211**

Chairs: Steven Hanna, Hanna Consultants, Kennebunkport, ME; Alice Crawford, ARL, College Park, MD

1:30 P.M.

10.1 *A Tracer of Opportunity Dataset for Atmospheric Transport and Dispersion Model Evaluation.* **Alice Crawford**, ARL, College Park, MD; M. Cohen, F. Ngan, J. Heffter, B. Baker, W. T. Luke, A. F. Stein

1:45 P.M.

10.2 *New Implementation of Buoyant Transport and Dispersion in Weather Research and Forecasting's Large-Eddy Simulation Framework.* **Sudheer Reddy Bhimireddy**, Univ. of Texas, San Antonio, TX; K. Bhaganagar

2:00 P.M.

10.3 *Coupling an Off-Line Lagrangian Dispersion Model with Large Eddy Simulations as a Tool for Vertical Mixing Parameterization Development in Mesoscale Applications.* **Israel Lopez-Coto**, National Institute of Standards and Technology, Gaithersburg, MD; P. B. Shepson, A. Karion, C. Gerbig, K. Prasad, J. R. Whetstone

2:15 P.M.

10.4 *Simulation of Diurnal Green House Gas (GHG) Emission Flux from a Complex Mining Facility Using WRF.* **Amir A. Aliabadi**, Univ. of Guelph, Guelph, Canada; M. K. Nambiar, A. Nazem, M. R. Nahian, R. A. E. Byerley

1:30 P.M.–2:30 P.M.**20SMOI****Session 10: UTILIZING UAS SYSTEMS FOR WEATHER OBSERVATIONS. PART II –203**

Chair: Temple Lee, Univ. of Virginia, Charlottesville, VA

1:30 P.M.

10.1 *Microscale Forecasting for Drone Flight Planning to Develop a Microclimate Model.* **Bryce Kuchan**, Univ. of the Incarnate Word, San Antonio, TX; J. Stewart, S. Weiss-Lopez, M. Frye

1:45 P.M.

10.2 *Assembling a Sonde to Probe the Lower Atmosphere for Micrometeorological, Ecological, and Air Quality Studies.* **Ricardo K. Sakai**, Howard Univ., Beltsville, MD; A. Flores, V. R. Morris, B. B. Demoz, G. Parker

2:00 P.M.

10.3 *Assessing iMET Performance and Optimal Placement on a Small Unmanned Aerial Vehicle (UAV), as a Function of Atmospheric Conditions.* **Sytske Kimball**, Univ. of South Alabama, Mobile, AL; C. Montalvo, M. Mulekar

2:15 P.M.

10.4 *Small UASs for Fire Weather and Fire Behavior Monitoring in the Wildland Fire Environment.* **Matthew Brewer**, San Jose State Univ., San Jose, CA; C. B. Clements, A. Watts

1:30 P.M.–2:30 P.M.**20ARAM****Panel Discussion 1: PANEL DISCUSSION: MITIGATING AVIATION WEATHER HAZARDS AND MANAGING OPERATIONAL IMPACTS IN 2050 –206A**

Moderator: Mike Robinson, The MITRE Corporation, McLean, VA

Panelists: Craig Wanke, The MITRE Corporation, McLean, VA; Matthias Steiner, NCAR, Boulder, CO; Peter Neilley, The Weather Company, an IBM Business, Andover, MA; Sandy MacDonald, SPIRE, Boulder, CO; Karen Shelton-Mur, HQ FAA, Washington, DC

1:30 P.M.

PDI.1 *Mitigating Aviation Weather Hazards and Managing Operational Impacts in 2050: A Panel Discussion.* **Michael Robinson**, The MITRE Corporation, McLean, VA

1:30 P.M.–2:30 P.M.**19AI****Session 9A: AI APPLICATIONS FOR AIR QUALITY –156A**

Chair: Surya Karthik Mukkavilli, Montreal Institute for Learning Algorithms, Montreal, Canada

1:30 P.M.

9A.1 *PMNet: Improving Aerosol Predictions Using Deep Neural Nets for Limited Ground Stations.* **Caleb Hoyne**, McGill Univ., Montreal, Canada; S. K. Mukkavilli, D. Meger

1:45 P.M.

9A.2 *Improving Geophysical Air Quality Forecasts With Machine Learning Algorithms.* **Hervé Petetin**, Barcelona Supercomputing Center, Barcelona, Spain; A. Soret, M. Guevara, K. Serradell, C. Pérez García-Pando

2:00 P.M.

9A.3 *Using a Feed-Forward MLP Neural Network to Fill Gaps in N₂O Emission Data.* **Benjamin Matthew Fehr**, Univ. of New Hampshire, Durham, NH; C. Dorich, R. Conant

2:15 P.M.

9A.4 *Satellite-Derived PM_{2.5} concentrations over South Korea Using GOCI Aerosol Products and a Machine Learning Method.* **Yeseul Cho**, Yonsei Univ., Seoul, Korea, Republic of (South); J. Kim, H. Lee, M. Choi, S. Lee, H. Lim, J. Im

1:30 P.M.–2:30 P.M.**19AI****Session 9B: MACHINE LEARNING FOR SUBSEASONAL TO SEASONAL PREDICTION –156BC**

Chairs: Carlos F. Gaitan, Arable Labs, Inc., Princeton, NJ; Maria J. Molina, NCAR, Boulder, CO

1:30 P.M.

9B.1 *Applying Machine Learning to Improve Subseasonal-to-Seasonal (S2S) Forecasts.* **Soukayna Mouatadid**, Univ. of Toronto, Toronto, Canada; J. Cohen, L. Mackey

1:45 P.M.

9B.2 *Using Machine Learning to Improve Subseasonal-to-Seasonal (S2S) Prediction.* **Richard Garmong**, Univ. of Georgia, Athens, GA; R. Bolinger, R. S. Schumacher

2:00 P.M.

9B.3 *Basin of Prediction for Seasonal Weather Forecasting Using Self-Similar Power Transforms.* **M. Jeremie Lafitte (Levitas)**, Metivdata, Safed, Israel

2:15 P.M.

9B.4 *Applications of Deep Learning to S2S Precipitation Prediction and Downscaling for the Middle East and North Africa.* **Hamada S. Badr**, The Johns Hopkins Univ., Baltimore, MD; K. Bergaoui, B. F. Zaitchik, A. Hazra, A. McNally, C. D. Peters-Lidard, R. McDonnell

1:30 P.M.–2:30 P.M.

18COASTAL

Session 10: MACHINE LEARNING AND BIG DATA APPLICATIONS IN THE COASTAL ENVIRONMENT –158

Chairs: Art Miller, Scripps Institution of Oceanography, La Jolla, CA; Gregory Dusek, NOAA, Silver Spring, MD

1:30 P.M.

10.1 *How Are Local Extreme Sea Level Projections Affected by Distinct Storylines in Antarctic Ice Sheet Mass Loss?* **Daniel Gilford**, Rutgers Univ., New Brunswick, NJ; D. J. Rasmussen, R. Kopp, E. Ashe, R. DeConto, D. Pollard

1:45 P.M.

10.2 *Numerical Method for a Stochastic Inverse Problem with Application to Wind Drag Parameterization.* **Kyle Robert Steffen**, The Univ. of Texas, Austin, TX; T. Butler, C. N. Dawson, D. Estep

2:00 P.M.

10.3 *Tropical Cyclone Storm Surge Prediction Using Artificial Neural Network.* **Mahmoud Ayyad**, Stevens Institute of Technology, Hoboken, NJ; R. Marsooli, M. Hajj

2:15 P.M.

10.4 *Tracking of Wind-Wave Systems Using K-Means Clustering.* **Andre Jaco Van der Westhuysen**, IMSG at NOAA, College Park, MD

1:30 P.M.–2:30 P.M.

17SPACEWX

Session 12: NEW INSTRUMENTS, PLATFORMS, AND INITIATIVES FOR SPACE WEATHER. PART II –205A

1:30 P.M.

12.1 *ESA LAGRANGE Mission for Enhanced Space Weather Monitoring.* **Juha-Pekka Luntama**, European Space Agency, Darmstadt, Germany; S. Kraft, A. Glover

1:45 P.M.

12.2 *Joint Observations of Equatorial Plasma Bubbles by COSMIC-2 and GOLD.* **Qian Wu**, NCAR/UCP/COSMIC, Boulder, CO; W. S. Schreiner, A. Burns, S. Sokolovskiy, I. Cherniak, J. J. Braun, M. Y. Chou, N. Pedatella, S. C. Solomon, R. Stoneback

2:00 P.M.

12.3 *The GOES Solar Ultraviolet Imager: Present Status and Unique Opportunities for the Future (Invited Presentation).* **Daniel B. Seaton**, CIRES, Boulder, CO; J. M. Darnel, C. Peck, S. Hill, J. M. Hughes, L. Krista, T. C. Miller

2:15 P.M.

12.4 *Sub-L1 Monitors: What Science Discoveries Do We Need before Operational Settings.* **Noé Lugaz**, Univ. of New Hampshire, Durham, NH; C. O. Lee, R. Winslow, C. J. Farrugia, N. Al-Haddad, A. B. Galvin

WEDNESDAY

1:30 P.M.–2:30 P.M.

18HISTORY

Session 11: OTHER TOPICS IN THE HISTORY OF METEOROLOGY AND RELATED SCIENCES –104A

Chair: Lourdes Avilés, Plymouth State Univ., Plymouth, NH

1:30 P.M.

11.1 *Buried: How Extreme Snow Crippled the Ohio Valley in 1950.* **David A. Call**, Ball State Univ., Muncie, IN

1:45 P.M.

11.2 *Times Change but the Challenges Remain: Successes, Failures, and Impacts from the Portland Gale of 1898.* **Robert Megnia**, NWS, Lake Charles, LA; T. Humphrey

2:00 P.M.

11.3 *“Get Help to the States!”—A Legislative History of Climate Services in the United States, 1975–78.* **Gabriel D Henderson**, American Institute of Physics, College Park, MD

2:15 P.M.

11.4 *Weather as Muse to the Arts: A Survey of Society’s Changing Perceptions over Time.* **Melissa Fleming**, The Weather Gamut, New York, NY

1:30 P.M.–2:30 P.M.

16GOESRJPSS

Session 9A: NATIONAL AND INTERNATIONAL EDUCATION, TRAINING, AND USER READINESS ACTIVITIES FOR THE NEW-GENERATION OPERATIONAL ENVIRONMENTAL SATELLITE SYSTEMS. PART I –253B

Chairs: Janel R. Thomas, Science and Technology Corporation, Greenbelt, MD; Margaret Mooney, CIMSS, Madison, WI

1:30 P.M.

9A.1 *Results From Satellite Product Evaluations in the Hazardous Weather Testbed (HWT).* **Michael A. Bowlan**, CIMMS/Univ. of Oklahoma, Norman, OK

1:45 P.M.

9A.2 *FDTD Satellite Applications Webinars: A Peer-to-Peer Training Mechanism for the National Weather Service.* **S. S. Lindstrom**, Univ. of Wisconsin/CIMSS, Madison, WI; D. Bikos, B. C. Motta, K. Scharfenberg

2:00 P.M.

9A.3 *NOAA’s Joint Polar Satellite System’s (JPSS) Proving Ground and Risk Reduction (PGRR) Program: The JPSS Program’s Training Initiative—Empowering Users to Optimize the Operational Application of Satellite Data and Products.* **B. Sjoberg**, NOAA/NESDIS/JPSS, Lanham, MD; M. Goldberg

2:15 P.M.

9A.4 *Infusing Low-Earth Orbiting Satellite Observations into Weather Forecast Operations.* **John D. Evans**, Global Science and Technology, Inc., Greenbelt, MD; J. K. Zajic, L. A. Byerle, E. M. Guillot, B. Gockel, J. Anderson, B. Rapp, J. Henry

1:30 P.M.–2:30 P.M.

16GOESRJPS**Session 9B: THE PAST, PRESENT, AND FUTURE OF SATELLITE CLIMATE DATA RECORDS. PART II –255**

Chairs: Robert Adler, Univ. of Maryland, Highland, MD; B. R. Nelson, NOAA/NESDIS/National Centers for Environmental Information, Asheville, NC

1:30 P.M.

9B.1 *The Contribution of 17 Years of Atmospheric Infrared Sounder Observations.* **Eric J. Fetzer**, JPL, Pasadena, CA; B. Lambrigtsen, J. Teixeira, T. Pagano

1:45 P.M.

9B.2 *Fusion of AIRS and CrIS Hyperspectral Data Using a Spectral Fingerprinting Method.* **Xu Liu**, NASA Langley Research Center, Hampton, VA

2:00 P.M.

9B.3 *Recalibrated Infrared and Water Vapor Channel's Measurements from JMA and EUMETSAT Historical Geostationary Meteorological Satellites.* **Tasuku Tabata**, JMA, Tokyo, Japan; V. John, R. Roebeling, F. Ruethrich, T. Hewison, J. Schulz, M. Takahashi

2:15 P.M.

9B.4 *On the Evaluation of Long-Term Instrument Calibration Gain Stability Based on Lunar Radiation Observations.* **Hu Yang**, Univ. of Maryland, College Park, College Park, MD

1:30 P.M.–2:30 P.M.

15SOCIETY**Session 9A: RISK PERCEPTION AND COMMUNICATION OF WEATHER AND CLIMATE THREATS. PART I –15/B**

Chairs: Paul M. Chakalian, CIMMS, Norman, OK; Jennifer A. Spinney, Univ. of Western Ontario, London, Canada

1:30 P.M.

9A.1 *Early Warning Early Action for Flash Flood Disasters.* **Andrew Kruczkiewicz**, IRI, Palisades, NY; M. Nielsen, H. Greatrex, K. Siahann, S. N. McClain, J. Bazo

1:45 P.M.

9A.2 *Surveying the Public about Their Perception and Response to "Everyday" Severe Weather.* **Brenda J. Philips**, Univ. of Massachusetts, Amherst, MA; C. League, J. Trainor, N. Meyers

2:00 P.M.

9A.3 *Retrospective and Prospective Evaluations of Droughts and Floods among Residents along the U.S. Gulf Coast.* **Wanyun Shao**, Univ. of Alabama, Tuscaloosa, AL; J. Kam

2:15 P.M.

9A.4 *The Perception of Flash Flood Risk among Emergency Managers in the NWS-MRX County Warning Area.* **Savannah A. Collins-Key**, Univ. of Tennessee, Knoxville, TN; K. N. Ellis, L. Reyes Mason

1:30 P.M.–2:30 P.M.

15SOCIETY**Session 9B: SOCIAL JUSTICE AND SCIENTIFIC PRACTICE IN THE TWENTY-FIRST CENTURY –152**

Chairs: Randy A. Peppler, Univ. of Oklahoma, Norman, OK; Susan A. Jasko, University of Alabama, Tuscaloosa, AL

1:30 P.M.

9B.1 *Social and Environmental Justice in Cap-and-Trade Emissions Programs: Connections Back to Research and Policy?* **Randy A. Peppler**, Univ. of Oklahoma, Norman, OK

1:45 P.M.

9B.2 *Cloudy with a Chance of Sexism: Examining Race and Sex of Broadcast Meteorologists on Trust and Credibility.* **Adam M. Rainear**, West Chester Univ. of Pennsylvania, West Chester, PA

2:00 P.M.

9B.3 *Risk Perceptions of Hurricane Hazards and the Missing Link for Minority Populations.* **Shadya J. Sanders**, NCAS, Washington, DC; L. D. Williams, C. Stroman

2:15 P.M.

Discussion.

1:30 P.M.–2:30 P.M.

15URBAN**Session 10A: HELPING CITIES MANAGE CLIMATE VARIABILITY, CHANGE, AND EXTREMES. PART I –104B**

Chairs: Margaret Hurwitz, NOAA, Silver Spring, MD; Christian Braneon, NASA Goddard Institute for Space Studies, NY; Shanna N. McClain, NASA, Washington, DC

1:30 P.M.

10A.1 *The Health Department's Role in New York City's Mitigation Plans for Future Extreme Heat Events.* **Sarah Johnson**, New York City Department of Health and Mental Hygiene, New York, NY; K. Lane, L. Smalls-Mantey, B. Gunther, K. Charles-Guzman, K. Ito

2:00 P.M.

10A.2 *Urban Climate Transformation Process—First Experiences in Successfully Advising Austrian Cities.* **Isabel Auer**, Weatherpark GmbH Meteorological Research and Services, Vienna, Austria; S. J. Tschannett, M. Holzer, W. Gepp, M. Ratheiser, A. Salvini-Plawen

2:15 P.M.

10A.3 *Comparing Impacts of Different Rooftop Technologies for Mitigating Urban Heat Islands and Reducing Building Energy Consumption in an Alpine City.* **Lorenzo Giovannini**, Univ. of Trento, Trento, Italy; A. Zonato, A. Martilli, D. Zardi, F. Chen

1:30 P.M.–2:30 P.M.

15URBAN

Session 10B: URBAN BOUNDARY LAYERS—
MODELING AND OBSERVATIONS. PART I –104C**Chair:** Mukul Tewari, Lafayette, CO

1:30 P.M.

10B.1 A CUDA-Based Implementation of a Fast Response Urban Wind Model. **Behnam Bozorgmehr**, Univ. of Utah, Salt Lake City, UT; Z. Patterson, P.Willemsen, J.A. Gibbs, R. Stoll, J. J. Kim, E. R. Pardyjak

1:45 P.M.

10B.2 On a New $k-\epsilon$ Parametrization Closure for Building-Induced Turbulence. **Andrea Zonato**, Univ. of Trento, Trento, Italy; L. Giovannini, A. Martilli, D. Zardi, P.A. Jimenez, J. Dudhia, J. L. Santiago

2:00 P.M.

10B.3 Developing an Urban Canopy Model for Neighborhood-Scale Thermal Exposure Assessment. **Negin Nazarian**, Univ. of New South Wales, Australia; S. Krayenhoff, A. Martilli

2:15 P.M.

10B.4 Modeling Studies of Urban Heat Island Induced Surface Mesovortices over the St. Louis Metropolitan Area. **Robert W. Pasken**, Saint Louis Univ., Saint Louis, MO; S. Chiao

1:30 P.M.–2:30 P.M.

12AEROSOL

Session 8: ADVANCES IN OBSERVATIONAL AND
MODELING STUDIES OF THE ROLE OF MINERAL
DUST IN THE EARTH SYSTEM. PART III –208**Chairs:** Bing Pu, Univ. of Kansas, Lawrence, KS; Hongbin Yu, NASA, Greenbelt, MD; Xiaohong Liu, Univ. of Wyoming, Laramie, WY; Zhibo Zhang, Univ. of Maryland, Baltimore, MD

1:30 P.M.

8.1 Disproving the Bodélé Depression as the Primary Source of Dust Fertilizing the Amazon Rain Forest (Invited Presentation). **Yan Yu**, Univ. of California, Los Angeles, CA; O.V. Kalashnikova, M. J. Garay, H. Lee, M. Norato, J. R. Campbell, J. W. Marquis, G. S. Okin

2:00 P.M.

8.2 On the Detection of High-Latitude Dust Using Deep Learning Methods. **Georgios Priftis**, Univ. of Alabama, Huntsville, AL; B. Freitag, M. Ramasubramanian, I. Gurung, M. Maskey, R. Ramachandran

2:15 P.M.

8.3 What's in a Dust Storm? A Characteristics Comparison of Dust Storms Measured by AEROS in West Texas.. **Karin Ardon-Dryer**, Texas Tech Univ., Lubbock, TX; M. C. Kelley, M. Plantier, X. Xia

1:30 P.M.–2:30 P.M.

11ENERGY

Session 12: SOLAR FORECASTING. PART II –256

Chairs: Caroline Draxl, National Renewable Energy Laboratory, Golden, CO; William F. Holmgren, The Univ. of Arizona, Tucson, AZ

1:30 P.M.

12.1 Measuring the Skill of Numerical Weather Prediction Models at Forecasting Solar Ramp Events. **Laura Bianco**, CIRES, Boulder, CO; I.V. Djalalova, J. M. Wilczak, E. Akish, J. B. Olson, K. Lantz

1:45 P.M.

12.2 Increasing Solar Energy Forecast Skill Using a Mesoscale Ensemble. **David M. Siuta**, Northview Weather LLC, Barton, VT; K. Cronin, J. C. Shafer

2:00 P.M.

12.3 Aerosol Optical Depth Forecasts for Solar Irradiance Forecasting in the Middle East. **Jared A. Lee**, NCAR, Boulder, CO; P.A. Jimenez, C. Gueymard, G. Thompson, B. Kosovic, S. Basart, C. Pérez García-Pando, M. Al-Rasheedi

2:15 P.M.

12.4 Improvement of Aerosol Optical Depth Data for Localized Insolation Forecasting. **Manajit Sengupta**, National Renewable Energy Laboratory, Golden, CO; C.A. Lin, Y. Zhang, G.A. Heath, D. Henze

1:30 P.M.–2:30 P.M.

11HEALTH / 18HISTORY

Joint Session 46: ON THE SHOULDERS OF GIANTS:
FORMATIVE MOMENTS FOR ENVIRONMENT AND
HEALTH RESEARCH (CORE SCIENCE KEYNOTE)
(CENTENNIAL) –153B**Chair:** Jane Wilson Baldwin, Princeton Univ., Princeton, NJ

1:30 P.M.

J46.1 Benefits to Children's Health of Climate Change Mitigation Policies. **Frederica Perera**, Columbia Univ., New York City, NY; A. Berberian, D. Mills, P. L. Kinney, D. Cooley

1:45 P.M.

J46.2 The Past and Future in Understanding the Health Risks of and Responses to Climate Variability and Change. **Kristie L. Ebi**, Univ. of Washington, Seattle, WA

2:00 P.M.

J46.3 Climate-Driven Modeling of Malaria and Other Infectious Diseases (Core Science Keynote). **Andy Morse**, Univ. of Liverpool, Liverpool, UK

1:30 P.M.–2:30 P.M.

10PYTHON

Lecture 7: INTERACTIVE TUTORIALS IN PYTHON.
PART II: VISUALIZATION AND DATA IN THE
PANGEO ECOSYSTEM –157AB

1:30 P.M.–2:30 P.M.

10LIDAR**Session 5: LIDAR IN AIR QUALITY AND CLIMATE STUDIES –209****Chair:** Kevin S. Repasky, Montana State Univ., Bozeman, MT**1:30 P.M.**

5.1 *Applications of Scanning Depolarization Lidar for Air Quality and Boundary Layer Monitoring in a High-Populated and Topography-Complex Valley.* **Santiago Jaramillo-Gil**, Sistema de Alerta Temprana de Medellín y el Valle de Aburrá (SIATA), Área Metropolitana del Valle de Aburrá (AMVA), Medellín, Colombia; C. D. Hoyos, L. Herrera, N. Roldan, C. Toro

1:45 P.M.

5.2 *Retrieving $PM_{2.5}$ Concentrations over the Contiguous United States through the Use of CALIOP and HSRL Observations.* **Travis D. Toth**, NASA Langley Research Center, Hampton, VA; J. Zhang, M. A. Vaughan, J. S. Reid, J. R. Campbell

2:00 P.M.

5.3 *Trends in Tropospheric and Lower-Stratospheric Water Vapor above Switzerland Derived from a 10-Year Raman Lidar Dataset.* **Alexander Haefele**, Federal Office of Meteorology and Climatology, Payerne, Switzerland; S. Hicks-Jalali, G. Martucci, E. Maillard Barras, R. J. Sica

2:15 P.M.

5.4 *Lidar Observation and Modeling of a Stratospheric Intrusion above Hampton, Virginia, on 14 February 2019.* **Guillaume Gronoff**, NASA, Hampton, VA; T. Berkoff, K. E. Knowland, G. Schuster, W. Carrion

1:30 P.M.–2:30 P.M.

10R20**Session 10A: IMPROVING R20 AND O2R IN THE 0–18-H FORECAST RANGE LINKING RESEARCH AND OPERATIONS TO FORECASTERS' NEEDS—PART III –252A****Chairs:** Hendrik Tolman, NOAA NWS STI, College Park, MD; Jacob Carley, NOAA/NWS/NCEP, College Park, MD**1:30 P.M.**

10A.1 *Evaluating the Addition of Forecast Timing Information with Multiple User Groups.* **Makenzie Krocak**, Cooperative Institute for Mesoscale Meteorological Studies, Norman, OK; H. E. Brooks

1:45 P.M.

10A.2 *Toward Better Operational Predictions of High-Impact Winter Weather in the Northern High Plains and Rockies.* **Bart Geerts**, Univ. of Wyoming, Laramie, WY; Z. J. Lebo, R. Capella, E. M. Collins, R. Cox, T. Alcott, M. Brothers, A. Lyons

2:00 P.M.

10A.3 *Accelerating the Evaluation of Experimental NWP Forecasts via Crowdsourcing.* **Michael Baldwin**, Purdue Univ., West Lafayette, IN

2:15 P.M.

10A.4 *National Weather Service Data Needs for Short-Term Forecasts and the Role of Unmanned Aircraft in Filling the Gap: Results from a Nationwide Survey.* **Adam L. Houston**, Univ. of Nebraska, Lincoln, NE; L. Pytlík, J. Walther

1:30 P.M.–2:30 P.M.

10R20**Session 10B: NATIONAL AND INTERNATIONAL EFFORTS AND PARTNERSHIPS (I.E., COMMUNITY GLOBAL MODELING): NEXT GENERATION GLOBAL PREDICTION SYSTEM (NGGPS) AND BEYOND: IMPROVEMENTS, KEY COMPONENTS, AND STATISTICAL TECHNIQUES TO EVALUATE GLOBAL MODELS—PART I –251****Chairs:** Vijay Tallapragada, NOAA/NWS/NCEP, College Park, MD; Fanglin Yang, NOAA/NWS/NCEP, College Park, MD**1:30 P.M.**

10B.1 *NOAA's Next Generation Global Prediction System (NGGPS) Program Update.* **Dorothy M. Koch**, NOAA/NWS/NCEP, Silver Spring, MD; H. L. Tolman, W. Pryor, F. Adimi, S. Morris

1:45 P.M.

10B.2 *A Community Effort to Unify Verification and Validation Efforts.* **Tara Jensen**, NCAR, Boulder, CO; G. Manikin, J. A. Otkin, I. Stajner, Z. Wang

2:00 P.M.

10B.3 *Fostering National and International Collaboration through the Enhanced Model Evaluation Tools (METplus).* **Tara Jensen**, NCAR, Boulder, CO; J. Halley Gotway, M. P. Row, J. J. Levit, B. Strong, M. Marquis

2:15 P.M.

10B.4 *Model Upgrade Plan and Initial Results from a Prototype NCEP Global Forecast System Version 16.* **Fanglin Yang**, NOAA/NWS/NCEP/EMC, College Park, MD; V. Tallapragada, J. S. Kain, H. Wei, R. Yang, V. A. Yudin, S. Moorthi, J. Han, Y. T. Hou, J. Wang, R. Treadon, D. T. Kleist

1:30 P.M.–2:30 P.M.

8WXCLIMATE**Session 7A: INTEGRATING DECISION SUPPORT AND SERVICE DELIVERY TO ENSURE USE-INSPIRED PRODUCTS AND SERVICES. PART II –252B****Chair:** Ellen L. Mecray, NOAA, Norton, MA**1:30 P.M.**

7A.1 *User Engagement and Service Delivery—Collecting Requirements at Regional Scales.* **Ellen L. Mecray**, NOAA, Norton, MA

1:45 P.M.

7A.2 *Use-Inspired Science at NOAA's National Centers for Environmental Information: Incorporating User Feedback into Product Improvement.* **Michael J. Brewer**, NOAA/NESDIS/National Centers for Environmental Information, Asheville, NC; A. Hollingshead, N. Jones, J. Dissen

2:00 P.M.

7A.3 NASA's Land, Atmosphere Near-Real-Time Capability for EOS (LANCE): Delivering Data and Imagery to Meet the Needs of Near-Real-Time Applications.. **Karen Michael**, NASA, Greenbelt, MD; D. Davies, D. S. Green, T. Yao, R. Boller

2:15 P.M.

7A.4 Building an Interannual-to-Decadal Prediction and Projection Capability for Decision Support. **Jessie C. Carman**, OAR, Silver Spring, MD; B. R. Brown, J. Infanti, B. Johnson, S. Sandgathe, C. S. James, D. McCarren, E. McIlvain

1:30 P.M.–2:30 P.M.**8WXCLIMATE**

Session 7B: PLANS AND ACTIVITIES DIRECTED AT ACHIEVING THE GOALS OF THE WEATHER RESEARCH AND FORECASTING INNOVATION ACT OF 2017 –254A

Chair: Tamara L. Battle, OAR, Silver Spring, MD

1:30 P.M.

7B.1 Plans and Activities Directed at Achieving the Goals of the Weather Research and Forecasting Innovation Act 2017. **Tamara L. Battle**, OAR, Silver Spring, MD; J. V. Cortinas Jr., K. Boyd

1:45 P.M.

7B.2 Policy and Execution in Support of the Weather Research and Forecasting Innovation Act. **William Callahan**, Earth Networks, Germantown, MD; S. Woll

2:00 P.M.

7B.3 A Systems Perspective on the Environmental Prediction Enterprise. **D. E. Waliser**, JPL, Pasadena, CA

2:15 P.M.

Panel Discussion.

1:30 P.M.–2:30 P.M.**8WRN**

Session 7: COMMUNICATING CONFIDENCE AND UNCERTAINTY –153C

1:30 P.M.

7.1 Communicating Confidence and Uncertainty in the National Weather Service Training Center's Impact Based Decision Support Services (IDSS) Deployment Boot Camp. **Megan N. Taylor**, NWS, Kansas City, MO; J. Keeney

1:45 P.M.

7.2 Forecast Uncertain? Improving the Use of Hydrologic Probabilistic Information in Decision-Making. **Kathryn Semmens**, Nurture Nature Center, Easton, PA; R. H. Carr, B. E. Montz, K. Maxfield

2:00 P.M.

7.3 Analyzing and Processing Probabilistic Model Data to Convey Potential Threats to Decision-Makers in the Day 3–7 Period. **James E. Lee**, NOAA/NWS Baltimore/Washington Weather Forecast Office, Sterling, VA; S. M. Zubrick, J. C. Elliott, C. A. Strong, B. J. Lasorsa, J. Goldstein

7.4 WITHDRAWN

1:30 P.M.–2:30 P.M.**6HPC / 19AI**

Joint Session 47: BIG DATA, BIG COMPUTING, BIGGER SCIENCE: HIGH-PERFORMANCE COMPUTING ENABLED ARTIFICIAL INTELLIGENCE –212

Chairs: Timothy S. Sliwinski, Texas Tech Univ., Lubbock, TX, , Group NIRE, Lubbock, TX; David John Gagne, NCAR, Boulder, CO

1:30 P.M.

J47.1 Deep Learning for Automated Feature Detection in Climate, Weather, and Space. **David Hall**, NVIDIA Corporation, Lafayette, CO; C. Tierney, S. Posey, J. Hooks

1:45 P.M.

J47.2 Toward Unsupervised Segmentation of Extreme Weather Events. **Karthik Kashinath**, LBNL, Berkeley, CA; A. Rupe, N. Kumar, V. Lee, M. Prabhat, J. P. Crutchfield

2:00 P.M.

J47.3 Assessing Changes in Tropical Cyclone Genesis under Varying Climate Scenarios. **Karthik Kashinath**, LBNL, Berkeley, CA; A. Fernandez, J. McAuliffe, D. Nolan, C. M. Patricola, M. Prabhat, M. F. Wehner

2:15 P.M.

J47.4 Meteorological Event Identification Using National Weather Service Forecast Discussions. **Brian Freitag**, Univ. of Alabama Huntsville, AL; K. Bugbee, J. Miller, J. Zhang, R. Ramachandran, M. Maskey

1:30 P.M.–2:30 P.M.**TROPSYMPI / 8MJO**

Joint Session 48: TROPICAL CONVECTION. PART II –205B

Chairs: Allison A. Wing, Florida State Univ., Tallahassee, FL; Lidia Huaman, Texas A&M Univ., College Station, TX

1:30 P.M.

J48.1 Overview and Highlights of OTREC. **Zeljka Fuchs-Stone**, New Mexico Tech, Socorro, NM

1:45 P.M.

J48.2 900–700-hPa Static Stability Controls on Tropical Convection in Moist Environments. **Scott W. Powell**, Naval Postgraduate School, Monterey, CA

2:00 P.M.

J48.3 The Influence of Moisture on the Development of Tropical Deep Convection in High-Resolution Simulations. **Rachel L. Storer**, Colorado State Univ., Fort Collins, CO; K. A. Schiro, D. J. Posselt

2:15 P.M.

J48.4 A Simple Conceptual Model for Rainfall over Flat Tropical Islands. **Timothy W. Cronin**, MIT, Cambridge, MA; M. Velez-Pardo, P. Molnar

1:30 P.M.–2:30 P.M.

FUTURESYMPO

Panel Discussion 5: THE EVOLVING ROLE OF THE HUMAN IN WEATHER PREDICTION AND COMMUNICATION: TRAINING AND PROFICIENCY FOR FUTURE FORECASTING –258B

Moderators: Neil A. Stuart, NOAA/NWS, Albany, NY; Robert Hoffman, Florida Institute of Human and Machine Cognition, Pensacola, FL

Panelists: David M. Schultz, Univ. of Manchester, Manchester, UK; Gary Lackmann, North Carolina State Univ., Raleigh, NC; Harold Brooks, Univ. of Oklahoma School of Meteorology, Norman, OK; Paul Roebber, Univ. of Wisconsin, Milwaukee, WI

1:30 P.M.–2:30 P.M.

CLIMATEPOLICY

Panel Discussion 3: EVALUATING THE SOLUTIONS: WHAT INTEGRATED ASSESSMENT MODELS TELL US –254B

Moderator: Caroline Palmer Normile, American Meteorological Society, Boston, MA

Panelists: Gilbert Metcalf, Tufts Univ., Medford, MA; Juliette Rooney-Varga, Univ. of Massachusetts, Lowell, MA; Rick Knight, Citizens' Climate Lobby, Brookfield, IL; Gernot Wagner, New York Univ., New York, NY; Gernot Wagner, New York Univ., New York, NY

2:00 P.M.–2:30 P.M.

23ASLI

Session 5: HISTORY AND ATMOSPHERIC SCIENCE LITERATURE –259B

Chair: Jewel Ward, LAC Group, Asheville, NC

2:00 P.M.

5.1 Jinny Nathans, American Meteorological Society, Boston, MA

2:15 P.M.

5.2 Sophie Mankins, American Meteorological Society, Boston, MA

3:00 P.M.–4:00 P.M.

SCHUBERTSYMPO

Session 4: TROPICAL TO GLOBAL ATMOSPHERIC CIRCULATION SYSTEMS –210C

Chairs: Paul E. Ciesielski, Colorado State Univ., Fort Collins, CO; Richard K. Taft, Colorado State Univ., Fort Collins, CO

3:00 P.M.

4.1 *Vertical Dependence of the Scale and Structure of Stratospheric Equatorial Waves.* **George Kiladis**, NOAA, Boulder, CO; J. R. Albers, J. Dias

3:15 P.M.

4.2 *Tales of the QBO, Effects on the Wintertime Tropospheric Flow, and Stratospheric–Tropospheric Dynamical Coupling.* **Gudrun Magnusdottir**, Univ. of California, Irvine, CA

3:30 P.M.

4.3 *Topographically Bound Balanced Flow over Antarctica.* **Scott R. Fulton**, Clarkson Univ., Potsdam, NY

3:45 P.M.

4.4 *Normal Mode Weak Interaction: From the Diurnal to Decadal and Longer Time Scales.* **Pedro Leite Silva Dias**, Univ. of São Paulo, São Paulo, Brazil

3:00 P.M.–4:00 P.M.

48BROADCAST

Panel Discussion 2: COPING WITH TWENTY-FIRST-CENTURY ISSUES. PART II –204AB

Chair: Christopher John Gloninger, NBC 10 Boston, Boston, MA

Panelists: Bernadette Woods Plackey, Climate Central, Princeton, NJ; Sean Sublette, Climate Central, Princeton, NJ

3:00 P.M.

PD2.1 *Power Forecasts: Using Daily Wind and Solar Energy Predictions.* **Sean Sublette**, Climate Central, Princeton, NJ; B.W. Plackey

3:00 P.M.–4:00 P.M.

36EIP

Session 11B: RADAR TECHNOLOGIES AND APPLICATIONS. PART IV –155

Chairs: Kurt D. Hondl, NOAA/NSSL, Norman, OK; Michael J. Istok, NOAA/NWS, Silver Spring, MD; Mark B. Yeary, Univ. of Oklahoma, Norman, OK

3:00 P.M.

11B.1 *A New Ka-Band Image PAR Concept for 4D-Volume Rapid Scan for Cloud Observations.* **Jorge Salazar-Cerreno**, Norman, OK; D. Bodine, J. McDaniel, C. R. Homeyer, R. D. Palmer, M. Yeary, P. E. Kirstetter, G. M. McFarquhar, J. F. Kelly, B. M. Isom, P. Kollias, M. R. Kumjian, S. Tanelli

3:15 P.M.

11B.2 *Dual-Polarization Radar Snow QPE in MRMS.* **Wolfgang Hanft**, CIMMS/Univ. of Oklahoma and NOAA/NSSL, Norman, OK; J. Zhang, P. Bukovcic, A.V. Ryzhkov, S. B. Cocks, S. M. Martinaitis, K.W. Howard

3:30 P.M.

11B.3 *Utilizing Dual-Polarization Instantaneous Precipitation Rate to Predict Flash Flooding.* **Aaron Reynolds**, NWS, Buffalo, NY; D. Church, K. Apffel

3:45 P.M.

11B.4 *Drop-Size Distribution Retrieval With Dual-Frequency Dual-Polarization Radars.* **Yadong Wang**, Southern Illinois Univ., Edwardsville, IL; L. Tang, P. L. Chang

3:00 P.M.–4:00 P.M.

36EPT / 23ASLI

Joint Session 49: FAIR AND OPEN DATA WITHIN THE ATMOSPHERIC SCIENCES. PART I –157C**Chairs:** Mohan Ramamurthy, UCAR, Boulder, CO; Matthew S. Mayernik, NCAR, Boulder, CO

3:00 P.M.

J49.1 *Addressing FAIR Data Principles Sustainably.* **Richard McAllister**, Orbital Micro Systems, Inc., Boulder, CO; D.W. Gallaher, C. Pankratz, J. Craft, G. Grant, K. Schaefer

3:15 P.M.

J49.2 *Advancing FAIR Data within NASA's WDS Trusted Physical Oceanography Repository.* **David F. Moroni**, JPL, Pasadena, CA; E. M. Armstrong, J. C. Klose, S. Vannan

3:30 P.M.

J49.3 *Addressing FAIR Challenges in Serving the Bureau of Reclamation's Weather, Water, and Water-Related Data.* **Levi D. Brekke**, U.S. Bureau of Reclamation, Denver, CO; A. Odell, K. Nowak, S. Poulton, J. Nagode

3:45 P.M.

J49.4 *AMS 2019 Open Data Distributed on Amazon's Cloud Service.* **Roope Tervo**, Finnish Meteorological Institute, Helsinki, Finland; M. Sofiev

3:00 P.M.–4:00 P.M.

34HYDRO

Session 11: EARTH OBSERVATIONS AND ENVIRONMENTAL MODELING FOR AGRICULTURE AND FOOD SECURITY. PART I –253C**Chairs:** Pierre Guillevic, Univ. of Maryland, College Park, MD; Chris Justice, Univ. of Maryland, College Park, MD

3:00 P.M.

11.1 *Earth Observations and Land Surface Models to Support Agricultural Water Resources Management (Centennial).* **Pierre Guillevic**, Univ. of Maryland, College Park, College Park, MD; J. C. Roger, I. Becker-Reshef, A. Coffin, A. French, J. Hatfield, M. Humber, J. Jeong, F. Jarrin, C. Justice, W. Mbungu, C. Nakalembe, C. Sanchez, S. Tumbo, E. Vermote, A. Vintzileos, M. Cryder

3:15 P.M.

11.2 *The World Climate Research Programme Grand Challenge on Water for the Food Baskets in the World.* **P. J. Van Oevelen**, International GEWEX Project Office, Washington, DC; R. Rasmussen, J. Polcher, A. C. Ruane

3:30 P.M.

11.3 *Using a New Evaporative Demand Reanalysis to Understand the Demand Perspective of Drought and Food Insecurity in Africa.* **Mike Hobbins**, CIRES, Boulder, CO; A. McNally, D. P. Sarmiento, T. Jansma, G. Husak, W. Turner, J. P. Verdin

3:45 P.M.

11.4 *Evaluation of Vegetation and Thermal Infrared-Based ET Maps for Real-Time Water Use and Stress Monitoring in a California Vineyard.* **Kyle Knipper**, USDA-ARS, Beltsville, MD; W. P. Kustas, M. C. Anderson, M. M. Alsina, C. R. Hain, J. G. Alfieri, J. Prueger, F. Gao, A. McElrone, N. Bambach-Ortiz, L. G. McKee, L. Sanchez

3:00 P.M.–4:00 P.M.

34HYDRO / 33CVC

Joint Session 50: HEAVY PRECIPITATION AND FLOOD RISK UNDER A CHANGING CLIMATE. PART I –253A**Chairs:** Mathias J. Collins, NOAA, Gloucester, MA; Xander Wang, Univ. of Prince Edward Island, Charlottetown, Canada; Glenn Hodgkins, USGS, Augusta, ME; Ellen Mecray, NESDIS, Norton, MA; Art DeGaetano, Cornell Univ., Ithaca, NY

3:00 P.M.

J50.1 *Nonstationary or Stationary Frequency Analysis? (Invited Presentation).* **Richard M. Vogel**, Tufts Univ., Medford, MA; C. N. Vogel

3:15 P.M.

J50.2 *Urban Flood Prediction under Heavy Precipitation.* **Xander Wang**, Univ. of Prince Edward Island, Charlottetown, Canada; G. Kinsland, D. Poudel, A. Fenech

3:30 P.M.

J50.3 *Hydrometeorological Conditions Preceding Extreme Streamflow for the Charles and Mystic River Basins of Eastern Massachusetts.* **Laurie Agel**, Univ. of Massachusetts, Lowell, MA; M. Barlow, M. J. Collins, E. M. Douglas, P. Kirshen

3:45 P.M.

J50.4 *Stormwater Management in a Changing Climate.* **Kenneth W. Potter**, Univ. of Wisconsin, Madison, WI

3:00 P.M.–4:00 P.M.

33CVC

Session 10A: IN SITU MEASUREMENTS OF THE EARTH SYSTEM –150

3:00 P.M.

10A.1 *Sector-Based Analysis of Atmospheric Rivers from Dropsondes.* **Alison C. Cobb**, SIO, La Jolla, CA; A. C. Michaelis, S. F. Iacobellis, F. M. Ralph

3:15 P.M.

10A.2 *Long-Term Trends in Precipitable Water over Northern Hemisphere Land.* **Imke Durre**, NOAA/NESDIS/NCEI, Asheville, NC

3:30 P.M.

10A.3 *A New Method to Homogenize Atmospheric Radiosonde Daily Temperature Data.* **Junhong (June) Wang**, Univ. at Albany, SUNY, Albany, NY; C. Zhou, A. Dai

3:45 P.M.

10A.4 *Identification of Physical Heterogeneities in Canadian High-Frequency Air Temperature Records.* **Ana Žaknić-Čatović**, Univ. of Toronto, Scarborough, Toronto, Canada; W. A. Gough

3:00 P.M.—4:00 P.M.

33CVC

Session 10B: UNDERSTANDING EXTREME AND COMPOUND WEATHER EVENTS. PART II –154**Chair:** Isla Simpson, National Center for Atmospheric Research, Boulder, CO

3:00 P.M.

10B.1 *Processes Determining Heat Waves across Different European Climates.* **Andreas H. Fink**, Karlsruhe Institute of Technology, Karlsruhe, Germany; P. Zschenderlein, S. Pfahl, H. Wernli

3:15 P.M.

10B.2 *It's Not the Heat, It's the Humidity: The Changing Nature of Summer Hot Days.* **Karen McKinnon**, Univ. of California, Los Angeles, CA

3:30 P.M.

10B.3 *U.S. Cold-Air Outbreak of November 2014: Precursors and Predictability.* **Heather Archambault**, Citadel, LLC, Greenwich, CT; W. Norton

3:45 P.M.

10B.4 *Enhanced Risk of Multiple Breadbasket Failures Due to Amplified Rossby Waves.* **Kai Kornhuber**, Columbia Univ., New York, NY; C. Lesk, R. M. Horton

3:00 P.M.—4:00 P.M.

30WAF26NWP

Session 10A: ADVANCES IN RADAR USAGE FOR WEATHER ANALYSIS AND FORECASTING. PART II –258A**Chair:** Gregory J. Stumpf, CIMMS/Univ. of Oklahoma and NOAA/NWS/Meteorological Development Laboratory, Norman, OK

3:00 P.M.

10A.1 *Is a Real-Time Surface Precipitation Type Product Based on Observations from a Radar Network Any Good? a 5-yr Analysis from the UK.* **Ben S. Pickering**, NERC, Leeds, UK; R. R. Neely III, S. Best

3:15 P.M.

10A.2 *A New Long-Term Radar Reflectivity Nowcasting Method Based on DeepRNN.* **Xufeng Guo**, Shanghai Em-Data Technology Co., Ltd., Shanghai, China; Z. Liu, Y. Meng, G. Yao, Y. Xiao, Z. Yan, C. Lu

3:30 P.M.

10A.3 *Impacts of Assimilating WSR-88D Radar Observations on Snowbands Embedded within an Intense Northeast U.S. Cyclone.* **Keenan R. Fryer**, Stony Brook Univ., Stony Brook, NY; B.A. Colle

3:45 P.M.

10A.4 *A Meteorologist Embedded with Engineers: Bringing NWS User Perspectives to the Design of Future Operational Weather Radar Systems.* **Jami B. Boettcher**, CIMMS/Univ. of Oklahoma, Norman, OK; F. Nai

3:00 P.M.—4:00 P.M.

30WAF26NWP

Session 10B: ANALYSIS AND FORECASTING OF MESOSCALE WEATHER PHENOMENA. PART II –151A**Chair:** Andrew C. Winters, Univ. of Colorado Boulder, Boulder, CO

3:00 P.M.

10B.1 *Mesoscale Modification of Precipitation during Landfalling Atmospheric Rivers by Frontal Cyclogenesis.* **Andrew C. Martin**, Portland State Univ., Portland, OR; A. C. Michaelis

3:15 P.M.

10B.2 *Diabatic Contributions to the Formation and Evolution of Mesoscale Frontal Waves in Atmospheric River Events along the U.S. West Coast.* **Allison C. Michaelis**, SIO/Center for Western Weather and Water Extremes, La Jolla, CA; A. C. Martin, B. K. Kawzenuk, F. M. Ralph

3:30 P.M.

10B.3 *A Case Study of the Physical Processes Associated with the Atmospheric River Initial Condition Sensitivity from an Adjoint Model.* **Reuben Demirdjian**, SIO/Univ. of California, San Diego, CA

3:45 P.M.

10B.4 *Terrain Effects on Frontogenesis and Snowfall across the Southern Appalachians.* **Allan Diegan**, NOAA/NWS, Morristown, TN; J. L. Buckles

3:00 P.M.—4:00 P.M.

30WAF26NWP / 10R20 / FUTURESYP

Joint Session 51: CHALLENGES IN COMMUNICATION AND DECISION SUPPORT THROUGHOUT THE RESEARCH-TO-OPERATIONS NEXUS –257AB**Chair:** Gregory J. Stumpf, CIMMS/Univ. of Oklahoma and NOAA/NWS/Meteorological Development Laboratory, Norman, OK

3:00 P.M.

J51.1 *A Summary of the Research Operations Nexus (RON) Meetups at NWA and AMS.* **Gregory J. Stumpf**, CIMMS/Univ. of Oklahoma and NOAA/NWS/Meteorological Development Laboratory, Norman, OK

3:15 P.M.

J51.2 *Decision Support—What We Say and How We Say It Makes a Difference: A Look at Effective Communication toward Appropriate Partner Preparedness.* **Eric Boldt**, NWS, Oxnard, CA

3:30 P.M.

J51.3 *Communicating Rip Current Risk with a Virtual Reality Video Game.* **Jase Bernhardt**, Hofstra Univ., Hempstead, NY; G. Dusek, A. Hesse

3:45 P.M.

J51.4 *Updates to the Winter Storm Severity Index for 2019/20.* **Joshua Kastman**, NOAA/NWS, College Park, MD; J.A. Nelson Jr.

3:00 P.M.—4:00 P.M.

26PROBSTAT**Session 8: NOVEL METHODS IN POSTPROCESSING –260**

Chairs: Tara Jensen, NCAR, Boulder, CO; Betsy Weatherhead, Jupiter, Boulder, CO; John R. Lawson, CIMMS/NSSL, Norman, OK

3:00 P.M.

8.1 *Principal Component Analysis as a Tool to Summarize Spatiotemporal Variations of Trends in Multiple Climate Variables.*

Radan Huth, Faculty of Science, Charles Univ., Prague, Czech Republic; M. Kucerova, L. Pokorna

3:15 P.M.

8.2 *Improving Lightning Prediction Using Wavelet Transformations and Semiparametric Modeling.* **Jared Nystrom**, Air Force Institute of Technology, Wright-Patterson AFB, OH; R. R. Hill, J. Pignatiello, E. Chicken, A. Geyer

3:30 P.M.

8.3 *An Analysis of the Lightning Detection Threshold Using Electric Field Mill Data at Cape Canaveral AFS, Florida.* **Charles A. Skrovan**, Air Force Institute of Technology, Wright-Patterson AFB, OH; A. J. Geyer

3:45 P.M.

8.4 *Causal Discovery: A New Framework Allowing for and Incorporating General Inseparable Interactions.* **Michael A. DeCaria**, Colorado State Univ., Fort Collins, CO; P. J. Van Leeuwen, N. Chakraborty, M. Pulido

3:00 P.M.—4:00 P.M.

25APPLIED**Session 9: STATE CLIMATE OFFICES: APPLYING CLIMATOLOGICAL EXPERTISE TO SERVE AT THE STATE AND LOCAL LEVELS AS A PART OF THE NATIONAL CLIMATE SERVICES PARTNERSHIP—PART II –153A**

Chair: Glenn Kerr, AASC = American Association of State Climatologists, Asheville, NC

3:00 P.M.

9.1 *Using Historical Trends as Projections.* **John W. Nielsen-Gammon**, Texas A&M Univ., College Station, TX

3:15 P.M.

9.2 *The American Association of State Climatologists' Recommendations and Best Practices for Mesonets.* **Christopher A. Fiebrich**, Univ. of Oklahoma, Norman, OK; J. R. Atkins, K. R. Brinson, N. L. Edwards, S. A. Foster, R. Mahmood, C. A. Redmond, M. M. Schargorodski, J. A. Andresen, X. Lin

3:30 P.M.

9.3 *Feasibility of Soil Moisture Monitoring on a State Mesonet.* **Christopher Redmond**, Kansas State Univ., Manhattan, KS; M. Knapp, A. Patrignani

3:45 P.M.

9.4 *Decision Support Systems for the Delmarva Based upon Delaware Environmental Observing System Observations.* **Daniel J. Leathers**, Univ. of Delaware, Newark, DE

3:00 P.M.—4:00 P.M.

24IOAS**Session 11: NUMERICAL ANALYSIS AND PREDICTION EXPERIMENTS INVOLVING OBSERVATIONS: DATA IMPACT AND OBSERVATION SENSITIVITY TESTS. PART II –259A**

Chair: Lidia Cucurull, NOAA/AOML, Miami, FL

3:00 P.M.

11.1 *Impact of GPS Radio Occultation Data on the Prediction of Tropical Cyclogenesis.* **Ying-Hwa (Bill) Kuo**, UCAR, Boulder, CO; S. Y. Chen, H. F. Teng, C. Y. Huang

3:15 P.M.

11.2 *Robustness and Behavior of Adjoint Calculations of Observation Impacts in Numerical Weather Prediction.* **Nikki Privé**, Morgan State Univ., Greenbelt, MD; R. Errico, R. Todling

3:30 P.M.

11.3 *Assessment of Stratospheric Balloon Observations toward Assimilation in NOAA's GSI-Based Global Data Assimilation System.* **Katherine E. Lukens**, U. Maryland/ESSIC/CISESS and NOAA/NESDIS/STAR, College Park, MD; K. Ide, K. Garrett, L. Wang

3:45 P.M.

11.4 *Impact of Satellite Data Latency on Global Weather Forecasts.* **Steven W. Diaz**, CIMAS, Miami, FL; S. P. F. Casey, L. Cucurull

3:00 P.M.—4:00 P.M.

22ATCHEM**Session 11: ACMAP: ATMOSPHERIC CHEMISTRY MODELING AND ANALYSIS PROGRAM. PART VI –206B**

Chairs: Richard Eckman, NASA, Washington, DC; Kenneth Jucks, NASA, Washington, DC

3:00 P.M.

11.1 *New Era of Air Quality Monitoring from Space: Geostationary Environment Monitoring Spectrometer (GEMS).* **Jhoon Kim**, Yonsei Univ., Seoul, Korea, Republic of (South); G. Science Team

3:15 P.M.

11.2 *Observational Data-Driven Surface Concentration Derived from Satellite Columns.* **K. Sun**, RENEW Institute, Univ. at Buffalo, Buffalo, NY; D. Li

3:30 P.M.

11.3 *Improving the Accuracy, Long-Term Consistency, and Speed of the SAO OMI Ozone Profile Product.* **X. Liu**, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA; J. Bak, C. R. Nowlan, G. Gonzalez Abad, C. Chan Miller, K. Yang, R. J. D. Spurr, G. Huang, K. Sun, K. Chance

3:45 P.M.

11.4 *Time of Emergence for the Influence of Climate Change on Surface Ozone.* **Sebastian D Eastham**, MIT, Cambridge, MA; E. Monier, D. Rothenberg, N. Selin

3:00 P.M.—4:00 P.M.

21AIRPOL**Session 11: ADVANCEMENTS AND NEEDS IN DISPERSION MODELING. PART II –211**

Chairs: Steven Hanna, Hanna Consultants, Kennebunkport, ME; Alice Crawford, ARL, College Park, MD

3:00 P.M.

11.1 *Evaluation of Turbulent Mixing in HYSPLIT Using a Tracer of Opportunity Dataset.* **Fong Ngan**, ARL, College Park, MD; A. Crawford, M. Cohen, C. P. Loughner, A. F. Stein

3:15 P.M.

11.2 *Evaluation of High Resolution Rapid Refresh (HRRR) Model Performance for Use in Air Dispersion Modeling.* **Jelena Popovic**, Exponent, Maynard, MA; C. DesAutels

3:30 P.M.

11.3 *Assessment of Lightning Assimilation and Lightning NO in the WRF-CMAQ Modeling System Using WWLLN Lightning Flash Data.* **Daiwen Kang**, EPA, Research Triangle Park, NC; D. Wong, R. C. Gilliam, J. E. Pleim, R. Mathur

3:45 P.M.

11.4 *Evaluation of STILT Features Incorporated into HYSPLIT.* **Christopher P. Loughner**, Univ. of Maryland, College Park, MD; A. F. Stein, J. C. Lin

3:00 P.M.—4:00 P.M.

20SMOI**Session 11: HISTORICAL OBSERVATIONS AND MEASUREMENTS –203**

Chair: Scott D. Landolt, NCAR, Boulder, CO

3:00 P.M.

11.1 *100 Years of Weather Observations at Belvedere Castle in New York City's Central Park.* **Christopher Stachelski**, NWS, Bohemia, NY

3:15 P.M.

11.2 *A 22-Year Hail Climatology using GridRad MESH Observations.* **E. M. Murillo**, Univ. of Oklahoma, Norman, OK; C. R. Homeyer, J. T. Allen

3:30 P.M.

11.3 *Uncovering Weather Observations from the Atmospheric Nuclear Weapon Effects Testing Era.* **Jennifer L. Bewley**, Institute for Defense Analyses, Alexandria, VA; D. Gillingham, K. O'Connor, E. Parrish

3:45 P.M.

11.4 *100 Years of Upper-Air Measurements.* **Chris Vagasky**, Vaisala, Inc., Louisville, CO

3:00 P.M.—4:00 P.M.

20ARAM**Session 9: ADVANCEMENTS IN THE ANALYSIS, NOWCASTING, AND PREDICTION OF CONVECTIVELY INDUCED TURBULENCE –206A**

Chairs: Tammy J. Flowe, FAA, Washington, DC; Soo-Hyun Kim, Yonsei Univ., Seoul, Korea, Republic of (South)

3:00 P.M.

9.1 *Using Numerical Models to Understand Linkages between Deep Convection and Aviation Turbulence (Invited Presentation).* **Stan Trier**, NCAR, Boulder, CO

3:30 P.M.

9.2 *Current Improvements to the Graphical Turbulence Guidance Nowcast (GTGN) Algorithm.* **Julia Pearson**, NCAR, Boulder, CO; W. Deierling, R. D. Sharman

3:45 P.M.

9.3 *Updates on the Graphical Turbulence Guidance (GTG) Product, Including Convectively Induced Turbulence Detection.* **Wibke Deierling**, NCAR, Boulder, CO; R. Sharman, D. Munoz-Esparza, J. Pearson, G. Meymaris

3:00 P.M.—4:00 P.M.

19AI**Session 10: THE FUTURE OF AI IN ENVIRONMENTAL SCIENCE –156BC**

Chairs: David John Gagne, NCAR, Boulder, CO; Amy McGovern, Univ. of Oklahoma, Norman, OK; Carlos F. Gaitan, Arable Labs, Inc., Princeton, NJ

3:00 P.M.

10.1 *AI2ES: Alpha-Institute—Artificial Intelligence for Environmental Sciences.* **Amy McGovern**, Univ. of Oklahoma, Norman, OK; J. Hickey, D. Hall, I. Ebert-Uphoff, C. Thorncroft, J. Williams, R. J. Trapp, R. He, C. Bromberg

3:15 P.M.

10.2 *Building a Cross-Disciplinary Network to Tackle Climate Change with Machine Learning.* **Kelly Kochanski**, Univ. of Colorado Boulder, Boulder, CO; D. Rolnick, P. Donti, L. Kaack

3:30 P.M.

10.3 *NOAA's Artificial Intelligence (AI) Strategy.* **J. Sims**, NOAA/ OFCM, Silver Spring, MD; and T. Gallaudet, W. L. Michaels, V. M. Krasnopolsky, S. A. Boukabara, C. Alexander, G. Dusek, F. Indiviglio, E. J. Kearns, M. Malik, J. McDonough, V. Ramaswamy, J. Q. Stewart, N. Saraf, H. L. Tolman, and F. Verner

3:45 P.M.

Panel Discussion.

3:00 P.M.–4:00 P.M.

19AI / 18COASTAL

Joint Session 52: ARTIFICIAL INTELLIGENCE APPLICATIONS IN THE COASTAL ENVIRONMENT –156A

Chairs: Philippe Tissot, Texas A&M Univ.–Corpus Christi, Corpus Christi, TX; Michael J. Starek, Texas A&M Univ.–Corpus Christi, Corpus Christi, TX

3:00 P.M.

J52.1 *Machine Learning Approaches for the Quality Control of Tide Gauge Observations.* **Gregory Dusek**, NOAA, Silver Spring, MD; P. Tissot, A. Pruessner, V. Soika, G. Story

3:15 P.M.

J52.2 *Applications of Artificial Neural Network in Predicting Water Quality Indicators: Case Studies from Korean Coastal Waters.* **Jongseong Ryu**, Anyang Univ., Ganghwa-gun, Korea, Republic of (South); Y. H. Kim, H. C. Kim, S. Son, M. Lee

3:30 P.M.

J52.3 *Machine Learning Classification of Flood Waters from Hurricanes Harvey and Florence as Captured by Synthetic Aperture Radar and Optical Remote Sensing.* **A. L. Molthan**, MSFC, Huntsville, AL; A. Melancon, J. R. Bell, L. A. Schultz, E. Gebremichael

3:45 P.M.

J52.4 *Suggesting an Efficient Deep Learning Architecture for Coastal Wetland Land Cover Mapping with UAS Imagery.* **Mohammad Pashaei**, Texas A&M Univ.–Corpus Christi, Corpus Christi, TX; H. Kamangir, M. J. Starek, P. Tissot, S. A. King

3:00 P.M.–4:00 P.M.

17SPACEWX

Session 13: ADVANCES IN RESEARCH AND MODELING OF SPACE WEATHER DRIVERS. PART I –205A

Chairs: Valbona Kunkel, NOAA/NWS/EMC via IMISG, Arlington, VA; Robert Robinson, Catholic Univ. of America, Greenbelt, MD; Kelsey Doerksen, Univ. of Western Ontario, London, Canada

3:00 P.M.

13.1 *Current Status and Path forward for Improving Short- to Medium-Range Forecasting of CME Space Weather Impacts (Invited Presentation).* **Angelos Vourlidis**, Applied Physics Laboratory, Laurel, MD

3:15 P.M.

13.2 *The Ground-Level Enhancement Event of September 2017 and Other Large Solar Energetic Particle Events of Cycle 24.* **C. M. S. Cohen**, California Institute of Technology, Pasadena, CA; R. A. Mewaldt

3:30 P.M.

13.3 *New Insights into the Simultaneous Occurrence of Equatorial Counter Electrojet and Ionospheric Irregularities.* **Sovit Khadka**, New Jersey Institute of Technology, Newark, NJ; C. Valladares, A. Gerrard

3:45 P.M.

13.4 *Observations of Pole-to-Pole, Stratosphere-to-Ionosphere Connection.* **Larisa Goncharenko**, Massachusetts Institute of Technology, Westford, MA; V. L. Harvey, C. Randall, A. Coster, S. Zhang, J. France, A. Zalozovski

3:00 P.M.–4:00 P.M.

16GOESRJPSS

Session 10: NATIONAL AND INTERNATIONAL EDUCATION, TRAINING, AND USER READINESS ACTIVITIES FOR THE NEW-GENERATION OPERATIONAL ENVIRONMENTAL SATELLITE SYSTEMS. PART II –253B

Chairs: A. Stevermer, UCAR/COMET, Boulder, CO; Bernie Connell, CIRA/Colorado State Univ., Fort Collins, CO

3:00 P.M.

10.1 *Satellite International Training Working Group Summary of 2019 Events: Lessons Learned and Continuing Education Plans.* **Janel R. Thomas**, Science and Technology Corporation, Greenbelt, MD; S. J. Goodman, D. T. Lindsey, B. Sjoberg, M. Goldberg, N. Donoho, B. H. Connell, E. Madsen, M. Medina, J. Peronto, J. A. Nelson Jr., A. Stevermer, J. M. Galvez, K. A. Caesar

3:15 P.M.

10.2 *COMET's MetEd Learning Resources for the Worldwide Meteorological Satellite User Community: Building on 30 Years of Innovative Instruction.* **Amy Stevermer**, UCAR/COMET, Boulder, CO; P. Dills, T. Mancus, E. M. Page

3:30 P.M.

10.3 *The GOES-R Education Proving Ground.* **Margaret Mooney**, CIMSS/Univ. of Wisconsin–Madison, Madison, WI; V. Gorman, T. Schmit

3:45 P.M.

10.4 *JPSS Product, Applications, and Training Resources.* **J. Torres**, CIRA/Colorado State Univ., Fort Collins, CO; B. H. Connell

3:00 P.M.–4:00 P.M.

15SOCIETY

Session 10: RISK PERCEPTION AND COMMUNICATION OF WEATHER AND CLIMATE THREATS. PART II –151B

Chairs: Paul M. Chakalian, CIMMS, Norman, OK; Joseph T. Ripberger, Univ. of Oklahoma, Norman, OK

3:00 P.M.

10.1 *Follow-the-Leader Syndrome: Motorists' Responses to Flash Flooding in Texas.* **Cedar League**, Helena, MT; B. Philips, N. Meyers, D. Westbrook

3:15 P.M.

10.2 *How Various Modes of Communication Impacted Sheltering Decisions of Lee County, Alabama, Tornado Survivors.* **Elizabeth F. Leslie**, Univ. of Oklahoma, Norman, OK; D. LaDue, L. Mayeux, J. Bryant

3:30 P.M.

10.3 *Understanding the Nonuniform Perception of Tornado Risk in Central Oklahoma.* **Rebekah Cheatham**, Univ. of South Alabama, Mobile, AL; W. D. Terwey, K. E. Klockow-McClain, P. T. Marsh, H. E. Brooks, K. Berry

3:45 P.M.

10.4 *Uncertainty and Probability Communication: Past, Present, and Future.* **Michele Olson**, NOAA, Silver Spring, MD; G. M. Eosco, K. Rowley

3:00 P.M.—4:00 P.M.

15 SOCIETY

Panel Discussion 7: SOCIAL SCIENCE AND THE WEATHER ENTERPRISE: PROGRESS AND FUTURE DIRECTIONS –152

Moderators: Kathleen Sherman-Morris, Mississippi State Univ., Mississippi State, MS; Michael S. Michaud, Univ. of Delaware, Newark, DE

Panelists: Julie L. Demuth, NCAR, Boulder, CO; Jack R. Friedman, Univ. of Oklahoma, Norman, OK; William Hooke, American Meteorological Society, Washington, DC; Michael S. Michaud, Univ. of Delaware, Newark, DE; Jennifer Sprague-Hilderbrand, NOAA, Silver Spring, MD

3:00 P.M.—4:00 P.M.

15 URBAN

Session 11A: HELPING CITIES MANAGE CLIMATE VARIABILITY, CHANGE, AND EXTREMES. PART II –104B

Chairs: Margaret Hurwitz, NOAA, Silver Spring, MD; Christian Braneon, NASA Goddard Institute for Space Studies, NY, NY; Shanna N. McClain, NASA, Washington, DC

3:00 P.M.

11A.1 *Virtual World, Real Understanding: Using Virtual Reality to Visualize Disasters, Climate, and Extreme Weather Impacts.* **Shayna Skolnik**, NASA/Navteca, Washington, DC

3:30 P.M.

11A.2 *Quantifying the Influence of Long-Term Climate Trends on North Texas Water Yield, Demand, and Return Flows.* **Anne M. K. Stoner**, Atmos Research and Consulting, Lubbock, TX; K. Hayhoe, L. Gregg, T. Gooch, S. Schnier, C. Corso, B. George, C. Graham

3:45 P.M.

11A.3 *Evaluating Drought-Induced Reductions in the Cooling Capacity of Urban Vegetation during the 2012–16 Megadrought in Southern California.* **Michael A. Allen**, Univ. of California, Santa Barbara, Santa Barbara, CA; J. P. McFadden, D. A. Roberts

3:00 P.M.—4:00 P.M.

15 URBAN

Session 11B: URBAN BOUNDARY LAYERS—MODELING AND OBSERVATIONS. PART II –104C

Chair: Mukul Tewari, Lafayette, CO

3:00 P.M.

11B.1 *Development of an Urbanized Land Data Assimilation System: RMAPS-LDAS.* **Chengcheng Huang**, Institute of Urban Meteorology, China Meteorological Administration, Beijing, China; M. Barlage, S. Miao, F. Chen, Y. Zhang

3:15 P.M.

11B.2 *Ground-Based Doppler Lidars Observing Urban Boundary Layer Flows.* **Mark Arend**, City College of New York, New York, NY; G. Elvik, D. Ligon, D. James, D. Melecio-Velazquez, F. Moshary

3:30 P.M.

11B.3 *Observations of the Wind Speed Profile over the Seoul Metropolitan Area in Korea Using Doppler Lidar.* **Jae-Young Byon**, National Institute of Meteorological Sciences/Korea Meteorological Administration, Seogwipo-si, Korea, Republic of (South); D. H. Kim, S. Hong, H. S. Park, J. C. Ha

3:45 P.M.

11B.4 *Intensive Urban Boundary Layer Observational Campaigns in the Arctic Cities.* **Mikhail Varentsov**, Lomonosov Moscow State Univ., Moscow, Russian Federation; P. Konstantinov, I. Repina, T. Samsonov, A. Artamonov, V. Platonov, G. Surkova, D. Blinov, A. Varentsov, I. Malutin, I. Esau, A. Baklanov

3:00 P.M.—4:00 P.M.

12 AEROSOL / 22 WXMOD

Joint Session 53: CORE SCIENCE KEYNOTES –208

Chairs: Nicole Riemer, Univ. of Illinois, Urbana, IL; Yuan Wang, California Institute of Technology, Pasadena, CA; Sarah A. Tessendorf, NCAR, Boulder, CO

3:00 P.M.

J53.1 *Modeling of Cloud Microphysics: Can We Do Better? (Core Science Keynote).* **Wojciech W. Grabowski**, NCAR, Boulder, CO

3:30 P.M.

J53.2 *How Well Do We Understand and Predict Ice-Nucleating Particle Sources and Concentrations around the World?* **Paul J. DeMott**, Colorado State Univ., Fort Collins, CO; C. S. McCluskey, G. P. Schill, T. C. J. Hill, Y. Tobo, E. J. T. Levin, J. Creamean, J. Uetake, K. R. Barry, K. A. Moore, K. J. Suski, E. Järvinen, J. K. Kodros, J. R. Pierce, G. R. McMeeking, A. Gettelman, S. M. Burrows, S. M. Kreidenweis

3:00 P.M.—4:00 P.M.

I | ENERGY

Session 13: FORECAST EVALUATION AND
GENERAL ENERGY TOPICS –256

Chairs: Bradfield Lyon, Univ. of Maine, Orono, ME; Jessica M. Tomaszewski, Univ. of Colorado, Boulder, CO

3:00 P.M.

13.1 *The Second Wind Forecast Improvement Project (WFIP2) Decision Support Tools.* **Eric P. Grimit**, Vaisala, Inc., Seattle, WA

3:15 P.M.

13.2 *Maximization of the Value of Intraday Wind and Solar Forecasts for an Island Grid System via Customized Forecasts and Evaluation Metrics.* **John Zack**, AWS Truepower, a UL Company, Albany, NY

3:30 P.M.

13.3 *Error Quantification of the High Resolution Rapid Refresh (HRRR) Model in Dynamic Line Rating.* **Kenneth R. Fenton**, NOAA/ESRL/GSD and CIRA, Boulder, CO; M. S. Wandishin, T. McJunkin, A. Abboud, J. P. Lehmer, J. Gentle, D. D. Turner

3:45 P.M.

13.4 *Siting Solar Farms—Unique Opportunities beyond the Sunny Desert.* **Eric E. Wertz**, Maxar Technologies, Gaithersburg, MD; D. Getman

3:00 P.M.—4:00 P.M.

I | HEALTH / 33CVC

Joint Session 54: A STITCH IN TIME: PROTECTING
AND PROMOTING HEALTH IN A CHANGING
CLIMATE –153B

Chairs: Jeremy Hess, Emory Schools of Medicine and Public Health, Atlanta, GA; Kim Knowlton, Natural Resources Defense Council, New York, NY; Hannah Nissan, IRI, New York, NY

3:00 P.M.

J54.1 *Building Climate Change Adaptive Capacity in the Public Health Community.* **Jeff W. Bethel**, Oregon State Univ., Corvallis, OR

3:15 P.M.

J54.2 *Effects of Climate Change on Seasonal Morbidity and Mortality of Respiratory Diseases in Germany.* **Andreas Matzarakis**, DWD, Freiburg, Germany; I. Schlegel, S. Muthers, H. G. Mücke

3:30 P.M.

J54.3 *Rapid Environmental Change and Rising Vulnerability to the Climate–Water–Health Nexus in Growing and Emerging Megacities.* **Ali S. Akanda**, Univ. of Rhode Island, Kingston, RI; K. Johnson, F. Nusrat, N. Torbick, L. Thiem, H. Bankhah, D. Gute, M. Barlow, A. Huq, R. Colwell

3:45 P.M.

J54.4 *The Public Health Opportunity When Planning Initiatives to Rebuild Coastal Structures.* **Paula Schenck**, UConn Health, Farmington, CT

3:00 P.M.—4:00 P.M.

I | PYTHON

Session 8: PYTHON IN OPERATIONS AND
RESEARCH TO OPERATIONS. PART II –157AB

Chair: Daniel Rothenberg, ClimaCell, Boston, MA

3:00 P.M.

8.1 *Python in the Community Satellite Processing Package.* **G. Cureton**, Univ. of Wisconsin, Madison, WI

3:15 P.M.

8.2 *Operational Drought Data Processing Techniques in Support of Drought.Gov.* **S. Ansari**, NOAA/NESDIS/National Centers for Environmental Information, Asheville, NC; R. G. Bilotta

3:30 P.M.

8.3 *How Python Enables Rapid R2O at The Weather Company.* **John Wong**, The Weather Company, Andover, MA

3:45 P.M.

8.4 *Transitioning the GFS Verification to Using METplus.* **Mallory P. Row**, I.M. Systems Group at NOAA/NWS/NCEP/EMC, College Park, MD; J. J. Levit

3:00 P.M.—4:00 P.M.

I | LIDAR

Session 6: LIDAR IN BOUNDARY LAYER
PROCESSES –209

Chair: James R. Campbell, NRL, Monterey, CA

3:00 P.M.

6.1 *Improving the Water Vapor Variance Similarity Relationship in the Interfacial Layer Using Raman Lidar and Radar Wind Profiler Observations with LES.* **David D. Turner**, NOAA, Boulder, CO; M. Osman, T. Heus, V. Wulfmeyer

3:15 P.M.

6.2 *The Spectral Signature of Surface Turbulent Fluxes during Arctic Warmings: Combining MPLNET Lidar and Surface Turbulence Observations.* **Douglas Keller**, Univ. of Alaska, Fairbanks, AK; G. J. Fochesatto, E. J. Welton, J. R. Campbell

3:30 P.M.

6.3 *Micropulse Differential Absorption Lidar (DIAL) for Thermodynamic Profiling in the Lower Troposphere.* **Kevin S. Repasky**, Montana State Univ., Bozeman, MT; S. M. Spuler, M. Hayman, R. A. Stillwell, O. Cruikshank

3:45 P.M.

6.4 *Horizontal Observations of Boundary Layer Aerosol Dynamics in New York City Using a Scanning Micro Pulse Lidar.* **Adrian Diaz Fortich**, NOAA-CREST and City College of New York, New York, NY; K. Owoeye, V. Dominguez, Y. Wu, B. Gross, F. Moshary

3:00 P.M.—4:00 P.M.

10R20

Session 11A: IMPROVING R2O AND O2R IN THE 0–18-H FORECAST RANGE LINKING RESEARCH AND OPERATIONS TO FORECASTERS' NEEDS—PART IV –252A

Chairs: Anthony Reinhart, CIMMS/Univ. of Oklahoma and NOAA/NSSL, Norman, OK; Young-Joon Kim, NWS, Silver Spring, MD

3:00 P.M.

11A.1 *User-Focused Research to Build a Better Warn-on-Forecast System.* **Pamela L. Heinselman**, NSSL, Norman, OK; K. H. Knopfmeier, D. C. Dowell, P. S. Skinner, B. Roberts, J. J. Choate, K. A. Wilson, A. J. Clark, I. L. Jirak, B. T. Gallo, K. Hoogewind, N. Yussouf, T. A. Jones, E. R. Mansell, L. J. Wicker, C. Alexander, T. Ladwig, G. Creager

3:15 P.M.

11A.2 *NSSL's Warn-on-Forecast Probabilistic Intense Rainfall Guidance at WPC's Met Watch Desk during Summer of 2019.*

Nusrat Yussouf, CIMMS/NSSL, Norman, OK; P. S. Skinner, K. A. Wilson, M. Erickson, B. C. Matilla, K. H. Knopfmeier, A. Orrison, R. Otto, G. W. Carbin, P. L. Heinselman, J. J. Choate, D. C. Dowell, T. T. Ladwig, T. A. Jones, G. J. Creager, L. J. Wicker, A. E. Reinhart

3:30 P.M.

11A.3 *Generating Probabilistic Tornado Guidance in a Warn-on-Forecast System.* **Patrick S. Skinner**, CIMMS, Norman, OK; B. T. Gallo, S. Beveridge, M. L. Flora, C. Potvin, A. Reinhart, K. H. Knopfmeier, B. T. Smith, R. L. Thompson

3:45 P.M.

11A.4 *Tracking and Verifying Heavy Precipitation Objects from NSSL's Warn-on-Forecast Ensemble.* **Michael J. Erickson**, NOAA/NWS/Weather Prediction Center, College Park, MD; N. Yussouf, P. S. Skinner, K. A. Wilson

3:00 P.M.—4:00 P.M.

10R20

Session 11B: NATIONAL AND INTERNATIONAL EFFORTS AND PARTNERSHIPS (I.E., COMMUNITY GLOBAL MODELING): NEXT GENERATION GLOBAL PREDICTION SYSTEM (NGGPS) AND BEYOND: IMPROVEMENTS, KEY COMPONENTS, AND STATISTICAL TECHNIQUES TO EVALUATE GLOBAL MODELS—PART II –251

Chairs: Vijay Tallapragada, NOAA/NWS/NCEP, College Park, MD; Fanglin Yang, NOAA/NWS/NCEP, College Park, MD

3:00 P.M.

11B.1 *Developmental Testbed Center: Current Status and Outlook for the Future.* **Louisa B. Nance**, NCAR, Boulder, CO; J. Beck, L. Bernardet, G. Firl, K. Fossell, M. Harrold, M. Hu, T. L. Jensen, E. Kalina, M. Marquis, K. Newman, J. K. Wolff, K. Y. Wong, C. Zhou

3:15 P.M.

11B.2 *The Common Community Physics Package (CCPP): Unifying Physics across NOAA and NCAR Models Using a Common Software Framework.* **Dom Heinzeller**, NOAA/ESRL/GSD, and Univ. of Colorado/CIRES, and Developmental Testbed Center, Boulder, CO; G. J. Firl, L. Bernardet, L. Carson, M. Zhang, S. Goldhaber, C. Craig, D. Gill, M. Duda, F. M. Vitt

3:30 P.M.

11B.3 *The I in EPIC is for Innovation: The Earth Prediction Innovation Center (EPIC).* **Dana L. Carlis**, OAR, Washington, DC; B. Lapenta, L. Dubots

3:45 P.M.

11B.4 *Initial Development of the METexpress Visualization Tool.* **Molly B. Smith**, CIRES, Boulder, CO; R. Pierce, J. A. Hamilton, V. Hagerty, B. Strong, D. D. Turner

3:00 P.M.—4:00 P.M.

8WXCLIMATE

Session 8: INTEGRATING DECISION SUPPORT AND SERVICE DELIVERY TO ENSURE USE-INSPIRED PRODUCTS AND SERVICES. PART III –252B

Chair: Ellen L. Mecray, NOAA, Norton, MA

3:00 P.M.

8.1 *Applying User Experience (UX) Design to Improve the U.S. Drought Portal.* **Kathryn Bevington**, CIRES, Boulder, CO; S. Ansari, R. G. Bilotta, A. M. Courtright, A. Lang

3:15 P.M.

8.2 *Innovating Drought Communications in North Carolina through Decision-Maker Engagement.* **Corey N. Davis**, North Carolina State Univ., Raleigh, NC; R. V. Ward, K. Lackstrom

3:30 P.M.

8.3 *The WMO Regional Climate Center-Washington for the WMO Regional Association IV.* **Wassila Mamadou Thiaw**, NOAA, College Park, MD

3:45 P.M.

8.4 *The Impact of Climate Change on Automobile Insurance: How to Define a Bad Winter?* **Sébastien Raymond**, The cooperators, Québec, Canada

3:00 P.M.—4:00 P.M.

8WRN

Session 8: BIPARTISAN BUDGET ACT OF 2018: HOW THE IMPROVING FORECASTING AND ASSIMILATION (IFAA) PORTFOLIO IS BUILDING A WEATHER-READY NATION –153C

3:00 P.M.

8.1 *An Overview of NOAA's Improving Forecast and Assimilation (IFAA) Portfolio for Supplemental Appropriations..* **Segayle Thompson**, Cherokee Nation, Silver Spring, MD; N. Lett, T. L. Battle

3:15 P.M.

8.2 *Accelerating Stochastic Physics Development in the NOAA Unified Forecast System (UFS).* **Jian-Wen Bao**, NOAA/ESRL/PSD, Boulder, CO; S.A. Michelson, L. K. Bengtsson, P. J. Pegion, J. S. Whitaker, C. Penland

3:30 P.M.

8.3 *Data-Assimilative Ocean Analyses That Accurately Represent the Initial Ocean State Are Essential to Achieving Realistic HWRF Intensity Forecasts of Hurricane Michael.* **G. R. Halliwell**, NOAA/AOML, Miami, FL; M. Le Henaff, H. S. Kim, R. Domingues, G. Goni, V. H. Kourafalou, R. Atlas

3:45 P.M.

8.4 *Advancements of the FV3 Stand-Alone Regional Model.* **C. Alexander**, NOAA, Boulder, CO; J. Carley, P. L. Heinselman, L. Harris

3:00 P.M.–4:00 P.M.**6HPC / 30WAF26NWP**

Joint Session 55: HIGH-PERFORMANCE COMPUTING FOR NUMERICAL WEATHER PREDICTION. PART I –2/2

Chairs: Timothy S. Sliwinski, Texas Tech Univ., Lubbock, TX, , Group NIRE, Lubbock, TX; Kandis Boyd, NOAA, Silver Spring, MD; Ryan A. Lagerquist, CIMMS, Norman, OK

3:00 P.M.

J55.1 *HPC Limitations in Running Global Cloud-Resolving Weather Prediction Models.* **Mark W. Govett**, NOAA/ESRL Global Systems Division, Boulder, CO

3:15 P.M.

J55.2 *Improving the Performance and Scalability of the Colorado Fire Prediction System (CO-FPS) Using Dynamic Cloud Resources.* **James Cowie**, NCAR, Boulder, CO; W. Petzke, J. Boehnert, D. Brucker, N. Chartier, J. Knievel

3:30 P.M.

J55.3 *Computational Resources Optimization in the NCEP Coupled Atmospheric Wave–Chemistry Global Ensemble Forecast System.* **Dingchen Hou**, NOAA/NWS/NCEP/EMC, College Park, MD; X. Xue, W. Kolczynski Jr., B. Fu, Y. Zhu, J. H. Alves, J. Meixner, L. Pan, J. Kain

3:45 P.M.

J55.4 *New Capabilities in FV3GFS Write Grid Component.* **Jun Wang**, NOAA/NWS/NCEP/EMC, College Park, MD; D. Jovic, B. Liu, W. Meng, H. Y. Chuang, J. J. Levit, A. Chawla

3:00 P.M.–4:00 P.M.**TROPSYMP I**

Session 4: PHYSICAL PARAMETERIZATIONS FOR TROPICAL CYCLONE PREDICTION –205B

Chairs: Mrinal K. Biswas, NCAR, Boulder, CO; Weiwei Li, NCAR, Boulder, CO

3:00 P.M.

4.1 *Evaluating the Impact of Boundary Layer Parameterization on Hurricane Intensity and Structure in HWRF Forecasts.* **Jun Zhang**, NOAA/AOML/HRD, Miami, FL; R. Rogers, V. Tallapragada, D. S. Nolan, E. A. Kalina, M. K. Biswas, P. Zhu, F. D. Marks, S. Gopalakrishnan, A. Mehra

3:15 P.M.

4.2 *Evaluation of Planetary Boundary Layer Schemes in Hurricanes over Land through Comparison of Surface Winds in Observations and Simulations of Hurricane Wilma (2005).* **Brian D. McNoldy**, Univ. of Miami/RSMAS, Miami, FL; D. S. Nolan, J. Y. Ge

3:30 P.M.

4.3 *Microphysics-Based Bulk Parameterizations of Enthalpy and Momentum Fluxes for Tropical Cyclones.* **Sydney Sroka**, Massachusetts Institute of Technology, Cambridge, MA; K. Emanuel

3:45 P.M.

4.4 *The Global-Nested Hurricane Analysis and Forecast System (HAFS): Results from the 2019 Atlantic Hurricane Season.* **Andrew Hazelton**, CIMAS and AOML/HRD, Miami, FL; Z. Zhang, J. Dong, B. Liu, W. Wang, G. J. Alaka Jr., X. Zhang, C. Zhang, L. Zhu, K. Wu, S. Gopalakrishnan, F. Marks, A. Mehra, V. Tallapragada

3:00 P.M.–4:00 P.M.**FUTURESYP**

Panel Discussion 6: THE EVOLVING ROLE OF THE HUMAN IN WEATHER PREDICTION AND COMMUNICATION: ENVISIONING THE FUTURE FORECAST PROCESS –258B

Moderators: Neil A. Stuart, NOAA/NWS, Albany, NY; Robert Hoffman, Florida Institute of Human and Machine Cognition, Pensacola, FL

Panelists: Daniel DePodwin, AccuWeather, State College, PA; Katie A. Wilson, CIMMS/Univ. of Oklahoma and NOAA/OAR/NSSL, Norman, OK; Elliot Abrams, AccuWeather Inc., State College, PA; Holly Obermeier, CIRES/Univ. of Colorado and NOAA/Global Systems Division, Boulder, CO

3:00 P.M.–4:00 P.M.**CLIMATEPOLICY**

Panel Discussion 4: THE ROLE OF BROADCAST METEOROLOGISTS IN EDUCATING THE PUBLIC ABOUT CLIMATE CHANGE SCIENCE AND SOLUTIONS –254B

Moderator: Bob Lindmeier, WKOW-TV, Madison, WI

Panelists: Jerry Taylor, Niskanen Center, Washington, DC; Amber Sullins, ABC15 (KNXV-TV), Phoenix, AZ; Mike Nelson, KMGH-TV, Denver, CO; Bernadette Woods Placky, Climate Central, Princeton, NJ

SCHUBERTSYMP

Poster Session 1: ATMOSPHERIC DYNAMICS AND NUMERICAL METHODS (POSTERS)

Chair: Levi Silvers, GFDL, Princeton, NJ

997 *Comparing Statistical Flow Analysis between Two Finite-Volume Shallow-Water Model Solvers on Icosahedral Grids.*

Yonggang G. Yu, NOAA/ESRL/GSD, Boulder, CO; D. Rosenberg, M. W. Govett

998 *Bottom-Up Causation and Cross-Scale Information Flow in a Stormy Model Midlatitude Atmosphere.* **X. San Liang**, Nanjing Institute of Meteorology, Nanjing, China

999 *Stochastic Dynamics of Water Vapor in the Climate System.* **Baohua Chen**, Texas A&M Univ., Corpus Christi, TX; J. Duan, A. Sadovskii, X. Feng

1000 *Leaving a Balanced World: Probing the Nonlinear, Unbalanced Dynamics of the Tropical Boundary Layer.* **C. J. Slocum**, CIRA, Fort Collins, CO; A. O. Gonzalez

1001 *Balanced Flow in Moist Dynamics with Phase Changes.* **Alfredo N. Wetzel**, Univ. of Wisconsin, Madison, WI; S. N. Stechmann, L. M. Smith, J. E. Martin, Y. Zhang

1002 *Technical Notes and Discussions on Implementing and Testing A- and C-Grid Icosahedral Shallow Water Model Solvers on a Sphere.* **Yonggang G. Yu**, CIRES, Boulder, CO

1003 *GeoFluid Object Workbench (GeoFLOW) for the High-Order Numerical Solution of Partial Differential Equations on a Sphere.* **Bryan T. Flynt**, CIRA, Boulder, CO; D. L. Rosenberg, M. W. Govett

SCHUBERTSYMP

Poster Session 2: CLOUD-TOPPED BOUNDARY LAYER PROCESSES (POSTERS)

Chair: Jonathan Vigh, National Center for Atmospheric Research, Boulder, CO

1004 *Observed Large-Scale Controls on Marine Cloud-Topped Boundary Layers and How Wayne Schubert Influenced the Science.* **Stephen A. Klein**, LLNL, Livermore, CA; M. D. Zelinka, T. Myers

1005 *Effects of Subtropical Stratocumulus Clouds on Coupled Simulations.* **Gabriel Cazes Boezio**, Universidad de la Republica, Uruguay, Montevideo, Uruguay; M. S. Molinari

1006 *Using Vertical Velocity Retrievals to Estimate Entrainment Rates in Stratocumulus Cloud Systems.* **Steven K. Krueger**, Univ. of Utah, Salt Lake City, UT

1007 *Summertime Marine Stratocumulus Transition Processes over the Eastern North Atlantic.* **Melissa Kazemi-Rad**, Rutgers Univ., New Brunswick, NJ; M. A. Miller

SCHUBERTSYMP

Poster Session 3: MOIST PROCESSES—STRATOCUMULUS TO DEEP CONVECTION (POSTERS)

Chair: Kate Musgrave, UCAR/SOARS and Colorado State Univ., Fort Collins, CO

1008 *The Role of Interactive SST in the Cloud-Resolving Simulations of Aggregated Convection.* **Chien-Ming Wu**, National Taiwan Univ., Taipei, Taiwan; Y. T. Chen

1009 *Evaluating the Bias of South China Sea Summer Monsoon Precipitation Associated with Fast Physical Processes Using a Climate Model Hindcast Approach.* **Wei-Ting Chen**, National Taiwan Univ., Taipei City, Taiwan; C. M. Wu, H. Y. Ma

1010 *Investigating the Relationship between Convective Precipitation Efficiency and Surface Temperature.* **Ryan Li**, Yale Univ., New Haven, CT; A. Fedorov, T. Storelvmo

1011 *Impacts of Land–Atmosphere Interactions on Convection Initiations over the Southern Great Plains.* **Jingyi Chen**, Pacific Northwest National Laboratory, Richland, WA; S. Hagos, H. Xiao, J. D. Fast, Z. Feng

1012 *Statistical Properties of Cumulus Ensembles in High-Resolution Radiative–Convective Equilibrium Simulations.* **Tomoro Yanase**, Kyoto Univ., Uji, Japan; T. Takemi

1013 *Impacts of a Stochastic Subgrid-Scale Mixing Scheme in Deep Convection Simulations for Application to the Convective Gray Zone.* **McKenna W. Stanford**, Univ. of Utah, Salt Lake City, UT; H. Morrison, A. C. Varble

1014 *A New Convective Trigger for Better Capturing the Diurnal Cycle of Precipitation in Weather and Climate Models: Observational Evidence and Modeling Results.* **Shaocheng Xie**, LLNL, Livermore, CA; Y. C. Wang, W. Lin

1015 *The Relationship between Vertical Velocity and Microphysical Process Rates in Deep Convection.* **Leah D. Grant**, Colorado State Univ., Fort Collins, CO; S. C. van den Heever, Z. S. Haddad, R. L. Storer, D. J. Posselt, J. Bukowski, O. O. Sy, G. L. Stephens

1016 *Moisture, Clouds, and Radiation in a Mock-Walker Circulation.* **Levi Silvers**, Princeton Univ., Princeton, NJ; N. Jeevanjee, T. E. Robinson Jr.

1017 *Evidence for Hydrometeor Storage and Advection Effects in the DYNAMO Budget Analysis of the MJO.* **Paul E. Ciesielski**, Colorado State Univ., Fort Collins, CO; R. Johnson, W. H. Schubert

1018 *A Climatological Analysis of Moist Potential Vorticity.* **Alex Omar Gonzalez**, Iowa State Univ., Ames, IA; C. J. Slocum

SCHUBERTSYMP

Poster Session 4: TROPICAL ATMOSPHERIC CIRCULATION SYSTEMS (POSTERS)

Chair: Jonathan Vigh, National Center for Atmospheric Research, Boulder, CO

1019 *Indian Ocean Dipole Induces Rainfall Anomalies in the South American Monsoon.* **Ana Claudia Thome Sena**, Univ. of California, Irvine, CA; G. Magnusdottir

1020 *Response of the ITCZ to Imposed Sea-Ice Loss in the Arctic: Exploring a Hierarchy of Simple Ocean Models in a Coupled Framework.* **Tien-Yiao Hsu**, Univ. of California, Irvine, CA; G. Magnusdottir, F. Primeau

1021 *Modulation of MJO Propagation Speed By the Fluctuation of Large-Scale Background Zonal Circulation.* **Tamaki Suematsu**, Atmosphere and Ocean Research Institute, Univ. of Tokyo, Kashiwa-City, Chiba, Japan; H. Miura

1022 *Effects of the North Atlantic Subtropical High on Summertime Precipitation Organization in the Southeast United States.* **Rosana Nieto Ferreira**, East Carolina Univ., Greenville, NC; T. M. Rickenbach

1023 *Role of the North Atlantic Subtropical High and Midlatitude Circulations in the Springtime Onset of Isolated Convection across the Southeastern United States.* **Thomas M. Rickenbach**, East Carolina Univ., Greenville, NC; R. Nieto Ferreira, C. Jarrett

SCHUBERTSYMP

Poster Session 5: TROPICAL CYCLONES (POSTERS)

Chair: Chris Slocum, CIRA/Colorado State Univ., Fort Collins, CO

1024 *Large-Scale Dynamics of Tropical Cyclone Formation Associated with ITCZ Breakdown.* **Chanh Kieu**, Atmospheric Science Program, Bloomington, IN; Q. Wang, T.A. Vu

1025 *Barotropic Instability of Axisymmetric Double-Ring Vortices.* **Richard K. Taft**, Colorado State Univ., Fort Collins, CO; W. H. Schubert, C. J. Slocum

1026 *Forced Shallow-Water Model for the Maximum Potential Intensification Rate of Tropical Cyclones.* **Eric A. Hendricks**, NCAR, Boulder, CO; J. L. Vigh

1027 *On the Northward Ageostrophic Winds Associated with a Tropical Cyclone.* **Kazuo Saito**, Japan Meteorological Business Support Center, Tokyo, Japan

1028 *Simulated Azimuthal Structure of the Hurricane Boundary Layer in Hurricanes Irma (2017) and Earl (2010) during Intensity Change.* **Kyle Ahern**, Florida State Univ., Tallahassee, FL; M. A. Bourassa, R. E. Hart

1029 *Characterizing the Nature and Evolution of Asymmetric Structures in Idealized Simulations of Rapidly Intensifying Tropical Cyclones.* **Jonathan Martinez**, Colorado State Univ., Fort Collins, CO; M. M. Bell

1030 *Impact of the Ocean–Atmosphere Background State in the Tropical Cyclones Cold Wake Magnitude Variability.* **Mauricio Zapata**, Sistema de Alerta Temprana del Valle de Aburrá (SIATA), Medellín, Colombia; C. D. Hoyos, Y. Cardona

1031 *Sensitivity of Simulated Axisymmetric Tropical Cyclones to Numerical Implicit Diffusion.* **Raphael Rousseau-Rizzi**, MIT, Cambridge, MA; G. H. Bryan, K. Emanuel

1032 *The Balanced Response to Latent Heating Profiles from H-GPROF.* **Kate D. Musgrave**, CIRA/Colorado State Univ., Fort Collins, CO; P. J. Brown, C. J. Slocum

1033 *Understanding the Role of Eddy Vorticity Fluxes on Rapid Intensification of Hurricanes Irma and Michael.* **Alrick Green**, San Jose State Univ., San Jose, CA; S. Gopalakrishnan, S. Chiao, X. Zhang, G. J. Alaka Jr.

36EPT

Poster Session 3: EPT POSTERS: DAY 3

Chairs: Kevin R. Tyle, Univ. at Albany, SUNY, Albany, NY; S. S. Lindstrom, Univ. of Wisconsin, Madison, WI

1034 *Applications of MRMS 1-h Swath Data and High-Resolution Hail Reports for Developing an MRMS-Based Hail Climatology.*

Danya Kay Meadows, OU/CIMMS and NOAA/OAR/NSSL, Norman, OK; S. S. Williams, K. L. Ortega

1035 *Implementing a Polarimetric Hail Size Algorithm for MRMS.* **Mya J. Sears**, OU/CIMMS and NOAA/OAR/NSSL, Norman, OK; K. L. Ortega, S. S. Williams

1036 *Exploring MRMS Merger Options for Polarimetric Moments and Doppler Wind-Derived Products.* **Benjamin Price**, OU/CIMMS and NOAA/OAR/NSSL, Norman, OK; M. J. Sears, K. L. Ortega, S. S. Williams

1037 *MRMS Product Distributions for NWS Warning Polygons.* **Skylar S. Williams**, OU/CIMMS and NOAA/OAR/NSSL, Norman, OK; Z. A. Douglas, K. L. Ortega

1038 *Optimizing Radiation Patterns for Weather Observations through a Cylindrical Polarimetric Phased-Array Radar.* **Mohammad Hossein Golbon Haghighi**, Advanced Radar Research Center, Moore, OK; G. Zhang

1039 *The Weather Company's Global Radar Mosaic Process.* **William M. Sheridan**, The Weather Company, Andover, MA; S. Honey, J. Tang

1040 *A Serverless Architecture for NEXRAD Weather Radar Data Pipeline.* **Jingyin Tang**, IBM, Atlanta, GA; S. Honey, P. O'Neil

1041 *Approaches for Compression of Dual-Polarization Weather Radar Data.* **Qiangyu Zeng**, Chengdu Univ. of Information Technology, Chengdu, Sichuan, China; J. He, Z. Shi

1042 *A Web-Based Visualization Tool for FACETs.* **Rebecca B. Steeves**, OU/CIMMS and NOAA/NSSL, Norman, OK; P. A. Campbell, T. M. Smith

1043 *Quantifying the Benefits of a Simulated Rapid-Scan Weather Radar for Severe Storm Observations.* **Andrew Mahre**, Univ. of Oklahoma, Norman, OK; T. Y. Yu, D. J. Bodine

1044 *Implementation of a Far-Field Tower for Calibrating a Dual-Polarization Planar Phased-Array Radar.* **Daniel J. Wasielewski**, NSSL, Norman, OK; J. R. Mendoza, I. R. Ivic, A. Zahrai

34HYDRO

Poster Session 10: PRECIPITATION PROCESSES AND OBSERVATIONS FOR ATMOSPHERIC, LAND SURFACE, AND HYDROLOGICAL MODELING—POSTERS

Chairs: Andrew Newman, NCAR, Boulder, CO; Haonan Chen, Colorado State Univ. and NOAA/Earth System Research Laboratory, Fort Collins, CO; Viviana Maggioni, George Mason Univ., Fairfax, VA; Youcun Qi, Institute of Geographic Sciences and Natural Resources Research, Beijing, China

1045 *Examining Extreme Weather Events: An Analysis of IMERG and Rain Gauges during Hurricane Florence.* **Ayesha Wilkinson**, NCAS-M, Howard Univ., Washington, DC

I046 *Quantifying Alaska Pacific River Forecast Hydrologic Model Performance Relative to Different Precipitation Forcings.* **Alexa Yeo**, Univ. of Illinois, Champaign, IL; D. Streubel

I047 *Comparisons of Rainfall Estimation from Different Sources in Hawai'i.* **Yu-Fen Huang**, Univ. of Hawaii at Manoa, Honolulu, HI; Y. P. Tsang

I048 *Attribution of the Persistent Precipitation in the Yangtze–Huaihe River Basin during February 2019.* **Zhixuan Wang**, Ocean Univ. of China, Qingdao, China; J. Sun Sr., F. Ning

I050 *Utilization of Specific Attenuation for Radar Quantitative Precipitation Estimation in Southern China.* **Asi Zhang**, Sun Yat-sen Univ., Guangzhou, China; S. Chen, P. Zhang

I051 *Statistical Characteristics of Raindrop-Size Distribution in the Summer Season Observed in the South China Sea.* **Chaoying Huang**, Sun Yat-sen Univ., Guangzhou, China; A. Zhang, S. Chen, Z. Liang

I052 *Corrections to the Algorithm Defining the Sample Area of Two-Dimensional Video Disdrometers.* **Michael L. Larsen**, College of Charleston, Charleston, SC; C. K. Blouin

I053 *Performance of S-Band Ground-Based Radar Precipitation Rate Retrieval Algorithms over a Dense Gauge Array.* **Charanjit S. Pabla**, NASA GSFC Wallops Flight Facility and SSAI, Wallops Island, VA; D. B. Wolff, D. A. Marks, S. M. Wingo, J. L. Pippitt, J. Wang

I054 *Advancing Tools to Understand and Adapt to Hydroclimatic Variability and Change in Alaska and Hawaii.* **Andrew Newman**, NCAR, Boulder, CO; N. Mizukami, L. Xue, A. J. Monaghan, T. Eidhammer, R. J. Longman, J. J. Hamman, M. Clark, E. Gutmann, A. W. Wood, T. W. Giambelluca, D. R. Gergel, B. Nijssen, J. R. Arnold

I055 *Probabilistic Precipitation Nowcast Using Dual-Polarization Radar Measurements.* **Haonan Chen**, NOAA/ESRL and CSU, Boulder, CO; Q. Xia, W. Zhang

I056 *Can We Detect the Impact of Stability on Precipitation in Cyclones?* **Katherine L. Towey**, City Univ. of New York Graduate Center, New York, NY; J. Booth, C. Naud

I057 *Recent Development in NOAA/NESDIS Satellite Snowfall Rate Product and Its Applications.* **J. Dong**, Univ. of Maryland, College Park, MD; H. Meng, C. Kongoli, R. R. Ferraro, B. Yan, L. Zhao, P. Xie, R. Joyce

I058 *Quantitative Precipitation Estimation by X-Band Dual-Polarization Radars in Complex Terrain over the Bay Area in California.* **Sounak K. Biswas**, Colorado State Univ., Fort Collins, CO; R. Cifelli, V. Chandrasekar

I059 *Can the GPM IMERG Final Product Accurately Represent MCSs' Precipitation Characteristics over the Central and Eastern United States?* **Wenjun Cui**, The Univ. of Arizona, Tucson, AZ; X. Dong, B. Xi, Z. Feng, J. Fan

I060 *Using the CREATE Service: Exploring Tools and Methods to Evaluate Precipitation Rates from Reanalysis.* **Gerald L. Potter**, NASA GSFC, Greenbelt, MD; L. Carriere, J. Hertz, G. J. Huffman, T. P. Maxwell, J. Peters, Y. Shen

I061 *Multisource Precipitation Estimation Using Artificial Neural Networks and Geographically Weighted Regression for a Hyperarid Environment.* **Youssef Wehbe**, Khalifa Univ. of Science and Technology, Abu Dhabi, United Arab Emirates; M. Temimi

I062 *Polarimetric Radar Signatures and Rainfall Performance during an Extreme Precipitation Event in Southern China.* **Wenjuan Zhang**, Chinese Academy of Meteorological Sciences, Beijing, China; H. Chen, Q. Xia

I063 *Performance Assessment of Satellite-Based Quantitative Precipitation Estimation during Typhoon Mangkut.* **Xiaoyu Li**, Nanning Normal Univ., Nanning, China; S. Chen

I064 *Bias Adjustment of Dynamically Downscaled Climate Simulations for Hydrologic Modeling of the Rifle River Watershed.* **Daria B. Kluver**, Central Michigan Univ., Mount Pleasant, MI

I065 WITHDRAWN

I066 *Applications of Radar- and Satellite-Based Precipitation Products for Flood Runoff Simulation in a Dam Watershed.* **Younghyun Cho**, K-water (Korea Water Resources Corporation), Daejeon, Korea, Republic of (South)

I067 *Evaluation of Near-Real-Time IMERG Precipitation Estimates for Fire Weather Applications in Alaska.* **Taylor A. McCorkle-Gowan**, Univ. of Utah, Salt Lake City, UT; J. Horel

I068 *Comparing Precipitation from PERSIANN and TRMM during Typhoons.* **Alexandra Jakobsen**, Berry College, Mount Berry, GA; J. Sutton, K. Lanyon, V. Lakshmi

I069 *Enhancing Specific Attenuation Rain Rates in Stratiform and Convective Rain Regimes.* **Stephen B. Cocks**, CIMMS/Univ. of Oklahoma, Norman, OK; L. Tang, J. Zhang, A. Ryzhkov, P. Zhang, K. W. Howard

I070 *Evaluating the Influence of Resolution and Cumulus Parameterization at 4 km on Spatial Precipitation Patterns of NU-WRF in Eastern Kansas and Western Missouri.* **Yuqi Zhang**, Univ. of Kansas, Lawrence, KS; J. K. Roundy, J. A. Santanello

I071 *AQPI: RAP/HRRR Model Forecasts of Atmospheric River Events over the San Francisco Bay Area.* **Jason M. English**, Cooperative Institute for Research in Environmental Sciences, Boulder, CO; D. D. Turner, M. Marquis, E. P. James, T. Alcott, W. R. Moninger, J. L. Bytheway, H. Wang

34HYDRO

Poster Session 11: SNOW PROCESSES AND MELT DETECTION THROUGH REMOTE SENSING, MODELING, AND DATA ASSIMILATION—POSTERS

Chairs: Elias Deeb, Army Engineer Research and Engineering Center, Hanover, NH; Melissa L. Wrzesien, Univ. of North Carolina, Chapel Hill, NC; Carrie Vuyovich, NASA Goddard Space Flight Center, Greenbelt, MD

I072 *Snow Disdrometer.* **Dhiraj Kumar Singh**, Univ. of Utah, Salt Lake City, UT

I073 *SMAP Freeze–Thaw Subpixel Heterogeneity and Infrastructure Applications.* **Mahsa Moradi**, Univ. of New Hampshire, Durham, NH; S. Kraatz, J. M. Jacobs

1074 *Cold Season Surface Classification by Response to Snow Accumulation and Melt: An Active–Passive Microwave Perspective from GPM.* **Stephen Joseph Munchak**, NASA GSFC, Greenbelt, MD; S. E. Ringerud, L. Brucker, Y. You, C. Prigent

1075 *Remote Snow Strength Detection Using Multifrequency/ Multipolarization Radar.* **Elias J. Deeb**, Cold Regions Research and Engineering Laboratory, Hanover, NH; H. P. Marshall, Z. Courville, J. Lever, R. Forster, S. A. Shoop

1076 *Changes to Western U.S. Snow Accumulation throughout the Twenty-First Century: Predictions from Dynamical Downscaling.* **Melissa L. Wrzesien**, Univ. of North Carolina, Chapel Hill, NC; T. M. Pavelsky

1077 *Snow Ensemble Uncertainty Project (SEUP): Characterization of Snow Water Equivalent Uncertainty Using an Ensemble-Based Land Surface Modeling.* **Rhae Sung Kim**, NASA Goddard Space Flight Center, Greenbelt, MD; S. V. Kumar, C. Vuyovich, P. Houser, M. T. Durand, L. Mudryk, J. M. Johnston, J. D. Lundquist, C. Garnaoud, B. A. Forman, M. Sandells, M. L. Wrzesien, N. Cristea

1078 *Evaluation of Snow Water Equivalent and Snowmelt Processes in the NA-Cordex Regional Climate Simulations.* **Rachel-McCrary**, NCAR, Boulder, CO; E. Cho, J. M. Jacobs, L. O. Mearns

1079 *A Modified Degree-Day Method for Volume and Timing Estimation of Snowmelt and Refreezing.* **Ana Žaknić-Čatović**, Univ. of Toronto, Scarborough, Toronto, Canada; K. W. F. Howard, W. A. Gough, Z. Čatović

1080 *Development of a Global Operational Snow Analysis at the U.S. Air Force 557th Weather Wing.* **Yeosang Yoon**, NASA GSFC/SAIC, Greenbelt, MD; E. M. Kemp, S. V. Kumar, J. W. Wegiel, C. D. Peters-Lidard

1081 *Utilizing a Novel Snow Reanalysis Dataset from Landsat to Evaluate National Water Model Simulations of Snow Water Equivalent.* **Konstantinos Andreadis**, Univ. of Massachusetts, Amherst, MA; S. Wi, S. A. Margulis, D. P. Lettenmaier

1082 *Streamflow from Snowmelt Runoff Using Satellite-Borne Microwave Observations.* **Adam George Hunsaker**, Univ. of New Hampshire, Durham, NH; J. M. Jacobs, C. Vuyovich

1083 *Spatiotemporal Estimation of the Water Equivalent of Snow in a Hydrological Forecasting Perspective.* **Thomas Laperrière-Robillard**, École de Technologie Supérieure, Montréal, Canada

1084 *Spatial Heterogeneity of Snow Affects Remote Sensing, Modeling, and Data Assimilation Interpretation.* **Ethan Gutmann**, NCAR, Boulder, CO; L. Bearup, T. H. Painter, K. Andreadis

1085 *The Influence of Snow-Depth Observation Timing and Uncertainty on Data Assimilation Improvements to SWE.* **Eric J. Smyth**, Univ. of Colorado, Boulder, CO

1086 *Influence Mechanism Analysis of Snow Caused by Two Central Asian Vortexes in the West of Southern Xinjiang in 2011.* **Yunhui Zhang**, Xinjiang Meteorological Observatory, Urumqi, China; B. Yu

1087 *A Multifaceted Evaluation of National Water Model Snow Processes in Complex Terrain.* **Francesca Viterbo**, CIRES, Boulder, CO; M. Hughes, K. Mahoney, R. Cifelli, M. Barlage, D. Gochis, J. Lundquist, C. S. Draper

1088 *Adaptation of SnowModel for Vehicle Mobility in Snow.* **Julie Parno**, Cold Regions Research and Engineering Laboratory, Hanover, NH

34HYDRO / 33CVC

Joint Poster Session 3: HEAVY PRECIPITATION AND FLOOD RISK UNDER A CHANGING CLIMATE

Chairs: Xander Wang, Univ. of Prince Edward Island, Charlottetown, Canada; Glenn Hodgkins, USGS, Augusta, ME; Ellen Mccray, NESDIS, Norton, MA; Arthur T. DeGaetano, Cornell Univ., Ithaca, NY; Mathias J. Collins, NOAA, Gloucester, MA

1089 *Groundwater Supply Vulnerability Analysis in the Atoll Islands of the Republic of Maldives in Response to Tsunami Events and Sea Level Rise.* **Abdullah A. Alsumaiei**, Kuwait Univ., Kuwait City, Kuwait

1090 *Using a WRF Physics Ensemble to Investigate the Behavior of a Flood-Producing Heavy Rainstorm in Current and Future Environments.* **J. Mike Madden**, North Carolina State Univ., Raleigh, NC; C. Jung, W. A. Robinson, G. M. Lackmann

1091 *An Event-Based Downscaling Approach to Modeling Extreme Cloudburst Precipitation Events.* **Geneva M. E. Gray**, EPA, Research Triangle Park, NC; K. E. Kunkel, T. L. Spero, J. H. Bowden, A. M. Jalowska, M. S. Mallard

1092 *Periodicity of 241-yr Precipitation at Seoul in Summer 1778–2018.* **Jae Won Lee**, KMA, Incheon, Korea, Republic of (South); D. S. Kim

1093 *Considering Uncertainty in Projections of Hydrological Extremes under Climate Change Scenarios in the Catskill Mountains Associated with Decadal-Scale Variability.* **Allan Frei**, City Univ. of New York, New York, NY; E. Owens, R. Gelda, R. Mukundan, J. Gass, J. Chen

1094 *Trends in the Spatial Extent of Daily Extreme Precipitation Totals.* **Art DeGaetano**, Cornell Univ., Ithaca, NY; G. S. Mooers, T. Favata

1095 *Assessing Future Flood Risk toward a Sustainable City and Campus Stormwater and Landscape Ecology Plan: A Cambridge and MIT Case Study.* **C. Adam Schlosser**, MIT, Cambridge, MA; K. Strzepek, X. Gao, M. Preston, B. Goldberg

1096 *An Investigation of Flood Risk under a Changing Climate in the Souris River Basin.* **Angela Gregory**, USGS, Bismarck, ND

1097 *Examining Climate Trends in New England and Their Impact on Riverine Flood Behavior.* **David R. Vallee**, NWS, Norton, MA

1098 *The Historical 2019 Spring Flood Season and Central Region's ROC Response.* **Stephanie D. Sipprell**, NWS Central Region Headquarters, Kansas City, MO; W. L. Pearson, K. P. Allen

1099 *Effects of Climate, Regulation, and Urbanization on Historical Flood Trends in the United States.* **Glenn Hodgkins**, USGS, Augusta, ME; R. Dudley, S. A. Archfield, B. Renard

1100 *Statistical Attribution of Peak-Streamflow Changes in the Northeast United States during the Last Century.* **Robert Dudley**, USGS, Augusta, ME; G. Hodgkins

34HYDRO**Poster Session 8: EARTH OBSERVATIONS AND ENVIRONMENTAL MODELING FOR AGRICULTURE AND FOOD SECURITY—POSTERS**

Chairs: Pierre Guillevic, Univ. of Maryland, College Park, MD; Chris Justice, Univ. of Maryland, College Park, MD

I101 *Examination of the Standardized Precipitation Index for a Measure of Global Crop Losses by Extreme Wets and Dries.* **Wonsik Kim**, National Agriculture and Food Research Organization, Tsukuba, Japan; T. Iizumi

I102 *Integrative Hydrometeorological Applications with Precipitation, Soil Moisture, and Water Vapor Using Phone Apps, GIS, and Data Assimilation.* **A. S. Jones**, CIRA/Colorado State Univ., Fort Collins, CO; A. A. Andales, A. Burzynski, J. L. Chavez, O. David, S. J. Fletcher, J. M. Forsythe, M. Goodliff, P. Grazaitis, S. Q. Kidder, A. Kliewer, C. McGovern, J. D. Niemann, M. Pauly, J. Scalia, G. E. B. Smith

I103 *Agricultural Monitoring from Combined Optical and SAR Data.* **Andres E. Santamaria-Artigas**, Univ. of Maryland, College Park, MD; S. Skakun, B. Franch, J. C. Roger, E. Vermote

I104 *AVHRR Ldr Surface Albedo Product for Agricultural Modeling.* **Jose Luis Villaescusa-Nadal**, NASA, Greenbelt, MD; B. Franch, J. C. Roger, E. Vermote

I105 *Famine Early Warning Systems Network (FEWS NET) Land Data Assimilation System (LDAS) and Other Assimilated Hydrological Data at NASA GES DISC.* **Carlee Loeser**, GES DISC, Greenbelt, MD; H. Rui, W. Teng, D. Ostrenga, J. Wei, A. McNally, J. Jacobs

I106 *Projection and Attribution of Future Maize Yield Changes in the U.S. Corn Belt.* **Meijian Yang**, Univ. of Connecticut, Storrs, CT; G. Wang

I107 *Predictability of Cardinal Temperatures for Wheat Anthesis at Subseasonal-to-Seasonal Lead Times.* **Augustin Vintzileos**, Falls Church, VA; P. Guillevic

I108 *Spatial Changes of Corn and Soybean Planting Areas in the United States from 2008 to 2018.* **Liying Guo**, George Mason Univ., Fairfax, VA; L. Di

I109 *Irrigation Impacts on Improving Crop Yield for Corn and Soybean in the Central United States.* **Zhe Zhang**, Univ. of Saskatchewan, Saskatoon, Canada; F. Chen, M. Barlage, Y. Li

I110 *In-Season Crop Mapping for the Continental United States.* **Venkata Shashank Konduri**, Northeastern Univ., Boston, MA; J. Kumar, W. Hargrove, F. M. Hoffman, A. R. Ganguly

I110A *Farmer's First Africa: Providing Precipitation Forecasts for the Central African Republic.* **J. G. Fairman Jr.**, Athenium Analytics, Dover, NH; and E. Soldati

34HYDRO**Poster Session 9: IMPROVEMENTS TO THE ANALYSIS AND PREDICTION OF FLASH DROUGHT AND LONG-TERM DROUGHT—POSTERS**

Chairs: Jordan Christian, Univ. of Oklahoma, Norman, OK; Andrew Hoell, NOAA, Boulder, CO; Jason Otkin, Univ. of

Wisconsin, Madison, WI; Josh Roundy, Univ. of Kansas, Lawrence, KS; Ryann Wakefield, Univ. of Oklahoma, Norman, OK

I111 *Investigation of Potential Evapotranspiration's Effect on the Drought Index with Various Regions and Climate Conditions.* **Yeonjoo Kim**, Yonsei Univ., Seoul, Korea, Republic of (South); M. J. Um, D. Park, K. Jung

I112 *Objective Integration Soil Moisture Satellite Observations and Model Simulations toward a Blended Drought Index.* **Jifu Yin**, NOAA/NESDIS, College Park, MD; X. Zhan, C. R. Hain, M. C. Anderson, M. Schull

I113 *A Comparison of the National Drought Monitoring Index with New Drought Indices Based on Remotely Sensed SMAP Data and In Situ COSMOS Observations.* **Jerry Bieszczad**, Creare LLC, Hanover, NH; M. P. Ueckermann, M. Shapiro, D. R. Callender, D. Sullivan, D. Entekhabi, M. Zreda

I114 *Characterizing the Spatial and Temporal Propagation Dynamics of Flash Droughts.* **Lauren E. L. Lowman**, Wake Forest Univ., Winston Salem, NC; E. D. Hunt

I115 *U.S. Flash Droughts—Definitions and Dynamics.* **Mahmoud Osman**, The Johns Hopkins Univ., Baltimore, MD; B. F. Zaitchik, H. S. Badr

I116 *Monitoring the Evolution of Drought Severity in the Philippines during the 2019 El Niño.* **Gay Jane Perez**, Univ. of the Philippines Diliman, Quezon City, Philippines; O. Enricuso, K. Manauis, M. A. Valet

I117 *Short-Term Monitoring and Forecasting of Flash Drought Conditions.* **Stuart Edris**, Univ. of Oklahoma, Norman, OK; J. B. Basara, J. Christian, R. Wakefield, J. A. Otkin

I118 *Prediction of Flash Droughts over the United States.* **Kingtse C. Mo**, CPC, College Park, MD; D. P. Lettenmaier

33CVC**Poster Session 13: EARTH SYSTEM MODELING AND CLIMATE CHANGE (E.G., EARTH SYSTEM MODELING, REGIONAL CLIMATE MODELING, CLIMATE CHANGE, CARBON CYCLE)**

I119 *Evaluation of the CMIP6 Multimodel Ensemble for Climate Extreme Indices.* **Yeon-Hee Kim**, Pohang Univ. of Science and Technology, Pohang, Korea, Korea, Republic of (South); S. K. Min, X. Zhang, J. Sillmann

I120 *How Do MIPs Contribute to Scientific Reproducibility within Climate Science?* **Matthew S. Mayernik**, NCAR, Boulder, CO

I121 *Southern Ocean Cloud Controlling Factors and Their Connections to Cloud Radiative Effects in CMIP6 Models.* **Mitchell Kelleher**, Univ. of Virginia, Charlottesville, VA; K. M. Grise

33CVC**Poster Session 14: IDENTIFYING THE CLIMATE CHANGE SIGNAL IN WEATHER EVENTS**

I122 *Anthropogenic Influences on Severe Storms in the Midwest.* **Emily Bercos-Hickey**, LBNL, Berkeley, CA; C. M. Patricola

1123 *Understanding the Intermodel Diversity Simulating the Year When the Warming Trend Is beyond the Internal Variability in CMIP5 Climate Models.* **Seunghwon Hyun**, Hanyang Univ., South Korea, Ansan, Korea, Republic of (South); S.W.Yeh

1124 *Is Climate Change Increasing the Intensification Rates of Tropical Cyclones?* **Kieran Bhatia**, Princeton Univ./GFDL, Princeton, NJ; A. Baker, G. A. Vecchi, H. Murakami, J. P. Kossin, T. R. Knutson, K. W. Dixon, P. L. Vidale

33CVC

Poster Session 15: IN SITU MEASUREMENTS OF THE EARTH SYSTEM

1125 *Deriving Complete Upper-Air Station Histories Using Sensitive Data Variables—An Essential Step in Homogenizing the Atmospheric Climate Record.* **Steven R. Schroeder**, Texas A&M Univ., College Station, TX

1126 *Snow Depth over Central North America: 1966–2018.* **Logan Soldo**, Rutgers Univ., Piscataway, NJ; D. A. Robinson, T. L. Mote

33CVC

Poster Session 16: INTERBASIN INTERACTIONS BETWEEN THE PACIFIC, THE ATLANTIC, AND THE INDIAN OCEAN, AND THEIR IMPACTS ON THE GLOBAL CLIMATE VARIABILITY

1127 *Westward Wind Changes over the Tropical and Midlatitude Pacific in the Past Three Decades Driven by the Interbasin Teleconnections.* **Xichen Li**, Institute of Atmospheric Physics, Beijing, China

1128 *On the Relation between the Boreal Spring Position of the Atlantic Intertropical Convergence Zone and Atlantic Zonal Mode.* **Vijay Pottapinjara**, Indian National Centre for Ocean Information Services, Hyderabad, India

1129 *Understanding a Nonstationary Relationship between PDO and IOBM in the Observations.* **Jin-Sil Hong**, Hanyang Univ., Ansan-si, Korea, Republic of (South); S.W.Yeh

1130 *Decadal Variabilities over the Tropical Ocean Basins Impact on the West Antarctic Climate.* **Song Chentao**, IAP, Beijing, China

1131 *Indian Ocean Dipole Modoki (IODM) and Its Responses to Diabatic Heating and Circulation.* **Debanjana Das**, George Mason Univ., Fairfax, VA; D. M. Straus, E. T. Swenson

1132 *A Northern Hemispheric Wave Train Associated with Fluctuations in Bermuda High during Boreal Summer.* **Haochang Luo**, Univ. of Michigan, Ann Arbor, MI

1133 *The Underestimated Responses of the Pacific Walker Circulation to ENSO in CMIP5 Models.* **Huang Aonan**, Chengdu Univ. of Information Technology, Chengdu, China

1134 *Tropical Atlantic and Indian Ocean Warming Impact on the Subtropical High and Aleutian Low.* **Xin Meijiao**, IAP, Beijing, China

1135 *Tropical-Dipole Mode and Its Impact on the Global Climate.* **Wang Wenzhu**, Beijing Normal Univ., Beijing, China

1136 *Interaction between the Tropical Ocean and Antarctic Climate.* **Diao Siyue**, Shenyang Agricultural Univ., Shenyang, China

1137 *Tropical Atlantic Impacts on the Recent Trends over the Tropical Ocean and Atmosphere.* **Yadi Li**, IAP, Beijing, China

1138 *The Strengthening and Westward Shift of the Tropical Walker Circulation Driven by Tropical Sea Surface Temperature Forcing.* **Xiaoyong Li**, Chengdu Univ. of Information Technology, Chengdu, China

1139 *Interactions between the Atlantic Multidecadal Oscillation and Pacific Decadal Oscillation.* **Zhou Yi**, IAP, Beijing, China

1140 *Interactions between the Tropical Atlantic, the Indian Ocean, and the Pacific on Decadal Time Scales.* **Cui Miao**, Shenyang Agricultural Univ., Shenyang, China

33CVC

Poster Session 17: UNDERSTANDING EXTREME AND COMPOUND WEATHER EVENTS

1141 *Strongest MJO on Record Triggers Atacama Rainfall and Warmth in Antarctica.* **Roberto Rondanelli**, Univ. of Chile, Santiago, Chile; B. J. Hatchett, D. Bozkurt, J. A. Rutllant, R. D. Garreaud

1142 *Near 40 Years of MERRA-2 Data at NASA GES DISC—Opportunities and Challenges to Supporting Extremes Studies.* **Suhung Shen**, NASA GSFC/GES DISC, Greenbelt, MD; D. Ostrenga, M. Bosilovich, A. Li, D. Meyer

1143 *Spatiotemporal Variation Characteristics of Strong Winds in Korea during the Recent 30 Years (1988–2017).* **Baek-Jo Kim**, KMA, Gangneung, Korea, Republic of (South); H. U. Kim, J. Shim

1144 *Increased Heat Waves and Extremes with Associated Population Risk in a CO₂-Warmed World.* **Jangho Lee**, Texas A&M Univ., College Station, TX; A. E. Dessler, J. C. Mast

1145 *Understanding CWRP's Ability to Simulate U.S. Extreme Precipitation Characteristics.* **Chao Sun**, Univ. of Maryland, College Park, MD; X. Z. Liang

1146 *Understanding a Regime Shift of Pure Tropical Night Occurrence during Boreal Summer and a Role of Pacific Decadal Oscillation.* **Eun-Hye Lee**, Hanyang Univ., Ansan, Korea, Republic of (South); S.W.Yeh

1147 *Decadal Change of Extreme Cold Days over South Korea for Early Winter.* **Woo Sung-Ho**, Chonnam National Univ., Gwangju, Korea, Republic of (South); J. Jee-Hoon

1148 *Future Changes in Extreme Heat Waves in High-Resolution Time-Slice Simulations.* **Roger W. Turnau**, North Carolina State Univ., Raleigh, NC; W. A. Robinson, G. M. Lackmann, A. C. Michaelis

1149 *Primary Atmospheric Drivers of Dry and Wet Periods over the U.S. Great Plains within CMIP5 Models.* **Paul X. Flanagan**, Univ. of Nebraska, Lincoln, NE; J. B. Basara, E. R. Martin, R. Mahmood, J. C. Furtado

1150 *Projection of Compound Events for Central/Eastern Europe.* **Rita Pongracz**, Eotvos Lorand Univ., Martonvasar, Hungary; J. Bartholy, I. Pieczka, T. Kalmar, A. Kis

1151 *Examining Contiguous Extreme Events over the United States.* **Andrew P. Ballinger**, Univ. of Edinburgh, Edinburgh, UK; K. E. Kunkel

1152 *Analyzing Projected Changes to the Seasonal Cycle and Daily Extremes Using the STAR Framework.* **Andrew P. Ballinger**, Univ. of Edinburgh, Edinburgh, UK; I. Scott-Fleming, K. Hayhoe, A. M. K. Stoner

1153 *The Use of the ERA5 Reanalysis to Identify Compound Extreme Wind and Precipitation Events That Are Associated with Extratropical Cyclones.* **Martina Messmer**, Univ. of Melbourne, Parkville, Australia; I. Simmonds

1154 *The Effect of ENSO Events on Tornado Activity over the Spring Months of April–June in Dixie Alley from 1983 to 2013.* **Caitlin Lawrence**, Carmichaels, PA

1155 *Bayesian Modeling of Central U.S. Tornado Reporting Rates.* **Corey Potvin**, NOAA/OAR/NSSL, and School of Meteorology, Univ. of Oklahoma, Norman, OK; C. Broyles, P. S. Skinner, H. E. Brooks, E. N. Rasmussen

1156 *It's No Longer Your Grandfather's Winter: The Relationship between Changes in the Nocturnal Polar Vortex, Terrestrial Boundary Conditions, and Snowfall Climatology in the Urban Corridor of the Northeastern United States.* **Jonathan Forest Byrne**, Emmanuel College, Boston, MA; J. F. Byrne

1157 *Changes in Snowfall Climatology and Storm-Scale Dynamics in a Warmed Climate.* **Rachel Maya Robinson**, Univ. of North Carolina, Charlotte, NC; J. Scheff

33CVC / 8MJO

Joint Poster Session 3: MONSOON DYNAMICS: VARIABILITY, CHANGE, AND IMPACTS

1158 *Interannual Variability of Submonthly Disturbances and the Associated Tropical Cyclones in the East Asian Summer Monsoon Region.* **Ken-Chung Ko**, National Kaohsiung Normal Univ., Kaohsiung, Taiwan

1159 *Quasi-Biweekly Oscillation of the South Asian High and Its Role in Connecting the Indian and East Asian Summer Rainfall.* **Wei Wei**, Sun Yat-sen Univ., Guangzhou, China

1160 *Relationship between Interannual Changes of Summer Rainfall over the Yangtze River Valley and South China Sea–Philippine Sea: Possible Impacts of the Tropical Zonal Sea Surface Temperature Gradient.* **Yao Ha**, National Univ. of Defense Technology, Nanjing, China; Z. Zhong

1161 *Drying Tendency over the Southern Tibetan Plateau in Recent Past Decades.* **Ziqian Wang**, Sun Yat-sen Univ., Guangzhou, China; S. Yang

1162 *How Would the Asian Summer Monsoon Change with a Meridionally Relocated Tibetan Plateau?.* **Song Yang**, Sun Yat-sen Univ., Guangzhou, China; J. Wang

1163 *Seasonal Dependence of Thermal and Dynamical Effects of the Tibetan Plateau and Their Modulations on Atmospheric Circulation.* **Yuting Wu**, Sun Yat-sen Univ., Guangzhou, China

1164 *Summertime Rossby Wave Breaking in the Eastern North Pacific: Links to Extreme Weather in the North American Monsoon Region.* **Michael Sierks**, SIO, La Jolla, CA; W. Chapman, J. F. Kalansky, F. Cannon, F. M. Ralph

1165 *The Response of the Tropical Atmosphere to an Idealized Equatorial Continent. Results from TRACMIP.* **Michela Biasutti**, LDEO, Palisades, NY; A. Voigt, R. D. Russotto

33CVC / 8MJO

Joint Poster Session 4: VARIABILITY AND PREDICTABILITY OF CLIMATE ON SUBSEASONAL-TO-SEASONAL TIME SCALES

1166 *Seasonal Precipitation Forecasting by Spectral Analysis of the Large Water Body Levels.* **Isabella Osetinsky-Tzidaki**, Israeli Consulting in Climatological Projects and Practices, Bat Yam, Israel

1167 *MJO Propagation and Its Influence on Temperature and Precipitation over the United States.* **Kirstin J. Harnos**, NOAA/NWS/NCEP/CPC/Innovim, College Park, MD; W. Wang

1168 *Predictability of the Great Plains Low-Level Jet and Its Associated Precipitation.* **Kelsey M. Malloy**, Univ. of Miami/Rosenstiel School for Marine and Atmospheric Science, Miami, FL; B. Kirtman

1169 *Atmospheric Blocking, Forecast Model Resolution, and Extreme Winter Weather Conditions in the United States.* **Kayla Besong**, Univ. of Miami/Rosenstiel School of Marine and Atmospheric Science, Miami, FL; B. Kirtman

1170 *High-Resolution Dynamical Downscaling of Reanalysis Data over the Kerguelen Islands using the WRF Model.* **Ricardo Morais Fonseca**, Khalifa Univ. of Science and Technology, Abu Dhabi, United Arab Emirates; F. J. Martin-Torres

1171 *Multiscale Interactions in a High-Resolution Tropical Belt Experiment and Observations.* **Ricardo Morais Fonseca**, Khalifa Univ. of Science and Technology, Abu Dhabi, United Arab Emirates; T. Y. Koh, C. K. Teo, T. Zhang

1172 *Designing an Optimal Strategy for GMAO S2S Ensemble Forecast.* **Anna Borovikov**, SSAI, Greenbelt, MD; S. Schubert, J. Marshak, Y. K. Lim

1173 *Toward Improving S2S Forecasts of the Japan Meteorological Agency's Global Ensemble Prediction System (JMA-GEPS).* **Natsuko Otsuka**, JMA, Chiyoda-ku, Japan; T. Takakura, T. Y. Tanaka

1174 *Midlatitude Prediction Skill Provided by the QBO–MJO on Subseasonal-to-Seasonal Time Scales.* **Kirsten Mayer**, Colorado State Univ., Fort Collins, CO; E. A. Barnes

1175 *The Consistency of MJO Teleconnection Patterns on Interannual Time Scales.* **Eric D. Maloney**, Colorado State Univ., Fort Collins, CO; K. C. Tseng, E. A. Barnes

1176 *The Opposite Trend of Summer Stationary–Transient Wave Interference in the Eastern and Western Hemispheres and Its Relationship with Heat Waves and Anomalous Tropical Diabatic Heating.* **Dong Wan Kim**, The Pennsylvania State Univ., University Park, PA; S. Lee

1177 *Clustering Analysis of Autumn Weather Regimes in the Northeast United States.* **David W. Coe**, Univ. of Massachusetts, Lowell, MA; L. Agel, M. Barlow, F. P. Colby Jr., C. Skinner

1178 *Synoptic Analysis of Siberian Pulse Events.* **Michael Ashley Follensbee**, Univ. of Massachusetts, Lowell, MA; M. Barlow, L. Agel, D.W. Coe

1179 *The Role of Convection on the Decreasing Caribbean Precipitation during a Regional Warming Sea Surface Temperature Period: 1982–2017.* **Equisha Glenn**, NOAA, New York, NY; J. E. Gonzalez, T. Smith, J. M. Galvez, M. Davison

1180 *Subseasonal Predictions with NCEP's Unified Forecast System.* **Lydia Stefanova**, IMSG at NOAA/NWS/NCEP/EMC, College Park, MD; S. Saha, B. Li, J. Wang, D. Worthen, J. Meixner, A. Mehra

1181 *Incorporation of Decadal Trends into the Calibration, Bridging, and Merging (CBaM) Method for Seasonal Prediction of North American Temperature and Precipitation.* **Johnna Infanti**, NOAA, College Park, MD; D. C. Collins, S. Strazzo, Q. J. Wang, Y. Shao, A. D. Schepen

30WAF26NWP

Poster Session 3: 30 WAF/26 NWP WEDNESDAY POSTER SESSION

1182 *Wind Profiler and Surface Observations of Easterly Gap Flow and Precipitation in the Columbia River Gorge.* **Allen B. White**, NOAA/ESRL, Boulder, CO; D. J. Gottas

1183 *Application of Numerical Models in Visibility Forecasting for Airports over Taiwan.* **Yi-Chiu Lin**, National Taiwan Univ., Taipei, Taiwan; L. J. Chen, J. P. Chen

1184 *Forecasting of Snowfall on the Southern Edge of the U.S. Snowfall Region in South-Central Texas.* **Tim Springer**, Univ. of the Incarnate Word, San Antonio, TX; G. J. Mulvey

1185 *Analysis of the Relationship of Waterspout Day Frequency in the Florida Keys to Synoptic-Scale Patterns.* **Andrew Devanas**, NWS, Key West, FL; L. Stefanova

1186 *Synoptic and Mesoscale Characteristics of Extreme Heat Events in Southern California.* **Brandt D. Maxwell**, NOAA/NWS, San Diego, CA

1187 *Squall Lines and Extreme Rainfall in the Victoria, Australia Region.* **Stacey M. Hitchcock**, Univ. of Melbourne, Melbourne, Australia; T. P. Lane

1188 *Observations of Sea–Land–Breeze Circulation in Surface Wind Time Series.* **Song-Lak Kang**, Gangneung-Wonju National Univ., Gangneung, Korea, Republic of (South); J. Kim

1189 *A Study of WRF-Generated Lightning Strike Forecasts for the Southern Sierra Nevada.* **Alison F. C. Bridger**, San Jose State Univ., San Jose, CA; D. Nguyen

1190 *Assimilating Ocean Observations from Autonomous Drones into a Regional Weather Model.* **Simona Seastrand**, Saildrone, Alameda, CA

1191 *A Climatology of High-Non-Thunderstorm Winds in the Tennessee Valley.* **Kathleen M. Magee**, National Weather Service, Huntsville, AL; K. D. White

1192 *Similarities and Differences of Interactions among Synoptic and Mesoscale Weather Systems during 3–5 March and 11–13 April 2019 Events.* **Ralph Johnson**, Univ. of Missouri, Columbia, MO

1193 *The Influence of Coastline on the Orientation of Squall Lines.* **Hongjun Liu**, Peking Univ., Beijing, China

1194 *The Mechanism and Predictability of an Elevated Convection Initiation Event in a Weak-Lifting Environment in Central-Eastern China.* **Murong Zhang**, Peking Univ., Beijing, China; Z. Meng

1195 *Warm-Sector Heavy Rainfall in Southern China and Its WRF Forecast Evaluation: A Low-Level Jet Perspective.* **Murong Zhang**, Peking Univ., Beijing, China; Z. Meng

1196 *Differences between Well-Forecast and Poorly Forecast Bow-Echo Events in the WRF.* **Ezio Luca Mauri**, Iowa State Univ., Ames, IA; W.A. Gallus Jr.

1197 *Differentiating Convective Cases with Upscale Growth into MCSs and Those without Upscale Growth during PECAN.* **Zachary A. Hiris**, Iowa State Univ., Ames, IA; W.A. Gallus Jr.

1198 *The Instability in and Trigger Mechanism of an Extreme Precipitation Event in the Yili River Valley on 31 July 2016.* **Liu Jing**, Institute of Desert Meteorology, China Meteorological Administration, Urumqi, China

1199 *A Novel Approach to Stratifying the Precipitation Time Series: A Precipitation Climatology for Montréal, Québec.* **Kai Melamed-Turkish**, McGill Univ., Montreal, Canada; E. H. Atallah, J. R. Gyakum

1200 *Sounding Characteristics and Dual-Pol Signatures of Severe Hail Events across Central California.* **Andrew Bollenbacher**, NWS, Hanford, CA

1201 *Using a Rotational Shear Nomogram to Classify Ambiguous Tornadoes Observed in Central California.* **Kristian Mattarochia**, NWS, Hanford, CA

1202 *Analysis of Mesoscale Characteristics of a Torrential Rain in Hubei Province.* **Xianting Zhao**, CMA, Wuhan, China; X. Wang, J. Wang, X. Wang

1203 *The Analysis on the Microphysics Characteristic of the Cloud Clusters Associated with the Eastward-Propagating MCV along the East Asia Monsoon Front.* **Chao Li**, Institute of Heavy Rain, CMA, Wuhan, China

1204 *Characteristics Analysis on Heavy Rain over the Yangtze River Valley Induced by the Eastward-Moving Cloud Clusters from the Tibetan Plateau.* **Wang Xiaofang**, Institute of Heavy Rain, CMA, Wuhan, China

1205 *Blending Technology of Radar Extrapolation and Mesoscale Numerical Prediction Based on Python.* **Junchao Wang**, Hubei Key Laboratory for Heavy Rain Monitoring and Warning Research, Institute of Heavy Rain, CMA, Wuhan, China; Z. Wang, A. Lai

1206 *Statistical Analysis of the Doppler Velocity Correction of Ka-Band Cloud Radar and Microrain Radar Measurements.* **Xia Wan**, Institute of Heavy Rain, China Meteorological Administration, Wuhan, Wuhan, China; B. Xi

1207 *The Raindrop Size Distributions for Heavy Rainfall during the Mei-Yu Season in the Middle of China.* **Zhikang Fu**, Institute of Heavy Rain, CMA, Wuhan, Wuhan, China; X. Dong, L. Zhou, W. Cui

1208 *Microphysical Process Study of Mei-Yu Precipitation Events over Central China.* **Lingli Zhou**, Institute of Heavy Rain, CMA, Wuhan, Wuhan, China; X. Dong, Z. Fu Sr., B. Wang, L. Leng, B. Xi, C. Cui

1209 *The Synoptic Patterns Associated with Extreme Precipitation over the Middle Reaches of the Yangtze River during the Mei-Yu Season and Its Application in Model Assessment.* **Yang Hu**, Institute of Heavy Rain, China Meteorological Administration, Wuhan, China, Wuhan, China

1210 *Characteristics of Ice Cloud Precipitation of Warm Season Mesoscale Convective Systems over the Great Plains.* **Xiquan Dong**, The Univ. of Arizona, Tucson, AZ; J. Tian, B. Xi

1211 *Multiscale Spatiotemporal Variability of the East Asian Summer Monsoon Stationary Frontal System: Observation versus Its Representation in the GFDL HiRAM.* **Yana Li**, Sun Yat-sen Univ., Guangzhou, China; Y. Deng, S. Yang, H. Zhang, Y. Ming, Z. Shen

1212 *The Impact of Tropical Cyclones and Monsoonal Circulations on Floods in the Grand Canyon.* **Brent Roberts**, Brewer High School, Maine, Brewer, ME; S. Jain

1213 *Resolving Sahelian Thunderstorms Improves Midlatitude Weather Forecasts.* **Gregor Pante**, Karlsruhe Institute of Technology, Karlsruhe, Germany; P. Knippertz

1214 *An Objective Measure of TC Size Using the Evolution of the Area Of Closed Isobars—Algorithm, Resulting Climatology, and Physical Insights.* **Thomas B. McKenzie**, 21st Operational Weather Squadron, APO, AE; R. E. Hart

1215 *Impact of Vertical Wind Shear on Gravity Wave Propagation in the Land–Sea-Breeze Circulation at the Equator.* **Yu Du**, Sun Yat-sen Univ., Guangzhou, China; R. Rotunno, F. Zhang

1216 *Cirrus Cloud-Top Height Estimation Using Geostationary Satellite Split-Window Measurements Trained with CALIPSO and CloudSat Data.* **Noriyuki Nishi**, Fukuoka Univ., Fukuoka, Japan; A. Hamada, H. Hirose

1217 *Influence of Environmental Winds on Land–Sea-Breeze Afternoon Thunderstorms over Western Puerto Rico.* **Angelie T. Nieves Jiménez**, NCAR, Boulder, CO; R. Ríos-Berrios, K. Werner, K. Maull

1218 *On the Rainfall and Temperature Forecast Skill for a Tropical Andean Mountain Area in Northern South America Using Different Operational Weather Forecast Strategies: Role of the Diurnal Cycle of Rainfall on the Success of Data Assimilation.* **Mauricio Zapata**, Sistema de Alerta Temprana del Valle de Aburrá (SIATA), Medellín, Colombia; G. Guzmán, C. D. Hoyos, J. C. Hernández Díaz, L. I. Ceballos, S. M. López Zapata, M. Guarín Vargas

1219 *Understanding Rapid Intensity Changes in Official Hurricane Intensity Forecast Error Distributions.* **Benjamin C. Trabling**, Colorado State Univ., Fort Collins, CO; M. M. Bell

1220 *Development and Evaluation of a Multimodel Global Ensemble Tropical Cyclone Wind Speed Probability Product.* **Alan Brammer**, CIRA/Colorado State Univ., Fort Collins, CO; A. B. Schumacher, K. D. Musgrave

1221 *Numerical Model Forecast Tracks during Hurricane Florence (2018).* **Frank P. Colby**, Univ. of Massachusetts, Lowell, MA; A. B. Penny, M. Barlow

1222 *Developing the RAP/HRRR Physics Suite to Improve Tropical Shallow-Cumuli Structures across the Gray Zone.* **J. Olson**, NOAA, Boulder, CO; J. Kenyon, J. Brown, W. M. Angevine, H. Vagasky, G. Grell

1223 *The Meteorology of the November 2018 Camp Fire.* **Clifford F. Mass**, Univ. of Washington, Seattle, WA; D. Ovens

1224 *Wildfire Impact on Environmental Thermodynamics and Severe Convective Storms.* **Yuwei Zhang**, PNNL, Richland, WA; J. Fan, T. Logan, Z. Li, C. R. Homeyer

1225 *Identification of Forecast Biases to Improve Fire Danger Forecasts in Colorado.* **Brandon K. Cohen**, Univ. of Louisiana, Monroe, LA; P. T. Schlatter, L. Kriederman

1226 *Developing a Prescribed Fire Forecasting Algorithm for the Southeast United States.* **Charley Fite**, Florida State Univ., Tallahassee, FL; A. Agastra, C. Holmes

1227 *Taking Advantage of Machine Learning Methods to Better Represent Fire Radiative Power (FRP) for Smoke and Weather Forecasting Models.* **Christina Kumler**, NOAA/ESRL and CIRES, Boulder, CO; S. Maksimovic, J. Stewart, R. Ahmadov, M. Govett

1228 *A Polarimetric Radar Forward Operator and Application for Convective Storm Initiation.* **X. Li**, Univ. of Alabama, Huntsville, AL; J. R. Mecikalski

1229 *Dual-Polarization Radar Retrievals of Coastal Pacific Northwest Raindrop Size Distribution Parameters Using Random Forest Regression.* **Robert Conrick**, Univ. of Washington, Seattle, WA; J. Zagrodnik, C. F. Mass

1230 *Linear Least Squares Derivative Gradients of Single-Radar Products and Their Applications for Severe Weather.* **Thea Sandmael**, CIMMS/Univ. of Oklahoma and NOAA/OAR/NSSL, Norman, OK; B. R. Smith

1231 *The Assimilation of Dual-Phased-Array Weather Radar Observations on Short-Range Convective Forecasts.* **James Taylor**, RIKEN, Kobe, Japan; G. Y. Lien, S. Satoh, T. Miyoshi

1232 *A Global Radial Wind Data Assimilation OSSE with the GFS.* **Donald E. Lippi**, IMSG, NOAA/NCEP/EMC, and Univ. of Maryland, College Park, MD; J. R. Carley, D. T. Kleist

1233 *Evolution of Single- and Dual-Polarization Radar Signatures Associated with QLCS Mesovortices.* **Olivia F. McCauley**, NWC REU Program, Norman, OK; C. M. Kuster, V. N. Mahale, T. Shuur

1234 *Operational Utility of the Depth and Width of Three-Body Scatter Spikes.* **Keith D. Sherburn**, NOAA/NWS, Rapid City, SD; J. Chamberlain

1235 *Inferring Severe Convective Wind Gust Probabilities in Florida from NEXRAD Storm Structure Data.* **Madeline R. Frank**, Climate Forecast Applications Network, Atlanta, GA; J. Miller, V. Toma

1236 *All-Sky Radiance Assimilation for COAMPS-TC Tropical Cyclone Rapid Intensification Prediction.* **Qingyun Zhao**, NRL, Monterey, CA; N. Baker, Y. Jin, J. Doyle, R. G. Nystrom, Y. Zhang, X. Chen, C. Hartman, F. Zhang

1237 *Assimilation of CYGNSS Wind Speed for Tropical Convection during 2018 MJO Onset.* **X. Li**, Univ. of Alabama, Huntsville, AL; T. J. Lang, J. R. Mecikalski

1238 *Understanding of Convection Genesis by an Urban Meteorological Model Based on Large Eddy Simulation.* **Kosei Yamaguchi**, Kyoto Univ., Uji, Kyoto, Japan; T. Tsuchihashi, D. Konishi, E. Nakakita

1239 *Modeling Convection with a “Scale Aware” Tiedtke Cumulus Parameterization Scheme at Kilometer Scales.* **Wei Wang**, NCAR, Boulder, CO

1240 *Results of Varying Vertical Grid Resolution and Microphysics in 3-km FV3 Stand-Alone Regional Runs.* **Eric Aligo**, EMC/NCEP/NWS/NOAA and I.M. Systems Group, Inc., College Park, MD; E. Strobach, Y. Lin, L. C. Dawson, J. R. Carley, J. S. Kain

1241 *Test of a Prognostic Cloud Cover in the FV3GFS.* **Ruiyu Sun**, NOAA/NWS/NCEP/EMC and MSG, College Park, MD; J. S. Kain, J. Han

1242 *Diurnal Cycles of Mei-Yu Rainfall Simulated over Eastern China: Sensitivity to Cumulus Convective Parameterization.* **Xi Lu**, Sun Yat-sen Univ., Guangzhou, China

1243 *Automated Data Analysis of Near-Real-Time GNSS-PWV Determination Using a Kalman Filter: The Central of Thailand.* **Amnat Sompan**, Hydro Informatics Institute, Bangkok Thailand, Bangkok, Thailand; P. Chitsutti, P. Jindasee, S. Weesakul

1244 *Characterization of the Atmospheric Conditions and Cloudiness Leading to Extreme Rainfall Events over the Northern South America Andean Region: An Approach Using High-Resolution Data from GOES-ABI and ERA-5.* **Carlos Andrés Bonilla**, Sistema de Alerta Temprana del Valle de Aburrá (SIATA), Medellín, Colombia; C. D. Hoyos

1245 *Possible Sting Jet Development in Hurricanes Michael and Leslie (2018) Postextratropical Transition.* **Deirdre Dolan**, NOAA, College Park, MD; M. J. Folmer, J. M. Sienkiewicz, H. Fort

1246 *Declarative Surface Station Plots: The Next Stop on the GEMPAK Replacement Roadmap for MetPy.* **Maxwell Grover**, UCAR, Boulder, CO; R. M. May, Z. Bruick

1247 *The Python-Based MPMC Test Suite for NOAA Operational Data Assimilation Systems (GSI/EnKF).* **G. Ge**, CIRES and NOAA/ESRL/GSD, Boulder, CO; M. Hu, C. Zhou, D. Stark

1248 *A Python-Based Quantitative Precipitation Estimate over Alaska Using Rain Gauge Kriging and the HRRR-AK Precipitation Forecast.* **Brett T. Hoover**, CIMSS, Madison, WI; J. A. Otkin, E. Petrescu, E. Niebuhr

1249 *Decision Calendar for West Coast Water Management: Connecting Science and Interrelated Decisions for Water Supply, Flooding, Fisheries, and Coastal Management.* **Andrea Ray**, NOAA/Earth System Research Lab, Boulder, CO; L. E. Johnson

29 EDUCATION

Poster Session 3: UNIV. EDUCATION POSTER SESSION

1250 *Support for Field-Based Undergraduate Research in Earth/Environmental Sciences and Biology Courses at an Oregon Community College, Including Taphonomy!.* **Paul Ruscher**, Lane Community College, Eugene, OR; C. Andrews, J. Anderson, S. Clarke, S. Holmes, R. Kirwin, S. Kiser, J. McLaughlin, C. Owen, A. Pooth

1251 *Visual and Radar Observations of Storms.* **Scott M. Steiger**, SUNY, Oswego, NY

1252 *A Multiyear Multi-Institution Collaborative Research Project Developed during the Northeast Partnership for Atmospheric and Related Sciences (NEPARS) REU Program.* **Nicholas D. Metz**, Hobart and William Smith Colleges, Geneva, NY; J. M. Cordeira, C. Evans

1253 *The Unidata Summer Internship Program—Seven Years of Providing Students with Software Carpentry Skills.* **Sean C. Arms**, UCAR, Boulder, CO; R. M. May, D. Dirks

1254 *Radiosondes and Radars and School Superintendents—Oh My!: Recognizing the Ramifications of Meteorologically Based Decisions through Experiential In-House Internships.* **Adam J. Stepanek**, Valparaiso Univ., Valparaiso, IN; B. J. Wolf, T. M. Bals-Elsholz

1255 *The Financial Dilemma of Students Pursuing an Atmospheric Science Graduate Degree in the United States.* **Ajay Raghavendra**, Univ. at Albany, SUNY, Albany, NY; D. R. Card, H. S. Sussman

1256 *What Instruction Method Enhances Understanding of Fundamental Concepts in an Introductory Meteorology Course?.* **Montana Etten-Bohm**, Texas A&M Univ., College Station, TX; D. T. Conlee

1257 *Developing the Next Generation of Weather Forecasters: The NCEP Student Internship Program.* **Genene Fisher**, NWS, College Park, MD

1258 *How Meteorologists Get Rid of Lorenz Chaos.* **Isimar Santos**, Campus da UENF em Macae, Macae, Brazil; N. S. Ferreira, J. Buchmann

1259 *Utilizing Data Sonification as a Means to Better Engage and Instruct Students of Atmospheric Science.* **Samantha Berkseth**, Friday Harbor, WA

1260 WITHDRAWN

1261 *Integrating Weather Data, Climate Science, and Sustainability to Engage a Diverse Community and Train a Future Green Workforce at the Alamo Colleges District.* **John Strybos**, Alamo Colleges District, San Antonio, TX

1262 *Are Students Academically Ready to Take an Introductory Meteorology Course?.* **Tim Springer**, Univ. of the Incarnate Word, San Antonio, TX; G. J. Mulvey

1263 *An Integrated Approach for Meteorology and Emergency Management Education.* **Sepideh Yalda**, Millersville, PA

1264 *Improving Wikipedia while Improving Student Learning.* **Ian A Ramjohn**, Wiki Education, San Francisco, CA; E. N. Webb

1265 *Lake Watershed Geosystems: A Meteorology Student's Perspective in GEOPATHS.* **Charles John Peachey**, Plymouth State Univ., Plymouth, NH

1266 *Enhancing Meteorology Engagement in the Geosciences through NSF's GeoPaths EXTRA Program.* **Lisa A. Doner**, Plymouth State Univ., Plymouth, NH; E. P. Kelsey, A. Villamagna, R. Lyons, M. Earick, D. Evans

1267 *A New Online Text for Introductory-Level Atmospheric Science Students.* **Alison D. Nugent**, Univ. of Hawai'i at Mānoa, Honolulu, HI; J. D. S. Griswold, C. Karamperidou

1268 *Findings and Mysteries of the ACES S-STEM Project on Undergraduate Atmospheric Science Students at a Public Liberal Arts Univ..* **Douglas Miller**, Univ. of North Carolina, Asheville, NC; M. Cameron, C. Godfrey, K. Sanft, C. Hennon

1269 *Summer Undergraduate Research Experience: A Holistic Approach to Recruit, Train, Pipeline, and Prepare Students for Professional Careers in the NOAA Mission Enterprise.* **Shakila Merchant**, NOAA Center for Earth System Sciences and Remote Sensing Technologies, New York, NJ; R. Khanbilvardi

1270 *If You Had Nine Contact Hours a Week for a Capstone Course, What Would You Teach? The Synoptic Meteorology Capstone Sequence at the Univ. of South Alabama.* **John M. Lanicci**, Univ. of South Alabama, Mobile, AL; D. A. Murray, K. G. Blackwell

1271 *Implementation of a Computational Component in an Introductory Climate Science Course.* **Rebecca Edwards**, Southwestern Univ., Georgetown, TX

22ATCHEM

Poster Session 2: 22ND ATM CHEM POSTER SESSION II

Chair: Jonathan Jiang, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA

1272 *Evolution of Air Quality Influences in Central Texas: 1980–2018.* **Rebecca Paulsen Edwards**, Southwestern Univ., Georgetown, TX

1273 *Evaluating and Improving Arctic Ozone Chemistry in an Atmospheric Model.* **Kaitlyn Confer**, Florida State Univ., Tallahassee, FL

1274 *Meteorological Effects on Nitryl Chloride in an Urban Wintertime Environment.* **Kathryn D. Kulju**, Univ. of Michigan, Ann Arbor, MI; S. M. McNamara, Q. Chen, J. Edebeli, J. D. Fuentes, S. B. Bertman, K. A. Pratt

1275 *Airborne Observations of Halocarbons and Other Trace Gases from Regional to Global Studies.* **James W. Elkins**, NOAA, Boulder, CO; F. L. Moore, E. J. Hints, S. A. Montzka, C. Sweeney, J. D. Nance, G. S. Dutton, B. D. Hall

1276 *Application of Unmanned Aerial Vehicles for Atmospheric Sampling: A Numerical Experiment by Large-Eddy Simulation.* **Yongjing Ma**, Harvard Univ., Cambridge, MA; J. Ye, I. O. Ribeiro, J. V. G. D. Arellano, J. Xin Sr., S. T. Martin

1277 *Exploring Oxidation in the Remote Free Troposphere during the Atmospheric Tomography (ATom) Mission.* **David O. Miller**, The Pennsylvania State Univ., University Park, PA; W. Brune, A. Thames, H. M. Allen, D. Blake, T. P. Bui, R. Commane, J. D. Crounse, B. Daube, G. S. Diskin, J. Digangi, J. W. Elkins, S. Hall, T. F. Hanisco, R. A. Hannun, E. J. Hints, M. J. Kim, K. McKain, F. L. Moore, J. M. Nicely, J. Peischl, T. B. Ryerson, J. St. Clair, C. Sweeney, A. P. Teng, C. Thompson, K. Ullman, K. T. Vasquez, P. Wennberg, G. M. Wolfe

1278 *Investigation of the Sensitivity of the Dust Emissions to Changes in the Normalized Vegetation Index (NDVI) over the Middle East in the GEOS Global Model Simulations.* **Adriana Rocha-Lima**, Univ. of Maryland, Baltimore, MD; P. R. Colarco, A. S. Darmenov, E. P. Nowotnick, A. da Silva, L. D. Oman

1279 *Tropospheric Ozone Disturbances in the Tropical Western Pacific Based on Observations, CAM-Chem, and Reanalysis Simulations.* **Kathryn M. Steinmann**, San Jose State Univ., San Jose, CA; M. Diao, L. L. Pan, S. Honomichl

1280 *The Impact of Continuing CFC-11 Emissions on the Stratosphere.* **Eric L. Fleming**, SSAI and GSFC, Greenbelt, MD; P. A. Newman, Q. Liang, L. D. Oman, F. Li, J. S. Daniel, L. Carpenter

1281 *Can We Predict Interannual Surface Trace Gas Variability from Stratospheric Measurements?* **Karen H. Rosenlof**, NOAA/ESRL, Boulder, CO; E. A. Ray, R. W. Portmann, P. Yu, J. S. Daniel, S. A. Montzka, G. S. Dutton, B. D. Hall, F. L. Moore

1282 *On the Impact of Different Coordinate Systems upon Ozone Trends Variabilities.* **Luis F. Millan**, JPL/California Institute of Technology, Pasadena, CA; G. L. Manney, P. Hoor, D. Kunkel, T. Leblanc, I. Petropavlovskikh

1283 *Impact of African Urban Agglomerations to Global Air Quality.* **Vanessa Brocchi**, The Univ. of Arizona, Tucson, AZ; A. F. Arellano Jr., W. Tang, B. Gaubert

1284 *Formaldehyde Products from the OMPS Nadir Mappers on Suomi-NPP and NOAA-20.* **C. R. Nowlan**, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA; G. González Abad, L. Zhu, K. Chance, L. Flynn, G. Jaross, Y. Jung, C. Seftor, A. H. Souri

1285 *Validation of SAGE III-ISS Ozone with NOAA OMPS and Ground-Based Instruments.* **Craig S. Long**, NOAA, College Park, MD; J. Wild, S. M. Davis, I. Petropavlovskikh, K. H. Rosenlof

1286 *Updated Spectroscopic Parameters for H₂O, CO₂, CH₄, and O₂: Toward the HITRAN2020 Database.* **Iouli Gordon**, Center for Astrophysics, Harvard Univ. and Smithsonian Institution, Cambridge, MA; L. Rothman, E. Conway, R. Hargreaves, E. Karlovets, Y. Tan, R. Kochanov

1287 *Quantifying the Effects of Stratosphere–Troposphere Exchange on Tropospheric Ozone Radiative Forcing.* **Junhua Liu**, USRA, Greenbelt, MD

1288 *Spatial and Temporal Representation of Ozone Precursors and Ozone Production in Air Quality Models.* **Timothy P. Canty**, Univ. of Maryland, College Park, MD; A. M. Ring, H. He, L. A. Rodio, X. Ren, S. E. Benish, R. J. Salawitch, R. R. Dickerson

1289 *Outline and Features of HAPI2: Second Generation of the HITRAN Application Programming Interface.* **Roman Kochanov**, Center for Astrophysics, Harvard Univ. and Smithsonian Institution, Cambridge, MA; I. Gordon, L. Rothman, R. Hargreaves, J. Karns, W. Matt, Y. Tan, C. Hill, J. Lamouroux

1290 *Tropospheric Ozone Profile Retrievals from Combining the UV and Visible Spectra: GOME-2 and TEMPO.* **J. Bak**, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA; X. Liu, C. Miller, C. R. Nowlan, K. Chance

1291 *Particle Number Concentrations and Their Controlling Parameters over the United States.* **Arshad Nair**, Univ. at Albany, SUNY, Albany, NY; F. Yu, G. Luo

1292 *Characterization of UV–Visible Aerosol Absorption Properties Using Satellite–Ground Synergy.* **Vinay Kayetha**, SSAI, Lanham, MD; O. Torres, H. Jethva

1294 *A Nearly Global-Scale In Situ Atlas of Sea Salt Aerosol Vertical Profiles.* **Steven Howell**, Univ. of Hawai'i at Mānoa, Honolulu, HI; S. Freitag

1295 *The Relationship of Particulate Matter and Visibility under Different Meteorological Conditions in Seoul, South Korea.* **Minseok Kim**, Yonsei Univ., Seoul, Korea, Republic of (South); J. Kim, S. Lee, Y. Cho

1296 *Modeling the Impact of Urban Climate on Vector-Borne Malaria in Sub-Saharan Africa Using COSMO-CLM—The Example of Kampala, Uganda.* **Oscar Brousse**, KU Leuven, Leuven, Belgium; J. Van de Walle, M. Demuzere, H. Wouters, W. Thiery, N. P. M. van Lipzig

1297 *Characteristics of Black Carbon and Fine Particle Concentrations and Influencing Factors over the Suburban Area of Southwest Chengdu City, China.* **Xiaoling Zhang**, Chengdu Univ. of Information Technology, Chengdu, China; L. Yuan, M. Yang, L. Wang

1298 *Estimations of Photolysis Frequencies of Ozone and Nitrogen Dioxide Using Satellite Data over East Asia.* **Hana Lee**, Yonsei Univ., Seoul, Korea, Republic of (South); J. Kim

1299 *Back-Trajectory Analysis of Ozone Concentrations in the Lower, Middle, and Upper Troposphere during the LASIC 2017 Field Campaign.* **Ivan L. Fontanez**, Univ. of Puerto Rico, Mayagüez, Puerto Rico; G. S. Jenkins

1300 *New Insights from Reexamination of In Situ Measurements of ClO in the UTLS from Aircraft and Balloons.* **Darin W. Toohey**, Univ. of Colorado, Boulder, CO

1301 *An Integrated Approach for Detecting Long-Term Trends from Sparse Tropospheric Ozone Profiles.* **Kai-Lan Chang**, NOAA, Boulder, CO; A. Gaudel, O. R. Cooper, I. Petropavlovskikh, B. Johnson, P. Nedelec, V. Thouret

22WXMOD

Poster Session 1: PLANNED AND INADVERTENT WEATHER MODIFICATION POSTERS

1302 *Extreme Precipitation in High-Resolution and Convection-Permitting Earth System Models.* **Gabriel J. Kooperman**, Univ. of Georgia, Athens, GA

1303 *Gray-Zone Simulations of Rainfall over UAE and Arabian Peninsula.* **Sourav Taraphdar**, New York Univ. Abu Dhabi, Abu Dhabi, United Arab Emirates; O. Pauluis, L. Xue

1304 *Characteristics of Short-Duration Heavy Rainfall during the Warm Season in Xinjiang.* **He Qin**, Xinjiang Meteorology Observatory, Urumqi, China

1305 *Analysis of Microwave Radiometer Data for the La Sal Mountains of Southeastern Utah during the 2017/18 Winter Season.* **Stephanie Beall**, North American Weather Consultants, Sandy, UT

1306 *The Role of Moisture Pathways on Natural Snowfall Production during SNOWIE.* **Matthew D. Cann**, Univ. of Colorado, Boulder, CO; K. Friedrich

1307 *Serendipitous Radar Observations of Airborne Winter Orographic Cloud Seeding in the Medicine Bow Mountains of Wyoming.* **Bruce A. Boe**, Weather Modification International, Fargo, ND; D. B. Gilbert

1308 *Using WRF to Determine the Effects of Natural Sensitivities on Orographic Precipitation.* **Nicolas Gordillo**, UCAR, Boulder, CO; A. Jensen, L. Xue

1309 *Using In Situ Microphysical Observations in Direct Numerical Simulations to Study the Impact of Hygroscopic Seeding.* **Sisi Chen**, NCAR, Boulder, CO; S. A. Tessendorf, L. Xue, R. Rasmussen

1310 *Using Advanced Experimental–Numerical Approaches To Untangle Rain Enhancement (UAE-NATURE): An Overview.* **Lulin Xue**, Hua Xin Chuang Zhi Science and Technology LLC, Beijing, China; P. Tian, H. He, M. Huang, X. Jing, Q. Chen, C. Lu, Y. Yin, I. Geresdi, N. Sarkadi, O. Pauluis, A. M. Ravindran, S. Taraphdar, R. M. Rasmussen, W. W. Grabowski, S. A. Tessendorf, C. Liu, S. Chen, C. Weeks

1311 *An Investigation of Sea Salt Effects as Cloud Condensation Nuclei (CCN) through Implementing Sea Salt Emission and Microphysics in a Bulk Microphysical Scheme.* **Lulin Xue**, Hua Xin Chuang Zhi Science and Technology LLC, Beijing, China; X. Liu, S. Chen, L. Deng, B. Chen

1312 *A Study on Observation Diagnosis Assessment of Atmospheric Water and Cloud Water Resources.* **Miao Cai**, Chinese Academy of Meteorological Science, Beijing, China; Y. Zhou Sr., C. Tan Jr., Z. Hu Sr.

1313 *A Study on Numerical Simulation Assessment of Atmospheric Water and Cloud Water Resources.* **Chao Tan**, Chinese Academy of Meteorological Science, Beijing, China; Y. Zhou Sr., M. Cai Jr., Z. Hu Sr.

1314 *Potential of Glaciogenic Seeding of Cold-Season Orographic Clouds in a Warming Climate.* **Thomas A. Mazzetti**, Univ. of Wyoming, Laramie, WY; B. Geerts, L. Xue, S. Tessendorf

1315 *The Comparison of Royal Rainmaking Beneficial Area Evaluation Methods Effectiveness in Thailand.* **Arisara Nakburee**, Department of Royal Rainmaking and Agricultural Aviation, A. Huahin Prachuabkirikhan, Thailand; C. Detyothin

1316 *Precipitation Evaluation of the North Dakota Cloud Modification Project.* **Matthew E. Tuftedal**, Univ. of North Dakota, Grand Forks, ND; D. Delene

1317 *Simulating Collisions of Charged Cloud Drops in an ABC Flow.* **Torsten Auerswald**, Univ. of Reading, Reading, UK; M. Ambaum

1318 *Adventures in Weather Modification Using Intelligent Land-Use Change.* **Oliver Branch**, Univ. of Hohenheim, Stuttgart, Germany; V. Wulfmeyer

1319 *Sensitivity of Cirrus Cloud Parameterizations to Anthropogenic Impacts.* **Dorothea Ivanova**, Embry-Riddle Aeronautical Univ., Prescott, AZ

1320 *The Quality Control and Gauge Adjustment of C-Band Weather Radar for Royal Rainmaking Operations in Thailand.* **Parinya Intaracharoen**, Department of Royal Rainmaking and Agricultural Aviation, Thailand; S. Arthayakun, C. Detyothin, P. Chantraket, S. Kirtsang

21AIRPOL

Poster Session 3: POSTER SESSION III

1321 *Vehicle-Induced Turbulence Characterization for Air Quality Modeling.* **Vlad Isakov**, U.S. EPA, Research Triangle Park, NC; R. Baldauf, K. Hashad, B. Yang, M. Zhang

1322 *An Assessment of HRRR Boundary Layer Performance within the Salt Lake Valley, Utah.* **Alexander A. Jacques**, Univ. of Utah, Salt Lake City, UT; J. D. Horel

1323 *Modeling Investigation of Impacts of Lake Schemes on Ozone Simulation around the Lake Taihu Area—A High-Temperature Case Study during the Summer of 2017.* **Fan Wang**, Nanjing Univ. of Information Science and Technology, Nanjing, China; Y. Wang, J. Huang

1324 *A Journey through Terrain and Weather: Multiscale Influences on Potential Concentrations at Monitoring Sites.* **Keeley R. Costigan**, LANL, Los Alamos, NM; M. J. Brown

1325 *Modeling PM_{2.5} Speciation Concentrations over California Using the MISR V23 Aerosol Product.* **Christian Niguel Pelayo**, JPL, Pasadena, CA; A. Nastan, K. R. Verhulst, M. Franklin, Y. Liu, D. J. Diner

1326 *The Effect of Dust Storm Particles on Human Lung Epithelial Cells.* **Karin Ardon-Dryer**, Texas Tech Univ., Lubbock, TX; A. Tairu, A. D. Angel, D. K. Cooper

1327 *The November 2018 California Biomass Burning as Measured by Purple Air Sensors.* **Nastaran Moghimi**, Thomas S. Wootton High School, North Potomac, MD; J. S. Edwards, Y. Dryer, K. Ardon-Dryer

1328 *Improvement of Particulate Matter Forecasts in South Korea using the 3D-Var Aerosol Data Assimilation.* **Seunghye Lee**, Ulsan National Institute of Science and Technology, Ulsan, Korea, Republic of (South); M. I. Lee, C. K. Song, G. Kim, L. S. Chang, Y. Lee

1329 *False Alarms and Missed Events: A Root Cause Analysis of Ozone Forecast Challenges for the Bay Area Air Quality Management District.* **Richard, C. Lam**, Bay Area Air Quality Management District, San Francisco, CA

1330 *Continuous, Near-Real-Time Application and Evaluation of WRF-CMAQ.* **Brian Eder**, EPA, Research Triangle Park, NC; R. C. Gilliam, G. Pouliot, D. Kang

20ARAM

Poster Session 2: POSTER SESSION 2: PROPERTIES, DETECTION, PREDICTION, AND MITIGATION OF AVIATION WEATHER HAZARDS

Chair: William P. Roeder, 45th Weather Squadron, Cape Canaveral AFS, FL

1331 *Examining the Performance of Aviation Weather Center Traffic Flow Management Convective Forecast Products.* **Robert M. Hepper**, CIRA/Colorado State Univ., NOAA/NWS/NCEP/AWC, Kansas City, MO; A. Cross

1332 *Investigation of the Forecast Icing Product Supercooled Large Droplet Potential Algorithm during Select Cases from the In-Cloud Icing and Large Drop Experiment.* **Daniel R. Adriaansen**, NCAR, Boulder, CO; J. A. Haggerty, A. Rugg, S. Tessendorf, A. Korolev, M. Wolde

1333 *Dugway Proving Ground's Mission Support Meteorological Observation Systems.* **Tyler Wieland**, Department of Defense, Dugway, UT; C. Cook, E. Nelson, D. P. Storzold Jr., D. Ruth

1334 *Impact-Based Decision Support Service Collaboration between NWS and FAA: 100th PGA Tournament Aviation Planning and Enhanced Services.* **Sally Johnson**, NWSFO, Saint Charles, MO; J. A. Zeltwanger, E. Jennings

1335 *Aviation Weather Research Facility (AWRF).* **Stephen Mackey**, DOT, Cambridge, MA; C. Scarpone, R. Samiljan

1336 *Generating In-Flight Hazard Information Using AWIPS Hazard Services.* **Nathan Hardin**, CIRA/Colorado State Univ. and NOAA/OAR/ESRL/GSD, Boulder, CO; D. Nietfeld, D. M. Kingfield, B. Entwistle, A. Cross, E. Petrescu, N. Eckstein

1337 *NASA MSFC Earth Global Reference Atmospheric Model Overview and Updates.* **Patrick W. White**, NASA MSFC, Huntsville, AL

1338 *Status of Implementation of International Civil Aviation Organization Space Weather Information Provisions.* **M. Pat Murphy**, FAA, Washington, DC

1339 *A Quality Assessment of the Real-Time Mesoscale Analysis (RTMA) for Aviation.* **Matthew T. Morris**, Systems Research Group and NOAA/NCEP/EMC, College Park, MD; J. R. Carley, E. Colón, A. M. Gibbs, M. Pondeva, S. Levine

1340 *Local Aviation Performance Statistics: Scale Normalization for IFR-Frequency Effects in Central Pennsylvania Using the Total Performance Index.* **Matthew Steinbugl**, NOAA/NWS, State College, PA; G. Lachat, M. Lorenston

1341 *World Area Forecast System Hazard Grid Upgrades.* **Brian P. Pettegrew**, CIRA/Colorado State Univ., Kansas City, MO; M. Strahan, P. Buchanan, K. Shorey, H. Y. Chuang

1342 *Improving In-Flight Aviation Warnings Using a New International Collaboration Tool.* **Katie Deroche**, NWS/NCEP/AWC, Kansas City, MO; N. Komatsu

1343 *Use of FAA NextGen Weather to Meet Terminal ATC Weather Needs.* **Maria Spitzak**, Raytheon Company, Marlborough, MA; E. Mann

1344 Integrating *GOES-16* Resources into Air Traffic Decision-Making. **Roland Nunez**, NWS/Center Weather Service Unit, Houston, TX; E. Zappe, L. Wood

1345 Weather Information Modernization and Transitioning (WIMAT). **Kevin Johnston**, FAA, Washington, DC; J. May

1346 Near-Real-Time Monitoring of Cold Air Aloft for Aviation Safety in the United States and Canada. **C. Bloch**, Univ. of Wisconsin, Madison, WI; T. J. Wagner, W. Feltz

1347 The Development of Operational Weather Support on Aviation. **Shun Liu**, IMISG and NOAA/NWS/NCEP/EMC, College Park, MD; Y. Weng, R. Chen, J. Cheng, W. Guo, M. Fang, Y. Jin, L. Jiang

1348 Verification of Air Force Weather Cloud Analyses and Forecasts Using the NASA Earth Polychromatic Imaging Camera (EPIC). **Edward P. Hildebrand**, UCAR, Offutt AFB, NE; J. R. McCormick

1349 Global Cloud-Free Line-of-Sight (CFLOS) Characterizations Using Numerical Weather Prediction Data. **Jaclyn Schmidt**, Air Force Institute of Technology, Wright Patterson Air Force Base, OH; J. Burley, B. Fourman, S. Fiorino

1350 AERONET Observations as a Source of Cloud Analysis and Forecast Verification for the 557WW. **James McCormick**, Software Engineering Services, Offutt AFB, NE; E. Hildebrand

1351 Nowcasting of Wind Field by Using Mesoscale Ensemble Forecast and Flight Data. **Ryota Kikuchi**, DoerResearch, Inc., Chiba, Japan; Y. Matsuno, N. Motoyama, A. Kudo, A. Senoguchi

19A1

Poster Session 2: AI FOR ENVIRONMENTAL SCIENCE POSTER SESSION II

Chairs: John K. Williams, The Weather Company, Andover, MA; Zhonghua Zheng, Univ. of Illinois, Urbana, IL; Maria J. Molina, NCAR, Boulder, CO

1352 Projected Changes in Summertime Circulation Patterns Imply Increased Drought Risk for the South-Central United States. **Jung-Hee Ryu**, Texas Tech Univ., Lubbock, TX; K. Hayhoe, S. L. Kang

1353 Wind Power Forecasting Using Hybrid ANN–NWP Models. **Gregory West**, BC Hydro, Burnaby, Canada; M. Boden, B. Afshar, R. Stull

1354 Improved Forecasts of Incoming Solar Radiation Using Machine Learning and Ensemble Weather Model Output. **Sarah-Allen Calise**, Northern Vermont Univ., Lyndonville, VT; D. M. Siuta

1355 Characterizing Regime-Based Flow Uncertainty for Source Term Estimation Applications. **John Fioretti**, Air Force Institute of Technology, Wright-Patterson AFB, OH; R. C. Tournay

1356 Applications of Deep Learning to Enhance Environmental Sensing Capabilities of Mobile Devices and Other Image Sensors. **David R. Callender**, Creare LLC, Hanover, NH; J. Bieszczad, M. Shapiro, J. Milloy

1357 AI-Powered Chatbot For Effective Weather Communication. **Saiadithya Cumbulam Thangaraj**, Earth Networks, Germantown, MD; M. Stock, J. Lapierre

1358 A Machine Learning Based Cloud Mask and Thermodynamic Phase Classification Method using Suomi-NPP VIIRS Spectral Observations. **Chenxi Wang**, GSFC/ESSIC/UMD, College Park, MD; S. Platnick, K. Meyer, Z. Zhang, Y. Zhou

1359 The Use of a Deep Neural Network to Represent Radiation Transfer Calculations in the E3SM. **Linsey Passarella**, ORNL, Oak Ridge, TN; A. Pal, S. Mahajan, M. R. Norman

1360 Emulating Numeric Hydroclimate Models with Physics-Informed cGANs. **Ashray H Manepalli**, Terrafuse, Berkeley, CA; A. Albert, A. M. Rhoades, D. Feldman, A. D. Jones

1361 Machine Intelligence Approach to Precipitation Nowcasting for Transportation Network-of-Networks Resilience. **Nishant Yadav**, Northeastern Univ., Boston, MA; A. Ganguly, S. Chatterjee

1362 An Update on the MRMS Product Suite for the Transportation Sector. **Heather D. Reeves**, CIMMS/Univ. of Oklahoma and NOAA/NSSL, Norman, OK; S. Handler, A. Eddy, A. A. Rosenow

1363 Applying Deep Learning to Sea Surface Temperature Retrieval. **Zichao Liang**, Atholton High School, Columbia, MD; X. Liang

1364 Applying Deep Learning to Top-of-the-Atmosphere Radiance Simulation for VIIRS by Community Radiative Transfer Model. **X. Liang**, ESSIC/UMD, College Park, MD; Q. Liu

1365 Hourly $PM_{2.5}$ Estimates from Different Measurements of a Geostationary Satellite Using an Ensemble Learning Algorithm. **Jianjun Liu**, Environmental Model and Data Optima Laboratory, Laurel, MD

1366 XCO_2 Retrieval Using a Neural Network–Based Algorithm from OCO_2 measurements. **Jaemin Hong**, Yonsei Univ., Seoul, Korea, Republic of (South); J. Kim, W. Kim, Y. Cho, H. Chong, H. Lim

1367 Application of Machine Learning to Classify and Predict Events of Severe $PM_{2.5}$ Pollution in Taiwan. **Chiao-Wei Chang**, Chinese Culture Univ., Taipei, Taiwan; W. T. Chen, P. J. Chen, T. S. Yo, S. H. Su, C. Y. Su, C. M. Wu

16GOESRJPS

Poster Session 1: GOES-R/JPS POSTER SESSION

Chair: Michael Jamilkowski, The Aerospace Corporation, Greenbelt, MD

1368 National Weather Service Training Activities at the UW–Madison Cooperative Institute for Meteorological Satellite Studies. **S. S. Lindstrom**, Univ. of Wisconsin/CIMSS, Madison, WI; A. S. Bachmeier, C. C. Schmidt, M. M. Gunshor, J. J. Gerth, T. J. Schmit

1369 On the Band-Averaged Radiative Transfer Calculation in a Mixture of Absorptive Gas and Scattering Medium. **Jiachen Ding**, Texas A&M Univ., College Station, TX; P. Yang, X. Liu, M. D. King, S. Platnick, K. Meyer, C. Wang

1370 Intercomparison of the TAMU Vector Radiative Transfer Model (TAMU-VRTM), Community Radiative Transfer Model (CRTM), and Radiative Transfer for TOVS (RTTOV). **Jinjun Liu**, Texas A&M Univ., College Station, TX; P. Yang, X. Liu

1371 *GOES-T and -U Postlaunch Product Testing Plans and Lessons Learned from GOES-R and -S.* **Katherine Pitts**, Science and Technology Corporation, Greenbelt, MD; E. Kline, J. Fulbright, M. Seybold

1372 *Large-Scale Algorithm Updates and New Products for the GOES-16/17 Ground System.* **Paul A. Van Rompay**, Atmospheric and Environmental Research, Inc., Greenbelt, MD; S. Superczynski

1373 *Joint Polar Satellite System (JPSS): NOAA's Proving Ground Initiative on Numerical Weather Prediction (NWP) Impact Studies and Critical Weather Applications.* **Chowdhury Nazmi**, JPSS/NOAA/STC, Lanham, MD; M. Goldberg, L. J. Dunlap

1374 *The Suomi National Polar Orbiting Partnership (SNPP) and National Oceanic and Atmospheric Administration (NOAA-20) satellites' Dual Ground Processing Systems and the Algorithm Change Processes (ACPs) That Maintain Their Operational Algorithms.* **Ashley Nechole-Griffin**, NOAA/NASA/STC, Lanham, MD

1375 *Detecting Hail Damage Using the GOES Advanced Baseline Imager.* **Philip N. Schumacher**, NWS, Sioux Falls, SD; S. L. Koehler, K. Gallo

1376 *Operational and Research Mesoscale Domain Sector (MDS) Request Process.* **Josh Jankot**, NESDIS, College Park, MD; R. R. Handel, J. Taylor, M. Bettwy, E. M. Guillot

1377 *Laser Transmitter System for Ground-to-Space Laser Calibration of Spaceborne Radiometric Sensors.* **Timothy Berkoff**, NASA Langley Research Center, Hampton, VA; C. Lukashin, T. Jackson, C. Roithmayr, W. Carrion, S. Brown, B. Alberding, J. McCorkel, B. McAndrew, J. McGarry, E. Hoffman, M. Shappirio, J. V. Martins

1378 *A Study of the Physical Geometric Optics Method In the Case of a Spheroid.* **Nancy Okeudo**, Texas A&M Univ., College Station, TX; J. Ding, P. Yang, R. Saravanan

1379 *Remote Sensing of Hail Scar—Producing Thunderstorms.* **Abigail E. Whiteside**, Univ. of Alabama, Huntsville, AL; C. J. Schultz, J. R. Bell, K. M. Bedka, S. Bang, D. J. Cecil

1380 *Characteristics of Deep Convections and Associated Environmental Conditions from Cloudsat over the South China Sea and Maritime Continent.* **Chian-Yi Liu**, National Central Univ., Taoyuan, Taiwan; G. R. Liu, T. H. Lin

1381 *Low Earth Orbit Sounder Retrieval Products at Geostationary Earth Orbit Spatial and Temporal Scale.* **James F. Anheuser**, Univ. of Wisconsin, Madison, WI; E. Weisz, W. P. Menzel

1382 *The Potential of Radiometric and Polarimetric Measurements in the Submillimeter/Millimeter and Longwave Infrared Regimes for Determining Ice Cloud Parameters.* **James Coy**, Texas A&M Univ., College Station, TX; A. Bell, P. Yang, D. L. Wu

1383 *Quantifying the Sensitivity of NCEP's GDAS/GFS to CrIs Detector Differences.* **Sharon Nebuda**, CIMSS/Univ. of Wisconsin, Madison, WI; A. Lim, J. A. Jung, D. C. Tobin, M. Goldberg

1384 *Monitoring NOAA Operational Microwave Sounding Radiometer Data Quality Using CRTM Brightness Temperature Simulations Based on COSMIC GPS Radio-Occultation Atmospheric Sounding Inputs.* **Robert A. Iacovazzi**, Global Science and Technology, Inc., College Park, MD; L. Lin, N. Sun, Q. Liu

15SOCIETY

Poster Session 3: 15SOCIETY POSTER SESSION III

1385 *The Impact of Increased Lead Time on Protective Action in Response to Tornadoes.* **Makenzie J. Krocak**, Cooperative Institute for Mesoscale Meteorological Studies, Norman, OK; P. M. Chakalian, J. T. Ripberger, C. Silva, H. Jenkins-Smith

1386 *Where Are We and What's Next: A Systematic Review of Research on Communicating Probabilistic Weather and Climate Information.* **Andrew Bell**, Center for Risk and Crisis Management, Norman, OK; J. T. Ripberger, C. Silva, H. Jenkins-Smith

1387 *Perceived Costs Associated with Protective Actions across Multiple Threats.* **Kathleen Sherman-Morris**, Mississippi State Univ., Mississippi State, MS; H. H. Seitz, L. Strawderman, M. Warkentin

1388 *Factors Influencing Tampa Bay Area Resident's Motivations and Perceived Usefulness of a Weather-Radar Display.* **Michelle E.-Saunders**, Univ. of South Florida, Tampa, FL

1389 *Social Science Considerations in Twitter Weather Discussion: A March 2019 Case Study.* **Alyssa Cannistraci**, NOAA, Sykesville, MD; J. A. Nelson, J. Kastman

1390 *Using Causes of Weather Deaths in Weather Safety Education and Preparedness.* **William P. Roeder**, 45th Weather Squadron, Cape Canaveral AFS, FL; K. J. Chaffin, W. A. Ulrich

15URBAN

Poster Session 6: HELPING CITIES MANAGE CLIMATE VARIABILITY, CHANGE, AND EXTREMES—POSTER

Chair: Margaret Hurwitz, NOAA, Silver Spring, MD

1391 *The Influence of a Solar Panel Roof on the Urban Thermal Environment and Cooling Energy Demand during a Heat Wave Event in 2017.* **Yongwei Wang**, Nanjing Univ. of Information Science and Technology, Nanjing, China

1392 *Future Possibilities of Intense Precipitations in Urban Areas and Adequate Plans of Urban Land Use for the Risks.* **T. Kyakuno**, Kwansei Gakuin Univ., Sanda, Hyogo, Japan

1393 *Evaluation of the Surface Urban Energy and Water Balance Scheme (SUEWS) at a Dense Urban Site in Shanghai: Sensitivity to Anthropogenic Heat and Irrigation.* **Xiangyu Ao**, Shanghai Meteorological Service, Shanghai, China

1394 *Human Thermal Comfort Modeling at the Urban Microscale—New Possibilities of the SkyHelios Model.* **Andreas Matzarakis**, DWD, Freiburg, Germany; M. Gangwisch

1395 *Pros and Cons of a Green Roof: Computational Simulation of the Impact of Green Roofs in Urban Environment and Buildings on Brazilian Weather.* **Caio Frederico E Silva**, Univ. of Brasília, Brasília, Brazil; T. M. Góes

I5URBAN**Poster Session 7: MODELING, OBSERVATIONS, AND MITIGATION OF EXTREME HEAT IN CITIES (POSTER)**

Chair: Jorge E. Gonzalez, City College of New York, New York, NY

I396 *Cooling down the Surface Temperature of Cities.* **Satoshi Sakai**, Kyoto Univ., Kyoto, Japan; H. Sugawara, I. Misaka, K. I. Narita, T. Honjo

I468A *Thermal Comfort Assessment of Multimodal Corridors in Tucson, Arizona, to Increase Heat Resilience.* **Ida Sami**, The Univ. of Arizona, Tucson, AZ; L. Keith

I398 *Integrated Microscale Modeling of Urban Atmosphere and Surface Energy Balance in High-Rise Building Blocks: Evaluation on an Extreme Heat Wave Event.* **Doo-Il Lee**, Kongju National Univ., Gongju, Korea, Republic of (South); S. H. Lee

I399 *Mobile and Sensor Network Monitoring of Urban Heat Waves and Tropical Nights in a Downtown Area of Seoul, Republic of Korea.* **Kyung-Hwan Kwak**, Kangwon National Univ., Chuncheon-si, Korea, Republic of (South); J. H. Hahm, Y. U. Kim, S. H. Lee, J. W. Choi, Y. S. Kim, S. H. Park, Y. Y. Kwon, Y. J. Han, D. Choi, C. Agossou, W. Choi

I400 *The Expansion of the San Antonio Urban Heat Island.* **Jenny Stewart**, Univ. of the Incarnate Word, San Antonio, TX; G. J. Mulvey

I401 *City-Scale Nocturnal Urban Heat Mitigation with Selectively Emitting Roofs.* **Timothy Jiang**, Univ. of Guelph, Guelph, Canada; S. Krayenhoff, A. M. Broadbent, M. Georgescu

I402 *Systematic Numerical Study on the Effect of the Thermal Properties of a Building Surface on Its Temperature and Sensible Heat Flux.* **Xi Xu**, Tokyo Institute of Technology, Yokohama, Japan; T. Asawa

I403 *An Integrated Multiscale and Multiphysics Urban Microclimate Model for the Urban Thermal Environment.* **Yueer He**, National Univ. of Singapore, Singapore; N. H. Wong

I5URBAN**Poster Session 8: URBAN BOUNDARY LAYERS—MODELLING AND OBSERVATIONS (POSTER)**

Chair: Mukul Tewari, Lafayette, CO

I404 *Research and Application of Urban Effects Distinguishable from Numerical Weather Forecast Technology.* **Yizhou Zhang**, Institute of Urban Meteorology, China Meteorological Administration, Beijing, China

I405 *Inclusion of a Subgrid Orography Drag Parameterization for Improvement of Wind Speed Prediction over a Complex Terrain Region.* **Jun-Seo Oh**, Kongju National Univ., Gongju, Korea, Republic of (South); D. I. Lee, S. H. Lee

I5URBAN**Poster Session 9: URBAN CANOPY AND BOUNDARY LAYER PROCESSES: OBSERVATION AND MODELING (POSTER)**

Chairs: Alberto Martilli, Centro de Investigaciones Energéticas, Medioambientales and Tecnológicas, Madrid, Spain; Brian Freitag, Univ. of Alabama, Huntsville, AL

I406 *Using AMDAR to Assess the Urban Boundary Layer in WRF.* **Joseph E. Wermter**, Univ. of Kansas, Lawrence, KS; D. A. Rahn

I407 *Urban-PLUMBER—Evaluation and Benchmarking of Land Surface Models in Urban Areas.* **Martin J. Best**, Met Office, Exeter, UK; M. Lipson, C. S. B. Grimmond, G. Abramowitz, A. J. Pitman

I408 *Numerical Simulation of the Influence of the Aerosol Radiation Effect on the Urban Boundary Layer.* **Xinran Wang**, China Institute of Atomic Energy and IUM, Beijing, China; S. Miao, X. He, Y. Dou

I409 *Validation of WRF PBL Schemes in Northern California Using Ceilometer Testbed Observations.* **Catherine N Liu**, Center for Applied Atmospheric Research and Education, San Jose, CA; S. Chiao, K. M. Smith, K. Craig, C. MacDonald, Y. K. Hsu

I410 *Influence of Urban Land Cover Data Uncertainties on the Numerical Simulations of Urbanization Effects in Eastern China.* **Ning Zhang**, Nanjing Univ., Nanjing, China

I411 *Modeling 3-D Radiative Fluxes within the PALM-4U Microscale Urban Climate Model.* **Pavel Krč**, Institute of Computer Science of the Czech Academy of Sciences, Prague, Czech Republic; J. Resler

I2AEROSOL**Poster Session 1: AEROSOL-CLOUD-CLIMATE INTERACTIONS POSTERS**

Chairs: Adele Igel, Univ. of California, Davis, CA; Ottmar Möhler, Karlsruhe Institute of Technology, Karlsruhe, Germany

I412 *Impact of Poleward Heat and Moisture Transports on Arctic Clouds and Climate Simulation.* **Eun-Hyuk Baek**, Chonnam Nat. Univ., Gwangju, Korea, Republic of (South); J. H. Kim, S. Park, B. M. Kim, J. H. Jeong

I413 *Application and Evaluation of the Small-Angle Approximation in the Forward Radiative Transfer Program.* **Bingqiang Sun**, Fudan Univ., Shanghai, China

I414 *12-yr Analysis of Cirrus Cloud: Its Radiative Effect and Microphysical Properties over the Midlatitude within the United States.* **Kafayat olayinka**, NCAS, Washington, DC

I415 *Characterizing Errors in 1D Solar Radiative Transfer Solutions as We Move to Cloud-Resolving Models.* **Qi Tang**, Lawrence Livermore National Laboratory, Livermore, CA; M. J. Prather, J. Hsu, S. Xie

I416 *Assessing the Contribution of α -Dicarbonyls to Brown Carbon Formation and the Implication for Climate.* **Yixin Li**, Texas A&M Univ., College Station, TX; R. Zhang

I417 *Changes in PM_{2.5} Concentrations in Lubbock, Texas.* **Mary Kelley**, Texas Tech Univ., Lubbock, TX; M. Brown, K. Ardon-Dryer

I418 *Seasonal Prediction Potential for Springtime Dustiness in the United States.* **Bing Pu**, Univ. of Kansas, Lawrence, KS; P. Ginoux, S. Kapnick, X. Yang

I419 *Evaluating the Impact of Land Surface Properties on Simulated Dust Emissions and Air Quality in the Southwest United States.* **Erica C. Burrows**, Univ. of Alabama, Huntsville, AL; U. S. Nair, A. Naeger, A. P. Biazar, J. R. Mecikalski

I421 *Sensitivity of Atmospheric Soil Dust and Radiative Forcing by Dust to the Emitted Dust Size Distribution in GISS ModelE2. I.* **Jan P. Perlwitz**, Climate, Aerosol, and Pollution Research, LLC, Bronx, NY; R. L. Miller

I422 *Sensitivity of a Dust Event Simulation for Southwest Asia to Three Dust-Emission Schemes Currently Implemented in the Community WRF-Chem Model.* **Sandra LeGrand**, U.S. Army Engineer Research and Development Center, Hanover, NH; C. Polashenski, T. Letcher

I423 *The Influence of Aerosols on Warm Rain Formation Processes Based on A-Train Observations and Global Climate Models.* **Haniii Takahashi**, UCLA/JPL, Pasadena, CA; Y. Wang, K. Suzuki

I424 *Remote Sensing Study of the Relationships between Biomass Burning Aerosols and Marine Stratocumulus during ORACLES Campaign.* **Lan Gao**, Univ. of Oklahoma, Norman, OK; I. Chang, G. McFarquhar, J. Redemann, E. M. Wilcox

I425 *Possible Influences of Mineral Dust Aerosols on Summertime Heavy Precipitation in the Taiwan Region.* **Yanda Zhang**, SUNY, Albany, NY; F. Yu, G. Luo, J. P. Chen

I426 *Mixed-Phase Clouds and Climate.* **Robert Oscar David**, Univ. of Oslo, Oslo, Norway; T. Carlsen, T. Storelvmo

I427 *Exploring Doppler Velocity Spectra to Characterize Ice Nucleation and Microphysical Processes for Arctic Mixed-Phase Clouds.* **Tempei Hashino**, Kochi Univ. of Technology, Kami City, Japan; G. de Boer, M. Maahn, H. Okamoto

I428 *Cloud, Precipitation, and Aerosol Properties for Open Cellular Convection Associated with a Cold-Air Outbreak over the Eastern North Atlantic.* **David B. Mecham**, Univ. of Kansas, Lawrence, KS; V. P. Ghate

I429 *Ice-Nucleating Particle Quantification with a Large Volume Drop Assay Using Infrared Thermometry on the IR-NIPI.* **Alexander D. Harrison**, Univ. of Leeds, Leeds, UK; T. F. Whale, R. Rutledge, S. Lamb, M. D. Tarn, G. C. E. Porter, M. P. Adams, J. B. McQuaid, G. J. Morris, B. J. Murray

I430 *The Puy de Dôme Ice Nucleation Intercomparison Campaign (PICNIC): Airmass Impact on the Comparison between Online and Offline Freezing Techniques.* **Larissa Lacher**, Karlsruhe Institute of Technology, Karlsruhe, Germany; B. Bertozzi, O. Moehler, K. Hoehler, J. Nadelny, E. J. T. Levin, K. R. Barry, T. C. J. Hill, P. J. DeMott, M. J. Wolf, M. Goodell, D. J. Czicz, M. P. Adams, B. J. Murray, C. Boffo, T. Pfeuffer, C. Jentzsch, F. Stratmann, H. Wex, J. Schrod, S. Richter, D. Castarede, E. Thomson, L. A. Ladino, M. C. Ramirez Romero, Y. Bras, D. Picard, M. Ribeiro, K. Sellegri, E. Freney

I431 *Effects of Ice Nuclei Particle Parameterization on Cloud Formation and Electrification Using the COMMAS Model.* **Jake Williams**, Texas Tech Univ., Lubbock, TX; D. E. Bruning, E. R. Mansell, K. Ardon-Dryer

I432 *Aircraft Observation of Ice-Nucleating Particles in Taiyuan, China.* **Chuan He**, Laboratory for Aerosol–Cloud–Precipitation of the China Meteorological Administration, Nanjing, China; Y. Yin, K. Chen, H. Jiang

I433 *The Effect of Cloud Processing on the Phase State, Morphology, and Ice Nucleation Behavior of Internally Mixed Ammonium Sulfate–Secondary Organic Material Particles.* **Robert Wagner**, Karlsruhe Institute of Technology, Karlsruhe, Germany; B. Bertozzi, K. Höhler, A. Kiselev, J. Pfeifer, H. Saathoff, J. Song, O. Möhler

I434 *Heterogeneous Chemistry of Marine-Relevant Ice-Nucleating Particles with Gas-Phase Nitric Acid and Ozone.* **Liora E. Mael**, Univ. of California San Diego, La Jolla, CA; H. Busse, V. H. Grassian

I435 *Characterization of a New Portable Ice Nucleation Experiment chamber (PINE) and First Field Deployment in the Southern Great Plains.* **Naruki Hiranuma**, West Texas A&M Univ., Canyon, TX; H. S. K. Vepuri, L. Lacher, J. Nadelny, O. Möhler

I436 *A Particle-Resolved Model on the Regional Scale to Quantify the Importance of Aerosol Mixing State for CCN Activity.* **Nicole Riemer**, Univ. of Illinois, Urbana, IL; J. H. Curtis, M. West

I437 *Assessment of Improved WRF-CHEM PM_{2.5} Characterization via Implementation of an Aerosol Measurement Network.* **Daniel Jagoda**, Air Force Institute of Technology, WPAFB, OH; S. Fiorino, S. Peckham, K. Keefer, J. Schmidt

I438 *The Impact of Boundary Layer and Free-Troposphere Aerosol Particles on Arctic Low-Level Clouds.* **Adele L. Igel**, Univ. of California, Davis, CA; J. Sedlar, S. Tong, L. Sterzinger

I439 *The Impacts of Ice Cloud Optical Property Parameterizations on Simulated Short-Term Climate States.* **Bingqi Yi**, Sun Yat-sen Univ., Guangzhou, China

I440 *The Impact of Aging on the Ice-Nucleating Ability of Soot Particles.* **Fabian Mahrt**, ETH Zürich, Zurich, Switzerland; P. A. Alpert, J. Dou, P. Grönquist, P. Corral Arroyo, M. Ammann, U. Lohmann, Z. A. Kanji

I441 *Ice-Nucleating Ability of Black Carbon in Cirrus Regimes: Effects of Morphology, Mobility Size, Mixing State, SOA Coating, and Atmospheric Aging.* **Cuiqi Zhang**, Beihang Univ., Beijing, China; M. J. Wolf, Y. Zhang, L. Nishman, T. Onasch, L. Chen, D. J. Czicz

I442 *Effect of Secondary Organic Coating on the Ice Nucleation Ability of Solid Ammonium Sulphate Aerosol.* **Barbara Bertozzi**, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany; R. Wagner, K. Höhler, A. Kiselev, J. Pfeifer, H. Saathoff, J. Song, O. Möhler

I443 *A Correlation between Ambient Depositional Ice Nucleating Particle Concentration and Isoprene-Derived Secondary Organic Aerosol Concentration.* **Martin J. Wolf**, MIT, Cambridge, MA; Y. Zhang, E. Freney, M. Goodell, T. Cui, M. Winter, L. Lacher, K. Sellegri, D. Axisa, P. J. DeMott, E. J. T. Levin, E. Gute, J. P. D. Abbatt, J. D. Surratt, D. J. Czicz

I444 *Investigation of Physical and Chemical Characteristics of Ice-Nucleating Macromolecules from Birch Trees.* **Teresa M. Seifried**, TU Wien, Vienna, Austria; P. Bieber, J. Gratzl, J. Burkart, L. Felgitsch, V. U. Weiss, G. Allmaier, M. Marchetti-Deschmann, H. Grothe

I445 *Sampling Mixed-Phase Clouds at Storm Peak Laboratory using the Phase Separation Inlet for Droplets Ice Residuals and Interstitial Aerosols (SPIDER).* **Lesly Joanne Franco Deloya**, MIT, Cambridge, MA; D. J. Cziczko, A. Bailey, A. G. Hallar

II ENERGY

Poster Session 1: POSTERS

I446 *Fractal Characteristics of Tall-Tower Wind Data in Missouri.* **Sarah Balkissoon**, Univ. of Missouri, MO

I447 *Does Rotor-Equivalent Wind Speed Differ from Hub-Height Wind Speed? Observations from Complex Terrain during WFIP2.* **Camden T. Plunkett**, Univ. of Colorado, Boulder, CO; J. K. Lundquist

I448 *Analog-Based Analysis of Nonconvective High-Wind Events in the Mid-Mississippi River Valley.* **Alyssa N. Otten**, Saint Louis Univ., St. Louis, MO; C. E. Graves, F. H. Glass, M. F. Britt, J. E. Sieveking

I449 *Impact of El Niño and Warm PDO on Summertime Wind in the Pacific Northwest.* **Matt Souders**, WeatherFlow Inc., Dover, NH

I450 *Waking between Planned Offshore Wind Farms.* **Jessica M. Tomaszewski**, Univ. of Colorado, Boulder, CO; J. K. Lundquist

I451 *An Evaluation of Vertical Profiles of Wind Speed and Direction within the Turbine Rotor Layer from Remote Sensors as Compared to Hub-Height Measurements from Nacelle Mounted Sonic Anemometers.* **Brandi J. McCarty**, CIRES, Univ. of Colorado Boulder, Boulder, CO; Y. Pichugina, M. C. Macduff, S. Baidar, R. M. Banta, W. A. Brewer, A. M. Weickmann, S. P. Sandberg

I452 *A New Satellite-Derived Irradiance Algorithm for the GOES-R Generation.* **Antonio T. Lorenzo**, The Univ. of Arizona, Tucson, AZ; T. M. Harty, W. F. Holmgren

I453 WITHDRAWN

I454 *Rotor-Area Wind Characteristics at the Eolos Wind Research Station in Southeastern Minnesota, USA.* **Katherine Klink**, Univ. of Minnesota, Minneapolis, MN; J. Coburn

I455 *Assessment of the Offshore Wind Potential of the Colombian Caribbean Sea in Scenarios of Climate Variability and Climate Change.* **Jorge A. Echeverri**, National Univ. of Colombia, Medellin, Colombia; C. D. Hoyos

I456 *Bureau of Ocean Energy Management Studies in Atmospheric and Oceanographic Sciences in Support of Offshore Energy Development.* **Angel McCoy**, Bureau of Ocean Energy Management, Sterling, VA

I457 *Improving Coastal and Valley Fog Forecasts by Assimilating Boundary Layer Observations.* **Daniel B. Kirk-Davidoff**, UL, Albany, MD; K. Craig, A. Tuohy, Q. Wang

I458 *Using GEOS-5 Forecast Products to Represent Aerosol Characteristics in Operational Day-Ahead Solar Irradiance Forecasts, for the Southwest United States.* **Patrick Bunn**, Tucson, AZ; W. F. Holmgren, M. Leuthold, C. L. Castro

I459 *Solar Irradiance Forecasting under Cloudy Conditions Based on Statistical and Machine Learning Models.* **Weijia Liu**, Brookhaven National Laboratory, Upton, NY; Y. Liu, S. Yoo, Y. Xie, X. Zhou

I460 *Doppler Wind Lidar Observations of Shallow Cumulus Clouds.* **Sunil Baidar**, CIRES/Univ. of Colorado, Boulder, CO; A. Choukulkar, T. A. Bonin, W. A. Brewer, R. M. Banta, Y. L. Pichugina, W. M. Angevine, J. S. Kenyon, J. B. Olson, D. D. Turner

I461 *Probabilistic Cloud Cover Forecasting from an Ensemble.* **Travis M. Harty**, The Univ. of Arizona, Tucson, AZ; S. McKinley, W. F. Holmgren, A. T. Lorenzo

I462 *Applying the Asian-Bering-North American Teleconnection to Analyze Heating and Cooling Degree Days over the United States.* **Alan Joseph Marinaro**, MAXAR, Gaithersburg, MD

I463 *Weather Effects on the Efficiency of Photovoltaic Systems in Medellín, Colombia.* **Nathalia Correa Sánchez**, Universidad Nacional de Colombia, Medellín, Colombia; O. J. Mesa Sánchez, C. D. Hoyos Ortiz

I464 *Studying the Impacts of Climate Change on the Building Design Conditions in Madison, Wisconsin.* **Gesangyangji** **Gesangyangji**, Univ. of Wisconsin, Madison, WI

I465 *Predicting the Spatiotemporal Distribution of Thunderstorm-Induced Power Outages.* **Matthew D. Eastin**, Univ. of North Carolina, Charlotte, NC

III HEALTH

Poster Session 2: BOARD ON ENVIRONMENT AND HEALTH POSTER SESSION I

I466 *Assessing Indoor Health Risks and Vulnerability of Older Adults to Extreme Heat and Ozone.* **Olga Wilhelmi**, NCAR, Boulder, CO; C. O'Lenick, M. H. Hayden, D. J. Sailor, A. Baniassadi

I467 *An Examination on the Worldwide Relationship between Ambient PM_{2.5} Concentration and Air Pollution-Attributable Deaths.* **Hannah R. Kang**, Lubbock High School, Lubbock, TX; T. Hopson, G. S. Jenkins

I468 *Climate Change and Ecoanxiety: A Comprehensive Measure.* **Ida Sami**, The Univ. of Arizona, Tucson, AZ; G. Wofford, S. V. Helm

I469 *Climate Change and Water Security in South Africa: Assessing Conflict and Coping Strategies in KwaZulu Natal.* **Hosea Olayiwola Patrick**, Univ. of KwaZulu Natal, Durban, South Africa

I470 *Combining the Social Vulnerability Index (SVI) with Earth Observations to Predict Social Outcomes from an Extreme Weather Event: A Study of Hurricane Harvey.* **Lauren N. Deanes**, The Johns Hopkins Univ., Baltimore, MD; B. F. Zaitchik, S. Swarup, E. Hallisey, D. Sharpe, J. M. Gohlke

I471 *Extreme Climate Change and Societal Health Impacts.* **Ashton Cutright**, The Univ. of Arizona, Tucson, AZ

I472 *Interested in Incorporating NASA Data into Your Decision-Making Process but Don't Know Where to Start? NASA's Earthdata Health and Air Quality Data Pathfinder Will Get You on Your Way.* **Cynthia Hall**, GSFC, Greenbelt, MD; K. Ward, P. Land, T. Gelabert

I473 *Linkages between Saharan Dust, Climatic Factors, and Suspected Meningitis Cases in Senegal from 2012 to 2017.* **Aara’L Yarber**, The Pennsylvania State Univ., State College, PA; G. S. Jenkins, M. Gueye

I474 *Short-Term Predictability of Sea Ice in an Unusual Sea Ice Year.* **Emily Niebuhr**, NOAA/NWS, Anchorage, AK; R. Thoman Jr.

I475 *The Effects of an Israeli Dust Storm on Human Cells.* **Derek Jonah Luna**, Texas Tech Univ., Lubbock, TX; K. Ardon-Dryer

I476 *Using NASA Earth Observations within DHIS2 to support Malaria Control Decisions.* **John Beck**, Univ. of Alabama, Huntsville, AL; T. Berendes, U. Nair, J. C. Luvall, J. Painter

I477 *Vulnerability of Water Resources to Climate Change in the Saloum River Delta, Senegal (West Africa).* **Alousseynou Bah**, Earth and Life Institute/Environmental Sciences, Ottignies-Louvain-la-Neuve, Belgium; S. Faye Sr., M. Noblet Sr.

10R20

Poster Session 3: 10R20 POSTER SESSION III

Chairs: Stephen A. Mango, NOAA/NESDIS/Office of Projects, Planning and Analysis, Silver Spring, MD; Eric J. Fetzer, JPL/California Institute of Technology, Pasadena, CA

I478 *NWS Use of Near-Real-Time Lightning Data from the Lightning Imaging Sensor (LIS) on the International Space Station (ISS).* **S. J. Goodman**, TGA, Owens Cross Roads, AL; R. J. Blakeslee, B. P. Pettegrew, A. Terborg, S. N. Stevenson, M. J. Folmer, S. S. Lindstrom, G. T. Stano, S. G. Harrison, K. S. Virts

I479 *Univ. of Wyoming CSTAR Project: Snow Squall Case Studies.* **Rob Cox**, NWS, Cheyenne, WY; M. Brothers, A. Lyons, B. Geerts, Z. Lebo, R. Capella, E. M. Collins, T. Alcott

I480 *Can Blowing Snow Forecasts Be Significantly Improved across the Rocky Mountain Region and Northern High Plains?.* **Matthew Brothers**, Cheyenne, WY; A. Lyons, R. Cox, B. Geerts, Z. Lebo, R. Capella, E. M. Collins, T. Alcott

I481 *High-Resolution Rapid Refresh Model-Based Climatology and Analysis of Snow Squall Characteristics in the High Plains and Mountain West.* **Robert Capella**, Univ. of Wyoming, Laramie, WY; B. Geerts, Z. Lebo, E. M. Collins, R. Cox

I482 *Evaluation of the Warn-on-Forecast System with Doppler Lidar and Radiosonde Observations from TORUS2019.* **Jordan Laser**, NSSL/CIMMS, Norman, OK

I483 *Machine-Learning-Derived Severe Weather Probabilities from a Warn-on-Forecast System.* **Adam J. Clark**, NOAA/OAR/NSSL, Norman, OK; E. D. Loken, P. S. Skinner, K. H. Knopfmeier

I484 *Object-Based Verification of Short-Term, Storm-Scale Probabilistic Mesocyclone Guidance from an Experimental Warn-on-Forecast System.* **Montgomery L. Flora**, Univ. of Oklahoma, CIMMS, NSSL/NOAA, Norman, OK; P. Skinner, C. Potvin, A. E. Reinhart, T. A. Jones, N. Yussouf, K. H. Knopfmeier

I485 *Comparison of the Warn-on-Forecast System and a High Resolution Rapid Refresh Time-Lagged Ensemble for Forecasting Short-Term Convective Evolution.* **Brett Roberts**, CIMMS/Univ. of Oklahoma, NOAA/OAR/NSSL and NOAA/NWS/NCEP/SPC, Norman, OK; I. L. Jirak, B. T. Gallo, A. J. Clark, K. H. Knopfmeier, P. S. Skinner

3SMALLSATS

Poster Session 1: CONFERENCE ON EARTH OBSERVING SMALLSATS POSTER SESSION

I486 *Microwave Resolution Enhancement Using Small Satellite Architectures.* **Tanish Himani**, NRL, Washington, DC

TROPSYMPI

Poster Session 3: TROPICAL CYCLONE RAINFALL: POSTER SESSION

Chairs: Jennifer C. DeHart, Colorado State Univ., Fort Collins, CO; Rosimar Ríos-Berrios, NCAR, Boulder, CO

I487 *Representation of Tropical Cyclone Precipitation in Global Reanalysis Datasets.* **Evan Jones**, Florida State Univ., Tallahassee, FL; A. A. Wing, R. Parfitt

I488 *Analyzing the Location of TC Rainbands Relative to the Storm Center Using Metrics of Dispersion, Displacement, and Closure to Account for Changes in Radial and Tangential Directions.* **Corene J. Matyas**, Univ. of Florida, Gainesville, FL; J. Tang

I489 *The Evolution and Extratropical Transition of Tropical Cyclones during the 2017 Hurricane Season from a GLM, ISS Lis, and GPM Perspective.* **Lena Heuscher**, Univ. of Alabama, Huntsville, AL; P. N. Gatlin, W. A. Petersen, D. J. Cecil, C. Liu

I490 *Extreme Rainfall in the Carolinas during the Extratropical Transition of Hurricane Matthew (2016).* **Scott W. Powell**, Naval Postgraduate School, Monterey, CA; M. M. Bell

I491 *Past and Future Rainfall from Dissipating Tropical Cyclones in Southwestern California.* **James D. Means**, California State Univ., San Marcos, San Marcos, CA; M. Burin, F. De Sales

I492 *Development of a Probabilistic Tropical Cyclone Rainfall Model: P-Rain.* **F. D. Marks**, NOAA/AOML, Miami, FL; B. D. McNoldy, M. C. Ko, A. B. Schumacher

I493 *Exploring Precipitation Biases for U.S. Landfalling Tropical Cyclones in ECMWF Forecasts.* **Manuel D. Zuluaga**, Climate Forecast Applications Network, Reno, NV; V. Toma, C. Dickson, J. Curry

I494 *Effect of High-Resolution Topography in Simulations of Hurricane Maria's Landfall in Puerto Rico.* **Nathalie G. Rivera-Torres**, Univ. at Albany, SUNY, Albany, NY; F. Judt

I495 *Studying the Sudden Onset and Evolution of Outer Rainband Precipitation of Hurricane Harvey (2017) Using Numerical Simulations with Data Assimilation and Cloud Initiation.* **Peter Saunders**, Univ. of Utah, Salt Lake City, UT; Z. Pu

I496 *Evaluation of a Physics-Based Tropical Cyclone Rainfall Model and Its Application for Risk Assessment.* **Dazhi Xi**, Princeton Univ., Princeton, NJ; N. Lin

I497 *Investigation of the Dynamics of Extreme Rainfall in Landfalling Tropical Cyclones.* **Erik R. Nielsen**, Colorado State Univ., Fort Collins, CO; R. S. Schumacher

I498 *Challenges Associated with Extreme Rainfall Measurement during Hurricane Maria.* **Scott Weaver**, National Institute of Standards and Technology, Gaithersburg, MD; M. Dillard, M. Levitan

1499 *Blending A High-Dimensional State Space Model With A Data Assimilation Technique For Efficient Simulation Of Nonstationary Tropical Cyclone Precipitation Patterns.* **Daiwei Wang**, AIR Worldwide, Boston, MA; M. Marcella, B. Dodov

1500 *A Comparative Analysis of Extreme Tropical Cyclone Rainfall Events along the U.S. Gulf and East Coasts.* **Derek Ortt**, StormGeo, Inc, Houston, TX

1501 *More Than a Storm: A Look at the Personal Impact a Hurricane Has on the Lives of the National Weather Service Employees.* **Erik M. Heden**, NOAA, Newport, NC; D.A. Glenn

1502 *Estimating Long-Term Tropical Cyclone Rainfall Frequency—A Physics-Based Approach.* **Monika Feldmann**, ETH Lausanne, Lausanne, Switzerland; K. Emanuel, L. Zhu, U. Lohmann

1503 *Land–Sea Contrast in the Diurnal Variation of Precipitation from Landfalling Tropical Cyclones.* **Xiaodong Tang**, Nanjing Univ., Nanjing, China; Q. Cai, J. Fang, Z. M. Tan

TROPSYMPI

Poster Session 4: TROPICAL CYCLONES RESEARCH AND FORECASTING: POSTER SESSION II

1504 *Impact of the Diurnal Radiation Contrast on the Formation, Intensification, and Structure of Hurricane Edouard (2014).* **Xiaodong Tang**, Nanjing Univ., Nanjing, China; Z. M. Tan, J. Fang, E. B. Munsell, Y. Q. Sun, F. Zhang

1505 *Parameter Sensitivity of Tropical Cyclones in NASA-GISS ModelE3.* **Jeffrey D. O. Strong**, LDEO, Palisades, NY; A. H. Sobel, S. J. Camargo, M. Kelley, A. D. Genio

1506 *Enhancements to Cloud Overlap Radiative Effects for Weather Forecasting and Tropical Cyclone Prediction.* **Michael J. Iacono**, AER, Lexington, MA; J. M. Henderson, L. Bernardet, E. Kalina, M. K. Biswas, K. M. Newman, B. Liu, Z. Zhang, Y. T. Hou

1507 *A Scale-Aware Horizontal Mixing-Length Scale and Its Impact on Simulations of Harvey (2017) and Lane (2018) in HWRF.* **Weiguo Wang**, MSG at NOAA/NWS/NCEP/EMC, College Park, MD; B. Liu, L. Zhu, Z. Zhang, A. Mehra, V. Tallapragada

1508 *A Study of the Influence of Evaporating Sea Spray on the Air–Sea Heat Exchange in High-Wind Conditions of a Tropical Cyclone.* **Yevgenii Rastigejev**, North Carolina A&T State Univ., Greensboro, NC; S.A. Suslov

1509 *Process-Oriented Diagnosis of Tropical Cyclones in CMIP6 HighResMIP Experiments.* **Yumin Moon**, Univ. of Washington, Seattle, WA; D. Kim, A.A. Wing, S. J. Camargo, A. H. Sobel, L. R. Leung, M. J. Roberts

1510 *A Modeling Study of the Effects of Vertical Wind Shear on the Raindrop Size Distribution in Typhoon Nida (2016).* **Wenhua Gao**, Chinese Academy of Meteorological Sciences, Beijing, China; L. Deng, Y. Duan

1511 *The Impacts of Uncertainty in Air–Sea Enthalpy and Momentum Exchange Coefficients on Tropical Cyclone Predictability and Intensification.* **Robert G. Nystrom**, The Pennsylvania State Univ., University Park, PA; F. Zhang, R. Rotunno, C.A. Davis

1512 *Testing the DTC's Single-Column Model for Tropical Cyclone Environment.* **Mrinal K. Biswas**, NCAR and Developmental Testbed Center, Boulder, CO; G. Firl, M. Ek, J. Zhang

1513 WITHDRAWN

1514 *Vorticity Profiles of Tropical Cyclones in the Atlantic Basin.* **Erica Bower**, Western Connecticut State Univ., Danbury, CT; A. Owino

1515 *Reevaluating How Well Tropical Cyclone Activity Can Be Predicted over the Twentieth Century from Sea Surface Temperatures.* **Duo Chan**, Harvard Univ., Cambridge, MA; G.A. Vecchi, P. Huybers

1516 *Potential Sources of Variability in the Vortex Precession Process prior to the Onset of Tropical Cyclone Rapid Intensification.* **Masashi Minamide**, JPL, California Institute of Technology, Pasadena, CA; D. J. Posselt

1517 *Does Tropical Cyclone Formation over the Western North Pacific Have Poleward Shifts Due to Anthropogenic Forcing?.* **Xiaofang Feng**, Nanjing Univ. of Information Science and Technology, Nanjing, China; L. Wu

1518 *The JPL Tropical Cyclone Information System: A Wealth of Data for Quickly Advancing the Physical Understanding and Forecasting of Hurricanes.* **Svetla Hristova-Veleva**, JPL/California Institute of Technology, Pasadena, CA; P. P. Li, B. W. Knosp, Q. A. Vu, F. J. Turk, W. L. Poulsen, Z. S. Haddad, B. H. Lambrechtsen, B. W. Stiles, T. P. J. Shen, N. Niamsuwan, S. Tanelli, O. O. Sy, H. Su, D. G. Vane, Y. Chao, P. S. Callahan, R. S. Dunbar, M. T. Montgomery, M. A. Boothe, V. Tallapragada, S. Trahan, A. Wimmers, R. Holz, J. S. Reid, F. D. Marks, T. Vukicevic, S. Bhalachandran, H. Leighton, S. Gopalakrishnan, A. Navarro, F. J. Tapiador

1520 *Synergistic Effects of Midlevel Dry Air and Vertical Wind Shear on Tropical Cyclone Development via Ventilation.* **Joshua J. Alland**, NCAR, Boulder, CO; B. H. Tang, K. L. Corbosiero, G. H. Bryan

1521 *Tropical Cyclones Internal Dynamics and Its Influence over the Intensity Changes: WRF Idealized Simulation in a Quiescent Environment and GOES-R IR and GLM Data Analysis.* **Jhayron S. Perez**, Universidad Nacional de Colombia, Medellin, Colombia; C. D. Hoyos

1522 *Future Changes in a Typhoon in the Midlatitude Regions: Downscaling Simulations from d4PDF Data by Using a 4-km-Mesh Nonhydrostatic Model.* **Sachie Kanada**, Nagoya Univ., Nagoya, Japan; K. Tsuboki, I. Takayabu

1523 *Observational Analysis on the Evolution Features of Severe Convective Rainbands of the Torrential Heavy Rain Producing Typhoon Rumbia (2018).* **Shuanzhu Gao**, China National Meteorological Center, Beijing, China

1524 *An Investigation of Ocean–Atmospheric Interactions, Intensity Change, and Track Prediction Associated with Tropical Cyclone/Hurricane Activity over the Gulf of Mexico Using Satellite Data and Numerical Modeling.* **Remata S. Reddy**, Jackson State Univ., Jackson, MS; D. Lu, M. Fadavi

1525 *Hybrid Statistical–Dynamical Probabilistic Prediction of Hurricane Landfall Winds.* **Jeffrey Miller**, Climate Forecast Applications Network, Norcross, GA; C. Dickson, J. Curry

1526 *Tropical Cyclone Activity under Varying SSTs in Aquaplanet Simulations.* **Adam C. Burnett**, Stanford Univ., Stanford, CA; A. Sheshadri, L. Silvers, T. E. Robinson Jr.

1527 *Hurricane Analysis and Forecast System (HAFS) Stand-Alone Regional Model (SAR) 2019 Atlantic Hurricane Season Real-Time Forecasts.* **Jili Dong**, IMISG at NOAA/NWS/NCEP/EMC, College Park, MD; B. Liu, Z. Zhang, W. Wang, L. Zhu, C. Zhang, K. Wu, A. Hazelton, X. Zhang, A. Mehra, V. Tallapragada

1528 *The Characteristics of Wind and Rainfall Variation of Tropical Cyclones during Its ET Process over the Western North Pacific.* **Ying Li**, Chinese Academy of Meteorological Sciences, Beijing, China; J. Wang

1529 *Interactions between African Easterly Waves and Convectively Coupled Kelvin Waves and the Impact on the Probability of Tropical Cyclogenesis: A Case Study of Cristobal (2014).* **Krista Dotterer**, Univ. at Albany, SUNY, Albany, NY; C. Thorncroft

1530 *Surface Wind Reconstructions for Hurricane Michael at Landfall with a New Parametric Model with Observational Optimization.* **Eric W. Uhlhorn**, AIR-Worldwide, Boston, MA; S. Tolwinski-Ward, S. Lorsolo, P. Jue

1531 *How Adaptable Are Catastrophe Risk Models of Tropical Cyclone Wind Fields to Common Deviations from Idealized Hurricane Structure?.* **Suz Tolwinski-Ward**, AIR-Worldwide, Boston, MA; E. W. Uhlhorn

1532 *Track-Centered Moving Grids for Tropical Cyclone Forecast Assessment in the Model Evaluation Tools (MET) Verification Package.* **David W. Fillmore**, Boulder, CO; T. J. Hertneck, K. M. Newman, E. A. Kalina, R. G. Bullock, M. K. Biswas, J. E. Halley Gotway, T. L. Jensen

1533 *Observational Study of a Coastal Barrier Jet Induced by a Landfalling Tropical Cyclone.* **Ben Jong-Dao Jou**, OAR, Taipei, Taiwan

1534 *Control of the Intertropical Convergence Zone on Tropical Cyclones during Early and Late Stages of Genesis.* **Tsung-Lin Hsieh**, Princeton Univ., Princeton, NJ

1535 *Evaluation of Independent Stochastic Perturbed Parameterization Tendency (iSPPT) Scheme on Ensemble TC Intensity Forecasts Using HWRF.* **Xiaohui Zhao**, Univ at Albany, SUNY, Albany, NY; R. D. Torn

Thursday, January 16

7:30 A.M.–3:00 P.M.	Registration–North Lobby
7:30 A.M.–6:00 P.M.	AMS Info Desk–North Lobby
7:30 A.M.–12:00 P.M.	Member Services–North Lobby
7:30 A.M.–5:00 P.M.	Speaker Ready Room–102B
7:30 A.M.–3:00 P.M.	Quiet Room–Westin Hotel, Commonwealth C
9:00 A.M.–12:00 P.M.	Exhibit Hall Open–Hall A
9:00 A.M.–5:00 P.M.	AMS Oral History Project
9:00 A.M.–12:00 P.M.	Historical Instruments Exhibit
9:30 A.M.–10:30 A.M.	Exhibit Hall Breakfast–Hall A
10:00 A.M.–10:30 A.M.	Meet President Jenni Evans
10:00 A.M.–10:30 A.M.	AM Coffee Break–Meeting Room Foyers
12:00 P.M.–1:30 P.M.	Lunch Break
12:15 P.M.–1:45 P.M.	Presidential Town Hall: Pathways to Tackle Future Challenges–210AB
1:00 P.M.–4:00 P.M.	Sustainability Tour at Boston Univ.
1:00 P.M.–1:20 P.M.	Daily Weather Briefings
1:30 P.M.–5:00 P.M.	Free Legal Consultations (provided by the Climate Science Legal Defense Fund)
3:00 P.M.–3:30 P.M.	PM Coffee Break–Meeting Room Foyers
5:00 P.M.	100th AMS Annual Meeting Adjourns

8:30 A.M.–9:30 A.M.

36EPT

Session 12B: RADAR TECHNOLOGIES AND APPLICATIONS. PART V –155

Chairs: Kurt D. Hondl, NOAA/NSSL, Norman, OK; Michael J. Istok, NOAA/NWS, Silver Spring, MD; Mark B. Yearly, Univ. of Oklahoma, Norman, OK

8:30 A.M.

12B.1 *Airborne Phased-Array Radar (APAR) Trade Study Results.* **Mark L. Yaklich**, Ball Aerospace, Westminster, CO; M. C. Leifer

8:45 A.M.

12B.2 *Airborne Phased-Array Radar (APAR): The Next Generation of Airborne Polarimetric Doppler Weather Radar.* **Louis L. Lussier**, NCAR, Broomfield, CO; W. C. Lee, V. Grubišić

9:00 A.M.

12B.3 *Development and Preliminary Results of the Airborne Phased-Array Radar (APAR) Observation Simulator (AOS).* **Scott Ellis**, NCAR, Boulder, CO; W. C. Lee, G. H. Bryan, K. W. Manning, T. Y. Cha, M. M. Bell, L. L. Lussier III

9:15 A.M.

12B.4 *Investigating the Impact of Radar Observation Height on Streamflow Modeling: The 31 May 2013 El Reno/Oklahoma City, Oklahoma, Flash Flood Case.* **James M. Kurdzo**, MIT Lincoln Laboratory, Lexington, MA; Y. Wen, C. M. Kuster, J. Y. N. Cho, T. J. Schuur

8:30 A.M.–9:30 A.M.

36EPT / 23ASLI

Joint Session 56: FAIR AND OPEN DATA WITHIN THE ATMOSPHERIC SCIENCES. PART II –157C

Chairs: Mohan K. Ramamurthy, UCAR, Boulder, CO; Matthew S. Mayernik, NCAR, Boulder, CO

8:30 A.M.

J56.1 *From Observations to Models: Evolving NCEI's Archive of and Access to NOAA's Environmental Data.* **Monica A. Youngman**, NOAA/NESDIS/National Centers for Environmental Information, Asheville, NC; K. S. Casey, N. A. Ritchey, R. Baldwin, S. Rutz

8:45 A.M.

J56.2 *NCEI: Tackling the "R" in FAIR.* **Nancy A. Ritchey**, NOAA/NESDIS/National Centers for Environmental Information, Asheville, NC; J. Cooper, M. J. Brewer, D. Collins, M. Youngman

9:00 A.M.

J56.3 *Determining Best Practices for Archiving and Reproducibility of Model Data.* **Gretchen L. Mullendore**, Univ. of North Dakota, Grand Forks, ND; M. S. Mayernik, D. Schuster

9:15 A.M.

J56.4 *Weather on the Web (WotW).* **Peter J. Trevelyan**, Met Office, Exeter, UK; M. Burgoyne

8:30 A.M.–9:30 A.M.

34HYDRO

Session 12: EARTH OBSERVATIONS AND ENVIRONMENTAL MODELING FOR AGRICULTURE AND FOOD SECURITY. PART II –253C

Chairs: Pierre Guillevic, Univ. of Maryland, College Park, MD; Chris Justice, Univ. of Maryland, College Park, MD

8:30 A.M.

12.1 *Agricultural Remote-Sensed Yield Algorithm (ARYA): Application to Major Winter Wheat Exporting Countries (Invited Presentation).* **Eric Vermote**, NASA, Greenbelt, MD; B. Franch, S. Skakun, J. C. Roger, I. Becker-Reshef, C. Justice

8:45 A.M.

12.2 *Attribution of U.S. Crop Yields to Climate Variations and Pollution Damages.* **Ryan Matthew Bolt**, Univ. of Maryland, College Park, MD; X. Z. Liang

9:00 A.M.

12.3 *Crop Modeling in the Insurance Sector: Beyond the Limits of Forecasting.* **Jacqueline Chen**, AIR Worldwide, Boston, MA; J. Amthor, S. Acharya, J. Borman, K. Farzan Ahmed, Y. Ge, L. Muir, Y. Mo, Y. Wang

9:15 A.M.

12.4 *Rangelands Food Security Monitoring: Synthetic Aperture Radar (SAR) Applications for Famine Early Warning Systems.* **Kimberly Slinski**, Earth System Science Interdisciplinary Center/Univ. of Maryland at NASA GSFC, Greenbelt, MD; A. McNally, C. D. Peters-Lidard, G. Senay, T. S. Hogue, J. McCray

8:30 A.M.–9:30 A.M.

34HYDRO / 33CVC

Joint Session 57: HEAVY PRECIPITATION AND FLOOD RISK UNDER A CHANGING CLIMATE. PART II –253A

Chairs: Glenn Hodgkins, USGS, Augusta, ME; Xander Wang, Univ. of Prince Edward Island, Charlottetown, Canada; Ellen Mecray, NESDIS, Norton, MA; Arthur T. DeGaetano, Cornell Univ., Ithaca, NY; Mathias J. Collins, NOAA, Gloucester, MA

8:30 A.M.

J57.1 *Examining Shifts in the Timing of Peak Flows in Northeast U.S. Rivers and Implications for Changes in Future Flood Risk (Invited Presentation).* **Stephen B. Shaw**, SUNY College of Environmental Science and Forestry, Syracuse, NY

8:45 A.M.

J57.2 *Flood Rainfall–Streamflow Relationships in Two Contrasting U.S. River Basins.* **Erin Mary Dougherty**, Colorado State Univ., Fort Collins, CO; R. R. Morrison, K. L. Rasmussen

9:00 A.M.

J57.3 *Runoff Coefficients of Floods in New England.* **Iman Hosseini Shakib**, Univ. of New Hampshire, Durham, NH; A. Lightbody, K. Gardner

9:15 A.M.

J57.4 *Changing Frequency of Flood and Drought on Rivers in the United States and Canada.* **Evan N. Dethier**, Dartmouth College, Hanover, NH; S. L. Sartain, F. J. Magilligan, C. E. Renshaw

8:30 A.M.–9:30 A.M.

33CVC

Session 1 I: INTERBASIN INTERACTIONS BETWEEN THE PACIFIC, THE ATLANTIC, AND THE INDIAN OCEAN AND THEIR IMPACTS ON THE GLOBAL CLIMATE VARIABILITY. PART I –150

Chairs: Xichen Li, Institute of Atmospheric Physics, Beijing, China; Yun Yang, Beijing Normal Univ., Beijing, China

8:30 A.M.

11.1 *Contrasting Interbasin Climate Influences Driven by Externally Forced SST Changes in the Tropical Ocean Basins.* **Boniface Fosu**, Georgia Institute of Technology, Atlanta, GA; J. He, G. Liguori

8:45 A.M.

11.2 *Interannual Variability of the Early and Late Rainy Seasons in the Caribbean.* **Carlos J. Martinez**, LDEO/Columbia Univ., Palisades, NY; Y. Kushnir, L. Goddard, M. Ting

9:00 A.M.

11.3 *The Indonesian Throughflow: Its Place in the Global Ocean and Climate Systems (Invited Presentation).* **Arnold L. Gordon**, LDEO, Palisades, NY

9:15 A.M.

11.4 *Indian Ocean Warming Can Strengthen the Atlantic Meridional Overturning Circulation.* **Shineng Hu**, SIO, La Jolla, CA; A. Fedorov

8:30 A.M.–9:30 A.M.

33CVC / 8MJO

Joint Session 58: VARIABILITY AND PREDICTABILITY OF CLIMATE ON SUBSEASONAL-TO-SEASONAL TIME SCALES. PART I –154

Chair: Isla Simpson, National Center for Atmospheric Research, Boulder, CO

8:30 A.M.

J58.1 *Investigation into Winter Blocking Regimes: Mechanisms for Onset and Predictability.* **Douglas E. Miller**, Univ. of Illinois, Urbana, IL; Z. Wang

8:45 A.M.

J58.2 *Subseasonal Winter Weather Predictability Associated with Single versus Multiple Wave Pulse Events and Their Impacts on the Arctic Stratospheric Polar Vortex.* **Jacob D. R. Ohnstad**, Univ. of Oklahoma, Norman, OK; J. C. Furtado

9:00 A.M.

J58.3 *Winter Storm Tracks and Related Weather in the NCEP Climate Forecast System Weeks 3–4 Reforecasts for North America.* **E. Hugo Berbery**, Univ. of Maryland, College Park, MD; K. E. Lukens

9:15 A.M.

J58.4 *Warm Pool SST Forecast Skill in S2S Models: Mean State Drift versus Anomaly Patterns.* **Charlotte A. DeMott**, Colorado State Univ., Fort Collins, CO; N. P. Klingaman

8:30 A.M.–9:30 A.M.

30WAF26NWP

Panel Discussion 1: HISTORICAL PERSPECTIVES ON WEATHER ANALYSIS AND FORECASTING (CENTENNIAL) –258A

Moderators: Martin A. Baxter, Central Michigan Univ., Mount Pleasant, MI; Andrew C. Winters, Univ. of Colorado, Boulder, CO

Panelists: Harold E. Brooks, Univ. of Oklahoma, Norman, OK; Kristine C. Harper, Florida State Univ., Tallahassee, FL; Jonathan E. Martin, Univ. of Wisconsin, Madison, WI; Stan Benjamin, NOAA/Earth System Research Laboratory, Boulder, CO; Pamela Heinselman, NSSL, Norman, OK

8:30 A.M.–9:30 A.M.

30WAF26NWP

Session 1 I A: INTEGRATIVE ANALYSIS OF EAST ASIA MONSOON FRONTAL SYSTEM THROUGH OBSERVATIONAL AND MODELING EFFORTS –258C

Chairs: Brandt D. Maxwell, NOAA/NWS, San Diego, CA; Chunguang Cui, Institute of Heavy Rain, CMA, Wuhan, China; Xiquan Dong, Univ. of Arizona, Tucson, AZ

8:30 A.M.

11A.1 *Investigation of Mei-Yu Frontal Systems through the Integrative Analysis of Ground-Based, Aircraft, and Satellite Observations.* **Chunguang Cui**, Institute of Heavy Rain, CMA, Wuhan, China; X. Dong

THURSDAY

8:30 A.M.–9:30 A.M.

8:45 A.M.

IIA.2 *Characteristics of Mei-Yu Season Mesoscale Convective Systems over Central-Eastern China.* **Baike Xi**, The Univ. of Arizona, Tucson, AZ; W. Cui, X. Dong

9:00 A.M.

IIA.3 *Elucidating the Mesoscale Convective Clouds in East Asia Using Both Geostationary Satellite and Weather Radar Measurements.* **Jianping Guo**, Chinese Academy of Meteorological Sciences, Beijing, China; D. Chen

9:15 A.M.

IIA.4 *Effect of the Choice of Model Microphysics Scheme on Heavy Mei-Yu Rainfall Simulations.* **Zhimin Zhou**, Institute of Heavy Rain, China Meteorological Administration, Wuhan City, China; Y. Deng, Y. Hu, Z. Kang Jr., C. Cui, X. Dong

8:30 A.M.–9:30 A.M.

30WAF26NWP

Session 11B: NUMERICAL MODELING FOR RECENT FIELD CAMPAIGNS AND TESTBEDS –258B

Chair: Aaron J. Hill, Colorado State Univ., Fort Collins, CO

8:30 A.M.

IIIB.1 *Biases in Warm-Season WRF Forecasts: North America versus Subtropical South America.* **Jeremiah Otero Piersante**, Colorado State Univ., Fort Collins, CO; R. S. Schumacher, K. L. Rasmussen

8:45 A.M.

IIIB.2 *Using Doppler–Lidar Measurements of Recurrent Diurnal Marine Air Intrusion Flows into the Columbia River Basin to Characterize and Quantify HRRR Errors.* **Robert M. Banta**, CIRES/Univ. of Colorado, Boulder, CO; Y. Pichugina, W.A. Brewer, A. Choukulkar, K. Lantz, J. B. Olson, J. S. Kenyon, H. J. S. Fernando, M. T. Stoelinga, J. Sharp, L. S. Darby, D. D. Turner, S. Baidar

9:00 A.M.

IIIB.3 *Fog Prediction by COAMPS during the C-FOG Field Experiment.* **Sasa Gabersek**, Naval Research Laboratory, Monterey, CA; D. D. Flagg, J. D. Doyle, I. Gultepe, H. J. S. Fernando, E. Paradyak, C. E. Dorman, Q. Wang, S. Hoch, T. Bullock, R. Y. W. Chang

9:15 A.M.

IIIB.4 *Quantifying Microphysical Parameterization Uncertainty in Convection-Permitting Forecasts of the 10–12 December 2013 Lake-Effect Snow Event.* **W. Massey Bartolini**, Univ. at Albany, SUNY, Albany, NY; J. R. Minder

8:30 A.M.–9:30 A.M.

30WAF26NWP / 6HPC

Joint Session 59: HIGH-PERFORMANCE COMPUTING FOR NUMERICAL WEATHER PREDICTION. PART II –257AB

Chairs: Ryan A. Lagerquist, CIMMS, Norman, OK; Kandis Boyd, OAR, Silver Spring, MD; Timothy S. Sliwinski, Group NIRE, Lubbock, TX, Texas Tech Univ., Lubbock, TX

8:30 A.M.–9:30 A.M.

8:30 A.M.

J59.1 *Accelerating the Cloud Scheme within the Unified Model for CPU–GPU-Based High-Performance Computing Systems.* **Wei Zhang**, ORNL, Oak Ridge, TN; M. Xu, M. Morales Hernandez, M. R. Norman, S. Mahajan, K. J. Evans, A. Hill, B. Shipway

8:45 A.M.

J59.2 *SAR FV3-Based Storm-Scale Ensemble Implementation and Testing for the 2019 HWT and FfLR Experiments.* **Keith Brewster**, CIMMS/Univ. of Oklahoma and National Severe Storms Laboratory, Norman, OK; T. A. Supinie, C. Zhang, M. Xue, K. W. Thomas, F. Kong

9:00 A.M.

J59.3 *MPI Redecomposition and Remapping Algorithms Used within a Multigrid Approach to Modeling of the Background Error Covariance for High-Resolution Data Assimilation.* **Miodrag Rancic**, IMSG, College Park, MD; M. Pondeva, R. J. Purser, J. R. Carley

9:15 A.M.

J59.4 *High-Resolution Numerical Weather Simulation with a Large Domain for West Japan Extreme Heavy Rainfall Events during July 2018.* **Tsutao Oizumi**, JAMSTEC, Yokohama, Kanagawa, Japan; K. Saito, L. Duc, J. Ito

8:30 A.M.–9:30 A.M.

24IOAS

Session 12: OBSERVING SYSTEMS: ATMOSPHERE, OCEAN, LAND SURFACE, IN SITU, AND REMOTE—COMPARISONS WITH OTHER OBSERVING SYSTEMS –259A

Chair: S. Mark Leidner, Atmospheric and Environmental Research, Norman, OK

8:30 A.M.

12.1 *Characterizing the Performance of Tropospheric Airborne Meteorological Data Relay (TAMDAR) Observations Using Radiosondes and Other Aircraft Observations.* **T. J. Wagner**, CIMSS, Madison, WI; R. A. Petersen

8:45 A.M.

12.2 *25 Years of Operation of a Statewide Meteorological Observation Network.* **Bradley G. Illston**, Oklahoma Mesonet/Oklahoma Climatological Survey/Univ. of Oklahoma, Norman, OK

9:00 A.M.

12.3 *Flash Flood Monitoring Using the New York State Mesonet.* **Andrew W. Lunavictoria**, Univ. at Albany, SUNY, Albany, NY; J. Wang, J. A. Brotzge, N. P. Bassill, N. Bain

9:15 A.M.

12.4 *Quantifying Air–Sea Fluxes from the Tropics to the Ice Edge: Atmospheric Reanalyses versus Conventional and Autonomous Observing Platforms.* **Lisan Yu**, WHOI, Woods Hole, MA

THURSDAY

8:30 A.M.–9:30 A.M.

22ATCHEM**Session 12A:ACMAP:ATMOSPHERIC CHEMISTRY
MODELING AND ANALYSIS PROGRAM. PART VII –206B**

Chairs: Richard Eckman, NASA, Washington, DC; Kenneth Jucks, NASA, Washington, DC

8:30 A.M.

12A.1 *Development of an OMI-Based Tropospheric Bromine Monoxide (BrO) Product and Implications for Missing Sources of Reactive Bromine in GEOS-Chem.* **Pamela Wales**, USRA, Columbia, MD; C. A. Keller, K. E. Knowland, S. Pawson

8:45 A.M.

12A.2 *New Version Global SO₂ Product from Aura/OMI: Status Update, Quality Assessment, and Science Applications.* **Can Li**, Univ. of Maryland, College Park, MD; N. A. Krotkov, J. Joiner, S. Carn, F. Liu, V. Fioletov, C. McLinden

9:00 A.M.

12A.3 *Improved Standard Nitrogen Dioxide Product from Aura/OMI.* **Lok N. Lamsal**, USRA/GESTAR, Greenbelt, MD; N. A. Krotkov, A. Vasilkov, S. Marchenko, J. Joiner, W. Qin, E. S. Yang, S. Choi, Z. Fasnacht, D. P. Haffner, W. H. Swartz

9:15 A.M.

12A.4 *MEaSUREs Project for H₂CO, C₂H₂O₂, and H₂O Long-Term Consistent Records from GOME to OMI and Beyond.* **G. González Abad**, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA; C. Chan Miller, E. O'Sullivan, C. R. Nowlan, H. wang, K. Sun, L. Zhu, A. H. Souri, Y. Jung, Y. Jung, N. Villanueva, X. Liu, K. Chance

8:30 A.M.–9:30 A.M.

22ATCHEM**Session 12B: QUANTIFICATION AND
ATTRIBUTION OF TRENDS IN TROPOSPHERIC
OZONE. PART I –207**

Chairs: Jessica Neu, JPL, Pasadena, CA; John Worden, Jet Propulsion Laboratory/California Institute of Technology, Pasadena, CA, JPL, Pasadena, CA

8:30 A.M.

12B.1 *An Expanded Definition of the Odd Oxygen Family for Tropospheric Ozone Budgets: Implications for Ozone Lifetime, Stratospheric Influence, and Source Tagging (Invited Presentation).* **Kelvin Bates**, Harvard Univ., Cambridge, MA; D. J. Jacob

9:00 A.M.

12B.2 *Ozone Suppression in China Under High PM_{2.5} Conditions: A Two-Pollutant Control Strategy.* **Ke Li**, Harvard Univ., Cambridge, MA; D. J. Jacob, H. Liao, J. Zhu, L. Shen, V. Shah, K. Bates, Q. Zhang

9:15 A.M.

12B.3 *Two Decades of Ground-Level Ozone–NO_x–VOC Chemistry over U.S. Urban Areas Inferred from Satellite and Ground-Based Observations.* **Xiaomeng Jin**, Columbia Univ., New York, NY; A. M. Fiore

8:30 A.M.–9:30 A.M.

22WXMOD**Session 5: LABORATORY STUDIES AND NEW
TECHNOLOGIES FOR CLOUD SEEDING –105**

Chairs: Lulin Xue, NCAR, Boulder, CO; Frank McDonough, DRI, Reno, NV

8:30 A.M.

5.1 *Deposition Ice Nucleation on Cloud Seeding Agents.* **André Welti**, Finnish Meteorological Institute, Helsinki, Finland; A. Laaksonen, A. Alvarez Piedehierro, Y. Viisanen, K. Korhonen, A. Virtanen

8:45 A.M.

5.2 *CCN and INP Abilities of Hybrid Flare Particles Measured with MRI Continuous-Flow Diffusion Chamber-Type IN Counter and MRI Cloud Simulation Chamber.* **Takuya Tajiri**, MRI, Tsukuba, Ibaraki, Japan; N. Orikasa, Y. Zaizen, T. H. Kuo, W. C. Kuo, M. Murakami

9:00 A.M.

5.3 *Modeling Condensation inside Pi Chamber with Eulerian Bin and Lagrangian Particle-Based Microphysics.* **Wojciech W. Grabowski**, NCAR, Boulder, CO

9:15 A.M.

5.4 *Implementation of an Instrumented UAV for Cloud Seeding Operations.* **Darrel Baumgardner**, Longmont, CO; D. Axisa, M. Murakami, N. Orikasa

8:30 A.M.–9:30 A.M.

21AIRPOL**Session 12: MEASUREMENTS AND STANDARDS IN
AIR POLLUTION METEOROLOGY –211**

Chairs: Tanya L. Spero, EPA, Research Triangle Park, NC; Wyatt Appel, EPA, Research Triangle Park, NC

8:30 A.M.

12.1 *Meteorology, ASTM, and Voluntary Consensus Standards.* **Raul Dominguez**, South Coast AQMD, Diamond Bar, CA

8:45 A.M.

12.2 *The Boundary Layer Height Measurement of FORMOSAT-3/C and FORMOSA-7/C-2.* **Huang Yung**, National Space Organization, Hsin-Chu, Taiwan; W. H. Wen-Hao Sr., C. Kun-Lin

9:00 A.M.

12.3 *Comparison of Radiosonde and Sodar/RASS Temperature Measurements in the Lowest Level of the ABL in Complex Terrain.* **Anthony J. Sadar**, Allegheny County Health Department, Pittsburgh, PA; J. Maranche, D. J. Tauriello

9:15 A.M.

12.4 *Turbulent Boundary Layers Developing over Tall and Dense Urban Environments.* **Marco Placidi**, Univ. of Surrey, Guildford, UK; A. Makedonas, M. Carpentieri

THURSDAY

8:30 A.M.–9:30 A.M.

20SMOI

Session 12: SOLID PRECIPITATION MEASUREMENTS –203**Chair:** John Kochendorfer, NOAA, Oak Ridge, TN

8:30 A.M.

12.1 *Evaluation of the WMO-SPICE Transfer Functions for Adjusting the Wind Bias in Solid Precipitation Measurements.* **Craig D. Smith**, EC, Saskatoon, Canada; A. Ross, J. Kochendorfer, M. Earle, M. Wolff, S. Buisan, Y.A. Roulet, T. Laine

8:45 A.M.

12.2 *Application of Transfer Function to Correct Precipitation Measurements on the Swiss National Meteorological Network.* **Yves-Alain Roulet**, MeteoSwiss, Payerne, Switzerland

9:00 A.M.

12.3 *A New and Improved Wind Shield for the Measurement of Solid Precipitation.* **John Kochendorfer**, NOAA, Oak Ridge, TN; T. P. Meyers, M. Hall, B. Baker

9:15 A.M.

12.4 *An Improved Postprocessing Technique for Automated Precipitation Gauge Time Series.* **Craig D. Smith**, EC, Saskatoon, Canada; A. Ross, A. Barr

8:30 A.M.–9:30 A.M.

20ARAM

Session 10: INFLUENCE OF U.S. NATIONAL SECURITY PROGRAMS ON IMPROVED ANALYSIS AND PREDICTION OF AVIATION AND RANGE WEATHER –206A**Chairs:** Ryan Decker, MSFC, Huntsville, AL; James McCormick, Software Engineering Services, Offutt AFB, NE

8:30 A.M.

10.1 *A Century of Symbiosis between Applied Meteorology and National Security (Invited Presentation).* **Jason C. Knievel**, NCAR, Boulder, CO; S. E. Haupt, J. Cogan

9:00 A.M.

10.2 *Recent Operational Support Improvements at 45th Weather Squadron.* **William P. Roeder**, 45th Weather Squadron, Cape Canaveral AFS, FL

9:15 A.M.

10.3 *Dugway Proving Ground's Meteorological Mission Support and Collaborative Field Studies.* **Cori Cook**, Department of Defense, Dugway, UT; E. Nelson, D. Ruth, D. Storwold, T. Wieland

8:30 A.M.–9:30 A.M.

19AI / 29EDUCATION

Joint Session 60: INCORPORATING DATA SCIENCE AND MACHINE LEARNING INTO ATMOSPHERIC SCIENCE EDUCATION –156A**Chairs:** David John Gagne, NCAR, Boulder, CO; Dorit Hammerling, Colorado School of Mines, Golden, CO

J60.1 WITHDRAWN

8:30 A.M.

J60.2 *Client-Driven, Univ. Student Capstone Project in Environmental Machine Learning.* **Timothy J. Hall**, The Aerospace Corporation, Greenbelt, MD; E. B. Wendoloski

8:45 A.M.

J60.3 *Practical AI in the Classroom.* **Jianghao Wang**, MathWorks, Natick, MA

9:00 A.M.

J60.4 *Mining Students' Digital Behaviors in Class to Create an Earlier Warning System of Student Success.* **Perry J. Samson**, Univ. of Michigan, Ann Arbor, MI

8:30 A.M.–9:30 A.M.

19AI / 15SOCIETY

Joint Session 61: SOCIETAL AND ECONOMIC IMPACTS OF AI –156BC**Chairs:** Daniel Rothenberg, ClimaCell Inc., Boston, MA; Tyler C. McCandless, NCAR, Boulder, CO

8:30 A.M.

J61.1 *From Decision Support to Decision Services: An Expanded Role for AI in the Weather Enterprise.* **John K. Williams**, The Weather Company, Andover, MA; P. Neille

8:45 A.M.

J61.2 *Analyzing and Predicting the Influence of Weather on Health, Safety, and Environment in an Operational Setting.* **David Gold**, IBM, Houston, TX; T. Garvin

9:00 A.M.

J61.3 *Predicting Weather-Related Train Delays.* **Roope Tervo**, Finnish Meteorological Institute, Helsinki, Finland; L. Daniel, J. S. ylhaissi

9:15 A.M.

J61.4 *Integrated Climate Extremes: Modeling Future Impacts for Visualizing Climate Change.* **Surya Karthik Mukkavilli**, Montreal Institute for Learning Algorithms, Montreal, Canada; Y. Min, A. Madanchi, V. B. Pacela, S. Patel, Y. Bengio

8:30 A.M.–9:30 A.M.

18COASTAL

Session 11: PRECISION NAVIGATION: INCREASING THE SAFETY AND EFFICIENCY OF U.S. SEAPORTS BY PROVIDING MARINERS WITH INTEGRATED AND ACCESSIBLE DATA AND INFORMATION. PART I –158**Chairs:** Christine Burns, NOAA, Silver Spring, MD; Andre Van der Westhuysen, IMSG at NOAA/NWS/NCEP/EMC, College Park, MD

8:30 A.M.

11.1 *Increasing Safety and Efficiency in the Maritime Industry: An Overview of NOAA's Precision Navigation Program.* **Elizabeth Kretovic**, NOAA, Silver Spring, MD

8:45 A.M.

11.2 NOAA's Maritime Services Supporting Critical Decision-Making in Vessel Transit Planning Operations. **Christopher DiVeglio**, NOAA, Silver Spring, MD

9:00 A.M.

11.3 Precision Navigation: A Socioeconomic Study Quantifying the Benefits of Implementation. **Charles Goodhue**, Eastern Research Group, Inc., Lexington, MA; Z. Finn

9:15 A.M.

11.4 Precision Navigation and the Dynamic Under Keel Clearance Project in the Port of Long Beach. **James Kipling (Kip) Louttit**, Marine Exchange of Southern California, SAN Pedro, CA

8:30 A.M.–9:30 A.M.**I7SPACEWX****Session I4: SPACE WEATHER AT OTHER PLANETS AND SOLAR SYSTEMS –205A**

Chairs: Christina O. Lee, Space Sciences Laboratory, Univ. of California, Berkeley, CA; Barbara J. Thompson, NASA, Greenbelt, MD

8:30 A.M.

14.1 Space Weather on Exoplanets (Invited Presentation). **Ofer Cohen**, Univ. of Massachusetts, Lowell, MA

8:45 A.M.

14.2 Comparing the Effect of Coronal Mass Ejections on Earth's and Mercury's Magnetosphere. **Noé Lugaz**, Univ. of New Hampshire, Durham, NH; R. Winslow, C. J. Farrugia, A. B. Galvin

9:00 A.M.

14.3 Galactic Cosmic Ray Integral Flux Measurements in Lunar Orbit with CReTER during the Deepest Solar Minimum of the Space Age. **N.A. Schwadron**, Univ. of New Hampshire, Durham, NH; C. Zeitlin, H. E. Spence, A. P. Jordan, M. D. Looper, J. Wilson, J. E. Mazur, L. W. Townsend

9:15 A.M.

14.4 Space Weather at Mercury and Mars: A Comparative Approach between an Unlikely Pair (Invited Presentation). **Gina A. DiBraccio**, NASA GSFC, Greenbelt, MD; D. A. Brain, J. R. Espley, D. J. Gershman, J. R. Gruesbeck, J. S. Halekas, D. Heyner, B. M. Jakosky, X. Jia, C. O. Lee, J. Luhmann, J. M. Raines, N. Romanelli, N. M. Schneider, J. A. Slavin, E. M. B. Thiemann, R. Winslow

8:30 A.M.–9:30 A.M.**I6GOESRJPSS****Session I1A: HOW JPSS AND GOES-R COUPLED RESOURCES IMPROVE FORECASTING –253B**

Chairs: Michael Folmer, NWS, College Park, MD; Amanda Terborg, CIMSS/Univ. of Wisconsin, Kansas City, MO, CIRA/Colorado State Univ., Kansas City, MO

8:30 A.M.

11A.1 Examining an Atmospheric River in Virtual Reality. **Patrick C. Meyers**, Univ. of Maryland, College Park, MD; M. Quick, E. Lee, D. Li, K. E. Lukens, S. Kusselson, S. D. Rudlosky, B. Brawn-Cinani, A. Varshney

8:45 A.M.

11A.2 The Utility of JPSS and GOES Fire Weather Products and Applications in the Operational Forecasting Environment. **J. Torres**, CIRA/Colorado State Univ., Fort Collins, CO

9:00 A.M.

11A.3 A Numerical Modeling Perspective Utilizing 1-minute GOES-16 Data in Conjunction with Radar to Analyze Microphysical Properties of Clouds during the Convective Initiation (CI) Phase of Thunderstorms in the Southeast/Southern Great Plains of the United States. **D. Haliczzer**, Univ. of Alabama, Huntsville, AL; J. Mecikalski

9:15 A.M.

11A.4 Using NUCAPS to Observe the Thermodynamic Structure of Strong Saharan Air Layer Outbreaks about Its Source within the Deserts of Northeast Africa. **Arunas P. Kuciauskas**, NRL, Monterey, CA

8:30 A.M.–9:30 A.M.**I6GOESRJPSS****Session I1B: SPECIAL TOPICS. PART II –255**

Chairs: William Straka, CIMSS/Univ. of Wisconsin, Madison, WI; Elizabeth M. Kline, NOAA/NESDIS/OSPO/SPSD, Greenbelt, MD

8:30 A.M.

11B.1 The GOES Portfolio Status: Baseline Continuity, Enterprise Improvements, and New Development Initiatives. **M. Seybold**, NOAA/NESDIS/OSPO/SPSD, Greenbelt, MD; R. Race, E. M. Kline, T. Feroli, M. McHugh

8:45 A.M.

11B.2 Application of an Algorithm Change Process to the GOES-R Ground Segment. **Ryan Williams**, Stellar Solutions, Inc., Chantilly, VA; R. Race, T. Feroli, S. Superczynski

9:00 A.M.

11B.3 Facilitating Research-to-Operation (R2O) Activities of JPSS-1 Algorithms Using the Algorithm Development Library Block 2.1. **Bigyani Das**, NOAA/NESDIS/STAR/IMSG, College Park, MD; W. Chen, T. S. King, W. W. Wolf

9:15 A.M.

11B.4 New Generation of NOAA Operational Satellites for Crop Production and Food Security Prediction. **Felix Kogan**, National Oceanic and Atmospheric Administration, College Park, MD

8:30 A.M.–9:30 A.M.**I5SOCIETY****Session I1A: (DIS)CONTINUITY IN WEATHER WARNINGS AND MESSAGE CONSISTENCY –151B**

Chairs: Susan A. Jasko, CUniversity of Alabama, Tuscaloosa, AL; Castle Williams, The Univ. of Georgia, Athens, GA

8:30 A.M.

11A.1 Should Severe Weather Graphics Wear Uniforms? Understanding the Effects of Inconsistent Convective Outlook Graphics on Members of the Public. **Castle Adam Williams**, Univ. of Georgia, Athens, GA; A. J. Grundstein, J. So

8:45 A.M.

11A.2 *Public Perception and Comprehension of the Extended Forecast Graphic in Television Weather Broadcasts.* **Jacob Ryan Reed**, Univ. of Alabama, Tuscaloosa, AL; J. C. Senkbeil

9:00 A.M.

11A.3 *Same Warning Message, Different Recipients: Experiences at a Small/Medium-Sized Weather Service.* **Magnus Ovhd**, Norwegian Meteorological Institute, Tromsø, Norway

9:15 A.M.

11A.4 *Addressing Discontinuity in Air Quality Alerts and Messaging.* **Kristen Benedict**, EPA, Durham, NC; R.A. Wayland, G. Hagler

8:30 A.M.–9:30 A.M.**15 SOCIETY**

Session 11B: MANAGING COMPLEX SCIENCE PROGRAMS: UNPACKING BEST MANAGEMENT PRACTICES –152

Chairs: Peter Schultz, ICF, Washington, DC; Chris Avery, U.S. Global Change Research Program, Washington, DC

8:30 A.M.

11B.1 *Learning from Experience to Address Complex Science-Related Issues.* **Gordon A. McBean**, Western Univ., London, Canada

8:45 A.M.

11B.2 *NCICS Journey in Developing a N.C. Climate Science Report.* **Kenneth E. Kunkel**, North Carolina Institute for Climate Studies, Asheville, NC; S. M. Champion, D. R. Easterling, J. Dissen, B. C. Stewart

9:00 A.M.

11B.3 *Science at NESDIS.* **Alek Krautmann**, NOAA/NESDIS, Silver Spring, MD; S. Volz

9:15 A.M.

11B.4 *Early Career Faculty Innovator Program: Coordination, Management, and Evaluation of an Interdisciplinary Science Program at the National Center for Atmospheric Science.* **Cassandra Olenick**, NCAR, Boulder, CO; R. Haacker, S. Eriksson

8:30 A.M.–9:30 A.M.**15 URBAN**

Session 12: WUDAPT AND OTHER URBAN DATASETS –104B

Chair: Gerald Mills, Univ. College, Dublin, Ireland

8:30 A.M.

12.1 *Generating Urban-Scale Building Data to Support Climate Modeling.* **Gerald Mills**, Univ. College, Dublin, Ireland; N. Buckley, C. Reinhart, J. Ching

9:00 A.M.

12.2 *The WUDAPT Approach Toward Supporting Multiscale Fit for the Purpose of Intraurban Atmospheric Modeling and Analysis Applications.* **J. Ching**, Univ. of North Carolina, Chapel Hill, NC; G. Mills, D. Aliaga, A. Martilli, J. C. H. Fung, B. Bechtel, M. Demuzere, A. Middel, M. Neophytou, C. Ren, J. Feddema, V. Masson, L. See, Y. Huang, F. Chen, N. Tapper, A. Baklanov, E. Ng, Y. Yamagata, K. Lau, M. F. Wong, F. Lindberg, X. Wang, W. Wang, M. F. Andrade, O. Brousse, H. Simon, T. Kropp, S. Miao, X. He, D. Duarte, P. Mouzourides, J. Hidalgo, Y. Roustan, Y. Kim, L. S. Ferreira, L. Zhao, N. Zhang, B. Bornstein, J. Gonzales-Cruz, D. Niyogi

9:15 A.M.

12.3 *Integration of the WUDAPT, WRF, and ENVI-Met Models to Simulate Urban Heat Island Mitigation Strategies in Downtown San Jose, California.* **Ian K. McRae**, Univ. of Tennessee, Knoxville, TN; B. Bornstein, F. R. Freedman, A. Rivera, I. Dronova, H. Fraker, C. Ren, X. Li, J. Dou

8:30 A.M.–10:30 A.M.**12 AEROSOL**

Session 9: AEROSOL IMPACTS ON WEATHER SYSTEMS. PART I –208

Chairs: Shuhua Chen, Univ. of California, Davis, CA; Terrence R. Nathan, Univ. of California, Davis, CA

8:30 A.M.

9.1 *Distinct Effects of Atmospheric Aerosols on Tropical Cyclones.* **Yuan Wang**, California Institute of Technology, Pasadena, CA

8:45 A.M.

9.2 *Enhancement of Tropical Cyclones by Aerosols: Mineral Dust's Role in Tropical Depression Formation.* **Chris Phillips**, Univ. of Alabama, Huntsville, AL; U. S. Nair

9:00 A.M.

9.3 *Relationship of Aerosols and Tropical Cyclogenesis over the Eastern Atlantic Ocean Basin for Recent Hurricane Seasons.* **Mohin A. Patel**, San Jose State Univ., San Jose, CA; Q. Tan, S. Chiao

9:15 A.M.

9.4 *Dust-Induced Changes on Energy and Activity of Atmospheric Waves Using a Global Climate Model.* **Farnaz Hosseinpour**, DRI, Reno, NV; E. M. Wilcox

8:30 A.M.–9:30 A.M.**11 ENERGY**

Session 14: BIG DATA ANALYTICS PROVIDING DECISION SUPPORT, TELECONNECTIONS, AND GENERAL ENERGY TOPICS. PART I –256

Chairs: Robert D'Arienzo, IBM, New York, NY; Ted Zarras, Priogen, Amsterdam, Netherlands

8:30 A.M.

14.1 *Multicriteria Strategic Planning for Climate Risk and Adaptation in the Electric Power Industry.* **John A. Dutton**, Prescient Weather Ltd. and ClimBiz Ltd., State College, PA; J. D. Ross, R. P. James

8:45 A.M.

14.2 *Implementation of AI-Infused Outage Management Solutions for Weather and Utility Applications.* **Robert D'Arienzo**, IBM, New York, NY; R. Boucher, C. Gillespie, R. Thompson

9:00 A.M.

14.3 *How Teleconnections Influence Wind Speed and Power Variability in the Upper Midwest through Changing Synoptic Regimes.* **Jacob Coburn**, Univ. of Minnesota, Twin Cities, Minneapolis, MN

9:15 A.M.

14.4 *The Variability of the Wind Resource in the Caribbean and Associated Teleconnections.* **Lawrence Pologne**, Caribbean Institute for Meteorology and Hydrology, St. James, Barbados; L. A. Nurse, J. L. Charlery, D. Farrell

8:30 A.M.–9:30 A.M.**10R20**

Session 12: IMPROVING R20 AND O2R IN THE 0–18-H FORECAST RANGE LINKING RESEARCH AND OPERATIONS TO FORECASTERS' NEEDS—PART V –252A

Chairs: Michael Erickson, NCEP, College Park, MD; Young-Joon Kim, NWS, Silver Spring, MD

8:30 A.M.

12.1 *New Development of the Hybrid Data Assimilation and Forecasting System for the Warn-on-Forecast Project during the HWT Spring Experiment in 2019.* **Yunheng Wang**, CIMMS/Univ. of Oklahoma, NOAA/OAR/NSSL, Norman, OK; J. Gao, S. Pan, P. S. Skinner, N. Yussouf, T. A. Jones, K. H. Knopfmeier, L. J. Wicker, P. L. Heinselman

8:45 A.M.

12.2 *Assessing Systematic Impacts of Physics Schemes in the NSSL Warn-on-Forecast System.* **Corey Potvin**, NOAA/OAR/NSSL, and School of Meteorology, Univ. of Oklahoma, Norman, OK; P. S. Skinner, K. Hoogewind, M. L. Flora, A. E. Reinhart, A. J. Clark, J. R. Carley

9:00 A.M.

12.3 *Comparing WRF-ARW and FV3 SAR Forecasts for Warn-on-Forecast Applications.* **Larissa J. Reames**, OU/CIMMS/OAR/NSSL/FRDD, Norman, OK; L. J. Wicker

9:15 A.M.

12.4 *Experimental Forecast Evolution Using the Warn-on-Forecast System during the 2019 HWT Spring Forecasting Experiment.* **Burkely T. Gallo**, CIMMS/Univ. of Oklahoma and NOAA/NWS/SPC, Norman, OK; K. A. Wilson, J. J. Choate, K. H. Knopfmeier, P. S. Skinner, B. Roberts, P. L. Heinselman, A. J. Clark

8:30 A.M.–9:30 A.M.**8WXCLIMATE**

Panel Discussion 5: RED SKIES IN THE MORNING: HOW EMERGENCY MANAGERS LEVERAGE WEATHER DATA –254A

Moderators: Tom Bedard, AccuWeather Enterprise Solutions, Wichita, KS; Rebecca Moulton, FEMA, Atlanta, GA

Panelists: Lucas McDonald, Walmart, Bentonville, AR; Steven F. Piltz, NOAA/NWSFO, Tulsa, OK; Jonathan Porter, AccuWeather, Inc, State College, PA; Vanessa Urango, New Hampshire Division of Homeland Security and Emergency Management, n/a, NH

8:30 A.M.

Panel Discussion.

8:30 A.M.–9:15 A.M.**8WRN**

Session 9: WARNING COMMUNICATION! –153C

8:30 A.M.

9.1 *Revolutionary Enhancements to Wireless Emergency Alerts (WEAs).* **Michael Gerber**, NOAA, Silver Spring, MD

8:45 A.M.

9.2 *Response to a WEA Tornado Warning Text Message.* **Zachary J. Riel**, Western Illinois Univ., Macomb, IL

9:00 A.M.

9.3 *Improving Warning Communication to State Parks and Campgrounds at WFO Shreveport.* **Matt Hemingway**, NWS, Shreveport, LA; D. McMillian

8:30 A.M.–9:30 A.M.**3SMALLSATS**

Session 1: OPERATIONAL SMALLSATS: CURRENT STATUS AND NEAR-TERM PLANS –252B

8:30 A.M.

1.1 *Demonstrating the Potential for CubeSat Microwave Radiometers for Weather Observation: TEMPEST-D Performance after 1.5 Years On-Orbit.* **S. T. Brown**, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA; W. Berg, T. C. Gaier, B. H. Lim, S. Padmanabhan, S. C. Reising, C. Venkatachalam

8:45 A.M.

1.2 *Improving over Land Precipitation Retrieval by High-Temporal Resolution Satellite Observations.* **Y. You**, CICS, College Park, MD; C. Peters-Lidard

9:00 A.M.

1.3 *Accomplishments and Plans of Spire's Growing Constellation of GNSS RO CubeSats.* **Dallas Masters**, Spire Global, Inc., Boulder, CO; V. Irisov, V. Nguyen, T. Duly, R. Sikarin, O. Nogues-Correig, L. Tan, T. Yuasa, M. Gorbunov, C. Rocken

9:15 A.M.

1.4 *Assimilation of Radio Occultation Observations from Spire CubeSats.* **Dusanka Zupanski**, Spire Global, Inc., Boulder, CO; A. MacDonald, R. Stefanescu, M. Hei, V. Irisov, W. Wu, P. Madden

10:00 A.M.–11:00 A.M.

DEISYMP / TROPSYMPI**Joint Session 62: WOMEN IN THE TROPICS –252A**

Chairs: Kelly Marie Nunez Ocasio, The Pennsylvania State Univ., University Park, PA; Shirley Murillo, NOAA/AOML, Miami, FL; Ada Monzón, WIPR-TV and Univision Radio, San Juan, PR

Panelists: Kristen Corbosiero, Univ. at Albany, SUNY, Albany, NY; Arlene Laing, Caribbean Meteorological Organization, Port of Spain, Trinidad and Tobago; Lisa Bucci, NOAA/AOML, Miami, FL; Yaitza Luna-Cruz, Jupiter Intelligence, New York, NY

10:00 A.M.

Introductory Remarks by AMS President Jenni Evans.

10:00 A.M.

J62.1 *Standing on the Shoulders of Giants: Tropical Cyclone Observations from the Ground, High-Altitude Unmanned Aerial Vehicles, and Space.* **Amber E. Emory**, NASA ESTO, Greenbelt, MD

10:15 A.M.

Panel Discussion.

10:30 A.M.–12:00 P.M.

36EPT**Session 13B: RADAR TECHNOLOGIES AND APPLICATIONS. PART VI –155**

Chairs: Kurt D. Hondl, NOAA/NSSL, Norman, OK; Michael J. Istok, NOAA/NWS, Silver Spring, MD; Mark B. Yearly, Univ. of Oklahoma, Norman, OK

10:30 A.M.

I3B.1 *An Architecture for Monitoring Humidity Using Cellular Network Signals.* **Robert Michael Barts**, Wireless Research Center of North Carolina, Wake Forest, NC; A. Ram, K. Takamizawa, S. Soora, M. E. Weber, D. Zrnica, A. Ryzhkov, D. Wasielewski, K. Brewster

10:45 A.M.

I3B.2 *Emulating Arbitrary Tornado Debris Fluxes Using “SimRadar”.* **B. L. Cheong**, Univ. of Oklahoma, Norman, OK; D. J. Bodine, M. E. Schneider, R. N. Cross, C. J. Fulton, S. M. Torres, R. D. Palmer, T. Maruyama

11:00 A.M.

I3B.3 *S-Band Radar Rainfall Estimation in Taiwan.* **Lin Tang**, CIMMS/Univ. of Oklahoma, Norman, OK; J. Zhang, Y. S. Tang, P. L. Chang

10:30 A.M.–12:00 P.M.

36EPT / 23ASLI**Joint Session 63: FAIR AND OPEN DATA WITHIN THE ATMOSPHERIC SCIENCES. PART III –157C**

Chairs: Mohan K. Ramamurthy, UCAR, Boulder, CO; Matthew S. Mayernik, NCAR, Boulder, CO

10:30 A.M.

J63.1 *The Copernicus Climate Data Store: ECMWF’s Approach to Providing Online Access to Climate Data and Tools.* **Baudouin Raoult**, ECMWF, Reading, UK; C. Bergeron, C. Buontempo, A. Alos-Lopez, E. Comyn-Platt, E. Damasio-Da-Costa, I. Rozum

10:45 A.M.

J63.2 *Managing Diverse Data Submissions within a Multirepository Ecosystem.* **Matthew S. Mayernik**, NCAR, Boulder, CO; D. Schuster

11:00 A.M.

J63.3 *Construction of an Airborne Data Inventory for Improved Data Discoverability and Access.* **Deborah Smith**, Univ. of Alabama, Huntsville, AL; S. M. Wingo, C. Davis, K. Bugbee, R. Ramachandran

11:15 A.M.

J63.4 *Improving Algorithm Communication and Data Cognizance through Standardizing Documentation.* **Aaron Kaulfus**, Univ. of Alabama, Huntsville, AL; K. Bugbee, A. Harris, S. Bailey, R. Ramachandran, S. Harkins, A. Barciauskas

11:30 A.M.

J63.5 *Operating a Cloud-Native Data Center.* **Geoffrey T. Stano**, Univ. Alabama, Huntsville, AL; W. Ellett, A. Kulkarni, A. Marouane, J. Simmons, S. J. Graves

11:45 A.M.

J63.6 *ARM Data: Metrics, Processing, and Metadata Management for Evaluation Data Products.* **Rachael N. Isphording**, ORNL, Oak Ridge, TN; M. R. Davis, R. T. Cederwall, R. Devarakonda, M. Broxson, A. Singh

10:30 A.M.–12:00 P.M.

34HYDRO**Session 13A: EARTH OBSERVATIONS AND ENVIRONMENTAL MODELING FOR AGRICULTURE AND FOOD SECURITY. PART III –253C**

Chairs: Pierre Guillevic, Univ. of Maryland, College Park, MD; Chris Justice, Univ. of Maryland, College Park, MD

10:30 A.M.

I3A.1 *Combining Sources of Predictive Skill to Support Effective Drought Early Warning (Invited Presentation).* **Chris C. Funk**, USGS EROS, Santa Barbara, CA; G. Husak, A. McNally, K. R. Arsenault, L. S. Harrison

10:45 A.M.

I3A.2 *Utilizing NASA TRMM Multisatellite Precipitation Analysis (TMPA) for Water Resource Management on the Navajo Reservation.* **Ansley Long**, Univ. of Georgia, Athens, GA; J. M. Shepherd

11:00 A.M.

I3A.3 *Characteristics, Precursors, and Predictability of Amu Darya Drought.* **Andrew Hoell**, NOAA, Boulder, CO; J. K. Eischeid, M. Barlow

11:15 A.M.

I3A.4 *Utilizing National Water Model Output to Improve Runoff Risk Tools Used for Nutrient Application.* **Lindsay E. Fitzpatrick**, Cooperative Institute for Great Lakes Research, Ann Arbor, MI; Y. Hu, D. Goering, L. Mason, L. M. Fry, L. K. Read, A. R. Thorstensen, B. M. Lofgren

11:30 A.M.

I3A.5 *Modeling Hydrologic Influence of Agricultural Management Using the National Water Model.* **Prasanth Valayamkunnath**, NCAR, Boulder, CO; M. Barlage, F. Chen, D. J. Gochis, K. Franz, B. A. Cosgrove

11:45 A.M.

13A.6 *Parameterization of a Semidistributed Hydrological Model By Using a Combination of Ground and Satellite-Derived Data during the Calibration Process: A Case Study in the Wami River Basin.* **Fernando Jarrin**, Texas A&M Univ., College Station, TX; P. Guillevic, J. Jeong, W. Mbungu, S. Tumbo, C. Nakalambe, Y.T. Dile

10:30 A.M.–12:00 P.M.**34HYDRO**

Session 13B: PRECIPITATION PROCESSES AND OBSERVATIONS FOR ATMOSPHERIC, LAND SURFACE, AND HYDROLOGICAL MODELING. PART I –253A

Chairs: Andrew Newman, NCAR, Boulder, CO; Haonan Chen, NOAA/ESRL and CSU, Boulder, CO; Viviana Maggioni, George Mason Univ., Fairfax, VA; Youcun Qi, Institute of Geographic Sciences and Natural Resources Research, Beijing, China

10:30 A.M.

13B.1 *Creating and Using Sensors That Tell Us about Precipitation (Invited Presentation) (Centennial).* **G. J. Huffman**, NASA GSFC, Greenbelt, MD

10:45 A.M.

13B.2 *Reconstruction of a Blended Monthly Precipitation Dataset for the Presatellite Era.* **Vincent Y. S. Cheng**, EC, Toronto, Canada; X. L. Wang, A. Lin

11:00 A.M.

13B.3 *Analysis of NASA GPM Ground Validation Multifrequency Radar Observations.* **Stephanie M. Wingo**, NASA MSFC and USRA, Huntsville, AL; W.A. Petersen, V. Chandrasekar

11:15 A.M.

13B.4 *Evaluation of a New Global Precipitation Analysis at the U.S. Air Force 557th Weather Wing.* **Eric M. Kemp**, SSAI, Greenbelt, MD; J. Wegiel, S.V. Kumar, J. Geiger, C. Peters-Lidard

11:30 A.M.

13B.5 *Spatial and Temporal Variability in the Relationship between Water Vapor Transport and Associated Precipitation in the Eastern United States.* **Natalie Teale**, Rutgers Univ., Piscataway, NJ; D.A. Robinson

11:45 A.M.

13B.6 *Data-Driven, Physically Based Characterization of Floods Accounting for Subbasin Precipitation Variability.* **Jorge A. Duarte**, CIMMS, Norman, OK; P. E. Kirstetter, M. Saharia, J. J. Gourley, H. Vergara, C. D. Nicholson

10:30 A.M.–12:00 P.M.**33CVC**

Session 12: INTERBASIN INTERACTIONS BETWEEN THE PACIFIC, THE ATLANTIC, AND THE INDIAN OCEAN, AND THEIR IMPACTS ON THE GLOBAL CLIMATE VARIABILITY. PART II –150

Chairs: Xichen Li, Institute of Atmospheric Physics, Beijing, China; Yun Yang, Beijing Normal Univ., Beijing, China

10:30 A.M.

12.1 *Three-Ocean Interactions and Climate Variability: A Review (Invited Presentation).* **Chunzai Wang**, State Key Laboratory of Tropical Oceanography, South China Sea Institute of Oceanology, Chinese Academy of Sciences, Guangzhou, China

10:45 A.M.

12.2 *Contributions of Interdecadal Pacific Oscillation and Atlantic Multidecadal Oscillation to Global Ocean Heat Content Distribution (Invited Presentation).* **Yongyun Hu**, Beijing, China; Z. Hu, A. Hu

11:00 A.M.

12.3 *The Relationship between the Pacific Decadal Oscillation and the Atlantic Multidecadal Oscillation.* **Tyler M. Fenske**, RSMAS, Miami, FL; A. C. Clement

11:15 A.M.

12.4 *The Strengthening of Amazonian Precipitation during the Wet Season Driven by Tropical Sea Surface Temperature Forcing.* **Wang Xinyue**, IAP, Beijing, China

11:30 A.M.

12.5 *An Increasing Trend in the Early Winter Precipitation around Japan and Its Linkage with the Enhanced Heating over the Tropical Eastern Indian Ocean.* **Kazuaki Yasunaga**, Univ. of Toyama, Toyama, Japan

11:45 A.M.

12.6 *North Tropical Atlantic Climate Variability and Model Biases.* **Yun Yang**, Beijing Normal Univ., Beijing, China

10:30 A.M.–12:00 P.M.**33CVC / 8MJO**

Joint Session 64: VARIABILITY AND PREDICTABILITY OF CLIMATE ON SUBSEASONAL-TO-SEASONAL TIME SCALES. PART II –154

Chairs: Zane K. Martin, Columbia Univ., New York, NY; Ángel F. Adames-Corraliza, Univ. of Michigan, Ann Arbor, Ann Arbor, MI

10:30 A.M.

J64.1 *The Importance of Past MJO Activity for Empirical Predictions of Midlatitude Weather.* **Elizabeth A. Barnes**, Colorado State Univ., Fort Collins, CO; K. C. Tseng, E. D. Maloney

10:45 A.M.

J64.2 *Sources of Tropical Subseasonal Predictability.* **Matthew Newman**, CIRES–Colorado Univ., Boulder, CO; P. D. Sardeshmukh, Y. Wang

11:00 A.M.

J64.3 *Evaluation of Skillful All-Season S2S Prediction of U.S. Precipitation Using the MJO and QBO.* **Kyle M. Nardi**, The Pennsylvania State Univ., University Park, PA; E. A. Barnes, E. D. Maloney, C. F. Baggett, D. S. Harnos, L. M. Ciaso, C. M. Zarzycki

11:15 A.M.

J64.4 *Improving Week 3–4 Temperature and Precipitation Outlooks by Incorporating the Stratospheric Quasi-Biennial Oscillation as a Predictor.* **Cory F. Baggett**, Climate Prediction Center/NCEP/NWS/Innovim, LLC, College Park, MD; L. M. Ciaso, D. S. Harnos, S. R. Baxter, C. S. Long, M. L'Heureux, J. Gottschalck, M. Halpert

11:30 A.M.

J64.5 *Improving CPC's Week 3–4 Outlooks via Incorporating Extratropical Predictors and an Objective Guidance Blend.* **Daniel S. Harnos**, NOAA, College Park, MD; L. M. Ciaso, J. Gottschalck, M. Halpert, M. L'Heureux

11:45 A.M.

J64.6 *Seasonal Prediction of Wintertime Teleconnections—Empirical Model Compared to CFSv2.* **Stephen Baxter**, NOAA/CPC, College Park, MD; J. Stuijvenvold Allen

10:30 A.M.–12:00 P.M.**30WAF26NWP****Session 12A: ADVANCED PHYSICS AND PHYSICS INTEROPERABILITY IN COMMUNITY MODELS –257AB**

Chairs: Jessie C. Carman, OAR, Silver Spring, MD; James D. Doyle, NRL, Monterey, CA

10:30 A.M.

12A.1 *WGNE Systematic Error Survey Results Summary.* **Carolyn Reynolds**, NRL, Monterey, CA; K. D. Williams, A. Zadra

10:45 A.M.

12A.2 *SCREAM: A New Performance Portable Global Storm-Resolving Atmosphere Model.* **Aaron S. Donahue**, LLNL, Livermore, CA; P. Caldwell

11:00 A.M.

12A.3 *Physics Interoperability as a Strategy for Advancing NOAA's Unified Forecast System Physics Suites.* **Ligia Bernardet**, CIRES/Univ. of Colorado, NOAA/GSD, and Developmental Testbed Center, Boulder, CO; G. J. Firl, D. Heinzeller, L. Carson, M. Zhang, J. Schramm, L. Nance

11:15 A.M.

12A.4 *Convectively Coupled Equatorial Wave Simulations Using the ECMWF IFS and the NOAA GFS Cumulus Convection Schemes in the NOAA GFS Model.* **Lisa K. Bengtsson**, CIRES, Boulder, CO; J. Dias, M. Gehne, P. Bechtold, J. S. Whitaker, L. Magnusson, J. W. Bao, S. A. Michelson, P. Pegion, S. N. Tulich, G. N. Kiladis

11:30 A.M.

12A.5 *Process-Oriented Diagnostics to Inform the Physics Suite of Future GFS Implementations using NOAA's Unified Forecast System.* **Weiwei Li**, NCAR, Boulder, CO; L. Bernardet, M. Zhang, L. Pan, M. Harrold, J. Wolff, J. K. Henderson, T. Hertneky, L. R. Blank, G. J. Firl, M. Ek, J. Dudhia, T. Jensen, Z. Wang, L. Nance

11:45 A.M.

12A.6 *Evaluation of New Monin–Obukhov and Bulk Richardson Parameterizations of the Surface Layer in Large Eddy Simulations.* **Michael S. Buban**, NOAA/ARL/ATDD and CIMMS, Oak Ridge, TN; T. R. Lee

10:30 A.M.–12:00 P.M.**30WAF26NWP****Session 12B: ADVANCES IN PROBABILISTIC FORECASTING –258A**

Chair: Christopher McCray, McGill Univ., Montreal, Canada

10:30 A.M.

12B.1 *The Weather Prediction Center: A Bridge between Ensemble Information and Decision-Makers.* **David Novak**, NOAA/NWS/NCEP, College Park, MD

10:45 A.M.

12B.2 *Evaluation of a Probabilistic Subfreezing Road Temperature Nowcast Using Machine Learning.* **Heather D. Reeves**, CIMMS/Univ. of Oklahoma and NOAA/NSSL, Norman, OK; S. Handler

11:00 A.M.

12B.3 *Utilizing the High-Resolution Ensemble Forecast (HREF) to Produce Calibrated Probabilistic Thunderstorm Guidance at the Storm Prediction Center.* **David Harrison**, CIMMS/Univ. of Oklahoma and NOAA/NWS/Storm Prediction Center, Norman, OK; I. L. Jirak

11:15 A.M.

12B.4 *Optimizing a Sensitivity-Based Ensemble Subsetting Technique for Convective-Scale Forecasts.* **Austin A. Coleman**, Texas Tech Univ., Lubbock, TX; B. C. Ancell

11:30 A.M.

12B.5 *The MetCoOp Ensemble Prediction System (MEPS) for Nordic Weather Conditions: Recent Results in Research and Applications.* **Jørn Kristiansen**, Norwegian Meteorological Institute, Oslo, Norway; U. Andrae, I. L. Frogner, M. Ø. Køltzow, A. M. Olsen, M. Partio, I. A. Seierstad, A. T. Singleton, O. Vignes

12B.6 WITHDRAWN**11:45 A.M.**

12B.6A *Assessing the Robustness of Microphysical Process Representation in an Adaptive Habit Model by Means of Stochastic Parameterizations.* **Lauriana C. Gaudet**, Univ. at Albany, SUNY, Albany, NY; K. Sulia

10:30 A.M.–12:00 P.M.**30WAF26NWP****Session 12C: ANALYSIS AND FORECASTING FOR RECENT FIELD CAMPAIGNS AND TESTBEDS –258B**

Chair: Christopher J. Melick, 557th Weather Wing, Offutt Air Force Base, NE

10:30 A.M.

12C.1 *The Influence of DACCWA Radiosonde Data on the Quality of ECMWF Analyses and Forecasts.* **Roderick van der Linden**, Karlsruhe Institute of Technology, Karlsruhe, Germany; P. Knippertz, A. H. Fink, B. Ingleby, M. Maranan, A. Benedetti

10:45 A.M.

12C.2 *High-Frequency Mobile Soundings in Convective Environments during RELAMPAGO: Overview and Preliminary Findings.* **Russ S. Schumacher**, Colorado State Univ., Fort Collins, CO; D.A. Hence, N. R. Kelly, K.A. Kosiba, S.W. Nesbitt, R. J. Trapp, J. Wurman

11:00 A.M.

12C.3 *Evaluation of Multiple Analysis Systems in the 2019 HWT Spring Forecasting Experiment.* **Israel L. Jirak**, NOAA/NWS/NCEP/Storm Prediction Center, Norman, OK; N.A. Dahl, K. Hoogewind, B. Roberts, K. H. Knopfmeier, A. J. Clark, C. Alexander, J. R. Carley, M. C. Coniglio

11:15 A.M.

12C.4 *Application of Ensemble Sensitivity during the AR-Recon 2019 Experiment.* **Ryan D. Torn**, Univ. at Albany, SUNY, Albany, NY

11:30 A.M.

12C.5 *Impact of Turbulence and Small-Scale Convective Cells on Heavy Orographic Precipitation during the OLYMPLEX Field Experiment.* **Na Zhou**, Stony Brook Univ., Stony Brook, NY; B.A. Colle, A. Naeger

11:45 A.M.

12C.6 *A Review of NCAR/MMM's Forecasting Support for Recent Atmospheric Chemistry Field Campaigns.* **James F. Bresch**, NCAR, Boulder, CO; S. Honomichl

10:30 A.M.–12:00 P.M.**30WAF26NWP****Session 12D: ANALYSIS AND FORECASTING OF TROPICAL WEATHER –258C**

Chairs: Clark Evans, Univ. of Wisconsin–Milwaukee, Milwaukee, WI; Benjamin C. Trabling, Colorado State Univ., Fort Collins, CO

10:30 A.M.

12D.1 *Recent Progress in Tropical Cyclone Intensity Forecasting at the National Hurricane Center.* **John P. Cangialosi**, NOAA/NWS/NCEP/NHC, Miami, FL; E. S. Blake, D.A. Zelinsky, M. DeMaria, E. Rappaport

10:45 A.M.

12D.2 *The Predictability of Formation, Intensity, and Rainfall for Hurricane Barry.* **Geoffrey S. Manikin**, NOAA/NWS/NCEP/EMC, College Park, MD; A. M. Bentley, L. C. Dawson

11:00 A.M.

12D.3 *Forecasting Tropical Cyclone Intensity Change during Trough Interaction.* **Kristen L. Corbosiero**, Univ. at Albany, SUNY, Albany, NY; C. Peirano, B. H. Tang

11:15 A.M.

12D.4 *A Climatology of Indirect Tropical Cyclone Interactions.* **Kevin C. Prince**, Univ. of Wisconsin, Milwaukee, WI; C. Evans

11:30 A.M.

12D.5 *Mechanisms Contributing to the Heavy Rainfall Associated with a Mei-Yu Front near Taiwan.* **Jennifer C. DeHart**, Colorado State Univ., Fort Collins, CO; M. M. Bell

11:45 A.M.

12D.6 *High-Resolution Reanalysis for Hurricanes Surface Forcing.* **Hao Jin**, NRL, Monterey, CA; J. D. Doyle

10:30 A.M.–12:00 P.M.**29EDUCATION / 15SOCIETY / 8WXCLIMATE / DEISYMP****Joint Panel Discussion 5: DIVERSITY, EQUITY, BELONGINGNESS, AND INCLUSION—WHERE HAS THE AMS BEEN AND WHERE SHOULD IT BE GOING? –254A**

Moderator: Tanja E. Fransen, NOAA/NWS, Glasgow, MT

Panelists: Valerie Sloan, NCAR, Boulder, CO; Shakila Merchant, NOAA Center for Earth System Sciences and Remote Sensing Technologies, New York, NY; Mona Behl, The Univ. of Georgia, Athens, GA; Pamela Emch, Northrop Grumman Corp., Redondo Beach, CA

10:30 A.M.

Panel Discussion.

10:30 A.M.–12:00 P.M.**24IOAS****Session 13: RESEARCH AND OPERATIONAL APPLICATIONS ON ALL SPATIAL AND TEMPORAL SCALES –259A**

Chair: Jeffrey Whitaker, NOAA/ESRL/PSD, Boulder, CO

10:30 A.M.

13.1 *Background Error Specification for the 127-Layer GFS.* **Catherine Thomas**, MSG, College Park, MD; D. T. Kleist, J. S. Whitaker, W. S. Wu, K. Bathmann, R. Treadon

10:45 A.M.

13.2 *Results from an Ensemble Reanalysis with the Community Earth System Model 2.1.* **Timothy J. Hoar**, NCAR, Boulder, CO; K. Raeder, N. Collins, M. El Gharamti, J. L. Anderson

11:00 A.M.

13.3 *The GSD Cloud Analysis: Rapidly Updated Real-Time Hydrometeor Initialization for Short-Range NWP.* **E. P. James**, Cooperative Institute for Research in Environmental Sciences, Boulder, CO; S. Benjamin, M. Hu, C. Alexander, T. T. Ladwig

11:15 A.M.

13.4 *Assimilating Cloud Observations in the High Resolution Rapid Refresh Data Assimilation System (HRRRDAS).* **Therese T. Ladwig**, NOAA/ESRL/GSD and CIRES/Univ. of Colorado, Boulder, CO; D. C. Dowell, C. Alexander, M. Hu, S. Weygandt, S. Benjamin, E. P. James, G. Ge

11:30 A.M.

13.5 *Experiments with a 3-km Ensemble Kalman Filter Data Assimilation System over the Entire Conterminous United States.* **Craig S. Schwartz**, NCAR, Boulder, CO; G. S. Romine, J. Bresch

11:45 A.M.

13.6 *A Convection-Allowing Hybrid Ensemble-Variational Data Assimilation System with a Stand-Alone Version of the FV3.* **Ting Lei**, MSG and NOAA/NCEP/EMC, College Park, MD; E. Rogers, W. S. Wu, T. Black, J. Whitaker, B. T. Blake, D. Dowell, X. Zhang, H. Winterbottom, S. Liu, D. T. Kleist, J. R. Carley

10:30 A.M.–12:00 P.M.

22ATCHEM**Session 13A:ACMAP:ATMOSPHERIC CHEMISTRY
MODELING AND ANALYSIS PROGRAM. PART VIII –206B****Chairs:** Richard Eckman, NASA, Washington, DC; Kenneth Jucks, NASA, Washington, DC

10:30 A.M.

13A.1 *Upper-Tropospheric Ammonia Detected from AIRS.* **J. X. Warner**, Univ. of Maryland, College Park, MD; Z. Wei, L. L. Pan

10:45 A.M.

13A.2 *Role of Cloud Physics in Thunderstorms on Ozone Production.* **Mary C. Barth**, NCAR, Boulder, CO; G. Cuchiaro, A. Fried

11:00 A.M.

13A.3 *The 2005–16 Trends of Ozone Pollution and Formaldehyde Columns over China Observed by Satellites.* **Lu Shen**, Harvard Univ., Cambridge, MA; D. J. Jacob, L. Zhu, X. Liu, G. Huang, B. Zheng, Q. Zhang, K. Li, H. Liao, M. Sulprizio, I. D. Smedt, G. G. Abad

11:15 A.M.

13A.4 *Anthropogenic VOCs in the Long Island Sound, New York, Airshed and Their Role in Ozone Production.* **Allison M. Ring**, Univ. of Maryland, College Park, MD; R. R. Dickerson, X. Ren, S. E. Benish, R. J. Salawitch, T. P. Canty

11:30 A.M.

13A.5 *Evaluating Observable Proxies for Variability in Atmospheric Oxidation.* **Arlene M. Fiore**, LDEO, Palisades, NY; C. B. Baublitz, M. Follette-Cook, B. Duncan, L. T. Murray, L. Valin, D. Westervelt, G. M. Wolfe, J. M. Nicely, R. Commane, G. J. P. Correa, M. J. Prather, I. Bourgeois, W. Brune, T. P. Bui, B. Daube, G. S. Diskin, S. Hall, T. F. Hanisco, D. O. Miller, J. Peischl, T. B. Ryerson, A. Thames, C. Thompson, J. M. St. Clair, K. Ullman, S. C. Wofsy

11:45 A.M.

13A.6 *Assessing Impacts of the Severe Air Pollution Caused by the Camp Fire (2018).* **Yuan Wang**, California Institute of Technology, Pasadena, CA; B. Rooney, J. Jiang, Z. C. Zeng, J. H. Seinfeld

10:30 A.M.–12:00 P.M.

22ATCHEM**Session 13B: QUANTIFICATION AND
ATTRIBUTION OF TRENDS IN TROPOSPHERIC
OZONE. PART II –207****Chairs:** Jessica L. Neu, JPL, Pasadena, CA; John Worden, JPL, Pasadena, CA

10:30 A.M.

13B.1 *Tropospheric Ozone Is Still Increasing across the Northern Hemisphere (Invited Presentation).* **Audrey Gaudel**, CIRES, Boulder, CO; O. R. Cooper, K. L. Chang, I. Bourgeois, J. Ziemke, S. A. Strode, P. Nedelec, R. Blot, V. Thouret

11:00 A.M.

13B.2 *Multidecadal Surface Ozone Trends at Globally Distributed Remote Locations.* **Owen Cooper**, CIRES, Boulder, CO

11:15 A.M.

13B.3 *Validation of TES and MUSES Ozone Data Products and Their Utility in Ozone Trend Analysis.* **G. B. Osterman**, JPL, Pasadena, CA; K. Bowman, J. Neu, R. Herman, M. Luo, K. Miyazaki, V. Payne, J. Worden, S. S. Kulawik

10:30 A.M.–12:00 P.M.

22WXMOD**Session 6: EVALUATIONS OF WEATHER
MODIFICATION STUDIES –105****Chairs:** Roy Rasmussen, NCAR, Boulder, CO; Jen-Ping Chen, National Taiwan Univ., Taipei, Taiwan

10:30 A.M.

6.1 *Potential Flaws in the Evaluation Design of Weather Modification Studies Using Radar.* **Roelof Burger**, North-West Univ., Potchefstroom, South Africa

10:45 A.M.

6.2 *Assessing and Validating Cloud Seeding Plume Targeting Using a High-Resolution WRF Model, a Dispersion Model, and Snow Trace Chemistry.* **Frank McDonough**, DRI, Reno, NV; J. F. Mejia

11:00 A.M.

6.3 *An Overview of Southern Sierra Nevada Cloud Seeding Programs.* **Richard H. Stone**, RHS Consulting, Ltd., Reno, NV; D. Munn, M. Larsen, D. L. Newsom

11:15 A.M.

6.4 *Evaluation of the Snowy Mountains Cloud Seeding Program and Future Directions.* **Thomas Chubb**, Snowy Hydro, Walsh Bay, Australia; S. Kenyon, A. Peace, J. Speirs, M. J. Manton Sr.

11:30 A.M.

6.5 *Evaluation of Hydrologic Impacts from Ensemble Cloud Seeding Experiments over Southern Wyoming Using the WRF-Hydro Modeling System.* **Logan Karsten**, NCAR, Boulder, CO; S. A. Tessendorf, L. Xue, D. Gochis, R. Rasmussen

11:45 A.M.

6.6 *The Extra-Area Effect in 71 Cloud Seeding Operations during the Winters of 2008–14 over Jiangxi Province, East China.* **Zhanyu Yao**, Chinese Academy of Meteorological Sciences, Beijing, China; W. Wang

10:30 A.M.–12:00 P.M.

21AIRPOL**Session 13A: SOURCE INVERSION AND ATMOSPHERIC
DISPERSION MODEL VALIDATION TOPICS –211****Chairs:** Stefano Alessandrini, NCAR, Boulder, CO; Tianfeng Chai, CICS, College Park, MD

10:30 A.M.

13A.1 *Reduced-Cost Construction of Jacobian Matrices for High-Resolution Inverse Modeling: An Application to Optimizing North American Methane Sources from TROPOMI Satellite Data.* **Hannah Nesser**, Harvard Univ., Cambridge, MA; D. J. Jacob, J. Maasakkers, M. Sulprizio, Y. Zhang, T. Scarpelli

10:45 A.M.

13A.2 *HYSPLIT Inverse Modeling Using Flight Observations to Estimate SO₂, CO₂, and NO_x Point Source Emissions.* **Tianfeng Chai**, CICS, College Park, MD; X. Ren, M. Cohen, A. M. Ring, A. Crawford, C. P. Loughner, A. F. Stein, F. Ngan, W. T. Luke, P. Kelly, P. Stratton, R. R. Dickerson, A. Karion, I. Lopez Coto, J. R. Whetstone

11:00 A.M.

13A.3 *Progress in Quantifying Urban Greenhouse Gas Fluxes Using Atmospheric Measurements.* **Kenneth J. Davis**, The Pennsylvania State Univ., University Park, PA; N. Balashov, R. R. Dickerson, K. Gurney, A. Karion, T. Lauvaux, I. Lopez-Coto, N. Miles, X. Ren, S. Richardson, P. Shepson, J. Turnbull

11:15 A.M.

13A.4 *Quantifying the Exposure of Unhealthy to Hazardous PM_{2.5} and PM₁₀ Concentrations to Adult and Children Populations in Senegal during Four Significant Dust Events.* **Gregory S. Jenkins**, The Pennsylvania State Univ., University Park, PA; K. McCauley, T. Thompson

10:30 A.M.–12:00 P.M.**21AIRPOL**

Session 13B: ATMOSPHERIC BOUNDARY LAYER PROCESSES: ACCOMPLISHMENTS TO DATE AND FUTURE RESEARCH ENDEAVORS –210C

Chairs: Elie Bou-Zeid, Princeton Univ., Princeton, NJ; Erik Kabela, Oak Ridge National Laboratory, Oak Ridge, TN

10:30 A.M.

13B.1 *Large Eddy Simulation Study of the role of Canopy Density and Structure in Removing Air Pollution by Dry Deposition.* **Gil Bohrer**, The Ohio State Univ., Columbus, OH; T. Yazbeck, M. Mauder, F. De Roo, B. Bakshi

10:45 A.M.

13B.2 *The Active Role of Streamwise Velocity Organization in Near-Surface Turbulent Phenomena.* **Michael Heisel**, Univ. of Minnesota, Minneapolis, MN; C. M. de Silva, N. Hutchins, I. Marusic, J. Hong, F. Coletti, M. Guala

11:00 A.M.

13B.3 *On Soil Moisture, Plants, and the Atmospheric Boundary Layer.* **Amilcare Porporato**, Princeton Univ., Princeton, NJ; S. Hartzell, J. Yin

11:15 A.M.

13B.4 *Phase Effects on Scalar Flux Corrections for Limited Response Sensors.* **Nelson Luis Dias**, Federal Univ. of Parana, Curitiba PR, Brazil

11:30 A.M.

13B.5 *The Impacts of Large Bluff Roughness Elements on Turbulent Transport of Momentum and Scalar in the Urban Boundary Layer.* **Qi Li**, Cornell Univ., Ithaca, NY

11:45 A.M.

13B.6 *Ongoing NASA SMARTLabs PBL Studies Using UAS and Ground-Based Remote Sensors in Coastal and Polluted Environments.* **W. Gregory Blumberg**, GSFC, Greenbelt, MD; S. C. Tsay, A. M. Loftus, U. Jeong, D. B. Wolff Sr., A. M. Fadl

10:30 A.M.–12:00 P.M.**20SMOI**

Session 13: INTERCOMPARISON AND CALIBRATION OF INSTRUMENTS –203

Chair: Udaysankar Nair, Univ. of Alabama, Huntsville, AL

13.1 WITHDRAWN**10:30 A.M.**

13.2 *Estimating Random Error Variances in Observations, NWP Analyses, and Reanalyses Using the Three-Cornered Hat Method.* **Richard A. Anthes**, UCAR, Boulder, CO; J. Sjöberg, T. Rieckh

10:45 A.M.

13.3 *GEO-GEO Intercomparison as a Tool for Instrument Characterization.* **Hyelim Yoo**, CICS, College Park, MD; F. Yu, X. Wu

11:00 A.M.

13.4 *Application of Geodesy for Meteorological Multi-Instrument Campaigns and Calibration.* **Freya Ione Addison**, Univ. of Leeds, Leeds, UK; R. R. Neely III, J. Crosier, C. D. Westbrook, S. Evan, J. Brioude, C. Walden, G. Nott, J. R. Dorsey, S. Best, S. J. Abel, C. Reed, D. Ladd, M. Fortescue, S. O'Shea, A. Wellpott, L. Bennett

11:15 A.M.

13.5 *Calibration for UMass X-Band Dual-Polarization Radar to Compensate for System Biases and Partial Beam Blockages.* **Carl Wolsieffer**, Univ. of Massachusetts, Amherst, MA; S. J. Frasier, J. Vilardell Sanchez, W. Heberling

11:30 A.M.

13.6 *Independent Intercomparison of Compact, All-In-One Meteorological Observing Sensor Package Measurements.* **Bradley G. Illston**, Oklahoma Mesonet/Oklahoma Climatological Survey/Univ. of Oklahoma, Norman, OK

10:30 A.M.–12:00 P.M.**20ARAM**

Session 11: AVIATION DECISION-MAKING USING FORECAST UNCERTAINTY –206A

Chairs: Matthias Steiner, NCAR, Boulder, CO; Timothy Bonin, MIT Lincoln Laboratory, Lexington, MA

10:30 A.M.

11.1 *Integrating Weather Forecasts with Uncertainty into Complex Operational Decisions at American Airlines.* **Steve Abelman**, American Airlines, Ft. Worth, TX

10:45 A.M.

11.2 *Advanced Forecasts, Constraint Translations, and Decision Models for Improved Air Traffic Management Given Weather Uncertainty.* **Michael Robinson**, The MITRE Corporation, McLean, VA; T. Niznik, J. K. Williams, C. P. Taylor

11:00 A.M.

11.3 *Global Probabilistic Forecasts of Convective Weather Aviation Hazards.* **Ken Stone**, NCAR, Boulder, CO; J. O. Pinto, C. P. Kalb, C. Kessinger, W. Deierling, M. Steiner, J. Grim, T. Blitz, R. Bass, J. M. Baker, M. Strahan

11:15 A.M.

11.4 *Design and Evaluation of a Multimodel Weather Impact Translation System with Forecast Confidence.* **Mark Worris**, MIT Lincoln Laboratory, Lexington, MA; M. S. Veillette, M. Matthews, J. Venuti, F. Fabrizi, J. Kuchar

11:30 A.M.

11.5 *Evaluation of Probabilistic Forecasts for Denver International Airport Snow Operations.* **Dana M. Mueller**, NOAA/ESRL/GSD and CIRA, Boulder, CO; K. R. Fenton Jr., M. S. Wandishin, M. Kraus

11:45 A.M.

11.6 *A Generic Methodology to Characterize and Display Terminal Wind Forecast Uncertainty.* **Matt Fronzak**, The MITRE Corporation, McLean, VA; V. E. Klimenko, D. J. Larsen, R. M. Avjian, J. J. Huhn, M. Robinson, D. A. Strand

10:30 A.M.–12:00 P.M.**19AI / 11ENERGY****Joint Session 65: MACHINE LEARNING APPLICATIONS IN THE ENERGY SECTOR –156A**

Chairs: Tyler C. McCandless, NCAR, Boulder, CO; Sue Ellen Haupt, NCAR, Boulder, CO

10:30 A.M.

J65.1 *Machine and Deep Learning Methods for Fault Detection and Classification in Photovoltaic Modules.* **Warren James Brettenny**, Nelson Mandela Univ., Port Elizabeth, South Africa; C. W. Dunderdale, C. M. Clohessy, E. E. van Dyk, G. D. Sharp

10:45 A.M.

J65.2 *New Developments in Weather-Based Power Outage Prediction Modeling.* **Diego Cerrai**, Univ. of Connecticut, Storrs, CT; P. Watson, M. Koukoulou, F. Yang, E. Anagnostou

11:00 A.M.

J65.3 *Performance of Alternate Machine Learning Configurations for the 0–120-h Prediction of Extreme Wind Gusts for Outage Management in the Consolidated Edison Company of the New York Service Area.* **John W. Zack**, MESO, Inc., Troy, NY; J. M. Freedman, M. Berlinger, C. Cheng

11:15 A.M.

J65.4 *Comparing Implicit versus Explicit Regime Identification in Machine Learning Approaches to Short-Range Solar Power Forecasting.* **Tyler C. McCandless**, NCAR, Boulder, CO; S. Dettling, S. E. Haupt

11:30 A.M.

J65.5 *Optimizing Training Windows for Wind and Solar Generation Forecasting.* **Daniel B. Kirk-Davidoff**, UL, Albany, MD; P. Tardaguila, T. Melino

11:45 A.M.

J65.6 *A Deep Learning Framework for Forecasting Power in a Full-Scale Wind Farm.* **Rajitha Meka**, Univ. of Texas, San Antonio, TX; K. Bhaganagar, A. Alaeddini

10:30 A.M.–12:00 P.M.**19AI / 30WAF26NWP****Joint Session 66: MACHINE LEARNING FOR SUBGRID PARAMETERIZATION IN WEATHER AND CLIMATE MODELS –156B**

Chairs: Ryan A. Lagerquist, CIMMS, Norman, OK; Christiane Jablonowski, Univ. of Michigan, Ann Arbor, MI; Carlos F. Gaitan, Arable Labs, Inc., Princeton, NJ

10:30 A.M.

J66.1 *Building a Hierarchy of Hybrid, Neural Network Parameterizations of Convection.* **Tom Beucler**, Univ. of California, Irvine, CA; P. Gentine, M. S. Pritchard, S. Rasp, V. Eyring

10:45 A.M.

J66.2 *Data-Driven Superparameterization Using Deep Learning: Experimentations with a Multiscale Lorenz 96 Model.* **Pedram Hassanzadeh**, Rice Univ., Houston, TX; A. Chattopadhyay, A. Subel, K. Palem

11:00 A.M.

J66.3 *Machine Learning Parameterization of the Surface Layer: Integration with WRF.* **David John Gagne**, NCAR, Boulder, CO; T. C. McCandless, B. Kosovic, A. DeCastro, R. D. Loft, S. E. Haupt, B. Yang

11:15 A.M.

J66.4 *Data-Driven Approaches for Simulating Rainfall in Climate Models.* **R. Saravanan**, Texas A&M Univ., College Station, TX; J. Yang, M. Jun, C. Schumacher, J. Wang, R. K. W. Wang

11:30 A.M.

J66.5 *Toward Subgrid-Scale Parameterizations Using a Superresolution Generative Adversarial Network.* **Karthik Kashinath**, LBNL, Berkeley, CA; E. Au, A. Albert, M. Prabhat, S. F. B. Tett

11:45 A.M.

J66.6 *Utilizing Machine Learning to Replace Physical Parameterization Schemes: How Do Different Techniques Compare?* **Garrett Limon**, Univ. of Michigan, Ann Arbor, MI; C. Jablonowski

10:30 A.M.–12:00 P.M.**18COASTAL****Session 12: PRECISION NAVIGATION: INCREASING THE SAFETY AND EFFICIENCY OF U.S. SEAPORTS. PART II –158**

Chairs: Christine Burns, NOAA, Silver Spring, MD; Andre Van der Westhuysen, IMMSG at NOAA/NWS/NCEP/EMC, College Park, MD

10:30 A.M.

12.1 *NOAA's Plans for Disseminating Precision Navigation Datasets.* **John G. W. Kelley**, NOAA, Durham, NH; J. Greenlaw, A. M. Gibbons, E. Nagel

10:45 A.M.

12.2 *The World of S-100: Data Standards for Navigation Systems and Beyond.* **Neil D. Weston**, NOAA, Silver Spring, MD; J. Greenlaw, K. Hess, E. Nagel, G. Seroka, J. Powell, J. Kelley

11:00 A.M.

12.3 *Encoding Hydrodynamic Model Guidance from NOAA's Operational Forecast Systems in S-111 and S-104 International Standards to Support Precision Navigation.* **Greg Seroka**, NOAA, Silver Spring, MD; J. Greenlaw, K. Hess, E. Nagel, J. Powell, N. D. Weston, J. G. W. Kelley

11:15 A.M.

12.4 *S-41X: Marine Weather Overlays for Electronic Charting Systems.* **Hillary Fort**, NOAA/NWS/Ocean Prediction Center, College Park, MD; J. M. Sienkiewicz, R. Daniels

11:30 A.M.

12.5 *NOAA's New Currents Real-Time Buoy (CURBY) Supporting the Navigational Community.* **Katie Kirk**, NOAA, Durham, NH; L. A. Fiorentino, R. Heitsenrether, G. Dusek, C. Paternostro

11:45 A.M.

12.6 *Providing the Best Bathymetry to the Mariner.* **Glen Rice**, NOAA, Durham, NH; K. Wyllie, S. Wolfskehl, J. Kinney, C. Koprowski, Z. Burnett, C. R. Brennan

10:30 A.M.–12:00 P.M.**17SPACEWX****Session 15: ADVANCES IN RESEARCH AND MODELING OF SPACE WEATHER DRIVERS. PART II –205A****10:30 A.M.**

15.1 *Global Impact of Far-Side Active Regions on Coronal and Solar Wind Model Predictions (Invited Presentation).* **Charles N. Arge**, GSFC, Greenbelt, MD; S. L. Jones, C. J. Henney, M. Kirk

10:45 A.M.

15.2 *Identifying Magnetic Energy “Hot Spots” in the Corona.* **Marcel F. Corchado-Albelo**, Univ. of Puerto Rico at Mayagüez, Mayagüez, PR; S. Gibson, K. Dalmasse, Y. Fan, A. Malanushenko

11:00 A.M.

15.3 *A Study in Skill: Improving dB/dt Forecasts with Advanced Conductance Models.* **Agnit Mukhopadhyay**, Univ. of Michigan, Ann Arbor, MI; D. T. Welling, M. Liemohn, A. Ridley

11:15 A.M.

15.4 *Improving Conductance Modeling in Global Magnetosphere–Ionosphere–Thermosphere Simulations during Geomagnetic Storms: An Important Element of Space Weather Modeling.* **Meers Oppenheim**, Boston Univ., Boston, MA; G. Khazanov, V. Merkin, W. Wang, Y. Dimant

11:30 A.M.

15.5 *Open–Closed Boundaries (OCBs) Location Determination Using ULF Wave Observations from Antarctic AGOs, McMurdo Station, and South Pole Station.* **Rachel Frissell**, New Jersey Institute of Technology, Newark, NJ; A. Gerrard, H. Kim

11:45 A.M.

15.6 *Assessing Space Weather Predictions Using METplus—A Community Verification and Diagnostic Package.* **Tara Jensen**, NCAR, Boulder, CO; J. L. Vigh, T. G. Onsager, N. Maruyama, D. Fuller-Rowell, T. Fuller-Rowell, J. Wang, M. Codrescu, L. Mays, L. Rastaetter

10:30 A.M.–12:00 P.M.**16GOESRJPSS****Session 12A: ALGORITHM DEVELOPMENT AND NEW SCIENCE INNOVATION –255**

Chairs: S. Kalluri, NOAA/NESDIS/STAR, College Park, MD; Rebekah Esmaili, Science and Technology Corporation, Columbia, MD

10:30 A.M.

12A.1 *Single and Multiple Scattering of Ice Clouds and Dust Aerosol: Brief History and Applications to Remote Sensing Implementations and Radiative Transfer Simulations.* **Ping Yang**, Texas A&M Univ., College Station, TX; K. N. Liou, M. Mishchenko

11:00 A.M.

12A.2 *Staying at the Forefront of Geostationary Satellite Research: A Joint Effort between NOAA and NASA.* **D. T. Lindsey**, NOAA/NESDIS, Fort Collins, CO; T. Lee

11:15 A.M.

12A.3 *Adapting NUCAPS Operational System to Generate NOAA Unique Products from MetOp-SG IASI-NG Hyperspectral Sounder: Algorithm Development, Optimization, and Augmentation Using Proxy Synthetic Datasets.* **Murty G. Divakarla**, MSG, Rockville, MD; L. Zhou, M. Wilson, C. D. Barnett, X. Liu, A. Gambacorta, S. Kalluri, W. W. Wolf

11:30 A.M.

12A.4 *On Updates to the ABI Fire Detection and Characterization Algorithm and GOES-17 Mitigation.* **C. C. Schmidt**, CIMSS, Madison, WI

11:45 A.M.

12A.5 *Time Lag Correlation between Passive Microwave Measurements and Surface Precipitation and Its Impact on Precipitation Retrieval Evaluation.* **Y. You**, CICS, College Park, MD; H. Meng, J. Dong, S. D. Rudlosky

10:30 A.M.–12:00 P.M.**16GOESRJPSS****Session 12B: SPECIAL SESSION ON THE JPSS SERIES SATELLITE SYSTEM. PART II –253B**

Chairs: E. Berndt, NASA MSFC, Huntsville, AL; Bonnie Reed, JPSS, Suitland, MD

12B.1 WITHDRAWN**10:30 A.M.**

12B.1A *The Microwave Integrated Retrieval System (MiRS): Validation Activities for NOAA-20/ATMS Products and New Science Developments.* **Y. K. Lee**, CICS, College Park, MD; C. Grassotti, S. Liu, Y. Zhou, Q. Liu

10:45 A.M.

12B.2 *Satellite Data-Based Ground Transportation Weather Warning Service over the Tibetan Plateau Using CSPP.* **Xiaoping Xie**, Jiangsu Meteorological Service Center, Nanjing, China; L. Huang, N. Gyentsen, H. L. A. Huang

10:30 A.M.–12:00 P.M.

11:00 A.M.

12B.3 *Millimeter Waves and Passive Remote Sensing: An Update.* **David G. Lubar**, The Aerospace Corporation, Arlington, VA; D. B. Kunkee

11:15 A.M.

12B.4 *Update on NOAA's Joint Polar Satellite System High Rate Data (HRD) Broadcast.* **James McNitt**, NESDIS, Suitland, MD; B. Walling, C. Gliniak, M. Goldberg, L. Gumley

11:30 A.M.

12B.5 *NOAA Level 2 Geophysical Products from VIIRS, CrIS, and ATMS: Overview and Status of Releases via CSPP.* **B. Reed**, JPSS/Science and Technology Corporation, Suitland, MD

11:45 A.M.

12B.6 *Characterization and Application of JPSS Products in Biomass Burning Studies.* **Gregory J. Frost**, NOAA, Boulder, CO; S.A. McKeen, M. Pagowski, G.A. Grell, L. Zhang, R. Ahmadov, C. Francoeur, R. Esmaili, N. Smith, S. Kondragunta, B. Pierce, C. D. Barnett

10:30 A.M.–12:00 P.M.

15 SOCIETY

Session 12A: PROBABILITIES, FACETS, AND IWTS –152

Chairs: Gina M Eosco, OAR, Silver Spring, MD; Kodi Berry, NOAA/NSSL, Norman, OK

10:30 A.M.

12A.1 *We've Got Cows—But Do We Really? The Perception of Storm Spotters as Part of a Natural Hazards Integrated Warning System.* **Connor Michael Dacey**, Univ. of Delaware, Newark, DE

10:45 A.M.

12A.2 *Probability versus Consequences in Public Perceptions of Tornado Risk.* **Jinan N. Allan**, Univ. of Oklahoma, Norman, OK; J. T. Ripberger, M. J. Krocak, M. Ramasubramanian, J. Cho, E. T. Cokely, C. Silva, H. Jenkins-Smith

11:00 A.M.

12A.3 *Examining the Efficacy of the Tornado Emergency: A Case Study of the 19 July 2018 Marshalltown, Iowa, Tornado.* **Brooke Hagenhoff**, NWS, Johnston, IA; A. Curtis, D. Wald

11:15 A.M.

12A.4 *Communicating Probabilistic Hazard Information: Broadcast Meteorologists in the 2018–19 Hazardous Weather Testbed.* **Holly Obermeier**, CIRES/Univ. of Colorado and NOAA/Global Systems Division, Boulder, CO; K. Berry, K. E. Klockow-McClain, T. C. Meyer, P.A. Campbell, A. E. Gerard, J. E. Trujillo, C. Carithers

11:30 A.M.

12A.5 *Plumes, Probabilities, and Posts: How Social Media Coverage Evolved in the 2019 Hazardous Weather Testbed Probabilistic Hazard Information Experiment.* **Joseph Enrique Trujillo**, CIMMS/NSSL, Norman, OK; K. Nemunaitis-Berry, H. Obermeier, A. Gerard, K. E. Klockow-McClain, P.A. Campbell, T. C. Meyer, J. T. Ripberger

10:30 A.M.–12:00 P.M.

11:45 A.M.

12A.6 *Putting Multiple Probabilistic Products before End Users: The 2019 HWT Emergency Manager Experiments.* **Kimberly E. Klockow-McClain**, Cooperative Institute for Mesoscale Meteorological Studies/National Severe Storms Laboratory, Norman, OK; K. Berry, C. A. Shivers-Williams, M. J. Krocak, K. A. Wilson, J. J. James, G. J. Stumpf, Z. Stanford, A. MacDonald, J. E. Trujillo, A. E. Gerard

10:30 A.M.–12:00 P.M.

15 SOCIETY

Session 12B: VULNERABILITY AND RESILIENCE IN WEATHER AND CLIMATE COMMUNITIES –151B

Chairs: Paul M. Chakalian, CIMMS, Norman, OK; Michele Olson, NOAA, Silver Spring, MD

10:30 A.M.

12B.1 *A Systematic Review of Flash Flood Risk, Vulnerability, and Impact.* **Miriam Nielsen**, Columbia Univ., Palisades, NY; H. Greatrex, A. Kruczkiewicz

10:45 A.M.

12B.2 *Weathering the Effects of Affect: Modeling the Causes and Consequences of Extreme Weather Affective Experience.* **Sean Ernst**, Univ. of Oklahoma, Norman, OK; J. Allen, J. T. Ripberger, H. Jenkins Smith, C. Silva

11:00 A.M.

12B.3 *Mobile Home Resident Evacuation Vulnerability during Tornado Events in the Southeast United States.* **Stephen M. Strader**, Villanova Univ., Villanova, PA; K. D. Ash

11:15 A.M.

12B.4 *An Agricultural Perspective on Severe Hail Storm Vulnerability and Warning Message Efficacy.* **Samuel J. Childs**, Colorado State Univ., Fort Collins, CO; R. S. Schumacher, J. L. Demuth

11:30 A.M.

12B.5 *Vulnerability Assessment Tool for Cities Adapting Stormwater Systems to Climate Change.* **Kimberly Channell**, Univ. of Michigan, Ann Arbor, MI; M. Stults, R. Esselman, J. L. Jorns, M. C. Iemos

11:45 A.M.

12B.6 *Advances in Ecosystem and Water Resources Science and Management to Inform Coastal Zone Planning and Decision-Making.* **Robert Webb**, NOAA, Boulder, CO; R. Pulwarty, F. Schwing, F. Werner

10:30 A.M.–12:00 P.M.

15 URBAN

Session 13: REMOTE SENSING FOR URBAN METEOROLOGY (SATELLITE BASED AND GROUND BASED) –104B

Chair: James A. Voogt, Department of Geography, Univ. of Western Ontario, London, Canada

10:30 A.M.

13.1 *Quantifying the Heat Stored in Urban Environments Using Remote Sensing Technology.* **Joshua Hrisko**, City College of New York, New York, NY; P. Ramamurthy, J. E. Gonzalez, H. Norouzi, A. Bah

10:45 A.M.

13.2 *An Estimation Method on Thermophysical Properties of the Building Surface Based on Multispectral Remote Sensing and Surface Energy Balance Simulation.* **Xi Xu**, Tokyo Institute of Technology, Yokohama, Japan; T. Asawa

11:00 A.M.

13.3 *An Improved Method for Anthropogenic Heat Flux Estimation Using Remotely Sensed Data.* **Zhou Yu**, Cornell Univ., Ithaca, NY; Q. Li, T. Sun, L. Hu

11:15 A.M.

13.4 *The Urban Thermal Anisotropy and Its Impact on Urban Heat Storage Estimation.* **Nana Li**, Institute of Urban Meteorology, China Meteorological Administration, Beijing, China; S. Miao, J. E. Gonzalez

11:30 A.M.

13.5 *Atmospheric and Emissivity Corrections for Ground-Based Thermography Using 3D Radiative Transfer Modelling.* **William T J. Morrison**, Univ. of Reading, Reading, UK; T. Yin, N. Lauret, J. Guilleux, S. Kotthaus, J. P. Gastellu-Etchegorry, C. S. B. Grimmond

11:45 A.M.

13.6 *Impact of Atmospheric Conditions and Levels of Urbanisation on the Relationship between Nocturnal Surface and Urban Canopy Heat Islands.* **Jiali Feng**, Univ. of Birmingham, Birmingham, UK; X. Cai, L. Chapman

10:30 A.M.–12:00 P.M.**12AEROSOL****Session 10: AEROSOL IMPACTS ON WEATHER SYSTEMS. PART II –208**

Chairs: Shuhua Chen, Univ. of California, Davis, CA; Terrence R. Nathan, Univ. of California, Davis, CA

10:30 A.M.

10.1 *Dust-Impacting Cloud Microphysical Properties of a Mesoscale Convective System over West Africa.* **Yvonne Boose**, DLR, Wessling, Germany; J. Kleine, V. Hahn, S. Kaufmann, D. Sauer, H. Schlager, C. Voigt

10:45 A.M.

10.2 *Comparison of Dust CCN, GCCN, and IN Effects on the Development of a Mesoscale Convective System over North Africa.* **Shu-Hua Chen**, Univ. of California, Davis, CA; C. C. Huang

11:00 A.M.

10.3 *Exploring the Sensitivity of Tropical Oceanic Convective Clouds to Aerosol Characteristics under Differing Thermodynamic Environments.* **G. Alexander Sokolowsky**, Colorado State Univ., Fort Collins, CO; S. W. Freeman, S. C. van den Heever

10.4 WITHDRAWN**11:15 A.M.**

10.4A *Saharan Dust Transport by African Easterly Waves: Theory, Modeling, and Reanalysis.* **Dustin Grogan**, Univ. at Albany, SUNY, Albany, NY; T. R. Nathan

11:30 A.M.

10.5 *Tracking Aerosol Convection Interactions Experiment (TRACER): An Upcoming Field Campaign.* **Michael Jensen**, Brookhaven National Laboratory, Upton, NY; E. C. Bruning, D. R. Collins, A. M. Fridlind, P. Kollias, C. Kuang, A. V. Ryzhkov, D. Rosenfeld, A. C. Varble, N. Bharadwaj, S. Collis, J. H. Flynn, S. E. Giangrande, J. C. Hardin, H. Powers, J. Quaas, R. Sheesley, S. Springston, P. Stier, S. C. van den Heever

11:45 A.M.

10.6 *Understanding Aerosol Impacts on Tropical Land–Sea-Breeze Convection Using a Statistical Emulator Approach.* **Jungmin Minnie-Park**, Colorado State Univ., Fort Collins, CO; S. C. van den Heever

10:30 A.M.–11:00 A.M.**11ENERGY****Session 15: BIG DATA ANALYTICS PROVIDING DECISION SUPPORT, TELECONNECTIONS, AND GENERAL ENERGY TOPICS. PART II –256**

Chairs: Rob D'Arienzo, Vermont Electric Power Company (VELCO), Rutland, VT; Ted Zarras, Priogen, Amsterdam, Netherlands

10:30 A.M.

15.1 *Leveraging Wind and Sunlight Resource Diversity to Meet Regional Clean Energy Goals.* **Austin W. Thomas**, Univ. of Vermont, Burlington, VT; P. Racherla

10:45 A.M.

15.2 *Evaluating Weather Forecasts in Terms of Two Measures of How Accurately a Set of Future Events Have Been Predicted—Intensity and Timing.* **Harvey Stern**, Univ. of Melbourne, Melbourne, Australia

10:30 A.M.–12:00 P.M.**8WRN****Session 10: IMPACT-BASED DECISION SUPPORT SERVICES AND THE TOOLSTHAT ARE NEEDED –153C****10:30 A.M.**

10.1 *Using SSCRAM to Identify and Message Conditionally Favorable Severe Thunderstorm Environments.* **Ariel E. Cohen**, NWS, Miami, FL; J. A. Hart

10:45 A.M.

10.2 *Operationally Focused Weather Threat Assessments: Weather Ready to Fly, Fight, and Win.* **Jeffrey W. Budai**, U.S. Air Force, Asheville, NC; L. A. Jones, J. H. Zautner, R. B. Kiess

11:00 A.M.

10.3 *IDSS And Outreach “Blitz” Initiative across the NWS San Diego Service Area.* **James M. Brotherton**, NOAA/NWS, San Diego, CA

11:15 A.M.

10.4 *Thinking outside the Plume: The 2019 ITC/Deer Park, Texas, Tank Fire.* **Lance Wood**, NOAA, Dickinson, TX; S. Luchs, N. Hathaway, J. S. Evans

11:30 A.M.

10.5 *NWS Decision Support Services for Riverside Emergency Management Department: Coordination and Onsite Notification.* **Alexander O. Tardy**, NOAA/NWS, San Diego, CA; B. Barton, J. Uhley, M. J. Moreland

10:30 A.M.–12:00 P.M.

3SMALLSATS**Session 2: PROGRESS IN RADIO OCCULTATION FROM SMALL SATELLITES –252B**

10:30 A.M.

2.1 *Unique Earth Surface Observations Using GNSS Bistatic Radar (GNSS-R) on Spire's Constellation of CubeSats.* **Dallas Masters**, Spire Global, Inc., Boulder, CO; S. Esterhuizen, P. Jales, V. Freeman, V. Nguyen, E. Ibrahim, T. Yuasa, V. Irisov, O. Nogues-Correig, T. Duly

10:45 A.M.

2.2 *Signals-of-Opportunity SmallSat Constellations for Earth System Science.* **Rashmi Shah**, NASA Jet Propulsion Laboratory, Pasadena, CA; A. Freeman, S. Yueh, J. L. Garrison, J. R. Stuart

11:00 A.M.

2.3 *Impact of CYGNSS Data Assimilation on FV3-GFS Tropical Cyclone Forecasts in October 2018.* **Michael J. Mueller**, CIRES and NOAA/ESRL/GSD, Boulder, CO; B. Annane, S. M. Leidner, L. Cucurull

11:15 A.M.

2.4 *Daily Variations of Global Tropical Ocean Surface Wind Speed Based on the CYGNSS Data.* **Baijun Tian**, JPL, Pasadena, CA; D. J. Posselt, C. S. Ruf

11:30 A.M.

2.5 *Satellite DCS Use Concept Validation Project.* **Beau Backus**, NESDIS, Silver Spring, MD

11:45 A.M.

2.6 *Microwave Weather Imaging CubeSat.* **Marian Klein**, Boulder Environmental Sciences and Technology, Boulder, CO; T. Hohman, C. Dunlap, C. Handeland, K. DeVore, J. Eng-Morris, C. Martin, S. Chauhan, W. Kopper, V. Klein

12:15 P.M.–1:15 P.M.

PRESTHM**Session 3: PATHWAYS TO TACKLE FUTURE CHALLENGES –210AB**

Speaker: William B. Gail, Global Weather Corp., Boulder, CO

1:30 P.M.–3:00 P.M.

34HYDRO**Session 14A: IMPROVEMENTS TO THE ANALYSIS AND PREDICTION OF FLASH DROUGHT AND LONG-TERM DROUGHT. PART I –253C**

Chairs: Jordan Christian, Univ. of Oklahoma, Norman, OK; Andrew Hoell, NOAA, Boulder, CO; Jason Otkin, Univ. of Wisconsin, Madison, WI; Josh Roundy, Univ. of Kansas, Lawrence, KS; Ryann Wakefield, Univ. of Oklahoma, Norman, OK

1:30 P.M.

14A.1 *Flash Droughts (Centennial).* **J. A. Otkin**, Univ. of Wisconsin–Madison, Madison, WI; J. Christian, R. Wakefield, J. B. Basara, A. Hoell

1:45 P.M.

14A.2 *Flash Drought Occurrence across the Globe.* **Jordan I. Christian**, Univ. of Oklahoma, Norman, OK; J. B. Basara, J. A. Otkin, E. D. Hunt

2:00 P.M.

14A.3 *Evaluating Flash Drought Detection Utilizing In Situ Soil Moisture Observations.* **Bryan Petersen**, Univ. of Nebraska, Lincoln, NE; R. D. Leeper, M. A. Palecki

2:15 P.M.

14A.4 *Relative Contributions of Local and Nonlocal Land–Atmosphere Feedbacks to the Evolution of Flash Drought and Implications for Predictability.* **Ryann Ashley Wakefield**, Univ. of Oklahoma, Norman, OK; J. B. Basara, J. I. Christian

2:30 P.M.

14A.5 *2017 Flash Drought in Montana—A Case Study of Methods and Metrics for the Detection and Monitoring of Flash Droughts.* **Michael O. Downey**, Montana Department of Natural Resources and Conservation, Helena, MT

2:45 P.M.

14A.6 *A Look Back at a Historic Flash Drought Event—The Central U.S. Drought of 1988.* **Jeffrey B. Basara**, Univ. of Oklahoma, Norman, OK; J. Christian, R. Wakefield, J. A. Otkin, E. D. Hunt, T. M. Grace

1:30 P.M.–3:00 P.M.

34HYDRO**Session 14B: PRECIPITATION PROCESSES AND OBSERVATIONS FOR ATMOSPHERIC, LAND SURFACE, AND HYDROLOGICAL MODELING. PART II –253A**

Chairs: Andrew Newman, NCAR, Boulder, CO; Haonan Chen, Colorado State Univ. and NOAA/Earth System Research Laboratory, Fort Collins, CO; Viviana Maggioni, George Mason Univ., Fairfax, VA; Youcun Qi, Institute of Geographic Sciences and Natural Resources Research, Beijing, China

1:30 P.M.

14B.1 *Use of Satellite Precipitation Products to Improve Hydrologic Prediction and Modeling (Invited Presentation).* **Nai-Yu Wang**, Univ. of Maryland, College Park, MD; R. R. Ferraro, B. Sjöberg, S. Carter, S. Li, X. Zhan, P. Xie, A. Wimmers, J. Forsythe, C. Grassotti

1:45 P.M.

14B.2 *Evaluating Hydrologic Model Forcings for Use in Reservoir Operations Planning.* **Janice L. Bytheway**, CIRES, Univ. of Colorado Boulder, Boulder, CO; M. Anderson, R. Cifelli, K. Mahoney, M. Hughes

2:00 P.M.

14B.3 *A Sensor- and Rainfall-Type-Based Validation of GPM IMERG for the West African Guinea Coast.* **Andreas H. Fink**, Karlsruhe Institute of Technology, Karlsruhe, Germany; M. Maranan, L. K. Amekudzi, W. A. Atiah, M. Stengel

2:15 P.M.

14B.4 *Improving Active Remote Sensing of Snow through the Use of Multiple Frequencies, In Situ Data, and Neural Networks.* **Randy J. Chase**, Univ. of Illinois, Urbana, IL; S.W. Nesbitt, G. M. McFarquhar, F. Tridon, J. Leinonen

2:30 P.M.

14B.5 *Evaluating Frontal Precipitation Consistency in Reanalysis Datasets.* **Frederick Lawrence Soster**, Florida State Univ., Tallahassee, FL; R. Parfitt

2:45 P.M.

14B.6 *Precipitation Morphology in the Western United States: Its Relationship to Ambient Atmospheric Conditions and Future Changes.* **Xiaodong Chen**, PNNL, Richland, WA; L.Y. R. Leung, C. Dang, Y. Gao, Y. Liu

1:30 P.M.–3:00 P.M.**33CVC**

Session 13: INTERBASIN INTERACTIONS BETWEEN THE PACIFIC, THE ATLANTIC, AND THE INDIAN OCEAN, AND THEIR IMPACTS ON THE GLOBAL CLIMATE VARIABILITY. PART III –150

Chairs: Xichen Li, Institute of Atmospheric Physics, Beijing, China; Yun Yang, Beijing Normal Univ., Beijing, China

1:30 P.M.

13.1 *Indo-Pacific Interactions through the Indonesian Seas during the Latest ENSO Event (Invited Presentation).* **Dongliang Yuan**, Institute of Oceanology, CAS, Qingdao, China; X. Li, Z. Wang, J. Wang, Y. Yang, X. Hu, Y. Li, X. Zhao, C. Corvianawatie, A. K. Wardana, D. Surinati, A. Purwandana, M. F.A. Ismail, P. Avianto, D. Dirhamsyah, Z. Arifin

1:45 P.M.

13.2 *Tropical Interbasin Interactions and Their Misrepresentation in Climate Models.* **Prashant D. Sardeshmukh**, CIRES/Univ. of Colorado and NOAA/ESRL/PSD, Boulder, CO; S. I. Shin

2:00 P.M.

13.3 *North Pacific Subtropical Mode Water Controlled by the Atlantic Multidecadal Variability.* **Baolan Wu**, Ocean Univ. of China, Qingdao, China; X. Lin, L. Yu

2:15 P.M.

13.4 *An Interbasin Teleconnection from the North Atlantic to the Subarctic North Pacific at Multidecadal Time Scales.* **Zhanqiu Gong**, Beijing Normal Univ., Beijing, China; C. Sun, J. Li, J. Feng, F. Xie, R. Ding, Y. Yang, J. Xue

2:30 P.M.

13.5 *El Niño Pattern Diversity and Interactions with Mean State Trends.* **Danielle E. Lemmon**, Univ. of Colorado, Boulder, CO; K. B. Karnauskas

2:45 P.M.

13.6 *On the Role of the Indian Ocean as a Precursor of ENSO.* **Juan D. Mantilla**, National Univ. of Colombia, Medellin, Colombia; C. D. Hoyos, P. J. Webster

1:30 P.M.–3:00 P.M.**33CVC / 8MJO**

Joint Session 67: VARIABILITY AND PREDICTABILITY OF CLIMATE ON SUBSEASONAL-TO-SEASONAL TIME SCALES. PART III –154

Chairs: Zane K. Martin, Columbia Univ., New York, NY; Ángel F. Adames-Corraliza, Univ. of Michigan, Ann Arbor, MI

1:30 P.M.

J67.1 *Detecting Intraseasonal Climate Variability in the Tropics with Legacy Satellites.* **Xuechang Liu**, Indiana Univ., Bloomington, IN; P.W. Staten, B. H. Kahn

1:45 P.M.

J67.2 *Does the Madden-Julian Oscillation Affect Crop Yields?* **Weston Anderson**, IRI, Palisades, NY; E. Han, W. Baethgen, Á. Muñoz, L. Goddard, A. W. Robertson

2:00 P.M.

J67.3 *Insignificant QBO–MJO Skill Relationship in the Subseasonal Reforecasts.* **Jadwiga H. Richter**, NCAR, Boulder, CO; H. Kim, Z. K. Martin

2:15 P.M.

J67.4 *Springtime Onset of Isolated Convection across the Southeastern United States: Insights Using a Monsoon Framework.* **Thomas M. Rickenbach**, East Carolina Univ., Greenville, NC; R. Nieto Ferreira, H. Wells

2:30 P.M.

J67.5 *Physical and Dynamical Characteristics of Upper-Level Coupling in Great Plains Low-Level Jet Morphology.* **D. Alex Burrows**, Univ. at Albany, SUNY, Albany, NY; C. R. Ferguson, L. Bosart

2:45 P.M.

J67.6 *Applying Self-Organizing Maps to Improve Predictive Understanding of Subseasonal Variability and Its Impact on Summer Droughts over the U.S. Great Plains.* **Rong Fu**, Univ. of California, Los Angeles, CA; Y. Zhuang

1:30 P.M.–3:00 P.M.**30WAF26NWP / 36EPT / 10PYTHON**

Joint Session 68: PYTHON TOOLS FOR WEATHER ANALYSIS AND FORECASTING –258C

Chairs: Benjamin C. Trabling, Colorado State Univ., Fort Collins, CO; Maxwell Grover, Univ. of Illinois, Urbana, IL

1:30 P.M.

J68.1 *Evaluation of an Open-Source Radar-Based Nowcasting Tool in a Tropical Environment.* **Brandon Osborne**, i3, Huntsville, AL

1:45 P.M.

J68.2 *Visualizations to Facilitate Regression for CAMPS.* **Alison L. Reynolds**, College of William and Mary, Williamsburg, VA; E. Schlie, D. E. Rudack, S. R. Olson, E. Engle

2:00 P.M.

J68.3 *Leveraging Predictions from NOAA's Oceanographic Forecast Models to Increase Environmental Variability Awareness in Ocean Mapping.* **Giuseppe Masetti**, Univ. of New Hampshire, Durham, NH; L. A. Mayer, P. D. Johnson, J. G. W. Kelley

2:15 P.M.

J68.4 *Distributed Workflow for WRF Processes and Visualization Using WRF-Python and Dask.* **Robert C. Fritzen**, Northern Illinois Univ., DeKalb, IL; V. A. Gensini, S. Collis, R. Jackson

2:30 P.M.

J68.5 *Bringing WRF into MetPy (and the Rest of the Atmospheric Sciences Python Ecosystem).* **Jonathan E. Thielen**, Iowa State Univ., Ames, IA; R. M. May

2:45 P.M.

J68.6 *Reproducible Forecast Evaluation with the Solar Forecast Arbiter.* **Antonio T. Lorenzo**, The Univ. of Arizona, Tucson, AZ; W. F. Holmgren, C. W. Hansen, A. Tuohy, J. Sharp, L. J. Boeman, A. Wigington, D. Larson, Q. Wang, A. Golnas

1:30 P.M.–3:00 P.M.**30WAF26NWP****Session 13A: ADVANCES IN SATELLITE USAGE FOR WEATHER ANALYSIS AND FORECASTING –258A**

Chair: S. W. Bieda, NWSFO, Amarillo, TX

1:30 P.M.

13A.1 *Using CloudSat Cloud-Top Height Observations to Verify Himawari-8 Infrared Height Assessment.* **Lance E. Steele**, Weathernews America, Inc., Norman, OK

1:45 P.M.

13A.2 *Process-Based Cloud Cover Verification for Improved Understanding of Physical and Statistical Forecasts.* **Jason Nachamkin**, NRL, Monterey, CA; D. Sidoti, K. Pattipatti, A. Bienkowski, J. Kaminski, R. L. Bankert, Y. Jin, M. Surratt

2:00 P.M.

13A.3 *Simultaneous Assimilation of Radar and All-Sky Satellite Infrared Radiance Observations for Convection-Allowing Ensemble Analysis and Prediction of Severe Thunderstorms.* **Yunji Zhang**, The Pennsylvania State Univ., University Park, PA; D. J. Stensrud, F. Zhang

2:15 P.M.

13A.4 *Identifying Fields of Cumulus in Satellite and HRRR Output to Improve Model Physics.* **Stephen L. Solimine**, Univ. at Albany, SUNY, Albany, NY; D. D. Turner

2:30 P.M.

13A.5 *Impact of GOES-16 Clear-Sky Radiance Data Assimilation in JMA's Global NWP System.* **Izumi Okabe**, JMA, Tokyo, Japan

2:45 P.M.

13A.6 *Toward the Development of Real-Time Normalized Burn Ratio (NBR) and Delta NBR Imagery from GOES-16/17 and the Suomi National Polar-Orbiting Partnership (SNPP).* **K. D. White**, NWS, Huntsville, AL; E. Berndt, R. L. Fontenot

1:30 P.M.–3:00 P.M.**30WAF26NWP****Session 13B: ADVANCES IN UNIFIED MODELING FRAMEWORKS (FROM NOWCASTING TO CLIMATE) –257AB**

Chair: May Wong, NCAR, Boulder, CO

1:30 P.M.

13B.1 *Unified Forecast System (UFS).* **Hendrik L. Tolman**, NOAA, Silver Spring, MD; D. M. Koch, R. Rood, K. Keith, W. Pryor, F. Adimi, S. Morris

1:45 P.M.

13B.2 *The Unified Forecast System (UFS): A Framework for Prediction Shared by Research and Operations.* **Richard B. Rood**, Univ. of Michigan, Ann Arbor, MI; H. L. Tolman, C. DeLuca, M. Vertenstein, A. Chawla, A. Mehra

2:00 P.M.

13B.3 *Coordinating the Giant: The Earth Prediction Innovation Center (EPIC).* **Dana L. Carlis**, OAR, Washington, DC; B. Lapenta

2:15 P.M.

13B.4 *38 Years of Global and Regional Reforecasts and Surface Reanalyses Produced by CMC-ECCC.* **Nedka Pentcheva**, Environment and Climate Change Canada, Dorval, Canada; N. Gasset, M. Bulat, X. Wang, R. Pavlovic

2:30 P.M.

13B.5 *Numerical Weather Prediction at The Weather Company: Overview of a Global Rapidly Updating Forecast System.* **Todd Hutchinson**, The Weather Company, Andover, MA; W. M. Sheridan, B. A. Wilt, K. Dixon, J. Wong, J. P. Cipriani, B. Skamarock

2:45 P.M.

13B.6 *Advances Toward an Operational Convection-Allowing Ensemble Prediction System in the Unified Forecast System at NOAA.* **J. R. Carley**, NOAA, College Park, MD; B. T. Blake, T. L. Black, E. Rogers, E. Aligo, J. Abeles, L. C. Dawson, T. Lei, Y. Lin, M. E. Pyle, P. Shafran, E. Strobach, X. Zhang, J. S. Kain, C. R. Alexander, L. J. Wicker, L. M. Harris, J. K. Wolff

1:30 P.M.–3:00 P.M.**30WAF26NWP****Session 13C: PROBABILISTIC PRECIPITATION FORECAST TECHNIQUES AND APPLICATIONS –258B**

Chairs: Christopher McCray, McGill Univ., Montreal, Canada; Jeff S. Waldstreicher, NOAA/NWS, Bohemia, NY

1:30 P.M.

13C.1 *Statistical Forecasts for the Occurrence of Precipitation Outperform Global Models over Northern Tropical Africa.* **Peter Knippertz**, Karlsruhe Institute of Technology, Karlsruhe, Germany; P. Vogel, T. Gneiting, A. H. Fink, A. Schlueter

1:45 P.M.

13C.2 *2016–19 Verification of the National Weather Service Probabilistic Snowfall Program.* **Philip N. Schumacher**, NWS, Sioux Falls, SD; D. B. Radell

2:00 P.M.

13C.3 *Linking Ensemble Data to Users:AccuWeather's Snowfall Probability Tool Provides Unique Insight of Forecast Confidence.* **Daniel DePodwin**, AccuWeather, State College, PA; M. Moss, J. Porter

2:15 P.M.

13C.4 *Applications of the Geometry-Sensitive Ensemble Mean for Lake-Effect Snowbands and Other Weather Phenomena.* **Jonathan J. Seibert**, The Pennsylvania State Univ., University Park, PA; S. J. Greybush, J. Li, Z. Zhang, F. Zhang

2:30 P.M.

13C.5 *Heavy Rainfall Forecasts from Two Very Different Ensembles.* **Trevor Alcott**, ESRL, Boulder, CO; E.A. Kalina, I. Jankov, D. C. Dowell

2:45 P.M.

13C.6 *Process-Based Evaluation of Stochastic Perturbed Parameterization Tendencies on Convective-Permitting Ensemble Forecasts of the 1–2 June 2017 Taiwan Heavy Rainfall Event.* **Kevin Lupo**, Univ. at Albany, SUNY, Albany, NY; R. D. Torn, S. C. Yang

1:30 P.M.–2:45 P.M.**24IOAS**

Session 14: INTEGRATION OF MULTISENSOR OBSERVATIONS FOR APPLICATION IN ATMOSPHERIC AND ENVIRONMENTAL MONITORING AND FORECASTING. PART I –259A

Chair: Jing Li, Peking Univ., Beijing, China

1:30 P.M.

14.1 *Using Machine Learning Algorithms to Build Relationships between Spectral Surface Reflectances for Aerosol Optical Depth Retrieval over Land from Satellites.* **Tianning Su**, Univ. of Maryland, College Park, MD; I. Laszlo

1:45 P.M.

14.2 *Impact of Aerosol Vertical Distribution on Satellite-Retrieved Aerosol Products.* **Chong Li**, Peking Univ., Beijing, China; J. Li

2:00 P.M.

14.3 *Effective Merging of Satellite and Ground Aerosol Measurements Using an Ensemble Kalman Filter Based Approach.* **Jing Li**, Peking Univ., Beijing, China; X. Li, J. Wei, B. E. Carlson, A. A. Lacis

2:15 P.M.

14.4 *Configurable Simulation Testing for Autonomous Mobile Multisensor Plume Source Localization.* **Tyrell C Lewis**, Univ. of Texas, San Antonio, TX

2:30 P.M.

14.5 *Aerosol Property Retrieval and Applications in Air Quality Monitoring from Geostationary Orbit Using GOCI and AHI.* **Jhoon Kim**, Yonsei Univ., Seoul, Korea, Republic of (South); S. Lee, H. Lim, S. Go, M. Choi

1:30 P.M.–2:15 P.M.**23ASLI**

Session 6: LIBRARIANS/LIBRARIES RESPONDING TO CHANGES AND CHALLENGES –259B

Chair: Elise Gowen, The Pennsylvania State Univ., University Park, PA

1:30 P.M.

6.1 *Where the Atmospheric Resources Are.* **Frederick Stoss**, State Univ. of New York, Buffalo, NY

1:45 P.M.

6.2 *Machine-Level Policy Implementation by Data Managers and Data Scientists, and the Impact on Digital Stewardship: A Mixed-Methods Content Analysis.* **Jewel Ward**, LAC Group, Asheville, NC

2:00 P.M.

6.3 *Connecting Humor and Science: A Force for Change?* **Joyce Shaw**, Univ. of Southern Mississippi, Ocean Springs, MS

1:30 P.M.–3:00 P.M.**22ATCHEM**

Session 14A:ACMAP:ATMOSPHERIC CHEMISTRY MODELING AND ANALYSIS PROGRAM. PART IX –206B

Chairs: Richard Eckman, NASA, Washington, DC; Kenneth Jucks, NASA, Washington, DC

1:30 P.M.

14A.1 *Satellite-Derived Photolysis Rates as Constraints on Atmospheric Photochemical Budgets.* **Christopher Holmes**, Florida State Univ., Tallahassee, FL; J. A. Ducker, S. Kato

1:45 P.M.

14A.2 *Height-Dependent Convective Entrainment Rate Estimates Based on a Plume Model Constrained by Satellite Observations.* **Hui Su**, JPL/California Institute of Technology, Pasadena, CA; J. Jeyaratnam, Z. J. Luo, H. Masunaga, J. H. Jiang

2:00 P.M.

14A.3 *NASA's High-Resolution GEOS Forecasting and Reanalysis Products: Impact of Stratospheric Intrusions on Surface Ozone Air Quality.* **K. Emma Knowland**, USRA/GESTAR NASA/GMAO, Greenbelt, MD; L. Ott, B. Duncan, K. Wargan, C. A. Keller, K. I. Hodges

2:15 P.M.

14A.4 *Chemical Patterns Controlling Tropospheric Ozone and Methane: The ATom Dataset.* **Michael J. Prather**, Univ. of California, Irvine, CA; C. M. Flynn, S. A. Strode, S. D. Steenrod, L. K. Emmons, F. Lacey, A. M. Fiore, G. J. P. Correa, L. T. Murray, G. M. Wolfe, M. J. Kim, J. D. Crounse, G. S. Diskin, J. Digangi, B. Daube, R. Commene, K. McKain, T. B. Ryerson, C. Thompson, T. F. Hanisco, D. R. Blake, N. J. Blake, E. C. Apel, R. S. Hornbrook, J. W. Elkins, E. J. Hints, F. L. Moore, S. C. Wofsy

2:30 P.M.

14A.5 *Measured Global OH Reactivity in the Marine Boundary Layer: Evidence for Missing OH Reactivity.* **William H. Brune**, The Pennsylvania State Univ., University Park, PA; A. Thames, D. O. Miller, H. M. Allen, D. R. Blake, T. P. Bui, R. Commene, J. D. Crounse, B. Daube, G. S. Diskin, J. Digangi, J. W. Elkins, S. Hall, T. F. Hanisco, R. A. Hannun, E. J. Hints, M. J. Kim, K. McKain, F. L. Moore, J. M. Nicely, J. Peischl, T. B. Ryerson, J. M. St. Clair, C. Sweeney, A. P. Teng, C. Thompson, K. Ullman, K. T. Vasquez, P. Wennberg, G. M. Wolfe

2:45 P.M.

14A.6 *Observations of the Age of Air from the Northern Hemisphere Midlatitude Surface: New Estimates from the NASA Atmospheric Tomography Mission (ATom).* **Clara Orbe**, NASA, New York, NY; D. W. Waugh, S. A. Montzka, M. Olsen

1:30 P.M.–3:00 P.M.

22ATCHEM**Session 14B: ATMOSPHERIC HALOGEN CHEMISTRY AND ITS IMPACTS. PART I –207**

Chairs: Jose Fuentes, The Pennsylvania State Univ., University Park, PA; Kerri Pratt, Univ. of Michigan, Ann Arbor, MI; Paul Shepson, Stony Brook Univ., Stony Brook, NY

1:30 P.M.

14B.1 *Science on Ice: Shedding Light on Arctic Halogen Photochemistry (Invited Presentation).* **Kerri A. Pratt**, Univ. of Michigan, Ann Arbor, MI

1:45 P.M.

14B.2 *The Importance of Very-Short-Lived Halogens for Atmospheric Ozone (Invited Presentation).* **Ross J. Salawitch**, Univ. of Maryland, College Park, MD; P. Wales, T. P. Canty, L. McBride, W. Tribett, E. Spinei Lind, G. Mount, S. Choi, J. E. Klobas, D. M. Wilmouth

2:00 P.M.

14B.3 *Quantitative Detection of Iodine in the Stratosphere (Invited Presentation).* **Rainer Volkamer**, Univ. of Colorado, Boulder, CO; T. Koenig, S. Baidar, P. Campuzano-Jost, C. Cuevas, B. Dix, R. P. Fernandez, H. Guo, S. Hall, D. Kinnison, K. Ullmann, J. L. Jimenez, A. Saiz-Lopez

2:15 P.M.

14B.4 *Ocean Biogeochemistry Control on the Marine Emissions of Halogenated Very-Short-Lived Ozone-Depleting Substances: A Bottom-Up Framework for Chemistry–Climate Models Powered by Machine Learning.* **Siyuan Wang**, NCAR, Boulder, CO; D. Kinnison, S. A. Montzka, M. C. Long, A. Saiz-Lopez, R. Fernandez, S. Tilmes, L. K. Emmons, J. F. Lamarque

2:30 P.M.

14B.5 *Modelling Global Halogens and Tropospheric Ozone.* **Alfonso Saiz-Lopez**, Consejo Superior de Investigaciones Cientificas, Madrid, Spain; A. Badia, F. Iglesias-Suarez, R. P. Fernandez, C. Cuevas, D. Kinnison, S. Tilmes, J. F. Lamarque

2:45 P.M.

14B.6 *Global Tropospheric Halogen Chemistry and Its Impacts on Ozone, OH, and Aerosols (Invited Presentation).* **Daniel J. Jacob**, Harvard Univ., Cambridge, MA; X. Wang, L. Zhu

1:30 P.M.–3:00 P.M.

21AIRPOL**Session 14: TOPICS ON BOUNDARY LAYER METEOROLOGY AND ATMOSPHERIC DISPERSION. PART I –211**

Chairs: Elie Bou-Zeid, Princeton Univ., Princeton, NJ; Erik Kabela, Oak Ridge National Laboratory, Oak Ridge, TN

1:30 P.M.

14.1 *Cospectral Budget Models Link Energy Distribution in Eddies to Bulk Flow Properties.* **Gabriel G. Katul**, Duke Univ., Durham, NC; D. Li, C. Manes, A. Porporato, C. Meneveau

1:45 P.M.

14.2 *A Surface Layer Similarity in the Baroclinic Atmospheric Boundary Layer.* **Elie Bou-Zeid**, Princeton Univ., Princeton, NJ; K. Ghannam

2:00 P.M.

14.3 *Second-Moment Budgets of the Baroclinic Atmospheric Boundary Layer.* **Khaled Ghannam**, Princeton Univ., Princeton, NJ; E. Bou-Zeid

2:15 P.M.

14.4 *Development and Evaluation of New Monin–Obukhov and Bulk Richardson Parameterizations to Improve the Representation of Surface–Atmosphere Exchange in Weather Forecasting Models.* **Temple R. Lee**, NOAA/ARL/ATDD and CIMMS, Oak Ridge, TN; M. S. Buban

2:30 P.M.

14.5 *Internal Boundary Layers: Flow over Changes in Surface Roughness and Temperature.* **Peter A. Taylor**, York Univ., Toronto, Canada; W. Weng

2:45 P.M.

14.6 *A Revised Surface Flux Similarity Theory for Land–Atmosphere Interactions.* **Scott T. Salesky**, Univ. of Oklahoma, Norman, OK; W. Anderson

1:30 P.M.–3:00 P.M.

20SMOI**Session 14: JOINT SESSION WITH THE NATIONAL NETWORK OF NETWORKS COMMITTEE: ADVANCES IN PRODUCTS AND SERVICES BY STATE MESONETS –203**

Chairs: Jerald A. Brotzge, Univ. at Albany, SUNY, Albany, NY; Junhong (June) Wang, Univ. at Albany, SUNY, Albany, NY

1:30 P.M.

14.1 *An Analysis of Station Spacing for Use in the Allocation of Resources for Surface Mesonets.* **Elizabeth Wilson**, Synoptic Data PBC, Scotts Valley, CA; C. A. Fiebrich, W. Callahan

1:45 P.M.

14.2 *EPAMS Profiler and Ceilometer Network.* **Ruben Delgado**, UMBC/JCET/NOAA CESSRST, Baltimore, MD; V. Caicedo, J. Szykman, K. Cavender, J. Westfall, D. Taylor, B. Ireland, J. Sleeman, B. B. Demoz, R. K. Sakai, M. Woodman, D. Krask, F. Moshary, E. J. Welton, B. L. Lefer

2:00 P.M.

14.3 *Enhancing Ice Storm Detection and Characterization from the New York State Mesonet.* **Junhong (June) Wang**, Univ. at Albany, SUNY, Albany, NY; J. P. Shultis, J. A. Brotzge, C. D. Thorncroft, N. P. Bassill

2:15 P.M.

14.4 *Agricultural Applications with Data from the North Carolina Environment and Climate Observing Network.* **Sean P. Heuser**, State Climate Office of North Carolina, Raleigh, NC; M. D. Neill

2:30 P.M.

14.5 *Climate Statistics for Kentucky Based on Mesonet Observations.* **Eric Rappin**, Western Kentucky Univ., Bowling Green, KY

2:45 P.M.

14.6 *Robust Solutions to Maintaining the Mount Washington Regional Mesonet through Extreme Weather Conditions.* **Keith Garrett**, Mount Washington Observatory, North Conway, NH

1:30 P.M.–3:00 P.M.**20ARAM**

Session 12: ADVANCEMENTS IN THE DETECTION, PREDICTION, AND DECISION SUPPORT FOR MITIGATING THE EFFECTS OF CONVECTION AND LIGHTNING ON AIRBORNE OPERATIONS –206A

Chairs: Brian P. Pettegrew, CIRA/Colorado State Univ., Kansas City, MO; Jerome Charba, 1325 East West Highway, Silver Spring, MD

1:30 P.M.

12.1 *The Remote Oceanic Meteorology Information Operational (ROMIO) Demonstration.* **Cathy Kessinger**, NCAR, Boulder, CO; E. Frazier, A. Izadi, A. Trani, T. A. Lindholm, J. Olivo, W. Watts, R. Stone, B. Norris, S. Abelman, E. Senen, K. Bharathan

1:45 P.M.

12.2 *Development of Satellite-Based Cloud-Top Height and Convection Nowcasting Products in Support of SIGMET Coordination in the APAC Region.* **Christy Y.Y. Leung**, Hong Kong Observatory, Hong Kong, Hong Kong; H. C. Tam, W. S. Chan, H. K. Fok

2:00 P.M.

12.3 *Convective SIGMETs: A Climatological Retrospective and Thoughts for Future Enhancements.* **Heather D. Reeves**, CIMMS/Univ. of Oklahoma and NOAA/NSSL, Norman, OK; R. L. Solomon, A. Eddy, J. W. Scheck, A. A. Rosenow

2:15 P.M.

12.4 *An Algorithm to Automatically Generate Convective SIGMETs over the Contiguous United States.* **Alexander Eddy**, CIMMS/Univ. of Oklahoma and NOAA/NSSL, Norman, OK; H. Reeves, R. L. Solomon, P. Skinner

2:30 P.M.

12.5 *Application of a Convective Gravity Wave Drag Parameterization to Aviation Turbulence Forecasting.* **Soo-Hyun Kim**, Yonsei Univ., Seoul, Korea, Republic of (South); H. Y. Chun, R. Sharman, D. B. Lee

2:45 P.M.

12.6 *Exploring Methods of Communicating Convective Impact Risks for Extended-Range National Airspace System Planning.* **Robert M. Hepper**, CIRA/Colorado State Univ., NOAA/NWS/NCEP/AWC, Kansas City, MO; A. Cross, S. Avey, A. P. Korner

1:30 P.M.–3:00 P.M.**9AI / 20ARAM**

Joint Session 69: ADVANCES IN THE USE OF ARTIFICIAL INTELLIGENCE TECHNIQUES IN SUPPORT OF AVIATION, RANGE, AND AEROSPACE METEOROLOGY –156BC

Chairs: Haig Iskendarian, MIT, Lexington, MA; James M. Kurdzo, MIT Lincoln Laboratory, Lexington, MA

1:30 P.M.

J69.1 *Using a Neural Network to Predict Future Radar Frames.* **Claire Sheila Bartholomew**, Met Office, Exeter, UK; D. Hogg, J. H. Marsham, T. Howard

1:45 P.M.

J69.2 *The WSR-88D Chaff Detection Algorithm Utilizing a Support Vector Machine Based on Human Truthing.* **James M. Kurdzo**, MIT Lincoln Laboratory, Lexington, MA; B. J. Bennett, D. J. Smalley, M. F. Donovan, E. R. Williams

2:00 P.M.

J69.3 *Global Synthetic Weather Radar in AWS GovCloud for the U.S. Air Force.* **Mark S. Veillette**, MIT Lincoln Laboratory, Lexington, MA; H. Iskenderian, P. M. Lamey, C. J. Mattioli, A. Banerjee, M. Worris, A. B. Proschitsky, R. F. Ferris, A. Manwelyan, S. Rajagopalan, H. Usmani, T. E. Coe, J. E. Luce, B. A. Esgar

2:15 P.M.

J69.4 *Detection of Aircraft Lightning Potential Areas by Using a Deep Neural Network with Interpretability.* **Eiichi Yoshikawa**, Japan Aerospace Exploration Agency, Mitaka, Japan; T. Ushio

2:30 P.M.

J69.5 *Improvements to Convective Weather Avoidance Modeling Using Supervised Learning.* **Christopher J. Mattioli**, MIT Lincoln Laboratory, Lexington, MA; M. Matthews, H. Iskendarian, M. S. Veillette

2:45 P.M.

J69.6 *Short-Term Wind Forecasts for Aviation.* **William J. Dupree**, MIT Lincoln Laboratory, Lexington, MA; M. S. Veillette, A. Banerjee, J. P. Morgan, T. Bonin, H. Iskenderian, M. McPartland

1:30 P.M.–3:00 P.M.**18COASTAL**

Session 13: CASPER SPECIAL SESSION: COASTAL AIR–SEA INTERACTION AFFECTING ELECTROMAGNETIC WAVE PROPAGATION. PART I –158

Chairs: Qing Wang, NPS, Monterey, CA; Lian Shen, Univ. of Minnesota, Minneapolis, MN; Art Miller, Scripps Institution of Oceanography, La Jolla, CA

1:30 P.M.

13.1 *CASPER West IOP: Observations of Semidiurnal Tides and Diurnal Ocean Mixed Layer Variability.* **Robert Kipp Shearman**, Corvallis, OR

1:30 P.M.–3:00 P.M.

1:45 P.M.

13.2 *An Evaluation of Monin–Obukhov Similarity Theory within the Marine Atmospheric Surface Layer: The Prevalence of the Constant Stress Layer.* **David G. Ortiz-Suslow**, NPS, Monterey, CA; D. P. Alappattu, J. Kalogiros, R. Yamaguchi, B. Wauer, K. Franklin, Q. Wang

2:00 P.M.

13.3 *Spatial Variability of Offshore Internal Boundary Layers.* **Raghavendra Krishnamurthy**, Univ. of Notre Dame, Notre Dame, IN; H. J. S. Fernando, D. Alappattu, R. Yamaguchi, Q. Wang

2:15 P.M.

13.4 *MABL Vertical Structure and Air–Sea Interaction during CASPER-East and CASPER-West and Implications on Electromagnetic (EM) Wave Propagation.* **Djamal Khelif**, Univ. of California, Irvine, CA; Q. Wang, R. Burkholder, C. Yardim, Q. Wang

2:30 P.M.

13.5 *A Simulation-Based Study of the Modified Refractive Index in the Marine Atmospheric Boundary Layer.* **Mingxiang Zhao**, Univ. of Minnesota, Minneapolis, MN; T. Cao, L. Shen

2:45 P.M.

13.6 *Understanding Evaporation Ducts on Turbulent Eddy Scales.* **Kyle Franklin**, Naval Postgraduate School, Monterey, CA; Q. Wang, Q. Jiang, L. Shen

1:30 P.M.–3:00 P.M.

17SPACEWX / 19AI

Joint Session 70: MACHINE LEARNING AND AI FOR SPACE WEATHER –205A

Chairs: Kelsey Doerksen, Univ. of Western Ontario, London, Canada, , Observatoire de Paris, Paris, France; Alexander Engell, NextGen Federal Systems, Havre de Grace, MD; David John Gagne, National Center for Atmospheric Research, Boulder, CO

1:30 P.M.

J70.1 *Imputation of Geomagnetic Disturbance Fields with Nonlinear Regression Based on Synthetic Data.* **E. Joshua Rigler**, USGS, Denver, CO; D. Lin, K. Pham, G. Lucas

1:45 P.M.

J70.2 *Machine Learning Classification of Interplanetary Coronal Mass Ejections Using Satellite Accelerometers.* **Kelsey Doerksen**, Univ. of Western Ontario, London, Canada

2:00 P.M.

J70.3 *Developing Deep Learning for Solar Feature Recognition in Satellite Images.* **Michael Kirk**, GSFC, Greenbelt, MD; R. Attie, J. Stockton, M. Penn, D. Hall, B. Thompson, J. Willert

2:15 P.M.

J70.4 *Tracking Equatorial Plasma Bubbles Based on an Artificial Neural Network Classifier.* **Brandon Drummond**, AER, Albuquerque, NM; D. DeBonis

2:30 P.M.

J70.5 *Leveraging Topological Data Analysis and Deep Learning for Solar Flare Prediction.* **Thomas Berger**, Univ. of Colorado at Boulder, Boulder, CO; V. Deshmukh, E. Bradley, J. Meiss, N. Nishizuka

1:30 P.M.–3:00 P.M.

2:45 P.M.

J70.6 *Emerging Frontiers in Science and Exploration Enabled by AI and Public–Private Partnerships.* **Madhulika Guhathakurta**, Ames Research Center, Mountain View, CA

1:30 P.M.–3:00 P.M.

16GOESRJPSS

Session 13A: CALIBRATION AND VALIDATION –255

Chairs: Nick Nalli, IM Systems Group, College Park, MD; Quanhua Liu, NOAA, College Park, MD

1:30 P.M.

13A.1 *Advanced Meteorological Imager (AMI) On-Orbit Performance.* **Paul C Griffith**, L3Harris Technologies, Inc., Fort Wayne, IN; K. H. Yang, D. M. Odle, R. S. Lancaster

1:45 P.M.

13A.2 *GOES-17 Overall Instrument Calibration Status.* **E. Kline**, NOAA/NESDIS/GOES-R, Greenbelt, MD; J. Fulbright, D. Pogorzala, M. Seybold

2:00 P.M.

13A.3 *Monitoring GOES-RABI Radiometric Performances with a Machine Learning System.* **Zhenping Li**, Arctic Slope Technical Services, Lanham, MD; B. Tesfaye, K. Mitchell, J. P. Douglas, D. Pogorzala

2:15 P.M.

13A.4 *An Independent Postlaunch Validation Methodology for ABI Thermal Emissive Surface Channels Using Moored Buoys Bulk Temperature Measurements.* **M. J. Cook**, GeoThinkTank LLC, Washington, DC; F. P. Padula, E. Bacon, B. Efremova, J. McCorkel

2:30 P.M.

13A.5 *Validation of the NOAA Unique Combined Atmospheric Sounding System (NUCAPS): NOAA-20 and SNPP Status.* **N. R. Nalli**, IMMSG at NOAA/NESDIS/STAR, College Park, MD; A. Gambacorta, C. Tan, L. Zhou, T. Reale, B. Sun, J. X. Warner, T. Wang, T. Zhu, M. Wilson

2:45 P.M.

13A.6 *Terrain Correction for VIIRS Imagery in Preparation for JPSS-2.* **D. W. Hillger**, NOAA/NESDIS, Fort Collins, CO; T. J. Kopp, G. Lin, A. N. Griffin, J. Dellomo, D. Stuhmer, W. Chen, S. Finley, C. J. Seaman

1:30 P.M.–3:00 P.M.

16GOESRJPSS

Session 13B: SPECIAL SESSION ON THE GOES SERIES SATELLITE SYSTEM. PART II –253B

Chairs: N. Donoho, NOAA/NESDIS, Suitland, MD; Tim Schmit, NOAA/NESDIS/STAR, Madison, WI

1:30 P.M.

13B.1 *ABX: A Hyperspectral GEO Sounder.* **Ronald J. Glumb**, L3Harris, Melbourne, FL; M. P. Wilson, A. Weiner, P. C. Griffith, J. Van Naarden

1:45 P.M.

13B.2 *Early Adoption Preferences for GOES ABI Channels and Products in Support of Various NOAA Missions.* **Louis Cantrell**, Laurel, MD; D. Helms, A. Pratt, S. J. Taijeron, J. Conran, J. Goldstein

2:00 P.M.

13B.3 *Issuing Warnings with No Radar.* **David E. Levin**, NOAA/ NWS, Juneau, AK

2:15 P.M.

13B.4 *Prototype GOES-GOES Stereo 3D Winds with a Path into NOAA Operations.* **Houria Madani**, Carr Astronautics, Greenbelt, MD; W. Bresky, J. L. Carr, J. Daniels

2:30 P.M.

13B.5 *A Comprehensive Study and Summary of Geostationary Operational Environmental Satellite-16 and -17 Mesoscale Domain Sector Requests.* **B. C. Motta**, NWS, Boulder, CO

2:45 P.M.

13B.6 *Development of NASA VIIRS-Like Cloud Property Algorithms for Next-Generation Geostationary Imagers and Examples from CAMP2Ex.* **R. E. Holz**, CIMSS/Univ. of Wisconsin, Madison, WI; K. Meyer, S. Platnick, N. Amarasinghe, G. Wind, S. Ackerman, S. Dutcher, R. Frey, R. Kuehn, R. Levy, R. Boller

1:30 P.M.–3:00 P.M.**15SOCIETY**

Session 13A: CONNECTING THE DOTS: BRINGING HAZARDOUS WEATHER RISK COMMUNICATION STUDIES AND APPLICATIONS TOGETHER FOR UNIFIED PUBLIC SAFETY EFFORTS –152

Chairs: Barry Goldsmith, NWS, Brownsville, TX; Michael S. Michaud, Univ. of Delaware, Newark, DE

1:30 P.M.

13A.1 *A Proposal to Clearly Define Threat and Risk for Weather Events.* **Barry S. Goldsmith**, NWSFO, Brownsville, TX

1:45 P.M.

13A.2 *Thinking outside the Polygon: A Study of Tornado Warning Reception outside of Warning Polygon Bounds.* **Makenzie J. Krocak**, Cooperative Institute for Mesoscale Meteorological Studies, Norman, OK; S. Ernst, J. N. Allan, W. W. Wehde, J. T. Ripberger, C. Silva, H. Jenkins-Smith

2:00 P.M.

13A.3 *NWS Hazard Simplification: Exploring Protective Action Decisions to Alternative Prototype Warning Messages.* **Mark Casteel**, Penn State Univ., York, York, PA

2:15 P.M.

13A.5 *A Spatial and Temporal Review of National Weather Service Impact-Based Warning Tags.* **Derek R. Deroche**, NWS, Kansas City, MO; B. P. Walawender, I. S. Livingston

13A.4 **WITHDRAWN**

2:30 P.M.

13A.6 *Linking Research to Societal Benefits: Application of a Logic Model Relating Tornado Research to Lives Saved.* **Laura A. Newcomb**, NOAA, Silver Spring, MD; G. C. Matlock

1:30 P.M.–3:00 P.M.**15SOCIETY**

Session 13B: MEDIA ANALYSIS AND SOCIAL MEDIA USE IN WEATHER AND CLIMATE COMMUNICATION –151B

Chairs: Paul M. Chakalian, CIMMS, Norman, OK; Jennifer A. Spinney, Univ. of Western Ontario, London, Canada

1:30 P.M.

13B.1 *The Social Amplification of Risk during Hurricanes Florence and Michael.* **Amber Silver**, Univ. at Albany, SUNY, Albany, NY; S. Jackson, C. Ezung

1:45 P.M.

13B.2 *Using Facebook Live as a New Tool to Disseminate Critical Weather Information to Vulnerable Communities.* **John P. Moore**, NWS, MS; W. Parker, F. Bowser, C. Pieper

2:00 P.M.

13B.3 *Media and Climate Change: A Content Analysis Study on Extreme Weather Events and the Link to Climate Change in News Coverage.* **Anas A. Askar**, NCASM, Howard Univ., Washington, DC; T. Adams, C. Stroman

2:15 P.M.

13B.4 *Historical Seattle Snowfall: Effective Social Media Messaging during Record February Snowstorms.* **Jacob Michael DeFlicht**, NWS, Seattle, WA

2:30 P.M.

13B.5 *The Social Amplification of National Weather Service Communication: Impact of Audience Population Factors and Message Content Features.* **Scott Leo Renshaw**, Univ. of California, Irvine, CA; C. T. Butts, J. Sutton

2:45 P.M.

13B.6 *NWSChat in the age of FACETS: The Future of the Integrated Warning Team.* **Austin MacDonald**, CIMMS/NSSL, Norman, OK; K. Berry, K. E. Klockow-McClain

1:30 P.M.–3:00 P.M.**15URBAN**

Session 14: OBSERVATIONS AND FIELD STUDIES OF URBAN CLIMATE AND PROCESSES –104B

Chair: Shiguang Miao, Institute of Urban Meteorology, China Meteorological Administration, Beijing, China

1:30 P.M.

14.1 *The Need for Historical Awareness in Urban Heat Island Work.* **Iain Douglas Stewart**, Univ. of Toronto, Toronto, Canada

1:30 P.M.–2:15 P.M.

2:00 P.M.

14.2 *Living Lab in EDC: A Scientific Research Mesh Network for Future Disaster Management for Extreme Weather in the City.* **Jaiho Oh**, Pukyong National Univ., Busan, Korea, Republic of (South); M. R. Hur, J. W. Oh

2:15 P.M.

14.3 *Airborne Observations of Thermal Anisotropy from Urban Residential Neighborhoods in Salt Lake City.* **Samantha Claessens**, Univ. of Western Ontario, London, Canada; J. A. Voogt

2:30 P.M.

14.4 *Virtual Campus: A Local-Scale and Microscale Climatic Field Experiment in the Tropics.* **Marcel Ignatius**, National Univ. of Singapore, Singapore; N. H. Wong, M. Martin, Z. Yu

2:45 P.M.

14.5 *Quantifying the Effect of LULC on Surface Temperature over the Indian Region.* **Velu Vinoj**, School of Earth, Ocean and Climate Sciences, Bhubaneswar, India; P. P. Gogoi

1:30 P.M.–2:15 P.M.

12AEROSOL

Session 11: AEROSOL IMPACTS ON WEATHER SYSTEMS. PART III –208

Chairs: Shuhua Chen, Univ. of California, Davis, CA; Terrence R. Nathan, Univ. of California, Davis, CA

1:30 P.M.

11.1 *Characterizing Aerosol Impacts on the Distribution of Water in the Tropospheric Column during the Monsoon Season in the Philippines.* **Kar'retta Venable**, U.S. Environmental Protection Agency, Athens, GA

1:45 P.M.

11.2 *Long-Term Trend of Cloud Optical Thickness in East Asia and Its Impact on Regional Radiation Budget.* **Hua Zhang**, State Key Laboratory of Severe Weather, Chinese Academy of Meteorological Science, Beijing, China

2:00 P.M.

11.3 *Direct Effect of Aerosol on Subseasonal-to-Seasonal Prediction Using FIM-Chem-iHYCOM Coupled Model.* **Shan Sun**, Earth System Research Laboratory, Boulder, CO; S. A. McKeen, G. Grell, L. Zhang

1:30 P.M.–3:00 P.M.

11ENERGY

Session 16: GENERAL WIND ENERGY TOPICS –256

Chair: Jeffrey M. Freedman, Univ. at Albany, SUNY, Albany, NY

1:30 P.M.

16.1 *Evaluating Public Attitudes about Wind Energy Using a Spatial Proximity Analysis.* **Kristy C. Carter**, Iowa State Univ., Ames, IA; D. A. M. Peterson, D. M. Wald

1:30 P.M.–3:00 P.M.

1:45 P.M.

16.2 *Parametric and Structural Sensitivities of Turbine Height Wind Speeds in the Weather Research and Forecasting Model.* **Yun Qian**, PNNL, Richland, WA; B. Yang, L. K. Berg, C. Wang, Z. Hou, Y. Liu, H. Shin, S. Y. Hong, M. Pekour

2:00 P.M.

16.3 *The “P99 Hedge” That Wasn’t: An Empirical Analysis of Fixed Volume Energy Hedges in Texas.* **Adam Reeve**, RESurety, Inc., Boston, MA

2:15 P.M.

16.4 *Should Wind Turbines Rotate in the Opposite Direction in Stable Stratification in the Northern Hemisphere?* **Julie K. Lundquist**, Univ. of Colorado Boulder, CO; A. Englberger

2:30 P.M.

16.5 *Wind Farms Can Modify Thunderstorm Outflow Boundaries.* **Jessica M. Tomaszewski**, Univ. of Colorado, Boulder, CO; J. K. Lundquist

2:45 P.M.

16.6 *Wind Veer and Wind Shear Affect Wind Turbine Performance.* **Miguel Sanchez Gomez**, Univ. of Colorado, Boulder, CO; J. K. Lundquist

1:30 P.M.–3:00 P.M.

8WRN

Session 11: LOCAL IDSS SUCCESS STORIES AND CHALLENGES THAT REMAIN –153C

1:30 P.M.

11.1 *Challenges with Impact Based Decision Support Services for the Mississippi River Flood of 2019.* **Sally Johnson**, NWSFO, Saint Charles, MO; J. E. Sieveking Jr., K. Deitsch

1:45 P.M.

11.2 *Ground Zero: The Challenges of Deploying for an Unprecedented Event.* **Justin Pullin**, NWS, Tallahassee, FL

2:00 P.M.

11.3 *New Approaches to Local NWS Decision Support—Super Bowl 53, Atlanta, Georgia.* **David J. Nadler**, NOAA/NWSFO, Peachtree City, GA; P. A. Atwell, A. K. Baker, L. G. Belanger, J. T. Deese

2:15 P.M.

11.4 *Empowering NWS Partners to be Weather-Ready for Outdoor Events. Part I: Preseason Planning and Training.* **Michael Bardou**, NWS, Romeoville, IL; E. Lenning

2:30 P.M.

11.5 *Empowering NWS Partners to be Weather-Ready for Outdoor Events. Part II: Evolving Forecast Operations at NWS Chicago.* **Eric Lenning**, NOAA/NWS Chicago WFO, Romeoville, IL; M. Bardou

2:45 P.M.

11.6 *An Examination of Core Partner Successes Using National Weather Service Tulsa’s Decision Support Page.* **Karen Hatfield**, NOAA/NWSFO-Tulsa, Tulsa, OK; E. J. Calianese Jr., S. F. Piltz, J. M. Frederick, N. M. McGavock

1:30 P.M.–3:00 P.M.

3SMALLSATS**Session 3: CYCLONE GLOBAL NAVIGATION SATELLITE SYSTEM (CYGNSS): APPLICATIONS TO TROPICAL METEOROLOGY AND HYDROLOGY. PART I –252B**

1:30 P.M.

3.1 *Cyclone Global Navigation Satellite System (CYGNSS): Mission and Science Data Product Status.* **Christopher S. Ruf**, Univ. of Michigan, Ann Arbor, MI; S. Gleason, D. McKague, D. J. Posselt, M. Moghaddam

1:45 P.M.

3.2 *Retrieving Hurricane Sustained Surface Winds Using the Cyclone Global Navigation Satellite System (CYGNSS) Mission's Special Modes of Operation.* **Mohammad Al-Khaldi**, The Ohio State Univ., Columbus, OH; J. Johnson, S. J. Katzberg, Y. Kang, E. Kubatko

2:00 P.M.

3.3 *CYGNSS Surface Heat Flux Product: Development, Results, and Updates.* **Juan A. Crespo**, JPL, Pasadena, CA; S. Asharaf, D. J. Posselt

2:15 P.M.

3.4 *A 2DVAR Blending Method for CYGNSS Wind Speed Observations.* **Xiaochun Wang**, Los Angeles, CA; Z. Li, Y. Yi, C. K. Shum, J. Johnson

2:30 P.M.

3.5 *Wind Speed and Surface Fluxes from CYGNSS and Their Role in MJO Dynamics.* **Eric D. Maloney**, Colorado State Univ., Fort Collins, CO; B. Singh

2:45 P.M.

3.6 *CYGNSS Surface Wind Validation over the Tropical Ocean Using Moored Buoy Observations.* **Shakeel Asharaf**, JIFRESSE/JPL, Pasadena, CA; D. E. Waliser, D. J. Posselt, C. S. Ruf, C. Zhang, A. W. Putra

2:15 P.M.–3:00 P.M.

23ASLI**Session 7: CURRENT TRENDS AND ISSUES IN ATMOSPHERIC SCIENCE LIBRARIANSHIP –259B**

2:15 P.M.

Discussion.

2:15 P.M.–3:00 P.M.

12AEROSOL**Session 12: AEROSOL-CLOUD INTERACTIONS IN MIXED-PHASE CLOUDS. PART I –208**

Chairs: Chuanfeng Zhao, Beijing Normal Univ., Beijing, China; Adele Igel, Univ. of California, Davis, CA

2:15 P.M.

12.1 *Smoking Clouds over the Western United States: Impact of Wildfire Emissions.* **Cynthia H. Twohy**, NorthWest Research Associates, Redmond, WA; D. W. Toohey, P. J. DeMott, B. Rainwater, E. J. T. Levin, K. R. Barry, L. A. Garofalo, M. A. Pothier, D. K. Farmer, S. M. Kreidenweis, E. V. Fischer

2:30 P.M.

12.2 *Experimental Evidence of Ice Multiplication Initiated by Freezing of Drizzle Droplets.* **Alexei Kiselev**, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany; A. Keinert, D. Spannagel, T. Leisner

2:45 P.M.

12.3 *Ice-Nucleating Particle Concentrations Required to Glaciate Mixed-Phase Clouds: Results from the Laboratory.* **Will Cantrell**, Michigan Technological Univ., Houghton, MI; N. Desai, K. K. Chandrakar, G. Kinney, R. A. Shaw

3:30 P.M.–5:00 P.M.

34HYDRO**Session 15A: IMPROVEMENTS TO THE ANALYSIS AND PREDICTION OF FLASH DROUGHT AND LONG-TERM DROUGHT. PART II –253C**

Chairs: Jordan Christian, Univ. of Oklahoma, Norman, OK; Andrew Hoell, NOAA, Boulder, CO; Jason Otkin, Univ. of Wisconsin–Madison, Madison, WI; Josh Roundy, Univ. of Kansas, Lawrence, KS; Ryann Wakefield, Univ. of Oklahoma, Norman, OK

3:30 P.M.

15A.1 *Prediction Skill of U.S. Flash Droughts in Subseasonal Experiment (SubX) Models.* **Anthony M. DeAngelis**, SSAI, Lanham, MD; H. Wang, R. D. Koster, S. D. Schubert, Y. Chang

3:45 P.M.

15A.2 *Flash Drought Characteristics Based on the U.S. Drought Monitor.* **L. Gwen Chen**, CPC, College Park, MD; J. Gottschalck, A. Hartman, D. Miskus, R. Tinker, A. Artusa

4:00 P.M.

15A.3 *Assimilation of Vegetation States Improves the Representation of Drought in Agricultural Areas.* **David M. Mocko**, NASA GSFC/SAIC, Greenbelt, MD; S. V. Kumar, S. Wang, C. D. Peters-Lidard

4:15 P.M.

15A.4 *The Vegetation Feedbacks of Drought Events in North China Based on the Dynamic Vegetation Module in RegCM-CLM4.5.* **Yaohui Li**, Institute of Arid Meteorology, CMA, Lanzhou, China

4:30 P.M.

15A.5 *Improving Canada's Drought Monitoring System with New Data and Tools.* **Patrick Cherneski**, Agriculture and Agri-Food Canada, Regina, Canada; T. Hadwen, C. Champagne

4:45 P.M.

15A.6 *The Human Dimension of Drought Monitoring: Can Remote Sensing Data Corroborate the Lived Experience of Drought on the Ground?* **Abigail K. Stokes**, Univ. of Notre Dame, Notre Dame, IN; P. Keys, T. Pickering

3:30 P.M.–5:00 P.M.

34HYDRO**Session 15B: PRECIPITATION PROCESSES AND OBSERVATIONS FOR ATMOSPHERIC, LAND SURFACE, AND HYDROLOGICAL MODELING. PART III –253A**

Chairs: Andrew Newman, NCAR, Boulder, CO; Haonan Chen, Colorado State Univ. and NOAA/Earth System Research Laboratory, Fort Collins, CO; Viviana Maggioni, George Mason Univ., Fairfax, VA; Youcun Qi, Institute of Geographic Sciences and Natural Resources Research, Beijing, China

3:30 P.M.

15B.1 *Global Diurnal Cycle of Precipitation from IMERG.* **J. Tan**, GSFC, Greenbelt, MD; G. J. Huffman, D. T. Bolvin, E. J. Nelkin

3:45 P.M.

15B.2 *Reaching for 20 Years with the IMERG Multisatellite Products.* **G. J. Huffman**, NASA GSFC, Greenbelt, MD; D. T. Bolvin, D. Braithwaite, K. L. Hsu, R. J. Joyce, C. Kidd, E. J. Nelkin, S. Sorooshian, J. Tan, P. Xie

4:00 P.M.

15B.3 *Merging HRRR Output into a Real-Time Gauge-Based Ensemble CONUS-Wide Dataset of Gridded Meteorological Fields.* **Andrew W. Wood**, NCAR, Boulder, CO; P. Bunn, A. Newman, H. I. Chang, H. Liu, C. Castro, M. Clark, J. Arnold

4:15 P.M.

15B.4 *Improving Multi-Radar Multi-Sensor (MRMS) Precipitation Estimates for Orographically Enhanced Rainfall in Hawaii and the Western United States.* **Andrew P. Osborne**, CIMMS/Univ. of Oklahoma and NOAA/NSSL, Norman, OK; J. Zhang, S. B. Cocks, M. J. Simpson, K. W. Howard

4:30 P.M.

15B.5 *Brightband Delineation and Dual-Pol VPR Corrections for QPE Improvements in MRMS.* **Wolfgang Hanft**, CIMMS/Univ. of Oklahoma and NOAA/NSSL, Norman, OK; J. Zhang

4:45 P.M.

15B.6 *Evaluation of the ConvGRU Deep Learning Method for Convective Weather Nowcasting.* **Lei Han**, Ocean Univ. of China, Qingdao, China; H. Guo, M. Chen

3:30 P.M.–5:00 P.M.

30WAF26NWP / 34HYDRO**Joint Session 71: AUTOMATED GUIDANCE FOR ATMOSPHERIC RIVERS, FLASH FLOODS, AND OTHER HYDROMETEOROLOGICAL EXTREMES –258A**

Chair: Brandt D. Maxwell, NOAA/NWS, San Diego, CA

3:30 P.M.

J71.1 *The U.S. West Coast Network of Atmospheric River Observatories: Tools for Improving Situational Awareness in Operational Forecasting.* **Allen B. White**, NOAA/ESRL, Boulder, CO; D. J. Gottas, L. S. Darby, T. E. Ayers, J. L. Leach

3:45 P.M.

J71.2 *Heavy Precipitation and Flash Flood Forecasts Using Random Forests and Convection-Allowing Models.* **Aaron J. Hill**, Colorado State Univ., Fort Collins, CO; R. S. Schumacher

4:00 P.M.

J71.3 *If a Flood Falls in a (Random) Forest, Does It Get Counted? Advances and Challenges in Predicting Excessive Precipitation Using Machine Learning.* **Russ S. Schumacher**, Colorado State Univ., Fort Collins, CO; A. J. Hill, G. R. Herman, M. Erickson, B. Albright, M. Klein, J. A. Nelson Jr.

4:15 P.M.

J71.4 *Using a Random Forest Model to Assess Flash Flood Probability across Southern Utah.* **Michael P. Seaman**, NOAA, Salt Lake City, UT; D. Van Cleave, N. J. Carr

4:30 P.M.

J71.5 *Sensitivity Analysis of Rainfall and Streamflow Thresholds for Forecasting Flash Floods.* **Humberto Vergara**, CIMMS, Norman, OK; J. J. Gourley, A. Vergara

4:45 P.M.

J71.6 *An Improved Extreme Forecast Index for Temperature and Precipitation.* **Gregory West**, BC Hydro, Burnaby, Canada; P. Odon, R. Stull

3:30 P.M.–5:00 P.M.

30WAF26NWP**Session 14A: EVALUATING NUMERICAL WEATHER FORECASTS IN THE TROPICS –258C**

Chairs: Joseph P. Koval, The Weather Company, Andover, MA; Maria Gehne, ESRL, Boulder, CO

3:30 P.M.

14A.1 *Can Limited Area Mesoscale Models Forecast Tropical Cyclones?* **Poushali Ghosh**, Millersville Univ., Millersville, PA; M. Fiorino, R. A. Anthes

3:45 P.M.

14A.2 *Tropical Dynamics Diagnostics for NWP.* **Maria Gehne**, CIRES/Univ. of Colorado, NOAA ESRL PSD, Boulder, CO; J. Dias, G. Kiladis

4:00 P.M.

14A.3 *An Investigation of North Atlantic TC Ensemble Forecasts with Large Cross-Track Errors.* **Nicholas Michael Leonardo**, SUNY, Stony Brook, NY

4:15 P.M.

14A.4 *Performance of the Global Forecast System (GFS) in the Northern South America Region and Its Impact on the Overall Skill of an Operational Regional Weather Forecast Strategy Using WRF.* **Gisel Guzmán**, Sistema de Alerta Temprana del Valle de Aburrá (SIATA), Medellín, Colombia; C. D. Hoyos Ortiz, D. C. Cruz, L. A. Gómez, M. Zapata

4:30 P.M.

14A.5 *Evaluating TIGGE Rainfall Forecasts for Tropical Eastern Africa.* **Emily Riddle**, NCAR, Boulder, CO; S. Stellingwerf, T. M. Hopson, J. Knievel, B. Brown, M. Gebremichael

4:45 P.M.

14A.6 *Skill of Global Raw and Postprocessed Ensemble Predictions of Rainfall in the Tropics.* **Peter Knippertz**, Karlsruhe Institute of Technology, Karlsruhe, Germany; P. Vogel, A. H. Fink, A. Schlueter, T. Gneiting

3:30 P.M.—5:00 P.M.

30WAF26NWP

Session 14B: NUMERICAL AND OBSERVATIONAL STUDIES: MICROSCALE AND MESOSCALE PROCESSES OVER COMPLEX TERRAIN –258B

Chairs: Bruce Telfeyan, 557 Weather Wing, Offutt AFB, NE; Heather A. Holmes, Univ. of Nevada, Reno, NV; Holly J. Oldroyd, Univ. of California, Davis, CA

3:30 P.M.

14B.1 *Extreme Events across New Mexico during the 2018 North American Monsoon.* **Daniel Pagliaro**, Pagcore Solutions LLC, Albuquerque, NM; J. Torres

3:45 P.M.

14B.2 *Initializing the Weather Research and Forecasting (WRF) Model in Complex Coastal Regions.* **Eric Allen**, Univ. of Delaware, Newark, DE; D. E. Veron

4:00 P.M.

14B.3 *Influences of Orography on Banded and Cellular Lake- and Sea-Effect Systems in Idealized Simulations.* **Thomas M. Gowan**, Univ. of Utah, Salt Lake City, UT; W. J. Steenburgh

4:15 P.M.

14B.4 *Improving the Maintenance of Simulated Mountain-Valley Cold Pools within Complex Terrain y Better Representation of Cloud–Radiative Interactions and Turbulent Mixing.* **Joseph B. Olson**, NOAA, Boulder, CO; J. Kenyon, J. Brown, W. M. Angevine, M. D. Toy, Y. Pichugina, L. Bianco, I. V. Djalalova, K. Lantz

4:30 P.M.

14B.5 *Influence of Terrain and Environment on Cold Pools during RELAMPAGO.* **Holly M. Mallinson**, Univ. of Illinois, Urbana, IL; R. J. Trapp

4:45 P.M.

14B.6 *Including Advection in Boundary Condition Models of Momentum and Heat for Heterogeneous Stratified Boundary Layers.* **Jeremy A. Gibbs**, NOAA/OAR/National Severe Storms Laboratory, Norman, OK; R. Stoll, G. Q. Torkelson, T. Harman

3:30 P.M.—5:00 P.M.

30WAF26NWP

Session 14C: SEASONAL-TO-SUBSEASONAL NUMERICAL WEATHER PREDICTION –257AB

Chair: Kandis Boyd, NOAA, Silver Spring, MD

3:30 P.M.

14C.1 *Calibrated Probabilistic Seasonal Forecasts at IBM/The Weather Company: Business Applications.* **Todd Crawford**, IBM, Andover, MA; J. Belanger, M. J. Ventrice, J. K. Williams

3:45 P.M.

14C.2 *A New Technique for Subdaily Week-3 Forecast Updates Using the ECMWF Monthly Model.* **Michael J. Ventrice**, The Weather Company, Andover, MA

4:00 P.M.

14C.3 *A Priori Identification of Skillful Extratropical Subseasonal Forecasts.* **John R. Albers**, NOAA, Boulder, CO; M. Newman

4:15 P.M.

14C.4 *Early Season Weak Stratospheric Vortex Events in S2S Forecasts: Hits, Misses, and False Alarms.* **Andrea L. Lang**, Univ. at Albany, SUNY, Albany, NY

4:30 P.M.

14C.5 *Subseasonal Experiment (SubX): Do the Research Center Models Improve the Skill of the Operational Center Models for Multimodel-Mean Forecasting of Weeks 3 and 4?* **Emerson Nicole LaJoie**, CPC, College Park, MD

4:45 P.M.

14C.6 *Simulating Extreme Precipitation over the Arabian Peninsula Using a Convective-Permitting Subseasonal Reforecast Product.* **C. Bayu Risanto**, The Univ. of Arizona, Tucson, AZ; C. L. Castro, H. I. Chang, I. Hoteit, T. M. Luong

3:30 P.M.—4:30 P.M.

24IOAS

Session 15: INTEGRATION OF MULTISENSOR OBSERVATIONS FOR APPLICATION IN ATMOSPHERIC AND ENVIRONMENTAL MONITORING AND FORECASTING. PART II –259A

Chairs: T. P. Kurosu, JPL, Pasadena, CA; Jing Li, Peking Univ., Beijing, China

3:30 P.M.

15.1 *High-Wind Event Detection and Trends from the New York State Mesonet.* **Brittany C. Connelly**, Univ. at Albany, SUNY, Albany, NY; J. Wang, J. A. Brotzge, N. Bain, N. P. Bassill

3:45 P.M.

15.2 *Multi-Spectral/Multi-Sensor Satellite Retrievals of Ozone, Nitrogen Dioxide, and Carbon Monoxide during FIREX-AQ 2019.* **T. P. Kurosu**, JPL, Pasadena, CA; K. Bowman, J. L. McDuffie, J. Worden, V. Natraj, S. S. Kulawik, K. A. Fahy

4:00 P.M.

15.3 *IDEA-EA Air Quality Forecast and Analysis System: Real-Time Aerosol Detection, Monitoring, and Trajectories in East Asia.* **Sheng-Po Chen**, Univ. at Albany, SUNY, Albany, NY; J. L. Wang, S. Lu, R. B. Pierce, S. Kondragunta

4:15 P.M.

15.4 *Assessing the Environmental Impact of Crop Residue Burning Prohibition in Shandong Province by Using Multiple-Satellite Data.* **Xiaoyu Zhang**, Zhejiang Univ., Hangzhou, China; L. Bi

3:30 P.M.–4:30 P.M.

23ASLI

Session 8:ASLI BUSINESS MEETING –259B

3:30 P.M.–5:00 P.M.

22ATCHEM

Session 15A:ACMAP:ATMOSPHERIC CHEMISTRY
MODELING AND ANALYSIS PROGRAM. PART X –206B

Chairs: Richard Eckman, NASA, Washington, DC; Kenneth Jucks, NASA, Washington, DC

3:30 P.M.

15A.1 *Pollutants in the Remote Atmosphere in the Atmospheric Tomography Experiment: Source Attribution and Impacts on Chemical Composition.* **Steven Wofsy**, Harvard Univ., Cambridge, MA; R. Commane, E.A. Ray, M. J. Prather, B. Barletta, N. J. Blake, D. R. Blake, M. J. Kim, P. O. Wennberg, R. S. Hornbrook, K. McKain, J. P. Schwarz, W. H. Brune, T. B. Ryerson, T. F. Hansico, J. D. Crounse, M. Powell, I. Bourgeois, E. Manninen, H. M. Allen, C. Sweeney, L. Schiferl, J. Peischl, E. C. Apel

3:45 P.M.

15A.2 *Investigating CFC-11 Emissions and Their Changes Using Results from the Hipco and ATom Atmosphere Sampling Surveys.* **Lei Hu**, CIRES, Boulder, CO; S. A. Montzka, F. L. Moore, C. Siso, G. S. Dutton, B. Miller, K. Thoning, J. W. Elkins

4:00 P.M.

15A.3 *Evaluation and Interpretation of NO₂ Measurements during the DISCOVER-AQ and KORUS-AQ Field Campaigns.* **S. Choi**, SSAI, Lanham, MD; L. N. Lamsal, J. Joiner, N. A. Krotkov, M. B. Follette-Cook, W. H. Swartz, C. P. Loughner, W. Appel, G. Pfister, P. E. Saide, R. C. Cohen, A. J. Weinheimer, K. E. Pickering

4:15 P.M.

15A.4 *Estimation of Surface NO₂ Using Remote Sensing Data and CMAQ Model Output from DISCOVER-AQ Campaigns.* **K. E. Pickering**, Univ. of Maryland, College Park, MD; L. N. Lamsal, M. Follette-Cook, D. Allen, W. H. Swartz, S. J. Janz, K. W. Appel, G. Pfister

4:30 P.M.

15A.5 *NASA Airborne Field Campaigns to Improve Aerosol Speciation from Satellites, and Ultimately, from Models.* **M. Kacenelenbogen**, Moffett Field, CA; Y. Shinozuka, M. S. Johnson, O. P. Hasekamp, J. Podolske, S. E. LeBlanc, J. Redemann, C. Flynn, K. Pistone, M. Segal-Rozenhaimer, S. Broccardo, A. Dobracki, S. Howell, S. Freitag

4:45 P.M.

15A.6 *Effect of Marine and Land Convection on Vertical Distribution of Ozone Precursors Observed during SEAC⁴RS.* **Gustavo C. Cuchiara**, NCAR, Boulder, CO; M. C. Barth, A. Fried, M. J. Kim, J. D. Crounse, J. M. St. Clair, P. Wennberg

3:30 P.M.–5:00 P.M.

22ATCHEM

Session 15B:ATMOSPHERIC HALOGEN
CHEMISTRY AND ITS IMPACTS. PART II –207

Chairs: Jose Fuentes, The Pennsylvania State Univ., University Park, PA; Kerri Pratt, The Pennsylvania State Univ., University Park, PA; Paul Shepson, Stony Brook Univ., Stony Brook, NY

3:30 P.M.

15B.1 *Coupling Halogen Free Radical Catalysis, Climate Change, and Human Health (Invited Presentation).* **James G. Anderson**, Harvard Univ., Cambridge, MA; C. E. Clapp, D. M. Wilmoth, J. E. Klobas, J. B. Smith, D. S. Sayres, J. A. Dykema

3:45 P.M.

15B.2 *Impacts of Marine Cloud Brightening on Atmospheric Chemistry (Invited Presentation).* **Hannah Marie Horowitz**, Univ. of Washington, Seattle, WA; C. Holmes, A. Wright, T. Sherwen, X. Wang, M. Evans, J. Huang, Q. Chen, L. Jaegle, B. Alexander

4:00 P.M.

15B.3 *Insights into the Production of Nitryl Chloride (ClNO₂) in Inland Regions from Saline Playas and the Role of Playa Dust Mineralogy in Determining Halogen Yields (Invited Presentation).* **Cassandra J. Gaston**, RSMAS, Miami, FL; H. M. Royer, D. Mitroo, P. Blackwelder, S. Hayes, S. Haas, K. A. Pratt, T. E. Gill

4:15 P.M.

15B.4 *Lofted Dust Initiates Iodine-Induced Ozone Loss.* **Theodore K. Koenig**, Univ. of Colorado Boulder, Boulder, CO; R. Volkamer, E. C. Apel, J. F. Bresch, E. W. Eloranta, S. Hall, R. S. Hornbrook, B. Morley, J. M. Reeves, S. M. Spuler, K. Ullmann

4:30 P.M.

15B.5 *Formation of Organic Particulate Matter from Chlorine-Initiated Oxidation of Hydrocarbons (Invited Presentation).* **Catherine Masoud**, Univ. of Texas, Austin, TX; L. Hildebrandt Ruiz, D. Wang, S. Dhulipala, N. Bhattacharyya

4:45 P.M.

15B.6 *Nitryl Chloride in the Urban Winter: Results from Recent Aircraft Campaigns (Invited Presentation).* **Steven S. Brown**, Univ. of Colorado, Boulder, CO; E. E. McDuffie, J. A. Thornton, M. Baasandorj, D. L. Fibiger, A. Franchin, J. L. Jimenez, A. Middlebrook, C. C. Womack

3:30 P.M.–5:00 P.M.

21AIRPOL

Session 15:TOPICS ON BOUNDARY LAYER
METEOROLGY AND ATMOSPHERIC DISPERSION.
PART II –211

Chairs: Elie Bou-Zeid, Princeton Univ., Princeton, NJ; Erik Kabela, Oak Ridge National Laboratory, Oak Ridge, TN

3:30 P.M.

15.1 *Determining Atmospheric Boundary Layer Behavior over Mountainous Terrain Using Aircraft Vertical Profiles from NASA Student Airborne Research Program Data.* **Dallas McKinney**, Western Kentucky Univ., Bowling Green, KY

3:45 P.M.

15.2 *Drag and Drag Partition on Vegetated Urban Canopies.* **Marc B. Parlange**, Monash Univ., Melbourne, Australia; M. Giometto, M. F. Schmid

4:00 P.M.

15.3 *On the Decrease of Bulk Drag Coefficient with Increasing Atmospheric Instability.* **Ying Pan**, The Pennsylvania State Univ., University Park, PA; E. G. Patton

4:15 P.M.

15.4 *Progresses in Understanding Monin–Obukhov Similarity Theory, Turbulence Parameterization, and Turbulence Energetics.* **Jielun Sun**, Northwest Research Associates, Inc., Redmond, WA

4:30 P.M.

15.5 *Chimneys of the Amazon: Effects of Gentle Topography on Gas Fluxes Emitted within Forests.* **Marcelo Chamecki**, Univ. of California, Los Angeles, CA; B. Chen, G. G. Katul

4:45 P.M.

15.6 *Constraining the Fractional Deposition of Ammonia Emissions That Deposit near Confined Animal Feeding Operations: A Modeling Approach.* **William Lassman**, Colorado State Univ., Fort Collins, CO; J. R. Pierce, J. L. Collett Jr., B. Loubet

3:30 P.M.—5:00 P.M.**20SMOI****Session 15: QUALITY CONTROL AND QUALITY ASSURANCE PROCEDURES –203**

Chair: Alexandria McCombs, Univ. of South Carolina, Columbia, SC

3:30 P.M.

15.1 *Using Mesonet Observation Metadata to Improve the RTMA Wind Analysis.* **Steven Levine**, EMC, College Park, MD; X. Zhang, M. Pondeva, M. T. Morris, J. R. Carley

3:45 P.M.

15.2 *Filling the Gaps: How Much Gap Filling Is Needed in the Ameriflux Network.* **Alexandria McCombs**, Univ. of South Carolina, Columbia, SC

4:00 P.M.

15.3 *Comparison of TC Temperature and Water Vapor Climatologies between the Atlantic and Pacific Oceans from GPS RO Observations.* **Shengpeng Yang**, Nanjing Univ. of Information and Science Technology, Nanjing, China; X. Zou

4:15 P.M.

15.4 *Quality Control and Quality Assurance Methods at a Continental-Scale Observatory.* **Joshua A. Roberti**, National Ecological Observatory Network, Boulder, CO; C. Sturtevant, R. H. Lee

4:30 P.M.

15.5 *A Process Toward Recovering Greater Assimilation of ADS-C ABO Data.* **Christopher M. Hill**, IMSG, College Park, MD; A. Williard, C. H. Marshall, J. Hendricks

4:45 P.M.

15.6 *Quality Control of Pyranometer Data during Winter for the New York State Mesonet.* **Ashley R. Williamson**, Univ. at Albany, SUNY, Albany, NY; J. Wang, J. A. Brotzge

3:30 P.M.—5:00 P.M.**20ARAM****Session 13: OVERVIEW AND EARLY RESULTS FROM THE IN-CLOUD ICING AND LARGE-DROP EXPERIMENT (ICICLE) –206A**

Chairs: Daniel R. Adriaansen, NCAR, Boulder, CO; Nathan T. Lis, CIMMS/Univ. of Oklahoma and NOAA/NSSL, Norman, OK

3:30 P.M.

13.1 *In-Cloud Icing and Large-Drop Experiment (ICICLE). Part I: Overview.* **Stephanie DiVito**, FAA, Atlantic City International Airport, NJ; B. C. Bernstein, D. L. Sims, J. T. Riley, S. D. Landolt, J. A. Haggerty, M. Wolde, A. Korolev

3:45 P.M.

13.2 *In-Cloud Icing and Large-Drop Experiment (ICICLE). Part II: Airborne Measurements.* **Mengistu Wolde**, National Research Council Canada, Ottawa, Canada; A. Korolev, L. Nichman, I. Heckman, C. Nguyen, N. Bliankinshtein, M. Bastian, A. Brown, B. C. Bernstein, S. DiVito, D. L. Sims, S. D. Landolt, J. A. Haggerty

4:00 P.M.

13.3 *In-Cloud Icing and Large-Drop Experiment (ICICLE). Part III: Supplemental Datasets.* **Scott D. Landolt**, NCAR, Boulder, CO; J. Lentz, S. DiVito, D. L. Sims, J. A. Haggerty, B. C. Bernstein, A. Korolev, M. Wolde

4:15 P.M.

13.4 *An In-Cloud Icing and Large-Drop Experiment (ICICLE) Case Study.* **Darcy Marie Jacobson**, National Center for Atmospheric Research, Boulder, CO; S. D. Landolt, S. DiVito, B. C. Bernstein, D. L. Sims, J. A. Haggerty, A. Korolev, M. Wolde

4:30 P.M.

13.5 *Improving Terminal Area Supercooled Large Drop Detection with 1-min Ceilometer Profiles Obtained during the In-Cloud Icing and Large Drop Experiment (ICICLE).* **Joshua Lave**, National Center for Atmospheric Research, Boulder, CO; S. D. Landolt, S. DiVito, L. Nichman, C. Nguyen

4:45 P.M.

13.6 *Ultra-High-Resolution Aircraft Icing Forecasting during the ICICLE Field Project.* **Gregory Thompson**, NCAR, Boulder, CO; A. Korolev, L. Nichman, M. Wolde, S. Landolt, S. DiVito

3:30 P.M.–5:00 P.M.

19AI

Session 11A: AI FOR DECISION SUPPORT –156C

Chairs: Amanda Burke, CAPS/Univ. of Oklahoma, Norman, OK; Nicholas McCarthy, OneConcern, Palo Alto, CA

3:30 P.M.

11A.1 *Natural Language Processing to Predict National Weather Service Products from Winter-Related Transportation Incidents.* **Louvere M. Walker-Hannon**, MathWorks, Natick, MA; C. L. Walker

3:45 P.M.

11A.2 *Machine Learning for Operational Weather.* **S. W. Miller**, Raytheon Intelligence, Information and Services, Aurora, CO

4:00 P.M.

11A.3 *River Flood Prediction Using a Long Short-Term Memory Recurrent Neural Network.* **Andrew T. White**, Univ. of Alabama, Huntsville, AL; K. D. White, C. R. Hain, J. L. Case

4:15 P.M.

11A.4 *Deep Learning to Improve Numerical Weather Prediction Cloud Forecasts.* **Billy D. Felton**, Northrop Grumman Corporation, McLean, VA; R. J. Alliss, M. Mason

4:30 P.M.

11A.5 *Phenomena Portal for Machine Learning Applications in Earth Science.* **Brian Freitag**, Univ. of Alabama, Huntsville, AL; A. Acharya, M. Ramasubramanian, D. Bollinger, A. Kaulfus, I. Gurung, M. Maskey, R. Ramachandran

4:45 P.M.

11A.6 *Probabilistic Forecast of Thunderstorms Using Artificial Neural Networks with Google Keras Libraries for Deep Learning.* **Mamoudou Bocar Ba**, NOAA/NWS/STI, Silver Spring, MD

3:30 P.M.–4:30 P.M.

19AI

Session 11B: TROPICAL CYCLONE ANALYSIS AND PREDICTION WITH MACHINE LEARNING. PART II –156A

Chair: Philippe E. Tissot, Texas A&M Univ., Corpus Christi, TX

3:30 P.M.

11B.1 *A Tropical Cyclone Similarity Search Algorithm Based on Deep Learning Method.* **Lei Han**, Ocean Univ. of China, Qingdao, China; Y. Wang

3:45 P.M.

11B.2 *A Deep Neural Network to Globally Forecast the Track and Intensity of Tropical Cyclones.* **Hammad Usmani**, Georgia Institute of Technology, Atlanta, GA; A. Habibi, D. Habibi

4:00 P.M.

11B.3 *Using Statistical Learning to Predict the Extratropical Transition of Tropical Cyclones.* **Melanie Bieli**, Columbia Univ., New York, NY; A. H. Sobel, S. J. Camargo, M. K. Tippett

4:15 P.M.

11B.4 *Predicting Hurricane Genesis and Evolution with Deep Learning.* **Tianle Yuan**, JCET, Baltimore, MD; M. G. Nida, H. Song

3:30 P.M.–5:00 P.M.

18COASTAL

Session 14: CASPER SPECIAL SESSION: COASTAL AIR-SEA INTERACTION AFFECTING ELECTROMAGNETIC WAVE PROPAGATION. PART II –158

Chairs: Robert Kipp Shearman, Corvallis, OR; H. J. S. Fernando, Univ. of Notre Dame, Notre Dame, IN; Art Miller, Scripps Institution of Oceanography, La Jolla, CA

3:30 P.M.

14.1 *CASPER West EM Data Analysis Overview.* **Caglar Yardim**, The Ohio State Univ., Columbus, OH; L. Xu, J. Compaleo, S. Mukherjee, R. Burkholder, Q. Wang, H. J. S. Fernando

3:45 P.M.

14.2 *Estimation of the Evaporation Duct Refractivity Profile from Modal Analysis and X-Band EM Propagation Measurements.* **Robert Burkholder**, The Ohio State Univ., Columbus, OH; Q. Wang, C. Yardim

4:00 P.M.

14.3 *A Study on the Effectiveness of Machine Learning Methods for Predicting Evaporation Duct Heights.* **Denny P. Alappattu**, NPS, Monterey, CA; E. Eckstrand, Q. Wang

4:15 P.M.

14.4 *Computing Refractive-Index Structure Parameter C_n^2 Using COAMPS.* **Shouping Wang**, NRL, Monterey, CA; Q. Wang, B. Wauer, Q. Jiang

4:30 P.M.

14.5 *In Situ Measurements of Optical Turbulence in the Marine Atmospheric Boundary Layer.* **Andreas Muschinski**, Northwest Research Associates, Inc., Boulder, CO; N. Kuzcun

4:45 P.M.

14.6 *Wave Glider Measurements of Turbulent Fluxes and Bulk Meteorological Quantities in the Wave Boundary Layer.* **Ryan Yamaguchi**, NPS, Monterey, CA; Q. Wang, J. Kalogiros

3:30 P.M.–5:00 P.M.

17SPACEWX

Session 16: NEW INSTRUMENTS, PLATFORMS, AND INITIATIVES FOR SPACE WEATHER. PART III –205A

3:30 P.M.

16.1 *3D Space Weather Imaging with PUNCH (NASA's Polarimeter to Unify the Corona and Heliosphere) (Invited Presentation).* **Craig E. DeForest**, Southwest Research Institute, Boulder, CO; S. E. Gibson, R. Killough, W. Kosmann, T. PUNCH Team

3:45 P.M.

16.2 *Fundamental Science with the DKIST.* **Gianna Cauzzi**, National Solar Observatory, Boulder, CO

4:00 P.M.

16.3 *ngGONG (Next Generation GONG)—A Ground-Based Solar Observing Network Optimized for Space Weather Research and Operations.* **Frank Hill**, National Solar Observatory, Boulder, CO; V. M. Pillet, A. de Wijn, J. Burkepile, S. McIntosh

4:15 P.M.

16.4 *Global Ionosphere Characterization: Observations from Spire's Growing CubeSat Constellation and Their Assimilation into the Spire Ionospheric Model.* **Vu Nguyen**, Spire Global Inc., Boulder, CO; M. Angling, T. Duly, O. Nogues-Correig, L. Tan, T. Yuasa, V. Irisov, G. Savastano, F. X. Bocquet, G. Pulido, K. Nordstrom, S. Vetra-Carvalho, D. Masters, R. Sikarin, C. Rocken

4:30 P.M.

16.5 *The Coronal Solar Magnetism Observatory: Synoptic Solar Observations to Address the Space Weather Challenge.* **Steven Tomczyk**, Boulder, CO

4:45 P.M.

16.6 *A Chapman Conference on Space Weather: Recommendations for the Community.* **Anthony J. Mannucci**, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA; D. J. Knipp, H. Liu, R. McGranaghan, X. Meng, A. S. Sharma, B. T. Tsurutani, O. P. Verkhoglyadova

3:30 P.M.–5:00 P.M.**16GOESRJPSS****Session 14A: COMMUNICATION CHALLENGES AND SUCCESSES WITHIN THE SATELLITE AND WEATHER COMMUNITY –253B**

Chairs: Kathryn Shontz, NESDIS, Silver Spring, MD; Rebekah Esmaili, Science and Technology Corporation, Columbia, MD

3:30 P.M.

14A.1 *The Global Weather and Climate Center: Revolutionizing Global Weather, Climate, Environmental, and Space Weather Education, Communication, and Outreach.* **Jordan Rabinowitz**, Global Weather and Climate Center, Columbia, MO

3:45 P.M.

14A.2 *Business Readiness: People, Process, and Technology.* **Jonelle Penn**, NESDIS, North Potomac, MD

4:00 P.M.

14A.3 *Interpreting Satellite Product Feedback from Forecasters within the Hazardous Weather Testbed.* **Rebekah Esmaili**, Science and Technology Corporation, Columbia, MD; N. Smith, C. D. Barnett, E. Berndt, J. F. Dostalek, K. D. White, M. Goldberg

4:15 P.M.

14A.4 *NESDIS Data Products Baseline, Portfolio Analysis, and Enterprise-Level Requirements Development.* **Kathryn Shontz**, NESDIS, Silver Spring, MD; K. St. Germain, D. St. Jean, F. W. Gallagher III, J. Weimann, I. Guch, R. Rangachar

4:30 P.M.

Discussion.

3:30 P.M.–5:00 P.M.**16GOESRJPSS****Session 14B: NEW OBSERVATIONS AND IMPACTS OF GLOBAL WIND PROFILES FROM ESA'S AEOLUS DOPPLER WIND LIDAR MISSION: INFORMING NEXT-GENERATION WEATHER ARCHITECTURES –255**

Chairs: Sara Tucker, Ball Aerospace and Technologies Corporation, Boulder, CO; Kevin Garrett, STAR, College Park, MD

3:30 P.M.

14B.1 *Comparison of DAWN, Dropsonde, and Aeolus Wind Observations during the April 2019 NASA Aeolus Cal/Val Test Flight Campaign.* **Steven Greco**, Simpson Weather Associates, Charlottesville, VA; G. D. Emmitt, S. A. Wood, K. M. Bedka, S. Rodier

3:45 P.M.

14B.2 *Error Characterization of Atmospheric Motion Vectors through Intercomparison with ADM-Aeolus, NWP, and In Situ Observations.* **Katherine E. Lukens**, Univ. of Maryland/ESSIC/CISESS and NOAA/NESDIS/STAR, College Park, MD; K. Ide, K. Garrett, H. Liu, R. C. Smith, R. N. Hoffman, T. Reale

4:00 P.M.

14B.3 *Initial Impact Assessment of ADM-Aeolus Wind Observations on NCEP Global Analysis and Forecast.* **Hui Liu**, Univ. of Maryland/CISESS and NOAA/NESDIS/STAR, College Park, MD; K. Ide, K. Garrett, R. N. Hoffman, W. McCarty, A. Kliwer, T. C. Wu, H. Cronk, K. Apodaca, J. Dunion, L. Bucci, L. Cucurull

4:15 P.M.

14B.4 *How the OAWL Approach Builds on the CALIPSO and Aeolus Missions to Address Next-Generation Weather Architecture Objectives.* **Sara C. Tucker**, Ball Aerospace, Boulder, CO; C. Springer, B. Walters, J. Applegate

4:30 P.M.

Discussion.

3:30 P.M.–5:00 P.M.**15URBAN****Session 15: HIGH-RESOLUTION FUTURE CLIMATE PROJECTIONS FOR CITIES –104B**

Chair: Matei Georgescu, Arizona State Univ., Tempe, AZ

3:30 P.M.

15.1 *Projecting End-of-Century Urban Population Exposure to Hot Extremes in the Continental United States.* **Ashley M. Broadbent**, Arizona State University, Tempe, AZ; M. Georgescu, E. S. Kravynhoff

4:00 P.M.

15.2 *High-Resolution Climatic Projections for the Ottawa City Commensurate with 2° and 3.5° of Global Warming.* **Abhishek Gaur**, National Research Council Canada, Ottawa, Canada; H. Lu, F. S. Palou, M. Lacasse, M. Armstrong

4:15 P.M.

15.3 *Asian Megacity Heat Stress under Future Climate Scenarios: Impact of Air Conditioning Feedbacks.* **Yuya Takane**, Univ. of Reading, Reading, UK; Y. Ohashi, C. S. B. Grimmond, M. Hara, Y. Kikegawa

4:30 P.M.

15.4 *Influence of Projected Climate Change, Urban Expansion, and Adaptation Strategies on the End of the Twenty-First-Century Urban Boundary Layer Dynamics in the Conterminous United States.* **Aldo Brandi**, Urban Climate Research Center, Arizona State Univ., Tempe, AZ; A. M. Broadbent, M. Georgescu, S. Kravynhoff

4:45 P.M.

15.5 *Finescale Event-Based Modeling of Design Storms in the Urban Environment.* **Geneva M. E. Gray**, EPA, Research Triangle Park, NC; K. E. Kunkel, T. L. Spero, J. H. Bowden, A. M. Jalowska, M. S. Mallard

3:30 P.M.–4:45 P.M.

12AEROSOL**Session 13: AEROSOL-CLOUD INTERACTIONS IN MIXED-PHASE CLOUDS. PART II –208**

Chairs: Chuanfeng Zhao, Beijing Normal Univ., Beijing, China; Adele Igel, Univ. of California, Davis, CA

3:30 P.M.

13.1 *Aerosol-Cloud-Precipitation Interactions in Mixed-Phase Clouds over the Southern Ocean: Results from Recent Field Campaigns.* **Greg M. McFarquhar**, Cooperative Institute for Mesoscale Meteorological Studies, Norman, OK; C. Bretherton, R. Marchand, S. P. Alexander, P. J. DeMott, A. Protat, G. Roberts, C. H. Twohy, D. W. Toohey, S. Siems, Y. Huang, R. Wood, R. M. Rauber, J. B. Jensen, J. L. Stith, E. Jaervinen, M. Schnaiter, J. Mace, S. Lasher-Trapp, J. UM, A. Gettelman, K. J. Sanchez, C. S. McCluskey, K. A. Moore, T. C. J. Hill, B. Rainwater, W. Wu

4:00 P.M.

13.2 *Tolerable Warming over the Southern Ocean: Toward a Diminishing Negative Cloud Phase Feedback.* **Tim Carlsen**, Univ. of Oslo, Oslo, Norway; J. Bjordal, T. Storelvmo

4:15 P.M.

13.3 *Evaluation of Climate Simulations Using Observations of Clouds at McMurdo Station, Antarctica.* **Jackson Paladin Yip**, San Jose State Univ., San Jose, CA; M. Diao, I. Silber, A. Gettelman

13.4 **WITHDRAWN**

3:30 P.M.–5:00 P.M.

3SMALLSATS**Session 4: CYCLONE GLOBAL NAVIGATION SATELLITE SYSTEM (CYGNSS): APPLICATIONS TO TROPICAL METEOROLOGY AND HYDROLOGY. PART II –252B****3:30 P.M.**

4.1 *Status of CYGNSS Level 2 Winds.* **D. McKague**, Univ. of Michigan, Ann Arbor, MI; C. S. Ruf, R. Balasubramaniam, M. P. Clarizia, D. R. Mayers, T. Wang

3:45 P.M.

4.2 *CYGNSS Soil Moisture Retrieval and Intercomparison with SMAP.* **Simon Yueh**, NASA Jet Propulsion Laboratory, Pasadena, CA; R. Shah, X. Xu, A. Colliander, A. Hayashi, M. Chaubell

4:00 P.M.

4.3 *Comparison of Surface Fluxes Simulated by a Coupled Regional Model and Derived from CYGNSS: Impact on MJO Precipitation Structure.* **Xiaowen Li**, Morgan State Univ./NASA-GSFC, Greenbelt, MD

4:15 P.M.

4.4 *Optimizing the Utilization Of CYGNSS Wind Observations for Numerical Prediction of Tropical Cyclones.* **B. Annane**, Univ. of Miami and NOAA/AOML, Miami, FL; S. M. Leidner, R. N. Hoffman, R. Atlas, B. McNoldy, S. J. Majumdar, L. Cucurull

4:30 P.M.

4.5 *Azimuthal Dependence of Sea-State Development inside Tropical Cyclones as Measured by CYGNSS.* **Rajeswari Balasubramaniam**, Univ. of Michigan, Ann Arbor, MI; C. S. Ruf

4:45 P.M.

4.6 *Potential GNSS-R CYGNSS Land Applications for NOAA's Hydrological Predictions.* **Nai-Yu Wang**, Univ. of Maryland, College Park, College Park, MD; R. R. Ferraro, X. Zhan, S. A. Boukabara

5:00 P.M.

100th AMS ANNUAL MEETING ADJOURNS

A

AER	Atmospheric Environmental Research Inc.
AERA	American Educational Research Association
AES	Atmospheric Environment Service
AFGL	Air Force Geophysics Laboratory
ANL	Argonne National Lab.
AL	Aeronomy Lab.
AOML	Atlantic Oceanographic and Meteorological Labs.
APDRC	Asia-Pacific Data Research Center
APL	Applied Physics Lab.
ARC	Ames Research Ctr.
ARL	Air Resources Lab.
ARS	Agricultural Research Service
ASCE	American Society of Civil Engineers
AS&M	Analytical Services and Materials, Inc.
ATDD	Atmospheric Turbulence and Diffusion Division
AWS	Air Weather Service

B

BCC	Beijing Climate Center
BOEM	Bureau of Ocean Energy Management
BMRC	Bureau of Meteorology Research Centre
BOM	Bureau of Meteorology (Australia)

C

CAC	Climate Analysis Ctr.
CAPS	Center for Analysis and Prediction of Storms
CAS	Chinese Academy of Sciences
CAWCR	Centre for Australian Weather and Climate Research
CCCMA	Canadian Centre for Climate Modeling and Analysis
CCSR	Center for Climate System Research
CDAAC	COSMIC Data Analysis and Archive Center
CDC	Climatic Diagnostics Ctr.
CETP	Centre d'études des Environnements Terrestre et Planétaires
CIAMS	Cooperative Inst. for Applied Meteorological Studies
CICESE	Centro de Investigación Científica y de Educación Superior de Ensenada
CICS	Coop. Institute for Climate and Satellites
CIMMS	Coop. Inst. for Mesoscale Meteorological Studies
CIMSS	Coop. Inst. for Meteorological Satellite Studies
CIRA	Cooperative Inst. for Research in the Atmosphere
CIRES	Coop. Inst. for Research in the Environmental Sciences
CIRP	Cooperative Institute for Regional Prediction
CLIVAR	Climate and Ocean: Variability, Predictability and Change
CLS	Collecte Localisation Satellites
CMC	Canadian Meteorological Centre
CMCC	Centro-Euro Mediterraneo per I Cambiamenti Climatici

C (continued)

CMDL	Climate Modeling Diagnostics Lab.
CNR	Consiglio Nazionale delle Ricerche
CNES	Centre National d'Etudes Spatiales
CNMOC	Commander, Naval Meteorology & Oceanography Command
CNRM	Centre National de Recherches Meteorologiques
CNRS	Centre National de la Recherche Scientifique
COAPS	Center for Ocean-Atmospheric Prediction Studies
COLA	Ctr. for Ocean-Land-Atmosphere Studies
COMET	Coop. Program for Operational Meteorology, Edu. & Training
CPC	Climate Prediction Center
CREST	Cooperative Remote Sensing Science and Technology
CRPA	Centre de Recherches en Physique de l'Atmosphere
CRPE	Centre de Recherches en Physique de l'Environnement
CRU	Climatic Research Unit
CSIR	Council for Scientific and Industrial Research
CSIRO	Commonwealth Scientific & Industrial Research Organization
CWB	Central Weather Bureau (Taiwan)

D

DAO	Data Assimilation Office
DKRZ	German Climate Computing Centre
DOC	Dept. of Commerce
DOE	Dept. of Energy
DOT	Dept. of Transportation
DRI	Desert Research Inst.
DLR	Deutsches Zentrum fuer Luft-und Raumfahrt
DWD	Deutscher Wetterdienst

E

EC	Environment Canada
ECCO	Estimating the Circulation and Climate of the Ocean
ECMWF	European Centre for Medium Range Weather Forecasts
EMC	Environmental Modeling Ctr.
EPA	Environmental Protection Agency
ESRL	Earth System Research Laboratory
ETH	Eidgenössische Technische Hochschule
ETL	Environmental Technology Lab.
EUMETSAT	European Org. for Exploitation of Meteorological Satellites

F

FAA	Federal Aviation Administration
FAO	Food and Agriculture Organization of the United Nations
FEMA	Federal Emergency Management Agency
FNMOG	Fleet Numerical Meteorology & Oceanography Center
FRCGC	Frontier Research Center for Global Change
FSL	Forecast Systems Lab.

DIRECTORY OF ACRONYMS

G

GES DISC	Goddard Earth Sciences Data & Info Services Cntr.
GEST	Goddard Earth Sciences and Technology
GFDL	Geophysical Fluid Dynamics Lab.
GHCC	Global Hydrology and Climate Center
GISS	Goddard Inst. for Space Studies
GOES	Geostationary Operational Environmental Satellite
GLERL	Great Lakes Environmental Research Lab.
GMAO	Global Modeling and Assimilation Office
GPCC	Global Precipitation Climatology Centre
GSD	Global System Division
GSFC	Goddard Space Flight Ctr.

H

HRD	Hurricane Research Division
HRC	Hurricane Research Ctr.

I

IAP	Institute of Atmospheric Physics
IAPSO	International Assoc. for the Physical Sciences of the Ocean
IARC	International Arctic Research Center
IGCR	Institute for Global Change Research
IITM	Indian Institute of Tropical Meteorology
IMSG	I.M. Systems Group
INGV	Istituto Nazionale di Geofisica e Vulcanologia
INM	Instituto Nacional de Meteorología (Spain)
INPE	Instituto Nacional de Pesquisas Espaciais
INAIL	Istituto Nazionale Assicurazione contro li Infortuni sul Lavoro
IPCC	Intergovernmental Panel on Climate Change
IPRC	International Pacific Research Center
IPSL	L'Institut Pierre – Simon Laplace
IRI	International Research Inst. for Climate & Society
ISWS	Illinois State Water Survey

J

JAMSTEC	Japan Agency for Marine Earth Science & Technology
JAXA	Japan Aerospace Exploration Agency
JCET	Joint Center for Earth Systems Technology
JCOMM	Joint Technical Commission for Oceanography & Marine Meteorology
JISAO	Joint Inst. for the Study of Atmosphere and Oceans
JMA	Japan Meteorological Administration
JPL	Jet Propulsion Lab.
JPSS	Joint Polar Satellite System
JSFC	Johnson Space Flight Ctr.
JTWC	Joint Typhoon Warning Center

K

KEI	Korea Environment Institute
KMA	Korea Meteorological Administration
NMI	Koninklijk Nederlands Meteorologisch Instituut

L

LANL	Los Alamos National Lab.
LASG	State Key Lab. Of Numerical Modeling for Atmospheric Sciences and Geophysical Fluid Dynamics
LBNL	Lawrence Berkeley National Lab.
LDEO	Lamont Doherty Earth Observatory
LEGOS	Laboratoire d'Etudes en Geophysique et Oceanographie Spatiale
LLNL	Lawrence Livermore National Lab.
LMD	Laboratoire de Meteorologie Dynamique
LODYC	Laboratoire d'Océanographie Dynamique et de Climatologie
LRC	Langley Research Ctr.

M

MEST	Korean Ministry of Education, Science, & Technology
METEOSWISS	Swiss Federal Office of Meteorology and Climatology
MIT	Massachusetts Inst. of Technology
MPI	Max Planck Institute
MRI	Meteorological Research Inst.
MSC	Meteorological Service of Canada
MSFC	Marshall Space Flight Ctr.

N

NASA	National Aeronautics and Space Administration
NCAR	National Ctr. for Atmospheric Research
NCAS	NOAA Center for Atmospheric Science
NCDC	National Climatic Data Ctr.
NCEP	National Centers for Environmental Prediction
NDBC	National Data Buoy Center
NERC	National Environmental Research Council
NESDIS	National Envtl. Satellite Data Information Service
NGDC	National Geophysical Data Center
NHC	National Hurricane Center
NOAA	National Oceanic and Atmospheric Administration
NOC	National Oceanography Centre
NODC	National Oceanographic Data Center
NPOESS	National Polar-orbiting Operational Envtl. Satellite System
NRCS	National Resources Conservation Service
NPS	Naval Postgraduate School
NRL	Naval Research Lab.
NSF	National Science Foundation
NSFC	National Natural Science Foundation of China
NSIDC	National Snow and Ice Data Center
NSSL	National Severe Storms Lab.
NWCC	National Water and Climate Center
NWS	National Weather Service
NWSFO	National Weather Service Forecast Office

O

OAR	Office of Atmospheric Research
OGP	Office of Global Programs
ONR	Office of Naval Research
ORA	Office of Research and Applications
ORNL	Oak Ridge National Lab.
OSF	Operation Support Facility

P

PAAWC	Prairie Aviation and Arctic Weather Centre
PAGE	Program for the Advancement of Geoscience Edu.
PCMDI	Program for Climate Model Diagnosis and Intercomparison
PMEL	Pacific Marine Environmental Lab.
PNNL	Pacific Northwest National Lab.
PODACC	Physical Oceanography Distributed Active Archive Center
PSPC	Prairie Storm Prediction Center

R

RAL	Research Applications Laboratory
RSMAS	Rosenstiel School of Marine & Atmospheric Sci.

S

SAIC	Science Applications International, Corp.
SIO	Scripps Inst. of Oceanography
SMHI	Swedish Meteorological & Hydrological Institute
SPC	Storm Prediction Center
SSAI	Science Systems Applications, Inc.
STAR	Satellite Applications and Research
SUNY	State Univ. of New York

T

TDL	Tech. Development Lab.
TPC	Tropical Prediction Center

U

UCAR	University Corporation for Atmospheric Research
UKMO	Met Office
UMIST	Univ. of Manchester Inst. of Science and Technology
USDA	U.S. Department of Agriculture
USDM	U.S. Drought Monitor
USGS	U.S. Geological Survey
USRA	Universities Space Research Assn.

W

WCRP	World Climate Research Programme
WGCM	Working Group on Coupled Modeling
WHOI	Woods Hole Oceanographic Inst.
WMO	World Meteorological Organization

Monday, 13 January 2020							
	PRESSESSIONS	SOLOMONSYMP	48BROADCAST	36EIPT	34HYDRO	33CVC	30WAF26NWP
Registration (North Lobby)							
7:30							
8:30	210AB : PF1 : The Enterprise: Worth More than You Think	205B : S1 : Wisdom of Solomon: History and Successes in Environmental Policy	204AB : S1 : Our Changing Climate	209 : S1B : Weather and Roads—Linking Road Weather Research, Information, and Technologies to Benefit Society. Part I 157C : S1A : Services Update for Weather Agencies. Part I	253A : S1B : Land—Atmosphere and Land—Ocean Interactions. Part I 253C : S1A : Flood Prediction, Analysis, Decision Support, and Management. Part I	156BC : S1A : African Climate Change and Variability. Part I 154 : S1B : Land Use and Land Cover Change—Interactions with Weather and Climate 151A : S1C : Seasonal-to-Decadal Climate Prediction. Part I	257AB : S1B : Verification, Bias Correction, and Postprocessing of Numerical Weather Models. Part I 258A : S1A : Analysis and Forecasting of Severe Thunderstorms and Associated Hazards. Part I
9:15			204AB : L 1 : EMS Lecture				
9:45						156BC : S1D : Special Session with Senator Whitehouse	
10:00	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby)						
10:30	210AB : PF2 : Avoiding Day Zero: Governance of Urban Water Resources and Services	205B : S2 : Ozone and the Middle Atmosphere: Past, Present, and Future	204AB : S2 : Communicating Resilience to Your Viewers	209 : S2B : Weather and Roads: Linking Road Weather Research, Information, and Technologies to Benefit Society. Part II 157C : S2A : Services Update for Weather Agencies. Part II	253C : S2A : Flood Prediction, Analysis, Decision Support, and Management. Part II 253A : S2B : Land—Atmosphere and Land—Ocean Interactions. Part II	150 : S2A : African Climate Change and Variability. Part II 151A : S2C : Western North American Climate: Diagnosis, Prediction, and Impacts at Subseasonal-to-Multidecadal Scales 154 : S2B : Seasonal-to-Decadal Climate Prediction. Part II	
12:00	Lunch Break						
12:15	Ballroom East : 4091 : Financial Weather and Climate Risk Management						
2:00	210AB : PF3 : Research Needs for the Anthropocene: Integrated Services for the Urban Environment	205B : S3 : Climate Change: The Challenge of the Twenty-First Century		209 : S3B : International Hazards—What's the Risk? 157C : S3A : Quasi-Operational Products You Can Use Now—The View from the Dry and Wet Side	253C : S3A : Flood Prediction, Analysis, Decision Support, and Management. Part III 253A : S3B : Land—Atmosphere and Land—Ocean Interactions. Part III	151A : S3C : The Use of Large Ensembles in Understanding Climate Variability and Change 154 : S3B : Dynamics of Jet Streams and Storm Tracks in Past, Present, and Future Climates 150 : S3A : Climate Dynamics—General	258A : S2A : Analysis and Forecasting of Severe Thunderstorms and Associated Hazards. Part II 257AB : S2B : Verification, Bias Correction, and Postprocessing of Numerical Weather Models. Part II
3:00					253A : S4B : The Importance of Forecasts for Multiobjective Reservoir Operations 253C : S4A : Soil–Plant–Atmosphere Interactions in Amazonia		257AB : S3A : Advances in Downscaling of Weather and Climate Models 258A : S3B : Analysis and Forecasting of Severe Thunderstorms and Associated Hazards. Part III
4:00	Formal Poster Viewing Reception (Hall B)						
6:00	Session End for the Day						
6:00	Exhibit Hall Opening Reception (Hall A)						

Monday, 13 January 2020							
	29EDUCATION	26PROBSTAT	25APPLIED	24IOAS	22ATCHEM	22WXMOD	21AIRPOL
7:30	Registration (North Lobby)						
7:30							
8:30	258C : PD1 : Active Learning Demonstrations from the Atmospheric Sciences	260 : S1 : Extreme Value Analysis and Prediction.		259A : S1 : Advances in Data Assimilation and Observing Systems	206B : S1B : Regional Air Quality. Part I 207 : S1A : Highlighting the Work of the Pan-American Node of the WMO Sand and Dust Storm Warning Advisory and Assessment System		211 : S1 : Centennial Session on Air Pollution Meteorology (Centennial)
8:30							
9:00						105 : S1 : Understanding Key Challenges for Cloud Seeding	
9:00							
10:00	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby)						
10:00							
10:30	258C : S1 : Precollege Education—Engaging Students Initiatives—Engaging Students	260 : S2 : Methods of Verification and Evaluation of Forecasts: Spatial and Object-Based Methods	153A : S1 : The Value of Federal Climate Services in Regional Contexts: Examples from Drought and the Future Landscape	259A : S2 : Observing System Simulation Experiments (OSSSEs)	207 : S2A : Greenhouse Gases. Part I 206B : S2B : Regional Air Quality. Part II	105 : S2 : Recent Field Campaigns and Modeling Studies	211 : S2 : Modeling and Monitoring of Air Pollution in the Urban Environment
10:30							
12:00	Lunch Break						
12:00							
2:00	258C : S2 : Engagement in Atmospheric Education—Research and Application	260 : S3 : Methods of Verification and Evaluation of Forecasts: Focus on High Impact	153A : S2 : Other Topics in Applied Climatology	259A : S3 : Advances in Ensemble-Based Data Assimilation Methodologies for Highly Nonlinear and Large-Dimensional Systems. Part I	207 : S3A : Greenhouse Gases. Part II 206B : S3B : Regional Air Quality. Part III	105 : J6 : The Need for Water Driving the Science of Rain and Snow: Past, Present, and Future (Centennial)	211 : S3 : Global- to Local-Scale Coupled Meteorology and Atmospheric Chemistry Modeling. Part I
2:00							
3:00						105 : JPD2 : The Need for Water Driving the Science of Rain and Snow: Past, Present, and Future Panel (Centennial)	211 : S4 : Global- to Local-Scale Coupled Meteorology and Atmospheric Chemistry Modeling. Part II
3:00							
4:00	Formal Poster Viewing Reception (Hall B)						
4:00							
6:00	Session End for the Day						
6:00	Exhibit Hall Opening Reception (Hall A)						
6:00							

Monday, 13 January 2020								
	20SMOI	20ARAM	19AI	18COASTAL	18HISTORY	17SPACEWX	16GOESRJPSS	
7:30	Registration (North Lobby)							7:30
8:30	203 : S1 : Remote Sensing—Ceilometer, Microwave Radiometer, and Radiative Transfer Applications	206A : S1 : History of ARAM—Evolution of Capabilities for Detecting and Predicting Aviation Weather Hazards: Saving Lives		158 : S1 : Coupled Forecasting of Extreme Weather and Coastal Flood Events. Part I	104A : S1 : AMS–NSF Interactions: Looking back, Looking Forward	205A : S1 : Agency Efforts in Space Weather: Priorities and Opportunities. Part I	253B : S1 : Special Session on the JPSS Series Satellite System. Part I	8:30
10:00	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby)							10:00
10:30	203 : S2 : Remote Sensing—Radar- and Satellite-Based Applications	206A : S2 : Research Programs, Services, and Initiatives to Support the Aviation, Range, and Aerospace Meteorological Communities		158 : S2 : Coupled Forecasting of Extreme Weather and Coastal Flood Events. Part II	104A : S2 : History of Meteorological Practices, Observations, and Related. Part I	205A : S2 : Agency Efforts in Space Weather: Priorities and Opportunities. Part II	253B : S2 : Special Session on the GOES Series Satellite System. Part I	10:30
11:00			156BC : S1A : AI for Environmental Science. Part I 156A : S1B : AI for Environmental Science. Part II					11:00
11:30						205A : S3 :Heliophysics and Space Weather in History. Part I		11:30
12:00	Lunch Break							12:00
2:00	203 : S3 : Results From Recent Field Projects	206A : S3 : Weather Needs for Small UASs and the Potential for Improving Their Own Guidance	156BC : S2A : Applications of Machine Learning in Earth System Modeling 156A : S2B : Deep Learning Applications for Environmental Science. Part I	158 : S3 : Hazard Assessment and Prediction in the Coastal Marine Environment. Part I	104A : S3 : History of Meteorological Practices, Observations, and Related. Part II	205A : S4 : Louis J. Lanzerotti Session on Heliophysics and Space Weather in History	253B : S3 : 60 Years of Weather Satellites: How Earth Observing Satellites Contributed to Linking Information to Knowledge to Society (Centennial)	2:00
4:00	Formal Poster Viewing Reception (Hall B)							4:00
6:00	Session End for the Day							6:00
6:00	Exhibit Hall Opening Reception (Hall A)							6:00

Monday, 13 January 2020						
	16IMPACTS	15SOCIETY	15URBAN	12AEROSOL	11ENERGY	10PYTHON
7:30						10LIDAR
Registration (North Lobby)						
8:30	Ballroom East : S1 : Major Weather Impacts of 2019—Session I	152 : S1 : The Coproduction of Science and Stakeholder Engagement	104B : S1 : Outcome-Focused Urban Climate Research for Community Resilience	208 : S1 : Measurements and Modeling of CCN and INP. Part I	256 : S1 : Grid Operations and Energy Weather. Part I—Forecasting	153B : S1 : Exertional Heat Illness and Health—From Heat Metrics and Predictions to Practice
9:00						157AB : S1 : Working with Large Datasets Using Python
10:00						
Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby)						
10:30	Ballroom East : S2 : Major Weather Impacts—Session II	151B : PD8 : Building Stronger: Bringing Together Geospatial, Social Scientific, and Engineering-Based Perspectives on Weak-Framed Housing in the Southeastern United States 152 : S2 : What Our Publics and Experts Have to Say	104B : S2 : Biometeorology: Recent Advances and Future Direction	208 : S2 : Measurements and Modeling of CCN and INP. Part II	256 : S2 : Grid Operations and Energy Weather. Part II—Outage	153B : S2 : Linking Knowledge to Society: Innovative Solutions for Reducing Heat's Health Impacts in the Northeast United States
12:00						
Lunch Break						
2:00	Ballroom East : S3 : Major Weather Impacts—Session III	151B : S3A : Social Scientific Findings From Five Years of VORTEX Southeast: What Have We Learned? 152 : S3B : The Future of Financial Weather and Climate Risk Management	104B : S3 : Integrated Urban Services (IUS)—A Pathway to Sustainable Urban Systems	208 : S3 : Measurements and Modeling of CCN and INP. Part III	256 : S3 : Grid Operations and Energy Weather. Part III—General Grid Ops	153B : S3 : NASA Earth Observation Systems and Applications for Health, Air Quality, Environmental Management, and Public Outreach
3:00					256 : S4 : Wind Forecasting. Part I	
4:00						
Formal Poster Viewing Reception (Hall B)						
6:00						
Session End for the Day						
6:00						
Exhibit Hall Opening Reception (Hall A)						
6:00						

Monday, 13 January 2020						
	10R20	8EARLYCAREER	8EXCLIMATE	8WRN	8MJO	5INTERNATIONAL
	Registration (North Lobby)					
7:30						4PREDICTABILITY
						FUTURES
						SYMPO
8:30	251 : J1 : Advances in CubeSats and SmallSats to Improve Earth Science, Weather Forecasting, Space Weather Prediction, Hydrology Studies, or Climate Monitoring—Part I 252A : S1 : Models and Data Assimilation to Enable and Accelerate the Transition of Research to Operations to Decision-Makers, End Users, and to the Public: Land–Ocean–Hydrological Modeling, Advanced Modeling, and DA Development and Testbeds				254B : S1 : Dynamics of the Madden–Julian Oscillation	
9:00		255 : Mind the Gap: Efforts to Prepare Students for the Real World				104C : S1 : Intrinsic and Practical Predictability
10:00	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby)					
10:30	251 : J4 : Advances in CubeSats and SmallSats to Improve Earth Science, Weather Forecasting, Space Weather Prediction, Hydrology Studies, or Climate Monitoring—Part II 252A : S2 : Testbeds to Enable and Accelerate Transitions of R2O to Decision-Makers, End Users, and the Public in Weather, Water, or Climate Applications [e.g., Hazardous Weather Testbed (HWT) and Hydrometeorological Testbed (HMT)]—Part I	255 : Leading Up!	254A : PD1 : Hazards and Overpasses: The Intersection of Transportation Safety and Weather 252B : J5 : Translating Weather into the Spanish Language. Part I: Current Resources and Initiatives in the Spanish Weather World	153C : S1 : See It, Hear It, Touch It—Informal Weather Education Outreach to Build a Weather-Ready Nation	254B : S2 : Tropical Waves and Tropical–Extratropical Interactions	258B : PD1 : Panel Discussion: Transitions from Research to Operations, Operations to Research, and Operations to Practice (Centennial)
12:00	Lunch Break					
2:00	251 : S3B : Advances in Satellite Observations, Earth Science, and Observing Technologies That Can Complement the Heritage Observation Systems and Potentially Lead to Advances in Next-Generation Observation Systems 252A : S3A : Testbeds to Enable and Accelerate Transitions of R2O to Decision-Makers, End Users, and the Public in Weather, Water, or Climate Applications [e.g., Hazardous Weather Testbed (HWT)] and Hydrometeorological Testbed (HMT)]—Part II		252B : J8 : Translating Weather into the Spanish Language. Part II: Addressing the Translation and Consistency Problem in the Spanish Weather World 254A : S1 : Extreme Weather at Sea: Bringing Twenty-First-Century Weather Services to Mariners	153C : J9 : The Challenges of Effective Messaging for a Weather-Ready Nation	254B : J7 : Convection over the Maritime Continent	205C : PD2 : AMS/NWA Ronald W. Przybylinski Research Operations Nexus (RON) Meetup
3:00					254B : J10 : Subseasonal-to-Seasonal Variability and Prediction of Tropical Cyclones	
4:00	Formal Poster Viewing Reception (Hall B)					
6:00	Session End for the Day					
6:00	Exhibit Hall Opening Reception (Hall A)					

Tuesday, 14 January 2020						
	PRESSESSIONS	DICKINSONSYMP	48BROADCAST	36EIPT	34HYDRO	33CVC
						30WAF26NWP
8:30	252B : PF4 : The Future of Extreme Weather Financial Risk Management. Part I	210C : J11 : Earth System Modeling and Climate Change (e.g., Earth System Modeling, Regional Climate Modeling, Climate Change, Carbon Cycle). Part I	204AB : S3 : Station Scientist. Part I	157C : S4A : AWIPS System Updates. Part I 209 : S4B : Interagency Coordination within the Federal Weather Enterprise	253C : S5A : Extreme Rainfall and Hydrologic Extremes. Part I 253A : S5B : Land Data Assimilation Techniques and Systems. Part I	150 : S4A : Arctic Midlatitude Linkages. Part I 151A : S4C : Seasonal-to-Decadal Climate Prediction. Part II 154 : S4B : El Niño–Southern Oscillation (ENSO) Dynamics, Diversity, Prediction, and Impacts. Part I
10:00						
Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby, Hall A)						
10:30	210AB : PF6 : Bridging the Gulf between Meteorologists and Humanitarian Operations 252B : PF5 : The Future of Financial Weather and Climate Risk Management. Part II: Climate Extremes	210C : J15 : Land Surface Modeling and Remote Sensing (e.g., Integration of Remote Sensing Data with Land Modeling, Land Model Development, Land Cover/Land-Use Change)	204AB : PD1 : Station Scientist. Part II	157C : S5A : AWIPS System Updates. Part II 209 : S5B : GIS and the Four Cs of Contextualize, Collaborate, Convey, and Cloud	253A : S6B : Land Data Assimilation Techniques and Systems. Part II 253C : S6A : Extreme Rainfall and Hydrologic Extremes. Part II	154 : S5B : El Niño–Southern Oscillation (ENSO) Dynamics, Diversity, Prediction, and Impacts. Part II 151A : S5C : Seasonal-to-Decadal Climate Prediction. Part IV 150 : S5A : Arctic Midlatitude Linkages. Part II
12:00						
Lunch Break						
1:30		210C : S1 : Large-Scale Atmospheric Dynamics (e.g., Planetary Waves, Atmospheric Circulations)	204AB : S4 : The Future of Local TV News/Weather: Building Trust and Viewership through Innovations	157C : S6A : Cloud Computing for Environmental Data Processing and Display: Promise versus Practice. Part I 209 : S6B : Visualization Techniques for Climatology and Meteorology with New Data. Part I	253A : J20 : Probabilistic Hydrometeorological Forecasting and Uncertainty Analysis. Part I 253C : S7 : Extreme Rainfall and Hydrologic Extremes. Part III	150 : S6A : Atmospheric Rivers: Global Science and Applications. Part I 151A : J21 : Understanding the Hazards of Heat Waves to Address the Risks to Human and Animal Health 154 : S6B : El Niño–Southern Oscillation (ENSO) Dynamics, Diversity, Prediction, and Impacts. Part III
2:30						
Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby)						
3:00		210C : J25 : Aerosol Approaches to Climate Engineering (e.g., Results from Climate Modeling, Using Analogs such as Volcanic Eruptions and Ship Tracks, and Development of Technology to Actually Implement Solar Geoengineering)	204AB : S5 : Knowing and Growing Your Audience	209 : S7B : Visualization Techniques for Climatology and Meteorology with New Data. Part II 157C : S7A : Cloud Computing for Environmental Data Processing and Display: Promise versus Practice. Part II	253A : J26 : Probabilistic Hydrometeorological Forecasting and Uncertainty Analysis. Part II 253C : S8 : Extreme Rainfall and Hydrologic Extremes. Part IV	150 : S7A : Atmospheric Rivers: Global Science and Applications. Part II 151A : J27 : Women in the Tropics. Part II 154 : S7B : Communicating Climate Change
4:00						
Formal Poster Viewing Reception (Hall B)						
6:00						

Tuesday, 14 January 2020

	29EDUCATION	26PROBSTAT	25APPLIED	24IOAS	22ATCHEM	22WXMOD	21AIRPOL
8:30	258C : S3 : Effective Strategies for Increasing Minority Participation in the Atmospheric Sciences	260 : S4 : Ensemble and Multimodel Forecasting, Including Postprocessing and Decision Support	153A : S3 : Decision Support Services at Subseasonal-to-Seasonal (S2S) Time Scales. Part I	259B : S4B : Field Experiments: Observational and Assimilation Results 259A : S4A : Data Assimilation: New Developments in Methodology. Part I	207 : S4B : Air Quality Impacts from Energy Production and Generation. Part I 206B : S4A : ACMAP: Atmospheric Chemistry Modeling and Analysis Program. Part I	105 : J12 : History of Ice Nucleation Research and Its Impact on Weather Modification (Centennial)	211 : S5 : Laboratory and Field Experiments of Atmospheric Dispersion Processes 8:30
10:00	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby, Hall A)						10:00
10:30	258C : J16 : Learning Does Not Stop after College: Continuing Education and Mentoring in Meteorology	260 : S5 : Novel Methods in Verification	153A : S4 : Decision Support Services at Subseasonal-to-Seasonal (S2S) Time Scales. Part II	259B : S5B : Vertical Characterization from Satellite Sounders: Contributions to Improve Our Understanding of Thermodynamics, Convection, Severe Weather, Air Quality, and Climate Change 259A : S5A : Data Assimilation: New Developments in Methodology. Part II	207 : S5B : Air Quality Impacts from Energy Production and Generation. Part II 206B : S5A : ACMAP: Atmospheric Chemistry Modeling and Analysis Program. Part II	105 : S3 : Natural Characteristics and Seedability of Clouds 211 : S6 : Modeling Complex and Hyperlocal Air Pollution Meteorological Phenomena 10:30	
12:00	Lunch Break						
1:30	258C : S4 : See It, Hear It, Touch It—Informal Weather Education Outreach	260 : J22 : Hybrid Machine Learning and Statistical Approaches	153A : S5 : NOAA 1991–2020 Climate Normals: Current Plans and Future Directions	259A : S6A : Advances in Ensemble-Based Data Assimilation Methodologies for Highly Nonlinear and Large-Dimensional Systems. Part II 259B : S6B : Special Session on COSMIC-2. Part I	206B : S6 : Core Science Keynote Presentations. Part I	105 : S4 : Studies Related to Hygroscopic Seeding 211 : S7 : Development of New Models and Parameterizations for Atmospheric Dispersion 1:30	
2:30	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby)						2:30
3:00	258C : PD2 : Conference on Education Roundtable: Where Do We Go from Here?	260 : J28 : Statistical Estimation Methods for Parameters of Observing and Assimilation Systems: Theory and Practice	153A : PD1 : NOAA 1991–2020 Climate Normals: Current Plans and Future Directions—Panel Discussion	259B : S7B : Special Session on COSMIC-2. Part II 259A : S7A : Advances in Ensemble-Based Data Assimilation Methodologies for Highly Nonlinear and Large-Dimensional Systems. Part III	206B : S7 : Core Science Keynote Presentations. Part II	211 : S8 : Air Quality Forecasting 3:00	
4:00	Formal Poster Viewing Reception (Hall B)						4:00
6:00	Sessions End for the Day						6:00

Tuesday, 14 January 2020								
	20SMOI	20ARAM	19AI	18COASTAL	18HISTORY	17SPACEWX	16GOESRJPSS	
8:30	203 : S4 : Advancing Climate Science through the Application of Micrometeorological Theory and Techniques	206A : S4 : Scaling down the Weather to Support Urban Air Mobility	156A : S3A : AI Applied to Airborne or Spaceborne Earth Observation Datasets 156BC : S3B : High-Impact Weather Prediction with AI	158 : S4 : Coupled Forecasting of Extreme Weather and Coastal Flood Events. Part III	104A : S4 : AMS Centennial Monograph—100 Years of Progress. Part I (Centennial)	205A : S5 : Handling Vulnerabilities and Risks: Power Grids, Aviation, and Communication Networks	253B : J13 : National and International Program Overviews for Environmental Satellites (Invited)	
10:00	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby, Hall A)							10:00
10:30	203 : S5 : Aircraft Reconnaissance and Research: The Past, Present, and Future	206A : S5 : Advancements in the Analysis and Prediction of Turbulence for Aviation, Range, and Aerospace Operations	156A : S4 : AI Applications for the Detection of Earth Science Phenomena 156BC : J17 : AI and Climate: Impact and Opportunities	158 : S5 : Coupled Forecasting of Extreme Weather and Coastal Flood Events. Part IV	104A : S5 : AMS Centennial Monograph—100 Years of Progress. Part II (Centennial)	205A : S6 : R2O2R: User Needs and Priorities. Part I	253B : S4 : Geostationary Lightning Mapper (GLM)—User Applications and Research. Part I	
12:00	Lunch Break							12:00
1:30	203 : S6 : Integrated Instrumentation and Observing Systems for All Applications—Ground Based	206A : S6 : John T. Madura Session on Developing Weather Technologies to Support Range Operations through R2O and O2R Pathways	156BC : S5B : Environet 156A : S5A : AI for Environmental Science. Part III	158 : S6 : Downscaling Models (Parcel Scale)—Atmosphere, Land, and Ocean	104A : S6 : AMS Centennial Monograph—100 Years of Progress. Part III (Centennial)	205A : S7 : R2O2R: User Needs and Priorities. Part II	253B : S5 : Special Topics. Part I	
2:30	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby)							2:30
3:00	203 : S7 : Integrated Instrumentation and Observing Systems for All Applications—Remote Based	206A : S7 : Studies Involving Aviation Impacts Translation Modeling	156BC : S6 : History of AI in Environmental Science (Centennial)	158 : S7 : 50 Years of Marine Wind and Wave Forecasting	104A : S7 : AMS Centennial Monograph—100 Years of Progress. Part IV (Centennial)	205A : S8 : Space Weather at Solar Minimum and What's to Come: Solar Cycle 25 Predictions	253B : S6 : Geostationary Lightning Mapper (GLM)—User Applications and Research. Part II	
4:00	Formal Poster Viewing Reception (Hall B)							4:00
6:00	Sessions End for the Day							6:00

Tuesday, 14 January 2020						
	15SOCIETY	15URBAN	12AEROSOL	11ENERGY	11HEALTH	10PYTHON
8:30	152 : S4A : Beyond the Specifics: Reflections and Insights on the Bigger Picture Ballroom East : PD1 : Policy Leadership in Weather, Water, and Climate. Part I 151B : S4B : The Storm Inside: The Personal Side of Communicating Hazardous Weather Information. Part I	104B : S4 : Air Quality and Health Impacts in Urban Environment	208 : S4 : Aerosol–Cloud Interactions in Warm Clouds. Part I	256 : S5 : Resource Assessment. Part I	153B : S4 : Understanding, Predicting, and Providing Early Warning for Climate-Sensitive Infectious Diseases	251 : S4 : R2O Progress in GNSS Radio Occultations and Reflectometry for Numerical Weather Prediction, Ionospheric Studies and Prediction, and Ocean Surface Properties 252A : PD1 : Best Practices, Private–Public Partnerships, and Multicommunity Efforts for the Transition of R2O in the Weather, Water, and Climate Enterprises Including Successes, Failures, and Lessons Learned—Part I [Panel Discussion]
10:00	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby, Hall A)					
10:30	151B : PD3 : The Storm Inside: The Personal Side of Communicating Hazardous Weather information. Part II 152 : PD4 : Back to the Future: Transitioning Social and Behavioral Science into the Next 100 Years Ballroom East : PD2 : Policy Leadership in Weather, Water, and Climate. Part II	104B : S5 : Urban Influence on Precipitation	208 : S5 : Aerosol–Cloud Interactions in Warm Clouds. Part II	256 : S6 : Resource Assessment. Part II	153B : J18 : Health Economic Impacts of Extreme Weather Events and Ecosystem Change	251 : S5B : Emerging Technologies for Earth or Space Sciences to Address Unmet, Targeted Needs/Requirements in the Research or Operational Communities 252A : S5A : Best Practices, Private–Public Partnerships, and Multicommunity Efforts for the Transition of R2O in the Weather, Water, and Climate Enterprises Including Successes, Failures, and Lessons Learned—Part II
11:00				256 : S7 :Wind Forecasting. Part II		
12:00	Lunch Break					
1:30	151B : L2 : Walter Orr Roberts Lecture 152 : S5 : Economics of the Weather, Water, and Climate Enterprise. Part I	104B : S6 : Climate Change Adaptation Strategies for Coastal Urban Tropical Environments	208 : J23 : Aerosol–Climate Interactions from Regional to Global Scale. Part I	256 : S8 : Offshore Wind	153B : S5 : Weather, Climate, and Our Mental Health	252A : S6A : Best Practices, Private–Public Partnerships, and Multicommunity Efforts for the Transition of R2O in the Weather, Water, and Climate Enterprises Including Successes, Failures, and Lessons Learned—Part III 251 : S6B : Significant Role of Calibration/Validation in the Transition of Research to Operations to Provide the Science-to-Operations-to-Societal Benefits
2:30	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby)					
3:00	151B : PD5 : Reflecting on the Past, Present, and Future of NWS Service Assessments: Integrating Social Science into a Multidisciplinary Approach to Link Information to Knowledge and Society 152 : S6 : Economics of the Weather, Water, and Climate Enterprise. Part II	104B : S7 : Weather Forecasting for Cities: Recent Advances and Case Studies	208 : J29 : Aerosol–Climate Interactions from Regional to Global Scale. Part II	256 : PD1 : Policy Roundtable	153B : S6 : Managing Extreme Heat's Health Risk	252A : S7 : Best Practices, Private–Public Partnerships, and Multicommunity Efforts for the Transition of R2O in the Weather, Water, and Climate Enterprises Including Successes, Failures, and Lessons Learned—Part IV 251 : J30 : Transitioning Artificial Intelligence (AI) Prediction Systems to Operations
4:00	Formal Poster Viewing Reception (Hall B)					
6:00	Sessions End for the Day					

Wednesday, 15 January 2020						
	PRESSESSIONS	SCHUBERTSYMP	48BROADCAST	36EIPT	34HYDRO	33CVC
8:30		210C : S1 : Moist Processes Ranging from Stratocumulus to Deep Convection		157C : J32 : Common Technology Review—Past, Present, and Future 155 : S8B : Radar Technologies and Applications. Part I	253A : J33 : From Droughts to Deluges—Learning from Practitioners How to Value the Human Health and Societal Impacts of Hydrologic Disasters 253C : S9 : Advances in Evaporation and Evaporative Demand. Part I	154 : J34 : Monsoon Dynamics: Variability, Change, and Impacts 150 : J35 : Earth System Modeling and Climate Change (e.g., Earth System Modeling, Regional Climate Modeling, Climate Change, Carbon Cycle). Part II
8:45			204AB : S6 : Weather and Climate, Observing, Forecasting, Communications, and Decisions: What We Have Learned and Where We Are Heading			
10:00			Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby, Hall A)			
10:30	210AB : PF7 : An Engineer, a Climatologist, and a Social Scientist Walk into a Bar: Tough Choices on a Warming Planet	210C : S2 : Tropical Cyclones. Part I	204AB : S7 : Challenges in the Changing Media World	155 : S9B : Radar Technologies and Applications. Part II 157C : S9A : Application of Autonomous Observing Platforms to Enhance Our Understanding of the Atmosphere and Ocean: Observations, Impacts, Indicators, and Understanding Change	253C : S10A : Advances in Evaporation and Evaporative Demand. Part II 253A : S10B : Snow Processes and Melt Detection through Remote Sensing, Modeling, and Data Assimilation	154 : J41 : Earth System Modeling and Climate Change (e.g., Earth System Modeling, Regional Climate Modeling, Climate Change, Carbon Cycle). Part III 150 : S8A : Identifying the Climate Change Signal in Weather Events. Part I
12:00			Lunch Break			
1:30		210C : S3 : Tropical Cyclones. Part II	204AB : S8 : Coping with Twenty-First-Century Issues. Part I	157C : S10A : Software Engineering and Cyberinfrastructure for Environmental Processing 155 : S10B : Radar Technologies and Applications. Part III	253C : L3 : 2020 Horton Lecture	151A : S9B : Numerical Modeling of Wildfire and Wildfire Impacts 258A : S9C : Severe Weather: Predictability, Uncertainty, and Best Use of Forecast Information. Part II 257AB : S9A : Advances in Cloud- and Convection-Resolving Numerical Weather Models. Part II
2:30			Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby)			
3:00		210C : S4 : Tropical to Global Atmospheric Circulation Systems	204AB : PD2 : Coping with Twenty-First-Century Issues. Part II	157C : J49 : FAIR and Open Data within the Atmospheric Sciences. Part I 155 : S11B : Radar Technologies and Applications. Part IV	253A : J50 : Heavy Precipitation and Flood Risk under a Changing Climate. Part I 253C : S11 : Earth Observations and Environmental Modeling for Agriculture and Food Security. Part I	150 : S10A : In Situ Measurements of the Earth System 154 : S10B : Understanding Extreme and Compound Weather Events. Part II
4:00			Formal Poster Viewing Reception (Hall B)			
6:00			Sessions End for the Day			
6:00			Centennial Celebration (Grand Ballroom)			

Wednesday, 15 January 2020							
	29EDUCATION	26PROBSTAT	25APPLIED	24IOAS	22ATCHEM	22WXMOD	21AIRPOL
8:30	258C : S5 : University Education Initiatives	260 : J37 : Physical Interpretability in Machine Learning	153A : S6 : Climate Extremes of 2019: Impacts in the North Central Region. Part I	259A : S8 : Satellite Data Assimilation for High-Impact Weather	207 : S8B : Boundary Layer Processes and Biogeochemistry in Amazonia 206B : S8A : ACMAP: Atmospheric Chemistry Modeling and Analysis Program. Part III	105 : J38 : Studies Related to Climate Engineering	211 : J39 : Air Pollution Health Impacts Assessments
10:00	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby, Hall A)						
10:30	258C : S6 : Innovative Teaching Strategies in University Instruction	260 : S6 : The History and Impact of Operational Postprocessing and Current Status. Part I (Centennial)	153A : S7 : Climate Extremes of 2019: Impacts in the North Central Region. Part II	259A : S9 : Radar Data Assimilation for Convective Forecasting	207 : S9B : Air Quality Forecasting of Pollution Episodes. Part I 206B : S9A : ACMAP: Atmospheric Chemistry Modeling and Analysis Program. Part IV	105 : PD1 : Ethics and Governance of Weather Modification and Geoengineering Panel Discussion	211 : S9 : Wildfires Attributes and Air Pollution Impacts in a Changing Climate
12:00	Lunch Break						
1:30	258C : S7 : Experiential Learning for Undergraduates in the Atmospheric Sciences	260 : S7 : The History and Impact of Operational Postprocessing and Current Status. Part II (Centennial)	153A : S8 : State Climate Offices: Applying Climatological Expertise to Serve at the State and Local Levels as a Part of the National Climate Services Partnership. Part I	259A : S10 : Numerical Analysis and Prediction Experiments Involving Observations: Data Impact and Observation Sensitivity Tests. Part I	206B : S10A : ACMAP: Atmospheric Chemistry Modeling and Analysis Program. Part V 207 : S10B : Air Quality Forecasting of Pollution Episodes. Part II	105 : J45 : Anthropogenic Impacts on Clouds, Precipitation, and Climate	211 : S10 : Advancements and Needs in Dispersion Modeling. Part I
2:30	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby)						
3:00		260 : S8 : Novel Methods in Postprocessing	153A : S9 : State Climate Offices: Applying Climatological Expertise to Serve at the State and Local Levels as a Part of the National Climate Services Partnership—Part II	259A : S11 : Numerical Analysis and Prediction Experiments Involving Observations: Data Impact and Observation Sensitivity Tests. Part II	206B : S11 : ACMAP: Atmospheric Chemistry Modeling and Analysis Program. Part VI		211 : S11 : Advancements and Needs in Dispersion Modeling. Part II
4:00	Formal Poster Viewing Reception (Hall B)						
6:00	Sessions End for the Day						
6:00	Centennial Celebration (Grand Ballroom)						

Wednesday, 15 January 2020								
	20SMOI	20ARAM	19AI	18COASTAL	18HISTORY	17SPACEWX	16GOESRJ PSS	
8:30	203 : S8 : Innovative Measurements	206A : S8 : Session on Advancements in the Analysis and Prediction of Aircraft Icing and Methods/Tools for Icing Mitigation	156A : S7B : Deep Learning Applications for Environmental Science. Part II 156BC : S7A : AI in Radar Observations	158 : S8 : Hazard Assessment and Prediction in the Coastal Marine Environment. Part II		205A : S9 : Ensemble Modeling and Data Assimilation Improving Forecast Accuracy	253B : S7A : Advanced Planning and System Architectures for Next-Generation Weather Enterprise—Space Architecture 255 : S7B : Using AI (Artificial Intelligence) to Exploit Satellite Earth Observations	
8:45					104A : S8 : Remarkable Meteorologists and Their Contributions. Part I		8:45	
10:00	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby, Hall A)							10:00
10:30	203 : S9 : Utilizing UAS Systems for Weather Observations. Part I	206A : J42 : Statistical Methods for Optimized Aviation Hazard Detection and Prediction	156A : S8 : AI for Environmental Science. Part IV 156BC : J43 : Tropical Cyclone Analysis and Prediction with Machine Learning I	158 : S9 : Hazard Assessment and Prediction in the Coastal Marine Environment. Part III	104A : S9 : Remarkable Meteorologists and Their Contributions. Part II	205A : S10 : Panel: Small Business Innovation Research (SBIR) for Space Weather	255 : S8B : The Past, Present, and Future of Satellite Climate Data Records. Part I 253B : S8A : Advanced Planning and System Architectures for the Next-Generation Weather Enterprise—Ground Architecture	
11:15					104A : S10 :Charles Brooks and the History before the AMS		11:15	
11:45						205A : S11 :New Instruments, Platforms, and Initiatives for Space Weather. Part I	11:45	
12:00	Lunch Break							12:00
1:30	203 : S10 : Utilizing UAS Systems for Weather Observations. Part II	206A : PD1 : Panel Discussion: Mitigating Aviation Weather Hazards and Managing Operational Impacts in 2050	156A : S9A : AI Applications for Air Quality 156BC : S9B : Machine Learning for Subseasonal-to-Seasonal Prediction	158 : S10 : Machine Learning and Big Data Applications in the Coastal Environment	104A : S11 : Other Topics in the History of Meteorology and Related Sciences	205A : S12 : New Instruments, Platforms, and Initiatives for Space Weather. Part II	255 : S9B : The Past, Present, and Future of Satellite Climate Data Records. Part II 253B : S9A : National and International Education, Training, and User Readiness Activities for the New-Generation Operational Environmental Satellite Systems. Part I	
2:30	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby)							2:30
3:00	203 : S11 : Historical Observations and Measurements	206A : S9 : Advancements in the Analysis, Nowcasting, and Prediction of Convectively Induced Turbulence	156A : J52 : Artificial Intelligence Applications in the Coastal Environment 156BC : S10 : The Future of AI in Environmental Science			205A : S13 : Advances in Research and Modeling of Space Weather Drivers. Part I	253B : S10 : National and International Education, Training, and User Readiness Activities for the New-Generation Operational Environmental Satellite Systems. Part II	
4:00	Formal Poster Viewing Reception (Hall B)							4:00
6:00	Sessions End for the Day							6:00
6:00	Centennial Celebration (Grand Ballroom)							6:00

Wednesday, 15 January 2020							
	15SOCIETY	15URBAN	12AEROSOL	11ENERGY	11HEALTH	10PYTHON	10LIDAR
8:30	152 : S7 : Toward Infrastructure Standards for a Changing Climate: National and Global Perspectives 151B : PD6 : Lessons Learned from Health Communication: Considering the Weather Communication Implications of Conflicting Information and the Future of Message Consistency in the Weather Enterprise	104C : S8B : Urban Canopy and Boundary Layer Processes: Observation and Modeling. Part I 104B : S8A : Modeling, Observations, and Mitigation of Extreme Heat in Cities. Part I	208 : S6 : Advances in Observational and Modeling Studies of the Role of Mineral Dust in the Earth System. Part I	256 : S9 : Solar Forecast Improvement Projects. Part I	153B : J40 : Living in a World of Rapid Global Environmental Changes: The Intersection of Environmental Disasters, Human Health, and Vulnerable Populations (cosponsored by the Board on Women and Minorities)		209 : S3 : Advances in Data Assimilation and Forecast Modeling Using Lidar 8:30
10:00	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby, Hall A)						10:00
10:30	152 : S8 : Toward Infrastructure Standards for a Changing Climate: Sectors and Approaches	104B : S9A : Modeling, Observations, and Mitigation of Extreme Heat in Cities. Part II 104C : S9B : Urban Canopy and Boundary Layer Processes: Observation and Modeling. Part II	208 : S7 : Advances in Observational and Modeling Studies of the Role of Mineral Dust in the Earth System. Part II	256 : S10 : Solar Forecast Improvement Projects. Part II	153B : S7 : Climate Impacts on Societies: Through a Regional Perspective	157AB : S6 : Teaching, Training, Outreach, and Building Communities around Python	209 : S4 : Lidar Network and Field Campaign Applications 10:30
11:30				256 : S11 :Solar Forecasting. Part I			11:30
12:00	Lunch Break						12:00
1:30	152 : S9B : Social Justice and Scientific Practice in the Twenty-First Century 151B : S9A : Risk Perception and Communication of Weather and Climate Threats. Part I	104C : S10B : Urban Boundary Layers—Modeling and Observations. Part I 104B : S10A : Helping Cities Manage Climate Variability, Change, and Extremes. Part I	208 : S8 : Advances in Observational and Modeling Studies of the Role of Mineral Dust in the Earth System. Part III	256 : S12 : Solar Forecasting. Part II	153B : J46 : On the Shoulders of Giants: Formative Moments for Environment and Health Research (Core Science Keynote) (Centennial)	157AB : S7 : Interactive Tutorials in Python. Part II: Visualization and Data in the Pangeo Ecosystem	209 : S5 : Lidar in Air Quality and Climate Studies 1:30
2:30	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby)						2:30
3:00	152 : PD7 : Social Science and the Weather Enterprise: Progress and Future Directions 151B : S10 : Risk Perception and Communication of Weather and Climate Threats. Part II	104B : S11A : Helping Cities Manage Climate Variability, Change, and Extremes. Part II 104C : S11B : Urban Boundary Layers—Modeling and Observations. Part II	208 : J53 : Core Science Keynotes	256 : S13 : Forecast Evaluation and General Energy Topics	153B : J54 : A Stitch in Time: Protecting and Promoting Health in a Changing Climate	157AB : S8 : Python in Operations and Research to Operations. Part II	209 : S6 : Lidar in Boundary Layer Processes 3:00
4:00	Formal Poster Viewing Reception (Hall B)						4:00
6:00	Sessions End for the Day						6:00
6:00	Centennial Celebration (Grand Ballroom)						6:00

	10R20	8WXCLIMATE	8WRN	8HPC	TROPSYMP1	FUTURESYP	CLIMATEPOLICY	
8:30	252A : S8A : Improving R2O and O2R in the 0–18-h Forecast Range Linking Research and Operations to Forecasters' Needs—Part I 251 : S8B : Special Session: Collaborations between National Weather Service Science and Operations Officers (SOOs)/Development and Operations Hydrologists (DOHs) to Enhance the Transition of Research into Forecast Operations (Invited Speakers)	254A : S5 : Quantifying the Value of Commercial Data Sources for Public Service 252B : PD4 : A Meteorologist's Role in Hazardous Materials Response	153C : S5 : Hurricane Studies and Other Tropical Programmatic Achievements		205B : S3 : Tropical Cyclone Research and Forecasting. Part III: Climate and Theory	258B : PD3 : Development of Automated Forecasting Tools: Types and the Human Role in Their Design	254B : PD1 : Climate Change Impacts, Tipping Points, and the Evidence for Urgency	8:30
10:00	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby, Hall A)							
10:30	252A : S9 : Improving R2O and O2R in the 0–18-h Forecast Range Linking Research and Operations to Forecasters' Needs—Part II 251 : PD2 : NOAA Practices and Policies Enabling R2O Activities to Support End-User Needs—Panel Discussion (Invited Presentations)	252B : S6 : Integrating Decision Support and Service Delivery to Ensure Use-Inspired Products and Services. Part I	153C : S6 : Weather-Ready Nation High-Priority Areas: Hazard Simplification, IDSS, and Probabilistic Forecasting	212 : Challenges Facing HPC Centers Supporting Weather, Water, and Climate	205B : J44 : Tropical Cyclone Rainfall: Physics, Impacts, and Preparedness	258B : PD4 : The Evolving Role of the Human in Weather Prediction and Communication: Use of Automated Forecasting Tools versus Humans	254B : PD2 : The Promise of Climate Mitigation and Restoration through Transformative Technologies	10:30
12:00	Lunch Break							
1:30	251 : S10B : National and International Efforts and Partnerships (i.e., Community Global Modeling): Next Generation Global Prediction System (NGGPS) and Beyond: Improvements, Key Components, and Statistical Techniques to Evaluate Global Models—Part I 252A : S10A : Improving R2O and O2R in the 0–18-h Forecast Range Linking Research and Operations to Forecasters' Needs—Part III	252B : S7A : Integrating Decision Support and Service Delivery to Ensure Use-Inspired Products and Services. Part II 254A : S7B : Plans and Activities Directed at Achieving the Goals of the Weather Research and Forecasting Innovation Act of 2017	153C : S7 : Communicating Confidence and Uncertainty	212 : J47 : Big Data, Big Computing, Bigger Science: High-Performance Computing Enabled Artificial Intelligence	205B : J48 : Tropical Convection. Part II	258B : PD5 : The Evolving Role of the Human in Weather Prediction and Communication: Training and Proficiency for Future Forecasting	254B : PD3 : Evaluating the Solutions: What Integrated Assessment Models Tell Us	1:30
2:30	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby)							
3:00	252A : S11A : Improving R2O and O2R in the 0–18-h Forecast Range Linking Research and Operations to Forecasters' Needs—Part IV 251 : S11B : National and International Efforts and Partnerships (i.e., Community Global Modeling): Next Generation Global Prediction System (NGGPS) and Beyond: Improvements, Key Components, and Statistical Techniques to Evaluate Global Models—Part II	252B : S8 : Integrating Decision Support and Service Delivery to Ensure Use-Inspired Products and Services. Part III	153C : S8 : Bipartisan Budget Act of 2018: How the Improving Forecasting and Assimilation (IFAA) Portfolio Is Building a Weather-Ready Nation	212 : J55 : High-Performance Computing for Numerical Weather Prediction. Part I	205B : S4 : Physical Parameterizations for Tropical Cyclone Prediction	258B : PD6 : The Evolving Role of the Human in Weather Prediction and Communication: Envisioning the Future Forecast Process	254B : PD4 : The Role of Broadcast Meteorologists in Educating the Public about Climate Change Science and Solutions	3:00
4:00	Formal Poster Viewing Reception (Hall B)							
6:00	Sessions End for the Day							
6:00	Centennial Celebration (Grand Ballroom)							

Thursday, 16 January 2020					
	36EIPT	34HYDRO	33CVC	30WAF26NWP	24IOAS
8:30	<p>157C : J56 : FAIR and Open Data within the Atmospheric Sciences. Part II</p> <p>155 : S12B : Radar Technologies and Applications. Part V</p>	<p>253A : J57 : Heavy Precipitation and Flood Risk under a Changing Climate. Part II</p> <p>253C : S12 : Earth Observations and Environmental Modeling for Agriculture and Food Security. Part II</p>	<p>154 : J58 : Variability and Predictability of Climate on Subseasonal-to-Seasonal Time Scales. Part I</p> <p>150 : S11 : Interbasin Interactions between the Pacific, the Atlantic, and the Indian Ocean and Their Impacts on the Global Climate Variability. Part I</p>	<p>257AB : J59 : High-Performance Computing for Numerical Weather Prediction. Part II</p> <p>258B : S11B : Numerical Modeling for Recent Field Campaigns and Testbeds</p> <p>258C : S11A : Integrative Analysis of East Asia Monsoon Frontal System through Observational and Modeling Efforts</p> <p>258A : PD1 : Historical Perspectives on Weather Analysis and Forecasting (Centennial)</p>	<p>259A : S12 : Observing Systems: Atmosphere, Ocean, Land Surface, In Situ, and Remote—Comparisons with Other Observing Systems</p>
9:30	Exhibit Hall Breakfast (Hall A)				
10:30	<p>157C : J63 : FAIR and Open Data within the Atmospheric Sciences. Part III</p> <p>155 : S13B : Radar Technologies and Applications. Part VI</p>	<p>253A : S13B : Precipitation Processes and Observations for Atmospheric, Land Surface, and Hydrological Modeling. Part I</p> <p>253C : S13A : Earth Observations and Environmental Modeling for Agriculture and Food Security. Part III</p>	<p>154 : J64 : Variability and Predictability of Climate on Subseasonal-to-Seasonal Time Scales. Part II</p> <p>150 : S12 : Interbasin Interactions between the Pacific, the Atlantic, and the Indian Ocean, and Their Impacts on the Global Climate Variability. Part II</p>	<p>257AB : S12A : Advanced Physics and Physics Interoperability in Community Models</p> <p>258A : S12B : Advances in Probabilistic Forecasting</p> <p>258C : S12D : Analysis and Forecasting of Tropical Weather</p> <p>258B : S12C : Analysis and Forecasting for Recent Field Campaigns and Testbeds</p>	<p>259A : S13 : Research and Operational Applications on All Spatial and Temporal Scales</p>
12:00	Lunch Break				
1:30		<p>253C : S14A : Improvements to the Analysis and Prediction of Flash Drought and Long-Term Drought. Part I</p> <p>253A : S14B : Precipitation Processes and Observations for Atmospheric, Land Surface, and Hydrological Modeling. Part II</p>	<p>154 : J67 : Variability and Predictability of Climate on Subseasonal-to-Seasonal Time Scales. Part III</p> <p>150 : S13 : Interbasin Interactions between the Pacific, the Atlantic, and the Indian Ocean, and Their Impacts on the Global Climate Variability. Part III</p>	<p>258C : J68 : Python Tools for Weather Analysis and Forecasting</p> <p>258B : S13C : Probabilistic Precipitation Forecast Techniques and Applications</p> <p>258A : S13A : Advances in Satellite Usage for Weather Analysis and Forecasting</p> <p>257AB : S13B : Advances in Unified Modeling Frameworks (from Nowcasting to Climate)</p>	<p>259A : S14 : Integration of Multisensor Observations for Application in Atmospheric and Environmental Monitoring and Forecasting. Part I</p>
3:00	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby)				
3:30		<p>253C : S15A : Improvements to the Analysis and Prediction of Flash Drought and Long-Term Drought. Part II</p> <p>253A : S15B : Precipitation Processes and Observations for Atmospheric, Land Surface, and Hydrological Modeling. Part III</p>		<p>258B : S14B : Numerical and Observational Studies: Microscale and Mesoscale Processes over Complex Terrain</p> <p>258C : S14A : Evaluating Numerical Weather Forecasts in the Tropics</p> <p>258A : J71 : Automated Guidance for Atmospheric Rivers, Flash Floods, and Other Hydrometeorological Extremes</p> <p>257AB : S14C : Seasonal-to-Subseasonal Numerical Weather Prediction</p>	<p>259A : S15 : Integration of Multisensor Observations for Application in Atmospheric and Environmental Monitoring and Forecasting. Part II</p>
5:00	Conference Adjourns				
	5:00				

Thursday, 16 January 2020							
	22ATCHEM	22WXMOD	21AIRPOL	20SMOI	20ARAM	19AI	
8:30	207 : S12B : Quantification and Attribution of Trends in Tropospheric Ozone. Part I 206B : S12A : ACMAP: Atmospheric Chemistry Modeling and Analysis Program. Part VII	105 : S5 : Laboratory Studies and New Technologies for Cloud Seeding	211 : S12 : Measurements and Standards in Air Pollution Meteorology	203 : S12 : Solid Precipitation Measurements	206A : S10 : Influence of U.S. National Security Programs on Improved Analysis and Prediction of Aviation and Range Weather	156A : J60 : Incorporating Data Science and Machine Learning into Atmospheric Science Education 156BC : J61 : Societal and Economic Impacts of AI	
9:30	Exhibit Hall Breakfast (Hall A)						10:00
10:30	206B : S13A : ACMAP: Atmospheric Chemistry Modeling and Analysis Program. Part VIII 207 : S13B : Quantification and Attribution of Trends in Tropospheric Ozone. Part II	105 : S6 : Evaluations of Weather Modification Studies	210C : S13B : Atmospheric Boundary Layer Processes: Accomplishments to Date and Future Research Endeavors 211 : S13A : Source Inversion and Atmospheric Dispersion Model Validation Topics	203 : S13 : Intercomparison and Calibration of Instruments	206A : S11 : Aviation Decision-Making Using Forecast Uncertainty	156BC : J66 : Machine Learning for Subgrid Parameterization in Weather and Climate Models 156A : J65 : Machine Learning Applications in the Energy Sector	
12:00	Lunch Break						12:00
1:30	207 : S14B : Atmospheric Halogen Chemistry and Its Impacts. Part I 206B : S14A : ACMAP: Atmospheric Chemistry Modeling and Analysis Program. Part IX		211 : S14 : Topics on Boundary Layer Meteorology and Atmospheric Dispersion. Part I	203 : S14 : Joint Session with the National Network of Networks Committee: Advances in Products and Services by State Mesonets	206A : S12 : Advancements in the Detection, Prediction, and Decision Support for Mitigating the Effects of Convection and Lightning on Airborne Operations	156BC : J69 : Advances in the Use of Artificial Intelligence Techniques in Support of Aviation, Range, and Aerospace Meteorology	
3:00	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby)						3:00
3:30	206B : S15A : ACMAP: Atmospheric Chemistry Modeling and Analysis Program. Part X 207 : S15B : Atmospheric Halogen Chemistry and Its Impacts. Part II		211 : S15 : Topics on Boundary Layer Meteorology and Atmospheric Dispersion. Part II	203 : S15 : Quality Control and Quality Assurance Procedures	206A : S13 : Overview and Early Results from the In-Cloud Icing and Large-Drop Experiment (ICICLE)	156A : S11B : Tropical Cyclone Analysis and Prediction with Machine Learning. Part II 156BC : S11A : AI for Decision Support	
5:00	Conference Adjourns						5:00

Thursday, 16 January 2020							
	18COASTAL	17SPACEWX	16GOESRJPSS	15SOCIETY	15URBAN	12AEROSOL	
8:30	158 : S11 : Precision Navigation: Increasing the Safety and Efficiency of U.S. Seaports by Providing Mariners with Integrated and Accessible Data and Information. Part I	205A : S14 : Space Weather at Other Planets and Solar Systems	253B : S11A : How JPSS and GOES-R Coupled Resources Improve Forecasting 255 : S11B : Special Topics. Part II	152 : S11B : Managing Complex Science Programs: Unpacking Best Management Practices 151B : S11A : (Dis)continuity in Weather Warnings and Message Consistency	104B : S12 : WUDAPT and Other Urban Datasets	208 : S9 : Aerosol Impacts on Weather Systems. Part I	
9:30	Exhibit Hall Breakfast (Hall A)						10:00
10:30	158 : S12 : Precision Navigation: Increasing the Safety and Efficiency of U.S. Seaports. Part II	205A : S15 : Advances in Research and Modeling of Space Weather Drivers. Part II	255 : S12A : Algorithm Development and New Science Innovation 253B : S12B : Special Session on the JPSS Series Satellite System. Part II	151B : S12B : Vulnerability and Resilience in Weather and Climate Communities 152 : S12A : Probabilities, FACETS, and IWTs	104B : S13 : Remote Sensing for Urban Meteorology (Satellite Based and Ground Based)	208 : S10 : Aerosol Impacts on Weather Systems. Part II	
12:00	Lunch Break						12:00
1:30	158 : S13 : CASPER Special Session: Coastal Air–Sea Interaction Affecting Electromagnetic Wave Propagation. Part I	205A : J70 : Machine Learning and AI for Space Weather	253B : S13B : Special Session on the GOES Series Satellite System. Part II 255 : S13A : Calibration and Validation	151B : S13B : Media Analysis and Social Media Use in Weather and Climate Communication 152 : S13A : Connecting the Dots: Bringing Hazardous Weather Risk Communication Studies and Applications Together for Unified Public Safety Efforts	104B : S14 : Observations and Field Studies of Urban Climate and Processes	208 : S11 : Aerosol Impacts on Weather Systems. Part III	
2:15						208 : S12 :Aerosol–Cloud Interactions in Mixed-Phase Clouds. Part I	
3:00	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby)						3:00
3:30	158 : S14 : CASPER Special Session: Coastal Air–Sea Interaction Affecting Electromagnetic Wave Propagation. Part II	205A : S16 : New Instruments, Platforms, and Initiatives for Space Weather. Part III	253B : S14A : Communication Challenges and Successes within the Satellite and Weather Community 255 : S14B : New Observations and Impacts of Global Wind Profiles from ESA's Aeolus Doppler Wind Lidar Mission: Informing Next-Generation Weather Architectures		104B : S15 : High-Resolution Future Climate Projections for Cities	208 : S13 : Aerosol–Cloud Interactions in Mixed-Phase Clouds. Part II	
5:00	Conference Adjourns						5:00

Thursday, 16 January 2020							
	11ENERGY	10R20	8WXCLIMATE	8WRN	3SMALLSATS	DEISYMP	
8:30	256 : S14 : Big Data Analytics Providing Decision Support, Teleconnections, and General Energy Topics. Part I	252A : S12 : Improving R2O and O2R in the 0–18-h Forecast Range Linking Research and Operations to Forecasters’ Needs—Part V	254A : PD5 : Red Skies in the Morning: How Emergency Managers Leverage Weather Data	153C : S9 : Warning Communication!	252B : S1 : Operational SmallSats: Current Status and Near-Term Plans	8:30	
9:30	Exhibit Hall Breakfast (Hall A)						10:00
10:00						252A : JS62 : Women in the Tropics	
10:30	256 : S15 : Big Data Analytics Providing Decision Support, Teleconnections, and General Energy Topics. Part II		254A : JPD5 : Diversity, Equity, Belongingness, and Inclusion—Where Has the AMS Been and where Should It Be Going?	153C : S10 : Impact-Based Decision Support Services and the Tools That Are Needed	252B : S2 : Progress in Radio Occultation from Small Satellites	10:30	
12:00	Lunch Break						12:00
1:30	256 : S16 : General Wind Energy Topics			153C : S11 : Local IDSS Success Stories and Challenges That Remain	252B : S3 : Cyclone Global Navigation Satellite System (CYGNSS): Applications to Tropical Meteorology and Hydrology. Part I	1:30	
3:00	Coffee Break (NE Lobby A, Northeast Lobby, Northwest Lobby)						3:00
3:30					252B : S4 : Cyclone Global Navigation Satellite System (CYGNSS): Applications to Tropical Meteorology and Hydrology. Part II	3:30	
5:00	Conference Adjourns						5:00

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
A				A (Continued)			
A. Pahlavan, H.	MIDDLESYMP	917	Tue 4:00 PM	Aligo, E.	30WAF26NWP	1240	Wed 4:00 PM
Abdi-Oskoue, M.	8JCSDA	3.2	Tue 10:45 AM	Alizadeh, B.	34HYDRO	548	Tue 4:00 PM
Abdi-Oskoue, M.	22ATCHEM	10B.3	Wed 2:00 PM	Allan, J. N.	15SOCIETY	12A.2	Thu 10:45 AM
Abdolali, A.	18COASTAL	1.3	Mon 9:00 AM	Alland, J. J.	TROPSYMP1	1520	Wed 4:00 PM
Abdolali, A.	18COASTAL	373	Mon 4:00 PM	Allen, A. L.	8WRN	6.4	Wed 11:15 AM
Abdulrasheed, M.	15URBAN	799	Tue 4:00 PM	Allen, D.	22ATCHEM	8A.3	Wed 9:00 AM
Abelman, S.	20ARAM	11.1	Thu 10:30 AM	Allen, E.	24IOAS	238	Mon 4:00 PM
Abernathey, R. P.	10PYTHON	6.1	Wed 10:30 AM	Allen, E.	30WAF26NWP	14B.2	Thu 3:45 PM
Aberson, S. D.	18HISTORY	3.2	Mon 2:15 PM	Allen, J. T.	30WAF26NWP	1A.4	Mon 9:15 AM
Aberson, S. D.	8MJO	J10.4	Mon 3:45 PM	Allen, J. T.	33CVC	5B.4	Tue 11:15 AM
Abraham, J.	18HISTORY	2.6	Mon 11:45 AM	Allen, M. A.	15URBAN	11A.3	Wed 3:45 PM
Abrevaya, E.	19STUDENT	S35	Sun 6:30 PM	Allen, R.	34HYDRO	9.1	Wed 8:30 AM
Abshire, W.	29EDUCATION	2.1	Mon 2:00 PM	Allen, R. J.	12AEROSOL	J23.2	Tue 1:45 PM
Abshire, W.	29EDUCATION	5.3	Wed 9:00 AM	Allen, T.	33CVC	J21.4	Tue 2:15 PM
Abshire, W.	48BROADCAST	6.5	Wed 9:45 AM	Allouche, M.	21AIRPOL	298	Mon 4:00 PM
Ackerman, S.	18HISTORY	4.3	Tue 9:00 AM	Alpert, P.	30WAF26NWP	3A.4	Mon 3:45 PM
Adames-Corralliza, Á.	DICKINSONSYMP	1.1	Tue 1:30 PM	Alzheimer, F.	15SOCIETY	2.1	Mon 10:30 AM
Adams, M. P.	12AEROSOL	3.7	Mon 3:45 PM	Alsumaiei, A. A.	34HYDRO	1089	Wed 4:00 PM
Adams, T. J.	22ATCHEM	285	Mon 4:00 PM	Altassan, K. K.	11HEALTH	4.6	Tue 9:45 AM
Adams, T. E. III	34HYDRO	1A.1	Mon 8:30 AM	Alter, R. E.	20SMOI	309	Mon 4:00 PM
Adams, T. E. III	34HYDRO	5A.1	Tue 8:30 AM	Alto, M.	5INTERNATIONAL	1.4	Tue 9:15 AM
Adams-Selin, R.	30WAF26NWP	2B.2	Mon 2:15 PM	Alvidrez, S.	17SPACEWX	5.5	Tue 9:30 AM
Adams-Selin, R.	30WAF26NWP	165	Mon 4:00 PM	Amiot, C. G.	20SMOI	343	Mon 4:00 PM
Addison, F. I.	20SMOI	13.4	Thu 11:00 AM	Amster, J.	8WXCLIMATE	1.6	Mon 3:15 PM
Adebisi, A.	12AEROSOL	7.2	Wed 10:45 AM	Anand, M. A.	19STUDENT	S221	Sun 6:30 PM
Adkins, K. A.	15URBAN	9B.4	Wed 11:15 AM	Anderson, A. A.	11HEALTH	5.1	Tue 1:30 PM
Adler, R. F.	33CVC	J35.6	Wed 9:45 AM	Anderson, J.	19STUDENT	S220	Sun 6:30 PM
Adler, R. F.	16GOESRJPSS	8B.1	Wed 10:30 AM	Anderson, J. G.	22ATCHEM	15B.1	Thu 3:30 PM
Adler, R. F.	TROPSYMP1	J44.6	Wed 11:45 AM	Anderson, J. L.	24IOAS	3.1	Mon 2:00 PM
Adriaansen, D. R.	20ARAM	8.5	Wed 9:30 AM	Anderson, J. L.	24IOAS	231	Mon 4:00 PM
Adriaansen, D. R.	20ARAM	1332	Wed 4:00 PM	Anderson, M. E.	29EDUCATION	709	Tue 4:00 PM
Agastar, A.	19STUDENT	S127	Sun 6:30 PM	Anderson, W.	33CVC	J67.2	Thu 1:45 PM
Agel, L.	33CVC	J41.3	Wed 11:00 AM	Anderson-Frey, A. K.	30WAF26NWP	8B.6	Wed 11:45 AM
Agel, L.	34HYDRO	J50.3	Wed 3:30 PM	Andreadis, K.	34HYDRO	1081	Wed 4:00 PM
Aguilar Escamilla, J. E.	19AI	362	Mon 4:00 PM	Andreae, M. O.	22ATCHEM	8B.1	Wed 8:30 AM
Ahern, K.	SCHUBERTSYMP	1028	Wed 4:00 PM	Anenberg, S. C.	21AIRPOL	J39.2	Wed 8:45 AM
Ahmadzadeh Araji, H.	33CVC	91	Mon 4:00 PM	Angove, M.	18COASTAL	8.4	Wed 9:15 AM
Ahmadzadeh Araji, H.	DICKINSONSYMP	491	Tue 4:00 PM	Anheuser, J. F.	16GOESRJPSS	1381	Wed 4:00 PM
Ahn, D. H.	SOLOMONSYMP	25	Mon 4:00 PM	Annane, B.	35SMALLSATS	4.4	Thu 4:15 PM
Ahn, J. B.	30WAF26NWP	690	Tue 4:00 PM	Ansari, S.	36EPT	6B.1	Tue 1:30 PM
Ahn, M. S.	8MJO	457	Mon 4:00 PM	Ansari, S.	10PYTHON	8.2	Wed 3:15 PM
Aider, R.	30WAF26NWP	653	Tue 4:00 PM	Anthes, R. A.	18HISTORY	1.4	Mon 9:15 AM
Aizenman, H.	10PYTHON	6.4	Wed 11:30 AM	Anthes, R. A.	20SMOI	13.2	Thu 10:30 AM
Akanda, A. S.	11HEALTH	J54.3	Wed 3:30 PM	Ao, C. O.	24IOAS	5B.3	Tue 11:00 AM
Akimoto, G.	30WAF26NWP	677	Tue 4:00 PM	Ao, L.	48BROADCAST	529	Tue 4:00 PM
Akinbobola, A.	15URBAN	787	Tue 4:00 PM	Ao, X.	15URBAN	1393	Wed 4:00 PM
Al-Khaldi, M.	35SMALLSATS	3.2	Thu 1:45 PM	Aonan, H.	33CVC	1133	Wed 4:00 PM
Alaka, G. J. Jr.	10R2O	1.6	Mon 9:45 AM	Apodaca, K.	24IOAS	4A.2	Tue 8:45 AM
Alaka, L. P.	18COASTAL	3.7	Mon 3:15 PM	Apodaca, K.	24IOAS	8.4	Wed 9:30 AM
Alappattu, D. P.	18COASTAL	14.3	Thu 4:00 PM	Archambault, H.	33CVC	10B.3	Wed 3:30 PM
Alarcon, G. A.	10R2O	J30.3	Tue 3:30 PM	Arcomano, T. J.	19AI	8.4	Wed 11:15 AM
Albergel, C.	34HYDRO	5B.2	Tue 8:45 AM	Ardon-Dryer, K.	12AEROSOL	8.3	Wed 2:15 PM
Albers, J. R.	30WAF26NWP	14C.3	Thu 4:00 PM	Ardon-Dryer, K.	21AIRPOL	1326	Wed 4:00 PM
Albrecht, B.	SCHUBERTSYMP	1.2	Wed 8:45 AM	Arellano, A. F. Jr.	22ATCHEM	8A.6	Wed 9:45 AM
Albright, B.	10R2O	3A.2	Mon 2:15 PM	Arend, M.	15URBAN	11B.2	Wed 3:15 PM
Albuquerque, T. T. A.	21AIRPOL	296	Mon 4:00 PM	Aretxabaleta, A. L.	18COASTAL	3.5	Mon 2:45 PM
Alcott, T.	30WAF26NWP	13C.5	Thu 2:30 PM	Arevalo, D. J.	6HPC	3.2	Tue 3:15 PM
Alessandrini, S.	11ENERGY	3.4	Mon 2:45 PM	Arge, C. N.	17SPACEWX	15.1	Thu 10:30 AM
Alessi, M. J.	30WAF26NWP	189	Mon 4:00 PM	Arguez, A.	25APPLIED	2.7	Mon 3:30 PM
Alexander, C.	10R2O	8A.4	Wed 9:30 AM	Arguez, A.	25APPLIED	5.2	Tue 1:45 PM
Alexander, C.	30WAF26NWP	8C.1	Wed 10:30 AM	Arguez, A.	33CVC	611	Tue 4:00 PM
Alexander, C.	8WRN	8.4	Wed 3:45 PM	Arkinson, H.	22ATCHEM	283	Mon 4:00 PM
Alexander, M. J.	MIDDLESYMP	1.3	Tue 9:30 AM	Arms, S. C.	29EDUCATION	1253	Wed 4:00 PM
Alexander, M. J.	22ATCHEM	5A.1	Tue 10:30 AM	Armstrong, M.	36EPT	4A.5	Tue 9:45 AM
Alexander, M. S.	19STUDENT	S107	Sun 6:30 PM	Arsenault, K. R.	25APPLIED	4.3	Tue 11:00 AM
Alfieri, J. G.	34HYDRO	10A.4	Wed 11:15 AM	Arsiso, B. K.	33CVC	114	Mon 4:00 PM
Alfonso Fragomeni, M.	15URBAN	795	Tue 4:00 PM	Artaxo, P.	22ATCHEM	8B.2	Wed 8:45 AM
Alford, A. A.	TROPSYMP1	879	Tue 4:00 PM	Arunachalam, S.	21AIRPOL	1.0	Mon 8:30 AM
Aliabadi, A. A.	15URBAN	8B.3	Wed 9:00 AM	Arunachalam, S.	21AIRPOL	6.3	Tue 11:00 AM
Aliabadi, A. A.	15URBAN	9B.6	Wed 11:45 AM	Asel, M.	19STUDENT	S202	Sun 6:30 PM
Aliabadi, A. A.	21AIRPOL	10.4	Wed 2:15 PM	Ash, K. D.	15SOCIETY	3A.2	Mon 2:30 PM
Alibrahim, S.	17SPACEWX	5.1	Tue 8:30 AM	Asharaf, S.	35SMALLSATS	3.6	Thu 2:45 PM
Alifdini, I.	11ENERGY	6.2	Tue 10:45 AM	Ashley, W. S.	15SOCIETY	L2.1	Tue 1:30 PM

PRESENTER INDEX

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
A (Continued)				B (Continued)			
Ashley, W. S.	33CVC	9B.3	Wed 2:00 PM	Barlage, M.	34HYDRO	10A.5	Wed 11:30 AM
Askar, A. A.	15SOCIETY	13B.3	Thu 2:00 PM	Barlow, J. F.	21AIRPOL	2.1	Mon 10:30 AM
Atkins, T.	16GOESRJPSS	1.3	Mon 9:00 AM	Barlow, J. F.	15URBAN	9B.2	Wed 10:45 AM
Auer, I.	15URBAN	10A.2	Wed 2:00 PM	Barnes, E. A.	19AI	J17.1	Tue 10:30 AM
Auerswald, T.	22WXMOD	1317	Wed 4:00 PM	Barnes, E. A.	33CVC	J64.1	Thu 10:30 AM
Austin, E. J.	8WXCLIMATE	2.1	Tue 10:30 AM	Barnes, T.	29EDUCATION	PD1.1	Mon 8:30 AM
Avery, A.	20ARAM	3.4	Mon 2:45 PM	Barrett, B. S.	30WAF26NWP	172	Mon 4:00 PM
Avery, K.	19AI	7A.6	Wed 9:45 AM	Barrett, B. S.	5INTERNATIONAL	2.2	Tue 11:00 AM
Avery, M. A.	20SMOI	333	Mon 4:00 PM	Barrett, S.	PRESSESSIONS		Mon 8:30 AM
Avey, S.	10R2O	2.6	Mon 11:45 AM	Barros, A. P.	DICKINSONSYMP	J15.4	Tue 11:30 AM
Avey, S.	20ARAM	4.2	Tue 8:45 AM	Barroso, A.	19STUDENT	S45	Sun 6:30 PM
Avila, L. A.	16IMPACTS	1.3	Mon 9:00 AM	Barry, M.	8WRN	J9.5	Mon 3:00 PM
Avjian, R.	20ARAM	751	Tue 4:00 PM	Barth, M. C.	22ATCHEM	13A.2	Thu 10:45 AM
Ayazpour, Z.	22ATCHEM	1B.6	Mon 9:45 AM	Bartholomew, C. S.	19AI	J69.1	Thu 1:30 PM
Aydell, T.	20SMOI	2.6	Mon 11:45 AM	Bartholy, J.	33CVC	105	Mon 4:00 PM
Ayyad, M.	18COASTAL	10.3	Wed 2:00 PM	Bartolini, W. M.	30WAF26NWP	11B.4	Thu 9:15 AM
Azhar, G. S.	11HEALTH	J18.2	Tue 10:45 AM	Bartolomé, L.	25APPLIED	2.1	Mon 2:00 PM
Azhar, G. S.	11HEALTH	J40.3	Wed 9:00 AM	Barton, N. P.	8WXCLIMATE	4.2	Tue 3:15 PM
Azzaoui, T.	6HPC	830	Tue 4:00 PM	Barton-Grimley, R. A.	22ATCHEM	3A.1	Mon 2:00 PM
B				Bartos, E. A.	SLSSYMPOSIUM1	1.6	Tue 9:45 AM
Ba, M. B.	19AI	11A.6	Thu 4:45 PM	Barts, R. M.	36EIPT	13B.1	Thu 10:30 AM
Bachli, K.	19STUDENT	S217	Sun 6:30 PM	Basara, J. B.	33CVC	1B.1	Mon 8:30 AM
Bachmann, K.	TROPSYMP1	868	Tue 4:00 PM	Basara, J. B.	34HYDRO	14A.6	Thu 2:45 PM
Back, A.	16GOESRJPSS	6.2	Tue 3:15 PM	Bascal, R.	19STUDENT	S36	Sun 6:30 PM
Back, A.	8JCSDA	815	Tue 4:00 PM	Bassill, N. P.	8WXCLIMATE	5.1	Wed 8:30 AM
Backus, B.	35SMALLSATS	2.5	Thu 11:30 AM	Bates, A. V.	10R2O	3B.5	Mon 3:00 PM
Badr, H. S.	19AI	9B.4	Wed 2:15 PM	Bates, D. E.	24IOAS	2.4	Mon 11:15 AM
Baek, E. H.	12AEROSOL	1412	Wed 4:00 PM	Bates, K.	22ATCHEM	12B.1	Thu 8:30 AM
Baggett, C. F.	33CVC	J64.4	Thu 11:15 AM	Battisti, D. S.	18HISTORY	4.7	Tue 10:00 AM
Bagwell, S.	19STUDENT	S142	Sun 6:30 PM	Battle, T. L.	8WXCLIMATE	7B.1	Wed 1:30 PM
Bah, A.	11HEALTH	1477	Wed 4:00 PM	Batzli, S.	36EIPT	5B.5	Tue 11:30 AM
Bai, L.	34HYDRO	604	Tue 4:00 PM	Baughner, E.	29EDUCATION	223	Mon 4:00 PM
Baidar, S.	11ENERGY	1460	Wed 4:00 PM	Bauman, W. H. III	36EIPT	1A.5	Mon 9:45 AM
Bailey, B. M.	26PROBSTAT	5.3	Tue 11:00 AM	Bauman, W. H. III	17SPACEWX	6.2	Tue 10:45 AM
Bajaj, A.	20ARAM	4.3	Tue 9:00 AM	Baumgardner, D.	22WXMOD	5.4	Thu 9:15 AM
Bak, J.	22ATCHEM	1290	Wed 4:00 PM	Baumgardt, D.	34HYDRO	591	Tue 4:00 PM
Baker, D. N.	17SPACEWX	3.2	Mon 11:45 AM	Baxter, M. A.	30WAF26NWP	6B.4	Tue 3:45 PM
Baker, D. N.	17SPACEWX	768	Tue 4:00 PM	Baxter, M. A.	29EDUCATION	6.6	Wed 11:45 AM
Baker, R.	19AI	1B.3	Mon 11:30 AM	Baxter, S.	33CVC	J64.6	Thu 11:45 AM
Baker, R.	16GOESRJPSS	8A.4	Wed 11:15 AM	Beall, S.	22WXMOD	1305	Wed 4:00 PM
Bakhtyar, R.	18COASTAL	1.5	Mon 9:30 AM	Bealo, B. G.	19STUDENT	S6	Sun 6:30 PM
Balashov, N.	22ATCHEM	3A.3	Mon 2:30 PM	Beauchamp, J. G.	16GOESRJPSS	8B.2	Wed 10:45 AM
Balasubramaniam, R.	35SMALLSATS	4.5	Thu 4:30 PM	Beck, J.	30WAF26NWP	8C.2	Wed 10:45 AM
Balbus, J.	11HEALTH	3.2	Mon 2:15 PM	Beck, J.	11HEALTH	1476	Wed 4:00 PM
Balbus, J.	11HEALTH	4.1	Tue 8:30 AM	Becker, E.	33CVC	141	Mon 4:00 PM
Baldwin, M.	MIDDLESYMP	2.1	Tue 10:30 AM	Beckley, I.	19STUDENT	S219	Sun 6:30 PM
Baldwin, M.	10R2O	10A.3	Wed 2:00 PM	Bedard, T.	8WXCLIMATE	6.4	Wed 11:15 AM
Baldwin, P.	18HISTORY	7.1	Tue 3:00 PM	Bednarek, M. R.	18COASTAL	375	Mon 4:00 PM
Balkissoon, S.	11ENERGY	1446	Wed 4:00 PM	Befort, D. J.	8MJO	449	Mon 4:00 PM
Ball, C.	10R2O	J1.4	Mon 9:15 AM	Befort, D. J.	33CVC	5C.1	Tue 10:30 AM
Ballinger, A. P.	33CVC	1151	Wed 4:00 PM	Behl, M.	29EDUCATION	698	Tue 4:00 PM
Ballinger, A. P.	33CVC	1152	Wed 4:00 PM	Beighton, C.	8WXCLIMATE	5.2	Wed 8:45 AM
Balmes, K. A.	10LIDAR	1.1	Mon 8:30 AM	Beitscher, M. R.	30WAF26NWP	7B.3	Wed 9:00 AM
Bals-Elsholz, T. M.	29EDUCATION	4.3	Tue 2:00 PM	Belanger, J. I.	34HYDRO	J20.3	Tue 2:15 PM
Baltes, B.	10R2O	805	Tue 4:00 PM	Belden, S. T.	19STUDENT	S227	Sun 6:30 PM
Baltzer, T.	17SPACEWX	758	Tue 4:00 PM	Bell, A.	20SMOI	332	Mon 4:00 PM
Banacos, P. C.	30WAF26NWP	4B.3	Tue 11:00 AM	Bell, A.	15SOCIETY	1386	Wed 4:00 PM
Bandy, R. S.	8WRN	2.1	Tue 10:30 AM	Bell, J. E.	34HYDRO	J33.2	Wed 8:45 AM
Banks, A.	12AEROSOL	J23.3	Tue 2:00 PM	Bell, M. M.	SCHUBERTSYMP	2.5	Wed 11:30 AM
Banta, R. M.	30WAF26NWP	11B.2	Thu 8:45 AM	Bell, M. B.	19STUDENT	S211	Sun 6:30 PM
Bao, J. W.	8WRN	8.2	Wed 3:15 PM	Bell, T. W.	19STUDENT	S14	Sun 6:30 PM
Baptista, R.	24IOAS	3.7	Mon 3:30 PM	Bell, T. M.	20SMOI	9.5	Wed 11:30 AM
Barbosa, H. D. M. J.	34HYDRO	84	Mon 4:00 PM	Belmadani, A.	33CVC	J41.1	Wed 10:30 AM
Barbre, R. E. Jr.	20ARAM	6.2	Tue 1:45 PM	Belobrajdic, L.	19STUDENT	S204	Sun 6:30 PM
Barclay, K. X.	19STUDENT	S48	Sun 6:30 PM	Bender, L.	30WAF26NWP	675	Tue 4:00 PM
Bardou, M.	8WRN	11.4	Thu 2:15 PM	Benedict, J. J.	33CVC	7A.4	Tue 3:45 PM
Barker, D.	FUTURESYMP	1.5	Mon 9:30 AM	Benedict, K.	15SOCIETY	11A.4	Thu 9:15 AM
Barker, D.	8JCSDA	3.3	Tue 11:00 AM	Beneti, C.	19AI	359	Mon 4:00 PM
Barlage, M.	10R2O	1.1	Mon 8:30 AM	Bengtsson, L. K.	30WAF26NWP	12A.4	Thu 11:15 AM
				Benish, S.	22ATCHEM	3B.5	Mon 3:00 PM
				Benish, S.	SOLOMONSYMP	18	Mon 4:00 PM
				Benjamin, J.	19STUDENT	S170	Sun 6:30 PM
				Benjamin, L.	36EIPT	1B.6	Mon 9:45 AM

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
B (Continued)				B (Continued)			
Benjamin, L.	36EIPT	3A.1	Mon 2:00 PM	Blind-Doskocil, L.	19STUDENT	S231	Sun 6:30 PM
Benjamin, S.	18HISTORY	5.5	Tue 11:30 AM	Bloch, C.	20ARAM	1346	Wed 4:00 PM
Benjamin, S.	30WAF26NWP	J36.1	Wed 8:30 AM	Blomberg, K. R.	34HYDRO	75	Mon 4:00 PM
Bennett, S.	15SOCIETY	3B.4	Mon 2:45 PM	Blount, D. V.	30WAF26NWP	146	Mon 4:00 PM
Benson, D. O.	33CVC	J21.3	Tue 2:00 PM	Bluestein, H. B.	SLSSYMPOSIUM1	920	Tue 4:00 PM
Benson, S.	15URBAN	1.6	Mon 9:45 AM	Blumberg, W. G.	21AIRPOL	13B.6	Thu 11:45 AM
Bentley, A. M.	30WAF26NWP	1B.1	Mon 8:30 AM	Blumenauer, E. J.	34HYDRO	572	Tue 4:00 PM
Berardelli, J. R.	48BROADCAST	3.1	Tue 8:45 AM	Blunn, L. P.	21AIRPOL	6.6	Tue 11:45 AM
Berberich, K.	36EIPT	535	Tue 4:00 PM	Blunt, J. M.	36EIPT	532	Tue 4:00 PM
Berbery, E. H.	33CVC	J58.3	Thu 9:00 AM	Bodine, D.	36EIPT	10B.4	Wed 2:15 PM
Bercos-Hickey, E.	33CVC	108	Mon 4:00 PM	Bodine, D. J.	20SMOI	2.1	Mon 10:30 AM
Bercos-Hickey, E.	33CVC	1122	Wed 4:00 PM	Boe, B. A.	22WXMOD	J12.3	Tue 9:30 AM
Berg, L. K.	11ENERGY	9.4	Wed 9:15 AM	Boe, B. A.	22WXMOD	1307	Wed 4:00 PM
Berger, T.	17SPACEWX	753	Tue 4:00 PM	Boehnert, J.	36EIPT	5B.3	Tue 11:00 AM
Berger, T.	17SPACEWX	J70.5	Thu 2:30 PM	Boettcher, J. B.	30WAF26NWP	10A.4	Wed 3:45 PM
Bergmaier, P.	29EDUCATION	5.5	Wed 9:30 AM	Bogen, N. R.	25APPLIED	2.5	Mon 3:00 PM
Berkoff, T.	16GOESRJPSS	1377	Wed 4:00 PM	Bohne, L.	19STUDENT	S172	Sun 6:30 PM
Berkseth, S.	29EDUCATION	1259	Wed 4:00 PM	Bohne, L.	30WAF26NWP	3A.2	Mon 3:15 PM
Berler, R.	48BROADCAST	1.2	Mon 9:00 AM	Bohrer, G.	21AIRPOL	13B.1	Thu 10:30 AM
Bermudez, O.	8WXCLIMATE	J5.3	Mon 11:00 AM	Boldt, E.	30WAF26NWP	J51.2	Wed 3:15 PM
Bernardet, L.	TROPSYMP1	J24.4	Tue 2:15 PM	Bolinger, R.	25APPLIED	3.6	Tue 9:45 AM
Bernardet, L.	30WAF26NWP	12A.3	Thu 11:00 AM	Bollenbacher, A.	30WAF26NWP	1200	Wed 4:00 PM
Berndt, E.	16GOESRJPSS	1.6	Mon 9:45 AM	Bolt, R. M.	34HYDRO	12.2	Thu 8:45 AM
Berndt, E.	TROPSYMP1	2.2	Tue 10:45 AM	Bolton, M. J.	15SOCIETY	4B.4	Tue 9:15 AM
Bernhardt, J.	30WAF26NWP	J51.3	Wed 3:30 PM	Bolton, M. J.	11HEALTH	5.4	Tue 2:15 PM
Bertozi, B.	12AEROSOL	1442	Wed 4:00 PM	Bombardi, R.	8MJO	J10.1	Mon 3:00 PM
Beslity, J. O.	34HYDRO	557	Tue 4:00 PM	Bonadonna, M. F.	36EIPT	4B.1	Tue 8:30 AM
Besong, K.	33CVC	1169	Wed 4:00 PM	Bonan, G. B.	33CVC	3C.2	Mon 2:30 PM
Bess, A.	19STUDENT	S192	Sun 6:30 PM	Bonan, G. B.	DICKINSONSYMP	J11.1	Tue 8:30 AM
Best, M. J.	34HYDRO	1B.4	Mon 9:15 AM	Bonfils, C.	33CVC	8A.4	Wed 11:15 AM
Best, M. J.	34HYDRO	68	Mon 4:00 PM	Bongard, J.	30WAF26NWP	668	Tue 4:00 PM
Best, M. J.	15URBAN	1407	Wed 4:00 PM	Bonilla, C. A.	30WAF26NWP	1244	Wed 4:00 PM
Betancourt, D. A.	19STUDENT	S160	Sun 6:30 PM	Bonin, T.	30WAF26NWP	J36.5	Wed 9:45 AM
Bethel, J. W.	11HEALTH	J54.1	Wed 3:00 PM	Boose, Y.	12AEROSOL	10.1	Thu 10:30 AM
Beucler, T.	TROPSYMP1	J31.2	Tue 3:15 PM	Borak, J. S.	34HYDRO	72	Mon 4:00 PM
Beucler, T.	19AI	J66.1	Thu 10:30 AM	Borbor-Cordova, M. J.	11HEALTH	J40.4	Wed 9:15 AM
Beveridge, N.	19AI	368	Mon 4:00 PM	Borghoff, W. R.	30WAF26NWP	154	Mon 4:00 PM
Bevington, K.	8WXCLIMATE	8.1	Wed 3:00 PM	Borovikov, A.	33CVC	1172	Wed 4:00 PM
Bewley, J. L.	20SMOI	11.3	Wed 3:30 PM	Borrmann, S.	SOLOMONSYMP	28	Mon 4:00 PM
Bhatia, K.	33CVC	1124	Wed 4:00 PM	Bosart, L.	16IMPACTS	1.5	Mon 9:30 AM
Bhattacharjee, P.	22ATCHEM	9B.2	Wed 10:45 AM	Bosart, L. F.	18HISTORY	6.1	Tue 1:30 PM
Bhimireddy, S. R.	21AIRPOL	10.2	Wed 1:45 PM	Bosart, L. F.	30WAF26NWP	5B.4	Tue 2:15 PM
Bhowmick, R.	19STUDENT	S3	Sun 6:30 PM	Bosart, L. F.	33CVC	628	Tue 4:00 PM
Bhuiyan, M. A. E.	10R2O	J30.4	Tue 3:45 PM	Bou-Zeid, E.	15URBAN	4.2	Tue 8:45 AM
Bian, H.	22ATCHEM	9A.4	Wed 11:15 AM	Bou-Zeid, E.	21AIRPOL	14.2	Thu 1:45 PM
Bianchi, C.	8WXCLIMATE	J5.2	Mon 10:45 AM	Boudouridis, A.	17SPACEWX	760	Tue 4:00 PM
Bianco, L.	11ENERGY	12.1	Wed 1:30 PM	Boukabara, S. A.	19AI	2B.3	Mon 2:30 PM
Biasutti, M.	33CVC	2A.3	Mon 11:00 AM	Boukabara, S. A.	19AI	10.3	Wed 3:30 PM
Biasutti, M.	33CVC	1165	Wed 4:00 PM	Bowden, A. F. M.	19STUDENT	S126	Sun 6:30 PM
Bieber, P.	12AEROSOL	2.4	Mon 11:15 AM	Bower, E.	TROPSYMP1	1514	Wed 4:00 PM
Bieda, S. W. III	8WRN	2.5	Tue 11:30 AM	Bowers, B. R.	30WAF26NWP	160	Mon 4:00 PM
Bieli, M.	19AI	11B.3	Thu 4:00 PM	Bowlan, M. A.	16GOESRJPSS	9A.1	Wed 1:30 PM
Bieringer, P.	20ARAM	4.4	Tue 9:15 AM	Boyce, B.	36EIPT	2B.1	Mon 10:30 AM
Bieringer, P. E.	21AIRPOL	6.4	Tue 11:15 AM	Boyd, K.	29EDUCATION	219	Mon 4:00 PM
Biernat, K. A.	33CVC	625	Tue 4:00 PM	Boyer, C.	11HEALTH	7.6	Wed 11:45 AM
Bieszczad, J.	34HYDRO	1113	Wed 4:00 PM	Bozorgmehr, B.	15URBAN	10B.1	Wed 1:30 PM
Bigalke, S. J.	19STUDENT	S50	Sun 6:30 PM	Brammer, A.	10PYTHON	802	Tue 4:00 PM
Bilotta, R. G.	36EIPT	5B.2	Tue 10:45 AM	Brammer, A.	30WAF26NWP	1220	Wed 4:00 PM
Birner, T.	SOLOMONSYMP	27	Mon 4:00 PM	Branch, O.	22WXMOD	J45.4	Wed 2:15 PM
Birner, T.	MIDDLESYMP	1.1	Tue 8:30 AM	Branch, O.	22WXMOD	1318	Wed 4:00 PM
Birner, T.	SCHUBERTSYMP	2.2A	Wed 10:45 AM	Brandi, A.	15URBAN	15.4	Thu 4:30 PM
Biryukov, S.	19AI	4.2	Tue 10:45 AM	Brannan, A. L.	TROPSYMP1	854	Tue 4:00 PM
Biswas, M. K.	TROPSYMP1	1512	Wed 4:00 PM	Branscome, L. E.	8WXCLIMATE	2.3	Tue 11:00 AM
Biswas, S. K.	34HYDRO	1058	Wed 4:00 PM	Brasseur, G.	SOLOMONSYMP	1.2	Mon 8:45 AM
Bitting, M.	19STUDENT	S46	Sun 6:30 PM	Brasseur, G.	22ATCHEM	6.1	Tue 1:30 PM
Black, M. R.	16GOESRJPSS	2.4	Mon 11:15 AM	Braun, S. A.	TROPSYMP1	2.1	Tue 10:30 AM
Black, P. G.	TROPSYMP1	2.5	Tue 11:30 AM	Bray, M.	19STUDENT	S92	Sun 6:30 PM
Black, T.	19STUDENT	S224	Sun 6:30 PM	Bray, M.	30WAF26NWP	179	Mon 4:00 PM
Black, T.	19STUDENT	S228	Sun 6:30 PM	Breezy, D.	48BROADCAST	2.3	Mon 11:00 AM
Blackwell, W. J.	24IOAS	1.3	Mon 9:15 AM	Brekke, L. D.	36EIPT	J49.3	Wed 3:30 PM
Blake, E. S.	8MJO	J10.3	Mon 3:30 PM	Bremenkamp, M.	SLSSYMPOSIUM1	941	Tue 4:00 PM
Blank, L. R.	30WAF26NWP	185	Mon 4:00 PM	Bresch, J. F.	30WAF26NWP	12C.6	Thu 11:45 AM
Blankenship, C. B.	34HYDRO	601	Tue 4:00 PM	Bresciani, C.	DICKINSONSYMP	490	Tue 4:00 PM
Blanton, B.	18COASTAL	2.2	Mon 10:45 AM				

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
B (Continued)				B (Continued)			
Breton, S. P.	11ENERGY	7.1	Tue 11:00 AM	Burrows, D. A.	33CVC	J67.5	Thu 2:30 PM
Brettenny, W. J.	19AI	J65.1	Thu 10:30 AM	Burrows, E. C.	12AEROSOL	1419	Wed 4:00 PM
Brewer, M.	20SMOI	10.4	Wed 2:15 PM	Burrows, K.	11HEALTH	5.2	Tue 1:45 PM
Brewer, M. J.	8WXCLIMATE	7A.2	Wed 1:45 PM	Burzdzak, J.	30WAF26NWP	672	Tue 4:00 PM
Brewster, K.	30WAF26NWP	J59.2	Thu 8:45 AM	Busalacchi, A. J.	24IOAS	1.1	Mon 8:30 AM
Brewster, K. A.	20SMOI	347	Mon 4:00 PM	Butler, A. H.	33CVC	125	Mon 4:00 PM
Brewster, K. A.	10R2O	3A.4	Mon 2:45 PM	Butler, A. H.	MIDDLESYMP	887	Tue 4:00 PM
Brewster, K. A.	8WXCLIMATE	5.3	Wed 9:00 AM	Butler, D.	SLSSYMPOSIUM1	983	Tue 4:00 PM
Bridger, A. F. C.	33CVC	637	Tue 4:00 PM	Butler, N. E.	19STUDENT	S143	Sun 6:30 PM
Bridger, A. F. C.	30WAF26NWP	1189	Wed 4:00 PM	Byon, J. Y.	15URBAN	11B.3	Wed 3:30 PM
Britt, K. C.	SLSSYMPOSIUM1	949	Tue 4:00 PM	Byrne, J. F.	33CVC	1156	Wed 4:00 PM
Brizius, A.	PRESSESSIONS	PF3.2	Mon 2:00 PM	Bytheway, J. L.	34HYDRO	14B.2	Thu 1:45 PM
Broadbent, A. M.	15URBAN	15.1	Thu 3:30 PM				
Broccoli, V.	22ATCHEM	1283	Wed 4:00 PM				
Broccoli, A. J.	33CVC	3A.2	Mon 2:15 PM				
Bromley, G.	33CVC	118	Mon 4:00 PM				
Brooke, J. K.	34HYDRO	1B.3	Mon 9:00 AM				
Brooke, J. K.	34HYDRO	69	Mon 4:00 PM				
Brooks, H. E.	18HISTORY	6.4	Tue 2:15 PM				
Brooks, J. L.	34HYDRO	57	Mon 4:00 PM				
Brost, J. J.	8WRN	2.6	Tue 11:45 AM				
Brothers, M.	10R2O	1480	Wed 4:00 PM				
Brotherton, J. M.	8WRN	10.3	Thu 11:00 AM				
Brousse, O.	22ATCHEM	1296	Wed 4:00 PM				
Brown, A.	8WRN	J9.6	Mon 3:15 PM				
Brown, B. G.	26PROBSTAT	3.7	Mon 3:45 PM				
Brown, E. K.	30WAF26NWP	7B.5	Wed 9:30 AM				
Brown, J. M.	30WAF26NWP	8C.3	Wed 11:00 AM				
Brown, K.	18HISTORY	2.5	Mon 11:30 AM				
Brown, M. C.	SLSSYMPOSIUM1	994	Tue 4:00 PM				
Brown, M. E.	11HEALTH	7.2	Wed 10:45 AM				
Brown, P. T.	33CVC	1C.5	Mon 9:45 AM				
Brown, S. T.	3SMALLSATS	1.1	Thu 8:30 AM				
Brown, S. S.	22ATCHEM	15B.6	Thu 4:45 PM				
Brown, T. J.	16IMPACTS	3.2	Mon 2:15 PM				
Brown, V.	29EDUCATION	3.2	Tue 8:45 AM				
Brown, V.	8WRN	2.3	Tue 11:00 AM				
Brown, V.	15SOCIETY	PD5.1	Tue 3:00 PM				
Brown, V.	34HYDRO	5A.2	Tue 8:45 AM				
Brown, W. O. J.	20SMOI	312	Mon 4:00 PM				
Bruce, C. M.	19STUDENT	S94	Sun 6:30 PM				
Bruckner, M.	19STUDENT	S34	Sun 6:30 PM				
Bruhwyler, L.	SOLOMONSYMP	6	Mon 4:00 PM				
Bruick, Z. S.	10PYTHON	800	Tue 4:00 PM				
Bruintjes, R.	22WXMOD	2.1	Mon 10:30 AM				
Brune, W. H.	22ATCHEM	14A.5	Thu 2:30 PM				
Brunke, M.	33CVC	J41.4	Wed 11:15 AM				
Bruss, S.	23ASLI	2.3	Wed 9:30 AM				
Bruyère, C. L.	33CVC	9A.2	Wed 1:45 PM				
Buban, M. S.	34HYDRO	63	Mon 4:00 PM				
Buban, M. S.	30WAF26NWP	12A.6	Thu 11:45 AM				
Bucci, L.	TROPSYMP1	876	Tue 4:00 PM				
Bucci, L. R.	24IOAS	2.2	Mon 10:45 AM				
Buckee, C. O.	34HYDRO	J33.5	Wed 9:30 AM				
Buckheit, J.	11ENERGY	7.2	Tue 11:15 AM				
Budai, J. W.	8WRN	10.2	Thu 10:45 AM				
Buizza, R.	4PREDICTABILITY	J14.2	Tue 9:00 AM				
Bulock, O. R. Jr.	21AIRPOL	3.2	Mon 2:15 PM				
Bunker, R. C.	34HYDRO	586	Tue 4:00 PM				
Bunn, P.	11ENERGY	1458	Wed 4:00 PM				
Bunting, L.	19STUDENT	S174	Sun 6:30 PM				
Burg, T.	30WAF26NWP						

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
C (Continued)				C (Continued)			
Carr, F. H.	8WXCLIMATE	3A.1	Tue 1:30 PM	Chen, M.	34HYDRO	576	Tue 4:00 PM
Carreno, N.	8WXCLIMATE	J8.3	Mon 2:30 PM	Chen, M.	24IOAS	4A.3	Tue 9:00 AM
Carroll, B. J.	10LIDAR	415	Mon 4:00 PM	Chen, N.	24IOAS	233	Mon 4:00 PM
Carroll-Smith, D.	TROPSYMP1	870	Tue 4:00 PM	Chen, P. J.	16GOESRJPSS	7B.1	Wed 8:30 AM
Carstens, J. D.	TROPSYMP1	855	Tue 4:00 PM	Chen, R.	19STUDENT	S47	Sun 6:30 PM
Carter, K. C.	11ENERGY	16.1	Thu 1:30 PM	Chen, S.	16GOESRJPSS	4.4	Tue 11:30 AM
Carton, C.	20SMOI	3.6	Mon 3:15 PM	Chen, S. P.	24IOAS	15.3	Thu 4:00 PM
Carton, J.	26PROBSTAT	J28.4	Tue 3:45 PM	Chen, S. H.	8JCSDA	4.3	Tue 2:00 PM
Cartwright, N.	19STUDENT	S193	Sun 6:30 PM	Chen, S. H.	12AEROSOL	10.2	Thu 10:45 AM
Casa, D. J.	11HEALTH	1.1	Mon 8:30 AM	Chen, S.	22WXMOD	4.3	Tue 2:00 PM
Case, J. L.	30WAF26NWP	152	Mon 4:00 PM	Chen, S.	22WXMOD	1309	Wed 4:00 PM
Casey, S. P. F.	24IOAS	2.5	Mon 11:30 AM	Chen, S.	10R2O	1.2	Mon 8:45 AM
Casey, S. P. F.	24IOAS	232	Mon 4:00 PM	Chen, S.	30WAF26NWP	644	Tue 4:00 PM
Casteel, M.	15SOCIETY	13A.3	Thu 2:00 PM	Chen, W. T.	SCHUBERTSYMP	1009	Wed 4:00 PM
Castillo, A.	19STUDENT	S33	Sun 6:30 PM	Chen, X. Y.	22ATCHEM	288	Mon 4:00 PM
Castillo, R.	19STUDENT	S130	Sun 6:30 PM	Chen, X.	34HYDRO	14B.6	Thu 2:45 PM
Castro, C. L.	8WXCLIMATE	4.3	Tue 3:30 PM	Chen, X.	8MJO	462	Mon 4:00 PM
Castro, C. L.	33CVC	J34.4	Wed 9:15 AM	Chen, X.	TROPSYMP1	1.5	Tue 9:30 AM
Caudill, E.	34HYDRO	564	Tue 4:00 PM	Chen, Y.	19STUDENT	S115	Sun 6:30 PM
Caumont, O.	30WAF26NWP	158	Mon 4:00 PM	Chen, Y.	34HYDRO	545	Tue 4:00 PM
Cauzzi, G.	17SPACEWX	16.2	Thu 3:45 PM	Chen, Z.	18COASTAL	9.2	Wed 10:45 AM
Cazade, G.	11ENERGY	2.5	Mon 11:30 AM	Cheng, A.	10R2O	J30.2	Tue 3:15 PM
Cazade, G.	11ENERGY	3.3	Mon 2:30 PM	Cheng, P.	19STUDENT	S31	Sun 6:30 PM
Cazes Boezio, G.	SCHUBERTSYMP	1005	Wed 4:00 PM	Cheng, V. Y. S.	34HYDRO	13B.2	Thu 10:45 AM
Ceballos, L. I.	29EDUCATION	7.4	Wed 2:15 PM	Cheng, Y. M.	33CVC	111	Mon 4:00 PM
Cegnar, T.	48BROADCAST	L 1.1	Mon 9:15 AM	Chentao, S.	33CVC	1130	Wed 4:00 PM
Cerrai, D.	11ENERGY	2.2	Mon 10:45 AM	Cheong, B. L.	36EIP	13B.2	Thu 10:45 AM
Cerrai, D.	30WAF26NWP	161	Mon 4:00 PM	Cheresnick, D.	36EIP	2B.4	Mon 11:15 AM
Cerrai, D.	19AI	J65.2	Thu 10:45 AM	Cherneski, P.	34HYDRO	15A.5	Thu 4:30 PM
Chai, T.	21AIRPOL	13A.2	Thu 10:45 AM	Cherukuru, N. W.	36EIP	6B.3	Tue 2:00 PM
Chakraborty, T.	19AI	1A.3	Mon 11:30 AM	Chervakov, M. Y.	16GOESRJPSS	8B.6	Wed 11:45 AM
Chakravarty, K.	15URBAN	5.4	Tue 11:30 AM	Cheung, H. N.	33CVC	J35.3	Wed 9:00 AM
Chamecki, M.	21AIRPOL	15.5	Thu 4:30 PM	Chiba, J.	30WAF26NWP	691	Tue 4:00 PM
Chan, D.	TROPSYMP1	1515	Wed 4:00 PM	Childs, S. J.	30WAF26NWP	3B.3	Mon 3:30 PM
Chan, M. Y.	8JCSDA	812	Tue 4:00 PM	Childs, S. J.	30WAF26NWP	162	Mon 4:00 PM
Chan, P. W.	33CVC	126	Mon 4:00 PM	Childs, S. J.	15SOCIETY	12B.4	Thu 11:15 AM
Chand, D.	DICKINSONSYMP	519	Tue 4:00 PM	Chilson, P. B.	20SMOI	9.3	Wed 11:00 AM
Chang, C. W.	19AI	1367	Wed 4:00 PM	Chin, M.	22ATCHEM	5A.5	Tue 11:30 AM
Chang, C. W. J.	8MJO	471	Mon 4:00 PM	Ching, J.	15URBAN	12.2	Thu 9:00 AM
Chang, I.	12AEROSOL	5.2	Tue 10:45 AM	Chiodi, A. M.	33CVC	4B.1	Tue 8:30 AM
Chang, K. L.	22ATCHEM	1301	Wed 4:00 PM	Chiodi, A. M.	DICKINSONSYMP	497	Tue 4:00 PM
Chang, P.	33CVC	5C.3	Tue 11:00 AM	Chisholm, N. A.	12AEROSOL	4.3	Tue 9:00 AM
Channell, K.	15SOCIETY	12B.5	Thu 11:30 AM	Chiswell, S. R.	36EIP	7B.3	Tue 3:30 PM
Chao, H.	20SMOI	350	Mon 4:00 PM	Cho, E.	15SOCIETY	8.3	Wed 11:00 AM
Chao, L. W.	19STUDENT	S57	Sun 6:30 PM	Cho, J. Y. N.	36EIP	8B.5	Wed 9:30 AM
Chapman, H.	11HEALTH	3.7	Mon 3:30 PM	Cho, K.	34HYDRO	55	Mon 4:00 PM
Chapman, W.	19AI	3A.2	Tue 8:45 AM	Cho, Y.	19AI	9A.4	Wed 2:15 PM
Charba, J.	20ARAM	J42.3	Wed 11:15 AM	Cho, Y. J.	30WAF26NWP	662	Tue 4:00 PM
Charles-Guzman, K.	11HEALTH	2.1	Mon 10:30 AM	Cho, Y.	34HYDRO	1066	Wed 4:00 PM
Charnick, M.	16GOESRJPSS	4.5	Tue 11:45 AM	Choi, S.	22ATCHEM	15A.3	Thu 4:00 PM
Chartrand, J.	30WAF26NWP	676	Tue 4:00 PM	Chong, H.	22ATCHEM	280	Mon 4:00 PM
Chase, R. J.	34HYDRO	14B.4	Thu 2:15 PM	Christian, J. I.	34HYDRO	14A.2	Thu 1:45 PM
Chasteen, M. B.	30WAF26NWP	174	Mon 4:00 PM	Christian, K. L.	34HYDRO	59	Mon 4:00 PM
Chasteen, M. B.	30WAF26NWP	8A.2	Wed 10:45 AM	Christian, K.	10LIDAR	3.4	Wed 9:15 AM
Chatterjee, A.	22ATCHEM	2A.3	Mon 11:00 AM	Chubb, T.	22WXMOD	6.4	Thu 11:15 AM
Chavas, D. R.	SLSSYMPOSIUM1	943	Tue 4:00 PM	Chumakova, L.	8MJO	465	Mon 4:00 PM
Cheatham, R.	19STUDENT	S82	Sun 6:30 PM	Chung, S.	DICKINSONSYMP	500	Tue 4:00 PM
Cheatham, R.	15SOCIETY	10.3	Wed 3:30 PM	Churchill, W. L.	20SMOI	341	Mon 4:00 PM
Cheeks, S. M.	10PYTHON	803	Tue 4:00 PM	Ciesielski, P. E.	SCHUBERTSYMP	1017	Wed 4:00 PM
Chehak, D.	30WAF26NWP	170	Mon 4:00 PM	Cione, J. J.	TROPSYMP1	2.4	Tue 11:15 AM
Chen, B.	SCHUBERTSYMP	999	Wed 4:00 PM	Cione, J. J.	20SMOI	9.6	Wed 11:45 AM
Chen, C.	15URBAN	397	Mon 4:00 PM	Cipriani, J. P.	24IOAS	4A.1	Tue 8:30 AM
Chen, G.	8MJO	1.3	Mon 9:00 AM	Cizek, B.	29EDUCATION	J16.1	Tue 10:30 AM
Chen, H.	19AI	357	Mon 4:00 PM	Claessens, S.	15URBAN	14.3	Thu 2:15 PM
Chen, H.	34HYDRO	1055	Wed 4:00 PM	Clapp, C. E.	30WAF26NWP	205	Mon 4:00 PM
Chen, J.	34HYDRO	12.3	Thu 9:00 AM	Clark, A. J.	10R2O	2.2	Mon 10:45 AM
Chen, J. P.	22WXMOD	J45.3	Wed 2:00 PM	Clark, A. J.	10R2O	1483	Wed 4:00 PM
Chen, J.	34HYDRO	J26.4	Tue 3:45 PM	Clark, A.	20SMOI	354	Mon 4:00 PM
Chen, J.	19STUDENT	S74	Sun 6:30 PM	Clark, J. E.	22ATCHEM	2B.4	Mon 11:15 AM
Chen, J.	SCHUBERTSYMP	1011	Wed 4:00 PM	Clark, J. E.	21AIRPOL	294	Mon 4:00 PM
Chen, K. M.	19STUDENT	S113	Sun 6:30 PM	Clark, J. P.	33CVC	106	Mon 4:00 PM
Chen, K. M.	11HEALTH	412	Mon 4:00 PM	Clark, J. P.	33CVC	5A.4	Tue 11:15 AM
Chen, L. G.	34HYDRO	15A.2	Thu 3:45 PM	Clark, L. N.	19STUDENT	S191	Sun 6:30 PM
Chen, L.	TROPSYMP1	872	Tue 4:00 PM	Clark, N.	20SMOI	345	Mon 4:00 PM

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
C (Continued)				C (Continued)			
Clark, R. III	30WAF26NWP	8B.1	Wed 10:30 AM	Corringham, T. W.	33CVC	6A.2	Tue 1:45 PM
Clark, R. D.	20SMOI	304	Mon 4:00 PM	Cortinas, J. V. Jr.	10R2O	PD1.2	Tue 8:30 AM
Clark, R. D.	17SPACEWX	7.4	Tue 2:15 PM	Cosgrove, B. A.	34HYDRO	3A.1	Mon 2:00 PM
Clemente-Harding, L.	26PROBSTAT	4.5	Tue 9:30 AM	Costa, J. E. R.	17SPACEWX	5.3	Tue 9:00 AM
Cleveland, J.	PRESSSESSIONS	PF3.1	Mon 2:00 PM	Coster, A.	25APPLIED	762	Tue 4:00 PM
Cline, J.	29EDUCATION	221	Mon 4:00 PM	Costigan, K. R.	21AIRPOL	1324	Wed 4:00 PM
Clyne, J.	10PYTHON	2.1	Mon 2:00 PM	Cotterell, S.	26PROBSTAT	4.4	Tue 9:15 AM
Cobb, A. C.	33CVC	10A.1	Wed 3:00 PM	Cotterman, K. A.	25APPLIED	4.2	Tue 10:45 AM
Coburn, J.	11ENERGY	14.3	Thu 9:00 AM	Cotton, W. R.	22WXMOD	4.4	Tue 2:15 PM
Cocks, S. B.	34HYDRO	1069	Wed 4:00 PM	Coupe, J. L.	33CVC	95	Mon 4:00 PM
Coe, D. W.	34HYDRO	583	Tue 4:00 PM	Covert, J. M.	20SMOI	319	Mon 4:00 PM
Coe, D. W.	33CVC	1177	Wed 4:00 PM	Cowan, L.	TROPSYMP1	862	Tue 4:00 PM
Coen, J. L.	30WAF26NWP	7B.2	Wed 8:45 AM	Cowie, J.	6HPC	J55.2	Wed 3:15 PM
Coen, J. L.	30WAF26NWP	9B.1	Wed 1:30 PM	Cox, A. T.	18COASTAL	7.1	Tue 3:00 PM
Cohen, A. E.	30WAF26NWP	168	Mon 4:00 PM	Cox, R.	10R2O	1479	Wed 4:00 PM
Cohen, A. E.	SLSSYMP0SIUM1	984	Tue 4:00 PM	Coy, J. Jr.	16GOESRJPS	1382	Wed 4:00 PM
Cohen, A. E.	10R2O	9.1	Wed 10:30 AM	Cram, T. A.	25APPLIED	724	Tue 4:00 PM
Cohen, A. E.	29EDUCATION	6.5	Wed 11:30 AM	Crank, P.	11HEALTH	5.3	Tue 2:00 PM
Cohen, A. E.	30WAF26NWP	9A.4A	Wed 2:15 PM	Crawford, A.	21AIRPOL	10.1	Wed 1:30 PM
Cohen, A. E.	8WRN	10.1	Thu 10:30 AM	Crawford, T.	30WAF26NWP	14C.1	Thu 3:30 PM
Cohen, B. K.	19STUDENT	S123	Sun 6:30 PM	Crawford, W.	26PROBSTAT	229	Mon 4:00 PM
Cohen, B. K.	30WAF26NWP	1225	Wed 4:00 PM	Crespo, J. A.	33CVC	122	Mon 4:00 PM
Cohen, C. M. S.	17SPACEWX	13.2	Wed 3:15 PM	Crespo, J. A.	35SMALLSATS	3.3	Thu 2:00 PM
Cohen, J. B.	22ATCHEM	5A.3	Tue 11:00 AM	Crisp, D.	22ATCHEM	2A.2	Mon 10:45 AM
Cohen, J.	33CVC	624	Tue 4:00 PM	Cronin, T. W.	TROPSYMP1	J48.4	Wed 2:15 PM
Cohen, O.	17SPACEWX	14.1	Thu 8:30 AM	Cross, A.	36EPT	7B.1	Tue 3:00 PM
Cohen, R.	22ATCHEM	4B.2	Tue 8:45 AM	Cross, R. N.	8WRN	444	Mon 4:00 PM
Cohen, R.	22ATCHEM	8A.1	Wed 8:30 AM	Crossett, C. C.	34HYDRO	585	Tue 4:00 PM
Colavito, J. A.	20ARAM	2.2	Mon 10:45 AM	Crow, W. T.	34HYDRO	5B.1	Tue 8:30 AM
Colbert, M.	36EPT	38	Mon 4:00 PM	Crowell, S.	22ATCHEM	270	Mon 4:00 PM
Colby, F. P. Jr.	30WAF26NWP	1221	Wed 4:00 PM	Crowhurst, D.	34HYDRO	558	Tue 4:00 PM
Coleman, A. A.	30WAF26NWP	12B.4	Thu 11:15 AM	Cruz, D. C.	33CVC	J41.2	Wed 10:45 AM
Coleman, G.	19STUDENT	S177	Sun 6:30 PM	Cuchiar, G. C.	22ATCHEM	15A.6	Thu 4:45 PM
Colle, B. A.	30WAF26NWP	6B.2	Tue 3:15 PM	Cucurull, L.	24IOAS	2.1	Mon 10:30 AM
Collett, J. Jr.	22ATCHEM	5B.1	Tue 10:30 AM	Cucurull, L.	10R2O	4.1	Tue 8:30 AM
Collett, K.	10R2O	J4.3	Mon 11:00 AM	Cuff, T. J.	8WXCLIMATE	3A.2	Tue 2:00 PM
Collins, E. M.	10R2O	8A.5	Wed 9:45 AM	Cui, C.	30WAF26NWP	11A.1	Thu 8:30 AM
Collins-Key, S. A.	15SOCIETY	9A.4	Wed 2:15 PM	Cui, H.	26PROBSTAT	1.4	Mon 9:15 AM
Collis, S.	10PYTHON	1.1	Mon 9:00 AM	Cui, W.	34HYDRO	1059	Wed 4:00 PM
Collow, A.	33CVC	136	Mon 4:00 PM	Culin, J.	8WXCLIMATE	6.5	Wed 11:30 AM
Collow, A.	12AEROSOL	5.4	Tue 11:15 AM	CumbulamThangaraj, S.	19AI	1357	Wed 4:00 PM
Colon Robles, M.	11HEALTH	3.4	Mon 2:45 PM	Cureton, G.	10PYTHON	8.1	Wed 3:00 PM
Colon Robles, M.	29EDUCATION	710	Tue 4:00 PM	Curtis, D.	34HYDRO	563	Tue 4:00 PM
Commene, R.	22ATCHEM	9A.2	Wed 10:45 AM	Curtis, M. B.	29EDUCATION	708	Tue 4:00 PM
Comstock, L.	19STUDENT	S201	Sun 6:30 PM	Curtis, N.	20ARAM	748	Tue 4:00 PM

D'Arienzo, R.	11ENERGY	14.2	Thu	8:45 AM
Dacey, C. M.	15SOCIETY	12A.1	Thu	10:30 AM
Dahl, B. A.	24IOAS	2.3	Mon	11:00 AM
Dahl, B. A.	24IOAS	4B.5	Tue	9:45 AM
Dahl, N. A.	30WAF26NWP	2B.3	Mon	2:30 PM
Dahl, N. A.	30WAF26NWP	166	Mon	4:00 PM
Dai, J.	SLSSYMPOSIUM1	961	Tue	4:00 PM
Daley, A. Jr.	19STUDENT	S11	Sun	6:30 PM
Dallavalle, J. P.	26PROBSTAT	6.2	Wed	10:45 AM
Dandenault, P.	17SPACEWX	4.4	Mon	3:30 PM
Darden, C. B.	16IMPACTS	3.4	Mon	2:45 PM
Darden, C. B.	15SOCIETY	4B.3	Tue	9:00 AM
Das, B.	16GOESRJPS	11B.3	Thu	9:00 AM
Das, D.	33CVC	1131	Wed	4:00 PM
Datt, I.	19STUDENT	S223	Sun	6:30 PM
David, R. O.	12AEROSOL	1.5	Mon	9:30 AM

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
D (Continued)				D (Continued)			
David, R. O.	12AEROSOL	1426	Wed 4:00 PM	Dickinson, T.	34HYDRO	568	Tue 4:00 PM
Davies, A.	18COASTAL	372	Mon 4:00 PM	Dickson, C.	TROPSYMP1	874	Tue 4:00 PM
Davis, C. A.	SCHUBERTSYMP	1.3	Wed 9:00 AM	Didlake, A. C. Jr.	TROPSYMP1	444.3	Wed 11:00 AM
Davis, C. N.	8WXCLIMATE	8.2	Wed 3:15 PM	Diedrichsen, M. R.	SLSSYMP0SIUM1	940	Tue 4:00 PM
Davis, E.	19STUDENT	S153	Sun 6:30 PM	Diegan, A.	30WAF26NWP	10B.4	Wed 3:45 PM
Davis, E.	36EIPT	537	Tue 4:00 PM	DiLiberto, T.	8WRN	1.6	Mon 11:30 AM
Davis, G. D.	19STUDENT	S75	Sun 6:30 PM	Dillahunt, B. D.	20ARAM	7.2	Tue 3:30 PM
Davis, K. J.	22ATCHEM	3A.2	Mon 2:15 PM	Ding, A.	22ATCHEM	1B.2	Mon 8:45 AM
Davis, K. J.	15URBAN	4.6	Tue 9:45 AM	Ding, H.	20SMOI	7.4	Tue 3:45 PM
Davis, K. J.	21AIRPOL	13A.3	Thu 11:00 AM	Ding, H.	19STUDENT	S135	Sun 6:30 PM
Davis, N. A.	DICKINSONSYMP	502	Tue 4:00 PM	Ding, J.	16GOESRJPS	1369	Wed 4:00 PM
Davis, R. E.	34HYDRO	10B.1	Wed 10:30 AM	Diouf, I.	11HEALTH	4.3	Tue 9:00 AM
Davis, S. M.	MIDDLESYMP	901	Tue 4:00 PM	Dirmeyer, P. A.	5INTERNATIONAL	3.4	Tue 2:15 PM
Dawson, D. T. II	SLSSYMP0SIUM1	928	Tue 4:00 PM	Dittberner, G.	16GOESRJPS	3.2	Mon 2:15 PM
Dawson, K. W.	10LIDAR	1.6	Mon 9:45 AM	Divakarla, M. G.	16GOESRJPS	12A.3	Thu 11:15 AM
Dawson, L. C.	30WAF26NWP	1B.2	Mon 8:45 AM	DiVeglio, C.	18COASTAL	11.2	Thu 8:45 AM
Dawson, L. C.	30WAF26NWP	8B.2	Wed 10:45 AM	DiVito, S.	20ARAM	2.3	Mon 11:00 AM
Dawson, S. J.	19STUDENT	S66	Sun 6:30 PM	DiVito, S.	20ARAM	13.1	Thu 3:30 PM
De Vries, I. E.	DICKINSONSYMP	527	Tue 4:00 PM	Dixon, K. W.	11HEALTH	2.6	Mon 11:45 AM
Deanes, L. N.	11HEALTH	1470	Wed 4:00 PM	Dixon, R. W.	25APPLIED	726	Tue 4:00 PM
DeAngelis, A. M.	34HYDRO	15A.1	Thu 3:30 PM	Djalalova, I. V.	22ATCHEM	10B.2	Wed 1:45 PM
DeCaria, M. A.	26PROBSTAT	8.4	Wed 3:45 PM	Dobler, J. T.	22ATCHEM	4B.1	Tue 8:30 AM
Decker, R. K.	20ARAM	6.1	Tue 1:30 PM	Dockery, D. W.	21AIRPOL	J39.1	Wed 8:30 AM
Decker, S. G.	29EDUCATION	5.4	Wed 9:15 AM	Doerkens, K.	17SPACEWX	J70.2	Thu 1:45 PM
Deeb, E. J.	34HYDRO	1075	Wed 4:00 PM	Dokoohaki, H.	24IOAS	6A.2	Tue 1:45 PM
DeFlitch, J. M.	15SOCIETY	13B.4	Thu 2:15 PM	Dolan, D.	30WAF26NWP	1245	Wed 4:00 PM
DeForest, C. E.	17SPACEWX	16.1	Thu 3:30 PM	Dolan, T. J.	19STUDENT	S233	Sun 6:30 PM
DeGaetano, A.	25APPLIED	8.2	Wed 1:45 PM	Dolinar, E. K.	10LIDAR	1.3	Mon 9:00 AM
DeGaetano, A.	34HYDRO	1094	Wed 4:00 PM	Dominguez, C.	TROPSYMP1	836	Tue 4:00 PM
DeHart, J. C.	30WAF26NWP	12D.5	Thu 11:30 AM	Dominguez, R.	34HYDRO	587	Tue 4:00 PM
Deierling, W.	20ARAM	9.3	Wed 3:45 PM	Dominguez, R. Jr.	21AIRPOL	12.1	Thu 8:30 AM
Del Greco, S.	18COASTAL	1.2	Mon 8:45 AM	Donahue, A. S.	30WAF26NWP	12A.2	Thu 10:45 AM
Del Moral, A.	SLSSYMP0SIUM1	962	Tue 4:00 PM	Donavon, R. A.	SLSSYMP0SIUM1	990	Tue 4:00 PM
Delaney, C.	34HYDRO	4B.3	Mon 3:30 PM	Done, J. M.	33CVC	5C.5	Tue 11:45 AM
Deleon, K.	29EDUCATION	7.1	Wed 1:30 PM	Doner, L. A.	29EDUCATION	1266	Wed 4:00 PM
Delgado, R.	20SMOI	14.2	Thu 1:45 PM	Dong, J.	34HYDRO	1057	Wed 4:00 PM
Delgado Arias, S.	15SOCIETY	1.4	Mon 9:15 AM	Dong, J.	TROPSYMP1	1527	Wed 4:00 PM
Dellicarpini, J. W.	18COASTAL	9.1	Wed 10:30 AM	Dong, X.	12AEROSOL	4.5	Tue 9:45 AM
Dello, K. D.	25APPLIED	8.3	Wed 2:00 PM	Dong, X.	30WAF26NWP	1210	Wed 4:00 PM
DeLong, K. T.	19STUDENT	S134	Sun 6:30 PM	Donoho, N.	16GOESRJPS	5.1	Tue 1:30 PM
DeMaria, M.	TROPSYMP1	1.2	Tue 8:45 AM	Donovan, M. F.	20ARAM	742	Tue 4:00 PM
DeMaria, M.	26PROBSTAT	6.4	Wed 11:30 AM	Dotterer, K.	TROPSYMP1	1529	Wed 4:00 PM
DeMaria, M.	SCHUBERTSYMP	3.3	Wed 2:00 PM	Dou, J.	15URBAN	5.1	Tue 10:30 AM
Demirdjian, R.	30WAF26NWP	10B.3	Wed 3:30 PM	Dougherty, E. M.	34HYDRO	5A.6	Tue 9:45 AM
DeMott, C. A.	33CVC	J58.4	Thu 9:15 AM	Dougherty, E. M.	34HYDRO	J57.2	Thu 8:45 AM
DeMott, P. J.	22WXMOD	J12.2	Tue 9:00 AM	Dougherty, K. J.	30WAF26NWP	184	Mon 4:00 PM
DeMott, P. J.	12AEROSOL	J53.2	Wed 3:30 PM	Douglass, A. R.	22ATCHEM	4A.1	Tue 8:30 AM
Demuth, J. L.	15SOCIETY	3A.6	Mon 3:30 PM	Downey, M. O.	34HYDRO	14A.5	Thu 2:30 PM
Deng, L.	19STUDENT	S76	Sun 6:30 PM	Downing, W. L.	36EIPT	2B.5	Mon 11:30 AM
Dennis, E.	34HYDRO	66	Mon 4:00 PM	Doyle, J. D.	4PREDICTABILITY	1.1	Mon 9:00 AM
Densmore, C. R.	24IOAS	246	Mon 4:00 PM	Doyle, J. D.	TROPSYMP1	1.1	Tue 8:30 AM
DePodwin, D.	30WAF26NWP	13C.3	Thu 2:00 PM	Doyle, J. D.	30WAF26NWP	4A.2	Tue 10:45 AM
Deroche, D. R.	15SOCIETY	13A.5	Thu 2:15 PM	Draper, C. S.	34HYDRO	5B.5	Tue 9:30 AM
Deroche, K.	20ARAM	1342	Wed 4:00 PM	Drapkin, J. K.	15URBAN	402	Mon 4:00 PM
Desai, J. C.	36EIPT	37	Mon 4:00 PM	Draxl, C.	11ENERGY	4.2	Mon 3:15 PM
Desai, M. I.	17SPACEWX	754	Tue 4:00 PM	Dresback, K. M.	18COASTAL	2.6	Mon 11:45 AM
DeSantis, D.	26PROBSTAT	J37.1	Wed 8:30 AM	Droegemeier, K.	15SOCIETY	PD2.1	Tue 10:30 AM
DeSlover, D.	20SMOI	321	Mon 4:00 PM	Drugan, J. J. V	19STUDENT	S144	Sun 6:30 PM
Dethier, E. N.	34HYDRO	J57.4	Thu 9:15 AM	Drummond, B.	17SPACEWX	J70.4	Thu 2:15 PM
Detwiler, A.	22WXMOD	J12.1	Tue 8:30 AM	Du, Y.	30WAF26NWP	1215	Wed 4:00 PM
Devanas, A.	30WAF26NWP	11B5	Wed 4:00 PM	Duan, Q.	34HYDRO	J20.1	Tue 1:30 PM
DeVinny, S.	36EIPT	1B.3	Mon 9:00 AM	Duarte, J. A.	34HYDRO	13B.6	Thu 11:45 AM
DeWitt, D.	25APPLIED	7.1	Wed 10:30 AM	Duc, L.	24IOAS	5A.3	Tue 11:00 AM
Dey Choudhury, A.	TROPSYMP1	848	Tue 4:00 PM	Duda, J.	30WAF26NWP	1B.5	Mon 9:30 AM
Dhakal, N.	26PROBSTAT	1.2	Mon 8:45 AM	Dudley, R.	34HYDRO	1100	Wed 4:00 PM
Di Liberto, T. E.	33CVC	7B.1	Tue 3:00 PM	Duffy, K.	19AI	1A.2	Mon 11:15 AM
Di Spigna, M.	16IMPACKTS	1.6	Mon 9:45 AM	Duffy, M. L.	TROPSYMP1	841	Tue 4:00 PM
Diamond, M. S.	22WXMOD	J45.2	Wed 1:45 PM	Duncan, M. N.	19STUDENT	S218	Sun 6:30 PM
Dias, J.	8MJO	2.6	Mon 11:45 AM	Dungan, C. R.	19STUDENT	S110	Sun 6:30 PM
Dias, N. L.	21AIRPOL	13B.4	Thu 11:15 AM	Dunlap, L. J.	16GOESRJPS	1.2	Mon 8:45 AM
Diaz, S. W.	24IOAS	11.4	Wed 3:45 PM	Duplantis, M.	16IMPACKTS	3.6	Mon 3:15 PM
Diaz Fortich, A.	10LIDAR	6.4	Wed 3:45 PM	Dupree, W. J.	19AI	J69.6	Thu 2:45 PM
DiBraccio, G. A.	17SPACEWX	14.4	Thu 9:15 AM	Duran, E. L.	TROPSYMP1	860	Tue 4:00 PM
Dickerson, R. R.	22ATCHEM	1B.1	Mon 8:30 AM	Durran, D.	SOLOMONSYMP	3.5	Mon 3:00 PM

PRESENTER INDEX

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
D (Continued)				E (Continued)			
Durre, I.	33CVC	10A.2	Wed 3:15 PM	Erwin, A.	20SMOI	9.4	Wed 11:15 AM
Dusek, G.	19AI	J52.1	Wed 3:00 PM	Eschliman, C. M.	33CVC	609	Tue 4:00 PM
Dutton, J. A.	11ENERGY	14.1	Thu 8:30 AM	Esmaili, R.	22ATCHEM	2B.6	Mon 11:45 AM
Dyer, J. L.	36EIPT	9A.4	Wed 11:15 AM	Esmaili, R.	16GOESRJPSS	14A.3	Thu 4:00 PM
Dykema, J. A.	DICKINSONSYMP	526	Tue 4:00 PM	Etten-Bohm, M.	29EDUCATION	1256	Wed 4:00 PM
Dyson, C. N.	SLSSYMPOSIUM1	921	Tue 4:00 PM	Eun, J.	19STUDENT	S207	Sun 6:30 PM
Dzyuban, Y.	15URBAN	1.5	Mon 9:30 AM	Eure, K. C.	30WAF26NWP	150	Mon 4:00 PM
				Evans, C.	19STUDENT	S122	Sun 6:30 PM
E				Evans, J. E.	20ARAM	3.1	Mon 2:00 PM
Easterling, W.	18HISTORY	1.6	Mon 9:45 AM	Evans, J. E.	20ARAM	7.1	Tue 3:00 PM
Eastham, S. D.	22ATCHEM	11.4	Wed 3:45 PM	Evans, J.	8WRN	5.2	Wed 9:45 AM
Eastin, M. D.	11ENERGY	1465	Wed 4:00 PM	Evans, J. S.	15SOCIETY	2.3	Mon 11:00 AM
Ebert-Uphoff, I.	26PROBSTAT	J37.3	Wed 9:00 AM	Evans, J. S.	SLSSYMPOSIUM1	980	Tue 4:00 PM
Ebi, K. L.	11HEALTH	J46.2	Wed 1:45 PM	Evans, J. L.	19STUDENT		Sat 9:20 AM
Ebtehaj, A.	DICKINSONSYMP	517	Tue 4:00 PM	Evans, J. D.	16GOESRJPSS	9A.4	Wed 2:15 PM
Echeverri, J. A.	11ENERGY	1455	Wed 4:00 PM	Eylander, J. B.	34HYDRO	600	Tue 4:00 PM
Eckman, R.	22ATCHEM	6.2	Tue 2:00 PM				
Eddy, A.	20ARAM	12.4	Thu 2:15 PM	F			
Eder, B.	21AIRPOL	1330	Wed 4:00 PM	Fabisch, M.	15SOCIETY	7.3	Wed 9:00 AM
Edris, S.	34HYDRO	1117	Wed 4:00 PM	Fahey, D.	MIDDLESYMP	4.1	Tue 3:00 PM
Edson, J. B.	20SMOI	8.3	Wed 9:00 AM	Fairman, J. G. Jr.	34HYDRO	8	Wed 4:00 PM
Edwards, J. A.	19STUDENT	S109	Sun 6:30 PM	Fall, G.	30WAF26NWP	679	Tue 4:00 PM
Edwards, K.	8WRN	2.2	Tue 10:45 AM	Fan, J.	SLSSYMPOSIUM1	934	Tue 4:00 PM
Edwards, K.	8WRN	3.2	Tue 1:45 PM	Fan, J.	22WXMOD	J45.1	Wed 1:30 PM
Edwards, L. M.	16IMPACTS	2.3	Mon 11:00 AM	Fan, S.	22ATCHEM	261	Mon 4:00 PM
Edwards, L. M.	25APPLIED	6.6	Wed 9:45 AM	Fandrich, K.	DICKINSONSYMP	485	Tue 4:00 PM
Edwards, R.	29EDUCATION	1271	Wed 4:00 PM	Fang, H.	21AIRPOL	4.3	Mon 3:30 PM
Edwards, R. P.	22ATCHEM	1272	Wed 4:00 PM	Fang, M.	20ARAM	739	Tue 4:00 PM
Eghdami, M.	5INTERNATIONAL	477	Mon 4:00 PM	Fang, S. W.	33CVC	6B.1	Tue 1:30 PM
Ehrmann, T. S.	MIDDLESYMP	883	Tue 4:00 PM	Farhadi, L.	34HYDRO	6B.4	Tue 11:15 AM
Ehsan, M. A.	33CVC	140	Mon 4:00 PM	Farrar, M.	FUTURESYP	1.2	Mon 8:45 AM
Eicher, R.	29EDUCATION	6.3	Wed 11:00 AM	Favetta, M. A.	SLSSYMPOSIUM1	971	Tue 4:00 PM
Eichmann, A.	8JCSDA	809	Tue 4:00 PM	Fawcett, K.	8WXCLIMATE	1.7	Mon 3:30 PM
Ejiogu, A.	19STUDENT	S32	Sun 6:30 PM	Fedorov, A.	33CVC	5B.1	Tue 10:30 AM
Ek, M.	34HYDRO	1B.2	Mon 8:45 AM	Fehr, B. M.	19AI	9A.3	Wed 2:00 PM
El Gharamti, M.	26PROBSTAT	J28.2	Tue 3:15 PM	Feiner, P. A.	8WXCLIMATE	2.2	Tue 10:45 AM
El Riachy, M.	33CVC	631	Tue 4:00 PM	Feldhausen, P.	48BROADCAST	6.4	Wed 9:30 AM
El Safty, H.	18COASTAL	5.5	Tue 11:30 AM	Feldmann, M.	TROPSYMP1	1502	Wed 4:00 PM
Eldardiry, H.	34HYDRO	89	Mon 4:00 PM	Feldstein, S.	33CVC	4A.2	Tue 8:45 AM
Eldredge, M.	19STUDENT	S157	Sun 6:30 PM	Felton, B. D.	19AI	11A.4	Thu 4:15 PM
Eldridge, R.	19STUDENT	S176	Sun 6:30 PM	Feng, C.	SOLOMONSYMP	34	Mon 4:00 PM
Elizondo, A. M.	19STUDENT	S78	Sun 6:30 PM	Feng, D.	19AI	7B.1	Wed 8:30 AM
Elkins, J. W.	22ATCHEM	1275	Wed 4:00 PM	Feng, J.	15URBAN	13.6	Thu 11:45 AM
Elkins, J. N.	29EDUCATION	3.1	Tue 8:30 AM	Feng, X.	TROPSYMP1	1517	Wed 4:00 PM
Elkins, J. N.	29EDUCATION	700	Tue 4:00 PM	Feng Chang, C.	19AI	5A.2	Tue 1:45 PM
Elless, T. J.	5INTERNATIONAL	472	Mon 4:00 PM	Fengler, M.	20SMOI	9.1	Wed 10:30 AM
Ellingson, L.	26PROBSTAT	5.4	Tue 11:15 AM	Fenske, T. M.	33CVC	12.3	Thu 11:00 AM
Elliott, J. C.	16IMPACTS	3.3	Mon 2:30 PM	Fenton, K. R. Jr.	11ENERGY	13.3	Wed 3:30 PM
Elliott, J. C.	8WRN	J9.4	Mon 2:45 PM	Ferguson, A. P.	SLSSYMPOSIUM1	986	Tue 4:00 PM
Ellis, S.	36EIPT	12B.3	Thu 9:00 AM	Ferguson, C. R.	34HYDRO	603	Tue 4:00 PM
Elmore, K. L.	19AI	7A.4	Wed 9:15 AM	Fernández, E. M.	19STUDENT	S136	Sun 6:30 PM
Eloranta, E. W.	10LIDAR	2.3	Mon 3:00 PM	Fernando, D. N.	34HYDRO	9.6	Wed 9:45 AM
Emanuel, K.	SOLOMONSYMP	3.1	Mon 2:00 PM	Fernando, H. J. S.	18COASTAL	8.1	Wed 8:30 AM
Emanuel, K.	18HISTORY	6.2	Tue 1:45 PM	Feroli, T.	16GOESRJPSS	2.1	Mon 10:30 AM
Emanuel, K.	TROPSYMP1	J31.4	Tue 3:45 PM	Ferrera, K. E.	19STUDENT	S8	Sun 6:30 PM
Emanuel, K.	SCHUBERTSYMP	3.1	Wed 1:30 PM	Fetzer, E. J.	16GOESRJPSS	9B.1	Wed 1:30 PM
Emlaw, G. N.	19STUDENT	S230	Sun 6:30 PM	Feyen, J.	18COASTAL	4.5	Tue 9:30 AM
Emmerson, S.	30WAF26NWP	7A.5	Wed 9:30 AM	Fiebrich, C. A.	25APPLIED	9.2	Wed 3:15 PM
Emmitt, G. D.	10LIDAR	422	Mon 4:00 PM	Field, D.	22ATCHEM	1A.5	Mon 9:30 AM
Emory, A. E.	DEISYMP	J62.1	Thu 10:00 AM	Field, G.	8WRN	1.5	Mon 11:15 AM
England, J. Jr.	34HYDRO	6A.4	Tue 11:15 AM	Field, R.	34HYDRO	4B.2	Mon 3:15 PM
English, J. M.	34HYDRO	1071	Wed 4:00 PM	Fieux, J.	8WRN	5.1	Wed 8:30 AM
Eosco, G. M.	15SOCIETY	PD4.1	Tue 10:30 AM	Fieux, J.	8WRN	5.3	Wed 9:00 AM
Ephraim, S.	19STUDENT	S232	Sun 6:30 PM	Filipiak, B.	19STUDENT	S229	Sun 6:30 PM
Erdmann, F.	16GOESRJPSS	6.4	Tue 3:45 PM	Fillmore, D. W.	TROPSYMP1	1532	Wed 4:00 PM
Ericksen, M. D.	19STUDENT	S132	Sun 6:30 PM	Fink, A. H.	33CVC	1A.5	Mon 9:30 AM
Erickson, M.	34HYDRO	3A.4	Mon 2:45 PM	Fink, A. H.	33CVC	2A.1	Mon 10:30 AM
Erickson, M. J.	10R2O	6B.4	Tue 2:15 PM	Fink, A. H.	33CVC	10B.1	Wed 3:00 PM
Erickson, M. J.	10R2O	11A.4	Wed 3:45 PM	Fink, A. H.	34HYDRO	14B.3	Thu 2:00 PM
Ernst, S.	15SOCIETY	12B.2	Thu 10:45 AM	Finocchio, P. M.	8MJO	468	Mon 4:00 PM

Conf.

Paper #

Day

Time

F (Continued)

Finocchio, P. M.

TROPSYMP1

877

Tue 4:00 PM

Fiore, A. M.

22ATCHEM

13A.5

Thu 11:30 AM

Fioretti, J.

19AI

1355

Wed 4:00 PM

Firestone, R. L.

19STUDENT

S1

Sun 6:30 PM

Firl, G. J.

30WAF26NWP

6A.2

Tue 3:15 PM

Fisch, G.

20ARAM

749

Tue 4:00 PM

Fischer, E. V.

22ATCHEM

266

Mon 4:00 PM

Fischer, E. V.

22ATCHEM

5B.4

Tue 11:30 AM

Fischer, J.

30WAF26NWP

2A.3

Mon 2:30 PM

Fischer, M. S.

TROPSYMP1

2.3

Tue 11:00 AM

Fish, E.

23ASLI

1

Wed 8:30 AM

Fish, M. A.

33CVC

2C.5

Mon 11:30 AM

Fisher, G.

29EDUCATION

1257

Wed 4:00 PM

Fisk, C. J.

26PROBSTAT

225

Mon 4:00 PM

Fisk, C. J.

25APPLIED

715

Tue 4:00 PM

Fitz, C.

30WAF26NWP

1226

Wed 4:00 PM

Fitzgerald, B. J.

29EDUCATION

2.8

Mon 3:45 PM

Fitzjarrald, D. R.

34HYDRO

4A.3

Mon 3:30 PM

Fitzpatrick, L. E.

34HYDRO

13A.4

Thu 11:15 AM

Flagg, D. D.

18COASTAL

6.4

Tue 2:15 PM

Flamig, Z. L.

36EIPT

6A.4

Tue 2:15 PM

Flanagan, P. X.

33CVC

119

Mon 4:00 PM

Flanagan, P. X.

25APPLIED

6.4

Wed 9:15 AM

Flanagan, P. X.

33CVC

1149

Wed 4:00 PM

Flatau, M. K.

SCHUBERTSYMP

1.5

Wed 9:30 AM

Fleming, E. L.

22ATCHEM

1280

Wed 4:00 PM

Fleming, J. R.

18HISTORY

1.1

Mon 8:30 AM

Fleming, M.

18HISTORY

11.4

Wed 2:15 PM

Fleming, R.

19STUDENT

S181

Sun 6:30 PM

Flickinger, P.

10R2O

J30.1

Tue 3:00 PM

Floerchinger, C.

22ATCHEM

264

Mon 4:00 PM

Flora, M. L.

19AI

3B.4

Tue 9:15 AM

Flora, M. L.

10R2O

1484

Wed 4:00 PM

Flossmann, A. I. Sr.

22WXMOD

1.1

Mon 9:00 AM

Flournoy, M. D.

SLSSYMP0SIUM1

2.3

Tue 11:00 AM

Flowe, T. J.

20ARAM

5.1A

Tue 10:30 AM

Flynn, W. J.

29EDUCATION

6.1

Wed 10:30 AM

Flynt, B. T.

SCHUBERTSYMP

1003

Wed 4:00 PM

Fogt, R. L.

SOLOMONSYMP

12

Mon 4:00 PM

Foley, M.

10R2O

7.1

Tue 3:00 PM

Follensbee, M. A.

33CVC

1178

Wed 4:00 PM

Follette-Cook, M. B.

19AI

2A.8

Mon 3:45 PM

Folmer, M. J.

8WXCLIMATE

1.5

Mon 3:00 PM

Fonseca, R. M.

30WAF26NWP

180

Mon 4:00 PM

Fonseca, R. M.

30WAF26NWP

181

Mon 4:00 PM

Fonseca, R. M.

30WAF26NWP

652

Tue 4:00 PM

Fonseca, R. M.

33CVC

1170

Wed 4:00 PM

Fonseca, R. M.

33CVC

1171

Wed 4:00 PM

Fontanez, I. L.

22ATCHEM

1299

Wed 4:00 PM

Forest, C. E.

48BROADCAST

3.5

Tue 9:45 AM

Formby-Fernandez, A.

19STUDENT

S234

Sun 6:30 PM

Fort, H.

18COASTAL

12.4

Thu 11:15 AM

Fortin, S. M.

16IMPACTS

2.6

Mon 11:45 AM

Fossell, K.

6HPC

3.4

Tue 3:45 PM

Foster, A.

8WXCLIMATE

6.2

Wed 10:45 AM

Foster, A.

8WXCLIMATE

6.6

Wed 11:45 AM

Fosu, B.

33CVC

613

Tue 4:00 PM

Fosu, B.

33CVC

11.1

Thu 8:30 AM

Foust, E.

29EDUCATION

PD1.4

Mon 8:30 AM

Fovell, R. G.

30WAF26NWP

5A.1

Tue 1:30 PM

Fox, A. M.

8JCSDA

1.1

Tue 8:30 AM

Fox, L. C.

11HEALTH

J18.4

Tue 11:15 AM

Fox, N.

17SPACEWX

1.3

Mon 9:00 AM

Francisco, D. M.

19AI

8.6

Wed 11:45 AM

Franck, L.

SLSSYMP0SIUM1

979

Tue 4:00 PM

Franco Deloya, L. J.

12AEROSOL

1445

Wed 4:00 PM

Frank, H.

16IMPACTS

384

Mon 4:00 PM

Frank, L.

SLSSYMP0SIUM1

953

Tue 4:00 PM

Frank, M. R.

30WAF26NWP

1235

Wed 4:00 PM

Frankignoul, C.

33CVC

4A.3

Tue 9:00 AM

Franklin, J. E.

22ATCHEM

4B.3

Tue 9:00 AM

Franklin, K.

18COASTAL

13.6

Thu 2:45 PM

Frazer, M. E.

DICKINSONSYMP

J11.5

Tue 9:45 AM

Frazier, L. A.

19STUDENT

S175

Sun 6:30 PM

Conf.

Paper #

Day

Time

F (Continued)

Frediani, M.

30WAF26NWP

9A.2

Wed 1:45 PM

Freedman, J. M.

11ENERGY

1.5

Mon 9:30 AM

Freedman, J. M.

11ENERGY

3.2

Mon 2:15 PM

Freedman, J.

15SOCIETY

3B.2

Mon 2:15 PM

Freese, L.

19STUDENT

S30

Sun 6:30 PM

Frei, A.

34HYDRO

1093

Wed 4:00 PM

Freire, L. S.

21AIRPOL

7.4

Tue 2:15 PM

Freitag, B.

6HPC

J47.4

Wed 2:15 PM

Freitag, B.

19AI

11A.5

Thu 4:30 PM

French, J.

22WXMOD

2.3

Mon 11:00 AM

French, J.

20SMOI

5.1

Tue 10:30 AM

French, M. M.

SLSSYMP0SIUM1

922

Tue 4:00 PM

Fridlind, A.

12AEROSOL

3.1

Mon 2:00 PM

Friedman, E.

15URBAN

401

Mon 4:00 PM

Friedman, J. R.

15SOCIETY

3A.1

Mon 2:15 PM

Friedrich, K.

22WXMOD

2.4

Mon 11:15 AM

Frissell, N. A.

17SPACEWX

6.6

Tue 11:45 AM

Frissell, R.

17SPACEWX

15.5

Thu 11:30 AM

Fritzen, R. C.

30WAF26NWP

J68.4

Thu 2:15 PM

Fronzak, M.

20ARAM

11.6

Thu 11:45 AM

Frost, G. J.

16GOESRJPSS

12B.6

Thu 11:45 AM

Froyd, K. D.

12AEROSOL

7.3

Wed 11:00 AM

Frucht, S.

20SMOI

307

Mon 4:00 PM

Fryer, K. R.

30WAF26NWP

10A.3

Wed 3:30 PM

Fu, B.

30WAF26NWP

654

Tue 4:00 PM

Fu, L. L.

18HISTORY

4.4

Tue 9:15 AM

Fu, Q.

SOLOMONSYMP

2.4

Mon 11:15 AM

Fu, Q.

MIDDLESYMP

909

Tue 4:00 PM

Fu, R.

34HYDRO

4A.2

Mon 3:15 PM

Fu, R.

33CVC

J67.6

Thu 2:45 PM

Fu, Z. Sr.

30WAF26NWP

1207

Wed 4:00 PM

Fuchs-Stone, Z.

TROPSYMP1

J48.1

Wed 1:30 PM

Fujisaki-Manome, A.

10R2O

3A.7

Mon 3:30 PM

Fujisaki-Manome, A.

18COASTAL

378

Mon 4:00 PM

Fulker, D.

18HISTORY

2.3

Mon 11:00 AM

Fuller-Rowell, T.

17SPACEWX

6.3

Tue 11:00 AM

Fulton, S. R.

SCHUBERTSYMP

4.3

Wed 3:30 PM

Fung, I.

4PREDICTABILITY

1.3

Mon 9:30 AM

Fung, I.

DICKINSONSYMP

J15.1

Tue 10:30 AM

Funk, C. C.

33CVC

1A.4

Mon 9:15 AM

Funk, C. C.

34HYDRO

13A.1

Thu 10:30 AM

Furgione, L.

48BROADCAST

5.2

Tue 3:15 PM

Furtado, J. C.

MIDDLESYMP

890

Tue 4:00 PM

G

Gabersek, S.

30WAF26NWP

11B.3

Thu 9:00 AM

Gagne, D. J. II

19AI

5B.3

Tue 2:00 PM

Gagne, D. J. II

26PROBSTAT

J37.4

Wed 9:15 AM

Gagne, D. J. II

19AI

J43.2

Wed 10:45 AM

Gagne, D. J. II

19AI

J66.3

Thu 11:00 AM

Gal, C. V.

15URBAN

2.2

Mon 10:45 AM

Galarneau, T. J. Jr.

30WAF26NWP

173

Mon 4:00 PM

Galarneau, T. J. Jr.

SLSSYMP0SIUM1

993

Tue 4:00 PM

Gallagher, A.

19STUDENT

S180

Sun 6:30 PM

Gallagher, A.

36EIPT

9A.1

Wed 10:30 AM

Gallagher, F. W. III

16GOESRJPSS

7A.2

Wed 8:45 AM

Gallo, B. T.

19AI

8.2

Wed 10:45 AM

Gallo, B. T.

10R2O

12.4

Thu 9:15 AM

Gamarro, H.

15URBAN

8A.6

Wed 9:45 AM

Gangodagamage, C.

34HYDRO

10B.4

Wed 11:15 AM

Gao, J.

30WAF26NWP

7A.1

Wed 8:30 AM

Gao, L.

12AEROSOL

1424

Wed 4:00 PM

Gao, M.

11HEALTH

410

Mon 4:00 PM

Gao, S.

TROPSYMP1

1523

Wed 4:00 PM

Gao, W.

TROPSYMP1

1510

Wed 4:00 PM

Gapp, N. J.

20SMOI

310

Mon 4:00 PM

Garay, M.

21AIRPOL

2.6

Mon 11:45 AM

Garberoglio, M. J.

30WAF26NWP

8A.4

Wed 11:15 AM

Garcia, B. A.

19STUDENT

S173

Sun 6:30 PM

Garcia, R. R.

SOLOMONSYMP

2.3

Mon 11:00 AM

PRESENTER INDEX

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
G (Continued)				G (Continued)			
Garcia Menendez, F.	33CVC	3C.6	Mon 3:30 PM	Goble, P.	34HYDRO	561	Tue 4:00 PM
Garimella, S.	19AI	2B.2	Mon 2:15 PM	Gochis, D.	34HYDRO	3A.2	Mon 2:15 PM
Garimella, S.	19AI	7A.1	Wed 8:30 AM	Godfrey, C. M.	SLSSYMPOSIUM1	981	Tue 4:00 PM
Garistina, E.	29EDUCATION	213	Mon 4:00 PM	Godinez, H. C.	17SPACEWX	769	Tue 4:00 PM
Garmong, R.	19AI	9B.2	Wed 1:45 PM	Goebbert, K. H.	29EDUCATION	216	Mon 4:00 PM
Garrett, K.	20SMOI	14.6	Thu 2:45 PM	Gohari, S. M. I.	6HPC	3.1	Tue 3:00 PM
Garrett, K.	16GOESRJPS	7A.6	Wed 9:45 AM	GolbonHaghighi, M.	36EIPT	1038	Wed 4:00 PM
Garuckas, R. V. III	16IMPACTS	2.1	Mon 10:30 AM	Gold, D.	19AI	J61.2	Thu 8:45 AM
Garza, A.	19STUDENT	S235	Sun 6:30 PM	Goldberg, D.	22ATCHEM	8A.5	Wed 9:30 AM
Gasiewski, A.	10R2O	J1.5	Mon 9:30 AM	Goldberg, M.	16GOESRJPS	1.1	Mon 8:30 AM
Gasperoni, N. A.	10R2O	1.5	Mon 9:30 AM	Goldberg, M.	16GOESRJPS	3.5	Mon 3:00 PM
Gasperoni, N. A.	30WAF26NWP	661	Tue 4:00 PM	Golden, N.	33CVC	633	Tue 4:00 PM
Gaston, C. J.	12AEROSOL	6.5	Wed 9:30 AM	Golding, B. W.	36EIPT	3B.1	Mon 2:00 PM
Gaston, C. J.	22ATCHEM	15B.3	Thu 4:00 PM	Golding, B. W.	15URBAN	3.7	Mon 3:30 PM
Gates, O. C.	8WXCLIMATE	6.3	Wed 11:00 AM	Goldsmith, B. S.	8WRN	6.5	Wed 11:30 AM
Gaudel, A.	22ATCHEM	13B.1	Thu 10:30 AM	Goldsmith, B. S.	15SOCIETY	13A.1	Thu 1:30 PM
Gaudet, L. C.	30WAF26NWP	12B.6A	Thu 11:45 AM	Gómez, L. A.	33CVC	J34.5	Wed 9:30 AM
Gaur, A.	15SOCIETY	7.5	Wed 9:30 AM	Goncharenko, L.	17SPACEWX	13.4	Wed 3:45 PM
Gaur, A.	15URBAN	15.2	Thu 4:00 PM	Gong, Z.	33CVC	13.4	Thu 2:15 PM
Ge, G.	10R2O	432	Mon 4:00 PM	Goni, G.	8WRN	5.4	Wed 9:15 AM
Ge, G.	30WAF26NWP	1247	Wed 4:00 PM	Gonzalez, A. O.	SCHUBERTSYMP	1018	Wed 4:00 PM
Ge, G.	24IOAS	9.3	Wed 11:15 AM	Gonzalez, J. R.	16IMPACTS	387	Mon 4:00 PM
Geerts, B.	10R2O	10A.2	Wed 1:45 PM	Gonzalez, T. D.	18COASTAL	4.3	Tue 9:00 AM
Gehne, M.	30WAF26NWP	14A.2	Thu 3:45 PM	González Abad, G.	22ATCHEM	12A.4	Thu 9:15 AM
Gelaro, R.	8JCSDA	1.2	Tue 8:45 AM	Good, G.	17SPACEWX	4.5	Mon 3:45 PM
Geletic, J.	15URBAN	2.4	Mon 11:15 AM	Goode, K.	19STUDENT	S83	Sun 6:30 PM
Geli, H. M. E.	34HYDRO	9.4	Wed 9:15 AM	Goodhue, C.	18COASTAL	11.3	Thu 9:00 AM
Gensini, V. A.	SLSSYMPOSIUM1	967	Tue 4:00 PM	Goodin, J. R.	19STUDENT	S250	Sun 6:30 PM
Gensini, V. A.	SLSSYMPOSIUM1	968	Tue 4:00 PM	Goodman, A.	10PYTHON	1.2	Mon 9:15 AM
Gensini, V. A.	30WAF26NWP	8B.3	Wed 11:00 AM	Goodman, M.	33CVC	120	Mon 4:00 PM
Geogdzhayeva, M.	19STUDENT	S4	Sun 6:30 PM	Goodman, S. J.	10R2O	1478	Wed 4:00 PM
Gerard, A. E.	16IMPACTS	388	Mon 4:00 PM	Goodnight, J.	20SMOI	324	Mon 4:00 PM
Gerard, A. E.	8WRN	4.4	Tue 3:45 PM	Goodson, H. M.	19STUDENT	S37	Sun 6:30 PM
Gerber, M.	8WRN	9.1	Thu 8:30 AM	Gorantla, V. R.	22ATCHEM	262	Mon 4:00 PM
Gerst, M. D.	15SOCIETY	3B.1	Mon 2:00 PM	Gordillo, N.	22WXMOD	1308	Wed 4:00 PM
Gerth, J.	10R2O	6A.2	Tue 1:45 PM	Gordon, A. E.	19STUDENT	S29	Sun 6:30 PM
Gertler, C. G.	22WXMOD	J38.4	Wed 9:15 AM	Gordon, A. L.	33CVC	11.3	Thu 9:00 AM
Gesangyangji, G.	11ENERGY	1464	Wed 4:00 PM	Gordon, I.	22ATCHEM	1286	Wed 4:00 PM
Gesell, I.	26PROBSTAT	3.5	Mon 3:15 PM	Gorman, V.	29EDUCATION	PD1.6	Mon 8:30 AM
Getzandanner, R.	8MJO	2.5	Mon 11:30 AM	Gorman, V.	29EDUCATION	1.2	Mon 10:45 AM
Geyer, M.	19STUDENT	S238	Sun 6:30 PM	Gourley, J. J.	20SMOI	2.5	Mon 11:30 AM
Ghannam, K.	21AIRPOL	14.3	Thu 2:00 PM	Govett, M. W.	6HPC	1.2	Tue 10:45 AM
Ghebreyesus, D. T.	19STUDENT	S137	Sun 6:30 PM	Govett, M. W.	6HPC	J55.1	Wed 3:00 PM
Ghirardelli, J. E.	20ARAM	J42.1	Wed 10:30 AM	Gowan, T. M.	30WAF26NWP	186	Mon 4:00 PM
Ghirardelli, J. E.	26PROBSTAT	7.1	Wed 1:30 PM	Gowan, T. M.	30WAF26NWP	14B.3	Thu 4:00 PM
Ghosh, P.	30WAF26NWP	14A.1	Thu 3:30 PM	Gowen, E.	23ASLI	2.4	Wed 9:45 AM
Giardino, D.	34HYDRO	1A.5	Mon 9:30 AM	Gowravaram, S.	20SMOI	7.2	Tue 3:15 PM
Gibbins, G.	SOLOMONSYMP	29	Mon 4:00 PM	Graber, H. C.	18COASTAL	7.3	Tue 3:30 PM
Gibbs, J. A.	30WAF26NWP	14B.6	Thu 4:45 PM	Grabowski, W. W.	22WXMOD	2.6	Mon 11:45 AM
Gibson, E. K.	18HISTORY	1.2	Mon 8:45 AM	Grabowski, W. W.	12AEROSOL	J53.1	Wed 3:00 PM
Gilbert, H.	17SPACEWX	1.6	Mon 9:45 AM	Grabowski, W. W.	22WXMOD	5.3	Thu 9:00 AM
Giles, B. L.	17SPACEWX	10.1	Wed 10:30 AM	Graham, C. S.	30WAF26NWP	1B.4	Mon 9:15 AM
Gilford, D.	SOLOMONSYMP	1.1	Mon 8:30 AM	Graham, M. R.	20SMOI	311	Mon 4:00 PM
Gilford, D.	18COASTAL	10.1	Wed 1:30 PM	Graham, R.	30WAF26NWP	1A.6	Mon 9:45 AM
Gilleland, E.	26PROBSTAT	2.1	Mon 10:30 AM	Granier, C.	SOLOMONSYMP	3	Mon 4:00 PM
Gilliam, R. C.	21AIRPOL	3.3	Mon 2:30 PM	Grant, L. D.	SCHUBERTSYMP	1015	Wed 4:00 PM
Gilot, E. A.	19STUDENT	S58	Sun 6:30 PM	Grasmick, C. D.	22WXMOD	3.2	Tue 10:45 AM
Giovannettone, J.	15SOCIETY	394	Mon 4:00 PM	Gravelle, C. M.	10R2O	1.4	Mon 9:15 AM
Giovannettone, J.	34HYDRO	567	Tue 4:00 PM	Gray, G. M. E.	34HYDRO	1091	Wed 4:00 PM
Giovannini, L.	15URBAN	8B.5	Wed 9:30 AM	Gray, G. M. E.	15URBAN	15.5	Thu 4:45 PM
Giovannini, L.	15URBAN	10A.3	Wed 2:15 PM	Greco, S.	16GOESRJPS	14B.1	Thu 3:30 PM
Givati, A.	34HYDRO	1A.3	Mon 9:00 AM	Green, A.	SCHUBERTSYMP	1033	Wed 4:00 PM
Glackin, M.	19STUDENT		Sat 9:50 AM	Green, B. W.	30WAF26NWP	692	Tue 4:00 PM
Glade, I.	19STUDENT	S216	Sun 6:30 PM	Green, D. S.	36EIPT	3B.6	Mon 3:15 PM
Glahn, B.	26PROBSTAT	6.1	Wed 10:30 AM	Green, J. C.	17SPACEWX	10.5	Wed 11:30 AM
Glenn, E.	33CVC	1179	Wed 4:00 PM	Greene, B. R.	20SMOI	9.2	Wed 10:45 AM
Glickman, T.	48BROADCAST	4.1	Tue 1:30 PM	Greene, K. M.	20SMOI	6.4	Tue 2:15 PM
Gloninger, C. J.	48BROADCAST		Tue 8:30 AM	Greenwald, T.	10R2O	434	Mon 4:00 PM
Gloftelty, T.	33CVC	1B.3	Mon 9:00 AM	Greenwald, T.	8JCSDA	820	Tue 4:00 PM
Glumb, R. J.	16GOESRJPS	13B.1	Thu 1:30 PM	Gregory, A.	34HYDRO	1096	Wed 4:00 PM
Gnanadesikan, A.	5INTERNATIONAL	2.5	Tue 11:45 AM	Grell, G. A.	36EIPT	3A.5	Mon 3:00 PM
Gnanadesikan, A.	33CVC	J35.5	Wed 9:30 AM	Grell, G. A.	30WAF26NWP	656	Tue 4:00 PM
Go, S.	24IOAS	250	Mon 4:00 PM	Greybush, S. J.	24IOAS	7A.1	Tue 3:00 PM
Goble, P.	34HYDRO	562	Tue 4:00 PM	Griffin, A. N.	16GOESRJPS	1374	Wed 4:00 PM

Conf.

Paper #

Day

Time

G (Continued)

Griffin, C. B.

SLSSYMPOSIUM1

918

Tue

4:00 PM

Griffith, P. C.

16GOESRJPSS

13A.1

Thu

1:30 PM

Grigsby, E.

16GOESRJPSS

7A.4

Wed

9:15 AM

Grim, J. A.

34HYDRO

79

Mon

4:00 PM

Grimt, E. P.

11ENERGY

13.1

Wed

3:00 PM

Grode, K. R.

25APPLIED

7.3

Wed

11:00 AM

Grogan, D.

8JCSDA

821

Tue

4:00 PM

Grogan, D.

12AEROSOL

10.4A

Thu

11:15 AM

Grondin, N. S.

8MJO

447

Mon

4:00 PM

Gronoff, G.

10LIDAR

5.4

Wed

2:15 PM

Grooms, I.

24IOAS

3.8

Mon

3:45 PM

Gropp, M.

SLSSYMPOSIUM1

2.6

Tue

11:45 AM

Gross, B.

15URBAN

4.5

Tue

9:30 AM

Gross, B.

FUTURESYM

1.3

Mon

9:00 AM

Gross, B.

10R2O

PD1.1

Tue

8:30 AM

Grossberg, M. D.

16GOESRJPSS

2.6

Mon

11:45 AM

Grosshans, G.

36EIPT

J32.2

Wed

8:45 AM

Grossnickle, J.

24IOAS

245

Mon

4:00 PM

Grover, M.

30WAF26NWP

1246

Wed

4:00 PM

Gruber, A.

34HYDRO

6B.3

Tue

11:00 AM

Gu, J.

21AIRPOL

2.2

Mon

10:45 AM

Gu, Q.

33CVC

2B.5

Mon

11:45 AM

Gu, Y.

22ATCHEM

9B.5

Wed

11:30 AM

Guan, B.

33CVC

636

Tue

4:00 PM

Guhathakurta, M.

17SPACEWX

J70.6

Thu

2:45 PM

Guigam, K. H.

33CVC

J21.1

Tue

1:30 PM

Guillevic, P.

34HYDRO

11.1

Wed

3:00 PM

Gulati, S.

26PROBSTAT

1.5

Mon

9:30 AM

Gulev, S.

33CVC

7A.3

Tue

3:30 PM

Gultepe, I.

20SMOI

339

Mon

4:00 PM

Gultepe, I.

18COASTAL

8.2

Wed

8:45 AM

Gunshor, M. M.

16GOESRJPSS

7A.5

Wed

9:30 AM

Guo, J. X.

4PREDICTABILITY

1.4

Mon

9:45 AM

Guo, J.

30WAF26NWP

11A.3

Thu

9:00 AM

Guo, L.

34HYDRO

1108

Wed

4:00 PM

Guo, X.

30WAF26NWP

200

Mon

4:00 PM

Guo, X.

30WAF26NWP

10A.2

Wed

3:15 PM

Gutmann, E.

34HYDRO

1084

Wed

4:00 PM

Gutzler, D. S.

33CVC

142

Mon

4:00 PM

Guzmán, G.

30WAF26NWP

14A.4

Thu

4:15 PM

Gyakum, J. R.

30WAF26NWP

5B.3

Tue

2:00 PM

H

Ha, K. J.

33CVC

J34.2

Wed

8:45 AM

Ha, Y.

33CVC

1160

Wed

4:00 PM

Haacker, R.

29EDUCATION

3.4

Tue

9:15 AM

Haberlie, A. M.

19AI

4.4

Tue

11:15 AM

Hack, J. J.

SCHUBERTSYM

1.1

Wed

8:30 AM

Haddad, Z. S.

24IOAS

5B.2

Tue

10:45 AM

Haefele, A.

10LIDAR

416

Mon

4:00 PM

Haefele, A.

10LIDAR

5.3

Wed

2:00 PM

Hagenhoff, B.

15SOCIETY

12A.3

Thu

11:00 AM

Haim, N.

18COASTAL

376

Mon

4:00 PM

Hain, C.

34HYDRO

555

Tue

4:00 PM

Halbert, K. T.

SLSSYMPOSIUM1

959

Tue

4:00 PM

Hale, J.

19STUDENT

S161

Sun

6:30 PM

Halenka, T.

15URBAN

3.1

Mon

2:00 PM

Halenka, T.

30WAF26NWP

3A.1

Mon

3:00 PM

Halenka, T.

DICKINSONSYM

501

Tue

4:00 PM

Haliczer, D.

16GOESRJPSS

11A.3

Thu

9:00 AM

Hall, C.

11HEALTH

1472

Wed

4:00 PM

Hall, D.

6HPC

J47.1

Wed

1:30 PM

Hall, D.

22ATCHEM

36.3

Mon

2:30 PM

Hall, T.

19AI

3B.7

Mon

4:00 PM

Hall, T. J.

19AI

J60.2

Thu

8:30 AM

Hall, T.

30WAF26NWP

9B.4

Wed

2:15 PM

Halley Gotway, J. E.

26PROBSTAT

5.5

Tue

11:30 AM

Halliwell, G. R. Jr.

8WRN

8.3

Wed

3:30 PM

Halperin, D. J.

10R2O

2.5

Mon

11:30 AM

Halperin, D. J.

10R2O

431

Mon

4:00 PM

Hamel, M. B.

19STUDENT

S39

Sun

6:30 PM

H

Hamilton, J. A.

36EIPT

3A.7

Mon

3:30 PM

Hamilton, S. D.

21AIRPOL

6.5

Tue

11:30 AM

Hammer, G.

25APPLIED

1.4

Mon

11:15 AM

Hammerling, D.

33CVC

3C.1

Mon

2:00 PM

Hammock, R.

19STUDENT

S105

Sun

6:30 PM

Hampton, J. M.

36EIPT

9B.3

Wed

11:00 AM

Han, F.

26PROBSTAT

2.4

Mon

11:15 AM

Han, L.

19AI

2B.4

Mon

2:45 PM

Han, L.

19AI

11B.1

Thu

3:30 PM

Han, L.

34HYDRO

15B.6

Thu

4:45 PM

Hanbali, F.

25APPLIED

718

Tue

4:00 PM

Handlos, Z.

29EDUCATION

2.5

Mon

3:00 PM

Handlos, Z.

29EDUCATION

222

Mon

4:00 PM

Hanf, F. S.

15URBAN

3.2

Mon

2:15 PM

Hanf, F. S.

15URBAN

3.3

Mon

2:30 PM

Hanf, W.

36EIPT

11B.2

Wed

3:15 PM

Hanf, W.

34HYDRO

15B.5

Thu

4:30 PM

Hanna, S.

21AIRPOL

1.1

Mon

8:45 AM

Hanna, S.

21AIRPOL

6.1

Tue

10:30 AM

Hannigan, A. C.

19STUDENT

S253

Sun

6:30 PM

Hansen, K.

34HYDRO

J33.4

Wed

9:15 AM

Harbaugh, C. R.

19STUDENT

S252

Sun

6:30 PM

Hardin, N.

36EIPT

531

Tue

4:00 PM

Hardin, N.

20ARAM

1336

Wed

4:00 PM

Harlan, S.

11HEALTH

J40.6

Wed

9:45 AM

Harnos, D. S.

33CVC

J64.5

Thu

11:30 AM

Harnos, K. J.

33CVC

1167

Wed

4:00 PM

Harp, R. D.

11HEALTH

7.3

Wed

11:00 AM

Harr, P.

26PROBSTAT

1.6

Mon

9:45 AM

Harrington, T. S.

19STUDENT

S38

Sun

6:30 PM

Harrington, T. S.

20ARAM

741

Tue

4:00 PM

Harrison, A. D.

12AEROSOL

1429

Wed

4:00 PM

Harrison, D.

19AI

8.1

Wed

10:30 AM

Harrison, D.

30WAF26NWP

12B.3

Thu

11:00 AM

Harrold, M.

26PROBSTAT

2.5

Mon

11:30 AM

Harrold, M.

30WAF26NWP

645

Tue

4:00 PM

Harrop, C. W.

8JCSDA

3.4

Tue

11:15 AM

Harrop, W.

11ENERGY

5.5

Tue

9:30 AM

Hartten, L. M.

20SMOI

6.3

Tue

2:00 PM

Harty, T. M.

11ENERGY

1461

Wed

4:00 PM

Hashino, T.

12AEROSOL

1427

Wed

4:00 PM

Hassanzadeh, P.

33CVC

3B.3

Mon

2:30 PM

Hassanzadeh, P.

19AI

J66.2

Thu

10:45 AM

Hassler, B.

SOLOMONSYM

24

Mon

4:00 PM

Hatfield, K.

8WRN

11.6

Thu

2:45 PM

Hatheway, B.

29EDUCATION

2.3

Mon

2:30 PM

Hatheway, B.

29EDUCATION

707

Tue

4:00 PM

Haupt, S. E.

18HISTORY

5.7

Tue

12:00 PM

Haupt, S. E.

11ENERGY

8.1

Tue

1:30 PM

Haupt, S. E.

19AI

6.1

Tue

3:00 PM

Hawkins, J.

18HISTORY

8.3

Wed

9:15 AM

Haworth, M.

19STUDENT

S7

Sun

6:30 PM

Haynes, J. A.

11HEALTH

3.1

Mon

2:00 PM

Hazelton, A.

TROPSYM1

4.4

Wed

3:45 PM

He, C.

12AEROSOL

1432

Wed

4:00 PM

He, H.

22ATCHEM

259

Mon

4:00 PM

He, Q.

25APPLIED

727

Tue

4:00 PM

He, S.

33CVC

4B.3

Tue

9:00 AM

He, Y.

15URBAN

1403

Wed

4:00 PM

Headley, J. K.

36EIPT

J32.5

Wed

9:30 AM

Heath, A. L.

8MJO

458

Mon

4:00 PM

Heberling, W.

36EIPT

9B.2

Wed

10:45 AM

Hebert-Pinard, C.

20SMOI

306

Mon

4:00 PM

Hecht, C. W.

16IMPACTS

386

Mon

4:00 PM

Heden, E. M.

29EDUCATION

699

Tue

4:00 PM

Heden, E. M.

TROPSYM1

1501

Wed

4:00 PM

Hegarty, J.

21AIRPOL

290

Mon

4:00 PM

Hegerl, G.

SOLOMONSYM

3.4

Mon

2:45 PM

Heidari, L.

11HEALTH

2.5

Mon

11:30 AM

Heidari, L.

15URBAN

403

Mon

4:00 PM

Heim, R. R. Jr.

25APPLIED

1.1

Mon

10:30 AM

Heimes, K.

22WXMOD

3.1

Tue

10:30 AM

Heinselmann, P. L.

10R2O

11A.1

Tue

3:00 PM

Heinzeller, D.

10R2O

11B.2

Wed

3:15 PM

PRESENTER INDEX

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
H (Continued)				H (Continued)			
Heisel, M.	21AIRPOL	13B.2	Thu 10:45 AM	Holman, A.	36EIPT	4B.4	Tue 9:15 AM
Heist, D.	21AIRPOL	5.3	Tue 9:00 AM	Holmes, C.	22ATCHEM	14A.1	Thu 1:30 PM
Held, I. M.	18HISTORY	4.5	Tue 9:30 AM	Holmes, T. R. H.	34HYDRO	10A.6	Wed 11:45 AM
Helffrich, J. E. IV	19STUDENT	S145	Sun 6:30 PM	Holmgren, W. F.	11ENERGY	9.1	Wed 8:30 AM
Heller, T.	48BROADCAST	4.2	Tue 1:45 PM	Holmlund, K.	16GOESRJPSS	J13.4	Tue 9:30 AM
Hemingway, M.	8WRN	9.3	Thu 9:00 AM	Holz, R. E.	16GOESRJPSS	13B.6	Thu 2:45 PM
Henderson, D.	30WAF26NWP	1B.3	Mon 9:00 AM	Holzer, M.	29EDUCATION	220	Mon 4:00 PM
Henderson, D.	12AEROSOL	J29.2	Tue 3:15 PM	Homan, T.	21AIRPOL	5.1	Tue 8:30 AM
Henderson, G. D.	18HISTORY	11.3	Wed 2:00 PM	Homeyer, C. R.	30WAF26NWP	2A.1	Mon 2:00 PM
Henderson, G.	33CVC	630	Tue 4:00 PM	Hondula, D. M.	11HEALTH	405	Mon 4:00 PM
Henderson, J.	18HISTORY	8.1	Wed 8:45 AM	Hondula, D. M.	11HEALTH	6.4	Tue 3:45 PM
Henderson, J. M.	30WAF26NWP	191	Mon 4:00 PM	Hong, J.	19AI	1366	Wed 4:00 PM
Hendricks, E. A.	15URBAN	8B.1	Wed 8:30 AM	Hong, J. S.	33CVC	1129	Wed 4:00 PM
Hendricks, E. A.	SCHUBERTSYMP	1026	Wed 4:00 PM	Hong, J. S.	24IOAS	7B.3	Tue 3:30 PM
Hennessy, E. K.	19STUDENT	S95	Sun 6:30 PM	Hong, S.	30WAF26NWP	650	Tue 4:00 PM
Henny, L.	33CVC	7A.1	Tue 3:00 PM	Hong, X.	34HYDRO	80	Mon 4:00 PM
Henry-Reeves, R. K.	36EIPT	4A.1	Tue 8:30 AM	Hoogewind, K.	SLSSYMPOSIUM1	3.4	Tue 2:15 PM
Henry-Reeves, R. K.	36EIPT	4A.2	Tue 9:00 AM	Hoogewind, K.	33CVC	9B.1	Wed 1:30 PM
Henry-Reeves, R. K.	8WRN	3.4	Tue 2:15 PM	Hooke, W. H.	18HISTORY	1.3	Mon 9:00 AM
Hepper, R. M.	20ARAM	1331	Wed 4:00 PM	Hoover, B. T.	30WAF26NWP	1248	Wed 4:00 PM
Hepper, R. M.	20ARAM	12.6	Thu 2:45 PM	Hopson, L.	19STUDENT	S188	Sun 6:30 PM
Hermanson, L.	33CVC	4C.3	Tue 9:00 AM	Hopson, T.	30WAF26NWP	688	Tue 4:00 PM
Hermanson, L.	33CVC	626	Tue 4:00 PM	Horowitz, H. M.	22ATCHEM	15B.2	Thu 3:45 PM
Herrera, L.	21AIRPOL	730	Tue 4:00 PM	Horsfall, F.	25APPLIED	3.1	Tue 8:30 AM
Herzog, B. S.	16IMPACTS	3.5	Mon 3:00 PM	Horton, J.	22WXMOD	PD1.2	Wed 10:30 AM
Heuscher, L.	TROPSYMP1	1489	Wed 4:00 PM	Hosannah, N.	TROPSYMP1	844	Tue 4:00 PM
Heuser, S. P.	20SMOI	14.4	Thu 2:15 PM	Hosseini Shakib, I.	34HYDRO	J57.3	Thu 9:00 AM
Heusinger, J.	15URBAN	7.3	Tue 3:30 PM	Hosseinpour, F.	12AEROSOL	9.4	Thu 9:15 AM
Hickey, J.	PRESSESSIONS		Mon 8:30 AM	Hotz, D.	10R2O	8B.2	Wed 8:45 AM
Hickey, J.	19AI	2A.2	Mon 2:15 PM	Hou, D.	6HPC	J55.3	Wed 3:30 PM
Hicks, J. D.	33CVC	143	Mon 4:00 PM	Houser, J.	20SMOI	342	Mon 4:00 PM
Hieta, L.	30WAF26NWP	177	Mon 4:00 PM	Houser, J. B.	29EDUCATION	5.6	Wed 9:45 AM
Higgins, P.	15SOCIETY	PD1.1	Tue 8:30 AM	Housseal, S.	17SPACEWX	780	Tue 4:00 PM
Higgins, T.	19STUDENT	S100	Sun 6:30 PM	Houston, A. L.	SLSSYMPOSIUM1	1.3	Tue 9:00 AM
Hildebrand, E. P.	20ARAM	1348	Wed 4:00 PM	Houston, A. L.	10R2O	10A.4	Wed 2:15 PM
Hill, A. J.	SLSSYMPOSIUM1	950	Tue 4:00 PM	Houston, L.	19STUDENT	S71	Sun 6:30 PM
Hill, A. J.	24IOAS	10.4	Wed 2:15 PM	Houston, T. G.	25APPLIED	8.1	Wed 1:30 PM
Hill, A. J.	30WAF26NWP	J71.2	Thu 3:45 PM	Houze, R. A. Jr.	18HISTORY	3.1	Mon 2:00 PM
Hill, C. M.	20SMOI	15.5	Thu 4:30 PM	Houze, R. A. Jr.	18HISTORY	6.3	Tue 2:00 PM
Hill, F.	17SPACEWX	16.3	Thu 4:00 PM	Houze, R. A. Jr.	SCHUBERTSYMP	2.6	Wed 11:45 AM
Hillger, D. W.	16GOESRJPSS	13A.6	Thu 2:45 PM	Howard, T.	20ARAM	2.6	Mon 11:45 AM
Himani, T.	35MALLSATS	1486	Wed 4:00 PM	Howell, S.	22ATCHEM	1294	Wed 4:00 PM
Himmele, G.	19STUDENT	S80	Sun 6:30 PM	Hoyne, C.	19AI	9A.1	Wed 1:30 PM
Hiranuma, N.	12AEROSOL	1435	Wed 4:00 PM	Hrisko, J.	15URBAN	13.1	Thu 10:30 AM
Hirata, F. E.	8MJO	1.6	Mon 9:45 AM	Hristova-Veleva, S.	TROPSYMP1	1518	Wed 4:00 PM
Hiris, Z. A.	30WAF26NWP	1197	Wed 4:00 PM	Hsieh, T. L.	TROPSYMP1	1534	Wed 4:00 PM
Hirsch, A. T.	30WAF26NWP	157	Mon 4:00 PM	Hsu, H.	34HYDRO	1B.6	Mon 9:45 AM
Hirshorn, N.	19STUDENT	S15	Sun 6:30 PM	Hsu, T. Y.	SCHUBERTSYMP	1020	Wed 4:00 PM
Hiscox, A. L.	20SMOI	302	Mon 4:00 PM	Hu, C. C.	24IOAS	3.3	Mon 2:30 PM
Hitchcock, S. M.	30WAF26NWP	8A.5	Wed 11:30 AM	Hu, F.	15URBAN	9B.1	Wed 10:30 AM
Hitchcock, S. M.	30WAF26NWP	1187	Wed 4:00 PM	Hu, J.	16GOESRJPSS	4.3	Tue 11:15 AM
Ho, S. P.	24IOAS	7B.2	Tue 3:15 PM	Hu, L.	22ATCHEM	15A.2	Thu 3:45 PM
Hoar, T. J.	34HYDRO	6B.6	Tue 11:45 AM	Hu, L.	20SMOI	336	Mon 4:00 PM
Hoar, T. J.	24IOAS	13.2	Thu 10:45 AM	Hu, L.	15URBAN	9A.4	Wed 11:15 AM
Hobbins, M.	34HYDRO	11.3	Wed 3:30 PM	Hu, M.	24IOAS	7A.3	Tue 3:30 PM
Hock, T.	20SMOI	353	Mon 4:00 PM	Hu, Q.	SLSSYMPOSIUM1	965	Tue 4:00 PM
Hock, T.	20SMOI	7.3	Tue 3:30 PM	Hu, S.	33CVC	11.4	Thu 9:15 AM
Hocut, C. M.	21AIRPOL	734	Tue 4:00 PM	Hu, S.	5INTERNATIONAL	2.4	Tue 11:30 AM
Hodges, D.	24IOAS	7A.4	Tue 3:45 PM	Hu, Y.	30WAF26NWP	1209	Wed 4:00 PM
Hodgkins, G.	34HYDRO	1099	Wed 4:00 PM	Hu, Y.	33CVC	12.2	Thu 10:45 AM
Hoell, A.	33CVC	2A.6	Mon 11:45 AM	Huaman, L.	8MJO	2.4	Mon 11:15 AM
Hoell, A.	34HYDRO	13A.3	Thu 11:00 AM	Huaman, L.	TROPSYMP1	839	Tue 4:00 PM
Hoenig, M.	19STUDENT	S85	Sun 6:30 PM	Huang, C.	34HYDRO	1051	Wed 4:00 PM
Hoerling, M.	33CVC	8A.1	Wed 10:30 AM	Huang, C.	15URBAN	11B.1	Wed 3:00 PM
Hoff, L.	18HISTORY	9.1	Wed 10:30 AM	Huang, G.	11HEALTH	411	Mon 4:00 PM
Hoffman, A.	15URBAN	8A.4	Wed 9:15 AM	Huang, H.	34HYDRO	552	Tue 4:00 PM
Hogue, T.	34HYDRO	L3.1	Wed 1:30 PM	Huang, H.	34HYDRO	3B.2	Mon 2:15 PM
Holdaway, D.	8JCSDA	3.6	Tue 11:45 AM	Huang, L.	48BROADCAST	8.1	Wed 1:30 PM
Holdaway, D.	8JCSDA	819	Tue 4:00 PM	Huang, M.	33CVC	1B.2	Mon 8:45 AM
Holderied, K.	18COASTAL	9.6	Wed 11:30 AM	Huang, M.	15URBAN	9B.3	Wed 11:00 AM
Hollan, M.	30WAF26NWP	2A.2	Mon 2:15 PM	Huang, X.	21AIRPOL	4.4	Mon 3:45 PM
Holland, G.	SCHUBERTSYMP	3.4	Wed 2:15 PM	Huang, Y.	30WAF26NWP	8A.6	Wed 11:45 AM
Hollinger, K.	19STUDENT	S133	Sun 6:30 PM	Huang, Y.	30WAF26NWP	7A.3	Wed 9:00 AM
Hollingshead, A.	8WXCLIMATE	439	Mon 4:00 PM	Huang, Y. F.	34HYDRO	7.3	Tue 2:15 PM

	Conf.	Paper #	Day	Time		Conf.	Paper #	Day	Time
H (Continued)					J (Continued)				
Huang, Y. F.	34HYDRO	1047	Wed	4:00 PM	Jacobson, D. M.	20ARAM	13.4	Thu	4:15 PM
Hubbert, J. C.	36EIPT	9B.4	Wed	11:15 AM	Jacques, A. A.	15URBAN	4.4	Tue	9:15 AM
Huber, D. B.	MIDDLESYMP	904	Tue	4:00 PM	Jacques, A. A.	21AIRPOL	1322	Wed	4:00 PM
Hudson, L.	48BROADCAST	530	Tue	4:00 PM	Jagoda, D.	12AEROSOL	1437	Wed	4:00 PM
Huffman, G. J.	34HYDRO	13B.1	Thu	10:30 AM	Jahn, D. E.	30WAF26NWP	2A.4	Mon	2:45 PM
Huffman, G. J.	34HYDRO	15B.2	Thu	3:45 PM	Jakobsen, A.	34HYDRO	1068	Wed	4:00 PM
Huffman, M.	34HYDRO	2A.6	Mon	11:45 AM	Jalowska, A. M.	34HYDRO	5A.5	Tue	9:30 AM
Hugeback, K. K.	34HYDRO	50	Mon	4:00 PM	James, E. P.	36EIPT	3A.4	Mon	2:45 PM
Huggins, J. L.	19STUDENT	S87	Sun	6:30 PM	James, E. P.	30WAF26NWP	5A.2	Tue	1:45 PM
Hughes, M.	33CVC	2C.2	Mon	10:45 AM	James, E. P.	34HYDRO	8.1	Tue	3:00 PM
Hulley, G.	15URBAN	8A.3	Wed	9:00 AM	James, E. P.	24IOAS	13.3	Thu	11:00 AM
Hultquist, T. R.	15URBAN	5.2	Tue	11:00 AM	Jamilkowski, M.	16GOESRJPSS	3.6	Mon	3:30 PM
Humphreys, E. R.	20SMOI	4.5	Tue	9:30 AM	Jamshidi, S.	34HYDRO	561	Tue	4:00 PM
Huning, L. S.	34HYDRO	10B.6	Wed	11:45 AM	Jang, Y. S.	33CVC	632	Tue	4:00 PM
Hunsaker, A. G.	34HYDRO	1082	Wed	4:00 PM	Jankot, J.	16GOESRJPSS	1376	Wed	4:00 PM
Hurlburt, N.	17SPACEWX	756	Tue	4:00 PM	Jansens, B.	30WAF26NWP	182	Mon	4:00 PM
Hurrell, J.	DICKINSONSYMP	J25.2	Tue	3:30 PM	Jaramillo, A.	8MJO	464	Mon	4:00 PM
Husain, S. Z.	30WAF26NWP	4A.3	Tue	11:00 AM	Jaramillo-Gil, S.	10LIDAR	5.1	Wed	1:30 PM
Hutchinson, T.	30WAF26NWP	13B.5	Thu	2:30 PM	Jarrett, C. M.	19STUDENT	S199	Sun	6:30 PM
Huth, R.	26PROBSTAT	8.1	Wed	3:00 PM	Jarrett, R. D.	34HYDRO	6A.5	Tue	11:30 AM
Hutson, A. L.	SLSSYMPIUM1	951	Tue	4:00 PM	Jarrin, F.	34HYDRO	13A.6	Thu	11:45 AM
Hutyra, L.	22ATCHEM	3A.8	Mon	3:45 PM	Jascourt, S. D.	11ENERGY	10.2	Wed	10:45 AM
Hwang, J.	DICKINSONSYMP	505	Tue	4:00 PM	Jasko, S. A.	15SOCIETY	4A.4	Tue	9:15 AM
Hyun, S.	33CVC	1123	Wed	4:00 PM	Jaycobs, R.	48BROADCAST	5.1	Tue	3:00 PM
					Jenio, B.	20SMOI	334	Mon	4:00 PM
Iacono, M. J.	20SMOI	313	Mon	4:00 PM	Jenkins, G. S.	21AIRPOL	13A.4	Thu	11:15 AM
Iacono, M. J.	TROPSYMP1	1506	Wed	4:00 PM	Jenniges, J. V.	17SPACEWX	6.5	Tue	11:30 AM
Iacovazzi, R. A. Jr.	16GOESRJPSS	1384	Wed	4:00 PM	Jensen, A. A.	20ARAM	3.7	Mon	3:30 PM
Iampietro, A. J.	19STUDENT	S215	Sun	6:30 PM	Jensen, M.	11ENERGY	2.1	Mon	10:30 AM
Igel, A. L.	12AEROSOL	1438	Wed	4:00 PM	Jensen, M.	12AEROSOL	10.5	Thu	11:30 AM
Ignatius, M.	15URBAN	14.4	Thu	2:30 PM	Jensen, T.	30WAF26NWP	1B.6	Mon	9:45 AM
Ike, F.	11HEALTH	J40.1	Wed	8:30 AM	Jensen, T.	26PROBSTAT	3.1	Mon	2:00 PM
Illston, B. G.	23ASLI	2.1	Wed	9:00 AM	Jensen, T.	10R2O	9.5	Wed	11:30 AM
Illston, B. G.	24IOAS	12.2	Thu	8:45 AM	Jensen, T.	10R2O	10B.2	Wed	1:45 PM
Illston, B. G.	20SMOI	13.6	Thu	11:30 AM	Jensen, T.	10R2O	10B.3	Wed	2:00 PM
Im, E. S.	DICKINSONSYMP	487	Tue	4:00 PM	Jensen, T.	17SPACEWX	15.6	Thu	11:45 AM
Inatsu, M.	DICKINSONSYMP	503	Tue	4:00 PM	Jensenius, J. Jr.	48BROADCAST	2.4	Mon	11:15 AM
Infanti, J.	25APPLIED	716	Tue	4:00 PM	Jeromin, K. A.	48BROADCAST	7.1	Wed	10:30 AM
Infanti, J.	33CVC	1181	Wed	4:00 PM	Jia, L.	8WXCLIMATE	436	Mon	4:00 PM
Inoue, K.	8MJO	2.2	Mon	10:45 AM	Jiang, J.	22ATCHEM	10B.1	Wed	1:30 PM
Intaracharoen, P.	22WXMOD	1320	Wed	4:00 PM	Jiang, T.	15URBAN	1401	Wed	4:00 PM
Iredell, M.	36EIPT	10A.1	Wed	1:30 PM	Jiang, X.	21AIRPOL	J39.3	Wed	9:00 AM
Irving, D.	12AEROSOL	J29.3	Tue	3:30 PM	Jiang, Y.	21AIRPOL	9.2	Wed	10:45 AM
Irving, D.	10PYTHON	6.2	Wed	11:00 AM	Jiang, Y.	34HYDRO	86	Mon	4:00 PM
Isakov, V.	21AIRPOL	1321	Wed	4:00 PM	Jiang, Z.	30WAF26NWP	202	Mon	4:00 PM
Isphording, R. N.	36EIPT	J63.6	Thu	11:45 AM	Jimenez, P. A.	11ENERGY	11.1	Wed	11:30 AM
Istok, M. J.	36EIPT	10B.1	Wed	1:30 PM	Jin, H.	30WAF26NWP	12D.6	Thu	11:45 AM
Ivanova, D.	29EDUCATION	711	Tue	4:00 PM	Jin, M. S.	DICKINSONSYMP	509	Tue	4:00 PM
Ivanova, D.	22WXMOD	1319	Wed	4:00 PM	Jin, X.	8JCSDA	813	Tue	4:00 PM
Ivanovich, C. C.	19STUDENT	S108	Sun	6:30 PM	Jin, X.	22ATCHEM	12B.3	Thu	9:15 AM
Ivic, I. R.	36EIPT	8B.4	Wed	9:15 AM	Jin, Y.	30WAF26NWP	660	Tue	4:00 PM
Iwasaki, T.	30WAF26NWP	201	Mon	4:00 PM	Jing, L.	30WAF26NWP	1198	Wed	4:00 PM
					Jirak, I. L.	SLSSYMPIUM1	3.1	Tue	1:30 PM
					Jirak, I. L.	30WAF26NWP	12C.3	Thu	11:00 AM
					Johnson, B. T.	8JCSDA	2.1	Tue	9:15 AM
					Johnson, D.	19STUDENT	S163	Sun	6:30 PM
					Johnson, D.	36EIPT	1B.1	Mon	8:30 AM
					Johnson, N. E.	20SMOI	5.4	Tue	11:15 AM
					Johnson, R.	30WAF26NWP	1192	Wed	4:00 PM
					Johnson, S.	20ARAM	1334	Wed	4:00 PM
					Johnson, S.	8WRN	11.1	Thu	1:30 PM
					Johnson, S.	15URBAN	10A.1	Wed	1:30 PM
					Johnston, J. M.	19STUDENT	S182	Sun	6:30 PM
					Johnston, K.	20ARAM	3.2	Mon	2:15 PM
					Johnston, K.	20ARAM	1345	Wed	4:00 PM
					Johnston, P. E.	20SMOI	322	Mon	4:00 PM
					Johnstone, J.	33CVC	4C.5	Tue	9:30 AM
					Jones, A. S.	34HYDRO	1102	Wed	4:00 PM
					Jones, B.	29EDUCATION	3.5	Tue	9:30 AM
					Jones, C.	33CVC	101	Mon	4:00 PM
					Jones, E. T.	34HYDRO	2A.3	Mon	11:00 AM
					Jones, E.	24IOAS	5A.6	Tue	11:45 AM
					Jones, E.	TROPSYMP1	1487	Wed	4:00 PM
					Jones, H. M.	11HEALTH	6.2	Tue	3:15 PM

PRESENTER INDEX

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
J (Continued)				K (Continued)			
Jones, M.	10PYTHON	2.2	Mon 2:15 PM	Kayetha, V.	22ATCHEM	1292	Wed 4:00 PM
Jones, T. A.	8JCSDA	808	Tue 4:00 PM	Kazemi-Rad, M.	SCHUBERTSYMP	1007	Wed 4:00 PM
Joslyn, S.	15SOCIETY	3A.5	Mon 3:15 PM	Kearns, S.	SLSSYMPOSIUM1	989	Tue 4:00 PM
Jou, B. J. D.	TROPSYMP1	1533	Wed 4:00 PM	Keaton, G.	19STUDENT	5187	Sun 6:30 PM
Joyce, J.	36EIPT	3A.8	Mon 3:45 PM	Keeble, J.	SOLOMONSYMP	26	Mon 4:00 PM
Jozaghi, A.	34HYDRO	J26.3	Tue 3:30 PM	Keefe, O. R.	8WXCLIMATE	1.3	Mon 2:30 PM
Judt, F.	4PREDICTABILITY	J19.3	Tue 11:30 AM	Keeler, J. M.	SLSSYMPOSIUM1	945	Tue 4:00 PM
Juliano, T. W.	11ENERGY	7.4	Tue 11:45 AM	Keene, N. S.	36EIPT	6B.2	Tue 1:45 PM
Juliano, T. W.	30WAF26NWP	9B.3	Wed 2:00 PM	Kelleher, M. E.	10PYTHON	3.3	Tue 11:00 AM
June, N.	22ATCHEM	278	Mon 4:00 PM	Kelleher, M.	33CVC	1121	Wed 4:00 PM
Jung, C. H.	22ATCHEM	274	Mon 4:00 PM	Keller, D. Jr.	24IOAS	257	Mon 4:00 PM
Jung, C.	TROPSYMP1	869	Tue 4:00 PM	Keller, D. Jr.	10LIDAR	6.2	Wed 3:15 PM
Jung, J. A.	8JCSDA	811	Tue 4:00 PM	Kelley, J. G. W.	18HISTORY	3.5	Mon 3:00 PM
Jurewicz, M. L. Sr.	30WAF26NWP	7A.2	Wed 8:45 AM	Kelley, J. G. W.	18COASTAL	12.1	Thu 10:30 AM
Jurkowski, E. A.	19STUDENT	S186	Sun 6:30 PM	Kelley, M.	12AEROSOL	1417	Wed 4:00 PM
Just, A.	8WRN	J9.2	Mon 2:15 PM	Kelly, K.	6HPC	2.4	Tue 2:15 PM
Just, A.	18HISTORY	3.7	Mon 3:30 PM	Kelly, K.	6HPC	3.3	Tue 3:30 PM
Jutla, A.	11HEALTH	3.5	Mon 3:00 PM	Kelly, M. A.	10R2O	5B.3	Tue 11:30 AM
K				Kelly, N. R.	20SMOI	3.5	Mon 3:00 PM
Kacan, K.	SLSSYMPOSIUM1	948	Tue 4:00 PM	Kelsey, E. P.	20SMOI	316	Mon 4:00 PM
Kacenenbogen, M.	22ATCHEM	15A.5	Thu 4:30 PM	Kelsey, V.	19STUDENT	S178	Sun 6:30 PM
Kafka, J. L.	11ENERGY	6.1	Tue 10:30 AM	Kemp, E. M.	34HYDRO	13B.4	Thu 11:15 AM
Kahn, R.	22ATCHEM	5A.4	Tue 11:15 AM	Kennedy, K. E.	19STUDENT	S88	Sun 6:30 PM
Kain, J. S.	FUTURESYMPO	PD1.3	Mon 10:30 AM	Kenyon, J. S.	11ENERGY	10.4	Wed 11:15 AM
Kain, J. S.	30WAF26NWP	6A.3	Tue 3:30 PM	Kern, K.	36EIPT	6A.1	Tue 1:30 PM
Kain, J. S.	30WAF26NWP	643	Tue 4:00 PM	Kerr, C. A.	24IOAS	4A.6	Tue 9:45 AM
Kalashnikova, O. V.	21AIRPOL	9.3	Wed 11:00 AM	Kerr, G. H.	22ATCHEM	3B.8	Mon 3:45 PM
Kalb, C. P.	26PROBSTAT	3.3	Mon 2:45 PM	Kerr, G.	25APPLIED	725	Tue 4:00 PM
Kalluri, S.	10R2O	3B.2	Mon 2:15 PM	Keshav, B. S.	8MJO	460	Mon 4:00 PM
Kalmikov, A.	10PYTHON	J2.4	Mon 11:15 AM	Keshian, J. R.	36EIPT	4B.2	Tue 8:45 AM
Kamangir, H.	19AI	7B.3	Wed 9:00 AM	Kessinger, C.	20ARAM	12.1	Thu 1:30 PM
Kanada, S.	TROPSYMP1	1522	Wed 4:00 PM	Ketefian, G.	10R2O	5A.3	Tue 11:00 AM
Kang, D.	8MJO	454	Mon 4:00 PM	Keyser, D.	33CVC	4A.5	Tue 9:30 AM
Kang, D.	21AIRPOL	11.3	Wed 3:30 PM	Khadka, S.	17SPACEWX	13.3	Wed 3:30 PM
Kang, H. R.	11HEALTH	1467	Wed 4:00 PM	Khalid, A.	18COASTAL	4.6	Tue 9:45 AM
Kang, K. M.	18COASTAL	381	Mon 4:00 PM	Khan, M.	34HYDRO	60	Mon 4:00 PM
Kang, P.	21AIRPOL	8.3	Tue 3:30 PM	Khan, S.	15SOCIETY	7.4	Wed 9:15 AM
Kang, S. L.	30WAF26NWP	195	Mon 4:00 PM	Khelif, D.	18COASTAL	13.4	Thu 2:15 PM
Kang, S. L.	30WAF26NWP	1188	Wed 4:00 PM	Kholodovsky, V.	26PROBSTAT	1.3	Mon 9:00 AM
Kanji, Z. A.	12AEROSOL	1.2	Mon 8:45 AM	Kieu, C.	SCHUBERTSYMP	1024	Wed 4:00 PM
Kapnick, S.	33CVC	1C.3	Mon 9:00 AM	Kikuchi, R.	20ARAM	1351	Wed 4:00 PM
Kapnick, S.	33CVC	3C.4	Mon 3:00 PM	Kiladis, G.	8MJO	469	Mon 4:00 PM
Kappel, B. D.	34HYDRO	6A.6	Tue 11:45 AM	Kiladis, G.	SCHUBERTSYMP	4.1	Wed 3:00 PM
Kar, S. K.	30WAF26NWP	4A.4	Tue 11:15 AM	Kilic, A.	34HYDRO	9.3	Wed 9:00 AM
Karanko, S.	36EIPT	538	Tue 4:00 PM	Kim, B. J.	33CVC	102	Mon 4:00 PM
Karion, A.	22ATCHEM	3A.6	Mon 3:15 PM	Kim, B. J.	33CVC	1143	Wed 4:00 PM
Karlovet, E.	22ATCHEM	272	Mon 4:00 PM	Kim, D. W.	33CVC	1176	Wed 4:00 PM
Karmalkar, A. V.	33CVC	131	Mon 4:00 PM	Kim, H. N.	20ARAM	747	Tue 4:00 PM
Karpinski, M.	15SOCIETY	784	Tue 4:00 PM	Kim, H. K.	16GOESRJPS	J13.5	Tue 9:45 AM
Karpinski, M. R.	19STUDENT	S118	Sun 6:30 PM	Kim, J.	22ATCHEM	11.1	Wed 3:00 PM
Karrouk, M. S.	34HYDRO	541	Tue 4:00 PM	Kim, J.	24IOAS	14.5	Thu 2:30 PM
Karsten, L.	10PYTHON	2.6	Mon 3:15 PM	Kim, J. H.	11ENERGY	9.2	Wed 8:45 AM
Karsten, L.	22WXMOD	6.5	Thu 11:30 AM	Kim, J. H.	20ARAM	5.4	Tue 11:15 AM
Kashinath, K.	19AI	4.3	Tue 11:00 AM	Kim, J. H.	20ARAM	736	Tue 4:00 PM
Kashinath, K.	19AI	5B.2	Tue 1:45 PM	Kim, J.	34HYDRO	3A.3	Mon 2:30 PM
Kashinath, K.	6HPC	J47.2	Wed 1:45 PM	Kim, M.	22ATCHEM	1295	Wed 4:00 PM
Kashinath, K.	6HPC	J47.3	Wed 2:00 PM	Kim, R. S.	34HYDRO	1077	Wed 4:00 PM
Kashinath, K.	19AI	J66.5	Thu 11:30 AM	Kim, S. H.	20ARAM	12.5	Thu 2:30 PM
Kashiwa, T.	SLSSYMPOSIUM1	924	Tue 4:00 PM	Kim, W.	34HYDRO	1101	Wed 4:00 PM
Kastman, J.	30WAF26NWP	J51.4	Wed 3:45 PM	Kim, Y. H.	33CVC	1119	Wed 4:00 PM
Kastrisios, J.	18COASTAL	369	Mon 4:00 PM	Kim, Y.	DICKINSONSYMP	486	Tue 4:00 PM
Katul, G. G.	20SMOI	4.1	Tue 8:30 AM	Kim, Y.	34HYDRO	1111	Wed 4:00 PM
Katul, G. G.	21AIRPOL	14.1	Thu 1:30 PM	Kim, Y. J.	10R2O	8A.1	Wed 8:30 AM
Kaulfus, A.	16GOESRJPS	7B.4	Wed 9:15 AM	Kimball, S.	20SMOI	10.3	Wed 2:00 PM
Kaulfus, A.	36EIPT	10A.4	Wed 2:15 PM	King, J. A.	33CVC	1A.3	Mon 9:00 AM
Kaulfus, A.	36EIPT	J63.4	Thu 11:15 AM	Kingfield, D. M.	SLSSYMPOSIUM1	988	Tue 4:00 PM
Kavulich, M. J. Jr.	29EDUCATION	PD1.5	Mon 8:30 AM	Kinnison, D. E.	22ATCHEM	4A.5	Tue 9:30 AM
Kawazoe, S.	DICKINSONSYMP	528	Tue 4:00 PM	Kirchmeier-Young, M. C.	34HYDRO	588	Tue 4:00 PM
Kay, C.	17SPACEWX	9.2	Wed 8:45 AM	Kirchmeier-Young, M. C.	33CVC	8A.5	Wed 11:30 AM
				Kirk, K.	18COASTAL	12.5	Thu 11:30 AM
				Kirk, M.	17SPACEWX	J70.3	Thu 2:00 PM
				Kirk-Davidoff, D. B.	16GOESRJPS	7B.2	Wed 8:45 AM
				Kirk-Davidoff, D. B.	11ENERGY	1457	Wed 4:00 PM
				Kirk-Davidoff, D. B.	19AI	J65.5	Thu 11:30 AM

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
K (Continued)				K (Continued)			
Kirkman, A. S.	36EIPT	1A.4	Mon 9:30 AM	Kosovic, B.	21AIRPOL	7.2	Tue 1:45 PM
Kirstetter, P. E.	10R2O	3A.5	Mon 3:00 PM	Koster, R. D.	34HYDRO	2B.3	Mon 11:00 AM
Kirstetter, P. E.	20SMOI	317	Mon 4:00 PM	Kotsakis, A.	24IOAS	254	Mon 4:00 PM
Kirtman, B.	33CVC	2B.3	Mon 11:00 AM	Koval, J. P.	30WAF26NWP	J36.4	Wed 9:30 AM
Kiselev, A.	12AEROSOL	12.2	Thu 2:30 PM	Kowaleski, A. M.	26PROBSTAT	4.2	Tue 8:45 AM
Kizer, S.	MIDDLESYMP	905	Tue 4:00 PM	Kowaleski, A. M.	TROPSYMP1	873	Tue 4:00 PM
Klatt, M. D.	25APPLIED	723	Tue 4:00 PM	Kowalewski, M. G.	10R2O	J4.2	Mon 10:45 AM
Klatt, M. D.	30WAF26NWP	7B.6	Wed 9:45 AM	Kozlosky, L.	18COASTAL	8.6	Wed 9:45 AM
Klees, A.	SLSSYMP0SIUM1	952	Tue 4:00 PM	Kramer, S.	12AEROSOL	6.2	Wed 8:45 AM
Klein, M.	35SMALLSATS	2.6	Thu 11:45 AM	Kramer, S. M.	33CVC	128	Mon 4:00 PM
Klein, S. A.	SCHUBERTSYMP	1004	Wed 4:00 PM	Krasnopolsky, V.	19AI	2A.5	Mon 3:00 PM
Kleiner, E.	33CVC	124	Mon 4:00 PM	Krasnopolsky, V.	19AI	3A.1	Tue 8:30 AM
Kleist, D. T.	24IOAS	1.5	Mon 9:45 AM	Krautmann, A.	15SOCIETY	11B.3	Thu 9:00 AM
Klemmer, C. L.	36EIPT	2A.4	Mon 11:15 AM	Krayenhoff, S.	15URBAN	8B.4	Wed 9:15 AM
Klemmer, C. L.	36EIPT	4B.3	Tue 9:00 AM	Krč, P.	15URBAN	1411	Wed 4:00 PM
Kline, E.	16GOESRJPSS	13A.2	Thu 1:45 PM	Kreidenweis, S. M.	18HISTORY	5.3	Tue 11:00 AM
Klink, K.	11ENERGY	1454	Wed 4:00 PM	Krekeler, J.	8WXCLIMATE	1.4	Mon 2:45 PM
Klobas, J. E.	SOLOMONSYMP	16	Mon 4:00 PM	Kren, A. C.	24IOAS	4B.1	Tue 8:30 AM
Klockow-McClain, K. E.	15SOCIETY	5.2	Tue 1:45 PM	Kretovic, E.	18COASTAL	11.1	Thu 8:30 AM
Klockow-McClain, K. E.	8WRN	4.2	Tue 3:15 PM	Krishnamurthy, R.	18COASTAL	13.3	Thu 2:00 PM
Klockow-McClain, K. E.	15SOCIETY	12A.6	Thu 11:45 AM	Kristiansen, J.	30WAF26NWP	12B.5	Thu 11:30 AM
Kloesel, K. A.	11HEALTH	1.4	Mon 9:30 AM	Kristovich, D. A. R.	18HISTORY	7.2	Tue 3:15 PM
Klotz, B. W.	20SMOI	328	Mon 4:00 PM	Krizan, P.	MIDDLESYMP	897	Tue 4:00 PM
Kluver, D. B.	34HYDRO	1064	Wed 4:00 PM	Krocak, M.	19STUDENT		Sat 9:00 AM
Knapp, H. J.	19STUDENT	S256	Sun 6:30 PM	Krocak, M.	10R2O	10A.1	Wed 1:30 PM
Kneifel, S.	20SMOI	2.2	Mon 10:45 AM	Krocak, M. J.	15SOCIETY	1385	Wed 4:00 PM
Knepp, T.	MIDDLESYMP	902	Tue 4:00 PM	Krocak, M. J.	15SOCIETY	13A.2	Thu 1:45 PM
Kniesel, J. C.	20ARAM	10.1	Thu 8:30 AM	Krotkov, N. A.	36EIPT	3B.4	Mon 2:45 PM
Knipp, D. J.	17SPACEWX	4.2	Mon 3:00 PM	Kruczkiewicz, A.	15SOCIETY	9A.1	Wed 1:30 PM
Knipper, K.	34HYDRO	10A.3	Wed 11:00 AM	Krueger, S. K.	TROPSYMP1	J31.3	Tue 3:30 PM
Knipper, K.	34HYDRO	11.4	Wed 3:45 PM	Krueger, S. K.	SCHUBERTSYMP	1006	Wed 4:00 PM
Knippertz, P.	30WAF26NWP	9C.1	Wed 1:30 PM	Kruk, M. C.	15SOCIETY	4A.1	Tue 8:30 AM
Knippertz, P.	30WAF26NWP	13C.1	Thu 1:30 PM	Ku, B.	30WAF26NWP	2B.4	Mon 2:45 PM
Knippertz, P.	30WAF26NWP	14A.6	Thu 4:45 PM	Kuang, J.	10PYTHON	5.2	Tue 3:15 PM
Knowland, K. E.	21AIRPOL	4.2	Mon 3:15 PM	Kuang, Z.	TROPSYMP1	838	Tue 4:00 PM
Knowland, K. E.	22ATCHEM	14A.3	Thu 2:00 PM	Kuchan, B.	20SMOI	10.1	Wed 1:30 PM
Knox, J.	19STUDENT		Sat 9:35 AM	Kuchera, E.	FUTURESYMP	PD1.2	Mon 10:30 AM
Knox, J. A.	29EDUCATION	2.4	Mon 2:45 PM	Kuchera, E.	36EIPT	2A.6	Mon 11:45 AM
Knox, J. A.	29EDUCATION	6.4	Wed 11:15 AM	Kuciauskas, A. P.	16GOESRJPSS	11A.4	Thu 9:15 AM
Knox, P.	20SMOI	338	Mon 4:00 PM	Kulju, K. D.	22ATCHEM	1274	Wed 4:00 PM
Knupp, K.	20SMOI	6.2	Tue 1:45 PM	Kulkarni, A.	36EIPT	7A.2	Tue 3:15 PM
Knutsvig, R. S.	34HYDRO	2A.5	Mon 11:30 AM	Kulkarni, C. S.	19AI	2B.6	Mon 3:15 PM
Ko, H. C.	20ARAM	745	Tue 4:00 PM	Kumar, A.	18COASTAL	6.1	Tue 1:30 PM
Ko, J.	15URBAN	1.4	Mon 9:15 AM	Kumar, R. R. P.	6HPC	2.1	Tue 1:30 PM
Ko, K. C.	33CVC	1158	Wed 4:00 PM	Kumar, R.	21AIRPOL	8.1	Tue 3:45 PM
Ko, M. C.	19AI	J43.3	Wed 11:00 AM	Kumar, S. V.	34HYDRO	6B.2	Tue 10:45 AM
Koch, D.	10R2O	PD2.5	Wed 10:30 AM	Kumara, M.	11HEALTH	406	Mon 4:00 PM
Koch, D.	10R2O	PD2.6	Wed 10:30 AM	Kumjian, M. R.	SLSSYMP0SIUM1	2.5	Tue 11:30 AM
Koch, D. M.	TROPSYMP1	1.3	Tue 9:00 AM	Kumjian, M. R.	SLSSYMP0SIUM1	932	Tue 4:00 PM
Koch, D. M.	10R2O	10B.1	Wed 1:30 PM	Kumler, A.	11ENERGY	11.2	Wed 11:45 AM
Kochanov, R.	22ATCHEM	1289	Wed 4:00 PM	Kumler, C.	19AI	3A.3	Tue 9:00 AM
Kochanski, K.	34HYDRO	65	Mon 4:00 PM	Kumler, C.	30WAF26NWP	1227	Wed 4:00 PM
Kochanski, K.	19AI	10.2	Wed 3:15 PM	Kunkee, D.	16GOESRJPSS	5.4	Tue 2:00 PM
Kochenash, A. J.	20ARAM	735	Tue 4:00 PM	Kunkel, K. E.	34HYDRO	5A.3	Tue 9:00 AM
Kochendorfer, J.	20SMOI	12.3	Thu 9:00 AM	Kunkel, K. E.	34HYDRO	589	Tue 4:00 PM
Koehler, S. L.	10R2O	430	Mon 4:00 PM	Kunkel, K. E.	15SOCIETY	11B.2	Thu 8:45 AM
Koenig, T. K.	22ATCHEM	15B.4	Thu 4:15 PM	Kuo, H. C.	SCHUBERTSYMP	2.4	Wed 11:15 AM
Kogan, F. Sr.	16GOESRJPSS	11B.4	Thu 9:15 AM	Kuo, Y. H.	24IOAS	11.1	Wed 3:00 PM
Kohma, M.	MIDDLESYMP	912	Tue 4:00 PM	Kurdzo, J. M.	36EIPT	8B.6	Wed 9:45 AM
Kolian, M.	48BROADCAST	2.1	Mon 10:30 AM	Kurdzo, J. M.	36EIPT	12B.4	Thu 9:15 AM
Kollias, P.	20SMOI	6.1	Tue 1:30 PM	Kurdzo, J. M.	19AI	J69.2	Thu 1:45 PM
Kollonige, D. E.	MIDDLESYMP	900	Tue 4:00 PM	Kurkoski, N. P.	18COASTAL	1.1	Mon 8:30 AM
Komarc, A. J.	19STUDENT	S184	Sun 6:30 PM	Kuroda, N.	30WAF26NWP	9C.3	Wed 2:00 PM
Komurcu, M.	15URBAN	399	Mon 4:00 PM	Kurosu, T. P.	22ATCHEM	2A.6	Mon 11:45 AM
Kondragunta, C. R.	10R2O	2.1	Mon 10:30 AM	Kurosu, T. P.	24IOAS	15.2	Thu 3:45 PM
Konduri, V. S.	34HYDRO	1110	Wed 4:00 PM	Kurppa, M.	21AIRPOL	2.3	Mon 11:00 AM
Kong, F.	15URBAN	2.3	Mon 11:00 AM	Kustas, W. P.	34HYDRO	10A.1	Wed 10:30 AM
Kooperman, G. J.	22WXMOD	1302	Wed 4:00 PM	Kuwayama, Y.	16GOESRJPSS	3.7	Mon 3:45 PM
Kopacz, D.	29EDUCATION	2.6	Mon 3:15 PM	Kuznetsova, M.	17SPACEWX	2.2	Mon 10:45 AM
Korner, A. P.	20ARAM	743	Tue 4:00 PM	Kwak, K. H.	21AIRPOL	2.4	Mon 11:15 AM
Kornhuber, K.	33CVC	10B.4	Wed 3:45 PM	Kwak, K. H.	15URBAN	1399	Wed 4:00 PM
Kosiba, K. A.	20SMOI	352	Mon 4:00 PM	Kwon, Y. O.	33CVC	5A.6	Tue 11:45 AM
Kosiba, K. A.	SLSSYMP0SIUM1	1.2	Tue 8:45 AM	Kyakuno, T.	15URBAN	1392	Wed 4:00 PM
Koskelo, E.	19STUDENT	S93	Sun 6:30 PM	Labe, Z. M.	33CVC	4A.4	Tue 9:15 AM

PRESENTER INDEX

	Conf.	Paper #	Day	Time		Conf.	Paper #	Day	Time
L					L (Continued)				
Laber, J. L.	34HYDRO	6A.3	Tue	11:00 AM	Leduc, M.	33CVC	134	Mon	4:00 PM
Lachapelle, J.	15URBAN	2.5	Mon	11:30 AM	Lee, C. O.	17SPACEWX	9.1	Wed	8:30 AM
Lachapelle, M.	30WAF26NWP	6B.1	Tue	3:00 PM	Lee, D. I.	15URBAN	1398	Wed	4:00 PM
Lachenmeier, E.	34HYDRO	76	Mon	4:00 PM	Lee, E. H.	33CVC	1146	Wed	4:00 PM
Lacher, L.	12AEROSOL	1430	Wed	4:00 PM	Lee, E.	33CVC	J41.5	Wed	11:30 AM
Lacke, M. C.	29EDUCATION	J16.4	Tue	11:15 AM	Lee, G.	22ATCHEM	282	Mon	4:00 PM
Lackmann, G. M.	33CVC	3B.1	Mon	2:00 PM	Lee, H.	22ATCHEM	1298	Wed	4:00 PM
LaDue, J. G.	SLSSYMPOSIUM1	982	Tue	4:00 PM	Lee, H. C.	30WAF26NWP	663	Tue	4:00 PM
LaDue, J. G.	10R2O	6A.4	Tue	2:15 PM	Lee, J. W.	36EIP	40	Mon	4:00 PM
Ladwig, T. T.	30WAF26NWP	1A.1	Mon	8:30 AM	Lee, J. W.	34HYDRO	1092	Wed	4:00 PM
Ladwig, T. T.	24IOAS	13.4	Thu	11:15 AM	Lee, J. H.	24IOAS	236	Mon	4:00 PM
Laeng, A.	MIDDLESYMP	896	Tue	4:00 PM	Lee, J. E.	8WRN	7.3	Wed	2:00 PM
Lafitte (Levitas), M. J.	5INTERNATIONAL	473	Mon	4:00 PM	Lee, J.	33CVC	1144	Wed	4:00 PM
Lafitte (Levitas), M. J.	34HYDRO	542	Tue	4:00 PM	Lee, J. A.	11ENERGY	3.1	Mon	2:00 PM
Lafitte (Levitas), M. J.	19AI	9B.3	Wed	2:00 PM	Lee, J. A.	11ENERGY	12.3	Wed	2:00 PM
LaFleur, A. T.	19AI	7A.5	Wed	9:30 AM	Lee, J.	20ARAM	746	Tue	4:00 PM
Lagerquist, R. A.	19AI	4.6	Tue	11:45 AM	lee, J. C. Y.	11ENERGY	1.3	Mon	9:00 AM
Lagerquist, R. A.	SLSSYMPOSIUM1	3.3	Tue	2:00 PM	Lee, S.	22ATCHEM	281	Mon	4:00 PM
Lagerquist, R. A.	26PROBSTAT	J37.2	Wed	8:45 AM	Lee, S.	21AIRPOL	1328	Wed	4:00 PM
Lahmers, T. M.	34HYDRO	62	Mon	4:00 PM	Lee, S.	33CVC	5A.5	Tue	11:30 AM
Lahmers, T. M.	34HYDRO	61	Mon	4:00 PM	Lee, T. R.	30WAF26NWP	183	Mon	4:00 PM
Lahr, A. D.	25APPLIED	4.1	Tue	10:30 AM	Lee, T. R.	21AIRPOL	14.4	Thu	2:15 PM
Laing, A. G.	TROPSYMP1	J24.2	Tue	1:45 PM	Lee, W. C.	20SMOI	8.5	Wed	9:30 AM
LaJoie, E. N.	30WAF26NWP	14C.5	Thu	4:30 PM	Lee, Y. K.	16GOESRJPSS	12B.1A	Thu	10:30 AM
Lakshmanan, V.	36EIP	7A.3	Tue	3:30 PM	Leeper, R. D.	25APPLIED	2.4	Mon	2:45 PM
Lam, R. C.	21AIRPOL	1329	Wed	4:00 PM	Lefort, T.	10R2O	804	Tue	4:00 PM
Lambrightsen, B.	24IOAS	5B.1	Tue	10:30 AM	LeGrand, S.	12AEROSOL	1422	Wed	4:00 PM
Lamkin, M. J.	15SOCIETY	4B.2	Tue	8:45 AM	Lei, H.	36EIP	10A.2	Wed	1:45 PM
Lamsal, L. N.	22ATCHEM	12A.3	Thu	9:00 AM	Lei, L.	24IOAS	5A.2	Tue	10:45 AM
Lamson-Hall, P.	15URBAN	6.2	Tue	1:45 PM	Lei, T.	24IOAS	13.6	Thu	11:45 AM
Lance, S. M.	22ATCHEM	2B.2	Mon	10:45 AM	Leicht, T. C.	33CVC	123	Mon	4:00 PM
Landolt, S.	20SMOI	300	Mon	4:00 PM	Leidner, S. M.	24IOAS	8.3	Wed	9:15 AM
Landolt, S. D.	20ARAM	13.3	Thu	4:00 PM	Leighty, H. D.	19STUDENT	S89	Sun	6:30 PM
Landu, K.	8MJO	461	Mon	4:00 PM	LeMay, M.	17SPACEWX	7.3	Tue	2:00 PM
Lane, K. J. Jr.	21AIRPOL	J39.5	Wed	9:30 AM	Lemmon, D. E.	33CVC	13.5	Thu	2:30 PM
Lang, A. L.	30WAF26NWP	14C.4	Thu	4:15 PM	LeMone, M.	18HISTORY	1.5	Mon	9:30 AM
Langfeld, J. M.	19STUDENT	S125	Sun	6:30 PM	LeMone, M.	18HISTORY	5.1	Tue	10:30 AM
Langston, M. A.	25APPLIED	1.2	Mon	10:45 AM	Lenning, E.	8WRN	11.5	Thu	2:30 PM
Lanicci, J. M.	8WRN	1.3	Mon	11:00 AM	Lentz, J.	20SMOI	8.4	Wed	9:15 AM
Lanicci, J. M.	29EDUCATION	1270	Wed	4:00 PM	Leonardo, N. M.	30WAF26NWP	14A.3	Thu	4:00 PM
Lantz, K.	11ENERGY	10.3	Wed	11:00 AM	LeRoy, A.	17SPACEWX	6.1	Tue	10:30 AM
Lanzerotti, L. J.	17SPACEWX	4.1	Mon	2:00 PM	Leroy, S.	15URBAN	3.6	Mon	3:15 PM
Laperrière-Robillard, T.	34HYDRO	1083	Wed	4:00 PM	Leroy, S.	15URBAN	8A.1	Wed	8:30 AM
Lapierre, J.	30WAF26NWP	155	Mon	4:00 PM	Lesk, C.	19STUDENT	S102	Sun	6:30 PM
Larsen, M. L.	34HYDRO	1052	Wed	4:00 PM	Lesk, C.	34HYDRO	596	Tue	4:00 PM
Larson, S.	DICKINSONSYMP	J11.4	Tue	9:30 AM	Leslie, E. F.	15SOCIETY	10.2	Wed	3:15 PM
Laser, J.	10R2O	1482	Wed	4:00 PM	Letcher, T.	34HYDRO	10B.3	Wed	11:00 AM
Lassman, W.	21AIRPOL	15.6	Thu	4:45 PM	Leung, C. Y. Y.	20ARAM	12.2	Thu	1:45 PM
Lau, W. K. M.	33CVC	3A.4	Mon	2:45 PM	Leung, L. R.	22WXMOD	J6.2	Mon	2:15 PM
Lauritsen, K. B.	10R2O	4.3	Tue	9:00 AM	Leung, L. R.	8WXCLIMATE	4.4	Tue	3:45 PM
Lave, J.	20ARAM	13.5	Thu	4:30 PM	Leung, L. R.	33CVC	J34.1	Wed	8:30 AM
Lavers, D. A.	33CVC	6A.4	Tue	2:15 PM	Leung, T. Y.	4PREDICTABILITY	3.2	Mon	2:15 PM
Lavers, D. A.	21AIRPOL	729	Tue	4:00 PM	Levens, K.	19STUDENT	S255	Sun	6:30 PM
Lavers, D. A.	34HYDRO	549	Tue	4:00 PM	Levin, D. E.	30WAF26NWP	667	Tue	4:00 PM
Lawrence, C.	33CVC	1154	Wed	4:00 PM	Levin, D. E.	16GOESRJPSS	13B.3	Thu	2:00 PM
Lawrence, C.	22ATCHEM	1B.5	Mon	9:30 AM	Levin, E. L.	15URBAN	5.5	Tue	11:45 AM
Lawrence, Z. D.	MIDDLESYMP	885	Tue	4:00 PM	Levine, S.	20SMOI	15.6	Thu	3:30 PM
Lawrence, Z. D.	MIDDLESYMP	886	Tue	4:00 PM	Levit, J. J.	10R2O	7.2	Tue	3:15 PM
Lawson, J. R.	30WAF26NWP	204	Mon	4:00 PM	Lew, C. S.	19AI	5A.1	Tue	1:30 PM
Lawson, J. R.	30WAF26NWP	1A.2	Mon	8:45 AM	Lewis, J. Jr.	10LIDAR	413	Mon	4:00 PM
Lawson, J. R.	4PREDICTABILITY	2.2	Mon	10:45 AM	Lewis, K. J.	19STUDENT	S189	Sun	6:30 PM
Lawson, J. R.	26PROBSTAT	2.6	Mon	11:45 AM	Lewis, T. C.	24IOAS	253	Mon	4:00 PM
Lazo, J.	15SOCIETY	5.1	Tue	1:30 PM	Lezine, E.	MIDDLESYMP	895	Tue	4:00 PM
Le Marshall, J. F.	5INTERNATIONAL	2.1	Tue	10:30 AM	Li, B.	30WAF26NWP	693	Tue	4:00 PM
Le Marshall, J. F.	8JCSDA	5.4	Tue	3:45 PM	Li, C.	22ATCHEM	12A.2	Thu	8:45 AM
League, C.	15SOCIETY	10.1	Wed	3:00 PM	Li, C.	30WAF26NWP	1203	Wed	4:00 PM
Leamon, R. J.	17SPACEWX	8.2	Tue	3:15 PM	Li, C.	24IOAS	14.2	Thu	1:45 PM
Leathers, D. J.	25APPLIED	9.4	Wed	3:45 PM	Li, C.	15URBAN	792	Tue	4:00 PM
Leavor, K. R.	MIDDLESYMP	903	Tue	4:00 PM	Li, D.	21AIRPOL	732	Tue	4:00 PM
LeBel, L.	19STUDENT	S167	Sun	6:30 PM	Li, F.	22ATCHEM	4A.6	Tue	9:45 AM
LeBel, L.	SLSSYMPOSIUM1	969	Tue	4:00 PM	Li, H.	34HYDRO	J26.2	Tue	3:15 PM
Leblanc, T.	MIDDLESYMP	899	Tue	4:00 PM	Li, J.	24IOAS	14.3	Thu	2:00 PM
Lebsock, M.	10R2O	3B.3	Mon	2:30 PM	Li, J.	19STUDENT	S59	Sun	6:30 PM
Ledley, T. S.	29EDUCATION	208	Mon	4:00 PM	Li, K.	22ATCHEM	12B.2	Thu	9:00 AM

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
L (Continued)				L (Continued)			
Li, L.	DICKINSONSYMP	525	Tue 4:00 PM	Lis, N. T.	20ARAM	8.2	Wed 8:45 AM
Li, M.	22ATCHEM	10A.1	Wed 1:30 PM	Little, M. B.	19STUDENT	S53	Sun 6:30 PM
Li, N.	15URBAN	13.4	Thu 11:15 AM	Liu, C. N.	15URBAN	1409	Wed 4:00 PM
Li, Q.	21AIRPOL	13B.5	Thu 11:30 AM	Liu, C. Y.	16GOESRJPSS	1380	Wed 4:00 PM
Li, R.	8WXCLIMATE	437	Mon 4:00 PM	Liu, C. H.	15URBAN	790	Tue 4:00 PM
Li, R.	SCHUBERTSYMP	1010	Wed 4:00 PM	Liu, C.	MIDDLESYMP	914	Tue 4:00 PM
Li, S.	TROPSYMP1	840	Tue 4:00 PM	Liu, E.	8JCSDA	810	Tue 4:00 PM
Li, W.	5INTERNATIONAL	3.1	Tue 1:30 PM	Liu, F.	22ATCHEM	10A.4	Wed 2:15 PM
Li, W.	30WAF26NWP	12A.5	Thu 11:30 AM	Liu, H.	30WAF26NWP	1193	Wed 4:00 PM
Li, X.	30WAF26NWP	683	Tue 4:00 PM	Liu, H.	16GOESRJPSS	14B.3	Thu 4:00 PM
Li, X.	30WAF26NWP	1228	Wed 4:00 PM	Liu, H.	18COASTAL	4.2	Tue 8:45 AM
Li, X.	30WAF26NWP	1237	Wed 4:00 PM	Liu, I. C.	19STUDENT	S239	Sun 6:30 PM
Li, X.	16GOESRJPSS	8A.5	Wed 11:30 AM	Liu, J.	12AEROSOL	4.1	Tue 8:30 AM
Li, X.	35MALLSATS	4.3	Thu 4:00 PM	Liu, J.	19AI	1365	Wed 4:00 PM
Li, X.	33CVC	1138	Wed 4:00 PM	Liu, J.	16GOESRJPSS	1370	Wed 4:00 PM
Li, X.	34HYDRO	1063	Wed 4:00 PM	Liu, J.	22ATCHEM	1287	Wed 4:00 PM
Li, X.	33CVC	1127	Wed 4:00 PM	Liu, M.	19STUDENT	S68	Sun 6:30 PM
Li, Y.	33CVC	1137	Wed 4:00 PM	Liu, Q.	10R2O	6B.2	Tue 1:45 PM
Li, Y.	30WAF26NWP	1211	Wed 4:00 PM	Liu, S.	20ARAM	1347	Wed 4:00 PM
Li, Y.	12AEROSOL	7.5	Wed 11:30 AM	Liu, S.	15URBAN	2.6	Mon 11:45 AM
Li, Y.	34HYDRO	15A.4	Thu 4:15 PM	Liu, W.	11ENERGY	1459	Wed 4:00 PM
Li, Y.	DICKINSONSYMP	507	Tue 4:00 PM	Liu, W.	33CVC	116	Mon 4:00 PM
Li, Y.	34HYDRO	579	Tue 4:00 PM	Liu, X.	22ATCHEM	11.3	Wed 3:30 PM
Li, Y.	TROPSYMP1	1528	Wed 4:00 PM	Liu, X.	16GOESRJPSS	9B.2	Wed 1:45 PM
Li, Y.	12AEROSOL	1416	Wed 4:00 PM	Liu, X.	33CVC	J67.1	Thu 1:30 PM
Li, Z.	33CVC	121	Mon 4:00 PM	Liu, Y.	24IOAS	5B.6	Tue 11:45 AM
Li, Z.	16GOESRJPSS	13A.3	Thu 2:00 PM	Liu, Y.	12AEROSOL	5.5	Tue 11:30 AM
Liang, D.	20SMOI	323	Mon 4:00 PM	Liu, Y.	11ENERGY	10.1	Wed 10:30 AM
Liang, Q.	22ATCHEM	10A.2	Wed 1:45 PM	Liu, Z.	10LIDAR	423	Mon 4:00 PM
Liang, X.	19AI	1364	Wed 4:00 PM	Liu, Z.	22ATCHEM	2A.4	Mon 11:15 AM
Liang, X. S.	TROPSYMP1	1519	Tue 4:00 PM	Liu, Z.	36EIPPT	2A.3	Mon 11:00 AM
Liang, X. S.	SCHUBERTSYMP	998	Wed 4:00 PM	Livesey, N.	10R2O	J4.5	Mon 11:30 AM
Liang, Y. C.	33CVC	1C.1	Mon 8:30 AM	Livingston, M.	11ENERGY	5.1	Tue 8:30 AM
Liang, Y. C.	33CVC	4A.6	Tue 9:45 AM	Llaguno-Munitxa, M.	21AIRPOL	293	Mon 4:00 PM
Liang, Z.	19AI	1363	Wed 4:00 PM	Loeser, C.	34HYDRO	1105	Wed 4:00 PM
Licata, R. J. III	17SPACEWX	777	Tue 4:00 PM	Lofgren, B. M.	33CVC	93	Mon 4:00 PM
Lickley, M.	SOLOMONSYMP	1	Mon 4:00 PM	Logan, T.	10LIDAR	1.5	Mon 9:30 AM
Lidrbach, J.	36EIPPT	J32.3	Wed 9:00 AM	Logan, T.	SLSSYMP0SIUM1	975	Tue 4:00 PM
Liggett, A. J.	8WRN	6.6	Wed 11:45 AM	Loken, E. D.	19AI	3B.1	Tue 8:30 AM
Liles, C.	19AI	360	Mon 4:00 PM	Lolli, S.	10LIDAR	4.5	Wed 11:45 AM
Lill, E.	19STUDENT	S16	Sun 6:30 PM	Lombardo, K.	SLSSYMP0SIUM1	2.4	Tue 11:15 AM
Lill, E.	22ATCHEM	276	Mon 4:00 PM	Long, A.	34HYDRO	13A.2	Thu 10:45 AM
Lillo, S. P.	4PREDICTABILITY	3.5	Mon 3:00 PM	Long, C. S.	MIDDLESYMP	884	Tue 4:00 PM
Lillo, S. P.	33CVC	5A.1	Tue 10:30 AM	Long, C. S.	22ATCHEM	1285	Wed 4:00 PM
Lim, A.	24IOAS	241	Mon 4:00 PM	Lopez-Coto, I.	21AIRPOL	10.3	Wed 2:00 PM
Lim, B. J.	19STUDENT	S60	Sun 6:30 PM	Lorenzo, A. T.	11ENERGY	1452	Wed 4:00 PM
Lim, H.	24IOAS	252	Mon 4:00 PM	Lorenzo, A. T.	30WAF26NWP	J68.6	Thu 2:45 PM
Lim, Y. K.	33CVC	138	Mon 4:00 PM	Loria-Salazar, S. M.	21AIRPOL	295	Tue 4:00 PM
Limaye, V.	11HEALTH	J18.3	Tue 11:00 AM	Lotfi, H.	DICKINSONSYMP	515	Tue 4:00 PM
Limon, G.	19AI	J66.6	Thu 11:45 AM	Loughner, C. P.	21AIRPOL	11.4	Wed 3:45 PM
Lin, H.	8JCSDA	818	Tue 4:00 PM	Louttit, J. K.	18COASTAL	11.4	Thu 9:15 AM
Lin, H.	5INTERNATIONAL	3.3	Tue 2:00 PM	Loveland, C. B.	34HYDRO	2A.2	Mon 10:45 AM
Lin, J.	TROPSYMP1	1.6	Tue 9:45 AM	Loveless, D. M.	24IOAS	247	Mon 4:00 PM
Lin, P.	SOLOMONSYMP	17	Mon 4:00 PM	Low, K.	34HYDRO	2A.1	Mon 10:30 AM
Lin, Y. C.	30WAF26NWP	1183	Wed 4:00 PM	Low, K.	25APPLIED	6.3	Wed 9:00 AM
Lin, Y.	SLSSYMP0SIUM1	936	Tue 4:00 PM	Lowman, L. E. L.	34HYDRO	1114	Wed 4:00 PM
Lindsey, D. T.	SLSSYMP0SIUM1	4.2	Tue 3:15 PM	Lu, D.	18COASTAL	374	Mon 4:00 PM
Lindsey, D. T.	16GOESRJPSS	12A.2	Thu 11:00 AM	Lu, F.	33CVC	1C.2	Mon 8:45 AM
Lindsey, S. D.	10R2O	8B.3	Wed 9:00 AM	Lu, M.	33CVC	J34.3	Wed 9:00 AM
Lindstrom, S. S.	16GOESRJPSS	1.4	Mon 9:15 AM	Lu, M. M.	5INTERNATIONAL	4.1	Tue 3:00 PM
Lindstrom, S. S.	34HYDRO	71	Mon 4:00 PM	Lu, X.	30WAF26NWP	1242	Wed 4:00 PM
Lindstrom, S. S.	29EDUCATION	713	Tue 4:00 PM	Lu, X.	DICKINSONSYMP	520	Tue 4:00 PM
Lindstrom, S. S.	16GOESRJPSS	9A.2	Wed 1:45 PM	Lu, Y.	21AIRPOL	292	Mon 4:00 PM
Lindstrom, S. S.	16GOESRJPSS	1368	Wed 4:00 PM	Lu, Z.	34HYDRO	550	Tue 4:00 PM
Liner, S.	33CVC	638	Tue 4:00 PM	Luan, L.	DICKINSONSYMP	504	Tue 4:00 PM
Ling, G.	18COASTAL	5.4	Tue 11:15 AM	Lubar, D. G.	16GOESRJPSS	12B.3	Thu 11:00 AM
Ling, T. Y.	15URBAN	404	Mon 4:00 PM	Lucas, G.	17SPACEWX	759	Tue 4:00 PM
Ling, X.	34HYDRO	598	Tue 4:00 PM	Lucke, K. M.	19STUDENT	S106	Sun 6:30 PM
Linscott, G.	19STUDENT	S116	Sun 6:30 PM	Luettich, R.	18COASTAL	2.1	Mon 10:30 AM
Lintner, B. R.	34HYDRO	1B.5	Mon 9:30 AM	Lugaz, N.	17SPACEWX	12.4	Wed 2:15 PM
Linz, M.	SOLOMONSYMP	33	Mon 4:00 PM	Lugaz, N.	17SPACEWX	14.2	Thu 8:45 AM
Liou-Mark, J.	29EDUCATION	704	Tue 4:00 PM	Luke, E. P.	12AEROSOL	3.2	Mon 2:30 PM
Liou-Mark, J.	29EDUCATION	705	Tue 4:00 PM	Lukens, K. E.	24IOAS	11.3	Wed 3:30 PM
Lippi, D. E.	30WAF26NWP	1232	Wed 4:00 PM	Lukens, K. E.	16GOESRJPSS	14B.2	Thu 3:45 PM

	Conf.	Paper #	Day	Time		Conf.	Paper #	Day	Time
L (Continued)					M (Continued)				
Luna, D. J.	11HEALTH	1475	Wed	4:00 PM	Maloney, S.	8WXCLIMATE		Tue	11:15 AM
Lunavictoria, A. W.	24IOAS	12.3	Thu	9:00 AM	Mandt, G.	16GOESRJPSS	J13.2	Tue	9:00 AM
Lund, K. N.	19STUDENT	S240	Sun	6:30 PM	Manepalli, A. H.	19AI	1360	Wed	4:00 PM
Lundquist, J. K.	11ENERGY	16.4	Thu	2:15 PM	Manikin, G. S.	10R2O	8B.6	Wed	9:45 AM
Luntama, J. P.	17SPACEWX	12.1	Wed	1:30 PM	Manikin, G. S.	30WAF26NWP	12D.2	Thu	10:45 AM
Luo, G.	22ATCHEM	2B.3	Mon	11:00 AM	Mankins, S.	23ASLI	5.2	Wed	2:15 PM
Luo, H.	33CVC	1132	Wed	4:00 PM	Mannucci, A. J.	17SPACEWX	16.6	Thu	4:45 PM
Lupo, K.	30WAF26NWP	13C.6	Thu	2:45 PM	Manross, K. L.	36EPT	J32.4	Wed	9:15 AM
Lussier, L. L. III	36EPT	12B.2	Thu	8:45 AM	Manser, R. P.	15SOCIETY	389	Mon	4:00 PM
Lynar, T.	19AI	1A.1	Mon	11:00 AM	Manser, R. P.	30WAF26NWP	642	Tue	4:00 PM
Lynch, E. M.	10R2O	4.4	Tue	9:15 AM	Mantilla, J. D.	33CVC	13.6	Thu	2:45 PM
Lyon, B.	33CVC	1A.1	Mon	8:30 AM	Margevich, A.	19STUDENT	S242	Sun	6:30 PM
Lyon, B.	11ENERGY	1.6	Mon	9:45 AM	Mariani, Z.	10LIDAR	427	Mon	4:00 PM
Lyons, B.	8WXCLIMATE	5.4	Wed	9:15 AM	Marinaro, A. J.	11ENERGY	1462	Wed	4:00 PM
Lyons, E.	36EPT	7A.1	Tue	3:00 PM	Marion, G.	SLSSYMPOSIUM1	973	Tue	4:00 PM
Lyons, W. A.	18HISTORY	3.3	Mon	2:30 PM	Marks, F. D.	SCHUBERTSYMP	3.2	Wed	1:45 PM
Lyu, B.	20SMOI	346	Mon	4:00 PM	Marks, F. D.	TROPSYMP1	1492	Wed	4:00 PM
Lyu, R.	22ATCHEM	260	Mon	4:00 PM	Marley, S.	16GOESRJPSS	8A.6	Wed	11:45 AM
Lyza, A. W.	20SMOI	3.1	Mon	2:00 PM	Marquis, J. W.	12AEROSOL	6.4	Wed	9:15 AM
Lyza, A. W.	30WAF26NWP	3B.4	Mon	3:45 PM	Marshall, C. H.	8WXCLIMATE	PD3.1	Tue	3:00 PM
					Marsili, N.	30WAF26NWP	685	Tue	4:00 PM
					Marsooli, R.	18COASTAL	3.8	Mon	3:30 PM
					Martilli, A.	15URBAN	7.4	Tue	3:45 PM
					Martin, A. C.	30WAF26NWP	10B.1	Wed	3:00 PM
					Martin, C. R.	8JCSDA	4.2	Tue	1:45 PM
					Martin, E. R.	30WAF26NWP	1A.3	Mon	9:00 AM
					Martin, E. R.	DICKINSONSYMP	1.3	Tue	2:15 PM
					Martin, G. D.	16GOESRJPSS	2.5	Mon	11:30 AM
					Martin, T. C. M.	19AI	2B.8	Mon	3:45 PM
					Martin, T. K.	10PYTHON	3.5	Tue	11:30 AM
					Martin, W. J.	18HISTORY	9.2	Wed	10:45 AM
					Martin, Z. K.	8MJO	1.5	Mon	9:30 AM
					Martin, Z. K.	MIDDLESYMP	894	Tue	4:00 PM
					Martinaitis, S. M.	10R2O	3A.6	Mon	3:15 PM
					Martinaitis, S. M.	10R2O	5A.4	Tue	11:15 AM
					Martinez, C. J.	33CVC	11.2	Thu	8:45 AM
					Martinez, J.	TROPSYMP1	856	Tue	4:00 PM
					Martinez, J.	SCHUBERTSYMP	1029	Wed	4:00 PM
					Martinez-Sánchez, O.	22ATCHEM	1A.1	Mon	8:30 AM
					Martucci, J. A.	48BROADCAST	7.2	Wed	10:45 AM
					Masetti, G.	30WAF26NWP	J68.3	Thu	2:00 PM
					Masoud, C.	22ATCHEM	15B.5	Thu	4:30 PM
					Mass, C. F.	33CVC	2C.6	Mon	11:45 AM
					Mass, C. F.	30WAF26NWP	1223	Wed	4:00 PM
					Masson, V.	15URBAN	3.4	Mon	2:45 PM
					Masson, V.	15URBAN	7.1	Tue	3:00 PM
					Massoud, E.	33CVC	7A.2	Tue	3:15 PM
					Mast, J.	20SMOI	331	Mon	4:00 PM

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
M (Continued)				M (Continued)			
Mayernik, M. S.	33CVC	1120	Wed 4:00 PM	Medina Luna, L.	29EDUCATION	4.4	Tue 2:15 PM
Mayernik, M. S.	36EIPT	J63.2	Thu 10:45 AM	Medwick, G. M.	48BROADCAST	4.3	Tue 2:00 PM
Mayes Boustead, B.	29EDUCATION	218	Mon 4:00 PM	Meehan, J.	17SPACEWX	775	Tue 4:00 PM
Mayes Boustead, B.	30WAF26NWP	8A.1	Wed 10:30 AM	Meehan, T. K.	24IOAS	6B.2	Tue 1:45 PM
Mayfield, J. Jr.	24IOAS	244	Mon 4:00 PM	Megnia, R.	18HISTORY	11.2	Wed 1:45 PM
Mazan, E. A.	19STUDENT	S190	Sun 6:30 PM	Mehallow, M.	36EIPT	42	Mon 4:00 PM
Mazzetti, T. A.	22WXMOD	1314	Wed 4:00 PM	Mehta, P. M.	17SPACEWX	9.3	Wed 9:00 AM
McAfee, S. A.	25APPLIED	1.5	Mon 11:30 AM	Meijiao, X.	33CVC	1134	Wed 4:00 PM
McAllister, M.	34HYDRO	54	Mon 4:00 PM	Meister, N. C.	19STUDENT	S44	Sun 6:30 PM
McAllister, R.	36EIPT	J49.1	Wed 3:00 PM	Meka, R.	19AI	J65.6	Thu 11:45 AM
McAuliffe, J.	24IOAS	6A.3	Tue 2:00 PM	Mekis, E.	20SMOI	340	Mon 4:00 PM
McBean, G. A.	15SOCIETY	3B.3A	Mon 2:30 PM	Mekonnen, A.	33CVC	2A.2	Mon 10:45 AM
McBean, G. A.	15SOCIETY	11B.1	Thu 8:30 AM	Melamed-Turkish, K.	30WAF26NWP	1199	Wed 4:00 PM
McBride, L.	33CVC	J41.6	Wed 11:45 AM	Melecio-Vazquez, D.	15URBAN	9B.5	Wed 11:30 AM
McCandless, T. C.	11ENERGY	7.3	Tue 11:30 AM	Melick, C. J.	30WAF26NWP	684	Tue 4:00 PM
McCandless, T. C.	30WAF26NWP	9B.2	Wed 1:45 PM	Mello, C.	10R2O	7.3	Tue 3:30 PM
McCandless, T. C.	19AI	J65.4	Thu 11:15 AM	Melnikov, V.	36EIPT	10B.3	Wed 2:00 PM
McCann, D. W.	20ARAM	752	Tue 4:00 PM	Melo, G. E.	19STUDENT	S147	Sun 6:30 PM
McCarthy, J.	19STUDENT	S111	Sun 6:30 PM	Melton, F.	34HYDRO	9.2	Wed 8:45 AM
McCarthy, J.	19STUDENT	S209	Sun 6:30 PM	Mendez, A. K.	19STUDENT	S9	Sun 6:30 PM
McCarthy, J.	19STUDENT	S12	Sun 6:30 PM	Meng, D.	24IOAS	8.2	Wed 9:00 AM
McCarthy, J.	20ARAM	1.1	Mon 8:30 AM	Meng, W.	30WAF26NWP	176	Mon 4:00 PM
McCarthy, M.	33CVC	612	Tue 4:00 PM	Meng, Y.	19AI	3B.6	Tue 9:45 AM
McCarthy, B. J.	11ENERGY	1451	Wed 4:00 PM	Meng, Z.	30WAF26NWP	3B.1	Mon 3:00 PM
McCauley, K.	19STUDENT	S19	Sun 6:30 PM	Meola, V.	34HYDRO	575	Tue 4:00 PM
McCauley, O. F.	30WAF26NWP	1233	Wed 4:00 PM	Mera Romo, D. E.	24IOAS	255	Mon 4:00 PM
McCluskey, C. S.	12AEROSOL	2.1	Mon 10:30 AM	Mercer, A.	19AI	J43.6	Wed 11:45 AM
McColl, K. A.	34HYDRO	1B.1	Mon 8:30 AM	Merchant, S.	29EDUCATION	1269	Wed 4:00 PM
McColly, Q.	19AI	356	Mon 4:00 PM	Merlis, T. M.	TROPSYMP1	849	Tue 4:00 PM
McCombs, A.	20SMOI	15.2	Thu 3:45 PM	Merrifield, M.	8WRN	445	Mon 4:00 PM
McCorkle-Gowan, T. A.	34HYDRO	1067	Wed 4:00 PM	Mertens, C. J.	20ARAM	6.3	Tue 2:00 PM
McCormick, B.	34HYDRO	8.2	Tue 3:15 PM	Messmer, M.	33CVC	1153	Wed 4:00 PM
McCormick, J.	20ARAM	1350	Wed 4:00 PM	Metz, N. D.	29EDUCATION	1252	Wed 4:00 PM
McCoy, A.	11ENERGY	8.3	Tue 2:00 PM	Mewhinney, A.	19STUDENT	S69	Sun 6:30 PM
McCoy, A.	11ENERGY	1456	Wed 4:00 PM	Meyer, D. A.	20SMOI	3.2	Mon 2:15 PM
McCrory, R.	34HYDRO	1078	Wed 4:00 PM	Meyer, K.	16GOESRJPSS	8B.4	Wed 11:15 AM
McCray, C. D.	30WAF26NWP	4B.6	Tue 11:45 AM	Meyer, T. C.	10R2O	2.4	Mon 11:15 AM
McCullar, C.	20SMOI	383A	Mon 4:00 PM	Meyers, P. C.	36EIPT	6B.4	Tue 2:15 PM
McCullar, C.	16IMPACTS	383	Mon 4:00 PM	Meyers, P. C.	16GOESRJPSS	11A.1	Thu 8:30 AM
McCutchan, E. M.	19STUDENT	S146	Sun 6:30 PM	Miao, C.	33CVC	1140	Wed 4:00 PM
McDaniel, B. A.	MIDDLESYMP	882	Tue 4:00 PM	Miao, S.	15URBAN	3.5	Mon 3:00 PM
McDonald, B.	22ATCHEM	4B.6	Tue 9:45 AM	Michael, K.	8WXCLIMATE	7A.3	Wed 2:00 PM
McDonald, J. M.	SLSSYMP0SIUM1	946	Tue 4:00 PM	Michaelis, A. C.	30WAF26NWP	10B.2	Wed 3:15 PM
McDonough, F.	20ARAM	8.6	Wed 9:45 AM	Michalakes, J.	6HPC	1.1	Tue 10:30 AM
McDonough, F.	22WXMOD	6.2	Thu 10:45 AM	Michaud, M. S.	15SOCIETY	4A.3	Tue 9:00 AM
McEvoy, D. J.	34HYDRO	9.5	Wed 9:30 AM	Michibata, T.	12AEROSOL	4.4	Tue 9:15 AM
McFarquhar, G. M.	12AEROSOL	13.1	Thu 3:30 PM	Michlowitz, S. R.	19STUDENT	S154	Sun 6:30 PM
McGill, M. J.	10LIDAR	2.2	Mon 2:30 PM	Middel, A.	15URBAN	2.1	Mon 10:30 AM
McGovern, A.	10PYTHON	J2.1	Mon 10:30 AM	Midzak, N.	10LIDAR	1.4	Mon 9:15 AM
McGovern, A.	26PROBSTAT	J37.6	Wed 9:45 AM	Millan, L. F.	22ATCHEM	1282	Wed 4:00 PM
McGovern, A.	19AI	10.1	Wed 3:00 PM	Miller, D. O.	22ATCHEM	1277	Wed 4:00 PM
McHenry, J.	34HYDRO	1A.6	Mon 9:45 AM	Miller, D.	30WAF26NWP	5B.1	Tue 1:30 PM
McInerney, J. M.	DICKINSONSYMP	J11.2	Tue 9:00 AM	Miller, D.	29EDUCATION	1268	Wed 4:00 PM
Mcintosh, S.	17SPACEWX	765	Tue 4:00 PM	Miller, D. E.	33CVC	J58.1	Thu 8:30 AM
McKague, D.	35MALLSATS	4.1	Thu 3:30 PM	Miller, J.	TROPSYMP1	1525	Wed 4:00 PM
McKellar, C.	30WAF26NWP	9C.2	Wed 1:45 PM	Miller, S. W.	19AI	11A.2	Thu 3:45 PM
McKenzie, T. B. III	30WAF26NWP	1214	Wed 4:00 PM	Miller, T. C.	19STUDENT	S213	Sun 6:30 PM
McKinney, D.	19STUDENT	S84	Sun 6:30 PM	Mills, G.	15URBAN	12.1	Thu 8:30 AM
McKinney, D.	10R2O	7.4	Tue 3:45 PM	Milly, P. C. D.	34HYDRO	2B.2	Mon 10:45 AM
McKinney, D.	21AIRPOL	15.1	Thu 3:30 PM	Milne, J. M.	30WAF26NWP	153	Mon 4:00 PM
McKinnon, K.	33CVC	10B.2	Wed 3:15 PM	Milrad, S. M.	30WAF26NWP	697	Tue 4:00 PM
McLay, J. G.	26PROBSTAT	228	Mon 4:00 PM	Milrad, S. M.	29EDUCATION	7.3	Wed 2:00 PM
McNicholas, C.	19AI	1B.2	Mon 11:15 AM	Milstein, A.	10R2O	J4.6	Mon 11:45 AM
McNitt, J.	16GOESRJPSS	2.2	Mon 10:45 AM	Milstein, A. B.	19AI	3A.5	Tue 9:30 AM
McNitt, J.	16GOESRJPSS	12B.4	Thu 11:15 AM	Min, Q.	20SMOI	1.4	Mon 9:15 AM
McNoldy, B. D.	TROPSYMP1	4.2	Wed 3:15 PM	Min, Y.	19AI	5B.4	Tue 2:15 PM
McQueen, J.	21AIRPOL	8.1	Tue 3:00 PM	Minamide, M.	4PREDICTABILITY	J14.3	Tue 9:30 AM
McRae, I. K.	15URBAN	12.3	Thu 9:15 AM	Minamide, M.	TROPSYMP1	1516	Wed 4:00 PM
McReynolds, J. A.	TROPSYMP1	865	Tue 4:00 PM	Minder, J.	30WAF26NWP	687	Tue 4:00 PM
Meadows, D. K.	36EIPT	1034	Wed 4:00 PM	Minowa, M.	20SMOI	326	Mon 4:00 PM
Means, J. D.	TROPSYMP1	1491	Wed 4:00 PM	Minsinger, W.	18HISTORY	10.1	Wed 11:15 AM
Mechem, D. B.	12AEROSOL	1428	Wed 4:00 PM	Miranda, M.	19STUDENT	S17	Sun 6:30 PM
Mecray, E. L.	10R2O	PD2.3	Wed 10:30 AM	Miretzky, B. J.	18COASTAL	3.3	Mon 2:30 PM
Mecray, E. L.	8WXCLIMATE	7A.1	Wed 1:30 PM	Mischell, E.	33CVC	100	Mon 4:00 PM

PRESENTER INDEX

	Conf.	Paper #	Day	Time
M (Continued)				
Miscimarra, J.	19STUDENT	S61	Sun	6:30 PM
Mitchell, A. K.	8MJO	J10.2	Mon	3:15 PM
Mitchell, D. L.	DICKINSONSYMP	J25.3	Tue	3:45 PM
Mitra, C.	15URBAN	396	Mon	4:00 PM
Miyoshi, T.	24IOAS	1.4	Mon	9:30 AM
Miyoshi, T.	24IOAS	242	Mon	4:00 PM
Mo, K. C.	34HYDRO	1118	Wed	4:00 PM
Mocko, D. M.	34HYDRO	15A.3	Thu	4:00 PM
Moghimi, N.	21AIRPOL	1327	Wed	4:00 PM
Moghimi, S.	18COASTAL	1.6	Mon	9:45 AM
Mohamed Rasmy, A. W.	34HYDRO	556	Tue	4:00 PM
Mohammad Abadi kamarei, A.	34HYDRO	J33.6	Wed	9:45 AM
Mohammed, K.	34HYDRO	608	Tue	4:00 PM
Möhler, O.	12AEROSOL	2.6	Mon	11:45 AM
Moisseeva, N.	21AIRPOL	9.6	Wed	11:45 AM
Molina, B. R. A.	19STUDENT	S70	Sun	6:30 PM
Molina, M. J.	30WAF26NWP	1A.5	Mon	9:30 AM
Molina, M. J.	19AI	J17.4	Tue	11:30 AM
Molinie, J.	22ATCHEM	1A.2	Mon	8:45 AM
Molod, A.	8WXCLIMATE	4.1	Tue	3:00 PM
Molthan, A. L.	19AI	J52.3	Wed	3:30 PM
Montoya, J.	11ENERGY	2.4	Mon	11:15 AM
Moon, Y.	TROPSYMP1	1509	Wed	4:00 PM
Moon, Z.	20SMOI	4.6	Tue	9:45 AM
Moon, Z.	22ATCHEM	8B.5	Wed	9:30 AM
Mooney, M.	29EDUCATION	712	Tue	4:00 PM
Mooney, M.	16GOESRJPSS	10.3	Wed	3:30 PM
Moore, B. J.	34HYDRO	577	Tue	4:00 PM
Moore, B. III	DICKINSONSYMP	J11.3	Tue	9:15 AM
Moore, J.	29EDUCATION	1.3	Mon	11:00 AM
Moore, J. P. III	15SOCIETY	13B.2	Thu	1:45 PM
Moore, L. M.	19STUDENT	S128	Sun	6:30 PM
Moradi, M.	34HYDRO	1073	Wed	4:00 PM
Moradkhani, H.	34HYDRO	6B.5	Tue	11:30 AM
Morin, C. W.	11HEALTH	4.5	Tue	9:30 AM
Morley, S.	17SPACEWX	761	Tue	4:00 PM
Morley, S.	17SPACEWX	9.5	Wed	9:30 AM
Moroni, D. F.	36EIPT	J49.2	Wed	3:15 PM
Morris, M. T.	20ARAM	1339	Wed	4:00 PM
Morris, V. R.	29EDUCATION	3.6	Tue	9:45 AM
Morrison, M. A.	22WXMOD	PD1.3	Wed	10:30 AM
Morrison, W. T. J.	15URBAN	13.5	Thu	11:30 AM
Morse, A.	11HEALTH	J46.3	Wed	2:00 PM
Mose, A. J.	30WAF26NWP	148	Mon	4:00 PM
Mosher, D. L.	19STUDENT	S254	Sun	6:30 PM
Mosher, D. L.	30WAF26NWP	674	Tue	4:00 PM
Moskaitis, J. R.	16IMPACTS	385	Mon	4:00 PM
Motta, B. C.	16GOESRJPSS	13B.5	Thu	2:30 PM
Mouatadid, S.	19AI	9B.1	Wed	1:30 PM
Moxon, A. J.	30WAF26NWP	167	Mon	4:00 PM
Mueller, D. M.	20ARAM	11.5	Thu	11:30 AM
Mueller, M. J.	35MALLSATS	2.3	Thu	11:00 AM
Mueller, R.	SOLOMONSYMP	22	Mon	4:00 PM
Mukhopadhyay, A.	17SPACEWX	15.3	Thu	11:00 AM
Mukkavilli, S. K.	19AI	5B.1	Tue	1:30 PM
Mukkavilli, S. K.	19AI	J61.4	Thu	9:15 AM
Mullendore, G. L.	36EIPT	J56.3	Thu	9:00 AM
Mullens, E.	34HYDRO	581	Tue	4:00 PM
Mullusky, M. G.	15SOCIETY	1.2	Mon	8:45 AM
Mulvey, G. J.	48BROADCAST	7.3	Wed	11:00 AM
Munchak, S. J.	34HYDRO	1074	Wed	4:00 PM
Muncy, T.	19STUDENT	S129	Sun	6:30 PM
Mungeam, F.	48BROADCAST	3.3	Tue	9:15 AM
Munoz-Arriola, F.	15SOCIETY	8.4	Wed	11:15 AM
Munoz-Esparza, D.	20ARAM	5.5	Tue	11:30 AM
Murakami, M.	22WXMOD	1.2	Mon	9:15 AM
Murakami, M.	22WXMOD	J12.4	Tue	9:45 AM
Murillo, E. M.	20SMOI	11.2	Wed	3:15 PM
Murphy, D.	SOLOMONSYMP	1.5	Mon	9:30 AM
Murphy, J. G.	22ATCHEM	3B.1	Mon	2:00 PM
Murphy, J.	19STUDENT	S54	Sun	6:30 PM
Murphy, K. M.	16GOESRJPSS	4.2A	Tue	10:45 AM
Murphy, M. P.	20ARAM	2.1	Mon	10:30 AM
Murphy, M. P.	20ARAM	1338	Wed	4:00 PM

	Conf.	Paper #	Day	Time
M (Continued)				
Murray, J. J.	36EIPT	3B.5	Mon	3:00 PM
Murray, L. T.	22ATCHEM	267	Mon	4:00 PM
Murtagh, W. J.	17SPACEWX	3.1	Mon	11:30 AM
Murtagh, W. J.	17SPACEWX	5.4	Tue	9:15 AM
Muschinski, A.	18COASTAL	14.5	Thu	4:30 PM
Musgrave, K. D.	TROPSYMP1	878	Tue	4:00 PM
Musgrave, K. D.	SCHUBERTSYMP	1032	Wed	4:00 PM
Musser, L.	23ASLI	2.2	Wed	9:15 AM
Mustafa, A.	DICKINSONSYMP	524	Tue	4:00 PM
Myers, E. III	18COASTAL	3.1	Mon	2:00 PM
Myers, J. N.	48BROADCAST	6.3	Wed	9:15 AM
Myers, L.	FUTURESYMP	PD1.1	Mon	10:30 AM
Myers, L.	15SOCIETY	4A.2	Tue	8:45 AM
Myhre, G.	12AEROSOL	J29.1	Tue	3:00 PM
Mykolajchuk, P.	30WAF26NWP	147	Mon	4:00 PM
N				
Nabetani, T.	30WAF26NWP	4A.5	Tue	11:30 AM
Nachamkin, J.	30WAF26NWP	13A.2	Thu	1:45 PM
Nadiga, B. T.	33CVC	4C.2	Tue	8:45 AM
Nadler, D. J.	8WRN	11.3	Thu	2:00 PM
Naegle, S. M.	19AI	8.3	Wed	11:00 AM
Nagel, T.	15URBAN	8B.2	Wed	8:45 AM
Nair, A.	22ATCHEM	1291	Wed	4:00 PM
Nakburee, A.	22WXMOD	1315	Wed	4:00 PM
Nalli, N. R.	24IOAS	5B.5	Tue	11:30 AM
Nalli, N. R.	8JCSDA	824	Tue	4:00 PM
Nalli, N. R.	16GOESRJPSS	13A.5	Thu	2:30 PM
Nam, W. H.	5INTERNATIONAL	1.1	Tue	8:30 AM
Nance, L. B.	10R20	11B.1	Wed	3:00 PM
Nardi, K. M.	33CVC	J64.3	Thu	11:00 AM
Nascimento, E. L.	30WAF26NWP	164	Mon	4:00 PM
Natalie, V.	20SMOI	349	Mon	4:00 PM
Nathan, T. R.	18HISTORY	9.3	Wed	11:00 AM
Nathans, J.	23ASLI	3.1	Wed	10:30 AM
Nathans, J.	18HISTORY	10.2	Wed	11:30 AM
Nathans, J.	18HISTORY	10.3	Wed	11:45 AM
Nathans, J.	23ASLI	5.1	Wed	2:00 PM
Nazarian, N.	15URBAN	10B.3	Wed	2:00 PM
Nazmi, C.	16GOESRJPSS	1.5	Mon	9:30 AM
Nazmi, C.	16GOESRJPSS	1373	Wed	4:00 PM
Nebiker, S.	34HYDRO	87	Mon	4:00 PM
Nebuda, S.	16GOESRJPSS	1383	Wed	4:00 PM
Nedoluha, G. E.	22ATCHEM	4A.4	Tue	9:15 AM
Nehrir, A. R.	10R20	3B.4	Mon	2:45 PM
Nehr Korn, T.	24IOAS	237	Mon	4:00 PM
Neiles, J. A.	34HYDRO	58	Mon	4:00 PM
Neill, M. D.	20SMOI	305	Mon	4:00 PM
Nelson, B. R.	25APPLIED	5.3	Tue	2:00 PM
Nelson, C.	48BROADCAST		Mon	8:30 AM
Nelson, C.	48BROADCAST	7.5	Wed	11:30 AM
Nelson, J. A. Jr.	10R20	3A.1	Mon	2:00 PM
Nelson, J. A. Jr.	10R20	8B.5	Wed	9:30 AM
Nelson, K. J.	24IOAS	258	Mon	4:00 PM
Nelson, M.	48BROADCAST	3.2	Tue	9:00 AM
Nelson, R. E.	19STUDENT	S198	Sun	6:30 PM
Nemunaitis-Berry, K.	10R20	2.3	Mon	11:00 AM
Nesbitt, A. E.	29EDUCATION	210	Mon	4:00 PM
Nese, J. M.	48BROADCAST	6.2	Wed	9:00 AM
Nesser, H.	21AIRPOL	13A.1	Thu	10:30 AM
Neu, J. L.	SOLOMONSYMP	2.6	Mon	11:45 AM
Newchurch, M.	10LIDAR	4.4	Wed	11:30 AM
Newcomb, L. A.	15SOCIETY	13A.6	Thu	2:30 PM
Newell, D.	20SMOI	7.1	Tue	3:00 PM
Newell, L. D.	19STUDENT	S152	Sun	6:30 PM
Newman, A.	34HYDRO	1054	Wed	4:00 PM
Newman, J. F.	11ENERGY	5.2	Tue	8:45 AM
Newman, K. M.	30WAF26NWP	646	Tue	4:00 PM
Newman, M.	33CVC	2B.1	Mon	10:30 AM
Newman, M.	33CVC	J64.2	Thu	10:45 AM

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
N (Continued)				O (Continued)			
Newman, P. A.	SOLOMONSYMP	2.1	Mon 10:30 AM	Olayinka, K.	12AEROSOL	1414	Wed 4:00 PM
Newport, J.	24IOAS	251	Mon 4:00 PM	Oldroyd, H. J.	30WAF26NWP	198	Mon 4:00 PM
Newsome, E.	19STUDENT	540	Sun 6:30 PM	Olenick, C.	15SOCIETY	11B.4	Thu 9:15 AM
Ng, C. Y.	17SPACEWX	772	Tue 4:00 PM	Oliver, K.	19STUDENT	5162	Sun 6:30 PM
Ngan, F.	21AIRPOL	11.1	Wed 3:00 PM	Olsen, J. R.	15SOCIETY	7.1	Wed 8:30 AM
Ngu, S.	19STUDENT	513	Sun 6:30 PM	Olson, J.	30WAF26NWP	1222	Wed 4:00 PM
Ngu, S.	15SOCIETY	3B.5	Mon 3:00 PM	Olson, J. M.	36EIPT	6A.3	Tue 2:00 PM
Nguyen, N.	11ENERGY	1.4	Mon 9:15 AM	Olson, J. B.	30WAF26NWP	14B.4	Thu 4:15 PM
Ni, L.	34HYDRO	547	Tue 4:00 PM	Olson, M.	15SOCIETY	10.4	Wed 3:45 PM
Nicholas, A.	17SPACEWX	767	Tue 4:00 PM	Ombadi, M.	19AI	1A.4	Mon 11:45 AM
Nicholls, S. D.	33CVC	2A.5	Mon 11:30 AM	Onak, C. A.	19STUDENT	520	Sun 6:30 PM
Nicholson, S. E.	33CVC	2A.4	Mon 11:15 AM	Oppenheim, M.	17SPACEWX	15.4	Thu 11:15 AM
Nicholson, S. E.	33CVC	J27.1	Tue 3:00 PM	Orbe, C.	SOLOMONSYMP	2.5A	Mon 11:30 AM
Niebuhr, E.	11HEALTH	1474	Wed 4:00 PM	Orbe, C.	22ATCHEM	14A.6	Thu 2:45 PM
Nielsen, A. H.	10PYTHON	J2.2	Mon 11:00 AM	Orf, L.	SLSSYMPOSIUM1	958	Tue 4:00 PM
Nielsen, D. P.	10PYTHON	5.3	Tue 3:30 PM	Orf, L.	SLSSYMPOSIUM1	2.1	Tue 10:30 AM
Nielsen, E. R.	TROPSYMP1	1497	Wed 4:00 PM	Orikasa, N.	22WXMOD	2.2	Mon 10:45 AM
Nielsen, M.	15SOCIETY	12B.1	Thu 10:30 AM	Orr, M.	33CVC	7B.3	Tue 3:30 PM
Nielsen-Gammon, J. W.	33CVC	615	Tue 4:00 PM	Ortega, G.	19STUDENT	5179	Sun 6:30 PM
Nielsen-Gammon, J. W.	25APPLIED	9.1	Wed 3:00 PM	Ortega, I.	22ATCHEM	265	Mon 4:00 PM
Nieto Ferreira, R.	SCHUBERTSYMP	1022	Wed 4:00 PM	Ortega, K. L.	19AI	363	Mon 4:00 PM
Nieves Jiménez, A. T.	19STUDENT	S156	Sun 6:30 PM	Ortega, K. L.	20SMOI	8.6	Wed 9:45 AM
Nieves Jiménez, A. T.	30WAF26NWP	1217	Wed 4:00 PM	Ortiz, L. E.	33CVC	1B.4	Mon 9:15 AM
Niino, H.	18COASTAL	6.3	Tue 2:00 PM	Ortiz-Suslow, D. G.	18COASTAL	13.2	Thu 1:45 PM
Nikolla, E.	33CVC	623	Tue 4:00 PM	Orton, A.	22WXMOD	J38.1	Wed 8:30 AM
Nipen, T.	19AI	4.1	Tue 10:30 AM	Orton, P.	18COASTAL	3.6	Mon 3:00 PM
Nishi, N.	30WAF26NWP	1216	Wed 4:00 PM	Ortt, D.	TROPSYMP1	1500	Wed 4:00 PM
Nishii, A.	30WAF26NWP	194	Mon 4:00 PM	Osborne, A. P.	34HYDRO	15B.4	Thu 4:15 PM
Nissenbaum, M.	30WAF26NWP	680	Tue 4:00 PM	Osborne, B.	30WAF26NWP	J68.1	Thu 1:30 PM
Nitta, N.	17SPACEWX	8.4	Tue 3:45 PM	Osetinsky-Tzidaki, I.	26PROBSTAT	227	Mon 4:00 PM
Niu, G. Y.	DICKINSONSYMP	523	Tue 4:00 PM	Osetinsky-Tzidaki, I.	36EIPT	533	Tue 4:00 PM
Nobis, T. E.	10LIDAR	1.2	Mon 8:45 AM	Osetinsky-Tzidaki, I.	33CVC	1166	Wed 4:00 PM
Noel, J.	34HYDRO	6A.1	Tue 10:30 AM	Osman, M.	34HYDRO	1115	Wed 4:00 PM
Noh, Y. J.	20ARAM	J42.4	Wed 11:30 AM	Osterman, G. B.	22ATCHEM	13B.3	Thu 11:15 AM
Noll, S.	20SMOI	301	Mon 4:00 PM	Otkin, J. A.	24IOAS	4A.5	Tue 9:30 AM
Nölscher, M.	19AI	5A.3	Tue 2:00 PM	Otkin, J. A.	34HYDRO	14A.1	Thu 1:30 PM
North, R.	20ARAM	750	Tue 4:00 PM	Otsuka, N.	33CVC	1173	Wed 4:00 PM
Notaro, M.	34HYDRO	70	Mon 4:00 PM	Otten, A. N.	11ENERGY	1448	Wed 4:00 PM
Novak, D.	30WAF26NWP	12B.1	Thu 10:30 AM	Otto, F. E. L.	33CVC	8A.6	Wed 11:45 AM
Nowak, K.	25APPLIED	4.4	Tue 11:15 AM	Ovhed, M.	15SOCIETY	11A.3	Thu 9:00 AM
Nowlan, C. R.	22ATCHEM	1284	Wed 4:00 PM	Owen, W.	29EDUCATION	217	Mon 4:00 PM
Nowotarski, C. J.	SLSSYMPOSIUM1	2.2	Tue 10:45 AM				
Nugent, A. D.	12AEROSOL	3.3	Mon 2:45 PM				
Nugent, A. D.	29EDUCATION	1267	Wed 4:00 PM				
Nunez, R.	20ARAM	1344	Wed 4:00 PM				
Nunez Ocasio, K. M.	8MJO	467	Mon 4:00 PM				
Nykanen, D. K.	34HYDRO	51	Mon 4:00 PM				
Nystrom, J.	26PROBSTAT	8.2	Wed 3:15 PM				
Nystrom, R. G.	4PREDICTABILITY	2.1	Mon 10:30 AM				
Nystrom, R. G.	TROPSYMP1	1511	Wed 4:00 PM				
O				P			
O'Brien, J.	30WAF26NWP	171	Mon 4:00 PM	Pabla, C. S.	34HYDRO	1053	Wed 4:00 PM
O'Brien, J.	30WAF26NWP	671	Tue 4:00 PM	Pack, D. W.	10R2O	J4.4	Mon 11:15 AM
O'Connor, A.	36EIPT	9A.6	Wed 11:45 AM	Pagano, T. S.	10R2O	J1.6	Mon 9:45 AM
O'Flanagan, A. M.	19STUDENT	S222	Sun 6:30 PM	Pagliaro, D.	30WAF26NWP	14B.1	Thu 3:30 PM
O'Neill, A. C.	18COASTAL	371	Mon 4:00 PM	Pagowski, M.	8JCSDA	4.4	Tue 2:15 PM
O'Neill, M.	11HEALTH	6.1	Tue 3:00 PM	Paine, R.	21AIRPOL	1.3	Mon 9:15 AM
Obermeier, H.	15SOCIETY	12A.4	Thu 11:15 AM	Pajela, R.	19STUDENT	S194	Sun 6:30 PM
Ocko, I.	22ATCHEM	5B.2	Tue 11:00 AM	Pal, S.	22ATCHEM	3A.4	Mon 2:45 PM
Ogden, F. L.	34HYDRO	64	Mon 4:00 PM	Pal, S.	10LIDAR	417	Mon 4:00 PM
Ogunjobi, K. O.	DICKINSONSYMP	478	Tue 4:00 PM	Pal, S.	21AIRPOL	733	Tue 4:00 PM
Ogunjobi, K. O.	15URBAN	797	Tue 4:00 PM	Palecki, M. A.	25APPLIED	5.1	Tue 1:30 PM
Oh, J.	15URBAN	14.2	Thu 2:00 PM	Palm, S. P.	10LIDAR	J3.1	Mon 10:30 AM
Oh, J. S.	15URBAN	1405	Wed 4:00 PM	Pan, L.	30WAF26NWP	647	Tue 4:00 PM
Ohnstad, J. D. R.	33CVC	J58.2	Thu 8:45 AM	Pan, Y.	21AIRPOL	15.3	Thu 4:00 PM
Oizumi, T.	30WAF26NWP	J59.4	Thu 9:15 AM	Pangle, P.	SLSSYMPOSIUM1	929	Tue 4:00 PM
Okabe, I.	30WAF26NWP	13A.5	Thu 2:30 PM	Panhans, P.	MIDDLESYMP	888	Tue 4:00 PM
Okeudo, N.	16GOESRJPSS	1378	Wed 4:00 PM	Pankratz, C.	17SPACEWX	757	Tue 4:00 PM
Okon, J.	36EIPT	2A.1	Mon 10:30 AM	Pante, G.	33CVC	115	Mon 4:00 PM
				Pante, G.	30WAF26NWP	1213	Wed 4:00 PM
				Papin, P. P.	8MJO	448	Mon 4:00 PM
				Paquette, C. R.	33CVC	5A.2	Tue 10:45 AM
				Parab, B.	36EIPT	43	Mon 4:00 PM
				Pardo, M.	21AIRPOL	J39.6	Wed 9:45 AM
				Paredes, M.	19STUDENT	S243	Sun 6:30 PM
				Parham, J. B.	17SPACEWX	766	Tue 4:00 PM
				Park, B. J.	33CVC	132	Mon 4:00 PM
				Park, C.	33CVC	106A	Mon 4:00 PM

PRESENTER INDEX

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
P (Continued)				P (Continued)			
Park, C.	34HYDRO	584	Tue 4:00 PM	Pham, L. T.	34HYDRO	594	Tue 4:00 PM
Park, J. M.	12AEROSOL	10.6	Thu 11:45 AM	Philips, B.	15SOCIETY	4A.5	Tue 9:30 AM
Park, M.	33CVC	38.7	Mon 3:30 PM	Philips, B. J.	10R2O	5A.6	Tue 11:45 AM
Parker, K.	33CVC	7B.2	Tue 3:15 PM	Philips, B. J.	15SOCIETY	9A.2	Wed 1:45 PM
Parker, K.	48BROADCAST	7.4	Wed 11:15 AM	Phillips, C.	12AEROSOL	9.2	Thu 8:45 AM
Parker, K.	48BROADCAST	8.3	Wed 2:00 PM	Pichugina, Y.	11ENERGY	4.4	Mon 3:45 PM
Parker, M. D.	SLSSYMPOSIUM1	1.1	Tue 8:30 AM	Pickering, B. S.	30WAF26NWP	10A.1	Wed 3:00 PM
Parlange, M. B.	21AIRPOL	15.2	Thu 3:45 PM	Pickering, K. E.	22ATCHEM	15A.4	Thu 4:15 PM
Parno, J.	34HYDRO	1088	Wed 4:00 PM	Piedehierro, A. A.	12AEROSOL	2.2	Mon 10:45 AM
Parrish, J.	36EPT	4B.6	Tue 9:45 AM	Piersante, J. O.	30WAF26NWP	11B.1	Thu 8:30 AM
Parsons, D. B.	4PREDICTABILITY	3.1	Mon 2:00 PM	Pillar-Little, E. A.	22ATCHEM	3A.5	Mon 3:00 PM
Partida, N.	19STUDENT	S55	Sun 6:30 PM	Pinto, J.	20ARAM	3.6	Mon 3:15 PM
Parton, J. M.	19STUDENT	S56	Sun 6:30 PM	Piper, M.	19STUDENT	S236	Sun 6:30 PM
Partyka, G.	33CVC	640	Tue 4:00 PM	Piper, M.	34HYDRO	46	Mon 4:00 PM
Parzybok, T. W.	34HYDRO	566	Tue 4:00 PM	Pipkin, C. A. Jr.	19STUDENT	S197	Sun 6:30 PM
Pashaei, M.	19AI	J52.4	Wed 3:45 PM	Pirhalla, M.	21AIRPOL	5.2	Tue 8:45 AM
Pasken, R. W.	15URBAN	10B.4	Wed 2:15 PM	Pittendreigh, M.	19STUDENT	S5	Sun 6:30 PM
Passarella, L.	19AI	1359	Wed 4:00 PM	Pittman, K.	SLSSYMPOSIUM1	919	Tue 4:00 PM
Passow, M. J.	29EDUCATION	2.2	Mon 2:15 PM	Pitts, K.	16GOESRJPSS	1371	Wed 4:00 PM
Passow, M. J.	29EDUCATION	706	Tue 4:00 PM	Pitts, M. C.	SOLOMONSYMP	20	Mon 4:00 PM
Pasteris, P. A.	15SOCIETY	7.2	Wed 8:45 AM	Placidi, M.	21AIRPOL	12.4	Thu 9:15 AM
Patel, M. A.	12AEROSOL	9.3	Thu 9:00 AM	Placky, B. W.	48BROADCAST	PD1.2	Tue 10:30 AM
Pateron, C. K.	25APPLIED	5.4	Tue 2:15 PM	Placky, B. W.	25APPLIED	720	Tue 4:00 PM
Patrick, A.	19STUDENT	S185	Sun 6:30 PM	Platero Huarcaya, B.	19STUDENT	S151	Sun 6:30 PM
Patrick, H. O.	11HEALTH	1469	Wed 4:00 PM	Pleim, J.	21AIRPOL	3.1	Mon 2:00 PM
Patricola, C. M.	33CVC	6B.4	Tue 2:15 PM	Pletcher, M. D.	34HYDRO	574	Tue 4:00 PM
Pattey, E.	20SMOI	4.2	Tue 8:45 AM	Plumadore, A.	19STUDENT	S149	Sun 6:30 PM
Pauline, E. L.	25APPLIED	2.3	Mon 2:30 PM	Plumb, E.	8WRN	J9.7	Mon 3:30 PM
Pavlik, M.	29EDUCATION	206	Mon 4:00 PM	Plunkett, C. T.	11ENERGY	1447	Wed 4:00 PM
Paw U, K. T.	20SMOI	4.3	Tue 9:00 AM	Podesta, G.	5INTERNATIONAL	1.3	Tue 9:00 AM
Payne, C. M.	29EDUCATION	PD1.2	Mon 8:30 AM	Pogorzala, D.	16GOESRJPSS	2.3	Mon 11:00 AM
Payne-Dillard, J.	19STUDENT	S210	Sun 6:30 PM	Pokharel, B.	22WXMOD	3.4	Tue 11:15 AM
Peachey, C. J.	29EDUCATION	1265	Wed 4:00 PM	Pokhrel, R.	SLSSYMPOSIUM1	978	Tue 4:00 PM
Peake, B.	25APPLIED	722	Tue 4:00 PM	Pokhrel, R.	15URBAN	6.3	Tue 2:00 PM
Pearson, J.	20ARAM	9.2	Wed 3:30 PM	Polasky, A.	19AI	J17.5	Tue 11:45 AM
Pechacek, T.	34HYDRO	45	Mon 4:00 PM	Polich, E.	11HEALTH	2.2	Mon 10:45 AM
Peddicord, H.	29EDUCATION	1.1	Mon 10:30 AM	Pollak, D. A.	11ENERGY	5.4	Tue 9:15 AM
Peek, L.	11HEALTH	J40.5	Wed 9:30 AM	Pologne, L.	11ENERGY	14.4	Thu 9:15 AM
Peevey, T. R.	20ARAM	5.3	Tue 11:00 AM	Pongracz, R.	15URBAN	793	Tue 4:00 PM
Pehl, J. C.	19STUDENT	S166	Sun 6:30 PM	Pongracz, R.	33CVC	1150	Wed 4:00 PM
Peiro, H.	22ATCHEM	2A.5	Mon 11:30 AM	Popovic, J.	21AIRPOL	11.2	Wed 3:15 PM
Pelayo, C. N.	21AIRPOL	1325	Wed 4:00 PM	Porporato, A.	21AIRPOL	13B.3	Thu 11:00 AM
Pena, A.	19STUDENT	S138	Sun 6:30 PM	Portmann, R. W.	SOLOMONSYMP	30	Mon 4:00 PM
Penn, J.	16GOESRJPSS	14A.2	Thu 3:45 PM	Posselt, D. J.	24IOAS	2.6	Mon 11:45 AM
Penning, A.	SLSSYMPOSIUM1	963	Tue 4:00 PM	Posselt, D. J.	8MJO	J7.1	Mon 2:00 PM
Pentcheva, N.	30WAF26NWP	13B.4	Thu 2:15 PM	Posselt, D. J.	33CVC	98	Mon 4:00 PM
Peppler, R. A.	15SOCIETY	9B.1	Wed 1:30 PM	Posselt, D. J.	26PROBSTAT	J28.1	Tue 3:00 PM
Perera, F.	11HEALTH	J46.1	Wed 1:30 PM	Posselt, D. J.	8JCSDA	826	Tue 4:00 PM
Perez, G. M. P.	33CVC	96	Mon 4:00 PM	Poterjoy, J.	24IOAS	3.6	Mon 3:15 PM
Perez, G. J.	34HYDRO	1116	Wed 4:00 PM	Pottapinjara, V.	33CVC	1128	Wed 4:00 PM
Perez, J. S.	TROPSYMP1	1521	Wed 4:00 PM	Potter, G. L.	34HYDRO	1060	Wed 4:00 PM
Perez-Betancourt, D.	TROPSYMP1	3.5	Wed 9:30 AM	Potter, K. W.	34HYDRO	J50.4	Wed 3:45 PM
Perfater, S.	8WRN	4.1	Tue 3:00 PM	Potter, S.	18HISTORY	8.4	Wed 9:30 AM
Perkins, J. M. IV	19STUDENT	S41	Sun 6:30 PM	Potvin, C.	30WAF26NWP	187	Mon 4:00 PM
Perlin, N.	33CVC	5C.2	Tue 10:45 AM	Potvin, C.	33CVC	1155	Wed 4:00 PM
Perlwitz, J. P.	12AEROSOL	3.4	Mon 3:00 PM	Potvin, C.	10R2O	12.2	Thu 8:45 AM
Perlwitz, J. P.	22ATCHEM	259A	Mon 4:00 PM	Pour Biazar, A.	8JCSDA	823	Tue 4:00 PM
Perlwitz, J. P.	12AEROSOL	1421	Wed 4:00 PM	Powell, K. A.	10LIDAR	2.1	Mon 2:00 PM
Pernini, T.	22ATCHEM	263	Mon 4:00 PM	Powell, M. D.	26PROBSTAT	4.1	Tue 8:30 AM
Perry, B.	20SMOI	3.8	Mon 3:45 PM	Powell, N.	10R2O	PD1.5	Tue 8:30 AM
Perryman Rayne, N.	48BROADCAST	7.6	Wed 11:45 AM	Powell, S. W.	TROPSYMP1	J48.2	Wed 1:45 PM
Pesnell, W. D.	17SPACEWX	8.3	Tue 3:30 PM	Powell, S. W.	TROPSYMP1	1490	Wed 4:00 PM
Pesnell, W. D.	17SPACEWX	774	Tue 4:00 PM	Powers, J. G.	18HISTORY	3.6	Mon 3:15 PM
Peters, J. M.	SLSSYMPOSIUM1	942	Tue 4:00 PM	Powers, J. G.	5INTERNATIONAL	2.3	Tue 11:15 AM
Peters-Lidard, C.	18HISTORY	7.5	Tue 4:00 PM	Prabhat, M.	19AI	J17.3	Tue 11:15 AM
Petersen, B.	34HYDRO	14A.3	Thu 2:00 PM	Praino, A. P.	30WAF26NWP	203	Mon 4:00 PM
Peterson, D. A.	10LIDAR	3.5	Wed 9:30 AM	Praino, A. P.	6HPC	2.2	Tue 1:45 PM
Peterson, N.	15SOCIETY	781	Tue 4:00 PM	Prather, M. J.	22ATCHEM	14A.4	Thu 2:15 PM
Petetin, H.	19AI	9A.2	Wed 1:45 PM	Pratt, A.	15SOCIETY	6.4	Tue 3:45 PM
Petrescu, E.	16IMPACTS	3.1	Mon 2:00 PM	Pratt, G.	36EPT	35A	Mon 4:00 PM
Pettegrew, B. P.	20ARAM	738	Tue 4:00 PM	Pratt, G.	34HYDRO	592	Tue 4:00 PM
Pettegrew, B. P.	20ARAM	1341	Wed 4:00 PM	Pratt, K. A.	22ATCHEM	14B.1	Thu 1:30 PM
Pettett, A. R.	TROPSYMP1	853	Tue 4:00 PM	Preston, A. D.	SLSSYMPOSIUM1	974	Tue 4:00 PM
Pfleger, C. M.	33CVC	99	Mon 4:00 PM	Preston, J.	20ARAM	2.4	Mon 11:15 AM

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
P (Continued)				R (Continued)			
Preston, V.	36EIPT	1B.2	Mon 8:45 AM	Rastigejev, Y.	TROPSYMP1	1508	Wed 4:00 PM
Price, B.	36EIPT	1036	Wed 4:00 PM	Rattray, C. P.	SLSSYMP0SIUM1	966	Tue 4:00 PM
Priftis, G.	12AEROSOL	8.2	Wed 2:00 PM	Rattray, C. P.	19AI	7B.5	Wed 9:30 AM
Prince, K. C.	30WAF26NWP	12D.4	Thu 11:15 AM	Rauber, R. M.	22WXMOD	J6.1	Mon 2:00 PM
Prinn, R. G.	22ATCHEM	7.1	Tue 3:00 PM	Rauniyar, S.	33CVC	130	Mon 4:00 PM
Privé, N.	24IOAS	11.2	Wed 3:15 PM	Ravishankara, A. R.	SOLOMONSYMP	3.6	Mon 3:15 PM
Przybylo, V. M.	30WAF26NWP	6A.4	Tue 3:45 PM	Ray, A.	30WAF26NWP	1249	Wed 4:00 PM
Pu, B.	12AEROSOL	1418	Wed 4:00 PM	Raymond, S. Sr.	8WXCLIMATE	8.4	Wed 3:45 PM
Pu, Z.	8MJO	J7.4	Mon 2:45 PM	Rayne, S.	11HEALTH	1.2	Mon 9:00 AM
Pu, Z.	24IOAS	4B.6	Tue 9:30 AM	Reames, L. J.	10R2O	12.3	Thu 9:00 AM
Pu, Z.	24IOAS	5A.5	Tue 11:30 AM	Reddy, R. S.	TROPSYMP1	1524	Wed 4:00 PM
Pu, Z.	24IOAS	8.5	Wed 9:45 AM	Redmond, C.	25APPLIED	9.3	Wed 3:30 PM
Pullin, J.	8WRN	11.2	Thu 1:45 PM	Reed, B.	16GOESRJPSS	12B.5	Thu 11:30 AM
Pulwarty, R.	34HYDRO	J33.1	Wed 8:30 AM	Reed, J. R.	15SOCIETY	11A.2	Thu 8:45 AM
Pulwarty, R.	15SOCIETY	8.1	Wed 10:30 AM	Reed, K. A.	33CVC	9B.2	Wed 1:45 PM
Puvvula, J.	11HEALTH	407	Mon 4:00 PM	Reed, K. A.	20ARAM	6.4	Tue 2:15 PM
Pyle, J. A.	SOLOMONSYMP	1.6	Mon 9:45 AM	Reed, S. M.	34HYDRO	1A.4	Mon 9:15 AM
Q				Reeve, A.	11ENERGY	16.3	Thu 2:00 PM
Qian, B.	33CVC	3C.3	Mon 2:45 PM	Reeves, G. D.	17SPACEWX	7.2	Tue 1:45 PM
Qian, Y.	11ENERGY	16.2	Thu 1:45 PM	Reeves, H. D.	10R2O	PD1.4	Tue 8:30 AM
Qin, H.	19STUDENT	S248	Sun 6:30 PM	Reeves, H. D.	20ARAM	737	Tue 4:00 PM
Qin, H.	22WXMOD	1304	Wed 4:00 PM	Reeves, H. D.	19AI	1362	Wed 4:00 PM
Qiu, H.	20SMOI	325	Mon 4:00 PM	Reeves, H. D.	30WAF26NWP	12B.2	Thu 10:45 AM
Qiu, L.	DICKINSONSYMP	479	Tue 4:00 PM	Reeves, H. D.	20ARAM	12.3	Thu 2:00 PM
Qiu, M.	22ATCHEM	5B.5	Tue 11:45 AM	Reeves, H. L.	19STUDENT	S196	Sun 6:30 PM
Qu, Z.	22ATCHEM	3B.4	Mon 2:45 PM	Reiche, C.	36EIPT	2B.6	Mon 11:45 AM
Qu, Z.	22ATCHEM	9A.1	Wed 10:30 AM	Reichle, R. H.	34HYDRO	5B.3	Tue 9:00 AM
Quintana, A.	25APPLIED	4.5	Tue 11:30 AM	Reilly, L.	19STUDENT	S98	Sun 6:30 PM
Quintero, F.	34HYDRO	602	Tue 4:00 PM	Reinecke, A.	30WAF26NWP	655	Tue 4:00 PM
Quintino, T.	36EIPT	3B.7	Mon 3:30 PM	Reinhart, A. E.	SLSSYMP0SIUM1	937	Tue 4:00 PM
Quintino, T.	6HPC	1.3	Tue 11:00 AM	Reinhart, A. E.	10R2O	9.6	Wed 11:45 AM
R				Reising, S. C.	10R2O	J1.3	Mon 9:00 AM
Rabinowitz, J.	TROPSYMP1	842	Tue 4:00 PM	Reising, S. C.	10R2O	J4.1	Mon 10:30 AM
Rabinowitz, J.	16GOESRJPSS	14A.1	Thu 3:30 PM	Remondelli, R.	TROPSYMP1	863	Tue 4:00 PM
Rademacher, H. P.	19STUDENT	S21	Sun 6:30 PM	Remondelli, R.	TROPSYMP1	864	Tue 4:00 PM
Rader, J. K.	33CVC	139	Mon 4:00 PM	Ren, D.	10R2O	3A.8	Mon 3:45 PM
Radermacher, E.	17SPACEWX	771	Tue 4:00 PM	Ren, D.	SOLOMONSYMP	13	Mon 4:00 PM
Radford, J. T.	30WAF26NWP	193	Mon 4:00 PM	Ren, H. L.	8MJO	456	Mon 4:00 PM
Radhakrishnan, C.	19AI	8.5	Wed 11:30 AM	Ren, H. L.	33CVC	4B.6	Tue 9:45 AM
Raghavendra, A.	29EDUCATION	1255	Wed 4:00 PM	Ren, T.	DICKINSONSYMP	482	Tue 4:00 PM
Rahman, M. A.	5INTERNATIONAL	3.2	Tue 1:45 PM	Rennert, E.	29EDUCATION	1.4	Mon 11:15 AM
Rai, R. K.	11ENERGY	5.3	Tue 9:00 AM	Rennie, J.	11HEALTH	1.3	Mon 9:15 AM
Rainear, A. M.	15SOCIETY	9B.2	Wed 1:45 PM	Rennie, J.	10PYTHON	5.1	Tue 3:00 PM
Ramaswamy, V.	SOLOMONSYMP	1.4	Mon 9:15 AM	Renshaw, S. L.	15SOCIETY	13B.5	Thu 2:30 PM
Ramaswamy, V.	18HISTORY	5.6	Tue 11:45 AM	Repasky, K. S.	10LIDAR	6.3	Wed 3:30 PM
Ramaswamy, V.	12AEROSOL	J23.1	Tue 1:30 PM	Resio, D. T.	18COASTAL	7.4	Tue 3:45 PM
Ramirez, C.	22ATCHEM	1A.3	Mon 9:00 AM	Reyes, A.	22ATCHEM	1A.6	Mon 9:45 AM
Ramirez, O. M.	8WRN	443	Mon 4:00 PM	Reynolds, A.	36EIPT	11B.3	Wed 3:30 PM
Ramjohn, I. A.	29EDUCATION	1264	Wed 4:00 PM	Reynolds, A. L.	30WAF26NWP	J68.2	Thu 1:45 PM
Ramos-Valle, A. N.	19AI	366	Mon 4:00 PM	Reynolds, C.	24IOAS	10.1	Wed 1:30 PM
Ramos-Valle, A. N.	18COASTAL	5.6	Tue 11:45 AM	Reynolds, C.	30WAF26NWP	12A.1	Thu 10:30 AM
Ran, L.	21AIRPOL	3.4	Mon 2:45 PM	Reynolds, S. D.	8WRN	J9.8	Mon 3:45 PM
Rancic, M.	24IOAS	5A.4	Tue 11:15 AM	Rhodes, C. T.	MIDDLESYMP	889	Tue 4:00 PM
Rancic, M.	30WAF26NWP	J59.3	Thu 9:00 AM	Ribeiro, D. J.	48BROADCAST	1.1	Mon 8:45 AM
Randall, D. A.	18HISTORY	5.4	Tue 11:15 AM	Rice, G.	18COASTAL	12.6	Thu 11:45 AM
Randall, D. A.	SCHUBERTSYMP	1.4	Wed 9:15 AM	Richard, E.	10R2O	J1.2	Mon 8:45 AM
Randall, R. M.	20SMOI	337	Mon 4:00 PM	Richter, J.	33CVC	2B.2	Mon 10:45 AM
Randel, W. J.	MIDDLESYMP	3.1	Tue 1:30 PM	Richter, J. H.	33CVC	J67.3	Thu 2:00 PM
Rangachar, R.	16GOESRJPSS	8A.3	Wed 11:00 AM	Rickenbach, T. M.	SCHUBERTSYMP	1023	Wed 4:00 PM
Raoult, B.	36EIPT	J63.1	Thu 10:30 AM	Rickenbach, T. M.	33CVC	J67.4	Thu 2:15 PM
Rappenglueck, B.	22ATCHEM	286	Mon 4:00 PM	Riddle, E.	11HEALTH	7.5	Wed 11:30 AM
Rappenglueck, B.	22ATCHEM	1B.4	Mon 9:15 AM	Riddle, E.	30WAF26NWP	14A.5	Thu 4:30 PM
Rappin, E.	24IOAS	4B.3	Tue 9:00 AM	Rieder, H. E.	SOLOMONSYMP	19	Mon 4:00 PM
Rappin, E.	20SMOI	14.5	Thu 2:30 PM	Riel, Z. J.	8WRN	9.2	Thu 8:45 AM
Rasmussen, R.	22WXMOD	1.3	Mon 9:30 AM	Riemer, N.	12AEROSOL	1436	Wed 4:00 PM
				Riggin, R. R. IV	19STUDENT	S169	Sun 6:30 PM
				Rigler, E. J.	17SPACEWX	5.2	Tue 8:45 AM
				Rigler, E. J.	17SPACEWX	J70.1	Tue 1:30 PM
				Riishoigaard, L. P.	24IOAS	1.2	Mon 9:00 AM
				Rinaldo, A.	34HYDRO	540	Tue 4:00 PM
				Ring, A. M.	20ARAM	J42.5	Wed 11:45 AM
				Ring, A. M.	22ATCHEM	13A.4	Thu 11:15 AM
				Risanto, C. B.	24IOAS	10.2	Wed 1:45 PM
				Risanto, C. B.	30WAF26NWP	14C.6	Thu 4:45 PM

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
S (Continued)				S (Continued)			
Satoh, R.	30WAF26NWP	682	Tue 4:00 PM	Semmens, K.	8WRN	7.2	Wed 1:45 PM
Satrio, M. A.	SLSSYMPOSIUM1	956	Tue 4:00 PM	Sena, A. C. T.	SCHUBERTSYMP	1019	Wed 4:00 PM
Sauer, J.	20ARAM	4.5	Tue 9:30 AM	Sengupta, M.	11ENERGY	5.6	Tue 9:45 AM
Saunders, M. E.	15SOCIETY	1388	Wed 4:00 PM	Sengupta, M.	11ENERGY	12.4	Wed 2:15 PM
Saunders, P.	TROPSYMP1	1495	Wed 4:00 PM	Seo, B. C.	34HYDRO	49	Mon 4:00 PM
Sawyer, V. R.	16GOESRJPSS	88.5	Wed 11:30 AM	Serke, D. J.	20ARAM	8.3	Wed 9:00 AM
Saylor, R.	12AEROSOL	7.6	Wed 11:45 AM	Seroka, G.	18COASTAL	12.3	Thu 11:00 AM
Scarino, B.	36EIPT	38.3	Mon 2:30 PM	Sessa, M. F.	30WAF26NWP	169	Mon 4:00 PM
Scarino, B.	20ARAM	740	Tue 4:00 PM	Sever, G.	6HPC	1.4	Tue 11:15 AM
Schaaf, C.	DICKINSONSYMP	J15.2	Tue 11:00 AM	Seybold, M.	16GOESRJPSS	11B.1	Thu 8:30 AM
Schaffer, J.	19AI	J43.5	Wed 11:30 AM	Shaaban, A. A.	8MJO	466	Mon 4:00 PM
Scharfenberg, K.	34HYDRO	J20.2	Tue 2:00 PM	Shafer, J. C.	11ENERGY	2.6	Mon 11:45 AM
Schenck, P.	11HEALTH	J54.4	Wed 3:45 PM	Shafer, P. E.	10R2O	9.3	Wed 11:00 AM
Schenkel, B. A.	30WAF26NWP	38.2	Mon 3:15 PM	Sessa, R.	35MALLSATS	2.2	Thu 10:45 AM
Schepel, K. N.	15SOCIETY	5.4	Tue 2:15 PM	Shahroudi, N.	19AI	J43.4	Wed 11:15 AM
Scheuerer, M.	33CVC	1C.4	Mon 9:30 AM	Shaman, J.	11HEALTH	4.4	Tue 9:15 AM
Scheuerer, M.	26PROBSTAT	J22.1	Tue 1:30 PM	Shan, Y.	11ENERGY	4.1	Mon 3:00 PM
Scheuerer, M.	34HYDRO	544	Tue 4:00 PM	Shangguan, W.	DICKINSONSYMP	J15.5	Tue 11:45 AM
Schiferl, L.	34HYDRO	67	Mon 4:00 PM	Shankar, U.	21AIRPOL	9.5	Wed 11:30 AM
Schlessiger, A. N.	19STUDENT	S18	Sun 6:30 PM	Shanti, W. M.	19STUDENT	S214	Sun 6:30 PM
Schlosser, C. A.	34HYDRO	1095	Wed 4:00 PM	Shao, H.	10R2O	4.2	Tue 8:45 AM
Schmidt, C. C.	16GOESRJPSS	12A.4	Thu 11:30 AM	Shao, H.	8JCSA	5.1	Tue 3:00 PM
Schmidt, J.	20ARAM	1349	Wed 4:00 PM	Shao, W.	15SOCIETY	9A.3	Wed 2:00 PM
Schmit, L.	15SOCIETY	784A	Tue 4:00 PM	Shao, X.	20SMOI	320	Mon 4:00 PM
Schmit, T. J.	16GOESRJPSS	3.4	Mon 2:45 PM	Shapiro, C. R.	18COASTAL	6.2	Tue 1:45 PM
Schnapp, A. D.	20ARAM	J42.2	Wed 11:00 AM	Shapiro, M.	36EIPT	539	Tue 4:00 PM
Schneider, F. A.	15URBAN	1.1	Mon 8:30 AM	Sharma, B.	DICKINSONSYMP	494	Tue 4:00 PM
Schneider, K. P.	19STUDENT	S90	Sun 6:30 PM	Sharman, R. D.	20ARAM	1.2	Mon 9:00 AM
Schneider, R.	16IMPACTS	3.8	Mon 3:45 PM	Sharp, D. W.	SLSSYMPOSIUM1	3.2	Tue 1:45 PM
Schoeberl, M. R.	MIDDLESYMP	892	Tue 4:00 PM	Shaw, A.	19STUDENT	S158	Sun 6:30 PM
Schoor, G. M.	SLSSYMPOSIUM1	987	Tue 4:00 PM	Shaw, J.	23ASLI	6.3	Thu 2:00 PM
Schotz, S.	36EIPT	4A.4	Tue 9:30 AM	Shaw, S. B.	34HYDRO	J57.1	Thu 8:30 AM
Schreiner, W. S.	24IOAS	7B.1	Tue 3:00 PM	Shaw, W.	11ENERGY	8.4	Tue 2:15 PM
Schroeder, A. J.	34HYDRO	569	Tue 4:00 PM	Shearman, R. K.	18COASTAL	13.1	Thu 1:30 PM
Schroeder, S. R.	33CVC	1125	Wed 4:00 PM	Shedd, L.	19STUDENT	S171	Sun 6:30 PM
Schubeck, K. A.	30WAF26NWP	649	Tue 4:00 PM	Shedd, L.	SLSSYMPOSIUM1	933	Tue 4:00 PM
Schueth, A.	SLSSYMPOSIUM1	1.5	Tue 9:30 AM	Sheets, K. L.	36EIPT	5B.1	Tue 10:30 AM
Schull, M. A.	34HYDRO	554	Tue 4:00 PM	Sheffield, A. M.	34HYDRO	J33.3	Wed 9:00 AM
Schultz, L. A.	16IMPACTS	2.5	Mon 11:30 AM	Shell, K. M.	10PYTHON	6.3	Wed 11:15 AM
Schultze, S.	25APPLIED	2.2	Mon 2:15 PM	Shen, B. W.	4PREDICTABILITY	3.3	Mon 2:30 PM
Schumacher, C.	TROPSYMP1	J31.1	Tue 3:00 PM	Shen, B. W.	8MJO	450	Mon 4:00 PM
Schumacher, D. L.	34HYDRO	2B.1	Mon 10:30 AM	Shen, L.	22ATCHEM	13A.3	Thu 11:00 AM
Schumacher, P. N.	16GOESRJPSS	1375	Wed 4:00 PM	Shen, S.	33CVC	1142	Wed 4:00 PM
Schumacher, P. N.	30WAF26NWP	13C.2	Thu 1:45 PM	Shen, X.	34HYDRO	44	Mon 4:00 PM
Schumacher, R. S.	25APPLIED	728	Tue 4:00 PM	Sheng, W.	34HYDRO	607	Tue 4:00 PM
Schumacher, R. S.	30WAF26NWP	12C.2	Thu 10:45 AM	Shepherd, J. M.	48BROADCAST	PD1.1	Tue 10:30 AM
Schumacher, R. S.	30WAF26NWP	J71.3	Thu 4:00 PM	Sherburn, K. D.	30WAF26NWP	1234	Wed 4:00 PM
Schvartzman, D.	36EIPT	8B.2	Wed 8:45 AM	Sherburn, K. D.	25APPLIED	6.1	Wed 8:30 AM
Schwab, J. J.	22ATCHEM	4B.5	Tue 9:30 AM	Sheridan, L. M.	11ENERGY	8.2	Tue 1:45 PM
Schwadron, N. A.	17SPACEWX	14.3	Thu 9:00 AM	Sheridan, W. M.	36EIPT	1039	Wed 4:00 PM
Schwartz, C. S.	26PROBSTAT	2.3	Mon 11:00 AM	Sherman, E. A.	19STUDENT	S112	Sun 6:30 PM
Schwartz, C. S.	SLSSYMPOSIUM1	4.3	Tue 3:30 PM	Sherman-Morris, K.	15SOCIETY	1387	Wed 4:00 PM
Schwartz, C. S.	30WAF26NWP	8C.6	Wed 11:45 AM	Sheshadri, A.	MIDDLESYMP	916	Tue 4:00 PM
Schwartz, C. S.	24IOAS	13.5	Thu 11:30 AM	Shi, J. J.	33CVC	109	Mon 4:00 PM
Schwartz, M. J.	MIDDLESYMP	907	Tue 4:00 PM	Shi, R.	11HEALTH	J18.1	Tue 10:30 AM
Sealls, A.	8WRN	J9.1	Mon 2:00 PM	Shi, Y.	12AEROSOL	7.4	Wed 11:15 AM
Seaman, M. P.	30WAF26NWP	J71.4	Thu 4:15 PM	Shi, Y.	10LIDAR	419	Mon 4:00 PM
Sears, M. J.	36EIPT	1035	Wed 4:00 PM	Shi, Y.	33CVC	104	Mon 4:00 PM
Seastrand, S.	30WAF26NWP	1190	Wed 4:00 PM	Shieh, O. H.	16IMPACTS	1.2	Mon 8:45 AM
Seaton, D. B.	17SPACEWX	12.3	Wed 2:00 PM	Shih, A. Y.	17SPACEWX	764	Tue 4:00 PM
Sebok, A. E.	19STUDENT	S23	Sun 6:30 PM	Shimizu, K.	20SMOI	8.2	Wed 8:45 AM
Sebol, A. E.	30WAF26NWP	7B.4	Wed 9:15 AM	Shivamoggi, R.	TROPSYMP1	867	Tue 4:00 PM
Seefeldt, M. W.	20SMOI	3.7	Mon 3:30 PM	Shontz, K.	16GOESRJPSS	8A.1	Wed 10:30 AM
Seefeldt, M. W.	33CVC	J35.1	Wed 8:30 AM	Shontz, K.	16GOESRJPSS	14A.4	Thu 4:15 PM
Segales, A. R.	20SMOI	348	Mon 4:00 PM	Shoup, C. G.	8MJO	1.4	Mon 9:15 AM
Segall, J. H.	SLSSYMPOSIUM1	923	Tue 4:00 PM	Shrestha, R.	18COASTAL	377	Mon 4:00 PM
Seibert, J. J.	30WAF26NWP	13C.4	Thu 2:15 PM	Shrivastava, M.	22ATCHEM	8B.3	Wed 9:00 AM
Seifried, T. M.	12AEROSOL	1444	Wed 4:00 PM	Shukla, R.	34HYDRO	3B.1	Mon 2:00 PM
Seitter, K.	18HISTORY	4.1	Tue 8:30 AM	Shukla, R.	33CVC	127	Mon 4:00 PM
Seitter, K.	23ASLI	3.2	Wed 10:45 AM	Sica, R. J.	10LIDAR	426	Mon 4:00 PM
Selin, N.	SOLOMONSYMP	4	Mon 4:00 PM	Sica, R. J.	10LIDAR	3.1	Wed 8:30 AM
Selkirk, H.	MIDDLESYMP	893	Tue 4:00 PM	Sidel, A.	19STUDENT	S10	Sun 6:30 PM
Sellwood, K.	20SMOI	5.6	Tue 11:45 AM	Siebert, A.	33CVC	112	Mon 4:00 PM
Semeter, J.	17SPACEWX	8.1	Tue 3:00 PM	Sieg, K. G.	18HISTORY	3.4	Mon 2:45 PM

PRESENTER INDEX

Conf.	Paper #	Day	Time
S (Continued)			
Siems-Anderson, A. R.	26PROBSTAT	3.6	Mon 3:30 PM
Sienkiewicz, J. M.	8WXCLIMATE	1.1	Mon 2:00 PM
Sierks, M.	33CVC	1164	Wed 4:00 PM
Silva, C. F. E.	15URBAN	1395	Wed 4:00 PM
Silva Dias, M. A. F.	34HYDRO	4A.1	Mon 3:00 PM
Silva Dias, M. A. F.	33CVC	J27.3	Tue 3:30 PM
Silva Dias, P. L.	SCHUBERTSYMP	4.4	Wed 3:45 PM
Silver, A.	15SOCIETY	13B.1	Thu 1:30 PM
Silvério, K. C.	5INTERNATIONAL	474	Mon 4:00 PM
Silvers, L.	SCHUBERTSYMP	1016	Wed 4:00 PM
Silvis, V. G.	15SOCIETY	786	Tue 4:00 PM
Simón-Moral, A.	15URBAN	5.3	Tue 11:15 AM
Simonson, J. M.	19STUDENT	S249	Sun 6:30 PM
Simonson, J. M.	30WAF26NWP	670	Tue 4:00 PM
Simpson, I. R.	33CVC	4C.1	Tue 8:30 AM
Simpson, M.	19AI	7A.2	Wed 8:45 AM
Simpson, R.	29EDUCATION	209	Mon 4:00 PM
Sims, C.	10R2O	9.2	Wed 10:45 AM
Sims, J.	25APPLIED	3.2	Tue 8:45 AM
Singh, A.	19AI	2B.7	Mon 3:30 PM
Singh, D. K.	34HYDRO	1072	Wed 4:00 PM
Sipprell, S. D.	8WXCLIMATE	6.1	Wed 10:30 AM
Sipprell, S. D.	34HYDRO	1098	Wed 4:00 PM
Sittenfeld, D. F.	8WRN	1.1	Mon 10:30 AM
Siuta, D. M.	11ENERGY	12.2	Wed 1:45 PM
Siuye, D.	33CVC	1136	Wed 4:00 PM
Sjoberg, B.	16GOESRJPSS	9A.3	Wed 2:00 PM
Sjoberg, J.	24IOAS	7B.4	Tue 3:45 PM
Skamarock, W. C.	30WAF26NWP	4A.1	Tue 10:30 AM
Skelly, K. T.	30WAF26NWP	673	Tue 4:00 PM
Skinner, P. S.	26PROBSTAT	3.4	Mon 3:00 PM
Skinner, P. S.	8WRN	4.3	Tue 3:30 PM
Skinner, P. S.	10R2O	11A.3	Wed 3:30 PM
Skolnik, S.	15URBAN	11A.1	Wed 3:00 PM
Skrovan, C. A.	26PROBSTAT	8.3	Wed 3:30 PM
Slingo, J. M.	8MJO	1.1	Mon 8:30 AM
Slinsky, E. A.	33CVC	6A.1	Tue 1:30 PM
Slinski, K.	34HYDRO	12.4	Thu 9:15 AM
Slivinski, L. C.	24IOAS	6A.4	Tue 2:15 PM
Sloan, V.	29EDUCATION	3.3	Tue 9:00 AM
Slocum, C. J.	19AI	J43.1	Wed 10:30 AM
Slocum, C. J.	SCHUBERTSYMP	1000	Wed 4:00 PM
Sluka, T.	8JCSDA	825	Tue 4:00 PM
Smalley, D. J.	20ARAM	8.1	Wed 8:30 AM
Smirnova, T. G.	34HYDRO	599	Tue 4:00 PM
Smith, A. B.	11HEALTH	J18.5	Tue 11:30 AM
Smith, A. K.	SOLOMONSYMP	23	Mon 4:00 PM
Smith, B. A.	20ARAM	7.3	Tue 3:45 PM
Smith, C. D.	20SMOI	12.1	Thu 8:30 AM
Smith, C. D.	20SMOI	12.4	Thu 9:15 AM
Smith, D. C.	15SOCIETY	3A.4	Mon 3:00 PM
Smith, D.	36EIP	J63.3	Thu 11:00 AM
Smith, E. D.	24IOAS	10.3	Wed 2:00 PM
Smith, E. N.	10LIDAR	429	Mon 4:00 PM
Smith, E. N.	SLSSYMP0SIUM1	938	Tue 4:00 PM
Smith, J. A.	34HYDRO	7.1	Tue 1:30 PM
Smith, J. A.	26PROBSTAT	5.2	Tue 10:45 AM
Smith, J. B.	SOLOMONSYMP	32	Mon 4:00 PM
Smith, M. R.	11ENERGY	2.3	Mon 11:00 AM
Smith, M. J.	19STUDENT	S51	Sun 6:30 PM
Smith, M.	24IOAS	249	Mon 4:00 PM
Smith, M. B.	10R2O	11B.4	Wed 3:45 PM
Smith, R.	15SOCIETY	PD3.1	Tue 10:30 AM
Smith, R. B.	18HISTORY	7.3	Tue 3:30 PM
Smith, T. M.	10R2O	9.4	Wed 11:15 AM
Smyth, E. J.	34HYDRO	1085	Wed 4:00 PM
Snook, N.	30WAF26NWP	2B.1	Tue 2:00 PM
Snook, N.	10R2O	807	Tue 4:00 PM
Snyder, C.	8JCSDA	3.5	Tue 11:30 AM
Sobash, R. A.	19AI	3B.3	Tue 9:00 AM
Sobash, R. A.	36EIP	7B.2	Tue 3:15 PM
Sobel, A. H.	8MJO	451	Mon 4:00 PM
Sobel, A. H.	TROPSYMP1	3.1	Wed 8:30 AM
Sobel, A. H.	33CVC	8A.3	Wed 11:00 AM

Conf.	Paper #	Day	Time
S (Continued)			
Sodhi, J. S.	24IOAS	4A.4	Tue 9:15 AM
Soebiyanto, R.	11HEALTH	4.2	Tue 8:45 AM
Sokolowsky, G. A.	12AEROSOL	10.3	Thu 11:00 AM
Soldo, L.	33CVC	1126	Wed 4:00 PM
Solimane, S. L.	30WAF26NWP	13A.4	Thu 2:15 PM
Solomon, S. C.	SOLOMONSYMP	31	Mon 4:00 PM
Solomon, S.	SOLOMONSYMP	3.7	Mon 3:30 PM
Solum, M.	8WRN	2.4	Tue 11:15 AM
Sompan, A.	30WAF26NWP	1243	Wed 4:00 PM
Son, S. W.	MIDDLESYMP	2.3	Tue 11:30 AM
Song, M. J.	30WAF26NWP	188	Mon 4:00 PM
Song, X.	34HYDRO	83	Mon 4:00 PM
Sonnenfroh, D. M.	10LIDAR	4.2	Wed 11:00 AM
Sospedra-Alfonso, R.	33CVC	2B.4	Mon 11:30 AM
Soster, F. L.	34HYDRO	14B.5	Thu 2:30 PM
Souders, M.	11ENERGY	1449	Wed 4:00 PM
Sousounis, P. J.	33CVC	9A.4	Wed 2:15 PM
Spann, J.	17SPACEWX	2.1	Mon 10:30 AM
Spann, J.	17SPACEWX	6.4	Tue 11:15 AM
Speciale, C.	30WAF26NWP	151	Mon 4:00 PM
Spencer, M. R.	20SMOI	3.4	Mon 2:45 PM
Spera, S.	33CVC	1B.6	Mon 9:45 AM
Spero, T. L.	4PREDICTABILITY	2.3	Mon 11:00 AM
Spero, T. L.	11HEALTH	408	Mon 4:00 PM
Sperow, K. S.	10R2O	6A.3	Tue 2:00 PM
Spicer, T.	21AIRPOL	5.5	Tue 9:30 AM
Spieess, C. S.	19STUDENT	S27	Sun 6:30 PM
Spinney, J. A.	15SOCIETY	3A.3	Mon 2:45 PM
Spitzak, M.	20ARAM	1343	Wed 4:00 PM
Spooner, B.	36EIP	36	Mon 4:00 PM
Sporer, M. B.	36EIP	9A.2	Wed 10:45 AM
Spotts, J. R.	TROPSYMP1	857	Tue 4:00 PM
Sprague-Hilderbrand, J.	15SOCIETY	PD4.2	Tue 10:30 AM
Sprague-Hilderbrand, J.	15SOCIETY	5.3	Tue 2:00 PM
Springer, T.	30WAF26NWP	1184	Wed 4:00 PM
Springer, T.	29EDUCATION	1262	Wed 4:00 PM
Squitiari, B. J.	30WAF26NWP	8A.3	Wed 11:00 AM
Srinivasan, M. M.	11HEALTH	3.8	Mon 3:45 PM
Srock, A. F.	29EDUCATION	PD1.7	Mon 8:30 AM
Sroka, S.	TROPSYMP1	4.3	Wed 3:30 PM
St. Germain, K.	16GOESRJPSS	7A.1	Wed 8:30 AM
St. Germain, K.	8WXCLIMATE	3A.3	Tue 2:15 PM
Stachelski, C.	20SMOI	11.1	Wed 3:00 PM
Stajner, I.	30WAF26NWP	665	Tue 4:00 PM
Stajner, I.	22ATCHEM	9B.1	Wed 10:30 AM
Stalker, J. R.	4PREDICTABILITY	3.4	Mon 2:45 PM
Stanfield, T. J.	19STUDENT	S72	Sun 6:30 PM
Stanford, M. W.	SCHUBERTSYMP	1013	Wed 4:00 PM
Stano, G. T.	20SMOI	2.4	Mon 11:15 AM
Stano, G. T.	36EIP	J63.5	Thu 11:30 AM
Staten, P. W.	DICKINSONSYMP	506	Tue 4:00 PM
Stauffer, R. M.	22ATCHEM	4A.3	Tue 9:00 AM
Stauffer, R. M.	22ATCHEM	5B.3	Tue 11:15 AM
Steele, L. E.	30WAF26NWP	13A.1	Thu 1:30 PM
Steenburgh, W. J.	30WAF26NWP	178	Mon 4:00 PM
Steenburgh, W. J.	30WAF26NWP	4B.5	Tue 11:30 AM
Steeves, N.	19STUDENT	S42	Sun 6:30 PM
Steeves, R. B.	36EIP	1042	Wed 4:00 PM
Stefanova, L.	33CVC	1180	Wed 4:00 PM
Steffen, J. D.	8MJO	453	Mon 4:00 PM
Steffen, K. R.	18COASTAL	10.2	Wed 1:45 PM
Stegmann, P.	8JCSDA	2.3	Tue 9:45 AM
Steiger, S. M.	29EDUCATION	1251	Wed 4:00 PM
Steinbugl, M.	36EIP	39	Mon 4:00 PM
Steinbugl, M.	20ARAM	1340	Wed 4:00 PM
Steiner, M.	20ARAM	4.1	Tue 8:30 AM
Steinkruger, D. J.	19AI	1B.4	Mon 11:45 AM
Steinmann, K. M.	22ATCHEM	1279	Wed 4:00 PM
Stellman, K. M.	8WRN	3.3	Tue 2:00 PM
Stepanek, A. J.	29EDUCATION	1254	Wed 4:00 PM
Stephens, G. L.	4PREDICTABILITY	J14.1	Tue 8:30 AM
Stern, D. P.	TROPSYMP1	3.6	Wed 9:45 AM
Stern, H.	8WXCLIMATE	440	Mon 4:00 PM

Conf.

Paper #

Day

Time

S (Continued)

Stern, H.

11ENERGY

15.2

Thu 10:45 AM

Stevermer, A.

16GOESRJPSS

10.2

Wed 3:15 PM

Stewart, I. D.

15URBAN

14.1

Thu 1:30 PM

Stewart, J. Q.

19AI

4.5

Tue 11:30 AM

Stewart, J. Q.

36EPT

6A.2

Tue 1:45 PM

Stewart, J.

15URBAN

1400

Wed 4:00 PM

Stiles, C. J.

25APPLIED

1.3

Mon 11:00 AM

Stinnett, S. N.

19STUDENT

S150

Sun 6:30 PM

Stitely, N. A.

17SPACEWX

773

Tue 4:00 PM

Stith, J. L.

18HISTORY

4.2

Tue 8:45 AM

Stock, M.

30WAF26NWP

156

Mon 4:00 PM

Stoffler, R. O.

17SPACEWX

1.1

Mon 8:30 AM

Stoffler, R. O.

36EPT

2A.2

Mon 10:45 AM

Stokes, A.

19STUDENT

S131

Sun 6:30 PM

Stokes, A. K.

34HYDRO

15A.6

Thu 4:45 PM

Stolarski, N.

19STUDENT

S148

Sun 6:30 PM

Stone, K. A.

SOLOMONSYMP

9

Mon 4:00 PM

Stone, K.

20ARAM

11.3

Thu 11:00 AM

Stone, R. H.

22WXMOD

6.3

Thu 11:00 AM

Stoner, A. M. K.

30WAF26NWP

3A.3

Mon 3:30 PM

Stoner, A. M. K.

15SOCIETY

8.6

Wed 11:45 AM

Stoner, A. M. K.

15URBAN

11A.2

Wed 3:30 PM

Storer, R. L.

TROPSYMP1

J48.3

Wed 2:00 PM

Stoss, F.

23ASLI

6.1

Thu 1:30 PM

Stossmeister, G.

20SMOI

308

Mon 4:00 PM

Stovern, D. R.

36EPT

5A.6

Tue 11:45 AM

Stow, J. P.

TROPSYMP1

880

Tue 4:00 PM

Stoy, P.

22ATCHEM

8B.4

Wed 9:15 AM

Strader, S. M.

15SOCIETY

12B.3

Thu 11:00 AM

Straka, W.

16GOESRJPSS

5.2

Tue 1:45 PM

Stranberg, R. C.

11HEALTH

6.3

Tue 3:30 PM

Stratman, D. R.

24IOAS

234

Mon 4:00 PM

Stratman, D. R.

24IOAS

9.2

Wed 11:00 AM

Straus, D. M.

4PREDICTABILITY

J19.2

Tue 11:00 AM

Straus, P. R.

24IOAS

6B.4

Tue 2:15 PM

Strazzo, S.

33CVC

622

Tue 4:00 PM

Stringer, M.

16GOESRJPSS

8A.2

Wed 10:45 AM

Strobach, E.

30WAF26NWP

669

Tue 4:00 PM

Strom, D. C.

26PROBSTAT

3.2

Mon 2:30 PM

Strong, J. D. O.

TROPSYMP1

1505

Wed 4:00 PM

Strybos, J.

29EDUCATION

1261

Wed 4:00 PM

Stuck, A. V.

19STUDENT

S155

Sun 6:30 PM

Stuivenvold Allen, J.

33CVC

2C.3

Mon 11:00 AM

Stumpf, G. J.

30WAF26NWP

J51.1

Wed 3:00 PM

Su, H.

22ATCHEM

14A.2

Thu 1:45 PM

Su, S. H.

26PROBSTAT

J22.3

Tue 1:45 PM

Su, T.

10LIDAR

3.6

Wed 9:45 AM

Su, T.

24IOAS

14.1

Thu 1:30 PM

Sublette, S.

48BROADCAST

PD2.1

Wed 3:00 PM

Suematsu, T.

SCHUBERTSYMP

1021

Wed 4:00 PM

Sulca, J. C.

33CVC

5B.6

Tue 11:45 AM

Sulca, J. C.

34HYDRO

590

Tue 4:00 PM

Sullivan, P.

16GOESRJPSS

J13.3

Tue 9:15 AM

Sullivan, P.

16GOESRJPSS

7A.3

Wed 9:00 AM

Sullivan, S.

20SMOI

314

Mon 4:00 PM

Sumrall, P.

SLSSYMP0SIUM1

991

Tue 4:00 PM

Sun, B.

12AEROSOL

1413

Wed 4:00 PM

Sun, B.

20SMOI

344

Mon 4:00 PM

Sun, C.

33CVC

1145

Wed 4:00 PM

Sun, F.

DICKINSONSYMP

499

Tue 4:00 PM

Sun, F.

15URBAN

8A.5

Wed 9:30 AM

Sun, J.

21AIRPOL

15.4

Thu 4:15 PM

Sun, J.

24IOAS

9.1

Wed 10:30 AM

Sun, K.

22ATCHEM

11.2

Wed 3:15 PM

Sun, Q.

33CVC

129

Mon 4:00 PM

Sun, R.

30WAF26NWP

1241

Wed 4:00 PM

Sun, S.

36EPT

3A.6

Mon 3:15 PM

Sun, S.

12AEROSOL

11.3

Thu 2:00 PM

Sun, X.

30WAF26NWP

199

Mon 4:00 PM

Sun, Y.

15URBAN

791

Tue 4:00 PM

Sun, Y.

TROPSYMP1

850

Tue 4:00 PM

Sung-Ho, W.

33CVC

1147

Wed 4:00 PM

Suplinski, C.

36EPT

35

Mon 4:00 PM

Sussman, H. S.

15URBAN

796

Tue 4:00 PM

Conf.

Paper #

Day

Time

S (Continued)

Suzuki, K.

20SMOI

315

Mon 4:00 PM

Sweeney, A.

10PYTHON

2.3

Mon 2:30 PM

Sweeney, C.

22ATCHEM

4B.4

Tue 9:15 AM

Swenson, E. T.

33CVC

3A.6

Mon 3:15 PM

Szoke, E.

30WAF26NWP

8B.4A

Wed 11:15 AM

Szoke, E.

16GOESRJPSS

4.2

Tue 11:00 AM

Szunyogh, I.

4PREDICTABILITY

1.2

Mon 9:15 AM

Szunyogh, I.

33CVC

3B.8

Mon 3:45 PM

T

Taalas, P.

5INTERNATIONAL

JPD1.1

Mon 2:00 PM

Tabata, T.

16GOESRJPSS

9B.3

Wed 2:00 PM

Taft, R. K.

SCHUBERTSYMP

1025

Wed 4:00 PM

Taghavi, F.

34HYDRO

53

Mon 4:00 PM

Tai, S. L.

24IOAS

4B.4

Tue 9:15 AM

Tajiri, T.

22WXMOD

5.2

Thu 8:45 AM

Takahashi, H.

12AEROSOL

1423

Wed 4:00 PM

Takane, Y.

15URBAN

15.3

Thu 4:15 PM

Takashima, Y.

20SMOI

330

Mon 4:00 PM

Taku, L.

19STUDENT

S101

Sun 6:30 PM

Talaat, D. E. R.

10R2O

PD1.3

Tue 8:30 AM

Talaat, E.

10R2O

5B.1

Tue 10:30 AM

Talaat, E.

10R2O

5B.2

Tue 11:00 AM

Talaat, E. R.

17SPACEWX

1.5

Mon 9:30 AM

Talebpour, M.

15URBAN

7.2

Tue 3:15 PM

Tallapragada, L.

19STUDENT

S212

Sun 6:30 PM

Tallapragada, V.

36EPT

4B.5

Tue 9:30 AM

Tallapragada, V.

10R2O

5A.2

Tue 10:45 AM

Tallapragada, V.

30WAF26NWP

J36.2

Wed 9:00 AM

Tamayo, J.

5INTERNATIONAL

1.2

Tue 8:45 AM

Tamburri, C. A.

17SPACEWX

770

Tue 4:00 PM

Tan, C. Jr.

22WXMOD

1313

Wed 4:00 PM

Tan, J.

34HYDRO

15B.1

Thu 3:30 PM

Tan, Y.

33CVC

135

Mon 4:00 PM

Tanamachi, R.

SLSSYMP0SIUM1

926

Tue 4:00 PM

Tanelli, S.

10R2O

J1.1

Mon 8:30 AM

Tang, B. H.

33CVC

9A.3

Wed 2:00 PM

Tang, C.

DICKINSONSYMP

493

Tue 4:00 PM

Tang, J.

36EPT

1040

Wed 4:00 PM

Tang, L.

36EPT

13B.3

Thu 11:00 AM

Tang, Q.

12AEROSOL

1415

Wed 4:00 PM

Tang, R.

22ATCHEM

277

Mon 4:00 PM

Tang, X.

TROPSYMP1

1503

Wed 4:00 PM

Tang, X.

TROPSYMP1

1504

Wed 4:00 PM

Tang, Y.

8WXCLIMATE

438

Mon 4:00 PM

Tangdamrongsub, N.

34HYDRO

605

Tue 4:00 PM

Tao, Z.

22ATCHEM

9B.4

Wed 11:15 AM

Taraphdar, S.

33CVC

J34.6

Wed 9:45 AM

Taraphdar, S.

22WXMOD

1303

Wed 4:00 PM

Tardy, A. O.

8WRN

10.5

Thu 11:30 AM

Taylor, A. A.

18COASTAL

4.1

Tue 8:30 AM

Taylor, J.

30WAF26NWP

1231

Wed 4:00 PM

Taylor, M. N.

8WRN

J9.3

Mon 2:30 PM

Taylor, M. N.

8WRN

7.1

Wed 1:30 PM

Taylor, P. C.

33CVC

3A.3

Mon 2:30 PM

Taylor, P. A.

21AIRPOL

14.5

Thu 2:30 PM

Taziny, A.

17SPACEWX

778

Tue 4:00 PM

Teale, N.

34HYDRO

13B.5

Thu 11:30 AM

Temimi, M.

20SMOI

1.2

Mon 8:45 AM

Ten Hoeve, J. E. III

8WRN

3.1

Tue 1:30 PM

Teng, H. F.

24IOAS

239

Mon 4:00 PM

Tennyson, S. S.

19STUDENT

S121

Sun 6:30 PM

Tervo, R.

36EPT

J49.4

Wed 3:45 PM

Tervo, R.

19AI

J61.3

Thu 9:00 AM

Tesfa, T. K.

DICKINSONSYMP

518

Tue 4:00 PM

Tessendorf, S. A.

22WXMOD

3.3

Tue 11:00 AM

Tetreault, B.

8WXCLIMATE

1.2

Mon 2:15 PM

Tewari, M.

34HYDRO

52

Mon 4:00 PM

Tewksbury, N.

19STUDENT

S96

Sun 6:30 PM

Thaler, V. M.

DICKINSONSYMP

481

Tue 4:00 PM

PRESENTER INDEX

	Conf.	Paper #	Day	Time
T (Continued)				
Thayer, J. D.	TROPSYMP1	837	Tue	4:00 PM
Theisen, A.	10PYTHON	2.4	Mon	2:45 PM
Thiaw, W. M.	11HEALTH	7.4	Wed	11:15 AM
Thiaw, W. M.	8WXCLIMATE	8.3	Wed	3:30 PM
Thiel, K.	16GOESRJPSS	6.3	Tue	3:30 PM
Thielen, J. E.	30WAF26NWP	J68.5	Thu	2:30 PM
Thobois, L.	10LIDAR	418	Mon	4:00 PM
Thobois, L.	20ARAM	4.6	Tue	9:45 AM
Thoman, R. Jr.	33CVC	2C.4	Mon	11:15 AM
Thomas, A. M.	TROPSYMP1	852	Tue	4:00 PM
Thomas, A. W.	11ENERGY	15.1	Thu	10:30 AM
Thomas, C.	24IOAS	13.1	Thu	10:30 AM
Thomas, J. R.	16GOESRJPSS	10.1	Wed	3:00 PM
Thomas, N.	33CVC	J21.2	Tue	1:45 PM
Thompson, A. M.	SOLOMONSYMP	14	Mon	4:00 PM
Thompson, B. J.	17SPACEWX	763	Tue	4:00 PM
Thompson, C.	19STUDENT	S183	Sun	6:30 PM
Thompson, D. W. J.	SOLOMONSYMP	3.3	Mon	2:30 PM
Thompson, G.	20ARAM	1.3	Mon	9:30 AM
Thompson, G.	20ARAM	13.6	Thu	4:45 PM
Thompson, R.	48BROADCAST	8.2	Wed	1:45 PM
Thompson, R.	48BROADCAST	8.4	Wed	2:15 PM
Thompson, S.	8WRN	8.1	Wed	3:00 PM
Thompson, T. R.	15SOCIETY	3B.6	Mon	3:15 PM
Thornton, A. E. II	19STUDENT	S195	Sun	6:30 PM
Thurston, S. W.	10R2O	PD2.4	Wed	10:30 AM
Tian, B.	35MALLSATS	2.4	Thu	11:15 AM
Tian, Y.	34HYDRO	85	Mon	4:00 PM
Tian, Y.	34HYDRO	553	Tue	4:00 PM
Tierney, G.	33CVC	3B.2	Mon	2:15 PM
Tillier, C. E.	16GOESRJPSS	4.1	Tue	10:30 AM
Tilmes, S.	DICKINSONSYMP	J25.1	Tue	3:00 PM
Timlin, M. S.	25APPLIED	7.4	Wed	11:15 AM
Timofeyeva, M.	36EIPT	2A.5	Mon	11:30 AM
Timofeyeva, M.	5INTERNATIONAL	1.5	Tue	9:30 AM
Timofeyeva, M.	25APPLIED	4.6	Tue	11:45 AM
Ting, M.	TROPSYMP1	3.2	Wed	8:45 AM
Tirone, E.	SLSSYMP1	970	Tue	4:00 PM
Tissot, P.	19AI	365	Mon	4:00 PM
Tissot, P. E.	19AI	6.2	Tue	3:30 PM
Tobin, D. M.	36EIPT	2B.2	Mon	10:45 AM
Tobiska, W. K.	17SPACEWX	10.2	Wed	10:45 AM
Tochimoto, E.	SLSSYMP1	954	Tue	4:00 PM
Todey, D.	25APPLIED	7.2	Wed	10:45 AM
Todey, D.	25APPLIED	7.5	Wed	11:30 AM
Tolman, H. L.	10R2O	8A.2	Wed	9:00 AM
Tolman, H. L.	30WAF26NWP	13B.1	Thu	1:30 PM
Tolwinski-Ward, S.	TROPSYMP1	1531	Wed	4:00 PM
Toma, V.	11ENERGY	4.3	Mon	3:30 PM
Tomalak, D. T.	36EIPT	5A.5	Tue	11:30 AM
Tomaszewski, J. M.	11ENERGY	1450	Wed	4:00 PM
Tomaszewski, J. M.	11ENERGY	16.5	Thu	2:30 PM
Tomczyk, S.	17SPACEWX	16.5	Thu	4:30 PM
Tomoff, A.	8MJO	470	Mon	4:00 PM
Toms, B. A.	33CVC	5C.4	Tue	11:30 AM
Toms, B. A.	26PROBSTAT	J37.5	Wed	9:30 AM
Tong, C. C.	30WAF26NWP	666	Tue	4:00 PM
Tong, D.	22ATCHEM	9B.3	Wed	11:00 AM
Tongue, J. S.	36EIPT	J32.1	Wed	8:30 AM
Tonttila, J.	22WXMOD	4.1	Tue	1:30 PM
Toohey, D. W.	22ATCHEM	1300	Wed	4:00 PM
Toohey-Morales, J.	8WXCLIMATE	J5.1	Mon	10:30 AM
Toon, O. B.	33CVC	3A.8	Mon	3:45 PM
Toon, O. B.	MIDDLESYMP	2.2	Tue	11:00 AM
Torn, R. D.	30WAF26NWP	12C.4	Thu	11:15 AM
Torok, T.	17SPACEWX	10.3	Wed	11:00 AM
Torres, J.	16GOESRJPSS	10.4	Wed	3:45 PM
Torres, J.	16GOESRJPSS	11A.2	Thu	8:45 AM
Torres, K.	19STUDENT	S22	Sun	6:30 PM
Torres, M.	8WXCLIMATE	J5.4	Mon	11:15 AM
Torres, S. M.	36EIPT	8B.1	Wed	8:30 AM
Torri, G.	TROPSYMP1	833	Tue	4:00 PM
Toth, T. D.	10LIDAR	5.2	Wed	1:45 PM
Toth, Z.	4PREDICTABILITY	3.6	Mon	3:15 PM

	Conf.	Paper #	Day	Time
T (Continued)				
Touma, D.	TROPSYMP1	J44.2	Wed	10:45 AM
Towey, K. L.	34HYDRO	1056	Wed	4:00 PM
Toy, M. D.	30WAF26NWP	659	Tue	4:00 PM
Trabing, B. C.	TROPSYMP1	834	Tue	4:00 PM
Trabing, B. C.	30WAF26NWP	1219	Wed	4:00 PM
Trapp, R. J.	SLSSYMP1	4.4	Tue	3:45 PM
Trask, T.	19STUDENT	S99	Sun	6:30 PM
Treinish, L.	10R2O	5A.5	Tue	11:30 AM
Trémolet, Y.	8JCSDA	3.1	Tue	10:30 AM
Trepanier, J.	29EDUCATION	215	Mon	4:00 PM
Trevelyan, P. J.	36EIPT	J56.4	Thu	9:15 AM
Trier, S.	20ARAM	9.1	Wed	3:00 PM
Trojniak, S.	10R2O	3A.3	Mon	2:30 PM
Tropea, B. A.	19STUDENT	S257	Sun	6:30 PM
Trostel, J. M.	29EDUCATION	PD1.3	Mon	8:30 AM
Trujillo, J. E.	8WXCLIMATE	J5.6	Mon	11:45 AM
Trujillo, J. E.	8WXCLIMATE	J8.4	Mon	2:45 PM
Trujillo, J. E.	15SOCIETY	12A.5	Thu	11:30 AM
Tsai, C.	26PROBSTAT	4.6	Tue	9:45 AM
Tubbs, H.	TROPSYMP1	875	Tue	4:00 PM
Tucker, S. C.	16GOESRJPSS	14B.4	Thu	4:15 PM
Tuftedal, K. S.	SLSSYMP1	927	Tue	4:00 PM
Tuftedal, M. E.	22WXMOD	1316	Wed	4:00 PM
Tuononen, M.	20SMOI	1.1	Mon	8:30 AM
Turk, F. J.	24IOAS	4B.2	Tue	8:45 AM
Turnau, R. W.	33CVC	1148	Wed	4:00 PM
Turner, D. D.	10LIDAR	6.1	Wed	3:00 PM
Turner, J. D.	19STUDENT	S97	Sun	6:30 PM
Turner, R. D.	18HISTORY	8.2	Wed	9:00 AM
Turner, V. K.	15URBAN	1.3	Mon	9:00 AM
Tuttle, S.	34HYDRO	10B.5	Wed	11:30 AM
Tweedy, O. V.	MIDDLESYMP	898	Tue	4:00 PM
Twohey, L.	19STUDENT	S164	Sun	6:30 PM
Twohy, C. H.	12AEROSOL	12.1	Thu	2:15 PM
Tyndall, D. P.	24IOAS	235	Mon	4:00 PM
U				
Uccellini, L.	17SPACEWX	2.3	Mon	11:00 AM
Uccellini, L. W.	36EIPT	1A.2	Mon	9:00 AM
Uccellini, L. W.	10R2O	8B.1	Wed	8:30 AM
Ueckermann, M. P.	36EIPT	534	Tue	4:00 PM
Uejio, C.	11HEALTH	2.4	Mon	11:15 AM
Ueyama, R.	MIDDLESYMP	891	Tue	4:00 PM
Uhlhorn, E. W.	TROPSYMP1	1530	Wed	4:00 PM
Umo, N. S.	12AEROSOL	1.1	Mon	8:30 AM
Umphlett, N. A.	25APPLIED	719	Tue	4:00 PM
Underwood, K.	18HISTORY	2.4	Mon	11:15 AM
Underwood, K. H.	10LIDAR	421	Mon	4:00 PM
Ungar, M.	25APPLIED	2.6	Mon	3:15 PM
Unger, D. A.	26PROBSTAT	6.5	Wed	11:45 AM
Unuma, T.	30WAF26NWP	149	Mon	4:00 PM
Upreti, S.	10R2O	3B.1	Mon	2:00 PM
Usmani, H.	19AI	11B.2	Thu	3:45 PM
V				
Vagasky, C.	48BROADCAST	6.1	Wed	8:45 AM
Vagasky, C.	20SMOI	11.4	Wed	3:45 PM
Valayamkunnath, P.	34HYDRO	73	Mon	4:00 PM
Valayamkunnath, P.	34HYDRO	13A.5	Thu	11:30 AM
Valencia, J. M.	30WAF26NWP	197	Mon	4:00 PM
Vallee, D. R.	34HYDRO	1097	Wed	4:00 PM
Vallier-Talbot, E.	29EDUCATION	1.5	Mon	11:30 AM
Van Cooten, S.	34HYDRO	2A.4	Mon	11:15 AM
Van Cooten, S.	34HYDRO	6A.2	Tue	10:45 AM
van der Linden, R.	18COASTAL	9.4	Wed	11:00 AM
van der Linden, R.	30WAF26NWP	12C.1	Thu	10:30 AM
Van der Westhuisen, A. J.	18COASTAL	1.4	Mon	9:15 AM

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
V (Continued)				W (Continued)			
Van der Westhuisen, A. J.	18COASTAL	10.4	Wed 2:15 PM	Wakefield, R. A.	34HYDRO	81	Mon 4:00 PM
Van Kleeck, R. H.	21AIRPOL	291	Mon 4:00 PM	Wakefield, R. A.	34HYDRO	14A.4	Thu 2:15 PM
Van Leeuwen, P. J.	24IOAS	3.5	Mon 3:00 PM	Waldstreicher, J. S.	30WAF26NWP	192	Mon 4:00 PM
van Lier-Walqui, M.	26PROBSTAT	J22.4	Tue 2:00 PM	Wales, P.	22ATCHEM	12A.1	Thu 8:30 AM
Van Oevelen, P. J.	34HYDRO	11.2	Wed 3:15 PM	Waliser, D. E.	8WXCLIMATE	7B.3	Wed 2:00 PM
Van Rompay, P. A.	16GOESRJPSS	1372	Wed 4:00 PM	Walker, A.	19STUDENT	S64	Sun 6:30 PM
VanBuskirk, O. G.	19STUDENT	S63	Sun 6:30 PM	Walker, A. M.	15SOCIETY	3B.7	Mon 3:30 PM
VanBuskirk, O. G.	26PROBSTAT	1.1	Mon 8:30 AM	Walker, C. L.	36EIP	2B.3	Mon 11:00 AM
Vandal, T.	19AI	3A.6	Tue 9:45 AM	Walker, Z. E.	21AIRPOL	297	Mon 4:00 PM
vandenbergh, F.	8JCSDA	822	Tue 4:00 PM	Walker-Hannon, L. M.	19AI	11A.1	Thu 3:30 PM
vandenbergh, F.	8JCSDA	828	Tue 4:00 PM	Wallace, C.	17SPACEWX	7.1	Tue 1:30 PM
Vanos, J.	11HEALTH	1.5	Mon 9:45 AM	Wallace, R. W.	SLSSYMPOSIUM1	976	Tue 4:00 PM
Varentsov, M.	15URBAN	9A.6	Wed 11:45 AM	Wallington, T. J.	18HISTORY	5.2	Tue 10:45 AM
Varentsov, M.	15URBAN	11B.4	Wed 3:45 PM	Walsh, J. E.	18HISTORY	7.4	Tue 3:45 PM
Vasys, M.	29EDUCATION	214	Mon 4:00 PM	Walters, M.	30WAF26NWP	689	Tue 4:00 PM
Vaucher, G.	11ENERGY	1.1	Mon 8:45 AM	Walters, W. W.	22ATCHEM	3B.2	Mon 2:15 PM
Vaughan, M. T.	19STUDENT	S43	Sun 6:30 PM	Wan, X.	30WAF26NWP	1206	Wed 4:00 PM
Vaughan, M. T.	30WAF26NWP	686	Tue 4:00 PM	Wandishin, M. S.	26PROBSTAT	2.2	Mon 10:45 AM
Veillette, M. S.	19AI	J69.3	Thu 2:00 PM	Wang, A.	SLSSYMPOSIUM1	957	Tue 4:00 PM
Velez-Pardo, M.	TROPSYMP1	847	Tue 4:00 PM	Wang, C.	DICKINSONSYMP	484	Tue 4:00 PM
Venable, D. K.	12AEROSOL	11.1	Thu 1:30 PM	Wang, C.	21AIRPOL	2.5	Mon 11:30 AM
Veneziano, J.	15URBAN	400	Mon 4:00 PM	Wang, C.	19AI	1358	Wed 4:00 PM
Ventrice, M. J.	29EDUCATION	207	Mon 4:00 PM	Wang, C.	19AI	2B.5	Mon 3:00 PM
Ventrice, M. J.	30WAF26NWP	694	Tue 4:00 PM	Wang, C.	12AEROSOL	J29.4	Tue 3:45 PM
Ventrice, M. J.	30WAF26NWP	14C.2	Thu 3:45 PM	Wang, C.	33CVC	12.1	Thu 10:30 AM
Vera, C.	15SOCIETY	1.1	Mon 8:30 AM	Wang, D.	TROPSYMP1	1499	Wed 4:00 PM
Vera, C.	33CVC	3A.7	Mon 3:30 PM	Wang, E.	SLSSYMPOSIUM1	925	Tue 4:00 PM
Vera, C.	33CVC	J27.2	Tue 3:15 PM	Wang, F.	33CVC	617	Tue 4:00 PM
Verdin, J. P.	34HYDRO	10A.2	Wed 10:45 AM	Wang, F.	21AIRPOL	1323	Wed 4:00 PM
Vergara, H.	30WAF26NWP	J71.5	Thu 4:30 PM	Wang, G.	34HYDRO	2B.5	Mon 11:30 AM
Vermote, E.	34HYDRO	12.1	Thu 8:30 AM	Wang, G.	DICKINSONSYMP	489	Tue 4:00 PM
Vernieres, G.	8JCSDA	1.3	Tue 9:00 AM	Wang, G.	36EIP	5B.6	Tue 11:45 AM
Vieux, B. E.	TROPSYMP1	J44.5	Wed 11:30 AM	Wang, J.	22ATCHEM	10A.3	Wed 2:00 PM
Vigh, J. L.	8WRN	5.5	Wed 9:30 AM	Wang, J.	24IOAS	243	Mon 4:00 PM
Vignoles, D.	10PYTHON	3.2	Tue 10:45 AM	Wang, J. J.	33CVC	5B.3	Tue 11:00 AM
Vila-Guerau de Arellano, J.	34HYDRO	4A.4	Mon 3:45 PM	Wang, J.	19AI	J60.3	Thu 8:45 AM
Vila-Guerau de Arellano, J.	21AIRPOL	1.4	Mon 9:30 AM	Wang, J. W. A.	30WAF26NWP	651	Tue 4:00 PM
Villardell Sanchez, J.	20SMOI	1.3	Mon 9:00 AM	Wang, J.	10R2O	435	Mon 4:00 PM
Villaescusa-Nadal, J. L.	34HYDRO	1104	Wed 4:00 PM	Wang, J.	6HPC	J55.4	Wed 3:45 PM
Vimont, D. J.	33CVC	4B.5	Tue 9:30 AM	Wang, J.	30WAF26NWP	1205	Wed 4:00 PM
Vincent, C. L.	18COASTAL	7.2	Tue 3:15 PM	Wang, J.	15URBAN	788	Tue 4:00 PM
Viner, K.	30WAF26NWP	6A.1	Tue 3:00 PM	Wang, J.	33CVC	10A.3	Wed 3:30 PM
Vinogradov, S. V.	18COASTAL	3.2	Mon 2:15 PM	Wang, J.	20SMOI	14.3	Thu 2:00 PM
Vinoj, V.	15URBAN	14.5	Thu 2:45 PM	Wang, J.	21AIRPOL	5.6	Tue 9:45 AM
Vintzileos, A.	34HYDRO	1107	Wed 4:00 PM	Wang, K.	22ATCHEM	287	Mon 4:00 PM
Virts, K. S.	TROPSYMP1	832	Tue 4:00 PM	Wang, K.	DICKINSONSYMP	512	Tue 4:00 PM
Viterbo, F.	34HYDRO	1087	Wed 4:00 PM	Wang, L.	33CVC	3B.5	Mon 3:00 PM
Vizy, E. K.	33CVC	1A.2	Mon 8:45 AM	Wang, L.	34HYDRO	74	Mon 4:00 PM
Vo, T.	10R2O	PD2.1	Wed 10:30 AM	Wang, L.	15URBAN	6.4	Tue 2:15 PM
Voemel, H.	20SMOI	5.5	Tue 11:30 AM	Wang, L.	19STUDENT	S77	Sun 6:30 PM
Vogel, C.	33CVC	117	Mon 4:00 PM	Wang, L.	8MJO	455	Mon 4:00 PM
Vogel, R. M.	34HYDRO	J50.1	Wed 3:00 PM	Wang, M.	SOLOMONSYMP	15	Mon 4:00 PM
Volkamer, R.	21AIRPOL	9.1	Wed 10:30 AM	Wang, M.	33CVC	J35.2	Wed 8:45 AM
Volkamer, R.	22ATCHEM	14B.3	Thu 2:00 PM	Wang, N. Y.	34HYDRO	14B.1	Thu 1:30 PM
Volz, S.	16GOESRJPSS	J13.1	Tue 8:30 AM	Wang, N. Y.	35MALLSATS	4.6	Thu 4:45 PM
Vonder Haar, T.	16GOESRJPSS	3.3A	Mon 2:30 PM	Wang, Q.	18COASTAL	379	Mon 4:00 PM
Voogt, J. A.	15URBAN	794	Tue 4:00 PM	Wang, Q.	22ATCHEM	269	Mon 4:00 PM
Vourlidas, A.	17SPACEWX	13.1	Wed 3:00 PM	Wang, R.	15URBAN	798	Tue 4:00 PM
				Wang, R.	19AI	2A.3	Mon 2:30 PM
				Wang, S.	SLSSYMPOSIUM1	955	Tue 4:00 PM
				Wang, S.	18COASTAL	14.4	Thu 4:15 PM
				Wang, S.	34HYDRO	J26.1	Tue 3:00 PM
				Wang, S.	22ATCHEM	14B.4	Thu 2:15 PM
				Wang, T.	22ATCHEM	279	Mon 4:00 PM
				Wang, W.	30WAF26NWP	1239	Wed 4:00 PM
				Wang, W.	TROPSYMP1	1507	Wed 4:00 PM
				Wang, W.	34HYDRO	551	Tue 4:00 PM
				Wang, X.	24IOAS	6A.1	Tue 1:30 PM
				Wang, X.	8JCSDA	5.3	Tue 3:30 PM
				Wang, X.	34HYDRO	J50.2	Wed 3:15 PM
				Wang, X.	35MALLSATS	3.4	Thu 2:15 PM
				Wang, X.	5INTERNATIONAL	476	Mon 4:00 PM
				Wang, X.	15URBAN	1408	Wed 4:00 PM
				Wang, X. Z.	34HYDRO	546	Tue 4:00 PM
W							
Wadler, J. B.	TROPSYMP1	2.6	Tue 11:45 AM				
Wagner, M. A.	19AI	7B.4	Wed 9:15 AM				
Wagner, M. A.	36EIP	9A.3	Wed 11:00 AM				
Wagner, M.	10R2O	806	Tue 4:00 PM				
Wagner, R.	12AEROSOL	1433	Wed 4:00 PM				
Wagner, S.	10LIDAR	424	Mon 4:00 PM				
Wagner, T. J.	20SMOI	8.1	Wed 8:30 AM				
Wagner, T. J.	24IOAS	12.1	Thu 8:30 AM				
Wagner-Riddle, C.	20SMOI	4.4	Tue 9:15 AM				
Wahl, M. D.	34HYDRO		Mon 4:00 PM				

PRESENTER INDEX

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
W (Continued)				W (Continued)			
Wang, Y.	36EIPT	11B.4	Wed 3:45 PM	Wessler, M.	30WAF26NWP	681	Tue 4:00 PM
Wang, Y.	15URBAN	4.1	Tue 8:30 AM	West, G.	19AI	1353	Wed 4:00 PM
Wang, Y.	19AI	3A.4	Tue 9:15 AM	West, G.	30WAF26NWP	J71.6	Thu 4:45 PM
Wang, Y.	20SMOI	327	Mon 4:00 PM	Westerink, J. J.	18COASTAL	5.1	Tue 10:30 AM
Wang, Y.	24IOAS	9.5	Wed 11:45 AM	Weston, N. D.	18COASTAL	12.2	Thu 10:45 AM
Wang, Y.	15URBAN	8A.2	Wed 8:45 AM	Wetenkamp, J.	34HYDRO	570	Tue 4:00 PM
Wang, Y.	15URBAN	1391	Wed 4:00 PM	Wetzel, A. N.	SCHUBERTSYMP	1001	Wed 4:00 PM
Wang, Y.	12AEROSOL	5.6	Tue 11:45 AM	Wex, H.	12AEROSOL	1.3	Mon 9:00 AM
Wang, Y.	12AEROSOL	9.1	Thu 8:30 AM	Weygandt, S.	36EIPT	3A.2	Mon 2:15 PM
Wang, Y.	22ATCHEM	13A.6	Thu 11:45 AM	Weygandt, S.	30WAF26NWP	J36.3	Wed 9:15 AM
Wang, Y. H.	19AI	2A.7	Mon 3:30 PM	Weyn, J. A.	19AI	2A.4	Mon 2:45 PM
Wang, Y.	10R2O	12.1	Thu 8:30 AM	Wheelan, K.	19STUDENT	S2	Sun 6:30 PM
Wang, Z.	34HYDRO	1048	Wed 4:00 PM	Whitaker, J. S.	24IOAS	5A.1	Tue 10:30 AM
Wang, Z.	33CVC	4A.1	Tue 8:30 AM	White, A. B.	30WAF26NWP	1182	Wed 4:00 PM
Wang, Z.	33CVC	1161	Wed 4:00 PM	White, A. B.	30WAF26NWP	J71.1	Thu 3:30 PM
Ward, A. M.	30WAF26NWP	7A.6	Wed 9:45 AM	White, A. T.	19AI	11A.3	Thu 4:00 PM
Ward, B.	10R2O	8B.4	Wed 9:15 AM	White, K. D.	30WAF26NWP	13A.6	Thu 2:45 PM
Ward, J.	23ASLI	6.2	Thu 1:45 PM	White, L.	24IOAS	256	Mon 4:00 PM
Ward, K. L.	34HYDRO	56	Mon 4:00 PM	White, P. W.	20ARAM	1337	Wed 4:00 PM
Ward, P. L.	MIDDLESYMP	913	Tue 4:00 PM	Whitehall, S.	22ATCHEM	1A.4	Mon 9:15 AM
Warner, J. X.	22ATCHEM	13A.1	Thu 10:30 AM	Whitehouse, S. S.	33CVC	1D.1	Mon 9:45 AM
Warner, J. G.	19STUDENT	S86	Sun 6:30 PM	Whiteside, A. E.	16GOESRJPSS	1379	Wed 4:00 PM
Warner, L.	19STUDENT	S200	Sun 6:30 PM	Whitin, B.	34HYDRO	4B.1	Mon 3:00 PM
Warner, M.	15SOCIETY	7.6	Wed 9:45 AM	Whittaker, G.	23ASLI	3.3	Wed 11:15 AM
Wasielewski, D. J.	36EIPT	1044	Wed 4:00 PM	Wieland, T.	20ARAM	1333	Wed 4:00 PM
Wasserman, J.	18COASTAL	8.5	Wed 9:30 AM	Wieringa, M. M.	33CVC	110	Mon 4:00 PM
Wasula, T. A.	30WAF26NWP	4B.1	Tue 10:30 AM	Wild, S.	33CVC	4C.6	Tue 9:45 AM
Watson, C. D.	30WAF26NWP	196	Mon 4:00 PM	Wiley, C.	19STUDENT	S114	Sun 6:30 PM
Watson, C. D.	19AI	5A.4	Tue 2:15 PM	Wilhelmi, O.	11HEALTH	1466	Wed 4:00 PM
Watson, R. T.	SOLOMONSYMP	1.3	Mon 9:00 AM	Wilka, C. A.	SOLOMONSYMP	7	Mon 4:00 PM
Wauer, B.	18COASTAL	380	Mon 4:00 PM	Wilkes, H. R.	19STUDENT	S120	Sun 6:30 PM
Waugh, S.	20SMOI	3.3	Mon 2:30 PM	Wilkins, A. C.	30WAF26NWP	8B.5	Wed 11:30 AM
Waxler, R.	SLSSYMPOSIUM1	972	Tue 4:00 PM	Wilkinson, A.	34HYDRO	1045	Wed 4:00 PM
Weaver, S.	TROPSYMP1	1498	Wed 4:00 PM	Wilkinson, G.	36EIPT	J32.6	Wed 9:45 AM
Webb, E.	33CVC	614	Tue 4:00 PM	Williams, A.	11HEALTH	2.3	Mon 11:00 AM
Webb, R.	15SOCIETY	12B.6	Thu 11:45 AM	Williams, C. A.	15SOCIETY	PD6.1	Wed 8:30 AM
Weber, M. E.	36EIPT	8B.3	Wed 9:00 AM	Williams, C. A.	15SOCIETY	11A.1	Thu 8:30 AM
Weber, N.	30WAF26NWP	8C.4	Wed 11:15 AM	Williams, G. Jr.	SCHUBERTSYMP	2.3	Wed 11:00 AM
Weber, R. J.	22ATCHEM	2B.1	Mon 10:30 AM	Williams, J.	12AEROSOL	1431	Wed 4:00 PM
Webster, P.	SCHUBERTSYMP	1.6	Wed 9:45 AM	Williams, J.	19STUDENT	S139	Sun 6:30 PM
Webster, P. J.	4PREDICTABILITY	J19.1	Tue 10:30 AM	Williams, J.	17SPACEWX	776	Tue 4:00 PM
Weckwerth, T. M.	10LIDAR	4.3	Wed 11:15 AM	Williams, J. K.	19AI	J61.1	Thu 8:30 AM
Wegiel, J. W.	34HYDRO	82	Mon 4:00 PM	Williams, L. D.	29EDUCATION	701	Tue 4:00 PM
Wehbe, Y.	34HYDRO	1061	Wed 4:00 PM	Williams, P. D.	33CVC	3B.4	Mon 2:45 PM
Wei, J.	DICKINSONSYMP	483	Tue 4:00 PM	Williams, P. D.	20ARAM	5.6	Tue 11:45 AM
Wei, J.	24IOAS	14.4	Thu 2:15 PM	Williams, R.	16GOESRJPSS	11B.2	Thu 8:45 AM
Wei, N.	DICKINSONSYMP	521	Tue 4:00 PM	Williams, R. S.	SOLOMONSYMP	21	Mon 4:00 PM
Wei, S. W.	8JCSDA	816	Tue 4:00 PM	Williams, S. S.	6HPC	829	Tue 4:00 PM
Wei, T. M.	19STUDENT	S103	Sun 6:30 PM	Williams, S. S.	19AI	7A.3	Wed 9:00 AM
Wei, W.	33CVC	1159	Wed 4:00 PM	Williams, S. S.	36EIPT	1037	Wed 4:00 PM
Weigel, A. M.	36EIPT	5B.4	Tue 11:15 AM	Williams, S.	18HISTORY	2.1	Mon 10:30 AM
Weih, R.	34HYDRO	565	Tue 4:00 PM	Williamson, A. R.	20SMOI	15.1	Thu 4:45 PM
Weil, J.	21AIRPOL	6.2	Tue 10:45 AM	Wilson, A. M.	15SOCIETY	8.2	Wed 10:45 AM
Weil, J.	21AIRPOL	7.1	Tue 1:30 PM	Wilson, A. Jr.	DICKINSONSYMP	495	Tue 4:00 PM
Weil, J. C.	21AIRPOL	1.2	Mon 9:00 AM	Wilson, E.	20SMOI	14.1	Thu 1:30 PM
Weinbeck, S.	36EIPT	10A.3	Wed 2:00 PM	Wilson, L.	26PROBSTAT	6.3	Wed 11:00 AM
Weiner, A. B.	19STUDENT	S165	Sun 6:30 PM	Wilson, L.	15SOCIETY	783	Tue 4:00 PM
Weinrich, J.	20ARAM	2.5	Mon 11:30 AM	Wilson, M. T.	30WAF26NWP	190	Mon 4:00 PM
Weinstein, S. T.	19STUDENT	S119	Sun 6:30 PM	Wilson, M. B.	10PYTHON	2.5	Mon 3:00 PM
Weisman, M. L.	30WAF26NWP	175	Mon 4:00 PM	Wilson, M. B.	30WAF26NWP	7A.4	Wed 9:15 AM
Weiss, C. C.	SLSSYMPOSIUM1	1.4	Tue 9:15 AM	Wilt, B. A.	30WAF26NWP	8C.5	Wed 11:30 AM
Weiss, J. P.	24IOAS	6B.3	Tue 2:00 PM	Wiltberger, M.	17SPACEWX	1.4	Mon 9:15 AM
Weiss, J.	34HYDRO	88	Mon 4:00 PM	Wimberly, M. C.	11HEALTH	3.6	Mon 3:15 PM
Welling, D.	17SPACEWX	4.3	Mon 3:15 PM	Wimmers, A.	16GOESRJPSS	7B.3	Wed 9:00 AM
Wells, K. C.	22ATCHEM	9A.5	Wed 11:30 AM	Winesett, T.	SLSSYMPOSIUM1	977	Tue 4:00 PM
Welti, A.	22WXMOD	5.1	Thu 8:30 AM	Winesett, T.	25APPLIED	3.4	Tue 9:15 AM
Welton, E. J.	10LIDAR	414	Mon 4:00 PM	Wing, A. A.	TROPSYMP1	3.4	Wed 9:15 AM
Welton, E. J.	10LIDAR	4.1	Wed 10:30 AM	Wingo, S. M.	20SMOI	5.2	Tue 10:45 AM
Wen, J.	SLSSYMPOSIUM1	960	Tue 4:00 PM	Wingo, S. M.	34HYDRO	13B.3	Thu 11:00 AM
Wen, X.	33CVC	103	Mon 4:00 PM	Winter, J. M.	33CVC	8A.2	Wed 10:45 AM
Wenzhu, W.	33CVC	1135	Wed 4:00 PM	Winters, A. C.	30WAF26NWP	5B.2	Tue 1:45 PM
Wermter, J. E.	15URBAN	1406	Wed 4:00 PM	Wirasaet, D.	18COASTAL	5.2	Tue 10:45 AM
Werner, K. K.	36EIPT	7A.4	Tue 3:45 PM	Witte, J.	29EDUCATION	4.1	Tue 1:30 PM
Wertz, E. E.	11ENERGY	13.4	Wed 3:45 PM	Wofsy, S.	22ATCHEM	15A.1	Thu 3:30 PM

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
W (Continued)				X (Continued)			
Wolde, M.	20ARAM	13.2	Thu 3:45 PM	Xue, L.	22WXMOD	1.4	Mon 9:45 AM
Wolding, B. O.	8MJO	2.3	Mon 11:00 AM	Xue, L.	22WXMOD	2.5	Mon 11:30 AM
Wolding, B. O.	33CVC	3A.5	Mon 3:00 PM	Xue, L.	22WXMOD	1310	Wed 4:00 PM
Wolding, B. O.	TROPSYMP1	835	Tue 4:00 PM	Xue, L.	22WXMOD	1311	Wed 4:00 PM
Wolf, M. J.	22ATCHEM	268	Mon 4:00 PM	Xue, M.	24IOAS	8.1	Wed 8:30 AM
Wolf, M. J.	12AEROSOL	1443	Wed 4:00 PM	Xue, X.	10PYTHON	5.4	Tue 3:45 PM
Wolff, C. A.	20ARAM	8.4	Wed 9:15 AM	Xue, Y.	30WAF26NWP	695	Tue 4:00 PM
Wolff, J. K.	29EDUCATION	6.2	Wed 10:45 AM	Xue, Y.	34HYDRO	2B.6	Mon 11:45 AM
Woll, S.	8WXCLIMATE	5.5	Wed 9:30 AM	Xue, Y.	DICKINSONSYMP	J15.3	Tue 11:15 AM
Wolsieffer, C.	20SMOI	13.5	Thu 11:15 AM				
Wolter, K.	16IMPACTS	1.1	Mon 8:30 AM	Y			
Wong, D.	21AIRPOL	289	Mon 4:00 PM	Yack, Z.	19STUDENT	S245	Sun 6:30 PM
Wong, J.	10PYTHON	8.3	Wed 3:30 PM	Yadav, N.	19AI	1361	Wed 4:00 PM
Wong, M.	30WAF26NWP	9A.3	Wed 2:00 PM	Yaklich, M. L.	36EIPT	12B.1	Thu 8:30 AM
Woo, J. W.	15URBAN	789	Tue 4:00 PM	Yalda, S.	29EDUCATION	1263	Wed 4:00 PM
Wood, A. W.	34HYDRO	1A.2	Mon 8:45 AM	Yamaguchi, K.	30WAF26NWP	1238	Wed 4:00 PM
Wood, A. W.	34HYDRO	15B.3	Thu 4:00 PM	Yamaguchi, R.	18COASTAL	14.6	Thu 4:45 PM
Wood, K. M.	10PYTHON	1.3	Mon 9:30 AM	Yan, H.	12AEROSOL	J23.4	Tue 2:15 PM
Wood, L.	8WRN	10.4	Thu 11:15 AM	Yan, Q.	22ATCHEM	8A.4	Wed 9:15 AM
Woodroffe, J. R.	17SPACEWX	10.4	Wed 11:15 AM	Yan, Y.	19STUDENT	S67	Sun 6:30 PM
Woods, K.	20SMOI	351	Mon 4:00 PM	Yanase, T.	SCHUBERTSYMP	1012	Wed 4:00 PM
Wooten, B. A.	19STUDENT	S244	Sun 6:30 PM	Yanez, A.	48BROADCAST	2.5	Mon 11:30 AM
Wooten, A. M.	34HYDRO	5A.4	Tue 9:15 AM	Yang, B.	19STUDENT	S28	Sun 6:30 PM
Worley, C.	15SOCIETY	4B.1	Tue 8:30 AM	Yang, B.	21AIRPOL	8.2	Tue 3:15 PM
Worris, M.	20ARAM	11.4	Thu 11:15 AM	Yang, B.	21AIRPOL	7.3	Tue 2:00 PM
Wright, D. M.	30WAF26NWP	664	Tue 4:00 PM	Yang, D.	18COASTAL	4.4	Tue 9:15 AM
Wright, J. B.	11HEALTH	J40.2	Wed 8:45 AM	Yang, F.	12AEROSOL	1.4	Mon 9:15 AM
Wright, K.	10R2O	PD2.2	Wed 10:30 AM	Yang, F.	10R2O	10B.4	Wed 2:15 PM
Wrzesien, M. L.	34HYDRO	597	Tue 4:00 PM	Yang, H.	16GOESRJPSS	9B.4	Wed 2:15 PM
Wrzesien, M. L.	34HYDRO	1076	Wed 4:00 PM	Yang, J.	11ENERGY	9.3	Wed 9:00 AM
Wu, B.	33CVC	13.3	Thu 2:00 PM	Yang, J.	TROPSYMP1	858	Tue 4:00 PM
Wu, B.	DICKINSONSYMP	516	Tue 4:00 PM	Yang, M.	34HYDRO	1106	Wed 4:00 PM
Wu, C. C.	19AI	358	Mon 4:00 PM	Yang, P.	8JCSA	2.2	Tue 9:30 AM
Wu, C. M.	SCHUBERTSYMP	1008	Wed 4:00 PM	Yang, P.	16GOESRJPSS	12A.1	Thu 10:30 AM
Wu, C. C.	TROPSYMP1	3.3	Wed 9:00 AM	Yang, S. Sr.	20SMOI	15.3	Thu 4:00 PM
Wu, M.	19AI	J17.2	Tue 11:00 AM	Yang, S. C.	10LIDAR	3.2	Wed 8:45 AM
Wu, M.	TROPSYMP1	845	Tue 4:00 PM	Yang, S. C.	24IOAS	9.4	Wed 11:30 AM
Wu, Q.	17SPACEWX	12.2	Wed 1:45 PM	Yang, S.	33CVC	1162	Wed 4:00 PM
Wu, Q.	34HYDRO	2B.4	Mon 11:15 AM	Yang, W.	22WXMOD	J38.2	Wed 8:45 AM
Wu, Y.	30WAF26NWP	648	Tue 4:00 PM	Yang, X. Sr.	34HYDRO	580	Tue 4:00 PM
Wu, Y.	21AIRPOL	9.4	Wed 11:15 AM	Yang, Y.	34HYDRO	560	Tue 4:00 PM
Wu, Y.	15SOCIETY	390	Mon 4:00 PM	Yang, Y.	18COASTAL	8.3	Wed 9:00 AM
Wu, Y.	33CVC	1163	Wed 4:00 PM	Yang, Y.	10LIDAR	J3.4	Mon 11:15 AM
Wu, Z.	5INTERNATIONAL	4.2	Tue 3:15 PM	Yang, Y.	33CVC	137	Mon 4:00 PM
Wuebbles, D. J.	SOLOMONSYMP	11	Mon 4:00 PM	Yang, Y.	33CVC	12.6	Thu 11:45 AM
Wunsch, C.	18HISTORY	4.6	Tue 9:45 AM	Yang, Z.	22ATCHEM	2B.5	Mon 11:30 AM
Wurman, J.	SLSSYMPOSIUM1	4.1	Tue 3:00 PM	Yang, Z. L.	34HYDRO	5B.6	Tue 9:45 AM
Wurman, J.	SLSSYMPOSIUM1	930	Tue 4:00 PM	Yao, Y.	5INTERNATIONAL	475	Mon 4:00 PM
				Yao, Z. Sr.	22WXMOD	6.6	Thu 11:45 AM
X				Yarber, A.	11HEALTH	1473	Wed 4:00 PM
Xi, B.	30WAF26NWP	11A.2	Thu 8:45 AM	Yardim, C.	18COASTAL	14.1	Thu 3:30 PM
Xi, D.	TROPSYMP1	1496	Wed 4:00 PM	Yarker, M. B.	29EDUCATION	J16.2	Tue 10:45 AM
Xia, L.	22WXMOD	J38.5	Wed 9:30 AM	Yasunaga, K.	8MJO	J7.3	Mon 2:30 PM
Xia, Y.	34HYDRO	5B.4	Tue 9:15 AM	Yasunaga, K.	33CVC	12.5	Thu 11:30 AM
Xia-Serafino, W.	24IOAS	6B.1	Tue 1:30 PM	Ye, J.	22ATCHEM	8B.6	Wed 9:45 AM
xiaofang, W.	30WAF26NWP	1204	Wed 4:00 PM	Ye, J.	19STUDENT	S91	Sun 6:30 PM
Xie, S.	SCHUBERTSYMP	1014	Wed 4:00 PM	Yeh, S. W.	33CVC	4B.2	Tue 8:45 AM
Xie, X.	16GOESRJPSS	12B.2	Thu 10:45 AM	Yeo, A.	34HYDRO	1046	Wed 4:00 PM
Xie, X.	24IOAS	5B.4	Tue 11:15 AM	Yeste, P.	DICKINSONSYMP	496	Tue 4:00 PM
Xie, Y.	11ENERGY	9.6	Wed 9:45 AM	Yi, B.	12AEROSOL	1439	Wed 4:00 PM
Xie, Y.	30WAF26NWP	4A.6	Tue 11:45 AM	Yi, Z.	33CVC	1139	Wed 4:00 PM
Xie, Y.	6HPC	831	Tue 4:00 PM	Yin, J.	34HYDRO	1112	Wed 4:00 PM
Xinyue, W.	33CVC	12.4	Thu 11:15 AM	Yin, X.	11HEALTH	3.3	Mon 2:30 PM
Xu, J.	33CVC	6B.3	Tue 2:00 PM	Yin, Y.	12AEROSOL	2.5	Mon 11:30 AM
Xu, J.	22ATCHEM	284	Mon 4:00 PM	Ying, Y.	24IOAS	3.2	Mon 2:15 PM
Xu, M.	33CVC	619	Tue 4:00 PM	Yip, J. P.	12AEROSOL	13.3	Thu 4:15 PM
XU, W.	TROPSYMP1	843	Tue 4:00 PM	Yokota, S.	24IOAS	3.4	Mon 2:45 PM
Xu, W.	34HYDRO	3B.3	Mon 2:30 PM	Yoo, H.	20SMOI	13.3	Thu 10:45 AM
Xu, X.	15URBAN	1402	Wed 4:00 PM	Yoo, J.	34HYDRO	3B.4	Mon 2:45 PM
Xu, X.	15URBAN	13.2	Thu 10:45 AM	Yoon, J. H.	33CVC	144	Mon 4:00 PM
Xu, X.	34HYDRO	77	Mon 4:00 PM	Yoon, Y.	34HYDRO	1080	Wed 4:00 PM

Conf.	Paper #	Day	Time	Conf.	Paper #	Day	Time
Y (Continued)				Z (Continued)			
Yorks, J. E.	10LIDAR	J3.2	Mon 10:45 AM	Zhang, H.	8JCSDA	817	Tue 4:00 PM
Yoshikawa, E.	10LIDAR	428	Mon 4:00 PM	Zhang, H. Sr.	18COASTAL	2.4	Mon 11:15 AM
Yoshikawa, E.	19AI	J69.4	Thu 2:15 PM	Zhang, H.	12AEROSOL	11.2	Thu 1:45 PM
Yoshizumi, Y.	22WXMOD	4.2	Tue 1:45 PM	Zhang, J.	15URBAN	1.2	Mon 8:45 AM
You, Y.	3SMALLSATS	1.2	Thu 8:45 AM	Zhang, J.	36EPT	3A.3	Mon 2:30 PM
You, Y.	16GOESRJPSS	12A.5	Thu 11:45 AM	Zhang, J.	22ATCHEM	5A.6	Tue 11:45 AM
You, Y.	22ATCHEM	273	Mon 4:00 PM	Zhang, J.	DICKINSONSYMP	488	Tue 4:00 PM
Young, C. E.	8WXCLIMATE	441	Mon 4:00 PM	Zhang, J.	TROPSYMP1	4.1	Wed 3:00 PM
Youngman, M. A.	36EPT	J56.1	Thu 8:30 AM	Zhang, L.	22ATCHEM	1B.3	Mon 9:00 AM
Yu, F.	22ATCHEM	9A.6	Wed 11:45 AM	Zhang, L.	22ATCHEM	3B.6	Mon 3:15 PM
Yu, H.	12AEROSOL	6.1	Wed 8:30 AM	Zhang, M.	30WAF26NWP	1194	Wed 4:00 PM
Yu, H.	22ATCHEM	9A.3	Wed 11:00 AM	Zhang, M.	30WAF26NWP	1195	Wed 4:00 PM
Yu, J. Y.	33CVC	4B.4	Tue 9:15 AM	Zhang, N.	15URBAN	1410	Wed 4:00 PM
Yu, L.	24IOAS	12.4	Thu 9:15 AM	Zhang, Q.	8JCSDA	5.2	Tue 3:15 PM
Yu, X.	TROPSYMP1	859	Tue 4:00 PM	Zhang, S.	DICKINSONSYMP	511	Tue 4:00 PM
Yu, Y.	10LIDAR	J3.3	Mon 11:00 AM	Zhang, W.	33CVC	4C.4	Tue 9:15 AM
Yu, Y.	12AEROSOL	8.1	Wed 1:30 PM	Zhang, W.	33CVC	620	Tue 4:00 PM
Yu, Y. G.	30WAF26NWP	657	Tue 4:00 PM	Zhang, W.	30WAF26NWP	J59.1	Thu 8:30 AM
Yu, Y. G.	SCHUBERTSYMP	1002	Wed 4:00 PM	Zhang, W.	34HYDRO	1062	Wed 4:00 PM
Yu, Y. G.	SCHUBERTSYMP	997	Wed 4:00 PM	Zhang, X.	DICKINSONSYMP	513	Tue 4:00 PM
Yu, Z.	15URBAN	13.3	Thu 11:00 AM	Zhang, X.	22ATCHEM	1297	Wed 4:00 PM
Yuan, D.	33CVC	13.1	Thu 1:30 PM	Zhang, X.	24IOAS	15.4	Thu 4:15 PM
Yuan, H.	DICKINSONSYMP	508	Tue 4:00 PM	Zhang, X.	22ATCHEM	8A.2	Wed 8:45 AM
Yuan, H.	DICKINSONSYMP	514	Tue 4:00 PM	Zhang, X.	30WAF26NWP	5A.3	Tue 2:00 PM
Yuan, T.	19AI	2B.1	Mon 2:00 PM	Zhang, Y.	12AEROSOL	1425	Wed 4:00 PM
Yuan, T.	19AI	11B.4	Thu 4:15 PM	Zhang, Y.	22ATCHEM	10B.4	Wed 2:15 PM
Yue, J.	MIDDLESYMP	908	Tue 4:00 PM	Zhang, Y.	TROPSYMP1	846	Tue 4:00 PM
Yueh, S.	3SMALLSATS	4.2	Thu 3:45 PM	Zhang, Y. J.	18COASTAL	2.3	Mon 11:00 AM
Yuhas, J. A.	29EDUCATION	211	Mon 4:00 PM	Zhang, Y.	15URBAN	1404	Wed 4:00 PM
Yuhas, J. A.	29EDUCATION	212	Mon 4:00 PM	Zhang, Y.	12AEROSOL	3.6	Mon 3:30 PM
Yum, S. S.	12AEROSOL	3.5	Mon 3:15 PM	Zhang, Y. V	34HYDRO	1086	Wed 4:00 PM
Yun, J.	12AEROSOL	2.3	Mon 11:00 AM	Zhang, Y.	30WAF26NWP	13A.3	Thu 2:00 PM
Yung, H. Sr.	21AIRPOL	12.2	Thu 8:45 AM	Zhang, Y.	34HYDRO	1070	Wed 4:00 PM
Yussouf, N.	TROPSYMP1	J44.4	Wed 11:15 AM	Zhang, Y.	30WAF26NWP	1224	Wed 4:00 PM
Yussouf, N.	10R2O	11A.2	Wed 3:15 PM	Zhang, Z.	TROPSYMP1	881	Tue 4:00 PM
Yuval, J.	19AI	2A.6	Mon 3:15 PM	Zhang, Z.	18COASTAL	9.5	Wed 11:15 AM
				Zhang, Z.	34HYDRO	1109	Wed 4:00 PM
				Zhang, Z.	33CVC	641	Tue 4:00 PM
				Zhang, Z.	12AEROSOL	6.3	Wed 9:00 AM
				Zhao, C.	12AEROSOL	5.3	Tue 11:00 AM
				Zhao, K.	SLSSYMP0SIUM1	964	Tue 4:00 PM
				Zhao, M.	18COASTAL	13.5	Thu 2:30 PM
				Zhao, Q.	30WAF26NWP	1236	Wed 4:00 PM
				Zhao, S.	33CVC	107	Mon 4:00 PM
				Zhao, X.	30WAF26NWP	1202	Wed 4:00 PM
				Zhao, X.	TROPSYMP1	1535	Wed 4:00 PM
				Zhaoxin, C.	22WXMOD	3.6	Tue 11:45 AM
				Zheng, W.	33CVC	618	Tue 4:00 PM
				Zheng, W.	34HYDRO	78	Mon 4:00 PM
				Zheng, Y.	30WAF26NWP	145	

Company	Page No.
Accenture Federal.....	41
Accuweather	10
Ball Aerospace.....	22
Campbell Scientific.....	35
EKO Instruments Co, Ltd.....	25
Forecastic Productions.....	Inside Front Cover
General Dynamics Information Technology.....	19
KBR.....	30
L3Harris.....	15
Lockheed Martin.....	6
Maximus Federal.....	8
Millersville University.....	36 & 50
Peraton.....	21
Sabalcore Computing Inc.....	Inside Back Cover
SAIC.....	28
University Corporation for Atmospheric Research.....	48
Vaisala.....	Back Cover

Exhibitor	Booth No.	Exhibitor	Booth No.
AccuWeather, Inc.....	501	Kestrel Weather Instruments.....	345
Ace Info Solutions, LLC.....	513	L3Harris Technologies.....	209
Advanced Designs Corporation.....	144	Lockheed Martin Corporation.....	201
Advances in Atmospheric Sciences.....	508	LR Tech Inc.....	440
Aerospace Corporation, The.....	108	Met Office.....	600
American Geophysical Union (AGU).....	612	Met One Instruments, Inc.....	512
American Institute of Physics (AIP).....	336	Metek Meteorologische (GmbH).....	238
American Meteorological Society (AMS).....	335	Meteomatics.....	621
Anemoment LLC.....	439	Meteomodern.....	338
Apogee Instruments Inc.....	444	METER Group, Inc.....	418
ASRC Federal.....	243	Metstar Radar.....	609
Atmospheric and Environmental Research, Inc.....	334	Mount Washington Observatory.....	539
Atmospheric Science Librarians International...	543	NASA.....	301
Ball Aerospace.....	109	National Science Foundation.....	317
Baron.....	100	NOAA.....	101
Brainstorm.....	629	Northrop Grumman Corporation.....	217
Campbell Scientific, Inc.....	229	OTT HydroMet.....	409
Center for Western Weather & Water Extremes.....	130	Penguin Computing.....	438
CGI.....	143	Peraton.....	126
Chinese Meteorological Society.....	617	Piesat.....	614
ClimaCell.....	613	Pond Engineering Laboratories, Inc.....	445
CollabraLink Technologies.....	627	PSSC Labs.....	642
Columbus Technologies.....	623	QinetiQ North America.....	531
Comptus.....	341	Radiometrics.....	540
CUAHSI.....	626	Raytheon Company.....	121
Davis Instruments.....	230	Remtech, Inc.....	538
Delta OHM.....	135	Riverside Technology, inc.....	319
Droplet Measurement Technologies, LLC.....	636	R. M. Young Company.....	115
DTN.....	630	Science/AAAS.....	537
Earth Networks.....	214	Science Is Never Settled.....	342
EKO Instruments.....	235	Science Systems and Applications, Inc.....	416
Enterprise Electronics Corporation (EEC).....	228	Scintec.....	507
Environmental Systems Research Institute, Inc..	129	Shanghai em-data.....	622
ERT.....	114	Shyft Solutions WxChange.....	441
EWR Radar Systems.....	417	Sonalytix, Inc.....	120
Forecast Force.....	605	Springer.....	616
FT Technologies.....	634	Tempo Quest.....	638
Furuno Weather Radar.....	517	The Weather Company, an IBM Business.....	601
Geonor, Inc.....	242	UAlbany Weather Enterprise.....	631
Gill Instruments Limited.....	339	UCAR NCAR UCP.....	309
Global Science & Technology, Inc.....	521	UKI Media & Events Ltd.....	515
GRaw Radiosondes.....	529	University of Alabama in Huntsville.....	236
Highways and Hailstones.....	628	Univ. of Oklahoma/National Weather Center..	223
IBSS Corp.....	620	University of Wisconsin — Madison, SSEC.....	234
I.M. Systems Group.....	527	Vaisala.....	401
INNOVIM, LLC.....	239	WeatherBell Analytics, LLC.....	139
Integrated Systems Solutions, Inc.....	510	Wiki Education.....	544
Intellisense Inc.....	237		
International Met Systems.....	535		

AccuWeather, Inc.

Email: sales@accuweather.com
www.accuweather.com

Regular Corporation and Institutional Member

Booth No: 501

AccuWeather, recognized and documented as the most accurate source of weather forecasts and warnings in the world, has saved tens of thousands of lives, prevented hundreds of thousands of injuries and tens of billions of dollars in property damage. With global headquarters in State College, PA and other offices around the world, AccuWeather serves more than 1.5 billion people daily to help them plan their lives and get more out of their day through innovative digital media properties, such as AccuWeather.com and mobile, as well as radio, television, newspapers, and the 24/7 AccuWeather Network. Additionally, AccuWeather produces and distributes news, weather content, and video for more than 180,000 third-party websites. Among AccuWeather's many innovative and award-winning features free to the public are MinuteCast® Minute by Minute™ forecasts with Superior Accuracy™. Further, AccuWeather serves more than half of Fortune 500 companies and thousands of businesses globally. Dr. Joel N. Myers, Founder and Chief Executive Officer, established AccuWeather in 1962 and is considered the "father of modern commercial meteorology" and has been named one of the top entrepreneurs in American history by *Entrepreneur's Encyclopedia of Entrepreneurs*.

Ace Info Solutions, LLC

Email: kstarr@aceinfosolutions.com
www.aceinfosolutions.com

Regular Corporation and Institutional Member

Booth No: 513

Ace Info Solutions (AceInfo) supports National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) National Centers for Environmental Prediction (NCEP) Weather and Climate Computing Infrastructure Services (WCCIS). AceInfo provides software development to maintain a 24x7x365 operation for a variety of complex weather applications supporting integrated disseminations, climate forecasts, and watch and warnings notices. These state-of-the-art applications support NOAA's Weather-Ready Nation (WRN) information technology (IT) and scientific initiatives for the delivery of national and global weather, water, climate and space weather guidance, forecasts, warnings, and analyses to a broad range of users and partners.

At the NWS Meteorological Development Lab (MDL), scientific programmers and software engineers develop and enhance forecast products for delivery using predictive modeling within the NOAA supercomputer environment. We provide IT support for integration and testing, ArcGIS real time coastal observations, including radar and satellite input, and data input sent to our public website. These weather and storm prediction applications deliver advanced forecasting and real time observations to the public through many mechanisms, including mobile and web services.

Founded in 2000, AceInfo Solutions has proven experience prioritizing client satisfaction, project quality, and providing innovative cost-effective solutions. AceInfo's mission is to create enduring value to clients.

Advanced Designs Corporation

1169 W. 2nd St.
Bloomington, IN 47403
Contact: Matthew McGrath
Email: mmcgrath@doprad.com
www.doprad.com

Booth No: 144

Advanced Designs Corporation has been delivering 100% solid-state Doppler weather radar systems for over 37 years. We customize our systems for various applications (marine/mobile/broadcast/port/land-based).

ADC systems help to enhance safety, protect assets, protect operations, and increase efficiency. The Doprad Fury® system tracks rainfall and gives estimated time of arrival. In addition, the system continuously logs the data and can simultaneously display a timelapse window of the past storm movement along with the full screen display of the current live data. We invite you to stop by our exhibit to learn more and get a quick refresher course on operations.

Advances in Atmospheric Sciences

www.springer.com/376

Booth No: 508

Launched in 1984, *Adv. Atmos. Sci* (AAS) is an international peer-reviewed journal on the dynamics, physics, and chemistry of the atmosphere and oceans. AAS is currently the associated journal of International Association of Meteorology and Atmospheric Sciences. AAS is published by Springer and indexed by SCI database. Its current impact factor is 1.819.

Aerospace Corporation, The

2310 E. El Segundo Blvd.

El Segundo, CA 90245

Email: MChristian.Wallisch@aero.org

www.aerospace.org

Sustaining Corporation and Institutional Member

Booth No: 108

American Geophysical Union (AGU)

agu.org

Regular Corporation and Institutional Member

Booth No: 612

AGU is the largest Earth and space science organization in the world, with over 60,000 in 139 countries. AGU galvanizes a community of Earth and space scientists that collaboratively advances and communicates science and its value to ensure a sustainable future.

American Institute of Physics (AIP)

One Physics Ellipse

College Park, MD 20740

Contact: Frank Graeff

www.aip.org

Booth No: 336

The American Institute of Physics (AIP) is a federation of physical science societies, including AMS, that advances, promotes and serves the physical sciences for the benefit of humanity. AIP offers authoritative information, services, and expertise in physics education and student programs, science communication, government relations, career services for science and engineering professionals, statistical research in physics employment and education, industrial outreach, and the history of physics and allied fields. AIP also publishes the flagship magazine *Physics Today* and is home to the Society of Physics Students and the Niels Bohr Library and Archives. Come learn about the benefits AIP can provide!

American Meteorological Society (AMS)

Email: amsinfo@ametsoc.org

ametsoc.org

Booth No: 335

Attendees are invited to come see the new look of AMS in the AMS Booth! On display will be the Society's new logo, which will bring AMS into its second century of serving the weather, water, and climate communities. Attendees will also be able to learn about AMS membership and programs, including journals and books, certification, precollege and college education initiatives, student opportunities, the AMS Policy Program, local chapters, and AMS meetings. AMS provides many opportunities for everyone across its community, whether a student, an early career professional, or a seasoned veteran with years of experience. Be sure to stop by to learn more about AMS and take home some limited edition Centennial merchandise.

Anemoment LLC

353 Main Street

Longmont, CO 80501

Contact: Liz Osborn

Email: info@anemoment.com

www.anemoment.com

Small Business Corporation and Institutional Member

Booth No: 439

Know the Wind with the world's smallest and lightest 3D ultrasonic anemometer. Small enough to fit in the palm of your hand, the TriSonica Mini™ Wind and Weather Sensor is a highly accurate tool for atmospheric monitoring, weather reporting, and ecosystem research. Its size and weight make it perfect for UAS use, while the fact it has no moving parts eliminates maintenance issues.

Anemoment specializes in wind and weather sensors engineered for unmanned, mobile, temporary and permanent applications. Our sensors and dataloggers seamlessly work together to collect vital meteorological data. Standalone or integrated into your existing system, our TriSonica Mini™ Wind and Weather Sensor is the compact meteorological solution you have been searching for.

Low power, lightweight, highly accurate, and extremely compact—the TriSonica Mini™ Wind and Weather Sensor gives you the data and power to *Know the Wind*. Come see for yourself.

Apogee Instruments Inc.

721 W 1800 N
Logan, UT 84321
Contact: Schuyler Smith
Email: support@apinst.com
www.apogeeinstruments.com

First-Time Exhibitor

Booth No: 444

Apogee Instruments will be showcasing both their classic sensors from pyranometers and aspirated shields for air temperature reading to their upcoming weighing precipitation gauges.

ASRC Federal

7000 Muirkirk Meadows Dr., Suite 100
Beltsville, MD 20705
Contact: Aubrey B. Mellos
www.asrcfedera.com

Booth No: 243

ASRC Federal comprises a family of companies that deliver engineering, information technology, infrastructure support, professional and technical services to U.S. civil, defense and intelligence agencies. ASRC Federal companies have employees in over 40 states across the U.S. focused on providing reliable, cost-efficient services that help government customers achieve mission success.

Headquartered in Beltsville, Maryland, ASRC Federal is a wholly-owned subsidiary of Arctic Slope Regional Corporation. For more information, please visit: www.asrcfederal.com.

Atmospheric and Environmental Research, Inc.

www.aer.com

Regular Corporation and Institutional Member

Booth No: 334

Atmospheric and Environmental Research (AER) supports government, military, commercial, and international customers to address the world's most challenging environmental problems. AER's scientists work at the forefront of remote sensing, radiative transfer, weather and climate prediction, air quality, hydrology, and space weather. Through funded research conducted by in-house scientific staff, often in collaboration with leading academic and research institutions, we have developed analytical tools to measure and predict environmental properties and translate these measurements into accurate information for policy, mission strategy, and operational decisions.

AER pioneered the use of multiplatform, multisensory, algorithms to maximize the use of ground- and satellite-based worldwide meteorological assets. Which has led to the development of a wide variety of applications and technologies ranging from ground-based systems such as GreenLITE™ to the deployment of national and international satellite systems. For example, AER developed all the operational Level 1 and Level 2 environmental algorithms for the GOES-R satellite system and continues to partner with NOAA to support and advance this critical national capability. AER is continuing to work with NOAA and DoD to plan and develop the next generation of environmental sensing satellite systems.

Atmospheric Science Librarians International (ASLI)

Booth No: 543

The Atmospheric Science Librarians International (ASLI) is a professional organization devoted to communication and dissemination of information among libraries, researchers, government entities and educational institutions involved in atmospheric science research and scholarship.

Ball Aerospace

Email: info@ball.com
www.ball.com/aerospace

Sustaining Corporation and Institutional Member

Booth No: 109

Powered by endlessly curious people with an unwavering mission focus, Ball Aerospace pioneers discoveries that enable our customers to perform beyond expectation and protect what matters most. We create innovative space solutions, enable more accurate weather forecasts, drive insightful observations of our planet, deliver actionable data and intelligence, and ensure those who defend our freedom go forward bravely and return home safely. Go Beyond with Ball.®

Baron

www.baronweather.com

Regular Corporation and Institutional Member

Booth No: 100

Baron provides critical weather intelligence to commercial and media businesses, government agencies, and consumers. Our wide range of products and weather data provide effective solutions for prediction, tracking, analysis and mitigation of meteorological events. Baron delivers accurate tools, comprehensive weather data and solutions that enable our customers to communicate the impact of weather more effectively or deliver products for improved decision making. Our media solutions help TV stations tell a better weather story with an easy to use system, compelling graphics and proven weather analysis. Baron offers our commercial customers an easy to use Developer's REST API that provides instant access to exclusive data to enable seamless integration into products and services. Our wide range of scientific applications are available to customers domestically and abroad for integration into existing networks and infrastructures. Last but not least, the Baron Gen3 radar series for media and scientific applications provide state-of-the-art technology, processing and calibration. We invite you to stop by our booth for a demonstration and a discussion on how Baron can help you solve your meteorological challenges.

Brainstorm

54W 40th Street, Suite 816
New York, NY 10018

Contact: Miguel Churruca
Email: salesusa@brainstorm3d.com
www.brainstorm3d.com

First-Time Exhibitor

Booth No: 629

Brainstorm will showcase **AstonWeather**, an open, flexible and fully customizable application, developed to provide weather information fast and easily, while matching any design requirements. It can connect to different weather databases, generating movies out of the data retrieved, and apply them to, or integrated with, the available templates, which can also be geolocalized. AstonWeather takes advantage of Brainstorm's unique capabilities for creating **data-driven graphics** and applies them to the Weather forecast. Using data coming from official weather sources, AstonWeather can apply them to **many different templates**, from **isobars** to **forecasts**, **visual maps**, **wind speeds**, **temperatures** and many other, displaying the result in **real-time**.

Brainstorm is a 25-year-old specialist company dedicated to providing industry-leading **real-time 3D graphics**, **augmented reality** and **virtual set solutions** for broadcast, feature film production and corporate presentations. Brainstorm has more than 2,500 installations worldwide since its foundation in 1993, including many of the world's leading broadcasters plus numerous smaller and regional stations.

Campbell Scientific, Inc.

Email: gwheeler@campbellsci.com
www.campbellsci.com

Regular Corporation and Institutional Member

Booth No: 229

Campbell Scientific has been the trusted leader for environmental solutions for over 45 years. We believe in people's capacity to make the world better using trustworthy, measurement-based information. Trust Campbell Scientific for the equipment, assembly, data-logger programming, communications, and field installation to give you superior data. Campbell Scientific weather stations are on Mount Everest in Asia, and provide weather data for wildfire mitigation in California and flood control during epic hurricane events.

Coastal Environmental Systems, a wholly owned subsidiary of Campbell Scientific, will also be in booth 229. Coastal's automated weather-observing systems (AWOS) operate on every continent, providing weather data at airfields and heliports. Other innovative products from Coastal include WEATHERPAK® systems that are very low-power, quick to assemble, and easy to pack, carry, and ship.

Stop by Booth 229 to see exciting new products, like the LevelVUE™ B10 Water Level Bubbler, HygroVUE™ 5 Digital Temp and RH Sensor, ALERT205™ ALERT2 Transmitter, and the TX325™ Satellite Transmitter for GOES CS2/V2. Also learn about the SoilVUE™ I0 TDR Soil Moisture and Temperature Profile Sensor, ClimaVUE™ 50 Compact Digital Weather Sensor, HygroVUE™ I0 Digital Temp and RH Sensor, cellular modules, and solutions from our global family of companies. When measurements matter, Campbell Scientific provides superior data.

Center for Western Weather and Water Extremes

La Jolla, CA 92093
Contact: Lillian Perry
cw3e.ucsd.edu

Booth No: 130

The Center for Western Weather and Water Extremes (CW3E) at Scripps Institution of Oceanography's mission is to provide 21st Century water cycle science, technology and outreach to support effective policies and practices that address the impacts of extreme weather and water events on the environment, people and the economy of Western North America. CW3E research focuses on improving our understanding and forecasting of atmospheric rivers by integrating observations, modeling and machine learning. Scripps Institution of Oceanography at UC San Diego has been the world leader in ocean, earth, and climate sciences and currently has research projects under way in more than 60 nations, on every continent, and in every ocean.

CGI

12601 Fair Lakes Circle
Fairfax, VA 22030

Contact: Darren White

Email: darren.white@cgi.com

www.cgi-group.co.uk/en-gb/space/earth-observation

First-Time Exhibitor

Booth No: 143

Founded in 1976, CGI helps Space, Defense and Intelligence clients solve complex technical challenges with secure, end-to-end information solutions.

CGI is one of the largest integrators in Europe specializing in Science data processing and developing data-enabled weather services. We help turn Earth Observation data into information you can trust and act upon. Our Space services are Data Processing and Exploitation Platforms.

CGI provides Earth Observation analysis using Software as a Service (SaaS) makes it faster, more cost effective and scalable to create apps that meet your unique science requirement.

Chinese Meteorological Society

46 South Zhongguancun Ave.

Haidian District

Beijing, China 100081

Contact: Lan Yi

www.cmsjournal.net/qxxb_en

Publication Corporation and Institutional Member

Booth No: 617

Founded on 10 October 1924, the Chinese Meteorological Society (CMS) is one of the earliest associations of natural science professionals in China, seeking to promote meteorological observation, research, and development. The CMS's journal—*Acta Meteorologica Sinica (ACTA)* started its first issue in 1925 and its *English Edition* in 1987. The *ACTA English Edition* was renamed as *Journal of Meteorological Research (JMR)* in 2014. JMR covers observational, modeling, and theoretical research and applications in weather forecasting and climate prediction, as well as related topics in geosciences and environmental sciences. JMR intends to promote the exchange of S&T innovation and thoughts between Chinese and foreign meteorologists. JMR contains academic papers, operational forecasting progresses, research/field program highlights, conference reports, and comprehensive discussions on meteorological research and operation undertaken in China and beyond.

ClimaCell

230 Sumner Street, 8th Floor
Boston, MA 02210
Contact: Roy Sahaf
www.climacell.co

Booth No: 613

ClimaCell is revolutionizing weather forecasting by providing the accuracy and reliability that weather-sensitive industries need to succeed in the 21st century.

Unique to the weather industry, ClimaCell fuses a proprietary big data collection and analysis platform with exclusive modelling techniques to create the MicroWeather OS - an array of products that are providing clients with hyper-local, global weather data and business insights.

ClimaCell's patented MicroWeather technology engine is powered by Weather of Things data - from cell tower transmissions, connected cars, airplanes, drones and IoT devices - combined with proprietary AI-driven models to help industries such as aviation, construction, energy, on-demand, outdoor events, transportation, UAS and utilities make better decisions that impact everything from operations efficiency, to safety and the bottom line.

CollabraLink Technologies

8405 Greensboro Drive, Suite 600
McLean, VA 22102
Email: llewis@collabralink.com
www.collabralink.com

Booth No: 627

Columbus Technologies

7500 Greenway Center Dr., Suite 1600
Greenbelt, MD 20770
Contact: Parvin Anand
Email: panand@columbususa.com
www.columbususa.com/

First-Time Exhibitor

Booth No: 623

Columbus, a small disadvantage business (SDB) is a leading services provider of engineering-based support of federal agencies and has strong credentials in systems, software, and hardware engineering and program management serving NASA, NOAA, FAA, DoD, and other Federal Government agencies. As part of the AMS 100th Annual Meeting, Columbus is hosting a booth showcasing its corporate capabilities and associated work at NASA JPL, GSFC, and NOAA. Displays will exhibit some of the work at NASA JPL where Columbus is providing full-mission life-cycle support from Pre-Phase A (Concept Studies) through Phase F (Closeout) for multiple missions including SWOT, MARS 2020, OCO-3, etc. Displays also include work at GSFC and NOAA NESDIS for LRO, EOS, and GOES missions.

Comptus

202 Tamarack Rd.
Thornton, NH 03285-6867
Contact: Andrew Q. White
Email: awhite@comptus.com
www.comptus.com

First-Time Exhibitor

Booth No: 341

Comptus is a leading U.S. manufacturer of environmental sensors. We serve the renewable energy, environmental research, building automation, crane and fountain markets worldwide.

Comptus is the manufacturing and resale partner for Barani Design in the U.S.A. Stop in to see the **MeteoWind**, MeteoShield Professional radiation shield and MeteoHelix IoT Pro weather station at booth 341

CUAHSI

www.cuahsi.org

First-Time Exhibitor

Booth No: 626

Founded in 2001, the Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) is a non-profit organization representing more than 140 academic and affiliate members, including non-governmental organizations, and international members. CUAHSI receives support from the National Science Foundation to provide programs and services which support the advancement of interdisciplinary water science.

Davis Instruments

Email: sales@davisinstruments.com
https://www.davisinstruments.com

Regular Corporation and Institutional Member

Booth No: 230

For over 30 years, Davis Instruments has been the recognized leader in environmental monitoring instruments for commercial and consumer marketplaces. The proven accuracy, durability and flexibility of Davis products, including EnviroMonitor®, Vantage Pro2™ and Vantage Vue®, have made them trusted, integral tools for meteorologists, industry professionals, farmers, system integrators and hobbyists.

Davis provides users worldwide with the technology to measure and manage key elements and delivers the real-time data you need to respond to changing conditions and make timely decisions.

Davis products are proudly made by "US"; designed, engineered, assembled and tested in California.

EXHIBITING ORGANIZATIONS

Delta OHM

Email: info@deltaohm.com
www.deltaohm.com/en/

Booth No: 135

High quality, high standard, high reliability.

Key words that have allowed Delta OHM to earn an outstanding international reputation over the last 40 years.

Our R&D department, production, calibration laboratories, sales and after sales departments are all under one roof.

For the Meteorological market we supply a wide range of measuring equipment according to WMO recommendations: wind measuring devices, pyranometers, data loggers, rain gauges, humidity and temperature sensors as well as complete Automated Weather Stations. We are able to develop specific solutions based on market requests giving the guarantee that all products and systems are field tested before being released to the market.

Our own accredited calibration laboratories according to ISO 17025 guarantees that we always stand for quality: our instrumentation is being used worldwide in critical situations where reliability is important for the users. Our worldwide network gives us the ability to stay in touch with local markets and to assure that we can provide service to our customers.

Since 2015 Delta OHM is part of the German GHM GROUP, a pioneering specialist and complete provider for innovative measuring a regulation technology.

Droplet Measurement Technologies, LLC

2400 Trade Centre Avenue
Longmont, CO 80503

Contact: Kristie Michelle Stowers

Email: kstowers@dropletmeasurement.com

<http://www.dropletmeasurement.com>

Booth No: 636

Droplet Measurement Technologies is a leading manufacturer of scientific instruments that are used to measure particles, water and ice in the atmosphere and on the ground

DTN

201 David L. Boren Blvd., Ste. 270
Norman, OK 73072

Contact: Bre Anna Cosme

www.radarscope.app/#pricing

Regular Corporation and Institutional Member

Booth No: 630

RadarScope is the professional's choice for mobile weather radar with over 500,000 users in North America alone. It's loaded with radar products designed for use on the job site, in the truck cab, on the trail or even in the studio. RadarScope is the #1 choice of meteorologists and weather enthusiasts, too!

- Affordable enough to equip every employee
- 24/7/365 live app support
- 30-day contour and radar archive
- Real-time hail contouring data
- Real-time lightning strike data

Earth Networks

12410 Milestone Center Dr., Suite 300
Germantown, MD 20876

Contact: Anna Porteus

Email: info@earthnetworks.com

www.earthnetworks.com

Regular Corporation and Institutional Member

Booth No: 214

Earth Networks helps global organizations mitigate financial, operational and human risk by providing environmental intelligence from the world's largest hyperlocal weather and lightning detection network. Schools, airports, sports teams, utilities and government agencies rely on our early warning solutions to safeguard lives, prepare for weather events and optimize operations. Companies across all industries use our weather data to automate decisions regarding risk management, business continuity, and asset protection.

EKO Instruments

Email: hasegawa-m@eko-usa.com

eko-usa.com

Regular Corporation and Institutional Member

Booth No: 235

EKO Instruments has a vast history of innovation developing high quality products for general meteorology as well as atmospheric science applications. As the only pyranometer and pyrliometer manufacturer with calibrations accredited under ISO 17025, our customers can rest assured that their equipment was made and tested to the highest level possible. EKO has the largest range of solar radiation instrumentation for atmospheric and Geophysical research. Our MS-80 series pyranometer has achieved the shortest response of all thermopile based sensors, allowing for accurate measurements of highly variable sky conditions. Building from the success of the MS-80, our fast response MS-57 pyrliometer and STR21/22G allow for user friendly and easy to install broadband solar monitoring systems. In addition to these operational products, our handheld spectroradiometer, the MS-720, is an ideal product for your phenological studies. If prolonged autonomous measurements are needed then we offer the MS-711, a highly advanced field deployable grating spectroradiometer. The MS-711 can be easily combined with our Rotating Shadow band system to allow for superior solar spectral irradiance research as well as remote sensing of atmospheric constituents.

Enterprise Electronics Corporation (EEC)

Contact: Kurt Kleess
Email: sales@eecweathertech.com
www.eecweathertech.com

Booth No: 228

EEC is your complete remote sensing provider, offering a full spectrum of weather radar and satellite data collection & display solutions. For almost 50 years, hundreds of customers spanning the media, government, hydrology, defense and aviation industries have entrusted EEC to supply the most advanced meteorological systems available.

EEC's Doppler weather radar division offers numerous variations of our legacy magnetron & klystron *Defender* systems. Additionally, EEC offers our 100% solid-state line of radars; *Endurance* (C-Band) & *Ranger* (X-Band). We've also added our ultra-low-cost *Maverick* X-Band radar, as well as our next generation *Pulse* software suite, to our product line.. Combined with EEC TeleSpace's full spectrum of direct receive weather satellite ground stations, EEC's solutions arm our customers with the most advanced remote sensing systems in the world.

Stop by and see us at Booth 228 to learn more about all EEC has to offer you!

Environmental Systems Research Institute, Inc.

380 New York Street
Redlands, CA 92373
Contact: Kelly Jacobus
esri.com

Regular Corporation and Institutional Member

Booth No: 129

ERT

14401 Sweitzer Lane, Suite 300
Laurel, MD 20707
Contact: Lisa Scaffardi
Email: lisa.scaffardi@ertcorp.com
www.ertcorp.com

Regular Corporation and Institutional Member

Booth No: 114

ERT is a science and technology company that provides its clients with innovative services and solutions to their scientific, engineering, environmental, and information technology challenges. Headquartered in Laurel, Maryland, ERT boasts a nationwide presence and a proud 25-year history.

Much of ERT's expertise stems from supporting NOAA's missions in the areas of satellites, climate, weather, oceans, and coasts. We provide system/software development, planning, and operations for space- and ground-based missions; science algorithm and model development and product generation for satellite missions; research to operations transition; and data center-related activities spanning the full life cycle from acquisition through distribution. We also deliver education and outreach services, IT support, and user support for scientific data products. ERT's interactions include academic and industry collaboration/support for critical functions that help secure the safety of U.S. citizens and commercial interests. For more information, please visit www.ertcorp.com.

EWR Radar Systems

Email: sales@ewradar.com
www.ewradar.com

Regular Corporation and Institutional Member

Booth No: 417

Since 1982, EWR Radar Systems, Inc. has been the industry's premier innovator of gap-filling weather radar systems. EWR offers a versatile line of both mobile and fixed mounted weather radar systems. In addition to commercial off the shelf products, EWR has the capability and experience to deliver weather radars based around customer requirements. EWR's fully solid-state transmitter, pulse compression and hybrid pulse technology offer low maintenance, reliable operation and state of the art meteorological capabilities.

EWR's revolutionary PDR Series remains the #1 supplied and current Portable Doppler Radar system to the U.S. Department of Defense. EWR's next generation E800 & E900 Series Dual Polarization Weather Radars are available in X-Band and C-Band. Each are available with a variety of antenna sizes and solid-state peak power values.

EWR's latest innovation is the Man Portable Phased Array Radar which combines target detection and weather surveillance in an ultra-compact, scalable package.

EWR has delivered over 290 radars globally and has a documented history of designing, producing and sustaining weather radar systems for tactical, institutional, educational, commercial and research based applications. Please stop by EWR's booth #417 to discuss your application.

Forecast Force

2500 Hickory Circle
Mountain Home, AR 72653
Contact: Jared Jay Lillis
www.forecastforce.tv

First-Time Exhibitor

Booth No: 605

Free copies of the mini picture book, Forecast Force: Weather Safety, will be handed out to everyone interested in children's weather safety. Dedicated weather teams from across the country are distributing the books during school visits, station tours, fairs, festivals and camps. The books feature a team of weather-forecasting groundhogs who share seven lessons on severe-weather safety. Participating weather teams and individual meteorologists are featured on the back cover.

FT Technologies

Sunbury House, Brookland Close
Sunbury-on-Thames, United Kingdom TW167DX
Contact: Gordon Bease
Email: gordon.bease@fttechnologies.com
fttechnologies.com/

Booth No: 634

FT Technologies manufactures the World's Toughest Wind Sensors. Our unique and exclusive Acu-Res technology is reputed throughout the world, where our sensors are enabling mission-critical applications with unsurpassed levels of data availability in all hostile climates and environments.

In 2019, we have introduced true air temperature measurements to our suite of wind sensors, as well as a tough and lightweight wind sensor for use on drones.

Our booth staff will be happy to discuss our products and your requirements.

Furuno Weather Radar

Email: weatherradar@furuno.com
www.furuno.com/en/systems/meteorological-monitoring/

Booth No: 517

Geonor, Inc.

Email: geonor@geonor.com
geonor.com

Small Business Corporation and Institutional Member

Booth No: 242

Gill Instruments Limited

Saltmarsh Park, 67 Gosport Street
Lymington, United Kingdom SO41 9E9
Contact: Michelle Errington
Email: contact@gillinstruments.com
www.gillinstruments.com

Booth No: 339

Gill Instruments designs and manufactures the world's largest range of high-quality ultrasonic anemometers and a wide variety of integrated weather sensors.

The robustness of Gill's products have been proven in some of the most demanding climate monitoring, marine and military markets, and the products are used by the leading-meteorological organisations worldwide.

The products' versatility is demonstrated by a broad customer base working in a growing range of sectors including agriculture, industry, air/transport, road/rail, and smart applications. Gill supply to customers around the world, both directly and through an extensive network of knowledgeable partners.

Global Science & Technology, Inc.

7855 Walker Drive, Suite 200
Greenbelt, MD 20770
Email: tim.pruss@gst.com
www.gst.com

Regular Corporation and Institutional Member

Booth No: 521

Global Science & Technology, Inc. (GST) is a high technology engineering services firm specializing in the development of information system technologies, satellite data receiving systems, software engineering, scientific research, and science and technology-related administration and management. GST's primary enterprise is providing effective solutions for acquiring, managing, and processing science data and information. Associated work includes managing activities related to technology transfer and administering data systems to ensure the effective management of data. GST has provided excellent high-technology science support to NASA and NOAA for over 29 years. GST has over 200 employees, a majority of who are scientists, engineers, and programmers.

GST operates and maintains a highly effective quality management system that complies with the requirements of ISO 9000:2008 for the following scope of registration: Provision of scientific and engineering services, including hardware development; information technologies, including the definition, design, development, and implementation of software; and technical services.

Our commercial services include consulting services supporting geospatial interoperability and the development, integration, and implementation of geospatial standards; a Geostationary Operational Environmental Satellite (GOES) direct readout system, DirectMet® that received and processes data from GOES instruments; and a WAFS- METLAB2 meteorological workstation that aids in the production of weather forecasts.

GRAW Radiosondes

Email: info@graw.de
www.graw.de

Booth No: 529

This year GRAW will showcase the following highlights:
 - New radiosonde DFM-17
 - Mobile phone application GrawApp

Highways and Hailstones

highwaysandhailstones.com/

First-Time Exhibitor

Booth No: 628

Displaying our tornado map and its features, such as our historical tornado database and tornado tracks. Displaying our "chase log" features for users. Introducing our revolutionary app for storm chasers.

IBSS Corp.

1110 Bonifant Street, Suite 501
 Silver Spring, MD 20910
 Contact: Carmen Jenkins
 Email: info@ibsscorp.com
ibsscorp.com

Booth No: 620

Powered By Excellence. Come visit IBSS booth to charge up your mobile device and learn about how we apply innovative IT solutions to the Weather, Water, and Climate Enterprise.

I.M. Systems Group

www.imsg.com

Regular Corporation and Institutional Member

Booth No: 527

IMSG is a foremost authority on environmental intelligence and environmental preparedness, helping governments and businesses worldwide meet the challenges and minimize the risks associated with manmade and natural hazards. We empower businesses and governments with cutting-edge technological, scientific, policy, and socioeconomic solutions needed to confront and rise above environmental challenges now and in the future.

INNOVIM, LLC

Email: ap@innovim.com
innovim.com/

Regular Corporation and Institutional Member

Booth No: 239

INNOVIM— Empowered people enabling smart decisions through data analytics and exploration. We are a Women-Owned Small Business (WOSB) helping federal agencies better understand the world through data in order to create a brighter and safer environment for our nation. For more than 15 years, we have designed and implemented science-data instruments and mission-critical data systems observing the oceans, land, atmosphere, Sun, our solar system, and deep space. These systems allow us to gather environmental data and turn it into actionable information. INNOVIM serves the National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), and Department of Defense (DoD).

INNOVIM's scientists and engineers use science, engineering, and data management techniques and analytics to transform vast amounts of environmental and scientific data into powerful decision-making tools. With our roots in Earth observation satellite system applications, we've expanded our expertise into systems and software engineering, data analytics, and designing and managing mission-critical systems. From predicting weather patterns to delivering critical information affecting an upcoming military operation, our innovative analytics-based solutions are forming the core of a future intelligence system that enables our customers to mitigate risk while operating in an agile, efficient manner to meet their missions.

AMS CORPORATION AND INSTITUTIONAL MEMBERSHIP

For information on corporate and institutional membership, please visit our website at <https://www.ametsoc.org/ams/index.cfm/membership/> or contact by telephone 617-227-2425, or email: amsmem@ametsoc.org



EXHIBITING ORGANIZATIONS

Integrated Systems Solutions, Inc.

www.issgmt.com

Booth No: 510

Integrated Systems Solutions, Inc. (ISS) is a service disabled, veteran-owned small business (SDVOSB) that provides high-value professional services in Program Management, IT Support Services, Engineering, Technical and Scientific Services, Economic Analysis and Emmy Award Winning Communication, Education and Outreach programs. We are a trusted mission execution partner providing exceptional and highly staff committed to your agency mission success.

ISS applies an integrated management framework anchored in our quality certifications and appraisals that include ISO 9001-2015 and an appraised Capability Maturity Model (CMMI) 3 for Services and Development. These certifications and appraisals ensure stable staffing, solid management, and outstanding performance to reach your critical mission goals.

Experience includes NOAA, FAA, DOI-USGS, VA and DOD DLA, TRICARE, USAF, DISA. Prime contracts include GSA Schedule for IT-70 and PSS, NOAA Protech Satellite and Oceans as well as agency specific BPAs. We are proud to be Prime contract holders for ProTech Satellites and Oceans Domains. Our clients have rated us in the top 5% of service providers through the Dun and Bradstreet Open Ratings report.

Intellisense Inc.

Email: mandersen@intellisenseinc.com
intellisenseinc.com

Booth No: 237

Intellisense Systems, Inc. (ISI) is a small business committed to providing innovative, timely, and cost-effective solutions for our defense customers in cutting-edge sensors, information processor, optoelectronic instrumentations, augmented intelligence, and visualization technologies. With well-rounded technical expertise and well-established processes and certifications, ISI has built an in-house engineering and production facility and infrastructure to support technology transition.

International Met Systems

Email: info@intermetsystems.com
www.intermetsystems.com

Small Business Corporation and Institutional Member

Booth No: 535

InterMet is a leading supplier of atmospheric sensors and sounding systems for synoptic, military and research applications. This year we are featuring the *iMet-4 radiosonde* (now in full production) and the portable *iMet-3050A Portable Sounding System*.

InterMet is the leading source of atmospheric sensors for low-cost UAV integration, including the configurable *iMet-XF* and the self-contained *iMet-XQ2*. This year we are introducing the iMet-X4 UAV sensor featuring real-time data transfer and four T/U sensors with connections for additional sensors

Since 1997, InterMet has offered high-performance radiosondes and sounding systems at affordable prices - with first-class customer service.

Kestrel Weather Instruments

Email: bchurchill@nkhhome.com
kestrelweather.com

Booth No: 345

Storm chasers, spotters, emergency management officials, environmental researchers, and meteorologists all rely on the Kestrel for accurate, instantaneous weather information that can be used to gain a deeper understanding of the world around us. Observe and examine the wonders of weather with an inside look at what is happening under the surface. With a Kestrel meter, gain access to the environmental details that reveal nature's story. Log changing conditions and track patterns for forecasting and data collection endeavors.

L3Harris Technologies

400 Initiative Drive
Geospatial Systems
Rochester, NY 14606
Contact: Ann E. Muscosky
www.l3harris.com

Sustaining Corporation and Institutional Member

Booth No: 209

For nearly 60 years, L3Harris has advanced the technologies and systems for collecting, receiving, and processing weather and environmental information from remote sensing systems. Today our sensors, ground systems, and analytics are providing information with unmatched detail and speed to government and commercial customers in traditional and new markets. Please visit us at booth #209 and www.l3harris.com to learn how L3Harris is advancing our customers' missions by delivering today's critical systems and developing tomorrow's innovative solutions.

Lockheed Martin Corporation

www.lockheedmartin.com

Sustaining Corporation and Institutional Member

Booth No: 201

LR Tech Inc.

Email: philippe.laberge@lrtech.ca

www.lrtech.ca

First-Time Exhibitor

Booth No: 440

ATMOSPHERIC SOUNDER SPECTROMETER BY
INFRARED SPECTRAL TECHNOLOGY

At LR Tech, we strive to improve atmospheric sounding and remote sensing by providing reliable, automated, and cost-effective solutions. LR Tech offers field-tested hardware and software solutions with the highest performance available. Our integrated solutions are autonomous and 100% remotely controllable for trouble-free 24/7 unattended operation.

Met Office

Fitzroy Road

Exeter, United Kingdom EX6 1TH

Contact: Alex Longden

Email: enquiries@metoffice.gov.uk

www.metoffice.gov.uk

Booth No: 600

UK Met Office is the UK's National Meteorological Service, an Executive Agency within the UK Government's Department for Business, Energy and Industrial Strategy.

Our supercomputer capability is one of the most powerful in the world dedicated to weather and climate; this enormous resource underpins all our activity at the forefront of scientific improvement, and has increased the volumes of data generated and stored to around 200 – 250TB per day.

We continue to make our big data journey, transforming how this data is stored, accessed and disseminated. Major, planned changes are being tested and rolled out as part of a phased pathway that includes greater access to data, expanding datasets and the opportunity to sample, experiment and evaluate the use of our weather and climate data.

We also continue to work with our partners globally to make our data even more useful and useable across numerous industry sectors. These include commercial applications, broadcast media, academia, national defence and Coalition military operations, both in peacetime and during wartime

Met One Instruments, Inc.

Email: showsales@metone.com

www.metone.com

Booth No: 512

Met One Instruments, Inc starts 2020 with new products and services. We have expanded our lines of Particulate Monitors, OEM particulate engines and meteorological sensors. We are a dynamic company providing solutions for ambient, indoor and controlled environmental monitoring. Our products include regulatory, fence line, near road side and speciation particulate monitors; handheld indoor, controlled environment/cleanroom and OEM particulate and mass monitors; and ambient surface meteorological, sensors and system solutions. Using technology and innovative design, combined with years of experience responding to a variety of solution challenges, Met One Instruments is able to meet the needs of our customers for any ambient and indoor monitoring requirements. For additional information on products, systems, calibration and maintenance services, please contact our sales staff sales@metone.com.

Metek Meteorologische (GmbH)

Fritz-Strassmann-Strasse 4

Elmshorn, Germany 25337

Email: info@metek.de

www.metek.de

Booth No: 238

Metek Meteorologische Messtechnik GmbH manufactures and delivers worldwide modern meteorological measuring systems and sensors ideally fitting to the specific needs of operational and scientific meteorological instrumentations.

Meteorological Equipment manufactured and promoted by Metek include:

- The Micro Rain Radar MRR-PRO with a new data acquisition technique, allowing up to 254 range gates for precipitation monitoring

- The multi-path ultrasonic anemometers uSonic-3 Class A-MP and uSonic-3 Cage MP with 9 radial wind components and 3 direct sensed vertical wind components

- The new developed Lidar Wind Sensor Wind Scout, an affordable, compact, eye-safe cw wind lidar

- Cloud Radar MIRA-35 and MIRA-35C in scanning and low power configurations for heights up to 15 km range (1024 heights) for routine cloud statistic and research purposes.

Meteomatics

www.meteomatics.com/

First-Time Exhibitor

Booth No: 621

Meteomatics is a weather service provider, headquartered in St Gallen, Switzerland and with offices in Berlin, Germany and Exeter UK with experience in delivering value jointly with clients across multiple sectors including: marine, logistics, aviation, insurance, energy (wind, solar and hydro) and transport.

We specialise in:

- Industrial weather forecasts
- High-resolution local weather models
- Meteodrones
- Environmental Data distribution via API

We have our own Meteodrone program that includes drone design, development and manufacture and we are authorized by the Swiss Federal Office of Civil Aviation (FOCA) to fly our drones beyond visual line of sight (BVLOS) and within regulated airspace in Switzerland in order to gather observations across all level of the atmosphere up to 3km above ground level.

We ingest the output of our Meteodrone observations into our downscaled weather model to provide enhanced local weather forecasting.

Meteomatics - the future of forecasting.

Meteomodem

Email: aferreira@metemodem.com

www.meteomodem.com/

Booth No: 338

Meteomodem is a worldwide reference in in the field of Upper-Air Observation thanks to its high level of innovation underlined by the design of its brand new M20 radiosonde, a revolution in the field of in-situ Upper Air Measurements allowing enhanced PTU and Wind quality data while helping reducing costs

Among other solutions, Meteomodem counts the Robotsonde, the Pilotsonde system, the Dropsonde, the LOAC particles counter and the BASTA Cloud Radar, all of them allowing accurate automatic measurement solutions with unbeatable cost-effectiveness and reliability.

We will be pleased to welcome you on our booth n°338 to present the quality of our products 100% 'Made in France

METER Group, Inc.

Email: sales.environment@metergroup.com

www.metergroup.com/

Regular Corporation and Institutional Member

Booth No: 418

Metstar Radar

Email: marketing@metstar.net

www.metstar.net

Booth No: 609

The Beijing Metstar Radar Co., Ltd. (Metstar) is a high-technology joint venture formed in 1996 by the Lockheed Martin Corporation of the United States and the China Meteorological Administration (CMA). Metstar offers a complete product line of WSR-98D S, C or X band Doppler radars which already delivered 168 radars to various national weather services. Metstar also produces the TWP3, TWP8 and TWPI6 Wind Profiler Radars that has been deployed successfully for many years in CMA. The constant innovation coming out of Metstar's new productions LPA10 Distrometers, GPS-MET, WindSmarter – 2H Wind Profile Lidar and WindAnalyzer – 50H Doppler Wind Lidar bring a bright future in the new area.

Mount Washington Observatory

www.mountwashington.org

First-Time Exhibitor

Booth No: 539

Mount Washington Observatory weather observers atop Mount Washington have taken hourly weather observations year-round for over 85 years. They do so through some of the most extreme conditions on Earth - winds over 100 mph, temperatures <-20°C, and rime icing rates >6"/hr for much of the year. These extreme conditions and long climate record position the legendary Mount Washington Observatory as an ideal location for weather and climate research, product testing, and educational outreach of all ages.

Visit our booth to learn about ways to bring distance learning programs to your school/institution, test your products in extreme conditions, and collaborate on research projects with MWO scientists. Our educational programs include summit overnight trips and live connections to the summit with your students. Ongoing research projects include boundary layer processes in mountainous terrain, elevation-dependent warming, air quality, and snowpack dynamics. In addition, drop by for an exciting display of exclusive live webcams from the summit, perspectives on the current summit weather, and periodic live video discussions with observers at the summit about life, weather and climate on Mount Washington.

NASA

science.nasa.gov

Regular Corporation and Institutional Member

Booth No: 301

Stop by the NASA exhibit and EXPLORE NASA Science! Engage with NASA Science experts as they present captivating, ultra-high resolution data visualizations on the Hyperwall to highlight NASA's latest Earth science discoveries. See dazzling photos and images of our planet from space at night in NASA's exciting new "Earth at Night" book. [Available early December in print (limited quantities) or as an eBook at www.nasa.gov/connect/ebooks/index.html.] Learn about the latest emerging technologies related to the atmospheric sciences—including recently developed CubeSats—from NASA's Earth Science Technology Office (ESTO). Speak with representatives from the NASA Postdoctoral Program (NPP), which offers U.S. and international scientists the opportunity to advance their research while contributing to NASA's scientific goals. NASA's Postdoctoral Fellows work on 1–3 year assignments with NASA scientists and engineers to advance NASA's missions in Earth science, heliophysics, aeronautics, engineering, science management, and many other fields. Get your questions answered by representatives from NASA's Science Mission Directorate (SMD) who will provide the information about NASA's Science program and plans for the future. We look forward to seeing you at the 2020 AMS Centennial Meeting!

National Science Foundation

Booth No: 317

NOAA

noaa.gov

Regular Corporation and Institutional Member

Booth No: 101

NOAA's mission is to understand and predict changes in the Earth's environment, from the depths of the ocean to the surface of the sun, and to conserve and manage our coastal and marine resources. Americans' health, security, and economic well-being are closely linked to climate and weather. NOAA is working with partners and the public to build a weather-ready, climate-smart nation that is resilient to extreme events and long-term climate change.

Northrop Grumman Corporation

www.northropgrumman.com

Sustaining Corporation and Institutional Member

Booth No: 217

Northrop Grumman is a leading global security company providing innovative systems, products and solutions in autonomous systems, cyber, C4ISR, space, strike, and logistics and modernization to customers worldwide. Please visit news.northropgrumman.com and follow us on Twitter, @NGCNews, for more information.

OTT HydroMet

22400 Davis Drive

Sterling, VA 20164

Contact: Jasmine Sisk

www.otthydromet.com

Booth No: 409

OTT HydroMet - Insights for Experts

OTT HydroMet delivers valuable insights for experts in weather and water applications. Proudly formed from six strong brands: OTT, Lufft, Kipp&Zonen, Sutron, ADCON, MeteoStar, and Hydrolab, the OTT HydroMet Group offers the combined strength and expertise of leaders in the water quality, quantity, surface weather, solar radiation measurement and telemetry fields with over 500 years of combined experience in environmental measurements. To find out, please visit us at booth 409.

OTT HydroMet offers advanced products and services that help monitor the world's water and weather to scientists and consultants seeking to protect the world's resources and lives.

Penguin Computing

Email: podsales@penguincomputing.com

www.penguincomputing.com

Small Business Corporation and Institutional Member

Booth No: 438

For 20 years, Penguin Computing has specialized in helping startups, Fortune 500, government, and academic organizations with innovative on-premise high-performance computing (HPC), bare metal HPC in the cloud, AI, and storage technologies coupled with leading-edge design, implementation, hosting, and managed services including sys-admin and storage-as-a-service, and highly rated customer support.

Peraton

12975 Worldgate Drive
Herndon, VA 20170
Contact: Melody Pleasure
www.peraton.com/

Booth No: 126

Peraton provides innovative, reliable solutions to the nation's most sensitive and mission-critical programs and systems. As a trusted provider of highly differentiated space, intelligence, cyber, defense, homeland security, and communications capabilities, Peraton is a critical partner to the Intelligence Community, Department of Defense, and select federal agencies and commercial entities. Headquartered in Herndon, Virginia, the company employs more than 3,500 people across the U.S. and Canada.

PIESAT

Email: int@piesat.cn
www.piesat.cn

Booth No: 614

PIE(Pixel Information Expert) is one of twin flagship software products of PIESAT for analyzing remote sensing image and data, it provides not only the comprehensive functions for processing the multi-modal remote sensing data (optical, radar, hyperspectral and Lidar etc.), but also applies the cutting edge techniques of information extraction and AI to present a highly automated and user friendly platform for remote sensing engineering applications.

Pond Engineering Laboratories, Inc.

2401 South County Road 21
Berthoud, CO 80513
Contact: Michael T Pond
Email: info@pondengineering.com
www.pondengineering.com

First-Time Exhibitor

Booth No: 445

Located in rural Northern Colorado, Pond Engineering has been developing and producing custom instruments and laboratory equipment, including ultra-high precision thermometer calibration equipment as a family business for the past 40 years.

Working in conjunction with NCAR, Pond Engineering has completed development and is pleased to introduce the K63 Hotplate® Snow & Precipitation Gauge. Utilizing patented technology under license from NCAR, the K63 measures total frozen, freezing and liquid precipitation with ultra-high reliability and no moving parts. Additional measured parameters include wind speed, ambient temperature, barometric pressure and relative humidity. Robust remote communications capability is provided via an RS-232 interface allowing the system to be operated as a stand-alone weather station or integrated into a larger measurement network.

Stop by and see us at booth # 445 for a live demonstration of this exciting new technology!

PSSC Labs

20432 N. Sea Circle
Lake Forest, CA 92630
Contact: Holly Heitmann
Email: 4sales@psscclabs.com
<http://www.psscclabs.com>

Booth No: 642

Building an accurate weather model requires your expertise and experience. And it begins with basic, human questions. What's at stake? What do we need to forecast that protects our communities and saves lives? That's why PSSC Labs has designed a data journey for booth visitors. Our goal is to custom-build unique systems that help organizations accomplish their business objectives with ease.

QinetiQ North America

350 Second Street
Waltham, MA 02451
Email: Quinn.Smith@QinetiQ-NA.com
www.qinetiq-na.com

Booth No: 531

QinetiQ North America offers a suite of small, lightweight meteorological sensors which deliver accurate, low cost, actionable information to assist with planning and forecasting for military, civilian, research and commercial markets. Designed for diverse and challenging environments, our met sensors provide precise, real-time readings to support decisions and missions based on current conditions.

QNA's portfolio of meteorological sensors include: TASK™ Tactical Atmospheric Sounding Kit which continuously measures wind speed, wind direction, pressure, temperature and humidity while ascending through the air column on a six cubic foot weather balloon (about 32 inch diameter). PADS® PRECISION AIRDROP SYSTEM ASonde enables aircrews to obtain in-situ weather information. WiPPR® Wind Profiling Portable Radar provides in-situ, real-time wind information used for a wide variety of applications including mission planning and numerical forecast model input. RIVERINE DRIFTER is a low-cost, free-floating data collection buoy that travels with the river current to collect depth and temperature as a function of position. iQ-3 SYNOPTIC RADIOSONDE a revolutionary synoptic radiosonde that measures real-time PTH and Winds Aloft information in support of synoptic military requirements and mission sets such as artillery fire support, tactical weather modeling, and high-altitude insertion/air drop.

Radiometrics

4909 Nautilus Court, North, Suite 110
Boulder, CO 80301
Contact: David Patton
Email: d.patton@radiometrics.com
www.radiometrics.com

Regular Corporation and Institutional Member

Booth No: 540

Radiometrics manufactures, installs and services remote sensing systems that deliver continuous wind, temperature, humidity and liquid profiles. The Radiometrics product line includes RAPTOR™ radar wind profilers, the MP-Series thermodynamic profiling microwave radiometers, acoustic wind profilers (sodars), and fully integrated SkyCast™ total profiling solutions. Radiometrics is also the North American distributor for REMTECH sodars. For over 30 years, Radiometrics has provided hundreds of customers worldwide with remote sensing systems that incorporate reliable and accurate electronics, innovative software tools, and unmatched technical support. Applications include airport wind shear detection and alerting, forecasting and nowcasting, atmospheric research, wind energy, and environmental monitoring. Our suite of instruments and integrated solutions keep you Ahead of the Weather™.

Raytheon Company

raytheon.com

Regular Corporation and Institutional Member

Booth No: 121

Raytheon Company, with 2017 sales of \$25 billion and 64,000 employees, is a technology and innovation leader specializing in defense, civil government and cybersecurity solutions. With a history of innovation spanning 96 years, Raytheon provides state-of-the-art electronics, mission systems integration, CSITM products and services, sensing, effects, and mission support for customers in more than 80 countries. *Raytheon* is headquartered in Waltham, Mass. Follow us on *Twitter*.

Remtech, Inc.

Email: sales@remtechinc.com
www.remtechinc.com

Small Business Corporation and Institutional Member

Booth No: 538

REMTECH is a company with offices in France and the U.S.A. which manufactures and maintains the REMTECH DOPPLER SODAR(s) and the RASS (Radio Acoustic Sounding System).

Our DOPPLER SODAR systems measure remotely a vertical profile of wind speed, direction, thermal stratification and turbulence parameters (sigma W, sigma Theta) up to 400, 700, and 3,000 meters average altitude range depending on Sodar model.

They are ideally suited for wind energy site assessment, airport safety (wind shear detection), for air pollution control and forecast, site surveys (power plants).

Military organizations are using the SODAR in programs for weapons development, parachuting, landing on aircraft carriers as well as flight tests in general.

Our RASS remotely measures temperature profiles in the atmosphere. It can be used in environmental studies and study of telecommunication network disturbances due to atmospheric conditions. It comes as an option to our long range SODAR and can provide measurements up to 1,500 meters above ground.

Riverside Technology, inc.

3350 Eastbrook Drive, Suite 270
Fort Collins, CO 80525

Contact: Brian Ashe

Email: brian.mischel@riverside.com
www.riverside.com

Regular Corporation and Institutional Member

Booth No: 319

R. M. Young Company

2801 Aero Park Drive
Traverse City, MI 49686
Contact: Andy Oliver
Email: met.sales@youngusa.com
youngusa.com

Regular Corporation and Institutional Member

Booth No: 115

The R. M. Young Company is the leading USA-based manufacturer of meteorological instruments for surface meteorological measurements. For over 50 years, YOUNG products have gained acceptance worldwide for applications in meteorology, oceanography, air-quality monitoring, agriculture and forestry, fire and emergency response, transportation, and energy.

The YOUNG exhibit will feature the rugged Wind Monitor, the most tested and proven line of anemometers available. Also on display, the versatile ResponseONE Weather Transmitter and Ultrasonic Anemometer provide reliable, cost-effective solutions that are ideal for many weather monitoring applications.

The YOUNG range is completed with sensors for measurement of temperature, relative humidity, barometric pressure, precipitation and visibility. A variety of displays, interfaces and accessories are also available. YOUNG products are supported worldwide by an extensive network of instrument resellers and distributors. For reliable, cost-effective instrumentation, contact YOUNG at met.sales@youngusa.com

Science/AAAS

Email: membership@aaas.org
www.sciencemag.org

First-Time Exhibitor

Booth No: 537

Since 1848, AAAS and its members have worked together to advance science and serve society. As part of these efforts, AAAS publishes *Science*, a multidisciplinary peer-reviewed journal, *Science Advances*, an open-access online journal, *Science Immunology*, *Science Robotics*, *Science Signaling*, and *Science Translational Medicine*. AAAS also offers programs focused on science policy, international cooperation, science education, diversity, and career development for scientists.

Science Is Never Settled

WhyClimateChanges.com

Booth No: 342

A not-for-profit dedicated to educating the public about Science, how Science is done, how Science can improve public safety with respect to natural hazards, and how Science can illuminate public policy issues in an increasingly technological world. Our primary focus is on the causes and effects of climate change and other natural hazards.

Science Systems and Applications, Inc.

www.ssaihq.com/

Regular Corporation and Institutional Member

Booth No: 416

Science Systems and Applications, Inc. (SSAI) will provide information from over 150 NASA and NOAA missions on capabilities that include mission planning, mission engineering, instrument design and development, systems engineering, algorithm development, science product development and research, and science data processing, archiving and distribution. SSAI will highlight our support for both weather forecasting and climate research from our direct support of NOAA's scientific teams and NASA's Global Modeling Assimilation Office (GMAO). We will demonstrate our web-based tools for displaying and analyzing scientific data, applying the information derived to advance techniques for increasing the accuracy of forecasts and long-range climate modeling. SSAI will also present cost-effective architectures for processing, managing, archiving and distributing large volumes of scientific data for researchers world-wide as well as the general public. Our techniques employ models, applications and data systems running on systems that range from conventional computer servers and clusters to data processing in the Cloud. These techniques are controlled and monitored through web-based tools for quality and accuracy, assuring reliable observations and measurements for use by our NOAA and NASA Projects and Missions. SSAI will emphasize our capabilities for performing across a wide range of weather/climate-related requirements, applying expertise acquired supporting NOAA and NASA Centers.

Scintec

Email: info@scintec.com
www.scintec.com

Regular Corporation and Institutional Member

Booth No: 507

Scintec produces the most advanced and comprehensive line of wind and temperature profilers in **SODAR, RADAR** and **RASS** technology. Continuing scientific innovation, outstanding product design and customer oriented philosophy has made Scintec a global leader in this field. Scintec also offers optical **SCINTILLOMETERS** for the measurement of boundary layer turbulence and heat flux.

Customers include research institutes and universities, the military, major airports, and weather services worldwide.

Scintec is ISO 9001 certified.

Please come and visit us at our booth no. 507.

Shanghai Em-data

First-Time Exhibitor

Booth No: 622

Founded in 2009, Shanghai Em-data Technology Co., Ltd. is a global artificial intelligence technology enterprise based on the development and application of computer vision recognition and deep learning. We are committed to the research of aviation meteorological AI, and have completed the landing and application of weather forecast, early warning system, meteorological observation, detection equipment and other products.

Shyft Solutions WxChange

15402 Chasemore Drive
Plattsmouth, NE 68048
Contact: Eric Reichwaldt
shyftsolutions.io/

First-Time Exhibitor

Booth No: 441

Shyft Solutions Weather Exchange cloud-based platform offers users a simple and concise API for accessing weather conditions based on their unique needs. Our “bring your own data” system allows model data producers the ability to upload datasets and immediately expose the data via web-services to access imagery and raw data in both OGC services and a simplified API.

Sonalysts, Inc.

215 Parkway North
Waterford, CT 06385

Contact: Peter Clement

Email: pclement@sonalysts.com

www.sonalysts.com/wxstation

Regular Corporation and Institutional Member

Booth No: 120

Sonalysts, Inc. is an employee-owned, small business headquartered in Waterford, CT with many additional offices located throughout the United States.

Sonalysts' wXstation™ and Dispatch Weather Client™ comprise a highly flexible and robust commercial command and control system used to support U.S. and international airlines flight operations. The system integrates real-time flight tracks, flight plans, weather data, aviation navigational data, flow information, and traditional Geographic Information Systems' data. This system has been supporting airline dispatchers and aviation weather forecasters 24x7 for more than 25 years. Dispatch Weather Client is expandable to display any geo-referenced time-sensitive data beyond aviation applications and has been applied for ship tracking and control use, as well as other operational and research applications.

Sonalysts has extensive experience in the design, development, and delivery of state-of-the-art system development and engineering, operations research, training, analysis, and management support systems. We continue to provide innovative solutions to U.S. and international defense, Government, and commercial customers.

Springer

Email: exhibits@springernature.com

springernature.com

Booth No: 616

Springer Nature is one of the world's leading global research, educational and professional publishers, home to an array of respected and trusted brands providing quality content through a range of innovative products and services. Springer Nature is the world's largest academic book publisher, publisher of the world's most influential journals and a pioneer in the field of open research. The company numbers almost 13,000 staff in over 50 countries and has a turnover of approximately EUR 1.5 billion. Springer Nature was formed in 2015 through the merger of Nature Publishing Group, Palgrave Macmillan, Macmillan Education and Springer Science+Business Media. Find out more: www.springernature.com

Tempo Quest

4770 Baseline Rd.
Boulder, CO 80303
Contact: Gene P. Pache
Email: gene@tempoquest.com
www.Tempoquest.com

First-Time Exhibitor

Booth No: 638

Tempo Quest will display GPU accelerated WRF, AceCAST, demonstrations, 1km operational forecast visualizations, On-Demand GPU WRF forecasts application in the Cloud, and Tempo Quest's weather visualization software, WSV3.

The Weather Company, an IBM Business

www.ibm.com/weather/industries/broadcast-media
Sustaining Corporation and Institutional Member

Booth No: 601

Weather Means Business™. The Weather Company, an IBM Business, is the world's largest private weather enterprise, delivering the most accurate, personalized, and actionable weather and traffic data and insights. Broadcasters rely on The Weather Company for the streamlined solutions they need to stay competitive, better engage their audiences, and fully monetize every screen. Visit ibm.com/weather/industries/broadcast-media.

UAlbany Weather Enterprise

251 Fuller Rd., ASRC
Albany, NY 12203
Contact: Kara Sulia
weatheranalytics.org/

Booth No: 631

Home to one of the largest and most comprehensive weather and climate ecosystems worldwide, UAlbany's Weather Enterprise is recognized for its preeminent scholarly leaders, one of the most advanced research infrastructure in the country, and an international reputation for excellence in atmospheric and environmental sciences. This includes: 1) one of the largest concentrations of weather and climate researchers in the US, 2) the largest and most advanced early detection weather observation system, the NYS Mesonet, 3), the NYSTAR Center of Excellence in Atmospheric and Environmental Prediction and Innovation, 4) the xCITE Visualization Laboratory, 5) a 25-year partnership with the National Weather Service. On display will be our capabilities in machine learning, data analytics, and scientific visualization in support of weather-dependent business decisions in sectors such as transportation, agriculture, utilities, and public schools.

UCAR|NCAR|UCP

3090 Center Green Dr.
Boulder, CO 80301
Contact: Peggy Stevens
ucar.edu

Sustaining Corporation and Institutional Member

Booth No: 309

University Corporation for Atmospheric Research (UCAR)
National Center for Atmospheric Research (NCAR)
UCAR Community Program (UCP)
UNIDATA
COMET

UKI Media & Events Ltd.

Email: simon.willard@ukimediaevents.com
www.ukimediaevents.com

Regular Corporation and Institutional Member

Booth No: 515

Come and meet the team behind the world's largest meteorological technology event **Meteorological Technology World Expo**, and the industry-first **Meteorological Technology International** magazine. Plus you can check out our new website www.meteorologicaltechnologyinternational.com

Put together, they form a complete suite of products to inform public and private sector users around the world, and to help hardware, software and service providers to communicate effectively with customers and prospects about their products, achievements, developments and possibilities for the future, motivated by a common desire to reduce loss from weather-related events.

Come and talk to us about how we can help your organisation achieve it's short- and long-term goals.

University of Alabama in Huntsville

320 Sparkman Drive
Huntsville, AL 35805
Contact: Daniela Cornelius
www.uah.edu/atmos

Regular Corporation and Institutional Member

Booth No: 236

The Department of Atmospheric Science at the University of Alabama in Huntsville will have several undergraduate and graduate students, faculty, and staff present at the 100th Annual AMS Meeting to answer any questions from prospective students and collaborators. We will have lots of goodies to give away!

University of Oklahoma and the National Weather Center

120 David L. Boren Blvd.
Norman, OK 73072
Contact: Kari Roop
www.ags.ou.edu

Publication Corporation and Institutional Member

Booth No: 223

Come by and see some of our latest technology and research in action! You can hear from our drone team, learn about our hydrology program, interact with our space mission (Geocarb), get up and personal with our new radar and lidar vehicles, play with a green screen, and more. We'll have researchers in the booth throughout the week and would love to partner on new projects!

University of Wisconsin — Madison, SSEC

1225 W. Dayton Street, CIMSS
Madison, WI 53706-1612
Contact: Scott Lindstrom
www.ssec.wisc.edu

Regular Corporation and Institutional Member

Booth No: 234

The Space Science and Engineering Center at the University of Wisconsin-Madison (co-located with NOAA's Cooperative Institute for Meteorological Satellite Studies, CIMSS) developed and maintains a long list of Meteorological Satellite Display systems including McIDAS-X, McIDAS-V, HYDRA, SIFT, Geo2Grid, Polar2Grid that will be demonstrated. You can also ask about CSPP Geo and CSPP used to decode data from antennas. In addition, the SSEC Data Center maintains an archive of current and past geostationary and polar satellite data that extends back into the 1970s. SSEC and CIMSS also maintain extensive educational activities including WebApps and Blogs.

Vaisala

194 South Taylor Ave.
Louisville, CO 80027
Contact: Kirsi Santomaa
www.vaisala.com

Sustaining Corporation and Institutional Member

Booth No: 401

Vaisala is a leading supplier of innovative environmental measurement and observation products, systems and services. We have been helping to predict the unpredictable for decades. Our experience in meteorology and hydrology applications, coupled with our vast experience in observation technology has allowed us to create solutions even for the most unimaginable places. Our instruments and data management systems are relied on from harsh Arctic environments to tropical regions, even in outer space. Vaisala products can be found collecting and analyzing valuable data around the world.

See you at our booth #401!

WeatherBell Analytics, LLC

Email: sales@weatherbell.com
www.weatherbell.com

Booth No: 139

WeatherBell is proud to display our first-in-class weather data for broadcasters. New product offerings will be shown and as always we will be asking for customer feedback.

We appreciate the overwhelmingly positive feedback about our new maps page. We welcome any product or layout suggestions as we continually look to improve our interface and offerings.

Wiki Education

11 Funston Ave, Suite A
San Francisco, CA 94129
Contact: Samantha Weald
Email: samantha@wikiedu.org
wikiedu.org

First-Time Exhibitor

Booth No: 544

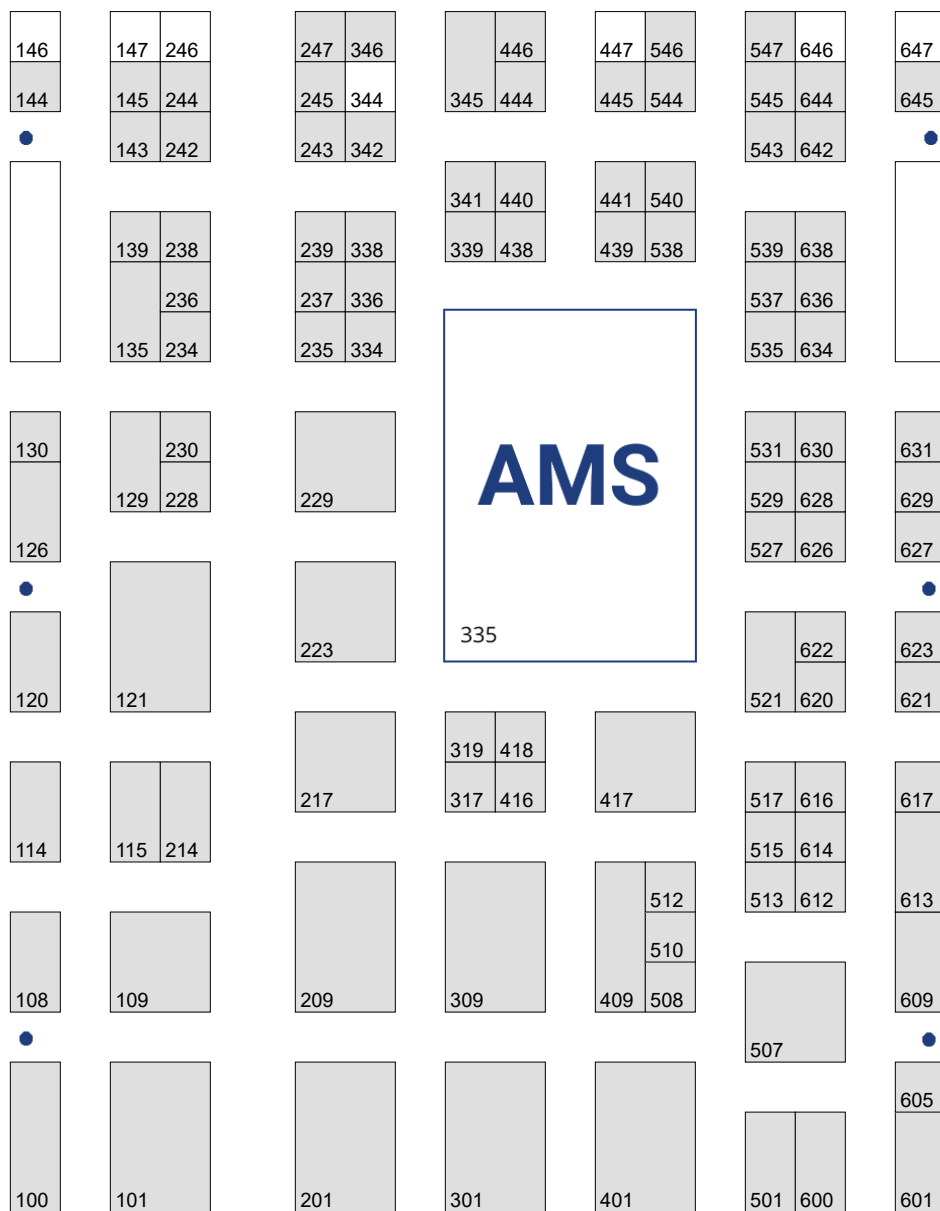
Wiki Education connects higher education to Wikipedia, ensuring that the world's most read source of information is more representative, accurate, and complete.

Our programs make it possible for students and scholars to successfully contribute to open knowledge that reaches millions of people.

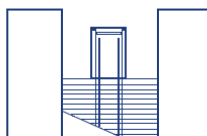
Learn more at teach.wikiedu.org and learn.wikiedu.org

AMS100

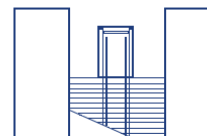
ADVANCING SCIENCE, SERVING SOCIETY SINCE 1919



ENTRANCE



EXIT



Monday Posters by Conference

Program Title	Code	Mon Posters
Susan Solomon Symposium	SOLOMONSYMP	1-34
36th Conference on Environmental Information Processing Technologies	36EIPT	35-43
34th Conference on Hydrology	34HYDRO	44-89
33rd Conference on Climate Variability and Change	33CVC	90-144
30th Conference on Weather Analysis and Forecasting (WAF)/26th Conference on Numerical Weather Prediction (NWP)	30WAF26NWP	145-205
29th Conference on Education	29EDUCATION	206-223
26th Conference on Probability and Statistics	26PROBSTAT	224-229
24th Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS)	24IOAS	231-258
22nd Conference on Atmospheric Chemistry	22ATCHEM	259-288
21st Joint Conference on the Applications of Air Pollution Meteorology with the A&WMA	21AIRPOL	289-299
20th Symposium on Meteorological Observation and Instrumentation	20SMOI	300-355
19th Conference on Artificial Intelligence for Environmental Science	19AI	356-368
18th Symposium on the Coastal Environment	18COASTAL	369-381
Major Weather Events and Impacts of 2019	16IMPACTS	382-388
15th Symposium on Societal Applications: Policy, Research and Practice	15SOCIETY	389-404
11th Conference on Environment and Health	11HEALTH	405-412
10th Symposium on Lidar Atmospheric Applications	10LIDAR	413-429
10th Conference on Transition of Research to Operations	10R20	430-435
Eighth Symposium on the Weather, Water, and Climate Enterprise	8WXCLIMATE	436-445
Eighth Symposium on the Madden-Julian Oscillation and Sub-Seasonal Monsoon Variability	8MJO	446-471
Fifth Symposium on US-International Partnerships	5INTERNATIONAL	472-477

Tuesday Posters by Conference

Program Title	Code	Tues Posters
Robert Dickinson Symposium	DICKINSONSYMP	478-528
48th Conference on Broadcast Meteorology	48BROADCAST	529-530
36th Conference on Environmental Information Processing Technologies	36EIPT	531-531
34th Conference on Hydrology	34HYDRO	540-608
33rd Conference on Climate Variability and Change	33CVC	609-641
30th Conference on Weather Analysis and Forecasting (WAF)/26th Conference on Numerical Weather Prediction (NWP)	30WAF26NWP	642-697
29th Conference on Education	29EDUCATION	699-714
25th Conference on Applied Climatology	25APPLIED	715-728
21st Joint Conference on the Applications of Air Pollution Meteorology with the A&WMA	21AIRPOL	730-734
20th Conference on Aviation, Range, and Aerospace Meteorology	20ARAM	735-752
17th Conference on Space Weather	17SPACEWX	753-780
15th Symposium on Societal Applications: Policy, Research and Practice	15SOCIETY	781-786
15th Symposium on the Urban Environment	15URBAN	787-798
10th Symposium on Advances in Modeling and Analysis Using Python	10PYTHON	800-803
10th Conference on Transition of Research to Operations	10R20	804-807
Eighth AMS Symposium on the Joint Center for Satellite Data Assimilation (JCSDA)	8JCSDA	808-828
Sixth Symposium on High Performance Computing for Weather, Water, and Climate	6HPC	829-831
Tropical Meteorology and Tropical Cyclones Symposium	TROPSYMP1	832-881
Middle Atmosphere One-Day Symposium	MIDDLESYMP	882-917
Severe Local Storms Symposium	SLSSYMP1	918-996

Wednesday Posters by Conference

Program Title	Code	Wed Posters
Wayne Schubert Symposium	SCHUBERTSYMP	997-1033
36th Conference on Environmental Information Processing Technologies	36EIPT	1034-1044
34th Conference on Hydrology	34HYDRO	1045-1118
33rd Conference on Climate Variability and Change	33CVC	1119-1181
30th Conference on Weather Analysis and Forecasting (WAF)/26th Conference on Numerical Weather Prediction (NWP)	30WAF26NWP	1182-1249
29th Conference on Education	29EDUCATION	1250-1271
22nd Conference on Atmospheric Chemistry	22ATCHEM	1272-1301
22nd Conference on Planned and Inadvertent Weather Modification	22WXMOD	1302-1320
21st Joint Conference on the Applications of Air Pollution Meteorology with the A&WMA	21AIRPOL	1321-1330
20th Conference on Aviation, Range, and Aerospace Meteorology	20ARAM	1331-1351
19th Conference on Artificial Intelligence for Environmental Science	19AI	1352-1367
16th Annual Symposium on New Generation Operational Environmental Satellite Systems	16GOESRJ PSS	1368-1384
15th Symposium on Societal Applications: Policy, Research and Practice	15SOCIETY	1385-1390
15th Symposium on the Urban Environment	15URBAN	1391-1411
12th Symposium on Aerosol - Cloud - Climate Interactions	12AEROSOL	1412-1445
11th Conference on Weather, Climate, and the New Energy Economy	11ENERGY	1446-1465
11th Conference on Environment and Health	11HEALTH	1466-1477
10th Conference on Transition of Research to Operations	10R20	1478-1485
Third Conference on Earth Observing SmallSats	3SMALLSTATS	1486
Tropical Meteorology and Tropical Cyclones Symposium	TROPSYMP1	1487-1535



AM METEOROLOGICAL SOC - ANNUAL MTG - 01/12/20 - 01/16/20

BOSTON CONVENTION & EXHIBITION CENTER - LEVEL 0 - BOSTON, MA

FREEMAN®	<p>Disclaimer - Every effort has been made to ensure the accuracy of all information contained on this floor plan. However, no warranties, either expressed or implied, are made with respect to this floor plan. If the location of building columns, utilities or other architectural components of the facility is a consideration in the construction or usage of an exhibit, it is the sole responsibility of the exhibitor to physically inspect the facility to verify all dimension and locations. © Copyright 2007, Freeman, all rights reserved.</p> <p>Confidential and Proprietary - the information contained herein is the proprietary information of Freeman and by accessing the information, the recipient agrees to keep the information confidential and not disclose it to any third party without the prior consent of Freeman. Recipient also agrees to only use the information for its internal evaluation purposes and for no other purpose, without the prior consent of Freeman.</p>	Drawing Started: 12/9/2019	Account Sales: CHRIS WOLTERS	Revision Date: 12/9/2019	Line Item: #5953780 Scale: CUSTOM
		Started By: ERIC CLEMMONS, NERDC	Account Management: CHRIS WOLTERS	Revised By: DAWN JENKINS, LV	



BOSTON CONVENTION & EXHIBITION CENTER
415 Summer Street | Boston, Massachusetts 02210
T 877-393-3393 | F 617-954-3326 | SignatureBoston.com

Exhibit Level

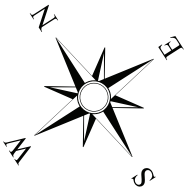


Exhibit Space

Meeting Rooms

Ballroom

The Lawn On D

Lobby & Pre-function

Public Use

Ring Road

Non-Public Access

Loading Dock Pre-Feb Area &

Loading Dock Covered Truck Access

Food Services

Elevator

Freight

Escalator

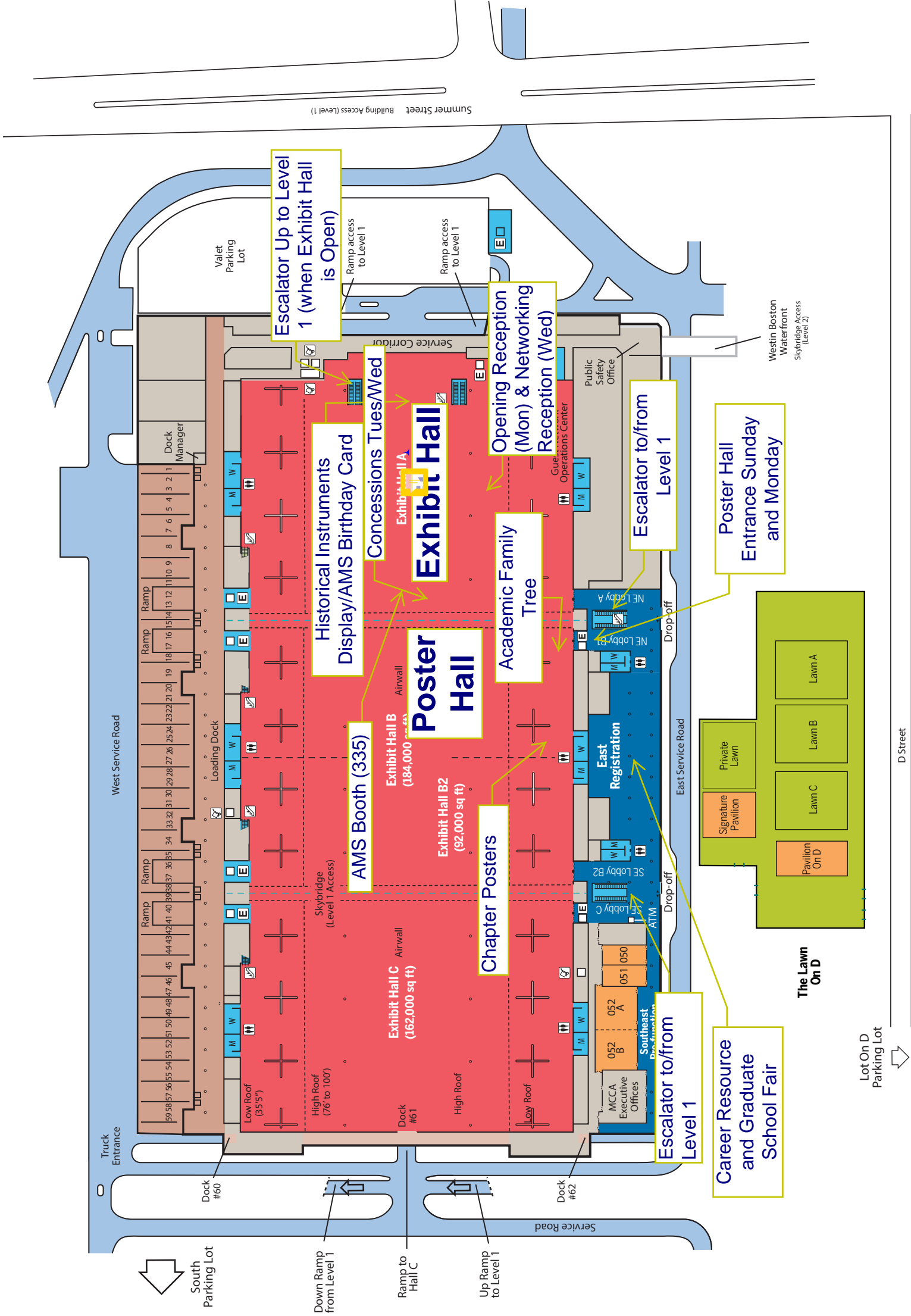
Restrooms

Permanent Concessions

Pay Phone

Suggested Coat Check

Stairs





BOSTON CONVENTION & EXHIBITION CENTER
415 Summer Street | Boston, Massachusetts 02210
T 877-393-3393 | F 617-954-3326 | SignatureBoston.com

Meeting Level 1

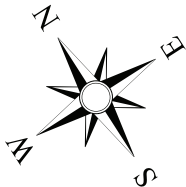


Exhibit Space

Meeting Rooms

Ballroom

The Lawn On D

Lobby & Pre-function

Public Use

Ring Road

Non-Public Access

Loading Dock Pre-Feb Area & Loading Dock Covered Truck Access

Food Services

Elevator

Freight

Escalator

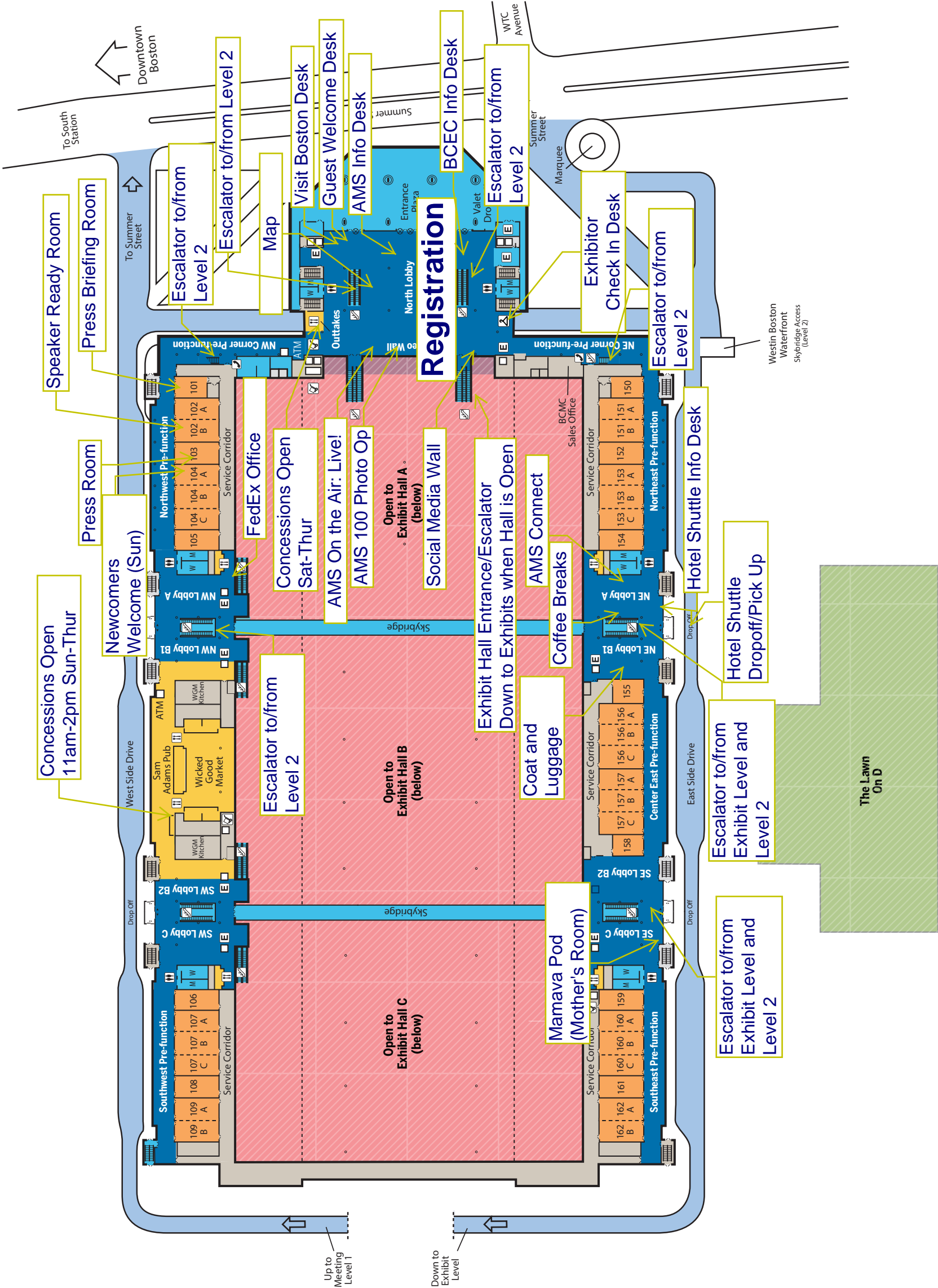
Restrooms

Permanent Concessions

Pay Phone

Suggested Coat Check

Stairs





BOSTON CONVENTION & EXHIBITION CENTER
415 Summer Street | Boston, Massachusetts 02210
T 877-393-3393 | F 617-954-3326 | SignatureBoston.com

Meeting Level 2

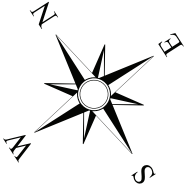


Exhibit Space

Meeting Rooms

Ballroom

The Lawn On D

Lobby & Pre-function

Public Use

Ring Road

Non-Public Access

Loading Dock Pre-Feb Area &

Loading Dock Covered Truck Access

Food Services

Elevator

Freight

Escalator

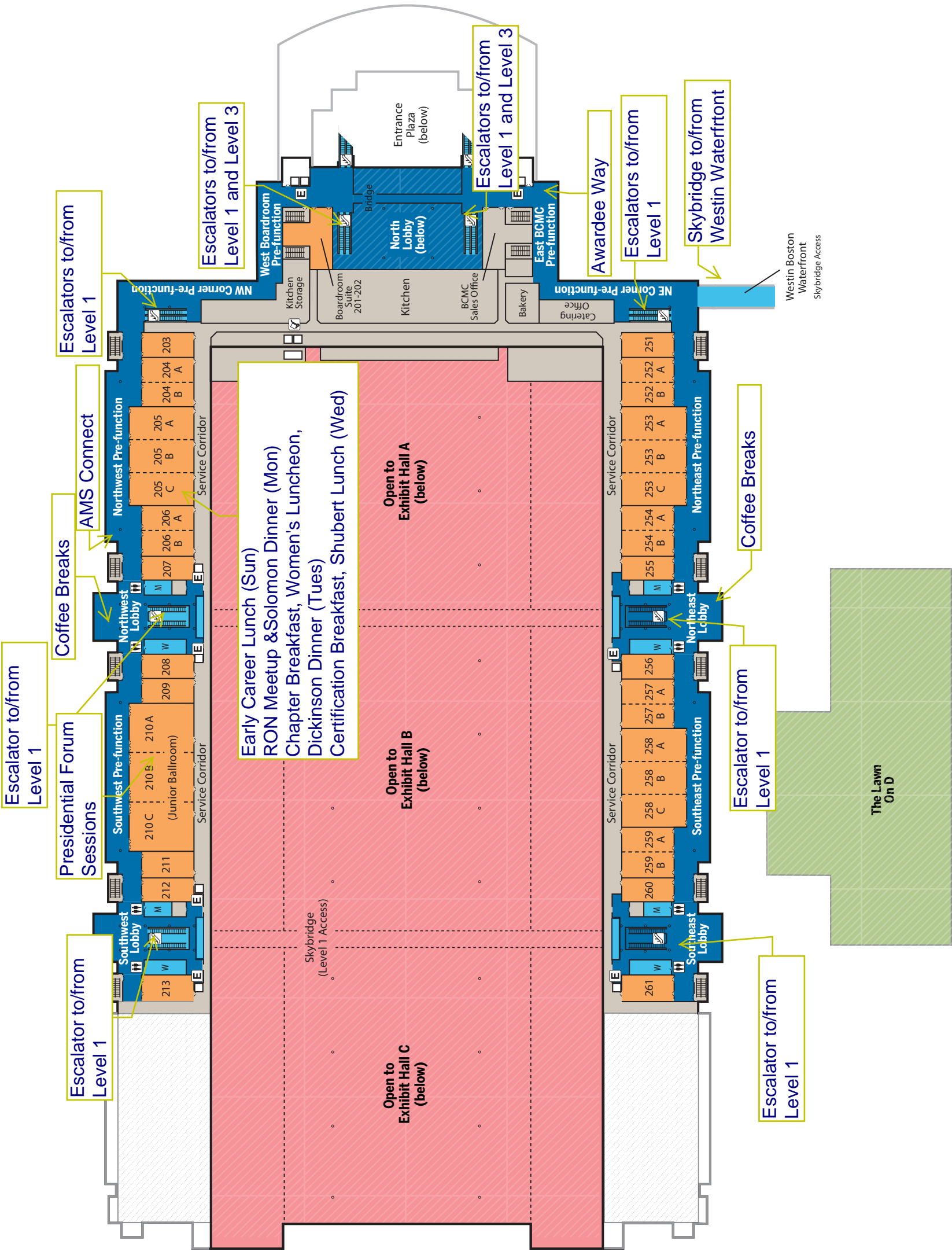
Restrooms

Permanent Concessions

Pay Phone

Suggested Coat Check

Stairs





BOSTON CONVENTION & EXHIBITION CENTER
415 Summer Street | Boston, Massachusetts 02210
T 877-393-3393 | F 617-954-3326 | SignatureBoston.com

Ballroom Level 3

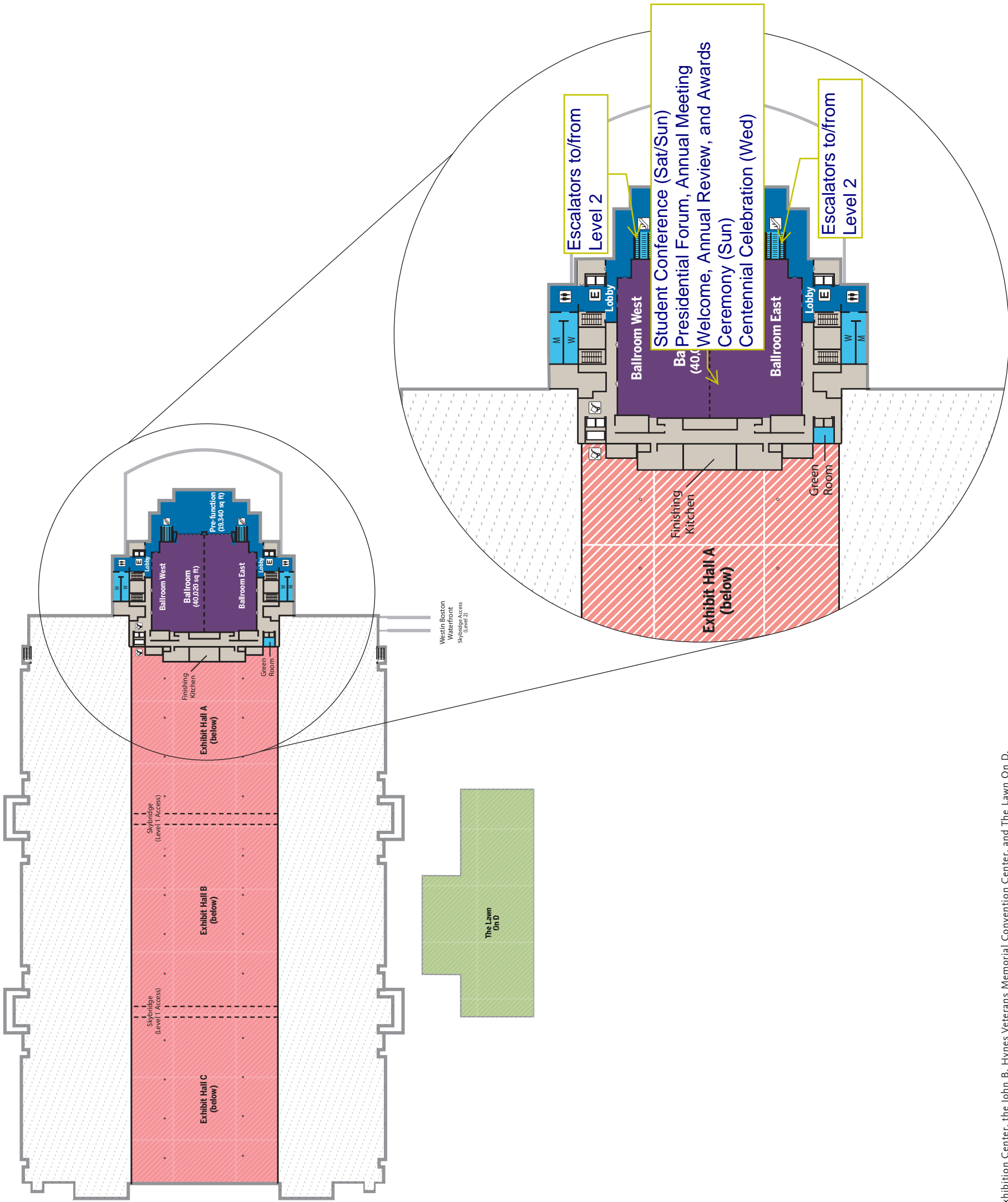
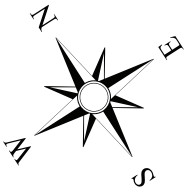


Exhibit Space

Meeting Rooms

Ballroom

The Lawn On D

Lobby & Pre-function

Public Use

Ring Road

Non-Public Access

Loading Dock Pre-Feb Area & Loading Dock Covered Truck Access

Food Services

Elevator

Freight

Escalator

Restrooms

Permanent Concessions

Pay Phone

Suggested Coat Check

Stairs

Meeting Space

OVERVIEW, PART ONE

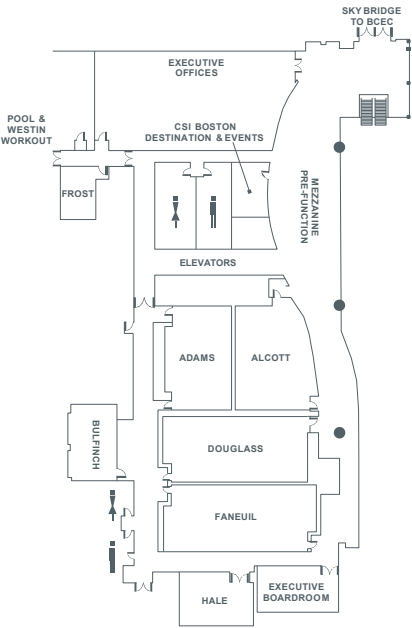
ROOMS AT A GLANCE

TOTAL GUESTROOMS	793
TOTAL MEETING ROOMS	37
LARGEST MEETING ROOM CAPACITY	1,800
LARGEST MEETING ROOM SIZE	1,780 SQ M / 19,160 SQ FT

Additional spaces for meetings and events, not shown here, may also be available. Contact your hotel representative for more information.

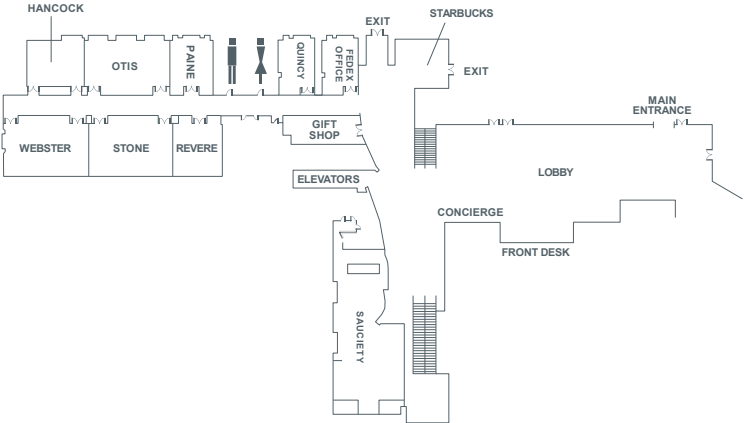
MEZZANINE LEVEL

- Frost
- CSI Boston Destination & Events
- Mezzanine Pre-function
- Alcott
- Adams
- Douglass
- Faneuil
- Executive Boardroom
- Hale
- Bulfinch



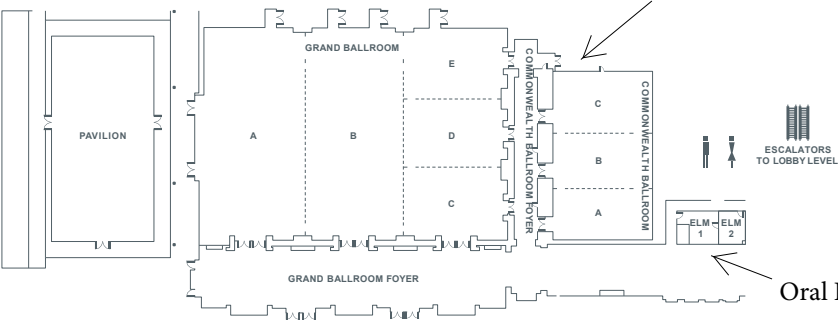
LOBBY LEVEL

- Hancock
- Otis
- Paine
- Quincy
- Sauciety
- Revere
- Stone
- Webster



CONCOURSE LEVEL

- Commonwealth Ballroom
- Commonwealth Ballroom Foyer
- Elm
- Grand Ballroom
- Grand Ballroom Foyer
- Pavilion



THE WESTIN
BOSTON
WATERFRONT

425 Summer Street
Boston, MA 02210
United States
T +1617.532.4600
F +1617.532.4630
marriott.com/BOSOW

Meeting Space

OVERVIEW, PART TWO

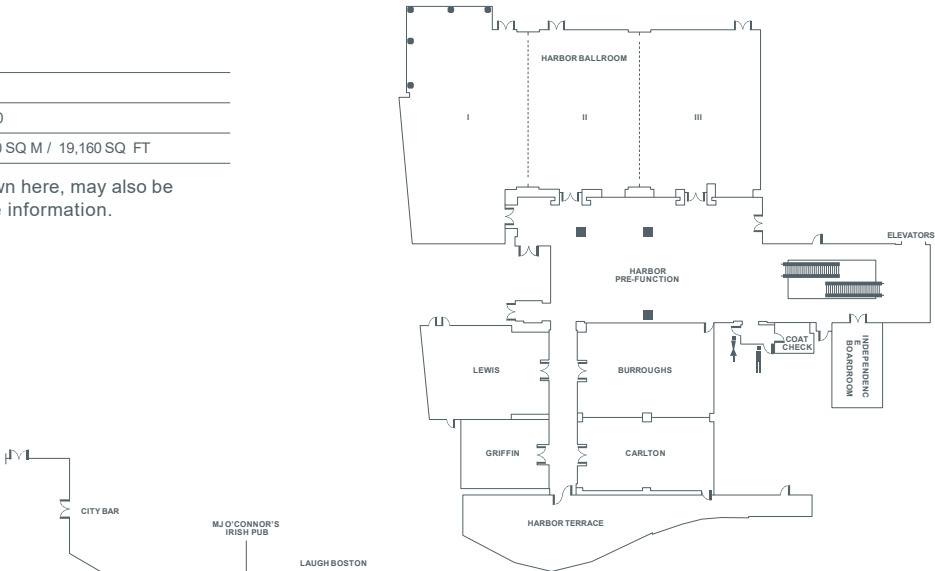
ROOMS AT A GLANCE

TOTAL GUESTROOMS	793
TOTAL MEETING ROOMS	37
LARGEST MEETING ROOM CAPACITY	1,800
LARGEST MEETING ROOM SIZE	1,780 SQ M / 19,160 SQ FT

Additional spaces for meetings and events, not shown here, may also be available. Contact your hotel representative for more information.

HARBOR WING, MEZZANINE LEVEL

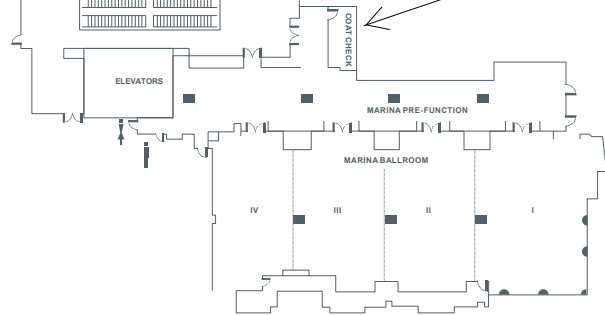
- Harbor Ballroom
- Harbor Pre-function
- Independence Boardroom
- Burroughs
- Carlton
- Harbor Terrace
- Griffin
- Lewis



Mother's Room

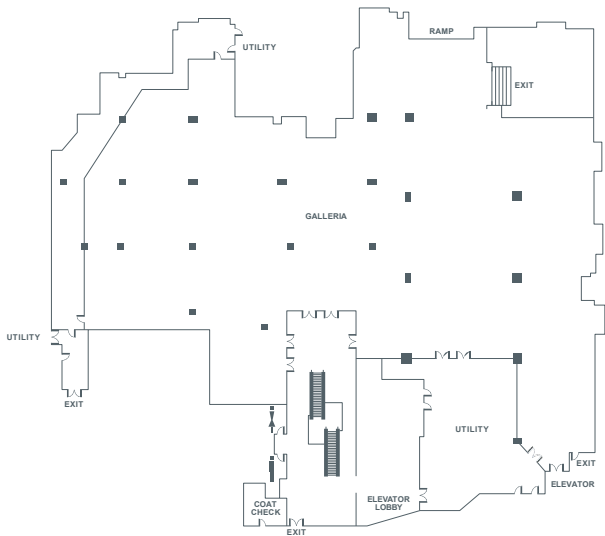
HARBOR WING, LOBBY LEVEL

- Marina Ballroom
- Marina Pre-function



HARBOR WING, CONCOURSE LEVEL

- Galleria



THE WESTIN
BOSTON
WATERFRONT

425 Summer Street
Boston, MA 02210
United States
T +1617.532.4600
F +1617.532.4630
marriott.com/BOSOW

BOSTON
WATERFRONT

EAST BOSTON

BEACON HILL

NORTH END

DOWNTOWN

Boston
Common

SOUTH
STATION

Children's

Tea Party

Boston Harbor

10 min to
Logan International
Airport

BOSTON'S SEAPORT DISTRICT

*map shows general locations

SOUTH BOSTON

CAFE/GRAB & GO

- | | | |
|----|---|------------|
| 1 | Fargo's Deli Of Course, 451 D St. 617.261.1664 | (.1 miles) |
| 3 | Sebastian's, 157 Seaport Blvd. 617.624.7990 | (.3 miles) |
| 11 | J Pace & Sons, 225 Northern Ave. 857.366.4640 | (.4 miles) |
| 9 | Caffé Nero, 368 Congress St. 857.233.5385 | (.5 miles) |
| 4 | Flour Bakery, 12 Farnsworth St. 617.338.4333 | (.5 miles) |
| 5 | Yankee Lobster, 300 Northern Ave. 617.345.9799 | (.5 miles) |
| 6 | Jimmy John's, 413 D. St. 857.317.3947 | (.2 miles) |
| 18 | Dunkin Donuts, 411 D. St. 617.439.6020 | (.3 miles) |
| 7 | James Hook Lobster, 15 Seaport Blvd. 617.423.5500 | (.9 miles) |

LOUNGE/TAVERN

- 8
8
9 Drink, 348 Congress St. 617.695.1806 (.6 miles)
9 Lucky's Lounge, 355 Congress St. 617.357.5825 (.6 miles)
10 Barlows Restaurant, 241 A St. 617.338.2142 (.6 miles)

CASUAL DINING

- | | | |
|----|---|------------|
| 16 | Gather, 75 Northern Ave. 617.982.7230 | (.6 miles) |
| 11 | Jerry Remy's, 250 Northern Ave. 617.856.7369 | (.3 miles) |
| 11 | LTK, 225 Northern Ave. 617.330.7430 | (.3 miles) |
| 11 | Salvatore's, 225 Northern Ave. 617.737.5454 | (.3 miles) |
| 11 | No Name Restaurant, 15 Fish Pier 617.423.2705 | (.4 miles) |
| 14 | Papagayo, 283 Summer St. 617.423.1000 | (.4 miles) |
| 12 | Tavern Road, 343 Congress St. 617.790.0808 | (.5 miles) |
| 9 | Sportello, 348 Congress St. 617.737.1234 | (.6 miles) |
| 15 | The Barking Crab, 88 Sleeper St. 617.426.2722 | (.8 miles) |
| 9 | Row 34, 383 Congress St. 617.553.5900 | (.5 miles) |
| 12 | Pastoral, 345 Congress St. 617.345.0005 | (.8 miles) |
| 16 | Committee, 50 Northern Ave. 617.737.5051 | (.5 miles) |
| 3 | La Casa De Pedro, 505 Congress St. 617.737.2272 | (.3 miles) |
| 9 | City Tap House, 10 Wharf Rd. 617.904.2748 | (.5 miles) |
| 9 | Yo! Sushi, 79 Seaport Blvd. 857.400.0797 | (.6 miles) |
| 19 | Shake Shack, 77 Seaport Blvd. 617.337.4699 | (.6 miles) |

RESTAURANTS

- | | | |
|----|---|------------|
| 11 | 75 on Liberty Wharf, 220 Northern Ave. 617.227.0754 | (.3 miles) |
| 11 | Del Frisco's Steakhouse, 250 Northern Ave. 617.951.1368 | (.3 miles) |
| 11 | Legal Harborside, 270 Northern Ave. 617.477.2900 | (.3 miles) |
| 11 | Morton's Steakhouse, 2 Seaport Lane 617.526.0410 | (.3 miles) |
| 8 | Rosa Mexicano, 155 Seaport Blvd. 617.476.6122 | (.3 miles) |
| 11 | Temazcal Cantina, 250 Northern Ave. 617.439.3502 | (.3 miles) |
| 14 | Blue Dragon, 324 A St. 617.338.8585 | (.5 miles) |
| 9 | Menton, 354 Congress St. 617.737.0099 | (.5 miles) |
| 8 | Ocean Prime, 140 Seaport Blvd. 617.670.1345 | (.4 miles) |
| 16 | Strega, 1 Marina Park Dr. 617.345.3992 | (.6 miles) |
| 16 | Empire, 1 Marina Park Dr. 617.295.0001 | (.6 miles) |
| | Trade, 540 Atlantic Ave. 617.451.1234 | (.8 miles) |
| | Nebo, 520 Atlantic Ave. 617.723.6326 | (.8 miles) |
| 14 | Bastille Kitchen, 49 Melcher St. 617.556.8000 | (.5 miles) |
| 16 | Babbo, 11 Fan Pier Blvd. 617.421.4466 | (.6 miles) |
| 14 | Oak + Rowan, 321 A St. 617.284.7742 | (.4 miles) |
| 17 | Smith and Wollensky, 294 Congress St. 617.778.2200 | (.8 miles) |

LOCAL ATTRACTIONS

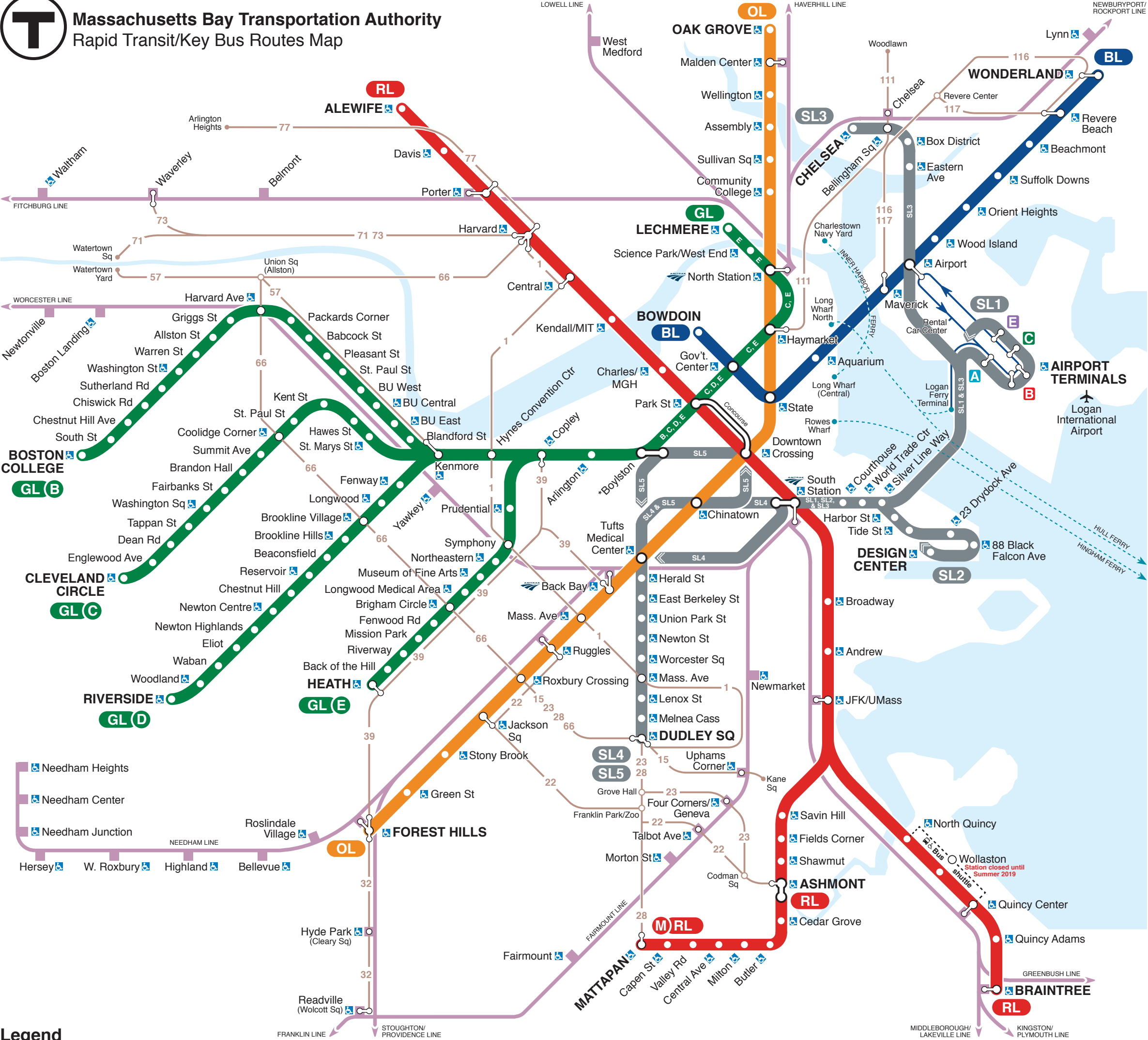
- | | |
|--|-------------|
| Blue Hills Bank Pavilion, 290 Northern Ave. 617.728.1600 | (.4 miles) |
| Spirit of Boston, 200 Seaport Blvd. 866.310.2469 | (.4 miles) |
| Bee's Knees Supply Co. 12 Farnsworth St. 617.292.2337 | (.5 miles) |
| Boston Fire Museum, 344 Congress St. 617.338.9700 | (.5 miles) |
| Boston Harbor Walk | (.5 miles) |
| ICA, 100 Northern Ave. 617.426.6500 | (.5 miles) |
| Tea Party Museum, Congress St. Bridge 617.592.0422 | (.6 miles) |
| Children's Museum, 308 Congress St. 617.426.6500 | (.6 miles) |
| Harpoon Brewery, 306 Northern Ave. 617.574.9551 | (.6 miles) |
| New England Aquarium, 1 Central Wharf 617.973.5200 | (1.2 miles) |
| Faneuil Hall Marketplace 617.523.1300 | (1.3 miles) |
| North End - Little Italy | (1.6 miles) |
| JFK Library, 220 Morrissey Blvd. 617.514.1600 | (2.1 miles) |

425 Summer Street
Boston, MA 02210
westinbostonwaterfront.com

T

Massachusetts Bay Transportation Authority

Rapid Transit/Key Bus Routes Map



Legend

- RL

RED LINE

M

MATTAPAN LINE

OL

ORANGE LINE

BL

BLUE LINE
- SL

SILVER LINE and branches

GL

GREEN LINE and branches
- 000

KEY BUS ROUTE
Frequent service

FERRY
- SL1 SL3
SL2 SL4
SL5

COMMUTER RAIL

Accessible station

All MBTA and Massport bus and ferry services are accessible

Rapid Transit transfer station

Commuter Rail transfer station

Free Logan Airport shuttle bus

Amtrak service

Back Bay, North & South stations

*Boylston: Accessible for Silver Line only

Customer Communications & Travel Info

617-222-3200, 800-392-6100,
TTY 617-222-5146, www.mbta.com

MBTA Transit Police: 911

TTY 617-222-1200

Elevator/escalator/lift updates: 800-392-6100

Not to scale

© April 2018 v.31A

AMS

101st Annual Meeting

See you next year in New Orleans!
10-14 January 2021





Where Data
Becomes Discovery

WRF

High Performance Computing in the Cloud for WRF

WRF at Sabalcore

- **WRF** is pre-installed. Begin running in just a few minutes.
- WPS, ARW, NMM, WRFDA, HWRF, 3D-var, and more
- Support for automated execution of **WRF** jobs
- Support for automated GFS downloads
- Unrestricted job execution
- Custom builds for your REGISTRYs
- Fully managed so you can focus on your tasks.
- Per second billing- pay only for the compute time you use.
Volume discount available.

Our Compute Infrastructure

- Single origin – you know exactly where and who manages your data: Sabalcore.
- True HPC in the cloud - leadership-class performance, MPI scalability, highly favorable cost/performance
- Purpose-built, “bare-metal”, high performance computing systems provide outstanding performance
- "Same rack" Infiniband network for superior MPI performance
- Parallel File System – localized and direct-attached, provides outstanding data performance for **WRF**.
- Accelerated global data transfer- transfer your results fast from anywhere in the world!

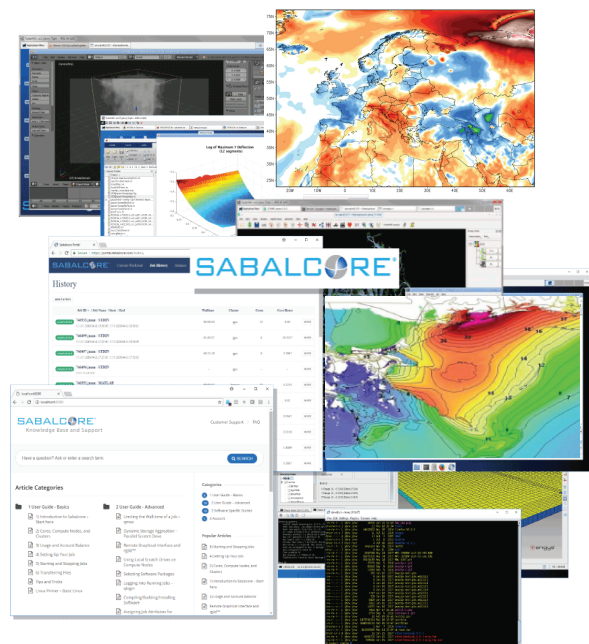
Included with the Service

- Free Login Nodes
- Free 100GB of monthly storage
- Free data transfer (via standard SCP or SFTP)
- Free Remote Visualization
- Expert **WRF** installations and Technical Support

Start Today

Your first 1,000 core-hours are free. Mention AMS and receive an additional 1,000 core-hours free. Test your models, run jobs, and leverage the expertise of our technical support to help get you up and running quickly.

Visit www.sabalcore.com/sign-up and start today.



Business Development
busdev@sabalcore.com
877-492-8027

Sabalcore Computing, Inc.
3505 Lake Lynda Drive Suite 200
Orlando, FL 32817 USA

Building Weather Ready Nations Since the 1930's

With over 80 years of experience, customers in more than 120 countries, with NASA on Mars, presence on the North and South Pole and everywhere in between.

We help you to provide the most reliable and accurate weather information to ensure a better and safer daily life.

Visit us at the booth #401

VAISALA

vaisala.com/AMS2020

CELEBRATING

AMS100