An Introduction to Ethics in Forensic Meteorology

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American Meteorological Society Short Course
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- COMMERCIAL
- LEGAL
AGENDA

• PURPOSE
• BACKGROUND
• ETHICS IN FORENSIC METEOROLOGY
• SOCIAL MEDIA
• AN EXAMPLE
• SUMMARY
• REFERENCES
Weather impacts the lives of people around the globe, in work and play, in health and safety, in commerce and industry, and in finance and law. With such a wide spread and intimate impacts the practitioners of meteorology daily face a significant challenge to conduct their affairs with high ethical standards.
COMMON ELEMENTS

• FAIR REPRESENTATION OF CAPABILITIES
• ACCURATE REPRESENTATION OF THE “STATE-OF-THE-SCIENCE”
• PROVISION OF FAIR VALUE FOR COMPENSATION
• FORUM FOR ADDRESSING DISCREPANCIES IN REPRESENTATION OR CONDUCT FOR METEOROLOGISTS
### CROSS COMPARISON OF ETHICAL PRINCIPALS

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* Ethical standards are promulgated through articles in the Bulletin of the American Meteorological Society
CHALLENGE DIRECTIONS

• OUTWARD FACING
  • CLIENTS
  • JUDICIAL SYSTEM
  • MEDIA
  • COLLEAGUES

• INWARD FACING
  • YOUR COMPANY AND EMPLOYEES
  • COLLABORATORS
OUTWARD FACING ETHICAL CHALLENGES

• ACCURATE REPRESENTATION OF PERSONAL CAPABILITIES
• UTILIZATION OF QUALITY DATA AND PROVEN TECHNIQUES
• PROVIDING ACCESS FOR OPEN REVIEWS IF PERMITTED
• ASSIGNING CREDIT FOR WORK TO THE PERFORMERS AND DATA PROVIDERS
• ACCURATE REPRESENTATION OF “STATE OF THE SCIENCE”
• AVOID PERSONAL ATTACKS
• BE PREPARED TO BE AN EXPERT WITNESS FOR THE YOUR CLIENTS AND POTENTIALLY COURT
OUTWARD FACING CHALLENGES

• ACCURATE REPRESENTATION OF PERSONAL CAPABILITIES
  • ACKNOWLEDGE WHAT YOU ARE CAPABLE OF DOING AND YOUR LEVEL OF EXPERTISE. IT WILL HELP YOUR BUSINESS IN THE LONG TERM. (BUSINESS BY REPUTATION)
  • IF YOU ARE AN SUBJECT MATTER EXPERT, STATE SO, IF YOU NEED TO STUDY UP ON A SUBJECT SET REASONABLE EXPECTATIONS

• UTILIZATION OF QUALITY DATA AND PROVEN TECHNIQUES
  • USE RELIABLE AND IF REQUIRED CERTIFIED DATA
  • DON’T GIVE THE OPPOSING EXPERT AN OPPORTUNITY TO CHALLENGE YOUR UNDERSTANDING OF THE SCIENCE OR CREDIBILITY
  • DATA FROM PERSONAL SYSTEMS MAY BE INCORRECT, INACCURATE, NON-REPRESENTATIVE OR TAMPERED

• PROVIDING ACCESS FOR OPEN REVIEWS IF PERMITTED
  • RETAIN SOURCES LOCATIONS FOR THE DATA INCLUDING CERTIFICATIONS
  • BE PREPARED TO PROVIDE ALL RAW DATA TO YOUR CLIENTS
OUTWARD FACING CHALLENGES

• ASSIGNING CREDIT FOR WORK TO THE PERFORMERS AND DATA PROVIDERS
  • TRANSPARENCY TO YOUR CLIENT OF PERFORMERS OF THE ANALYSIS AND CONCLUSIONS

• ACCURATE REPRESENTATION OF “STATE OF THE SCIENCE”
  • THIS HELPS YOUR CLIENT ASSESS IF OR HOW THEY WANT TO USE THE DATA AND / OR YOUR ANALYSIS. IN SOME CASES THEY MAY NOT WANT TO USE IT.
  • SCIENCE HAS ITS LIMITS. SETTING EXPECTATIONS EARLY CAN AVOID EMBARRASSMENT LATER

• AVOID PERSONAL ATTACKS
  • RECOGNIZE OPPOSING GROUPS MAY HAVE THEIR OWN EXPERTS AND AVOID PERSONALLY FOCUSED DISPARAGING COMMENTS
OUTWARD FACING CHALLENGES

• AS A EXPERT WITNESS TO THE YOUR CLIENTS AND POTENTIALLY COURT
  • AVOID CONFLICTS OF INTEREST AND DISCLOSE ALL POTENTIAL CONFLICTS TO YOUR CLIENTS
  • PROVIDE UNBIASED SCIENTIFIC RESULTS
  • RETAIN A DETAILED SCIENTIFIC PROCEDURE FOR ANY / ALL OF YOUR ANALYSIS IN A FORM THAT CAN BE DELIVERED TO YOUR CLIENT IF NEEDED.
INWARD FACING CHALLENGES

• RETAINING PROPRIETARY SECRETS WHILE ADVANCING THE SCIENCE
• PROVIDING FAIR VALUE FOR SERVICES
• UTILIZING ESTABLISHED METHODOLOGIES AND IDENTIFYING UNPROVEN ONES
• ACCURATE ASSESSMENT OF CAPABILITIES
INWARD FACING CHALLENGES

• RETAINING PROPRIETARY SECRETS WHILE ADVANCING THE SCIENCE
  • A BALANCE BETWEEN ADVANCING ONES COMPANY GOALS AND ADVANCING THE SCIENCE.
    • THE RELEASE OF PRIVATE DATA AND TECHNIQUES TO THE SCIENTIFIC COMMUNITY

• PROVIDING FAIR VALUE FOR SERVICES
  • EASY ANSWERS SHOULD NOT COST HARD DOLLARS ONLY HARD ANSWERS
    • VALID CHARGES AND RECORD KEEPING
    • JUST GOOD BUSINESS AND HELP BUILD A POSITIVE REPUTATION

• UTILIZING ESTABLISHED METHODOLOGIES AND IDENTIFYING UNPROVEN ONES
  • TECHNIQUES THAT HAVE NOT BEEN VALIDATED AND PROVEN, PROVIDE ONLY NEW QUESTIONS. STATE OF THE SCIENCE APPROACHES

• ACCURATE ASSESSMENT OF CAPABILITIES
  • AVOID OVERSELLING CAPABILITIES TO MAKE A SALE CAN LEAD TO BROKEN CONTRACTS, WASTE, AND POOR FUTURE CONTRACT OPPORTUNITIES
ETHICS AND SOCIAL MEDIA

• FORENSIC METEOROLOGISTS INTERACT WITH A WIDE VARIETY OF SOCIAL MEDIA APPLICATIONS FOR PROFESSIONAL AND PERSONAL COMMUNICATION. THE SCOPE OF SOCIAL MEDIA AND THE IMPACT IS STAGGERING.

• SOME OF THE CURRENT MOST POPULAR SOCIAL MEDIA APPS ARE:
  • FACEBOOK
  • TWITTER
  • SNAPCHAT
  • LINKEDIN
  • PINTEREST
  • U-TUBE
  • VK
  • PERISCOPE
SOCIAL MEDIA AND PUBLICITY

• SOCIAL MEDIA CAN BE USED TO PROMOTE YOUR BUSINESS
  • CLIENTS
  • AREAS OF SPECIALIZATION
  • UNIQUE CAPABILITIES

• REMEMBER THE WORLD IS WATCHING
  • REFRAIN FROM DISPARAGING REMARKS
  • PROTECT CONFIDENTIALITY
  • DON'T POST WHAT YOU CAN'T PROVE
  • OBTAIN PERMISSION BEFORE POSTING
  • GIVE CREDIT TO THOSE WHOSE DATA OR EXPERTISE YOU USE
  • CHOOSE PICTURES AND VIDEOS CAREFULLY

WORD TO THE WISE “ONCE POSTED IT HAS A LIFE OF ITS OWN”
FORENSIC METEOROLOGY: AN EXAMPLE

• HIGH PROFILE PERSON IS INVOLVED IN A LATE NIGHT CAR ACCIDENT IN A RURAL AREA THAT OCCURRED DURING A FRONTAL PASSAGE WITH POTENTIAL SNOWFALL AND IS BEING SUED FOR DAMAGES

• THE RADAR SITE IS 80 MILES AWAY FROM THE AREA OF THE ACCIDENT AND THE NEAREST CLASS A WEATHER STATION IS 15 MILES AWAY

A near by weather enthusiast offers data from his personal weather system and his notes from the day to help substantiate the snowfall during the period.
FORENSIC METEOROLOGY: AN EXAMPLE

QUESTIONS

WHAT SHOULD YOU DO?

• **DOOR #1** ACCEPT THE DATA AND USE IT TO FILL IN FOR THE LACK OF RADAR DATA AND THE DATA FROM DISTANT OBSERVATION STATION?

• **DOOR #2** RELY ON THE OFFICIAL DATA?

AN APPROACH

• GATHER ALL OFFICIAL DATA (RADAR, OFFICIAL OBSERVATIONS, SATELLITE DATA AND EYEWITNESS/POLICE ACCOUNTS)

• CHECK FOR ANY SPECIAL DATA COLLECTIONS (UNIVERSITIES FIELD PROJECTS, WATER DISTRICTS, HIGHWAY DEPARTMENTS, AGRICULTURAL OBSERVATIONAL SITES, ETC.)

• PERFORM YOUR ANALYSIS USING STANDARD TECHNIQUES TO ESTIMATE IF IT WAS SNOWING AND THE SNOWFALL RATE

• ALERT YOUR CLIENT TO THE AVAILABILITY AND THE DIFFICULTIES OF USING IT.

• ADDITIONAL CONSIDERATIONS RELIABILITY OF THE WEATHER ENTHUSIAST, REPRESENTATIVENESS OF HIS SITE, PERSONAL MOTIVATIONS
SUMMARY

• COMMON ELEMENTS TIE ALL METEOROLOGISTS TOGETHER

• OUR PROFESSIONAL ORGANIZATIONS PROVIDE GUIDANCE AND IN SOME CASES SELF CORRECTIVE ACTION

• IT IS UP TO EACH METEOROLOGIST TO BE AWARE OF ETHICAL DILEMMAS AND TO ACT IN THE BEST INTEREST OF THE PROFESSION AND SCIENCE IN GENERAL
REFERENCES

• NATIONAL WEATHER ASSOCIATION (http://www.nwas.org/)

• WEATHER MODIFICATION ASSOCIATION (http://www.weathermodification.org)

• NATIONAL COUNCIL OF INDUSTRIAL METEOROLOGISTS (http://www.ncim.org)

• AMERICAN METEOROLOGICAL SOCIETY (http://ametsoc.org)

Other Readings

Honesty, Ahearne, J., 2011, American Scientists, vol. 99, March April, pp. 120-122

On Being a Scientist: Guide to Responsible Conduct in Research, 2009, Committee on Science, Engineering and Public Policy, National Academy of Sciences, National Academy of Engineering and Institute of Medicine, third edition, Washington, National Academies Press
ABOUT THE PRESENTER

• Gerald Mulvey has a Ph. D. in Atmospheric Science. He has 30+ years of experience in industry and has coauthored a series of articles on ethics in meteorology which have been published in BAMS. He is currently an assistant professor at the University of the Incarnate Word

• HIS ETHICS PUBLICATIONS INCLUDE
  • HILL, JERRY D., GERALD J. MULVEY, 2012: BUSINESS ETHICS FOR PROFESSIONAL METEOROLOGY: EXPECTATIONS AND SATISFIED CUSTOMERS, BULL. AMER. METEOR. SOC., 93, 889–891 (HTTP://DX.DOI.ORG/10.1175/BAMS-D-11-00063.1)