

AMS SHORT COURSE: ADVANCED PYTHON FOR CLIMATE SCIENCE: FROM NUMPY TO PARALLEL COMPUTING

3–4 JANUARY 2015

PHOENIX CONVENTION CENTER

PHOENIX, AZ

ORGANIZER & INSTRUCTOR
Jonathan Rocher, Enthought Inc., AUSTIN TX

PROGRAM (ROOM 211B)

SAT 3 JANUARY

8:30 A.M.	ARRIVAL & INTRODUCTIONS
8:45 A.M.	THE NUMPY/SCIPY ECOSYSTEM
9:00 A.M.	VISUALIZING YOUR DATA: A QUICK INTRODUCTION TO MATPLOTLIB.
10:00 A.M.	COFFEE BREAK
10:30 A.M.	INTRODUCTION TO THE NUMPY ARRAY AND THE VECTORIZED WAY.
11:00 A.M.	EXERCISE: VECTORIZED COMPUTATIONS WITH NUMPY.
11:15 A.M.	N-DIMENTIONAL DATA EXTRACTION & MATHEMATICAL COMPUTATIONS.
12:00 P.M.	LUNCH BREAK
1:00 P.M.	EXERCISE: METEOROLOGICAL DATA EXTRACTION AND PLOTTING.
2:15 P.M.	LIFTING THE HOOD ON NUMPY ARRAYS: IMPLEMENTATION DETAILS THAT MATTER.
2:30 P.M.	OVERVIEW OF THE NUMPY PACKAGE FOR ARRAY MANIPULATION.
3:00 P.M.	COFFEE BREAK
3:30 P.M.	ADVANCED TOPICS THAT MATTER: MEMORY MAPPING AND STRUCTURED ARRAY.
4:45 P.M.	PANEL DISCUSSION / BRAINSTORM SESSION WITH AUDIENCE—STRATEGIES FOR WRITING FAST APPLICATIONS.
5:00 P.M.	SHORT COURSE ADJOURNS FOR THE DAY

SUN 4 JANUARY

8:30 A.M.	PROFILING IN PYTHON.
8:45 A.M.	MORE ON VECTOR BASED COMPUTATIONS: NUMEXPR AND OTHER OPTIONS.
9:30 A.M.	DEALING WITH LARGE DATASETS USING PYTABLES.
10:00 A.M.	COFFEE BREAK
10:30 A.M.	SPEEDING UP COMPUTATIONS WITH C/ C++/FORTTRAN.
12:00 P.M.	LUNCH BREAK
1:00 P.M.	SPEEDING UP COMPUTATIONS PART II: CYTHON
2:15 P.M.	PARALLEL PROGRAMMING IN PYTHON: PART I: TOOLS FROM THE STANDARD LIBRARY
3:00 P.M.	COFFEE BREAK
3:30 P.M.	PARALLEL PROGRAMMING IN PYTHON: PART II: IPYTHON PARALLEL AND OTHER OPTIONS.
4:15 P.M.	PARALLEL PROGRAMMING IN PYTHON: PART III: GPU COMPUTING
4:45 P.M.	PANEL DISCUSSION / BRAINSTORMING SESSION WITH AUDIENCE—HOW TO ARCHITECT A SCALABLE APPLICATION.
5:00 P.M.	SHORT COURSE ADJOURNS