AMS SHORT COURSE:
ADVANCED PYTHON FOR CLIMATE SCIENCE: NUMPY AND BEYOND
1–2 February 2014                     Georgia World Congress Center                     Atlanta, GA

Organizer & Instructor
Jonathan Rocher, Enthought Inc., Austin, TX

PROGRAM (Room C108)

SAT 1 FEBRUARY _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

8:30 A.M. ARRIVAL & INTRODUCTIONS 4:45 P.M. PANEL DISCUSSION / BRAINSTORM SESSION WITH AUDIENCE—STRATEGIES FOR WRITING FAST APPLICATIONS.

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-DIMENSIONAL DATA EXTRACTION & MATHEMATICAL COMPUTATIONS.

12:00 P.M. BREAK FOR LUNCH (Students on Own)

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.

SUN 2 FEBRUARY _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

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++/CYTHON.

12:00 P.M. BREAK FOR LUNCH (Students on Own)

1:00 P.M. SPEEDING UP COMPUTATIONS BY WRAPPING FORTRAN LEGACY CODE.

2:15 P.M. PARALLEL PROGRAMMING IN PYTHON: PART I: THE STANDARD LIBRARY

3:00 P.M. COFFEE BREAK
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>3:30 P.M.</td>
<td>PARALLEL PROGRAMMING IN PYTHON: PART II: IPYTHON PARALLEL AND OTHER OPTIONS.</td>
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<td>4:15 P.M.</td>
<td>PARALLEL PROGRAMMING IN PYTHON: PART III: GPU COMPUTING</td>
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<td>4:45 P.M.</td>
<td>PANEL DISCUSSION / BRAINSTORMING SESSION WITH AUDIENCE—HOW TO ARCHITECT A SCALABLE APPLICATION.</td>
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<td>5:00 P.M.</td>
<td>SHORT COURSE ADJOURNS</td>
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