

# MetPy for your Data

## Analyzing Meteorological Observations in Python

### SHORT COURSE ORGANIZER

Drew Camron, UCAR/Unidata, Boulder, CO  
Ryan May, UCAR/Unidata, Boulder, CO  
Kevin Goebbert, Valparaiso University, Valparaiso, IN  
Jon Thielen, Colorado State University, Fort Collins, CO

**SUN 8 JAN**

- 8:30 A.M. SETUP USER SYSTEMS (optional)**
- Installation instructions will be sent out ahead of time
  - This is an optional time to help troubleshoot anyone having problems
- 9:00 A.M. ARRIVAL AND INTRODUCTIONS** Drew Camron
- Introduce speakers, their backgrounds. Have participants quickly state their names and what they hope to gain from the course.
  - Launch into Jupyter Lab environment locally or on the cloud
- 9:15 A.M. Radar Data** Ryan May
- Access NEXRAD data on THREDDS Data Server or AWS s3(demo, exercise)
  - Read data with MetPy, PyART (demo)
  - Explore unique considerations for radar data structures (demo, learner check-in)
  - Visualize single- and multi-product plots (demo, exercise)
- 10:30 A.M. COFFEE BREAK**
- 10:45 A.M. Satellite Imagery and Gridded Data** Jon Thielen
- Access GOES-16/17 data on THREDDS Data Server or AWS S3 (demo)
  - Read data using MetPy together with Xarray (demo, exercise)
  - Discuss metadata for coordinate systems, image reprojection
  - Visualize using image plots with various geospatial overlays using MetPy and Cartopy (demo, exercise)
  - Combine with previous radar data (exercise)
- 12:00 P.M. LUNCH (on your own)**
- 1:15 P.M. Surface Observations** Kevin Goebbert
- Access remotely-hosted archives of surface observation data (demo, exercise)
  - Read data (eg METAR text, GEMPAK file) (demo)
  - Process data and accompanying metadata (eg units) (demo, exercise)
  - Apply MetPy with Matplotlib to plot station models (exercise)
- 2:30 P.M. COFFEE BREAK**
- 2:45 P.M. Upper Air Observations** Drew Camron
- Access remotely-hosted upper-air observations and atmospheric profiles (demo)
  - Read and process data and their units (demo)
  - Highlight MetPy plotting capability for upper-air maps and profiles (demo, exercise)
  - Calculate meteorological quantities on processed data, explore documentation (exercise)
  - Explore opportunities for crossover with previous workflows (demo)
- 3:35 P.M. WRAP UP**
- Gather feedback from participants on how the course will be of use to their work and general course feedback.
- 3:45 P.M. ADJOURN**