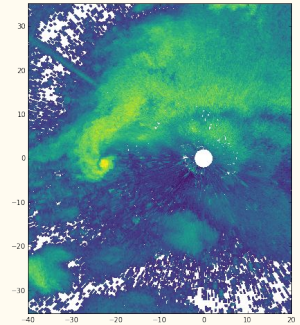
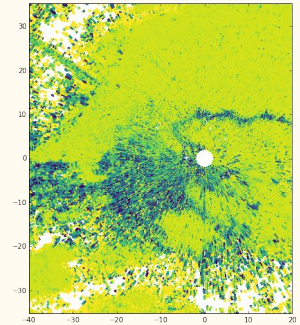
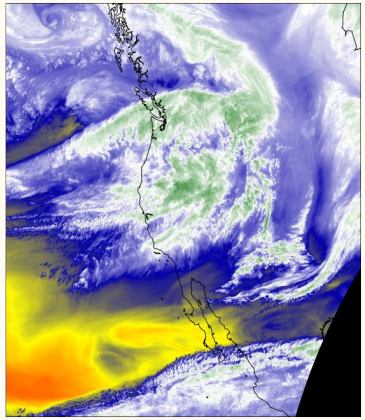
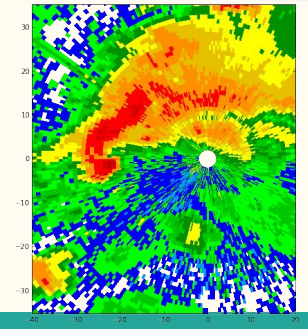
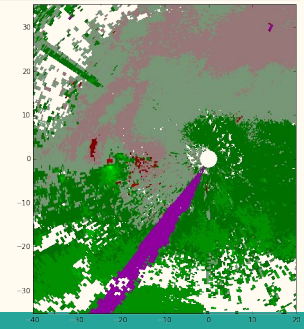
Unidata Summer Internship 2016

—

Kristen Pozsonyi

MetPy

- Library containing tools to read and visualize weather data
- Unit support (annoying, but useful!)
- Plotting (Skew-T, station plots, water vapor imagery, etc.)
- Calculations

So, what did I do all summer?

Calculations

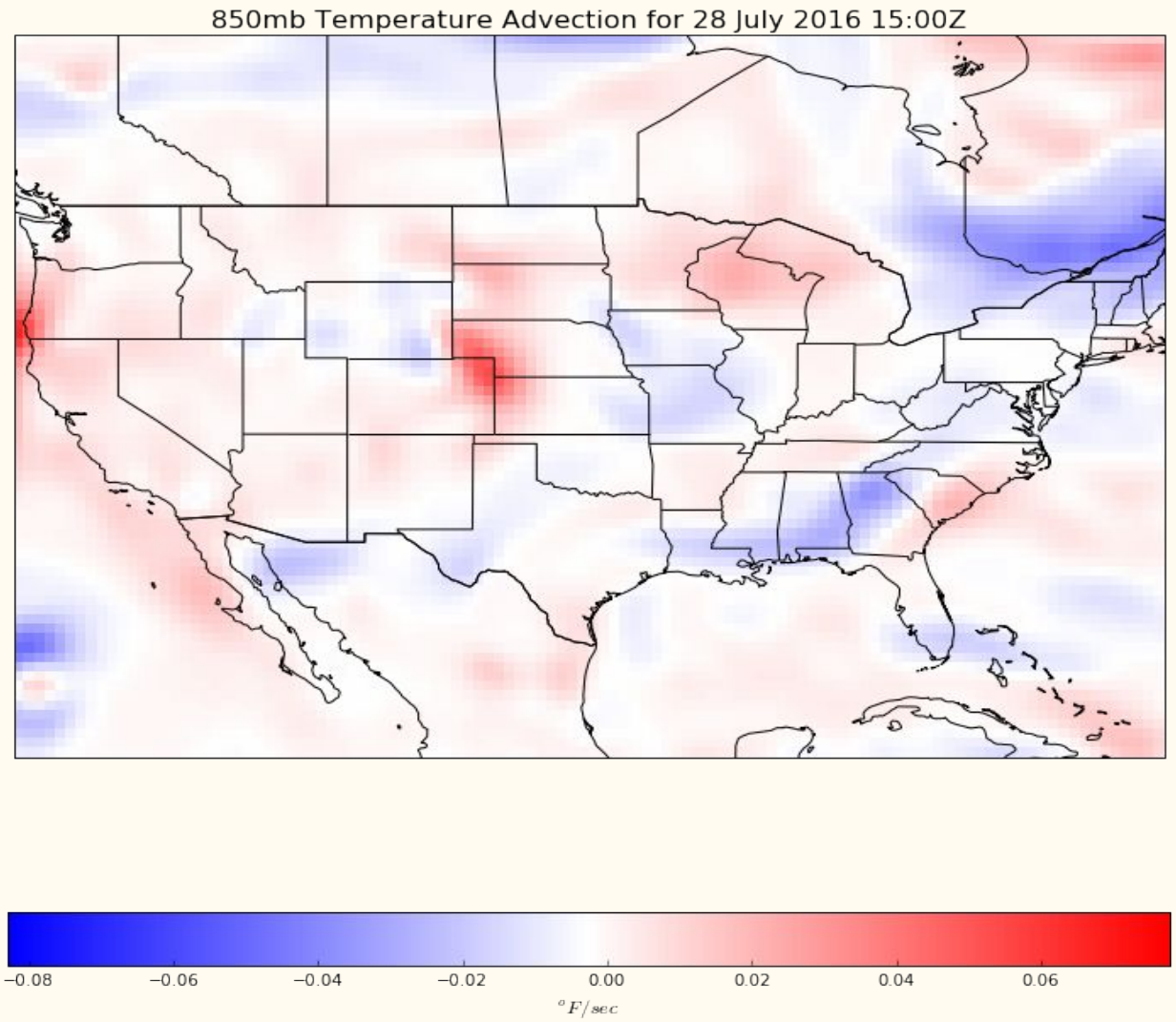
- Coriolis parameter
- Pressure to height conversion
- Equivalent potential temperature
- Saturation mixing ratio
- Isallobaric wind(so close, yet so far...)

Examples, Examples, and Some More Examples

- MetPy examples
- Additions to jupyter notebook gallery
  - Wind
  - Advection
  - Meteogram
- Using Siphon to download data from Unidata's THREDDS server

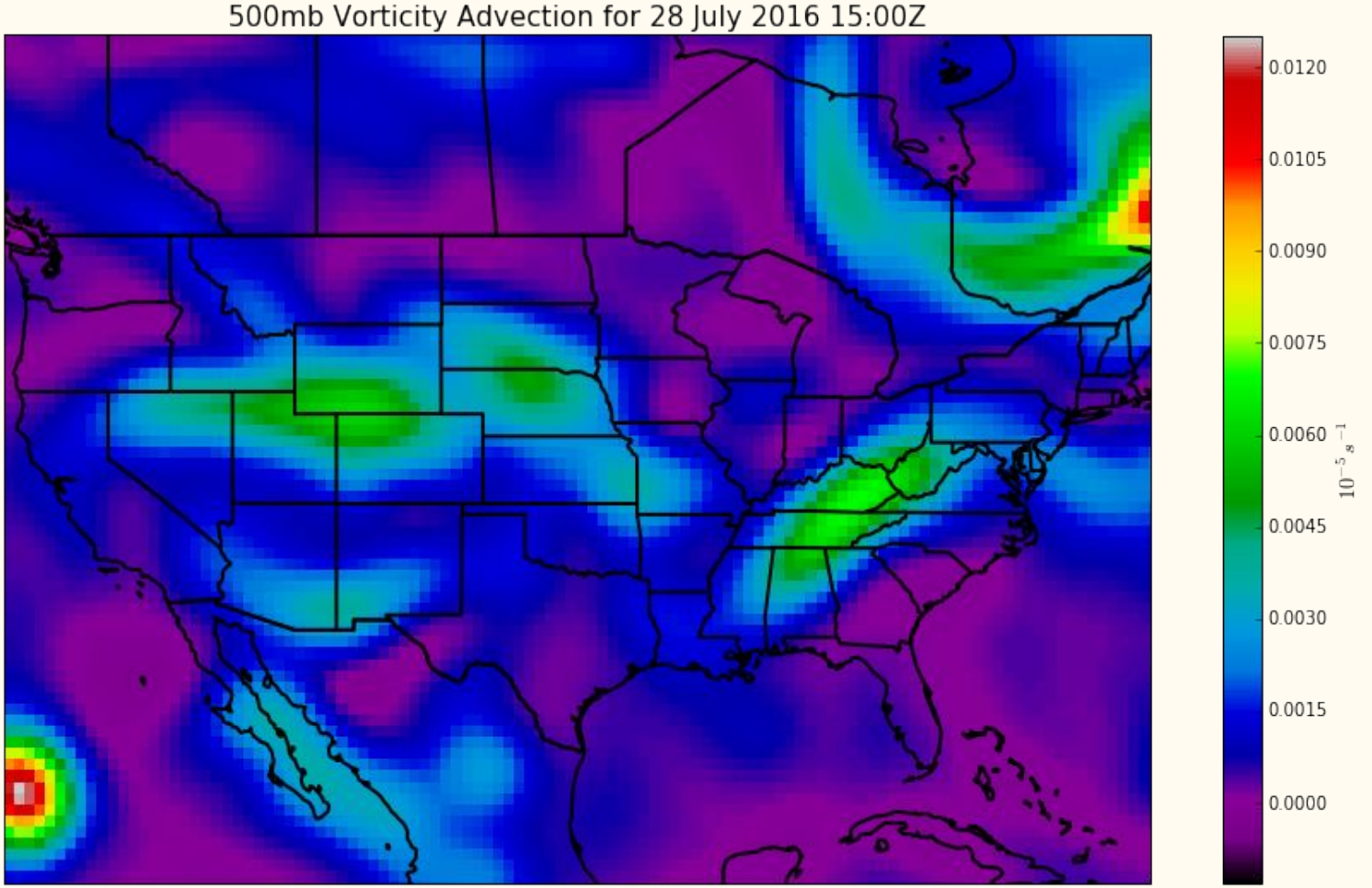
Four Panel Plot

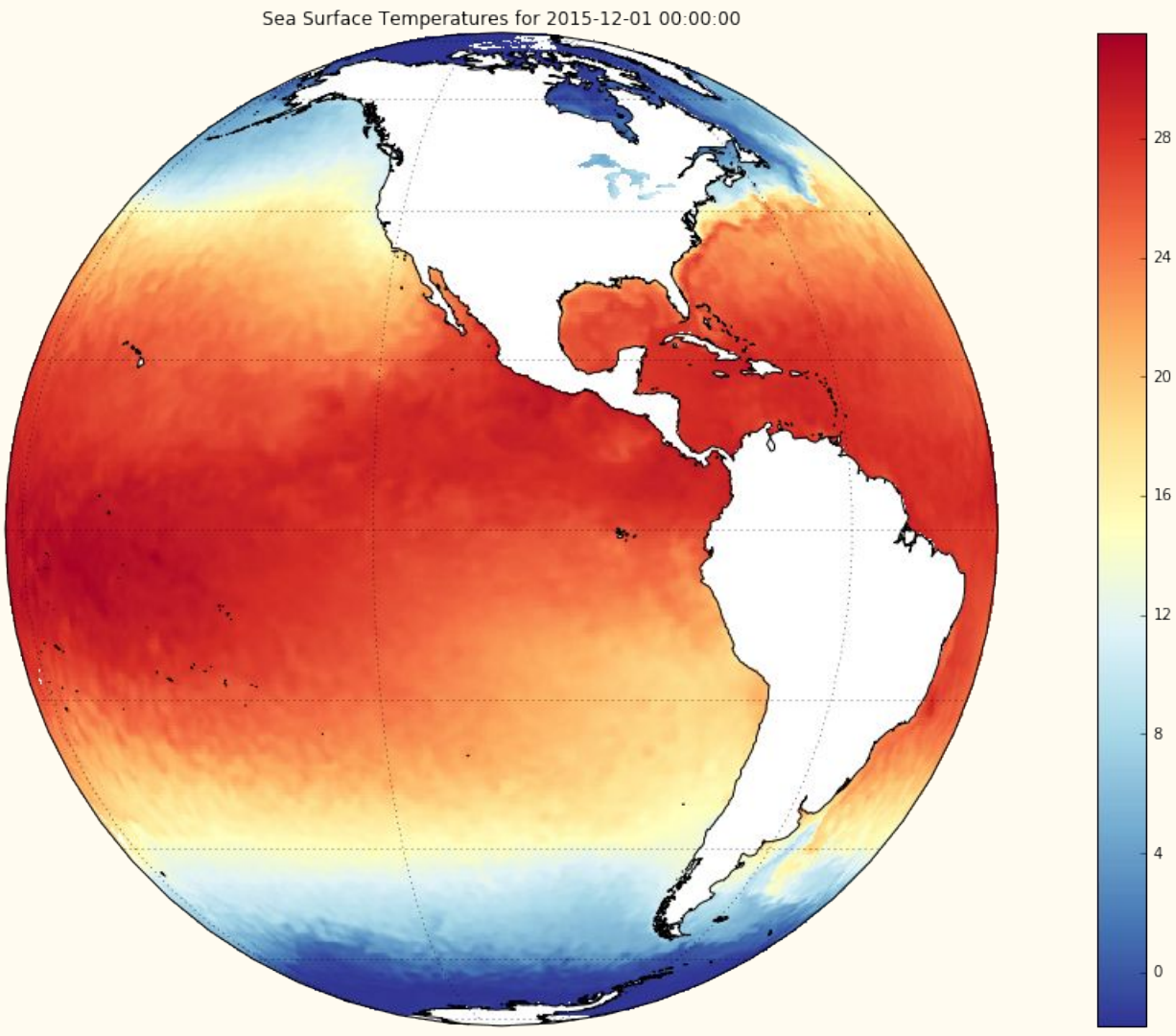
(Using Gridspec)



Temperature Advection

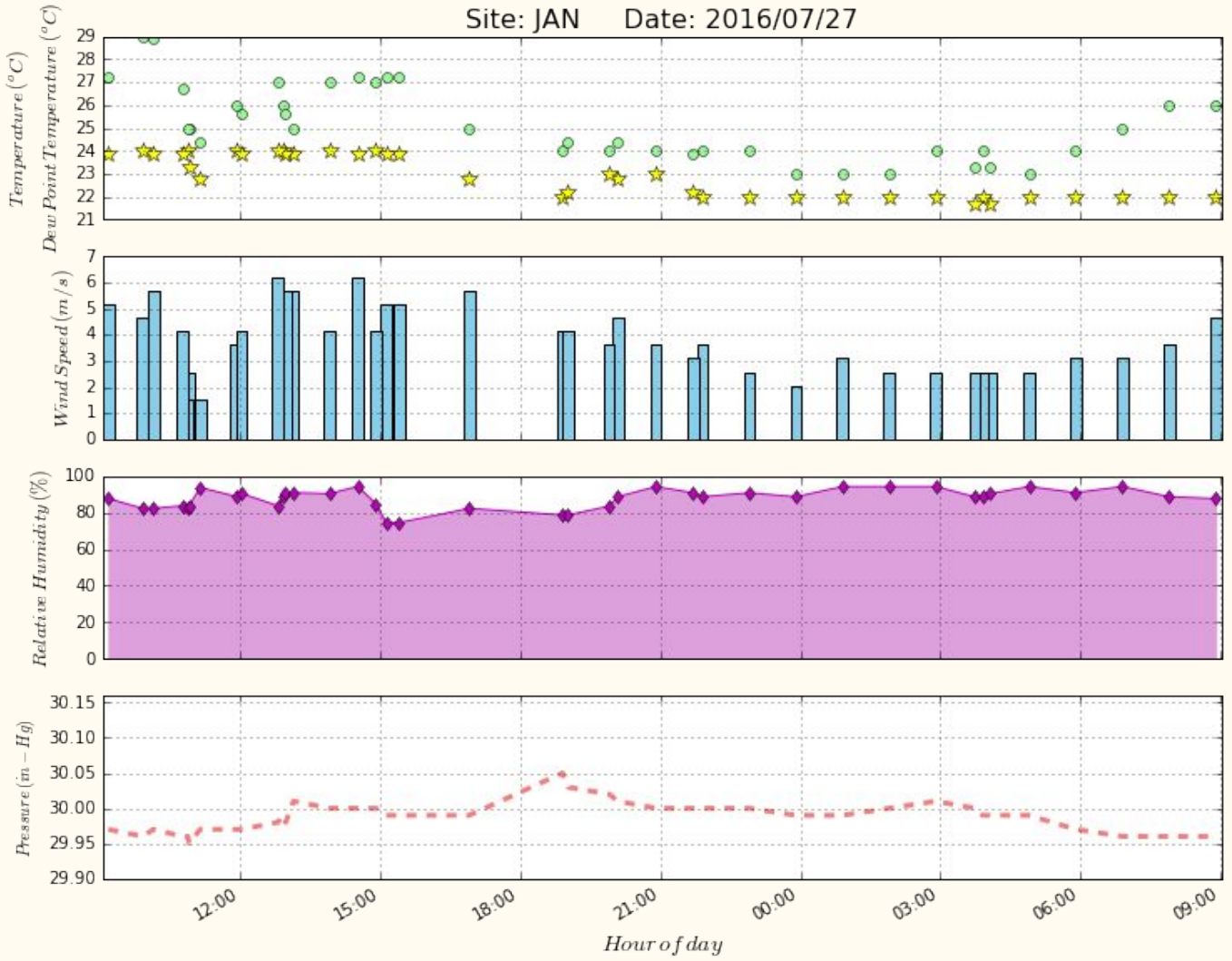
Vorticity Advection

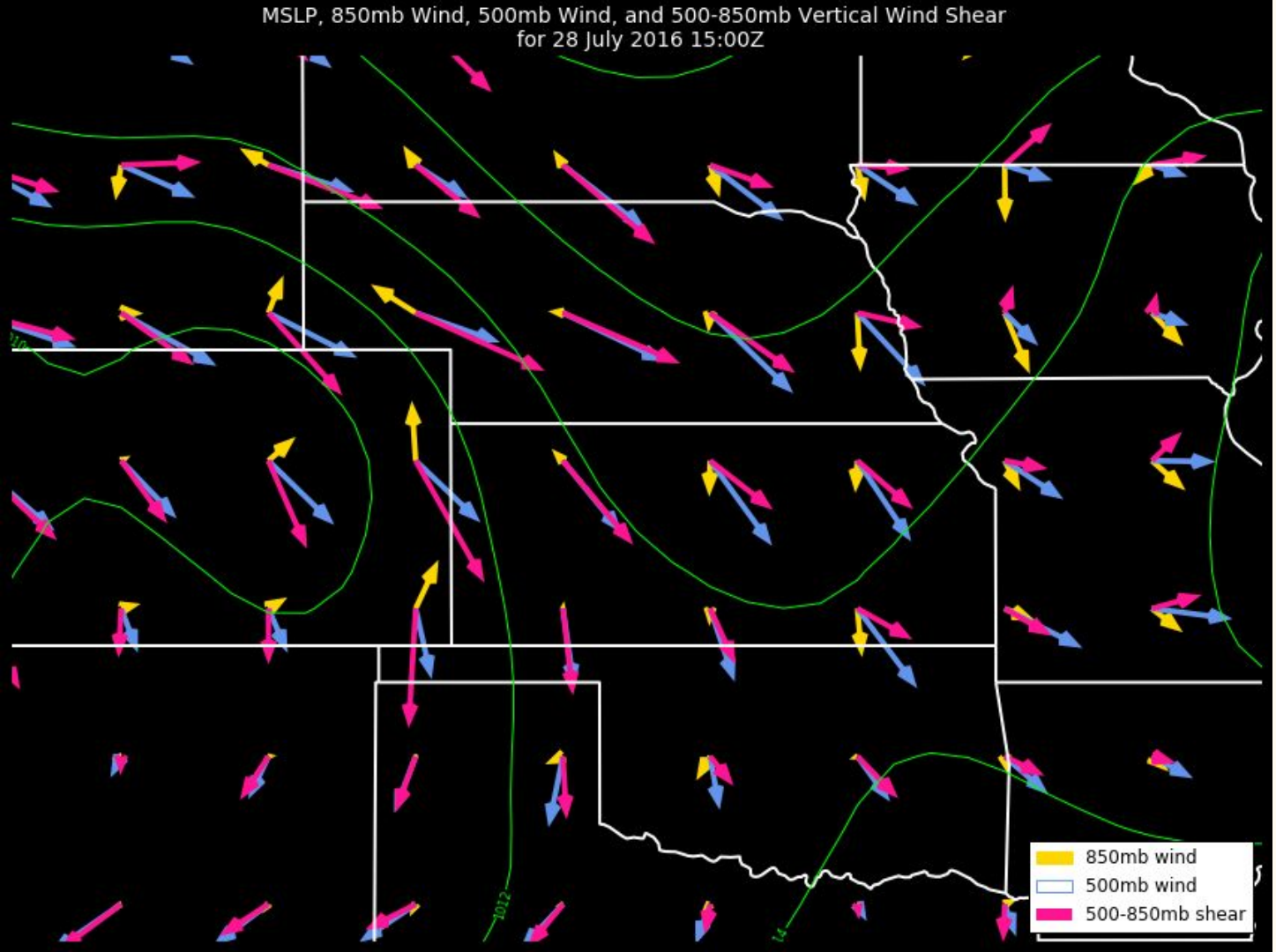




Sea Surface Temperatures

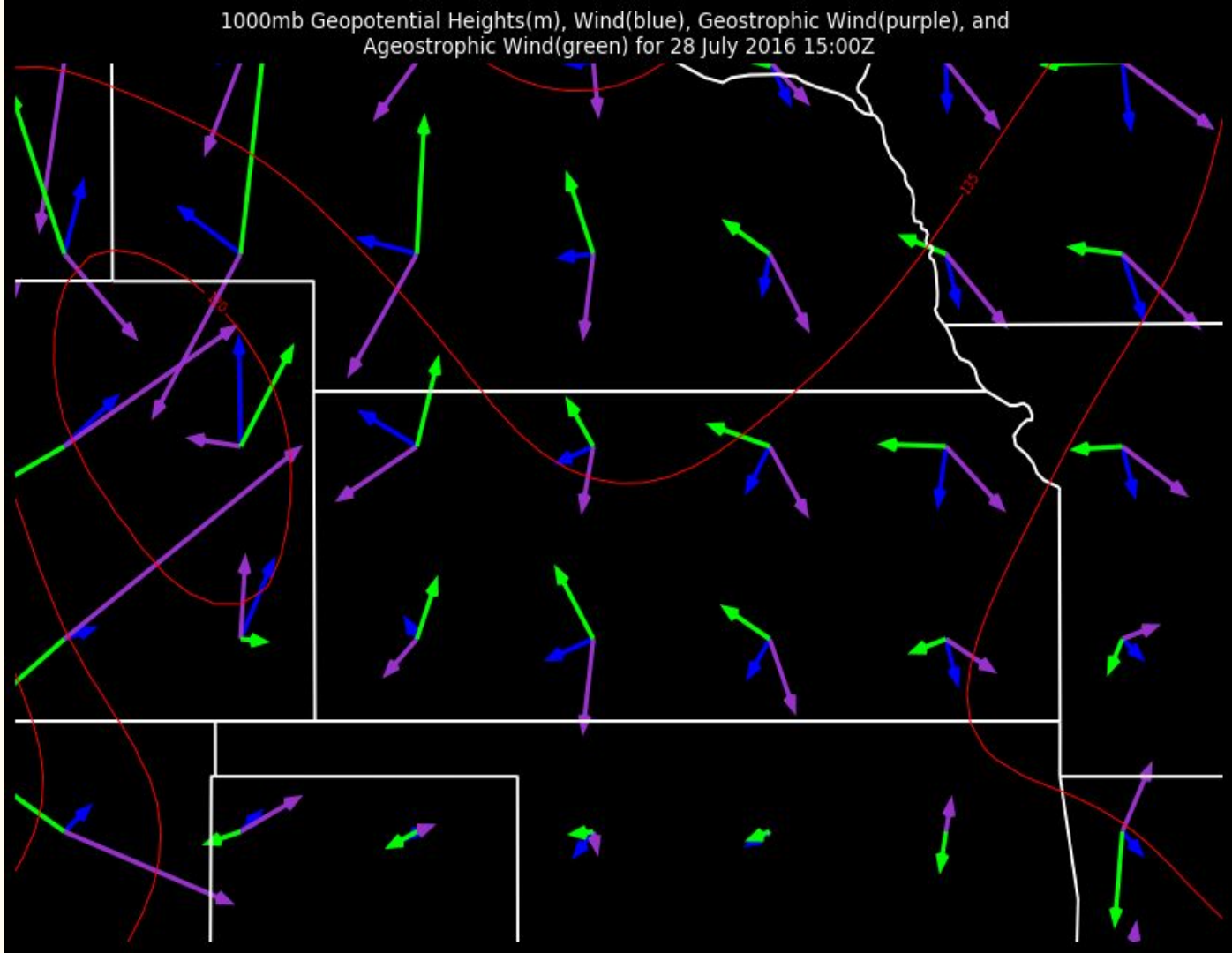
Meteogram


Site: JAN Date: 2016/07/27
Temperature (°C)
Dew Point Temperature (°C)
Wind Speed (m/s)
Relative Humidity (%)
Pressure (in − Hg)
12:00
15:00
18:00
21:00
00:00
03:00
06:00
09:00
Hour of day


MSLP, 850mb Wind, 500mb Wind, and 500-850mb Vertical Wind Shear
for 28 July 2016 15:00Z
850mb wind
500mb wind
500-850mb shear

Wind Shear

Geostrophic & Ageostrophic Wind



Galleries of Examples

- Change the look of the examples pages
- MetPy and Jupyter notebook gallery
- More visual
- Easier for users to see the different types of projects you can create using MetPy, Siphon, Cartopy, etc.

MetPy Examples Page

Unidata Jupyter Notebook Gallery

Widgets!

- First time experimenting with widgets
- Compared two different toolkits for GUI programming
  - Tkinter
  - Ipywidgets
- Tkinter was easier to use
  - Layout was easy to manipulate
- Ipywidgets is good to use for simple interactive features
  - Lack of useful documentation for more difficult projects
- 4 Examples
  - Cosine/Sine functions
  - GFS 12-Hr forecast
  - Wind related calculation widget
  - Thermodynamic calculation widget

Thank You!!