ATM 211

Atmospheric Forcing for Ascent and Analysis

In this assignment, you are to analyze three upper-air maps and a surface map. In a typed or neatly written analysis, describe the overall pattern and regions where you would expect upward vertical motion (ascent), as well as the development of clouds and/or precipitation. In this assignment, you will be given maps of the U.S. and Canada, but for simplicity, you are encouraged to focus your attention on the U.S. Links to the maps are listed below, and are also listed on the course website.

\*300 mb: Describe the overall pattern (ridges, troughs) and the location and intensity (in knots) of the jet streaks. Where, geographically, would you expect upper divergence and ascent? Why?

\*500 mb: Describe the overall pattern and the location of vorticity maxima. Are the maxima associated with shear vorticity, curvature vorticity, or a combination? Based on this map, where would you expect upper divergence and ascent? Why?

\*850 mb: Describe the overall temperature pattern. Where are the cold/warm airmasses at 850 mb? Where is there CAA and where is there WAA? Is there any frontogenesis?

\*SLP/thickness/precip: Describe the positions of surface highs and lows, as well as the locations of 6-hour accumulated precipitation. Referring to the three upper-air maps above, with what features are each of the surface highs, lows, and precipitation areas associated?

\*Note: **Be sure to list the time of your maps!** This can be found at the bottom of the map. It would be a good idea to **save each map to a file on your computer**, so that you can refer to it later. *The maps will update every 24 hours to reflect new data!*

300 mb:

http://www.nco.ncep.noaa.gov/pmb/nwprod/analysis/namer/gfs/12/images/gfs\_300\_006l.gif

500 mb:

http://www.nco.ncep.noaa.gov/pmb/nwprod/analysis/namer/gfs/12/images/gfs\_500\_006l.gif

850 mb:

http://www.nco.ncep.noaa.gov/pmb/nwprod/analysis/namer/gfs/12/images/gfs\_850\_006l.gif

SLP/thickness/precip:

http://www.nco.ncep.noaa.gov/pmb/nwprod/analysis/namer/gfs/12/images/gfs\_slp\_006l.gif