

## MET 3502L/5561L Synoptic Meteorology Lab

### Lab 7: Upper Air Analysis

**In this lab assignment, you will need to** analyze the upper-air charts by hand-drawing height contours (isohypses) based upon the plotted rawinsonde data at 200 mb, 300mb, 500mb, 700mb and 850mb for 12Z on 09 October 2009. In addition, please color (green) dewpoint depressions (temperature minus dew point temperature: T-Td) less than 10° at 700 mb and wind speeds stronger than 100 kt (red) at 200 and 300 mb charts.

Below are the steps to follow:

**1. Please print the following blank charts (with plotted rawinsonde data):**

- 1) 200 mb: [http://faculty.fiu.edu/~hajian/MET3502/09OCT09\\_12Z\\_200.jpg](http://faculty.fiu.edu/~hajian/MET3502/09OCT09_12Z_200.jpg)
- 2) 300 mb: [http://faculty.fiu.edu/~hajian/MET3502/09OCT09\\_12Z\\_300.jpg](http://faculty.fiu.edu/~hajian/MET3502/09OCT09_12Z_300.jpg)
- 3). 500 mb: [http://faculty.fiu.edu/~hajian/MET3502/09OCT09\\_12Z\\_500.jpg](http://faculty.fiu.edu/~hajian/MET3502/09OCT09_12Z_500.jpg)
- 4). 700 mb: [http://faculty.fiu.edu/~hajian/MET3502/09OCT09\\_12Z\\_700.jpg](http://faculty.fiu.edu/~hajian/MET3502/09OCT09_12Z_700.jpg)
- 5). 850 mb: [http://faculty.fiu.edu/~hajian/MET3502/09OCT09\\_12Z\\_850.jpg](http://faculty.fiu.edu/~hajian/MET3502/09OCT09_12Z_850.jpg)

**2. Directions on how to analyze upper-air charts:**

Upper-air fields are (OK, appear to be) much simpler than those at the surface because of sparser observations and less influence from surface characteristics. Winds are more nearly parallel with the contours than at the surface. I recommend sketching the contours in hard pencil and then finalizing them with magic marker or softer pencil. Ensure vertical continuity of features between levels (use vertical continuity to extend the analysis upward and downward). After your analysis is complete, compare your drawing with surface fronts & cyclones on analyzed surface chart

([http://faculty.fiu.edu/~hajian/MET3502/09OCT09\\_12Z\\_SFC.gif](http://faculty.fiu.edu/~hajian/MET3502/09OCT09_12Z_SFC.gif)) and moist & dry features in the water-vapor image

([http://faculty.fiu.edu/~hajian/MET3502/09OCT09\\_1215Z\\_WV.gif](http://faculty.fiu.edu/~hajian/MET3502/09OCT09_1215Z_WV.gif)) to relate upper forcing along the Jet Streams with surface features.

**Please label contours where they reach the edge of the data and along one latitude line somewhere near the middle of the chart.** Here are approximate altitudes, contour intervals, and some standard contour values at each isobaric level.

Pressure	850 mb	700 mb	500 mb	300 mb	200 mb
Altitude	~1.5 km	~3 km	~5 km	~9 km	~12 km
Interval	30 m	30 m	60 m	120 m	120 m
Contour Values	141(0)	294(0)	552(0)	888(0)	1140(0)
	144	297	558	900(0)	1152
	147	300(0)	564	912	1164
	150(0)	303	570(0)	924	1176
	153	306	576	936	1188
	156	309	582	948	1200(0)
	159	312	588	960	1212
	162	315	594	971	1224