# LAB ASSIGNMENT #1

**(due Tuesday, September 13)**
**10 Points**

**Learning Objectives:**
Upon completion of this lab, you will be able to:

- assimilate surface observations and contour sea-level pressure data.
- interrogate atmospheric data to locate atmospheric structures.

**Description:**
Within synoptic meteorology, one is not able to make a knowledgeable diagnosis of atmospheric processes without first exploring and interrogating the available data and observations. Just like a paleontologist sifts through dirt and rock to illuminate the skeleton of a past life form, atmospheric scientists wade through streams of data to decipher the position and form of various atmospheric structures.

This lab introduces you to the practice of data analysis via the investigation of a strong mid-latitude cyclone at 00Z 27 January 1996.

**Analysis Guidelines:**

**1)** Take a piece of tracing paper and tape it over the surface observations.

**2)** Mark the corners of the observational domain on your tracing paper – in case the tape becomes detached.

**3)** Contour sea-level pressure <u>every 4 hPa</u> and label each contour

**TIPS:** Use pencil only, trace lightly so you can go back and erase, start your first contour with a value in the middle of the range of values (e.g. 1012 hPa), and contour every 8 hPa to start out to help get the big picture and then fill in contours in between.

**4)** Identify the location of the **cold front (blue line), warm front (red line),** and **minimum surface pressure (red "L).**

**TIPS:** For the fronts, look for regions of temperature contrast, wind shifts, and a local pressure minimum.

**5)** Once you have a draft, go back over and make sure all contours are **smooth**, and that the contours agree with the data (e.g. if you identify a region with a strong pressure gradient, do the winds agree with that assessment?)

**You will be graded on your map's consistency with the above guidelines**