

### MET 3502L Lab 3: Contour analysis by hand drawing: Isobars

The object of this exercise is to learn to draw contours based upon plotted surface station data.

**Please draw pressure analysis (only!) for the surface weather map (0630Z, 21MAR 1955) provided here:**  
[http://faculty.fiu.edu/~hajian/MET3502/SFC\\_21MAR55\\_0630Z.tif](http://faculty.fiu.edu/~hajian/MET3502/SFC_21MAR55_0630Z.tif)

This is the first in the series of classic surface maps included with Sverre Petterssen's *Weather Analysis and Forecasting*. In this case we have no prior analysis, so that you will need to be careful in initial location of the highs and lows.

In spite of available computer-generated maps, hand-drawn synoptic analysis is still a part of a forecast meteorologist's job, and is used, for example, at NWS Weather Prediction Center (WPC) and Storm Prediction Center (SPC) to fine-tune their analysis. Therefore, it is still very important to practice this technique.

During the process of hand drawing of surface charts, the analyst would receive hand plotted station data. He or she would cover the chart with a sheet of acetate, on which he would sketch locations of the highs, lows, fronts and other features in grease pencil. Then he would fill in the isobars, also in grease pencil. If a prior surface chart on the same base map was available, a necessary prelude to analysis was sketching in fronts and pressure systems from the last synoptic time to insure continuity.

Once the rough chart was complete in grease pencil, the analyst would place the plotted paper chart on top the acetate and trace the contours in colored pencil (or ink if he was very self-confident). A lot of editing took place during this final phase, and the resulting charts were things of beauty with smooth flowing contours and clear indication of the relations among features.

As important as an aesthetically pleasing chart was, the analyst did his real thinking with a grease pencil in his hand. **The procedure was the same one we discussed in the lecture. He would locate highs, lows, and cols by scanning the plotted data for extreme values and places where the wind blew in a circle. Cols can be difficult to spot, but remember that they lie between circulations of like sign and have marked shears in both directions across the calm. Draw contours at 4 mb intervals above and below 1000 mb. That is at 988, 992, 996, 1000, 1004, 1008, 1012, 1016, 1020, 1024, ... mb. Please don't forget to label each contour with its pressure value. Please put the label where they reach the edge of the data and along one pressure contour line somewhere near the middle of the chart.**

This exercise focuses on locating high, low, and col centers and drawing isobars. You may use fronts to define first-order discontinuities, but please don't draw them on your final chart. Full-up surface analysis of the same 1955 chart is another exercise (next lab assignment). Remember that surface analysis is an art. Draw great-looking maps. An example of such surface analysis is shown below for you as an example:

