AOSC 470/600
Homework #1 -- "OCTOBOMB" Manual Surface Analysis
DUE: 16 September 2016

A rare, powerful cyclone developed over the Upper Midwest in late October 2010. The storm produced a wide variety of high impact weather including tornadoes, strong surface winds, and blizzard conditions. The storm resulted in many locations throughout the Upper Midwest breaking their all time lowest surface pressure recorded records. We will be utilizing this case to help build the tools necessary for you to perform your individual case studies that are due at the end of the semester.

For this homework assignment, you will each be required to perform manual surface analyses (sea level pressure/fronts and temperature) for one of five synoptic times during the deepening phase of this particular cyclone. Your assigned times are as follows:
26 October 2010, 00 UTC: Bagadia, Hansford, Seibert, Benish, Stratton
26 October 2010, 06 UTC: Bolt, Kahn, Vernon, Cavanagh, Thomas
26 October 2010, 12 UTC: Caron, Malloy, Vitelli, Junghenn
26 October 2010, 18 UTC: Clements, Murphy, Arcomano, Sengupta
27 October 2010, 00 UTC: Fowler, Rose, Beckley, Sharma

Assignment: Turn in two surface analyses:
1. Surface temperature (4F interval, base value of 60F)
2. Mean sea level pressure (4mb interval, base value of 1000mb) and surface fronts.

How: Find the three pdfs that correspond to your assigned time. All files can be found at:
http://www.aosc.umd.edu/~dkleist/docs/classes/aosc600/hw01/

There is a subdirectory for each assigned time named MMDDHH (i.e. 26 October 10, 00 UTC is named 102600). So the files for the first group can be found in:
http://www.aosc.umd.edu/~dkleist/docs/classes/aosc600/hw01/102600/

In each subdirectory, there are three pdf files as follows:
- sfc_YYYYMMDDHH_pmsl.pdf – Contains surface wind and sea level pressure (mb) observations only.
- sfc_YYYYMMDDHH_tmpf.pdf – Contains surface wind and temperature (F) observations only.
- sfc_YYYYMMDDHH_all.pdf – Contains sky cover, surface wind, temperature (F), and sea level pressure (mb) observations.

Documents on the website are password protected by default (username: synoptics | password: MetStudent). Your analyses should be similar to the examples that were shown in class (see slides 43-44 of the lecture notes):
http://www.aosc.umd.edu/~dkleist/docs/classes/aosc600/Lectures/AOSC600_Lecture02.pdf

Please use the "tmpf" pdf as the base map for your final temperature analysis and use the "all" pdf as the base map for your sea level pressure and frontal analysis. The "pmsl" pdf is provided for clarity and to be used as a first draft of your hand analysis. Please remember to follow the "guidelines" for contouring discussed in class.