Attached to this page are SPC mesoanalysis charts and a visible satellite image for a day on which the SPC issued a slight risk of severe thunderstorms. **Our focus for this lab is on severe winds: this day produced over 100 severe wind reports.** You should refer to your handout “A basic, ingredients-based approach to the convective forecasting process” as well as the lecture slides from 1/28 (available on the class web page). The emphasis here is on the quality of your reasoning, not the exact placement of every severe weather report on this day.

*Hint: remember that the upper air features and surface features may be moving… they are not static. Use your synoptic reasoning to try to account for this!*

Complete the following, and write your responses on a separate sheet of paper:

1. Let us begin with step 1 of the handout “A basic, ingredients-based approach to the convective forecasting process”. List all locations where convective storms are at least possible based on CAPE. **Make sure you justify your answer using the maps provided.**

2. Continue on to step 2 of the handout “A basic, ingredients-based approach to the convective forecasting process”. Which among the regions that you identified for question 1 appear to be favorable for the actual initiation of storms based on lifting and CIN? Be sure to use your surface chart and the visible satellite image. **Make sure you justify your answer using the maps provided.**

3. Now we will consider step 3 of the handout “A basic, ingredients-based approach to the convective forecasting process”. Assess the vertical wind shear of the environment. You are provided with the 0-6 km shear and 0-3 km SRH charts; for the 0-3 km shear, you will have to do some eyeballing using your surface and 700 mb charts. Which among the regions that you identified for question 2 appear to be favorable for supercells? If not supercells, then which appear to be favorable for multicells? If neither supercells or multicells, then make a note that you expect ordinary cells in the region. **Make sure you justify your answer using the maps provided.**

4. Combine what you’ve learned from above to provide a severe weather outlook. **Make sure you justify your answer using the maps provided.**

   a) Will CAPE values in the region be large enough to support severe weather?
   b) Will shear values support organized storms? What kind (supercells or squall lines)? Why?
   c) Based on the DCAPE, do you expect severe winds in the region from strong downdrafts?
   d) Do values of precipitable water and LCL height support wet or dry microbursts in your severe wind regions? Why?