

Name _____

Date _____



The Weather Map Biggie Lab:
Bringing It All Together!

Now that you have learned about all of the different variables that contribute to daily changes in weather, it is now time to bring it all together by being able to construct, and then read and interpret a weather map. There are several tasks to complete over the course of this lab regarding temperature, atmospheric pressure, local wind patterns, precipitation, air masses, and fronts. Make sure to complete all tasks according to the instructions and then answer the analysis questions that follow. You will have to perform many of these tasks again on a lab test – so make sure YOU know how to do them ...

STAGE 1 TASKS

MAP 1 – ISOTHERM MAP

____ 1. On map 1 you will only be completing one task: drawing isotherms.
Use a pencil to draw isotherms at a 10°F interval.

____ 2. Shade in the areas between the isotherms using the following colors:

70°F – 80°F - red	40°F – 50°F - light blue
60°F – 70°F - orange	30°F – 40°F - dark blue
50°F – 60°F - light green	20°F – 30°F - purple

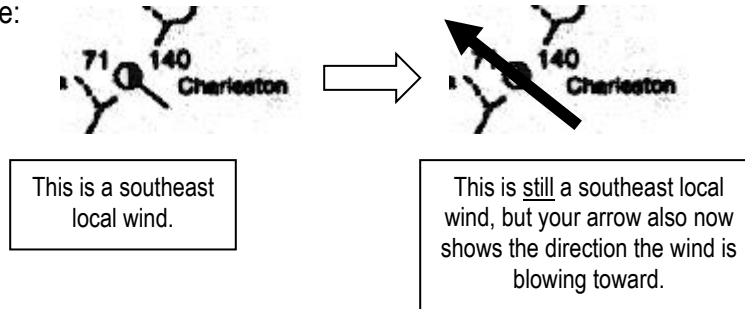
MAP 2 – SURFACE ANALYSIS MAP

____ 3. In the chart provided below, convert the following “map symbol” pressures to millibars:
For example 000 on the map really equals 1000.0 millibars. The standard interval for isobars on a weather map is 4-mb.

Weather Station 3-Digit Symbol	Pressure Conversion in Millibars
040	
080	
120	
160	
200	
240	

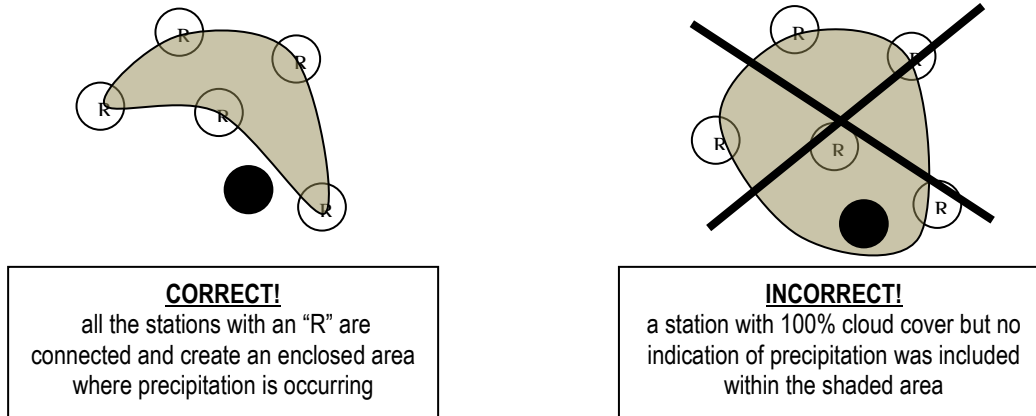
- ___ 4. On the map, use a yellow colored pencil to draw isobars between points of equal atmospheric pressure using the pressures given in step 1 of this procedure. When you are done you will have two “bullseyes” and another half of a “bullseye” that will run off the map near Florida.
- ___ 5. Using the correct colors, label the centers of high-pressure and low-pressure areas using a capital H and L.
- ___ 6. Using a regular pencil, extend the wind direction staff through each weather station and draw a head of an arrow to show the direction the local wind is blowing towards.

For example:



- ___ 7. The symbol “R” inside the station model circle indicates rain. The symbol “F” inside the station model circle indicates fog (it’s just a different way to show present weather ...).

Using a green colored pencil, draw a line connecting all the stations with an “R” to enclose the area where precipitation is occurring. Then, VERY LIGHTLY shade in the area where precipitation is occurring (did I mention that you should do this VERY LIGHTLY?). See the examples below:



STOP HERE!
YOU HAVE COMPLETED THE TASKS IN
STAGE 1 OF THIS LABORATORY
PROCEED TO SUMMARY QUESTIONS 1-12

7. Calculate the **pressure gradient** between Cincinnati and Minneapolis.
You must convert the 3-digit pressure numbers to millibars before substituting into the formula
(Write formula, substitute data, solve with units, and round to nearest thousandths place)
8. Calculate the **pressure gradient** between Atlanta and New Orleans.
You must convert the 3-digit pressure numbers to millibars before substituting into the formula
(Write formula, substitute data, solve with units, and round to nearest thousandths place)
9. a. Look at the local winds near the high-pressure center. What do you notice about all the winds surrounding the “H”?
- b. In the space to the right, draw a sketch of the correct surface pattern of winds around a high-pressure center.
10. a. Look at the local winds near the low-pressure center. What do you notice about all the winds surrounding the “L”?
- b. In the space to the right, draw a sketch of the correct surface pattern of winds around a low-pressure center.
11. Name four cities that are experiencing a northwest wind.
12. Name two cities that are experiencing a southwest wind.

STAGE 2 – SUMMARY QUESTIONS

13. What is the source region of the maritime tropical air mass on the map? _____
14. What is the source region of the continental polar air mass on the map? _____
15. Which pressure center are the fronts closest to? _____
16. Name two cities that are presently experiencing heavy precipitation and will see temperatures decrease in the next few hours.
17. Name a city that is most likely experiencing a steady drizzle and will see temperatures increase in the next few hours.

