

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. FYI ... You will have to perform many of these tasks again on a lab test – so make sure YOU know how to do them ...

**** All your work will be done on one map – the second map is provided for you as a back-up in case you make errors on this first map that you can't fix.**

Procedure:

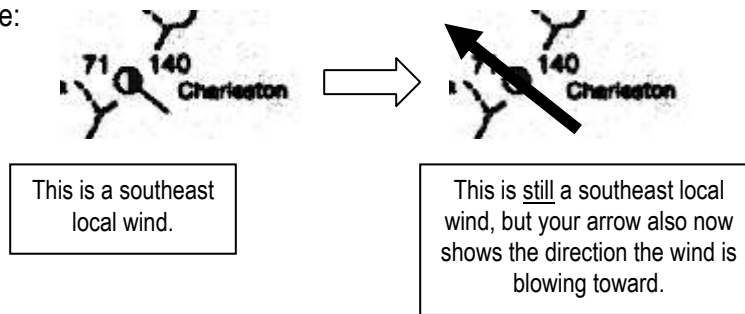
- ____ 1. In the chart provided below, convert the following “map symbol” pressures to millibars:
For example 000 on the map really equals 1000.0 millibars. The standard interval for isobars on a weather map is 4-mb

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

- ____ 2. 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.
- ____ 3. Using the correct colors, label the centers of high and low pressure areas using a capital H and L.

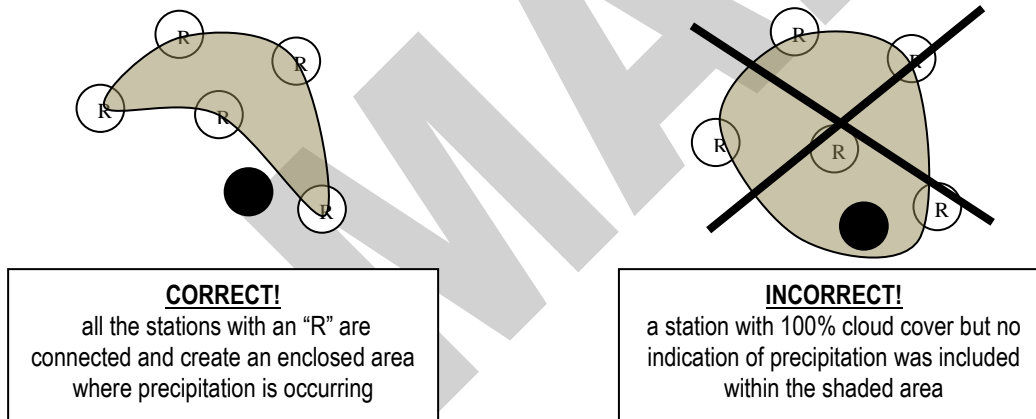
4. Using a regular pencil, extend the wind direction staff through each weather station and draw a head of an arrow to show the direction the local wind is blowing towards.

For example:



5. 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:



6. On the map, label the location of the continental polar and maritime tropical air masses using the appropriate letter symbols and using appropriate colors.

7. The lines drawn on the map from Galveston to Cincinnati and then Cincinnati to Hatteras on the eastern side of the U.S. represent the position of two weather fronts. One of the lines represents the position of a cold front, and the other represents the position of a warm front.

Using the information on the map (and your NOTES!), correctly draw in the cold front and the warm front symbols on the proper line and in the appropriate color.

SUMMARY AND ANALYSIS:

1. Calculate the **temperature gradient** between Galveston and Kansas City.
(Write formula, substitute data, solve with units, and round to nearest hundredths place)

2. Calculate the **temperature gradient** between Cincinnati and Chicago.
(Write formula, substitute data, solve with units, and round to nearest hundredths place)

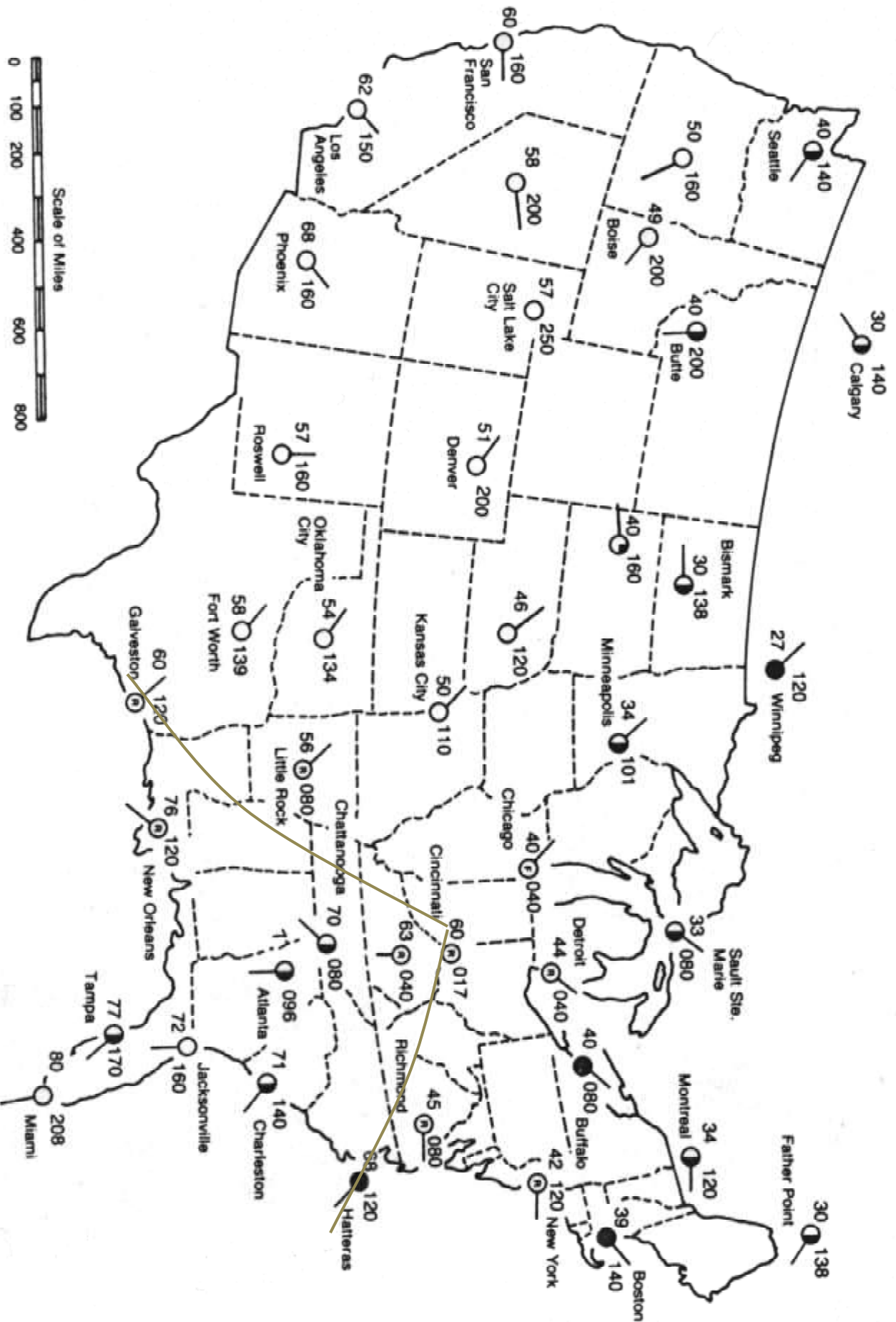
3. Over which city is the low pressure center located? _____
4. Over which city is the high pressure center located? _____
5. What is the highest pressure on the map (convert to millibars)? _____
6. What is the lowest pressure on the map (convert to millibars)? _____

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. Look at the local winds near the high pressure center. What do you notice about all the winds surrounding the "H" ?
10. Look at the local winds near the low pressure center. What do you notice about all the winds surrounding the "L" ?
11. Name four cities that are experiencing a northwest wind.
12. Name two cities that are experiencing a southwest wind.
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 would be experiencing heavy precipitation and a drop in temperature.
17. Name a city that would be experiencing a steady drizzle and rising temperatures.

Weather Data Map



Weather Data Map

