Name_____ **Date**_____

LAB: How do we interpret current weather maps?

By Charles Burrows

A **weather map** is a map or chart that shows the meteorological conditions over a specific geographic area at a specific time. **Meteorologists** use weather maps to show patterns in the data to aid in **forecasting** the weather.

Zulu Time (Z) is one of several names for the 24-hour time that is used throughout the scientific and military communities. Other names for this time measurement are Universal Time Coordinated (UTC) or Greenwich Mean Time (GMT).

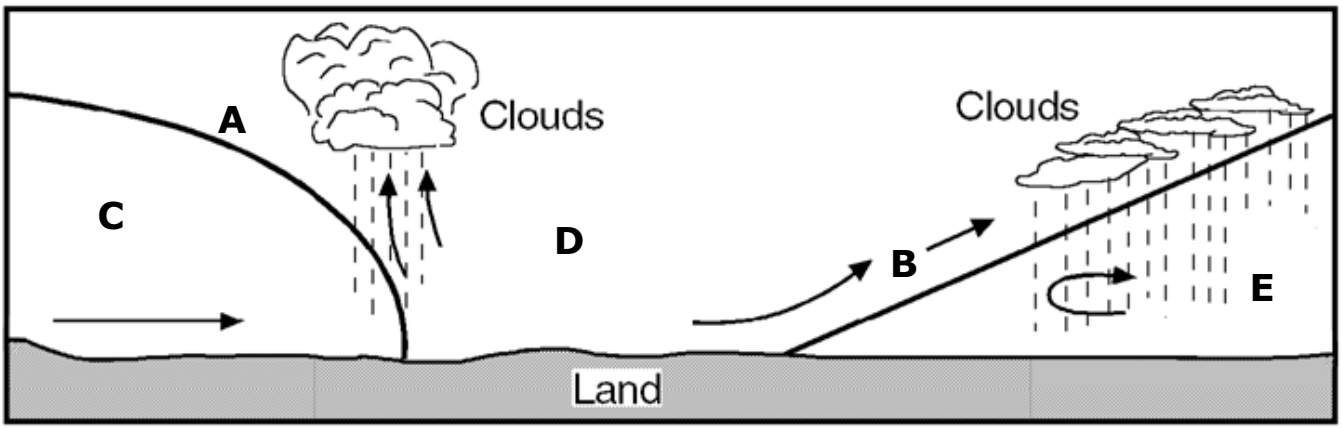
0000Z = 12:00am (midnight)
0600Z = 6:00am
1200Z = 12:00pm (noon)
1800Z = 6:00pm

Zulu Time is the time at the Prime Meridian (0º longitude). **The time in New York is Z minus 5 hours.**

1. Go to: http://www.hpc.ncep.noaa.gov/html/sfcloop/radsfcus_exp_none.html
Use the weather maps to fill in the table below.

Zulu Time	New York Time	Date	Frame Sequence (1st, 2nd, etc.)
0000Z			
0300Z			
0600Z			
0900Z			
1200Z			
1500Z			
1800Z			
2100Z			

2. Draw the map symbol and label the cross sections for the fronts below:
(For help, go to: http://www.hpc.ncep.noaa.gov/html/fntcodes2.shtml)



LABEL	CIRCLE ONE	DRAW FRONT SYMBOL OR CIRCLE ONE
Front A	Cold Front / Warm Front	
Front B	Cold Front / Warm Front	
Air Mass C	Cold / Cool / Warm	DENSITY: High / Medium / Low
Air Mass D	Cold / Cool / Warm	DENSITY: High / Medium / Low
Air Mass E	Cold / Cool / Warm	DENSITY: High / Medium / Low

3. As a cold front catches up with a warm front, an occluded front forms. What happens to the warm air between the two frontal interfaces? (Circle one.)

A) The warm air is forced under the cold frontal interface but over the warm frontal interface.
B) The warm air is forced over both frontal interfaces.
C) The warm air is forced under both frontal interfaces.
D) The warm air is forced under the cold frontal interface but under the warm frontal interface.

4. Draw the map symbol and the cross section for an occluded front below:

5. Look at the weather map loop. Which is faster, a cold front or a warm front?

6. Pick a cold front and estimate its speed in miles per hour. Show your work below. (Hint: America is about 3,000 miles from coast to coast.)

7. Why is there precipitation at the frontal surface between air masses?

8. Explain the relationship between the location of high or low pressure centers and fronts?

9. In what general direction do cold fronts move across America? Warm fronts?

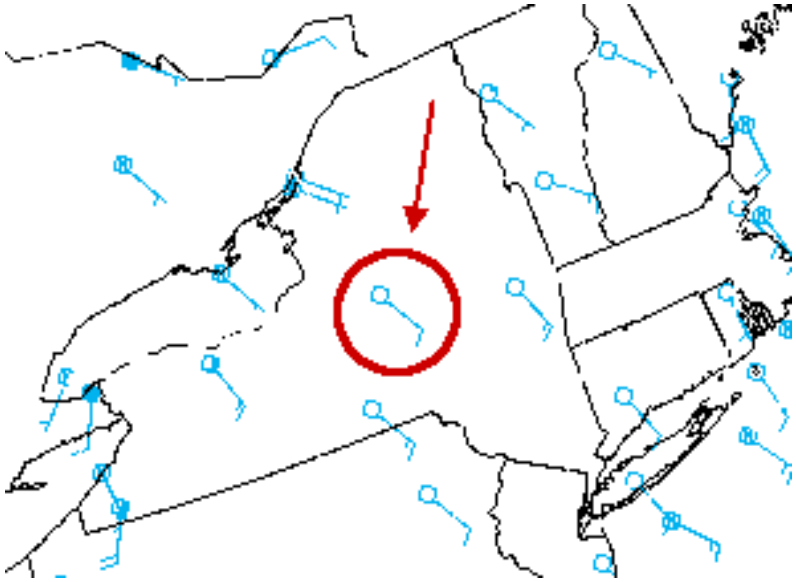
10. How should the weather change (before, during, after) as a cold front passes by? A warm front?

11. In America, which type of front extends southward from a low-pressure center? Eastward?

12. What type of an air mass is located behind a cold front? Where did this air mass probably come from?

13. What type of an air mass is located behind a warm front? Where did this air mass probably come from?

14. Go to: http://www.hpc.ncep.noaa.gov/html/sfcloop/namne_wbg.html
Find this station in New York on the Northeast weather maps, and complete the table.



(For help, go to: http://www.hpc.ncep.noaa.gov/html/stationplot.shtml)

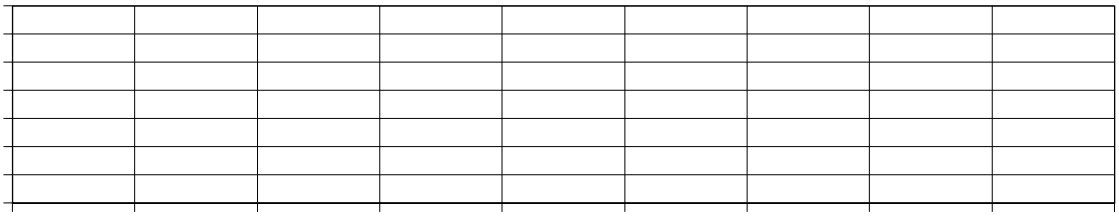
Frame Sequence (1st, 2nd, etc.)	Date	Time	Temperature (ºF)	Dewpoint (ºF)	Pressure (mb)	Wind Direction	Wind Speed (kts)	Sky Cover
		0000Z						
		0300Z						
		0600Z						
		0900Z						
		1200Z						
		1500Z						
		1800Z						
		2100Z						

15. A **meteogram** is a graphical depiction of trends in meteorological variables such as temperature, dew point, wind speed and direction, pressure, etc. The time series meteogram can be constructed using observed data or forecast data.

Graph the data from the table on the next page.

TEMPERATURE AND DEWPOINT

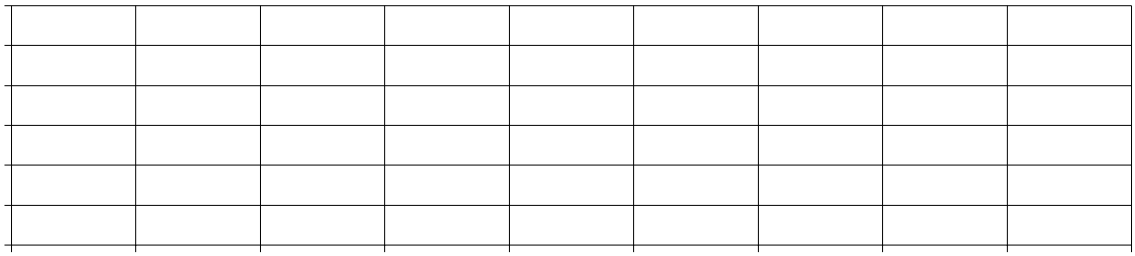
TEMPERATURE (°F)



DATE AND TIME

BAROMETRIC PRESSURE

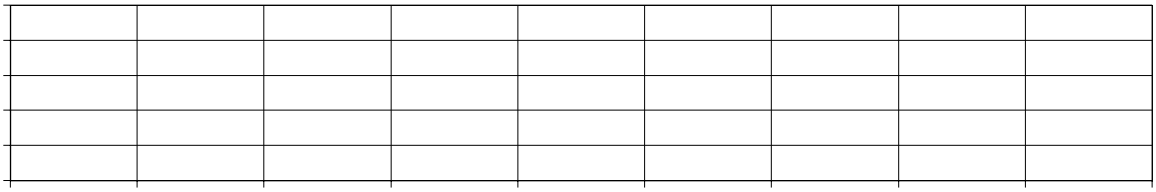
PRESSURE (mb)



DATE AND TIME

WIND SPEED

WIND SPEED (kts)

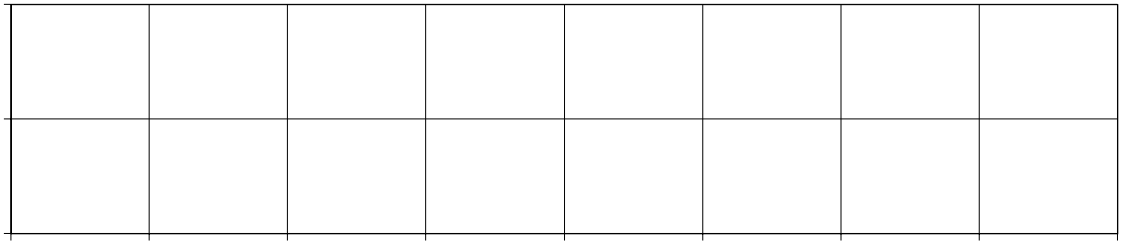


DATE AND TIME

WIND DIRECTION AND SKY COVER

WIND DIRECTION

SKY COVER



DATE AND TIME