

**EARTH SCIENCE REGENTS**  
**Spooky Halloween White Plains, NY METAR**

Created 2019 by Z. Miller (adopted from S. Kluge)

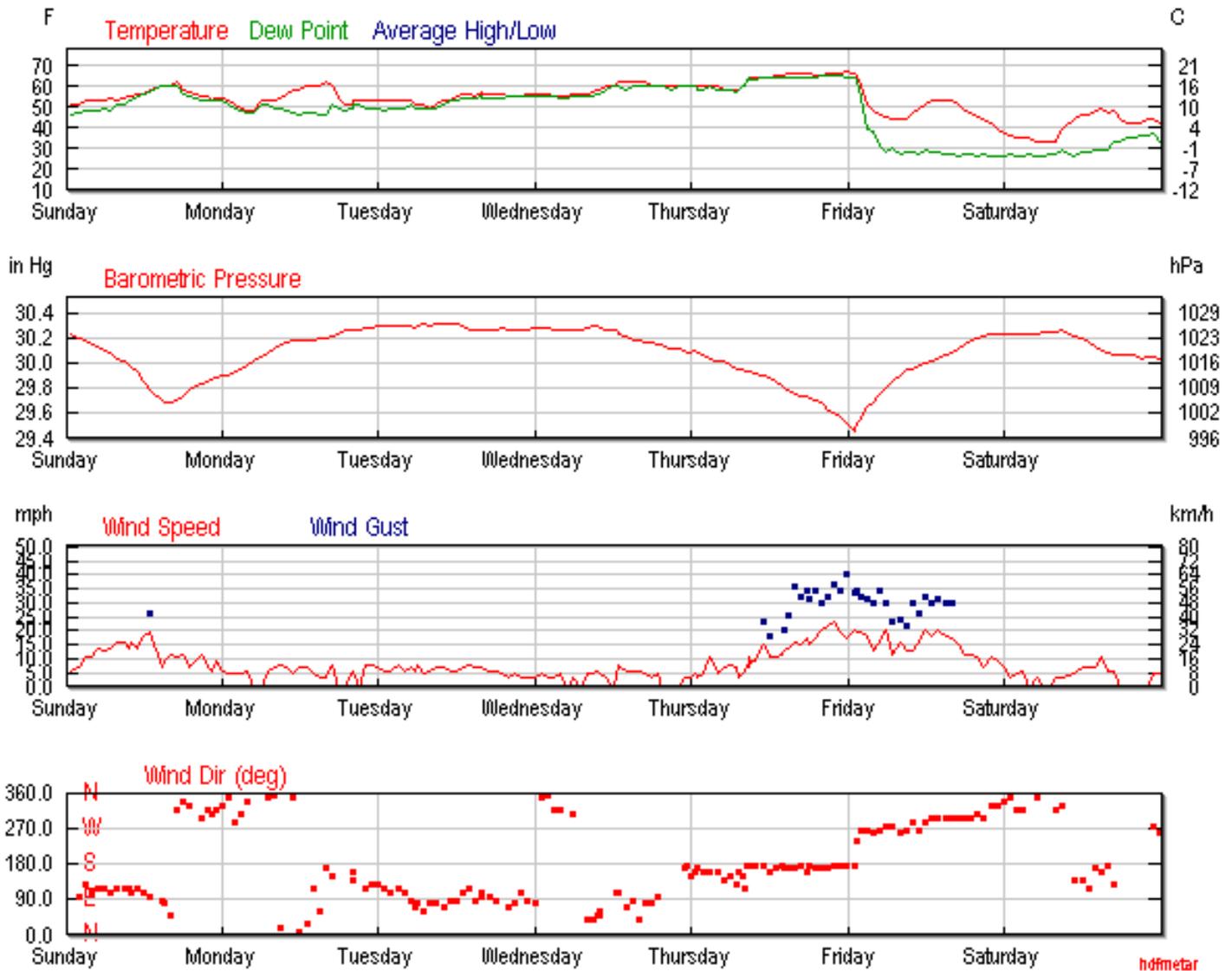
Name KEY

Date \_\_\_\_\_

Period \_\_\_\_\_

Halloween occurred on a stormy and spooky night for many in New York on Thursday, October 31, 2019. Take note of the high wind speeds and low air pressure (two indicators that a strong storm is occurring) on the graphs shown below. (This handout is best in color, or click [HERE](#) for a color version of the graph below.)

A metar (acronym for METeorological Aerodrome Report) is the primary observation code used for reporting surface meteorological data useful to pilots and others. Reporting can include wind, visibility, runway visual range, present weather, sky condition, temperature, dew point, and air pressure and altimeter settings. The metar (graph) below was recorded from Sunday, October 27, 2019 to Saturday, November 2, 2019 at the Westchester County (NY) Airport near White Plains, NY. Look over the metar carefully, noting especially changes in temperature, dewpoint and pressure. When you are sure you understand the data on the metar, answer the following questions:



1. Describe the air temperature and the dew point temperature on Tuesday, Wednesday, and Thursday:

The air temperature and the dew point temperature are either the same value, or nearly the same value, for the days of Tuesday, Wednesday, and Thursday.

2. What type of air mass was likely in place over SE New York Tuesday, Wednesday, and Thursday? **mT**\_\_
3. What was the wind direction *mostly* for those same days – Tuesday, Wednesday, and Thursday? **\_S/SE/E\_**
4. Explain why your answer to Question #3 matches, or corresponds, nicely to Question #2?  
(**Hint:** *What geographic feature is east, southeast, or east of New York City?*)

Either Long Island Sound, or the Atlantic Ocean borders SE New York (and New York City) to the south, southeast, or east – directions that are often the source areas for warm and moist (mT) air masses.

5. Describe what the air would feel like and what was likely in the sky on those same days – Tuesday, Wednesday, and Thursday? Was there fog or precipitation on those same days? **Explain** why or why not!

The days of Tuesday, Wednesday, and Thursday would feel humid. This is due to the air having an air temperature and dewpoint that are very close to one another. Fog, clouds, and slow steady rain was observed throughout Wednesday – click [HERE](#) for a summary of those conditions.

6. What type of air mass was likely in place over SE New York Sunday through Thursday? **\_\_mT\_\_**
7. Evidence of the passage of a cold weather front, or a cold frontal boundary, often includes a dramatic or sudden drop in air temperature. Again, using the metar, what day of the week, and what time, did a cold front pass through White Plains, NY on the metar?

Day of the Week (i.e., Monday, Wednesday, etc.): **\_\_\_\_\_Friday\_\_\_\_\_**

Time of Day (include AM or PM): **\_\_\_\_\_Midnight to 1:00 AM\_\_\_\_\_**

8. What was the wind direction immediately after the day and time you noted above for Question #7? **W/NW**
9. Does the wind direction you described in Question #8 correspond to a cP air mass (yes or no)? **\_yes\_**
10. The warm and moist air mass (mT) in place on Tuesday, Wednesday, and Thursday interacting with a strong cool and dry air mass (cP) causing a number of power outages and downed trees on Halloween night, Thursday, October 31, 2019 in lower New York. Write a brief summary as to why many children had to brave exciting weather on this same Halloween night, 2019: (**Hint:** *Including air temperature, dewpoint, precipitation (that likely occurred), air pressure, and wind direction will best support your answer.*)

The weather throughout most of the week of October 27, 2019 in lower New York, and leading up to Halloween on Thursday, October 31, 2019, was relatively warm and moist – a maritime tropical air mass (mT) for this time of year evidenced by the dewpoint and air temperature being nearly identical for most of the week. The mT air mass encountered a cool and dry air mass (cP) on the night of Thursday night. The collision of these air masses caused the exciting weather of high winds and heavy precipitation, as a slow moving (but strong) low-pressure system brought the arrival of our first strong cold front of the fall.

.....So "cool"! 😊.....