**Activity: Exploring Buoy Data**

Station: _____

1. Using the latitude and longitude given for your station, locate it on a classroom map.

2. In what direction is the wind blowing at the buoy station? (Wind data tells what direction the wind is coming *from*.) _____

3. What is the wind speed at this station in knots and miles per hour?

   _____ (1 knot = 1.15 mph)

   If sailors near this buoy were using the Beaufort scale, how would the sea look to them? (Hint: Refer to Satellite Winds activity.) How would it look on land?

   _____

   _____

   _____

4. What is the wave height at the buoy? How many times your height are the waves? (Example: If wave height is 20 feet and you are 5 feet tall, the waves are 4 times your height. Wave height is the distance from the bottom of the trough to the wave crest.)

   _____
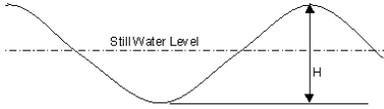
5. Does the wind speed at this station appear to be increasing or decreasing? (Hint: refer to Continuous Winds chart.)

   _____

6. Look at the Conditions summary and the chart of Wind Speed and Barometric pressure. Is the barometric pressure rising or falling? How is the wind speed related to barometric pressure?

   _____

   _____

   _____

   _____

   Look at the National Weather Service summary. How do your observations fit with the predictions?

7. Look at the plot of Surface Winds. Locate your buoy on the plot. (You will need to use the latitude and longitude of the buoy, it is not visible on the map.)

8. The St. Georges buoy is equipped to measure ocean currents. (You may ask to see the data from the students with the St. Georges station if you have one of the other buoys.) At 20 feet of depth the current direction is 280°. What is this in a cardinal direction? (You will need to convert degrees to a cardinal direction, e.g. North = 0°, East = 90°, South = 180°, and West = 270°. Note that current directions indicate the direction the current is moving to, the opposite of the convention for wind direction.)

   _____

   How does this compare to Mean Wave Direction in the Conditions summary?

   _____

   What is the current speed in knots and miles per hour?

   _____

   Plot your answers for the following questions on the graph paper.

9. If we released a beach ball at this buoy at 3:50 pm, where might we expect it to be at 4:50 pm? (Assume that the only force on the ball would be wind since it floats on the surface of the ocean.)

   _____

10. New current data tells us that the current has increased to 3 mph and now is directly west. If we released a drifter buoy at this station at 3:50 pm, where might we expect it to be at 4:50 pm? (Assume that the only force on the drifter buoy is from ocean currents, since most of the buoy is underwater.)

    _____

11. Based on your answers to 9 and 10 above, where might we expect to find an object that would be affected by both wind and currents, like a sailboat? (Remember your vectors!)

    _____

Scale: 1 [cm] = 2 [mi]
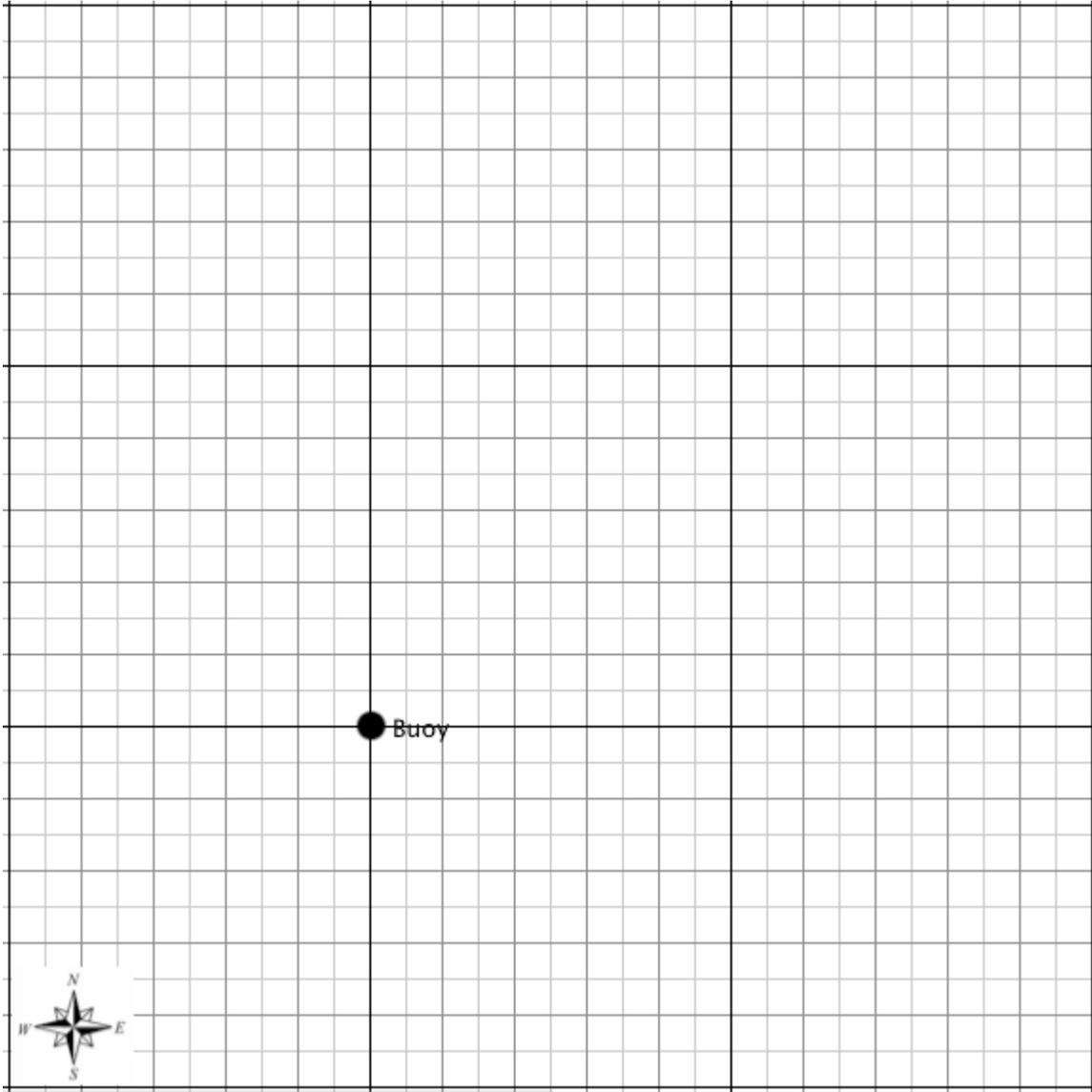
12.   Using the data from Station 46002 (West of Coos Bay, Oregon) plot the Wind Speed (WSPD) vs. Wave Height (WVHT) on the graph paper below. How are the two related? What would you expect to see with hurricane-force winds? Refer to the Beaufort scale to test your prediction