



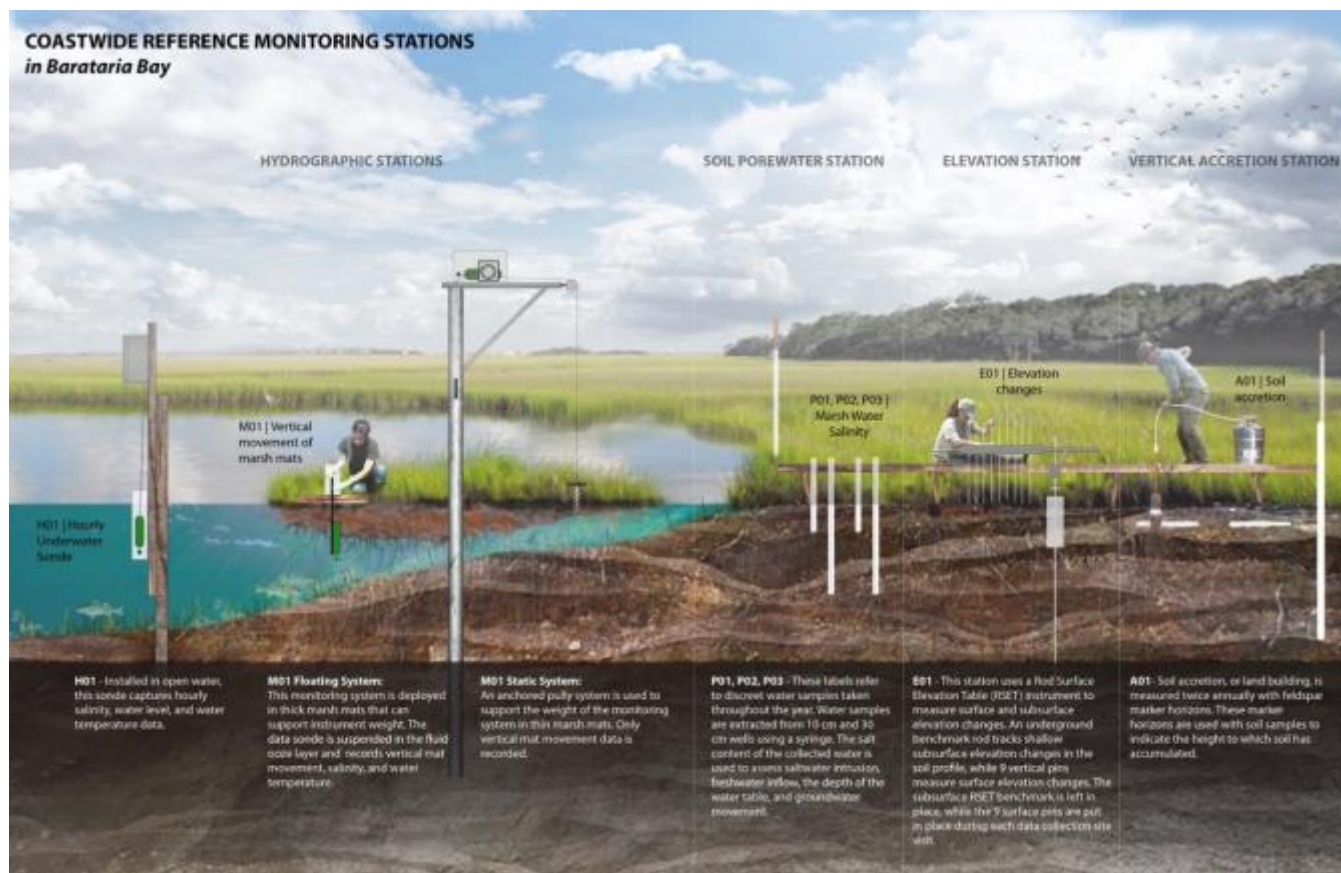
Storms on the Wax Lake Delta

Monitoring the Delta

Usually to collect data about the delta, you take a boat and make measurements using instruments carried on board. However, with disruptions caused by hurricanes and other disturbances, automated technology can come in handy.

To study the constantly changing conditions at Wax Lake Delta, scientists use specialized equipment that automatically measures properties of water and weather. Equipment is placed in several different areas on one of the delta's islands, creating a network called **The Wax Lake Delta Observatory**. This powerful tool enables researchers to understand important factors and processes that influence the delta.

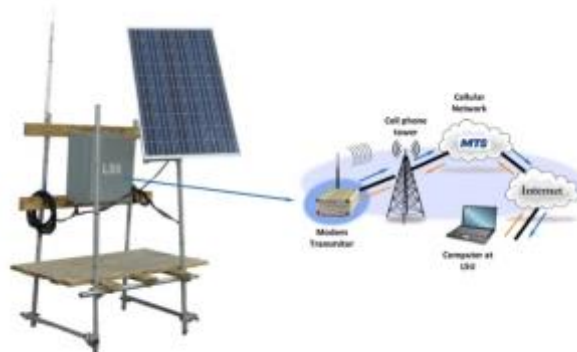
Just like a TV can be programmed to record shows at specific times, the equipment is programmed to monitor environmental conditions by taking measurements every 15 minutes. This continuous monitoring allows scientists to capture the effects of storms, changing seasons, river floods and climate change on the delta.



Monitoring Stations that make up the Wax Lake Delta Observatory:

Wax Lake Delta
NOAA Weather Station-Amerada Pass
USGS River Gauge-Morgan City
USGS Wax Lake Delta Outlet
USGS 073815925
Coastal Reference Monitoring System (CRMS)

The MIKE3 observation platform in Wax Lake Delta



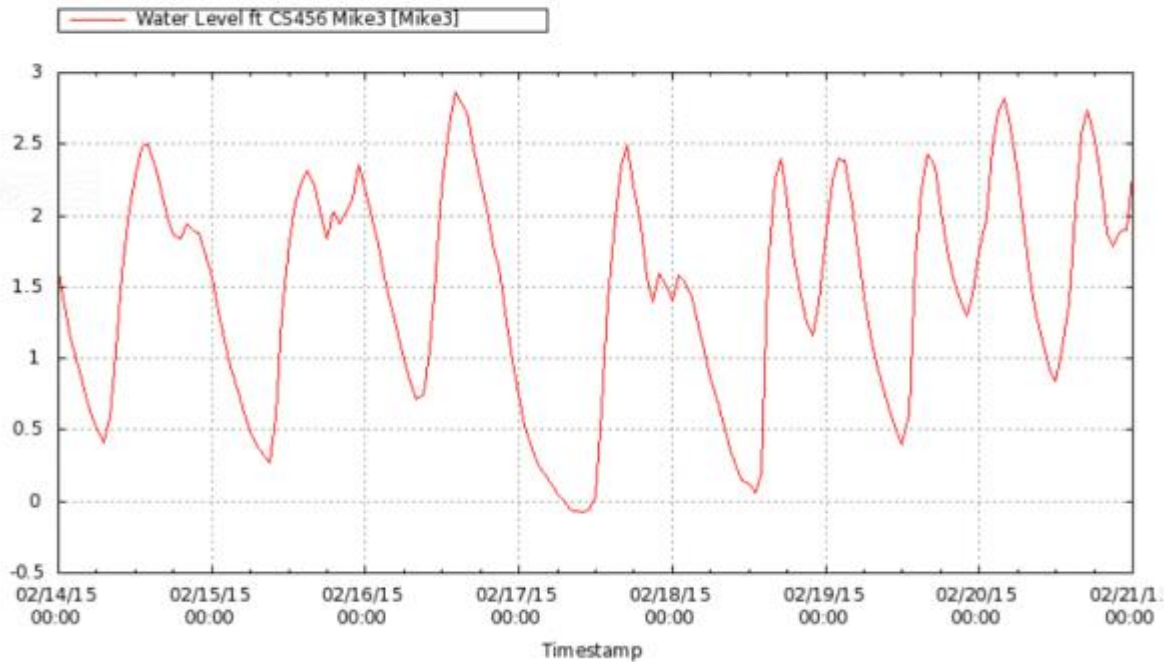
The photo on the left is one of the MIKE observatory stations located on Mike Island in the Wax Lake Delta. Normally, the tide would be in and the instruments you see in this picture would be below the surface of the water and collecting data. The drawing on the right shows the pathway the data from the MIKE observatory takes until it is available to scientists via the Internet.

What other types of data might delta observatories collect? Put the name of the sensor in parentheses.

Water data	Air data
Water temperature (thermometer)	

Describe the pathway the data takes from the observation platform until it gets to the Internet:

Station: The Wax Lake Delta Sensor Database, Mike3

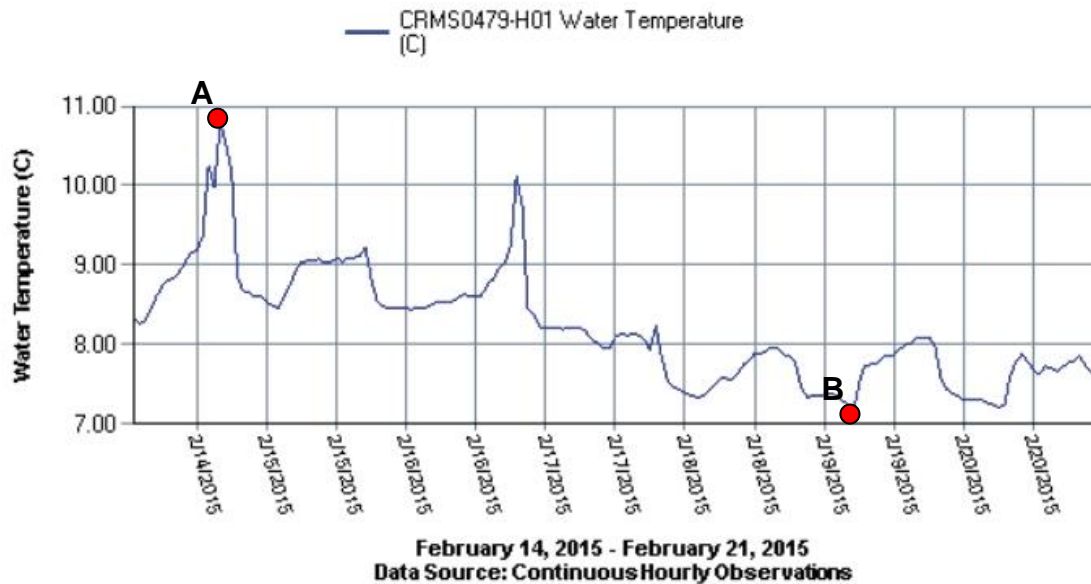


Understanding a graph of MIKE3 Observatory Data.

1. What does the red line on this graph indicate? _____
2. What unit is used to measure water depth? _____
3. On this graph, what unit is used to measure time? _____
4. On what dates was this data collected? _____
5. At Point A on the graph, how deep was the water at the observatory? _____
6. On what other days was the water deeper than 2.5 feet? _____
7. On what day was the water the shallowest? _____
8. How shallow was the water this day? _____

9. What pattern do you notice happening with the water depth on this graph?

10. What might be responsible for this pattern?



Understanding a graph of CRMS Observatory Data.

1. What does the blue line on this graph indicate? _____
2. What unit is used to measure water temperature? _____
3. On this graph, what unit is used to measure time? _____
4. On what dates was this data collected? _____

5. At Point A on the graph, what temperature was the water at the observatory? _____
At Point B on the graph, what temperature was the water at the observatory? _____

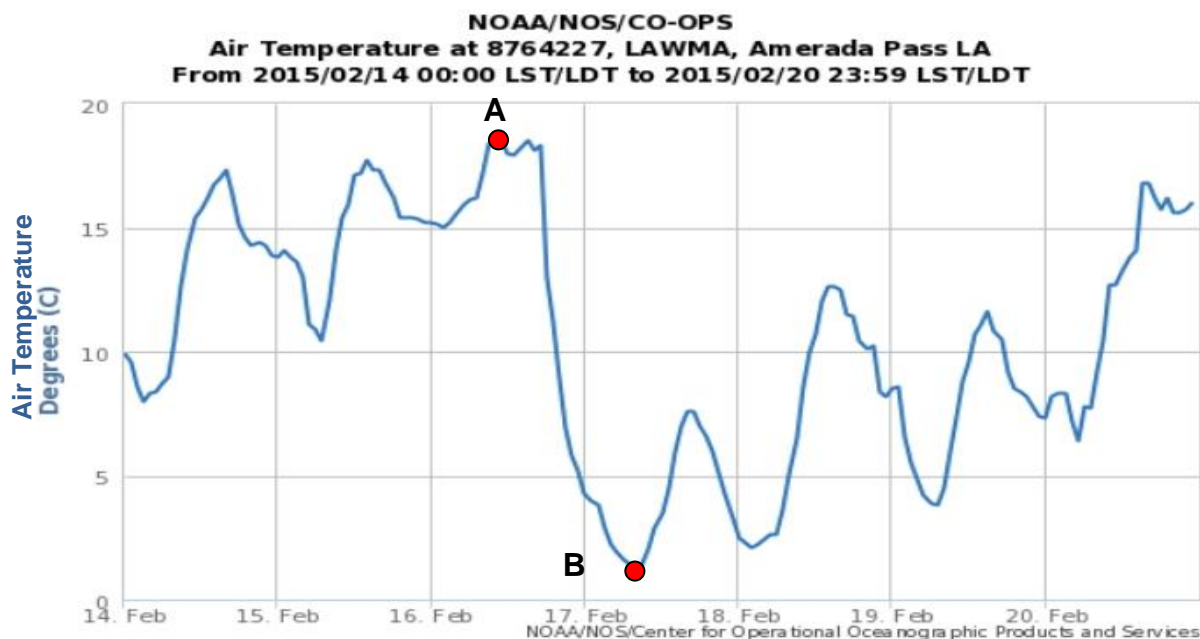
6. What was the water temperature in Fahrenheit for Point A? _____°F
Point B? _____°F

This question requires you to do a conversion from Centigrade to Fahrenheit. One simple online converter can be found at <https://www.mathsisfun.com/temperature-conversion.html>.

7. Draw a vertical line in this graph that will divide this graph into two pieces. Each piece should have similar characteristics.
8. What is similar in the pattern of water temperature on the left hand side of your vertical line?

9. What is similar in the pattern of water temperature on the right hand side of your vertical line?

10. What might be responsible for the shift from the pattern on the left to the pattern on the right?
What is your evidence?



Understanding a graph of NOAA Weather Observatory Data.

1. What does the blue line on this graph indicate? _____
2. What unit is used to measure this data? _____
3. On this graph, what unit is used to measure time? _____
4. On what dates was this data collected? _____
5. At Point A on the graph, what temperature was the water at the observatory? _____
 At Point B on the graph, what temperature was the water at the observatory? _____

6. What was the air temperature in Fahrenheit for Point A? _____°F
 Point B? _____°F

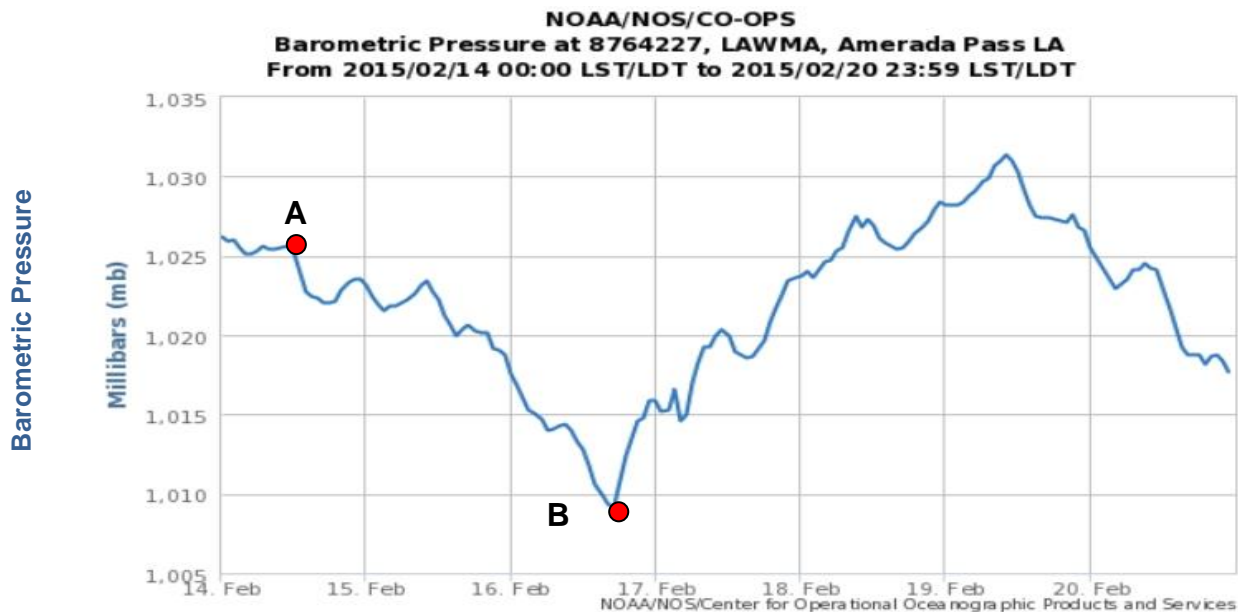
This question requires you to do a conversion from Centigrade to Fahrenheit. One simple online converter can be found at <https://www.mathsisfun.com/temperature-conversion.html>.

7. Draw a vertical line in this graph that will divide this graph into two pieces. Each piece should have similar characteristics.
8. What is similar in the pattern of water temperature on the left hand side of your vertical line?

9. What is similar in the pattern of water temperature on the right hand side of your vertical line?

10. What might be responsible for the shift from the pattern on the left to the pattern on the right?
 What is your evidence?

Name _____ Date _____ Student No. _____



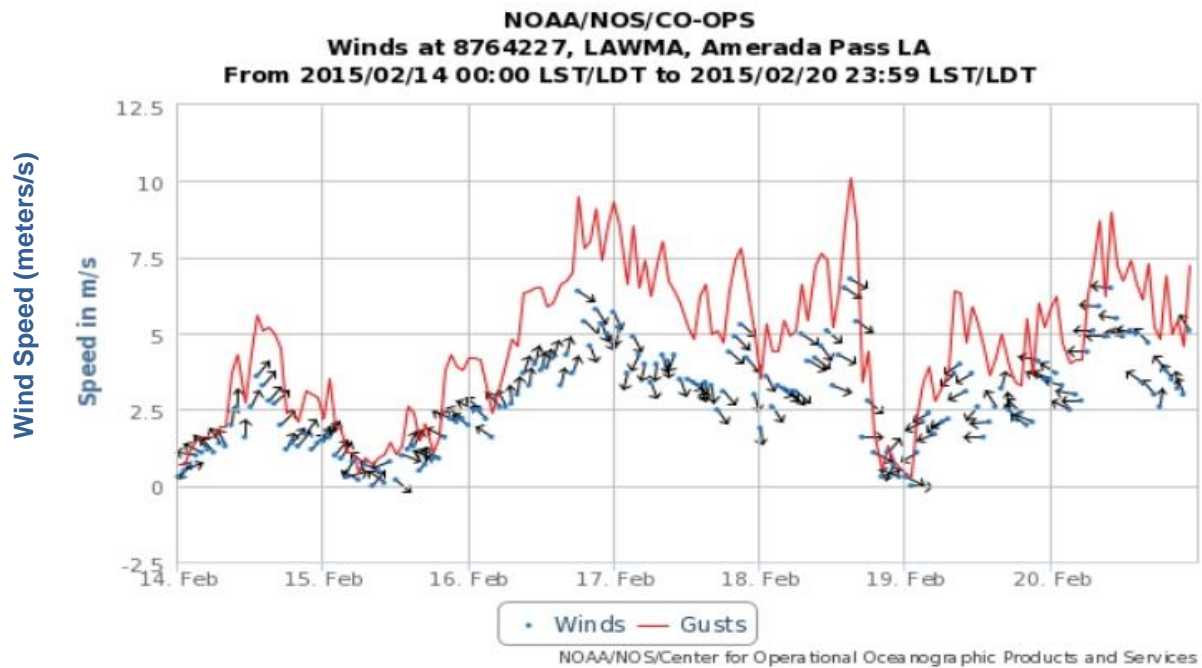
Understanding a graph of NOAA Weather Observatory Data.

1. What does the blue line on this graph indicate? _____
2. What unit is used to measure this data? _____
3. On this graph, what unit is used to measure time? _____
4. On what dates was this data collected? _____
5. At Point A on the graph, what was the barometric pressure at the observatory? ____
 At Point B on the graph, what was the barometric pressure at the observatory? ____
6. Draw a vertical line in this graph that will divide this graph into two pieces. Each piece should have similar characteristics.
7. What is similar in the pattern of barometric pressure on the left hand side of your vertical line? _____

8. What is similar in the pattern of barometric pressure on the right hand side of your vertical line? _____

9. What might be responsible for the shift from the pattern on the left to the pattern on the right?
 What is your evidence?

Name _____ Date _____ Student No. _____



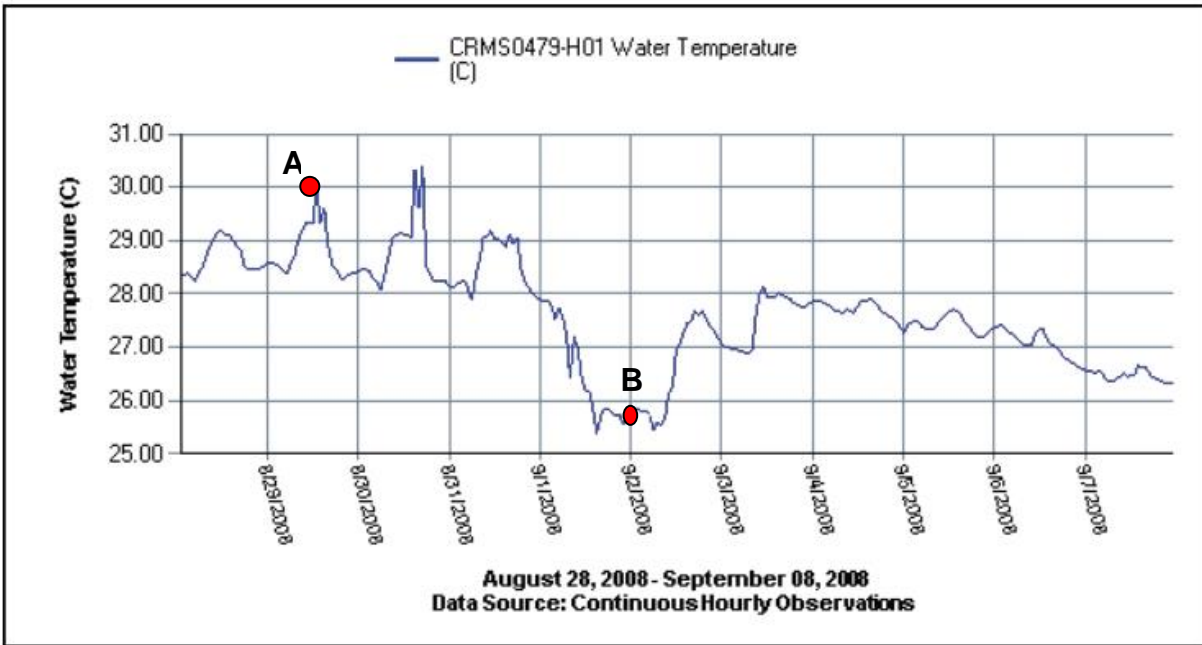
Understanding a graph of NOAA Weather Observatory Data.

1. What does the red line on this graph indicate? _____
2. What unit is used to measure this data? _____
3. On this graph, what unit is used to measure time? _____
4. On what dates was this data collected? _____
5. On what day(s) was the wind speed the highest? _____
On what day(s) was the wind speed the highest? _____
6. What do the small blue dots and arrows mean? _____

7. On what days was the wind gusting mostly to the north (the arrows would be pointing toward the top of the graph)? _____

8. On what days was the wind gusting mostly to the south (the arrows would be pointing toward the bottom of the graph)? _____

9. What might be responsible for the shift in the wind pattern? What is your evidence?



Understanding a graph of CRMS Observatory Data.

1. What does the blue line on this graph indicate? _____
2. What unit is used to measure water temperature? _____
3. On this graph, what unit is used to measure time? _____
4. On what dates was this data collected? _____
5. At Point A on the graph, what temperature was the water at the observatory? _____
At Point B on the graph, what temperature was the water at the observatory? _____

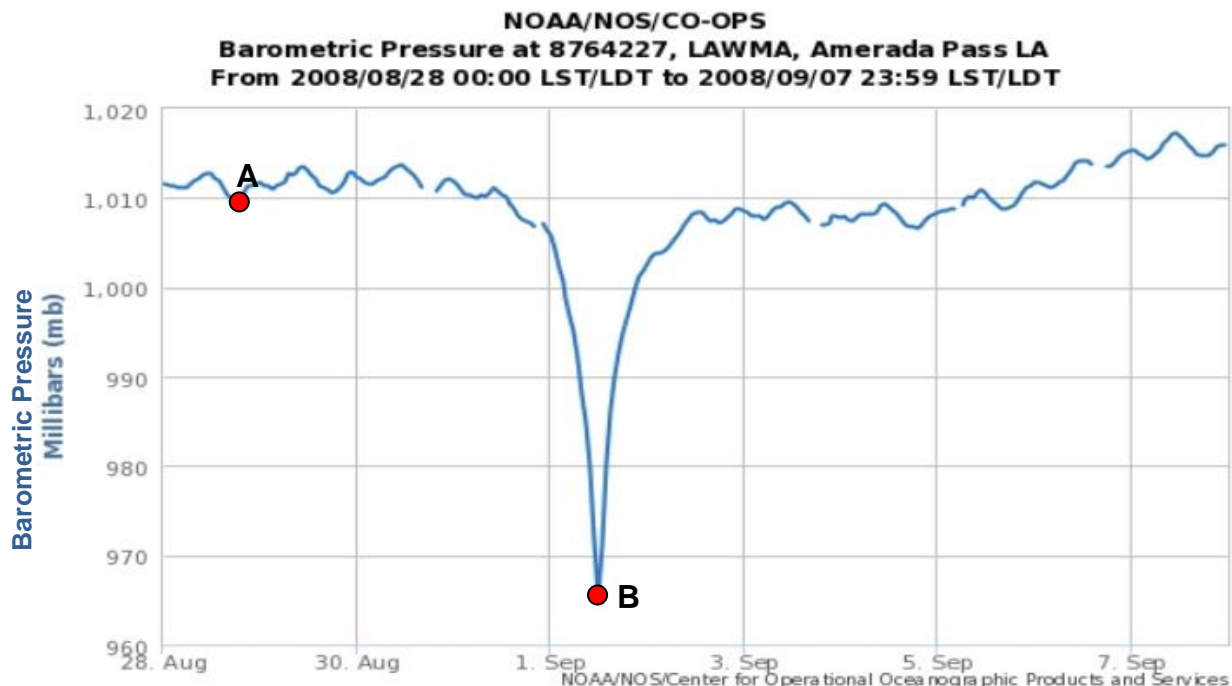
6. What was the water temperature in Fahrenheit for Point A? _____ °F
Point B? _____ °F

This question requires you to do a conversion from Centigrade to Fahrenheit. One simple online converter can be found at <https://www.mathsisfun.com/temperature-conversion.html>.

7. Draw a vertical line in this graph that will divide this graph into two pieces. Each piece should have similar characteristics.
8. What is similar in the pattern of water temperature on the left hand side of your vertical line?

9. What is similar in the pattern of water temperature on the right hand side of your vertical line?

10. What might be responsible for the shift from the pattern on the left to the pattern on the right? What is your evidence?

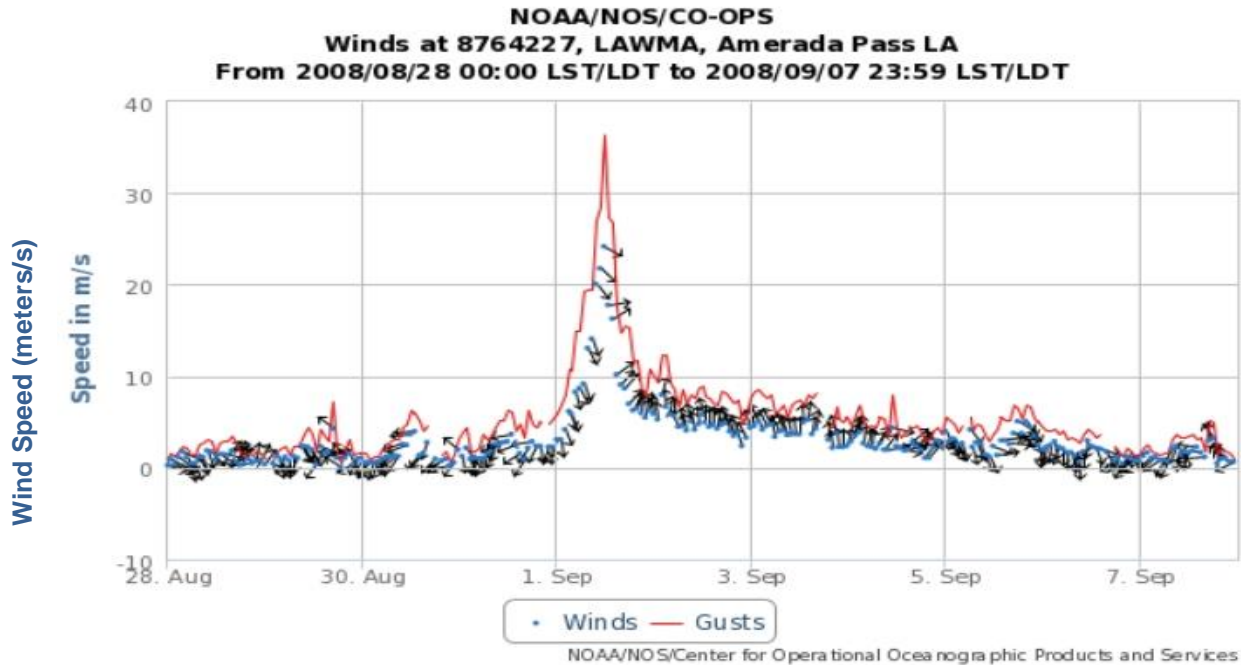


Understanding a graph of NOAA Weather Observatory Data.

1. What does the blue line on this graph indicate? _____
2. What unit is used to measure barometric pressure? _____
3. On this graph, what unit is used to measure time? _____
4. On what dates was this data collected? _____
5. At Point A on the graph, what was the barometric pressure at the observatory? _____
 At Point B on the graph, what was the barometric pressure at the observatory? _____
6. Draw a vertical line in this graph that will divide this graph into two pieces. Each piece should have similar characteristics.
7. What is similar in the pattern of barometric pressure on the left hand side of your vertical line? _____

8. What is similar in the pattern of barometric pressure on the right hand side of your vertical line? _____

9. What might be responsible for the shift from the pattern on the left to the pattern on the right? What is your evidence?



Understanding a graph of NOAA Weather Observatory Data.

1. What does the red line on this graph indicate? _____
2. What unit is used to measure wind speed? _____
3. On this graph, what unit is used to measure time? _____
4. On what dates was this data collected? _____
5. On what day(s) was the wind speed the highest? _____
 On what day(s) was the wind speed the highest? _____
6. What do the small blue dots and arrows mean? _____

7. On what days was the wind gusting mostly to the north (the arrows would be pointing toward the top of the graph)? _____

8. On what days was the wind gusting mostly to the south (the arrows would be pointing toward the bottom of the graph)? _____

9. What might be responsible for the shift in the wind pattern? What is your evidence?

Name _____ Date _____ Student No. _____

Checking for Understanding: Storms on the Wax Lake Delta

1. Based on the first set of data you and your teammates analyzed, what event happened during the time your data sets were collected? Give at least two lines of evidence from your graphs. (GLE8, Inquiry #13)

The event was: _____

The first line of evidence is _____, which allowed us to infer that

The second line of evidence is _____, which allowed us to infer that

2. How does LSU get data from the MIKE3 observatory? Describe the path the data takes. (GLE8, #49; LO#4)
