

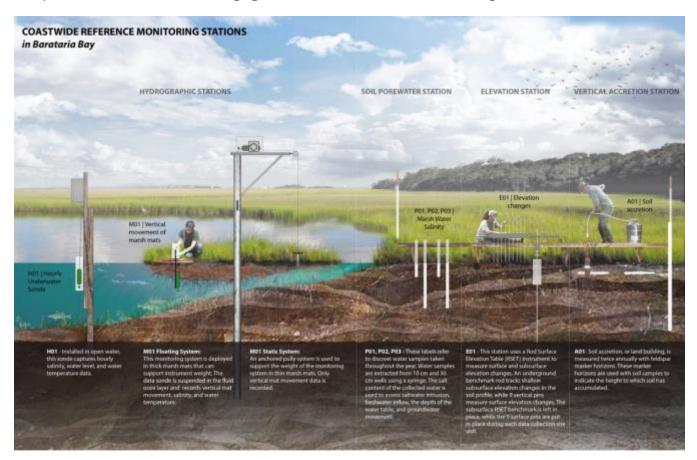
Storms on the Wax Lake Delta

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)

Name	Date	Student No.	

The MIKE3 observation platform in Wax Lake Delta





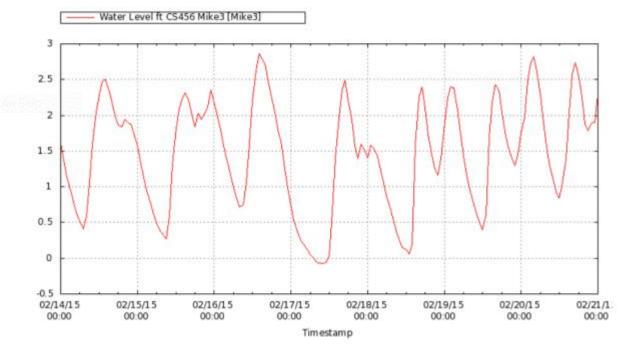
The photo on the left is one of the MIKE observatory stations located on Mike Island in the Wax Lake Delta. Normally, the tide would be in and the instruments you see in this picture would be below the surface of the water and collecting data. The drawing on the right shows the pathway the data from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

Station: The Wax Lake Delta Sensor Database, Mike3



Understanding a graph of MIKE3 Observatory Data.

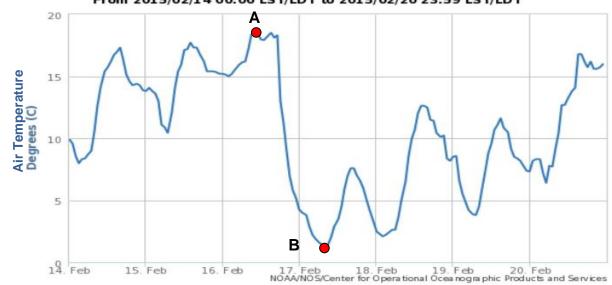
- 1. What does the red line on this graph indicate? ______
- 2. What unit is used to measure water depth? _____
- 3. On this graph, what unit is used to measure time? _____
- 4. On what dates was this data collected? ______
- 5. At Point A on the graph, how deep was the water at the observatory? _____
- 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?

Nar	ne						_ Date	·			S	tuden	t No.			
					— CR	MS0479-F	101 Wate	er Tem	peratur	е						
	Water Temperature (C)	11.00 - 10.00 - 9.00 - 8.00 - 7.00 -	211412015	2115/2015	21/5/2015			21/7/2015	2118/2015	2118/2015	21/9/2015	217912018	72000	Samonto	2/20/2015	
					Pata S	ebruary Source: C	14, 2015 Continuc	- Febr ius Ho	ruary 2 urly 01	1, 201 bserv	5 ations					
					RMS Ob this gra											
2.	What u	nit is u	sed to	meası	ure wate	r tempe	eratur	e? _								
3.	On this	graph	, what ι	unit is	used to	measu	re tim	e? _								
4.	On wha	t date	s was t	his da	ta collec	ted? _										_
5.			_	•	hat temp hat temp									•		
6.	What w	as the	water	tempe	erature in	Fahre	nheit 1	for F	Point	A? _		0				
	This quest	ion requ w.maths	ıires you t sisfun.com	o do a c <u>l/tempe</u>	conversion f	from Cen ersion.ht	tigrade <u>ml</u> .				e simp			onver	ter ca	n be fou
7.					graph that teristics.		divide	this	grapl	n into	two	pied	es.	Ea	ıch pi	iece
8.	What is	simila	ır in the	patte	rn of wat	ter tem	peratu	ıre o	n the	e <u>left</u>	hand	d side	<u>e</u> of	you	ır ve	rtical I
9.	What is	simila	ır in the	patte	rn of wat	ter tem	peratu	ıre o	n the	e <u>rig</u> h	nt har	nd si	<u>de</u> (of yo	our v	 ertica

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. _____

NOAA/NOS/CO-OPS Air Temperature at 8764227, LAWMA, Amerada Pass LA From 2015/02/14 00:00 LST/LDT to 2015/02/20 23:59 LST/LDT



:	Degrees	5	<i>J</i>		V		В			Y		M			
						16. Feb	17. NOAA/	Feb 1 NOS/Center f			eb ogra phic	20. Feb Products a) and Servic	:es	
								er Obser idicate?							
2.	What	t unit	is us	ed to	mea	sure this	data?								
3.	On th	nis gı	raph,	what	t unit i	s used to	o mea	sure time	?						
4.	On w	/hat o	dates	was	this d	ata colle	cted?							_	
5.				_			•	ure was t ure was t					,		
6.					-			heit for	Point	A? B?		_°F			
						a conversio erature-co		Centigrade t . <u>.html</u> .	o Fahrenhe	eit. One s	simple o	online cor	nverter ca	an be fo	und at
7.						s graph t acteristic		ll divide t	his grap	h into	two pi	eces.	Each p	oiece	
8.	What	t is s	imilar	in th	e patt	ern of w	ater te	mperatu	re on the	e <u>left h</u>	and s	ide of y	your ve	ertical	line?
9.	What line?		imilar	in th	ie patt	ern of w	ater te	mperatu	re on the	e <u>right</u>	hand	side of	f your \ _	 /ertica	ıl
10	.What					le for the	e shift t	from the	pattern (on the	left to	the pa	attern o	on the	right?
Nar	 ne							Date			Stud	ent No.			
												-			

NOAA/NOS/CO-OPS Barometric Pressure at 8764227, LAWMA, Amerada Pass LA From 2015/02/14 00:00 LST/LDT to 2015/02/20 23:59 LST/LDT



Understanding a	a graph o	f 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.

8. What is similar in the pattern of barometric pressure on the <u>right hand side</u> of your vertical line?

7. What is similar in the pattern of barometric pressure on the left 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?

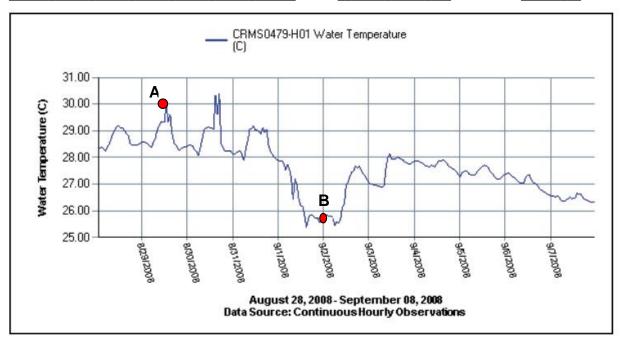
Name	Date	Student No.
Name	Date	Student No.

NOAA/NOS/CO-OPS Winds at 8764227, LAWMA, Amerada Pass LA From 2015/02/14 00:00 LST/LDT to 2015/02/20 23:59 LST/LDT



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 to the top of the graph)?	oward
8.	On what days was the wind gusting mostly to the south (the arrows would be pointing t the bottom of the graph)?	oward
9.	What might be responsible for the shift in the wind pattern? What is your evidence?	



Understanding	а	graph	of	CRMS	Observatory	/ Data.
	_	9 1. 4 . 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 <u>left hand side</u> of your vertical line?
- 9. What is similar in the pattern of water temperature on the <u>right hand side</u> 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?

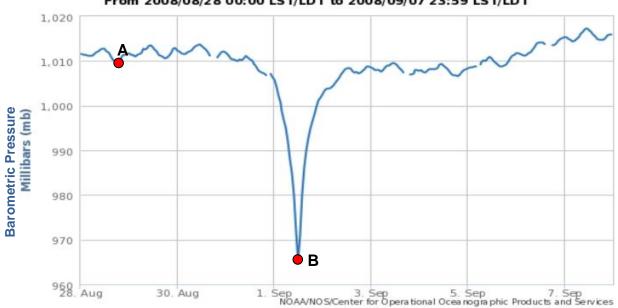
Nar	ne Student No
	NOAA/NOS/CO-OPS Air Temperature at 8764227, LAWMA, Amerada Pass LA
	From 2008/08/28 00:00 LST/LDT to 2008/09/07 23:59 LST/LDT
Air Temperature	35 32.5 30 27.5 25 22.5
	28. Aug 30. Aug 1. Sep 3. Sep 5. Sep 7. Sep NOAA/NOS/Center for Operational Oceanographic Products and Services
Un	derstanding a graph of NOAA Weather Observatory Data.
1.	What does the blue line on this graph indicate?
2.	What unit is used to measure air 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 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 <u>left hand side</u> of your vertical line?
9.	What is similar in the pattern of water temperature on the <u>right hand side</u> 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?

Storms on the Wax Lake Delta

Watch the Delta Grow

Name	Date	Student No.
Name	Date	STUDENTINO

NOAA/NOS/CO-OPS Barometric Pressure at 8764227, LAWMA, Amerada Pass LA From 2008/08/28 00:00 LST/LDT to 2008/09/07 23:59 LST/LDT



				_
nderstanding a	graph of N	JOAA We:	ather Ohserv	atory Data

	Iderstanding a graph of NOAA Weather Observatory Data. 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 <u>left hand side</u> of your vertical line?
8.	What is similar in the pattern of barometric pressure on the <u>right hand side</u> 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.
Name	Date	Student No.

NOAA/NOS/CO-OPS Winds at 8764227, LAWMA, Amerada Pass LA From 2008/08/28 00:00 LST/LDT to 2008/09/07 23:59 LST/LDT



		() ! () 4 4	147 41	~ !	D 4
Understanding a	graph	of NOAA	weather	Observatory	Data.

	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?

Na	ıme		Date	Student No	
		Checking for Unders	standing: Storms on	the Wax Lake Delta	
1.		sed on the first set of data you and your teammates analyzed, what event happened during the time your ta 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			fer that
		The second line of evidence is that			o infer
2.	Hov	v does LSU get data from the MIKE3 o	•	e path the data takes. (GLE8, #49; LC	O#4)