

Name: _____

Period: _____

Hurricane Tracking

Pre-questions:

1. What causes wind?
2. What type of front has the most severe weather?

Objective: In this lab we will explore the relationship between air pressure and wind speeds in tropical storm systems.

Procedures: Using the data in the table below, you will create a line graph with 2 Y axis values.

- Determine a reasonable scale on each axis to cover the values in the data table. For instance, the wind speeds range from 35 to 145 mph. Therefore your graph should probably start at 35 mph and go up to 145 mph. Be sure to put a title on your graph.
- This graph will help you understand the air pressure and wind speed relationship in a tropical storm.
- Please note that, in a tropical storm, the lowest air pressure indicates the worst part of the storm.

You will then create a graph plotting the path of the hurricane. Use the latitude and longitude map provided.

- Using a pencil, plot the **latitude and longitude** recorded on the table below. For the Longitude a negative (-) = West (w). **Next to each point, label the Storm Type.**
- Connect the plotted points with a smooth line that approximates the path of the center of the storm.

Air Pressure & Wind speeds from Hurricane Ike (Sept 2008)

Time	Wind (mph): (y2)	Pressure (mb): (y1)	Lat: (y)	Lon: (x)	Storm Type:
3 GMT	35	1005	17.60	-39.50	Tropical Depression
9 GMT	50	1000	17.70	-40.60	Tropical Storm
15 GMT	50	1000	18.00	-41.60	Tropical Storm
21 GMT	50	1005	18.60	-43.10	Tropical Storm
3 GMT	60	1002	18.90	-45.00	Tropical Storm
9 GMT	65	996	19.20	-46.30	Tropical Storm
15 GMT	65	996	19.90	-47.90	Tropical Storm
21 GMT	65	996	20.60	-49.60	Tropical Storm
3 GMT	70	991	20.80	-51.20	Tropical Storm
9 GMT	80	984	21.60	-52.70	Category 1 Hurricane
15 GMT	115	960	21.70	-53.20	Category 3 Hurricane
21 GMT	135	948	22.10	-54.10	Category 4 Hurricane
3 GMT	145	935	22.70	-55.80	Category 4 Hurricane
9 GMT	140	938	23.20	-57.00	Category 4 Hurricane
15 GMT	135	945	23.60	-58.20	Category 4 Hurricane
21 GMT	135	945	23.60	-59.50	Category 4 Hurricane
3 GMT	125	945	23.70	-61.00	Category 3 Hurricane
9 GMT	120	954	23.20	-62.70	Category 3 Hurricane
15 GMT	115	958	22.90	-64.10	Category 3 Hurricane
21 GMT	115	958	22.60	-65.60	Category 3 Hurricane
3 GMT	115	962	22.40	-67.10	Category 3 Hurricane
9 GMT	110	960	21.90	-68.80	Category 2 Hurricane
15 GMT	135	949	21.40	-69.70	Category 4 Hurricane
21 GMT	135	947	21.20	-70.90	Category 4 Hurricane
3 GMT	135	948	21.10	-72.20	Category 4 Hurricane

After drawing your graph, look at the pattern of the lines you drew and draw some mental conclusions, and answer the following questions.

1. Describe the motion of the storm as it moves across the Caribbean Sea and Gulf of Mexico. (Direction, shape of path)

Use what you know about how fluids move across a spinning globe to explain the path of the storm.

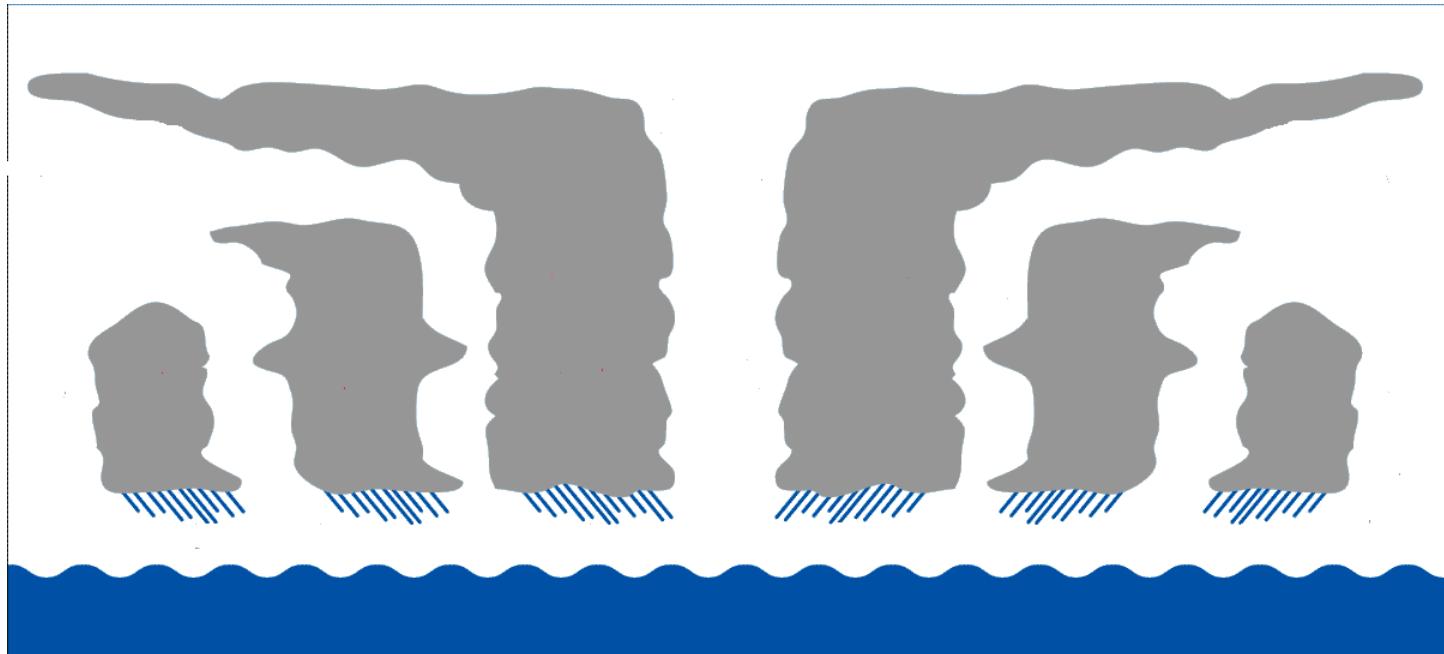
2. The Typical air pressure for sea level is 1013 millibars. Using this information and the information on your graph, describe the relationship between wind speed and air pressure within a tropical storm system.

3. In order for a cloud to form what has to happen to the air and why?

4. Looking at a hurricane from above we can see there is a spot in the middle with no clouds (The Eye of the Storm). Create an explanation for why the center would have no clouds:



5. The diagram below shows the structure of a hurricane from the side. It is made of a series of storm walls and clear areas. Label where the major High pressure area would be as well as the major Low pressure area. Draw arrows indicating the direction of air flow that would produce this series of clouds (updrafts and downdrafts).

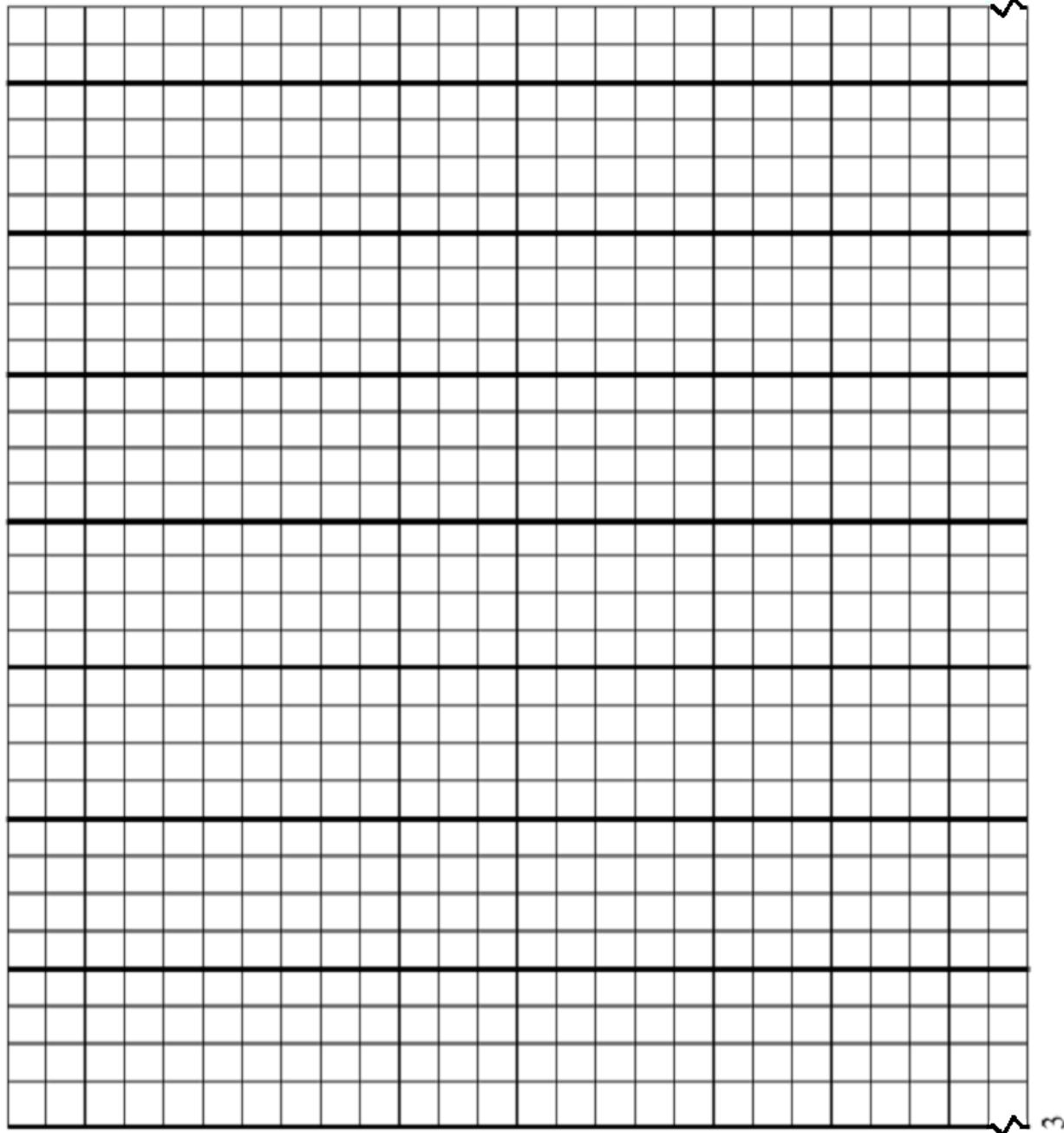


Title: _____

Key
Air Pressure =

Wind Speed =

Air Pressure (in millibars)



Time (GMT=Greenwich Mean Time)

935

3

On the map below, use the latitude and longitude values from the data chart above, to plot the path of this hurricane. Connect your dots with a solid line and label it Hurricane Ike.

