Lab Activity: Hurricane Katrina

INTRODUCTION:

Hurricane season runs from June 1 to November 30 every year as thunderstorms form over the hot moist air of the Atlantic Ocean. Sometimes these storms come across the ocean, intensifying before they run into the islands of the Caribbean and coastal areas of the southeastern United States.

In 2005, Hurricane Katrina formed in the western Atlantic Ocean as a tropical depression. Warm water provided energy for the storm system, causing it to strengthen before moving into the Gulf of Mexico it quickly becoming a category 5 hurricane. After all was said and done, the total amounts of damage from the storm was estimated to be $81.2 billion dollars.

OBJECTIVE:

Students will plot latitude and longitude coordinates on a map to see the how hurricanes typically track and the conditions that cause it to develop and die out. They will also see how the weather variables associated with a hurricane are related.

VOCABULARY:

Hurricane -

Saffir-Simpson Scale -

Storm Surge -

Storm Track -

Southwesterly Winds -

PROCEDURE:

1. Using the Saffir-Simpson Hurricane Scale below, fill in the Type and/or Category Storm column located in the Hurricane Katrina Data Chart.
2. Using the Hurricane Katrina Data Chart plot the positions of the tropical cyclone from August 24 through August 30 on the Atlantic Hurricane Tracking Chart.

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SAFFIR-SIMPSON SCALE

Category	Pressure (millibars)	Wind (mph)	Storm Surge (feet)
Tropical Depression	-	< 39	-
Tropical Storm	-	39 - 73	-
Category 1	> 979	74 - 95	4 - 5
Category 2	965 - 979	96 - 110	6 - 8
Category 3	945 - 964	111 - 130	9 - 12
Category 4	944 - 920	131 - 155	13 - 18
Category 5	< 920	> 155	> 18

HURRICANE KATRINA DATA CHART

Date / Time (2005)	Latitude (° N)	Longitude (° W)	Wind Speed (mph)	Pressure (millibars)	Type and/or Category Storm
8/24 - 0000	23.4	75.7	30	1007	
8/24 - 1200	24.5	76.5	35	1006	
8/25 - 0000	26	77.7	45	1000	
8/25 - 1200	26.2	79	55	994	
8/26 - 0000	25.9	80.3	70	983	
8/26 - 1200	25.1	82	75	979	
8/27 - 0000	24.6	83.3	90	959	
8/27 - 1200	24.4	84.7	100	942	
8/28 - 0000	24.8	85.9	100	941	
8/28 - 1200	25.7	87.7	145	909	
8/28 - 1800	26.3	88.6	150	902	
8/29 - 0000	27.2	89.2	140	905	
8/29 - 1200	29.5	89.6	125	913	
8/30 - 0000	32.6	89.1	50	961	
8/30 - 1200	35.6	88	30	985	
8/31 - 0000	38.6	85.3	30	994	

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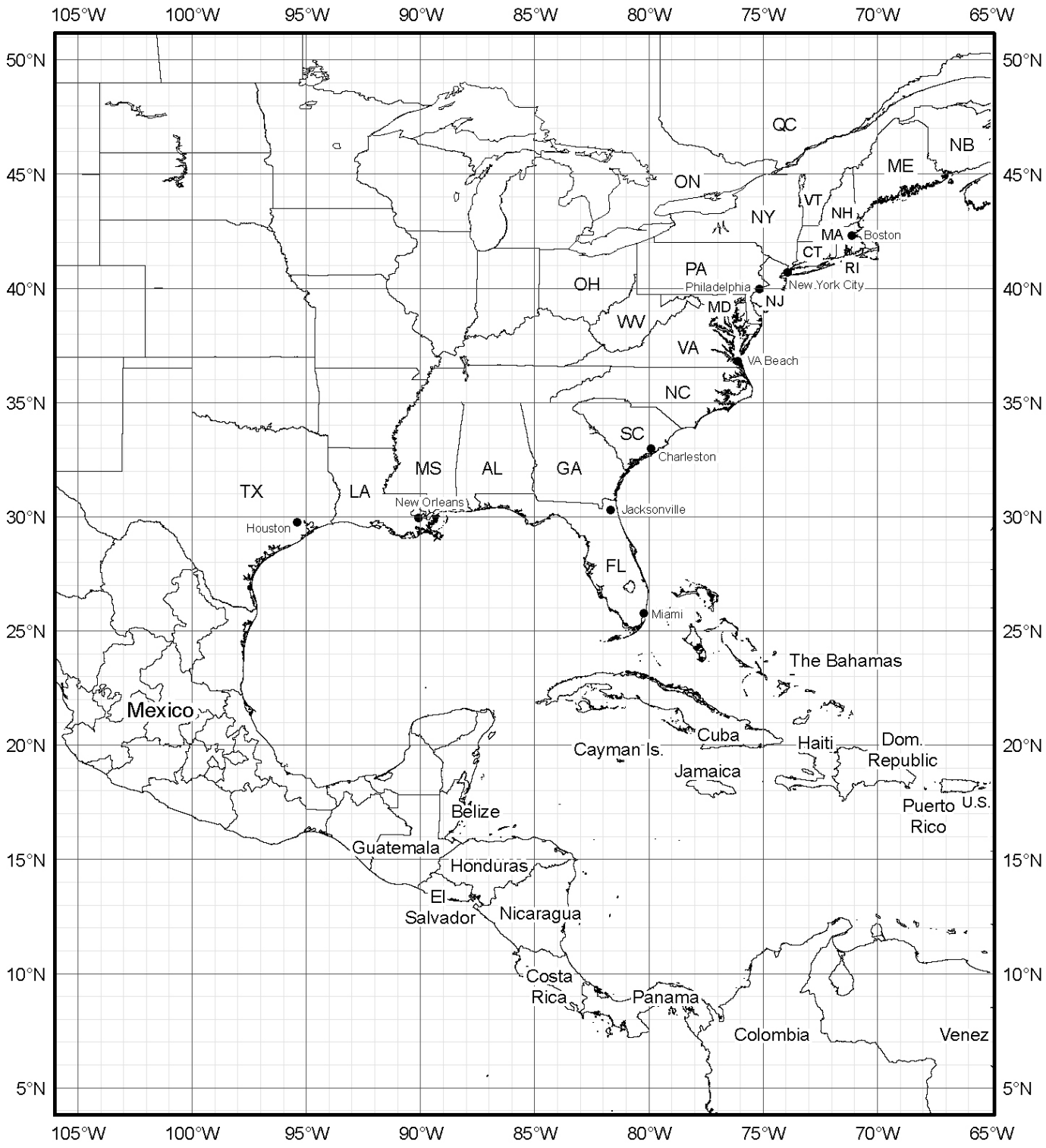
ATLANTIC HURRICANE TRACKING CHART



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DISCUSSION QUESTIONS:

1. Where in the United States are hurricanes likely to strike?

2. What is the source of a hurricane's energy?

3. What is the relationship between air pressure and wind velocity?

4. According to the Saffir-Simpson Scale, what was the storm surge on August 28th at 1800?

5. Why did Hurricane Katrina change direction at 30° North latitude?

6. What caused Hurricane Katrina to downgrade to a tropical depression on August 30th?

7. Name two things that you and your family can do to prepare for a hurricane?

CONCLUSION: What information do we need to provide advanced warning of a hurricane?