

Name _____

Tracking Hurricanes

Introduction: The United States Weather Service is a division of the National Oceanic and Atmospheric Administration (NOAA). Data is received from about 600 stations in the United States, as well as from foreign countries and from ships at sea. This information is transmitted to centers every few hours. The centers then plot the information on synoptic maps which are used to predict any weather changes.

Various hazardous weather conditions are threats to different geographic areas of the United States. Hurricanes are monitored by the national Hurricane Center in Miami. In addition to using traditional synoptic maps to forecast these violent weather conditions, these centers also employ technologies such as GOES Next satellites and Nexrad Doppler radar.

Objective: Using the information from the Hurricane Data Charts, you will track the path the hurricanes took during their time periods using latitude, longitude, and your knowledge of Earth Science.

Vocabulary:

Hurricane:

Storm track:

Storm Surge:

Saffir/Simpson Scale:

Cyclone:

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Procedure A:

1. Using the HURRICANE ANDREW DATA CHART, plot the positions of the tropical cyclone from August 20th through August 27th on the hurricane tracking chart.
2. For each position label the date and time.
3. Using the wind information in the Data chart and the Safir/Simpson Hurricane Scale, determine the tropical cyclone's category for each position. Label each position using the following abbreviations: TD=tropical depression; TS=tropical storm; H-I=category I; H-II=category II; H-III=category III; H-IV=category IV.
4. Connect each position with a solid line.
5. Draw an arrow along the solid line showing the cyclone's direction of movement.

Procedure B:

1. Follow steps 1 – 5 in procedure A Using the Hurricane Bordi Data Table *AND a different color.*
2. Latitude and longitude is intentionally left out on September 6th (am, and pm), If hurricane Bordi continued its current path where do you think it would be on September 6th (am, and pm). Write in the correct latitude and longitude in the data table, along with its correct positions on the map.

Discussion Questions: (Answer in complete sentences).

1. According to the Hurricane Data Charts, what is the relationship between air pressure and wind velocity?
2. According to the Hurricane Andrew Chart, compare the wind velocity on August 25th (from 8 am to 8 pm) to the pressure and wind velocity from 8 am to 8 pm on August 26th.

3. Considering your answer to the previous question, what might be the source of hurricanes energy?

4. According to the Saffir/Simpson scale, what storm surge and type of damage was most likely experienced in Homestead Florida which was directly in the path of the hurricane on the east coast?

5. Notice the general direction of hurricane Bordi, why do you think it has begun to lose intensity?

6. What information is required to provide advanced warnings of severe weather conditions?

HURRICANE ANDREW DATA CHART (AUGUST, 1992)

DATE/TIME (E.S.T)	LAT. (N)	LONG.(W)	PRESSURE (mb)	WIND (MPH)
20/8 pm	23.0	62.5	1014	52
21/8 am	24.5	64.0	1007	58
8 pm	25.5	66.0	1000	69
22/8 am	26.0	68.5	981	81
8 pm	25.5	71.0	961	104
23/8 am	25.5	74.0	933	138
8 pm	25.5	77.5	930	144
24/8 am	25.5	81.0	951	127
8 pm	26.0	85.0	943	132
25/8 am	27.0	88.0	946	132
8 pm	28.5	90.5	937	138
26/8 am	30.0	91.5	973	92
8 pm	31.5	91.0	995	40
27/8 am	33.0	89.5	998	35
8 pm	34.5	86.5	1000	23

SAFFIR/SIMPSON HURRICANE SCALE

SCALE NUMBER (CATEGORY)	PRESSURE (millibars)	WINDS (mph)	STORM SURGE (ft)	DAMAGE
TROP. DEPRESSION	---	<38	---	---
TROPICAL STORM	---	39-73	---	---
I	>979	74-95	4-5	Minimal
II	965-979	96-110	6-8	Moderate
III	945-964	111-130	9-12	Extensive
IV	920-944	131-155	13-18	Extreme
V	<920	>155	>18	Catastrophic

HURRICANE BORDI - DATA CHART (AUGUST / SEPTEMBER 2004)

DATE/TIME (E.S.T.)	LAT. (N)	LONG. (W)	PRESSURE (mb)	WIND (MHP)
30/8pm	25.0	30.0	1017	47
31/8am	27.0	35.0	1014	53
31pm	30.0	38.0	1010	70
1/9am	32.0	43.0	1000	88
1pm	30.0	46.0	984	101
2/9am	31.0	48.0	979	129
2pm	34.0	50.0	967	140
3/9am	37.0	47.0	980	126
3pm	39.0	44.0	994	104
4/9am	41.0	36.0	1006	98
4pm	44.0	30.0	1012	87
5/9am	45.0	30.0	1020	61
5pm	46.5	29.0	1028	57
6/9am			1031	50
6pm			1037	41

Hurricanes TRACKING CHART

