

Name:

Date:

LAB: HURRICANE WEATHER

(Modified from Namowitz's "Activities in Earth Science," ©1965)

Purpose: To study the changes in weather that take place during the passage of a hurricane.

Background: This exercise is a study of the drastic changes that took place in air pressure, winds, temperature, and rainfall as a hurricane passed nearly centrally over San Juan, Puerto Rico.

PROCEDURE

1. **Air Pressure:** Use the scale shown on the right side of the graph. Plot each point given in the table, and connect consecutive points with a smooth curve.
2. **Wind Speed:** Use the scale shown on the left side of the graph. Plot each point given in the table. Connect consecutive points with straight lines. (The zigzag line shows the gusty nature of the winds of the hurricane.)
3. **Wind Direction:** Show the wind directions every three hours by drawing arrows under the dotted lines in the table. Your arrows should show which way the wind was blowing every three hours.
4. **Rainfall:** The table shows the total rainfall for each 6-hour period. Create a bar graph using these figures..
5. **Temperature:** Plot the temperature at the top of the graph, where indicated. Join consecutive points with a smooth curve.
6. **Labels:** Label neatly the air pressure, wind speed, and temperature curves.
7. **Hurricane Track:** Plot the even or odd positions of the hurricane on the maps. Number the points as you plot them. Connect the points with a smooth curve. (*Plot only the even or the odd numbers, not all of them!*)

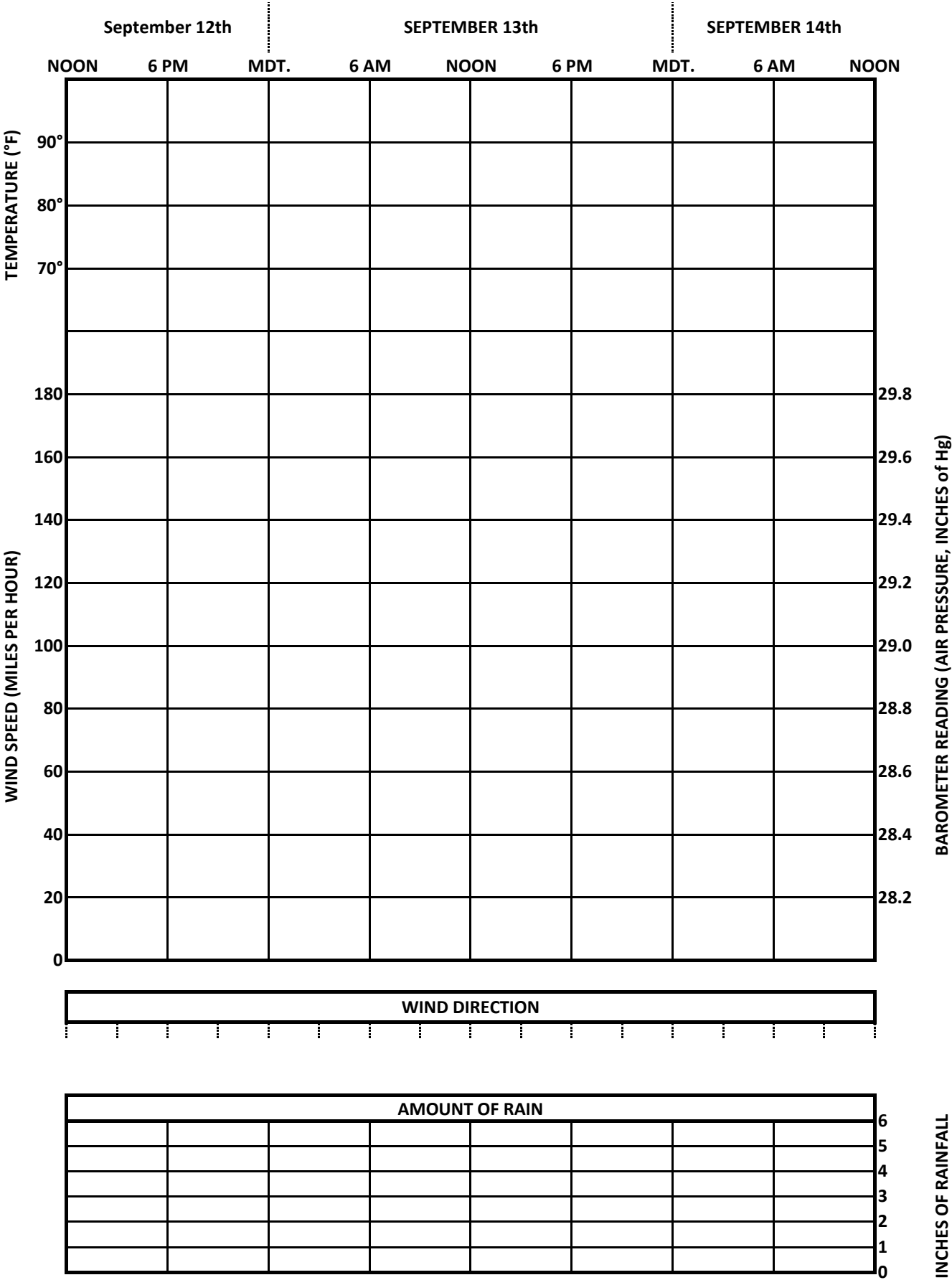
SUMMARY QUESTIONS

1. Study the curves of air pressure and wind speed. How are they related?
2. When did the center of the storm pass closest to San Juan? What were the air pressure and wind speed at that time?
3. What relation do you see between the wind direction and:
 - a. the passing of the storm center?
 - b. the wind speed?
4. What relation do you see between the amount of rainfall and the location of the storm center?
5. Describe the path of the hurricane. (Where did it begin? Where did it go? What islands and U.S. states were in its path? Where did it die?)

WEATHER AT SAN JUAN, PUERTO RICO DURING A HURRICANE						
Date	Hour	Air Pressure (inches of Hg)	Wind Speed	Wind Direction	Inches of Rainfall	Temperature
Sept. 12	12 P.M. (Noon)	29.8	20	E	Trace	86°F
Sept. 12	3 P.M.		35	NE		
Sept. 12	6 P.M.	29.7	20	E		80°F
Sept. 12	9 P.M.		50	NE	0.28	
Sept. 12	12 A.M. (Midnight)	29.7	20	E		78°F
Sept. 13	3 A.M.	29.6	55	NE	0.25	80°F
Sept. 13	6 A.M.	29.6	55	NE		80°F
Sept. 13	9 A.M.	29.5	75	E	0.48	75°F
Sept. 13	12 P.M. (Noon)		150	NE		
Sept. 13	3 P.M.*	28.7	165	NE	5.28	
Sept. 13	6 P.M.		50	E		75°F
Sept. 13	9 P.M.	29.4	35	SE	3.43	
Sept. 13	12 A.M. (Midnight)	29.5	55	SE		72°F
Sept. 14	3 A.M.			SE	1.14	
Sept. 14	6 A.M.	29.5	35	S		75°F
Sept. 14	9 A.M.			S	0.02	
Sept. 14	12 P.M. (Noon)	29.7	30	SE		75°F

*At this time the center of the storm passed 30 miles to the south of San Juan, at the town of Guyama, Puerto Rico. The barometer reading there was 27.5 in Hg.

HURRICANE WEATHER GRAPHS



HURRICANE PLOTTING COORDINATES

#	LAT	Lon	STATUS	TIME/DATE
1	14.2°N	17°W	TROPICAL DEPRESSION	12AM Sept. 06
2	14.1°N	18.5°W	TROPICAL DEPRESSION	6AM Sept. 06
3	14°N	20°W	TROPICAL STORM	12PM Sept. 06
4	13.8°N	21.6°W	TROPICAL STORM	6PM Sept. 06
5	13.7°N	23.2°W	TROPICAL STORM	12AM Sept. 07
6	13.6°N	24.8°W	TROPICAL STORM	6AM Sept. 07
7	13.5°N	26.5°W	TROPICAL STORM	12PM Sept. 07
8	13.5°N	28.2°W	TROPICAL STORM	6PM Sept. 07
9	13.5°N	30°W	TROPICAL STORM	12AM Sept. 08
10	13.6°N	31.7°W	TROPICAL STORM	6AM Sept. 08
11	13.7°N	33.5°W	TROPICAL STORM	12PM Sept. 08
12	13.8°N	35.2°W	TROPICAL STORM	6PM Sept. 08
13	13.9°N	37°W	TROPICAL STORM	12AM Sept. 09
14	14°N	38.7°W	TROPICAL STORM	6AM Sept. 09
15	14.2°N	40.5°W	TROPICAL STORM	12PM Sept. 09
16	14.3°N	42.2°W	TROPICAL STORM	6PM Sept. 09
17	14.4°N	44°W	TROPICAL STORM	12AM Sept. 10
18	14.5°N	45.7°W	TROPICAL STORM	6AM Sept. 10
19	14.7°N	47.5°W	TROPICAL STORM	12PM Sept. 10
20	14.9°N	49.2°W	HURRICANE-1	6PM Sept. 10
21	15.2°N	50.9°W	HURRICANE-1	12AM Sept. 11
22	15.5°N	52.6°W	HURRICANE-1	6AM Sept. 11
23	15.8°N	54.2°W	HURRICANE-1	12PM Sept. 11
24	15.9°N	55.8°W	HURRICANE-2	6PM Sept. 11
25	15.9°N	57.3°W	HURRICANE-2	12AM Sept. 12
26	15.9°N	58.8°W	HURRICANE-3	6AM Sept. 12
27	16°N	60.3°W	HURRICANE-3	12PM Sept. 12
28	16.2°N	61.5°W	HURRICANE-4	6PM Sept. 12
29	16.5°N	62.6°W	HURRICANE-4	12AM Sept. 13
30	17°N	63.6°W	HURRICANE-4	6AM Sept. 13
31	17.5°N	64.8°W	HURRICANE-5	12PM Sept. 13

#	LAT	Lon	STATUS	TIME/DATE
32	18°N	65.9°W	HURRICANE-5	6PM Sept. 13
33	18.4°N	66.9°W	HURRICANE-4	12AM Sept. 14
34	18.9°N	68°W	HURRICANE-4	6AM Sept. 14
35	19.4°N	69°W	HURRICANE-4	12PM Sept. 14
36	19.9°N	70°W	HURRICANE-4	6PM Sept. 14
37	20.7°N	70.8°W	HURRICANE-4	12AM Sept. 15
38	21.5°N	71.7°W	HURRICANE-4	6AM Sept. 15
39	22.2°N	72.7°W	HURRICANE-4	12PM Sept. 15
40	22.9°N	73.8°W	HURRICANE-4	6PM Sept. 15
41	23.7°N	75°W	HURRICANE-4	12AM Sept. 16
42	24.5°N	76.3°W	HURRICANE-4	6AM Sept. 16
43	25.3°N	77.6°W	HURRICANE-4	12PM Sept. 16
44	26°N	78.8°W	HURRICANE-4	6PM Sept. 16
45	26.7°N	80°W	HURRICANE-4	12AM Sept. 17
46	27.2°N	81.1°W	HURRICANE-3	6AM Sept. 17
47	27.8°N	82°W	HURRICANE-2	12PM Sept. 17
48	28.6°N	82.2°W	HURRICANE-1	6PM Sept. 17
49	29.4°N	82°W	HURRICANE-1	12AM Sept. 18
50	30.1°N	81.7°W	HURRICANE-1	6AM Sept. 18
51	31.1°N	81.1°W	HURRICANE-1	12PM Sept. 18
52	32.4°N	80.5°W	HURRICANE-1	6PM Sept. 18
53	32.5°N	80.3°W	HURRICANE-1	12AM Sept. 18
54	33.8°N	79.2°W	TROPICAL STORM	6AM Sept. 19
55	34.8°N	78.3°W	TROPICAL STORM	12PM Sept. 19
56	35.8°N	77.5°W	EXTRATROPICAL STORM	6PM Sept. 19
57	36.8°N	77.3°W	EXTRATROPICAL STORM	12AM Sept. 19
58	38°N	77.5°W	EXTRATROPICAL STORM	6AM Sept. 20
59	39.7°N	78°W	EXTRATROPICAL STORM	12PM Sept. 20
60	41.5°N	79°W	EXTRATROPICAL STORM	6PM Sept. 20
61	43.5°N	79.2°W	EXTRATROPICAL DEPRESSION	12AM Sept. 20
62	45.5°N	79°W	EXTRATROPICAL DEPRESSION	6AM Sept. 21

