

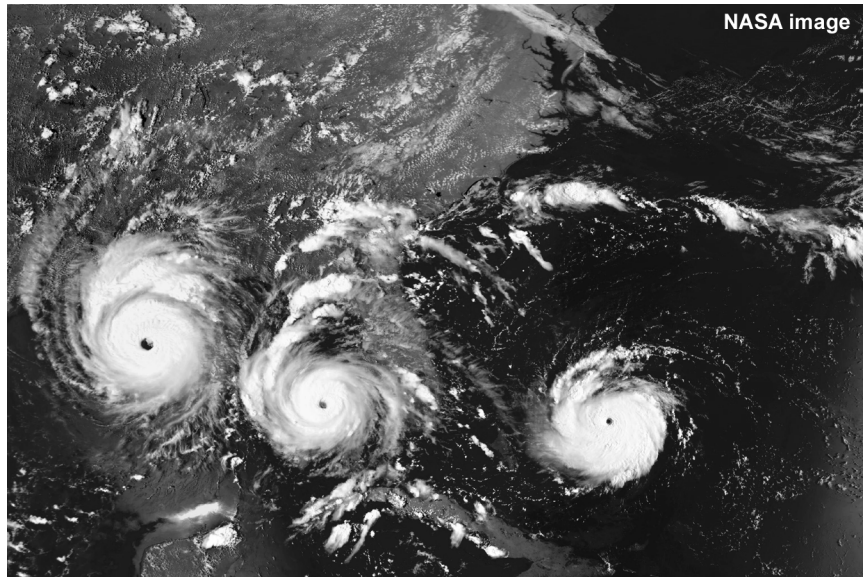
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Skill Sheet 27-C

Tracking Hurricanes



Hurricane Andrew (August 1992) was one of the most devastating storms of the twentieth century. Originally labelled a Category 4 storm, it was recently upgraded to a Category 5, the most severe type of hurricane. Scientists use satellite data and weather instruments dropped by aircraft to measure the storm's intensity. As research techniques improve, weather experts can more accurately analyze data collected by these instruments. NOAA scientists have now determined that Andrew's sustained winds reached at least 165 miles per hour. In this activity, you will track Hurricane Andrew's treacherous journey.



Time-lapse satellite image of Hurricane Andrew's path

1. The storm's beginning

Hurricane Andrew was born as a result of a tropical wave which moved off the west coast of Africa and passed south of the Cape Verde Islands. On August 17, 1992, it became a tropical storm. That means it had sustained winds of 39-73 miles per hour.

1. At 1200 Greenwich Mean Time (GMT) on August 17, Tropical Storm Andrew was located at 12.3°N latitude and 42.0°W longitude. The wind speed was 40 miles per hour. Plot the storm's location on your map (see last page of this skill sheet).
2. For the next four days, Tropical Storm Andrew moved uneventfully west-northwest across the Atlantic. Plot the storm's path as it traveled toward the Caribbean Islands.

Table I: Tropical Storm Andrew's path

Date	Time (GMT)	Latitude (°N)	Longitude (°W)	Wind speed (mph)
8/18/1992	1200	14.6	49.9	52
8/19/1992	1200	18.0	56.9	52
8/20/1992	1200	21.7	60.7	46
8/21/1992	1200	24.4	64.2	58

2. The storm intensifies

Late on August 21, a deep high pressure center developed over the southeastern United States and extended eastward to an area just north of Tropical Storm Andrew. In response to this more favorable environment, the storm strengthened rapidly and turned westward. At 1200 GMT on August 22, the storm reached hurricane status, meaning it had sustained winds of at least 74 miles per hour.

1. Plot Hurricane Andrew's path over the next two days.

Table 2: Hurricane Andrew's path

Date	Time (GMT)	Latitude (°N)	Longitude (°W)	Wind speed (mph)
8/22/1992	1200	25.8	68.3	81
8/23/1992	1200	25.4	74.2	138

2. Hurricane watches are issued when hurricane conditions are *possible* in the area, usually within 36 hours. Hurricane warnings are issued when hurricane conditions are *expected* in the area within 24 hours. Look at the distance the hurricane travelled in the last 24 hours and use that information to predict where it might be in 24 hours, and in 36 hours. Name one area that you would declare under a hurricane watch, and an area that you would declare under a hurricane warning.
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3. Landfall

On the evening of August 23, Hurricane Andrew first made landfall. Landfall is defined as when the center of the hurricane's eye is over land.

1. Plot the point of Hurricane Andrew's first landfall.

Table 3: Hurricane Andrew's first landfall

Date	Time (GMT)	Latitude (°N)	Longitude (°W)	Wind speed (mph)
8/23/1992	2100	25.4	76.6	150

2. Where did this first landfall occur?
-
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4. Hurricane Andrew crosses the Gulf Stream and strikes the United States

During the night of August 23, Hurricane Andrew briefly weakened as it moved over land. However, once the storm moved back over open waters, it rapidly regained strength. The warm water of the Gulf Stream increased the intensity of the hurricane's convection cycle. At 0905 GMT on August 24, Hurricane Andrew made landfall again.

1. Plot the point of Hurricane Andrew's next landfall.

Table 4: Hurricane Andrew's next landfall

Date	Time (GMT)	Latitude (°N)	Longitude (°W)	Wind speed (mph)
8/24/1992	0905	25.5	80.3	144

2. Where did this landfall occur?
-
-

5. The final landfall

After making its first landfall in the United States (where it caused an estimated \$25 billion in damage), Hurricane Andrew moved northwest across the Gulf of Mexico. On the morning of August 26, 1992 Hurricane Andrew made its final landfall. Afterward, Andrew weakened rapidly to tropical storm strength in about 10 hours, and then began to dissipate.

1. Plot Andrew's course across the Gulf of Mexico and its final landfall.

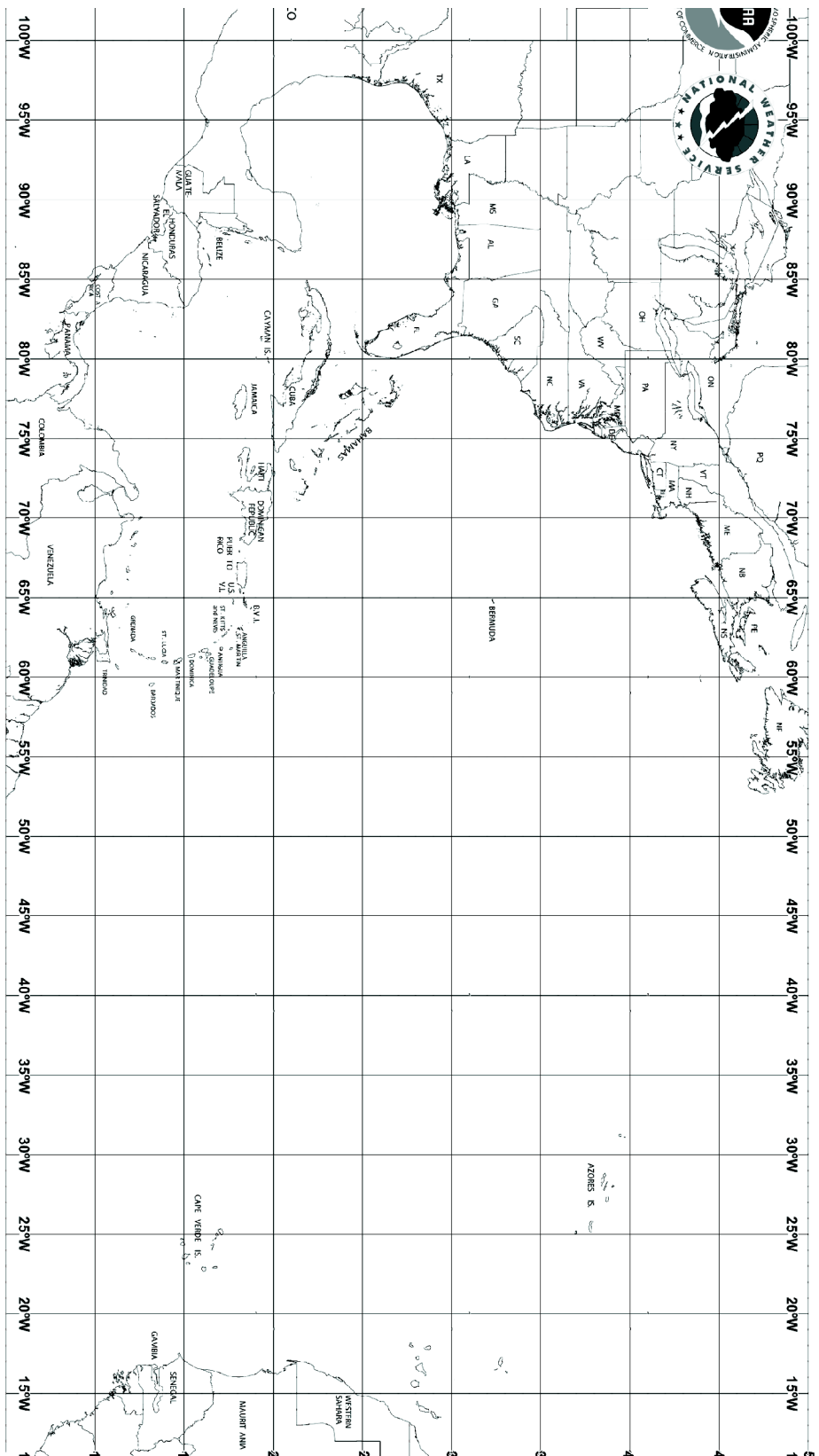
Table 5: Hurricane Andrew's next landfall

Date	Time (GMT)	Latitude (°N)	Longitude (°W)	Wind speed (mph)
8/24/1992	1800	25.8	83.1	133
8/25/1992	1800	27.8	89.6	138
8/26/1992	0830	29.6	91.5	121

2. In which state did Hurricane Andrew's final landfall occur?
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Hurricane information provided by National Oceanographic and Atmospheric Administration's National Hurricane Center.

Atlantic Basin Hurricane Tracking Chart National Hurricane Center, Miami, Florida



This is a reduced version of the chart used to track hurricanes at the National Hurricane Center