



INTO THE EYE

St. Croix, Virgin Islands, September 6, 1772



Alexander Hamilton, age 15, describes a hurricane in a letter to his father:

Good God! What horror and destruction! ... The roaring of the sea and wind... the prodigious glare of almost perpetual lightning, the crash of falling houses, and the ear-piercing shrieks of the distressed were sufficient to strike astonishment into angels.

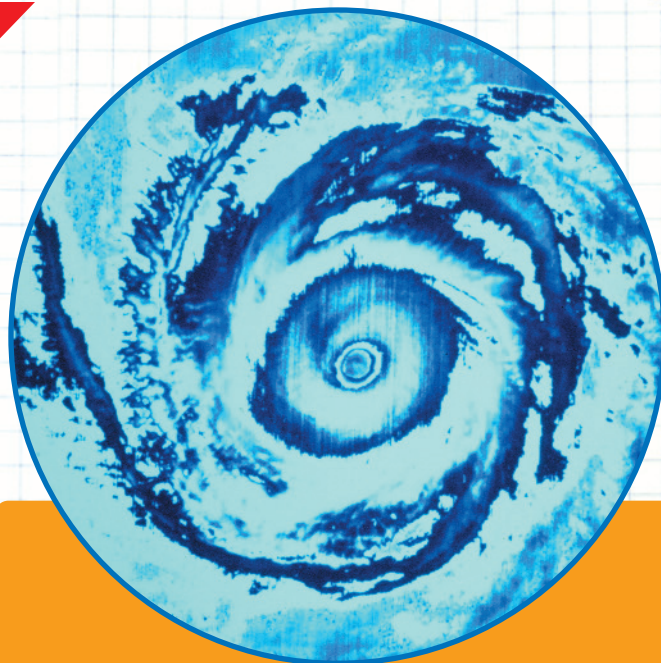
How Big Is Big?

A hurricane is a huge weather phenomenon, a cluster of violent thunderstorms circling in a spiral pattern with winds blowing constantly at 74 mph (119 kph) or more around an “eye” that is calm and sunny. No one knows exactly how a hurricane is made, but here are some can’t miss ingredients:

- Water at least 80°F (27°C)
- Strong high-altitude winds
- Large air-pressure differences
- Warm, moist air
- The Coriolis effect, which makes winds spin

Hurricanes are tropical storms, but they don’t start within 5° latitude of the equator, because the Coriolis effect is too weak there. Hurricanes in the Atlantic can begin not far off the west coast of North Africa. But more typically they begin farther west in the Atlantic and in the Caribbean and the Gulf of Mexico, not farther north than 32° of latitude. East Pacific hurricanes also begin no farther north than this, and east of 140° west longitude. (Look these up on a map.)

No one can control a hurricane, but today’s technology helps us cope with these monster windstorms much better than people did years ago.



What’s in a Name?

From the time that the U.S. Weather Bureau began naming hurricanes after World War II, they carried women’s names. Amy or Ann may have led off the season, to be followed by Bertha or Beulah. Since 1979, men’s names have been included in the infamous roll call, alternating with the women’s. In a given year if an A name in the Atlantic is a woman’s name, then in the Pacific it is a man’s name, and vice versa. Hurricane season runs from June 1 to November 30. In any one season, all the names may not be used.

Names assigned to Atlantic hurricanes in 1999 were: Arlene, Bret, Cindy, Dennis, Emily, Floyd, Gert, Harvey, Irene, Jose, Katrina, Lenny, Maria, , Ophelia, Philippe, Rita, Stan, Tammy, Vince, and Wilma.

Names assigned to Pacific hurricanes in 1999 were: Adrian, Beatriz, Calvin, Dora, Eugene, Fernanda, Greg, Hilary, Irwin, Jova, Kenneth, Lidia, Max, Norma, Otis, Pilar, Ramon, Selma, Todd, Veronica, Wiley, Xina, York, and Zelda.

Destination: DANGER!

The WC-130 "Hercules" aircraft is on an Air Force weather reconnaissance mission into the most dangerous weather in the world. Forecasters at the National Hurricane Center in Miami, Florida, have been watching satellite images of a hurricane forming over the Atlantic. Now it's time for weather research planes to gather data inside the hurricane so weather trackers can better predict the storm's path and the level of its destructive force long before it makes landfall.



The plane will fly hundreds of miles to reach the hurricane's eye. The excitement won't begin for a couple of hours. Meanwhile the navigator tracks a course for the storm. It's beautiful flying weather, with white clouds and a blue sky—until about 200 miles (320 km) from the hurricane's eye.

The clouds darken and fill the sky. The plane flies through a small rain shower, then another. The weather officer announces a huge storm, more than 400 miles (640 km) across. This hurricane has wind speeds about 150 mph (240 kph) about twice the minimal speed for a storm to be a hurricane. It's going to be a very bumpy ride.

The navigator identifies the eye of the storm on the radar screen. To reach the eye, the plane will fly through the bottom fourth of the hurricane at an altitude of about 10,000 feet (3,000 m). The sky grows darker. Heavy rain pours down. Turbulence jars the plane. It's about to punch through the eyewall, a ring of intense rain and gale force winds that surrounds the eye.

The pilot gradually turns the aircraft into the increasing winds. Suddenly the plane lurches up, down, sideways. Seat straps grip the crew's shoulders, keeping them from being tossed around the cabin. The plane drops down, down, down, producing that sinking feeling in the stomach—until it finally

levels out. The plane rocks back and forth. Torrents of rain beat down. The engines shriek, and the noise is horrendous, even with earplugs.

Suddenly the clouds lighten, and the rain stops. All at once the plane is flying smoothly under a sunny sky. It's the eye—in this hurricane, an area 15 miles (24 km) across.

The weather officer locates the center of the eye by determining the point where the winds decrease to near zero. A crew member pushes a button to release a small metal tube, called a dropsonde, into the exact center of the hurricane's eye. The dropsonde holds weather instruments and a radio transmitter that sends data back to the plane. The dropsonde takes weather readings, such as barometric pressure, all the way to the bottom of the hurricane, where it splashes into the ocean. The pressure reading at sea level is an incredibly low 27.43 inches (929 millibars).

This weather mission also must gather data on wind speed in each quarter of the storm. That means flying back through the eyewall several times. It's wise to keep those seat harnesses buckled up!

HURRICANE CATEGORIES

Category	1	2	3	4	5
Wind speed (mph)	74–95	96–110	111–130	131–155	156+
Barometric pressure (inches)	28.94+	28.50– 28.93	27.91– 28.49	27.17– 27.90	below 27.17
Storm surge (feet)	4–5	6–8	9–12	13–18	19+
Damage	broken signs, tree branches; power lines down	minor to piers, roofs, windows, doors; some to trees	structural, by floating debris; flooding	major building; major beach erosion	roofs, buildings destroyed; major flooding

Activity

WILD WEATHER

SCRAPBOOK Start collecting articles and photos from newspapers or magazines. Choose one weather topic to focus on, or leave the door open for whatever the wind might blow in. Include any unusual or strange weather stories that interest you. You may want to make your own drawings or diagrams, a list of weather events you hope to witness, or an interview with someone you know who had a special weather experience.