

# Hurricane Flight by Jan Adkins

Hurricanes aren't simple storms—wind and rain that roll over the hill and shake the trees for an hour or two. They are nature's skyscrapers, megastorms 8 miles high and up to 500 miles across. Hurricanes are weather extravaganzas that plug into the forces of the earth and spin like gigantic tops. They slide across the ocean, growing bigger, stronger, broader . . . until they meet the land and drain their stupendous energy in destruction.



In Biloxi, Mississippi, a WC-130 Hercules rolls down the runway. The plane is so heavy with extra fuel for a long flight that it must build up speed for almost a mile before taking off. It carries a crew of six: two pilots, a navigator, a flight engineer, and two weather specialists. They are “hurricane hunters” from the 53rd Weather Reconnaissance Squadron of the Air Force Reserve, and they are looking for a hurricane.

Studying hurricanes by flying into one is a little like investigating lions by asking a lion, politely, “Would you please eat me?” But weather scientists have been making these scary trips since the 1940s. Today, the information these scientific teams gather can be fed into powerful computers to help predict when a hurricane is forming and where it is headed.

What's it like flying into a hurricane? The outside edges of a hurricane are long arms of clouds curving toward the center. Inside the hurricane there are “cells,” systems of rising and falling air. The big “Herk” flies into and out of dense cumulonimbus thunderclouds as rain streams on its “greenhouse”—the row of windows around the pilots. The ride is bumpy. Entering a cell, the plane will be swept down with the air, perhaps a thousand feet. A few minutes later, on the other side of the cell, rising air shoots the Herk upward just as fast. The pilots fight to keep the big plane on course.



The ride is worst when the plane gets close to the hurricane's center. The light is so dim and the rain so dense that the flight engineer can only see the engines closest to the cockpit. The ride now is not merely bumpy. It's like riding a bull in the rodeo. Everyone is strapped in tight. The noise of the engines and the hurricane is tremendous. The plane shoots up violently as it reaches the hurricane's inner wall.

Suddenly the big Herk bursts into sunny, calm air. It's now in the “eye” of the hurricane, a cylinder of clear air that is usually 10 to 20 miles across. Above them, the hurricane hunters can see the blue sky. Below them, water churns and swells. Around them, rushing clouds whirl, creating a “stadium effect” as the surrounding clouds rise up in a curving wall like the stands of a huge stadium. The pilot heads directly for the center of the eye.

Both pilots watch the sea surface. “Now!” one pilot shouts into his microphone; they are directly over the center. A “dropsonde”—a cylindrical can of instruments and a radio with a parachute—is shot out of a launch tube in the belly of the airplane. All the way down and for hours as it bobs on the water's surface, the little disposable transmitter will radio

air temperature, sea temperature, air pressure, wind speed, and wind direction back to the Herk and to the National Hurricane Center in Miami.

The crew and the Herk will punch through the hurricane three or four times in different directions during their 11-hour flight, gathering information and plotting the storm's track before they fly back to their base. Soon, another big Herk will be on the way to ask the hurricane more questions, as scientists all over the world search for answers to the big, deadly mysteries of hurricanes.

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## Deadly Storms

Meteorologists love hurricanes because they are wonders of nature. But if you're on a ship at sea or in a house on the beach, a hurricane is not so pretty. The screaming winds and enormous waves can overturn a ship. At the shore they can punch out windows, knock down trees, or pluck the roofs from houses.

The most dangerous part of a hurricane's destruction is flooding. Hurricane winds can push the ocean water toward shore, building it up into a huge, rushing tide called a storm surge. Water level at the shore can rise 20 feet in just a few hours. The deadliest hurricane in United States history happened in 1900, when Galveston, Texas, was



struck. In the big storm surge more than 6,000 people were killed. These days, with more and more people living in coastal cities, experts predict that if a hurricane hit without warning, the death toll could be even higher. In low-lying New Orleans, for example, storm surge floods could completely cover three-story houses and wash away roadways.

But scientists have learned a lot about hurricanes since 1900. Meteorologists can now track the path a hurricane takes and predict where it is likely to hit days in advance. For example, when Hurricane Isabel swept toward the North Carolina coast, the National Hurricane Center was able to make forecasts five days ahead, and scientists were off by only one hour in their prediction of where and when Isabel's eye would make landfall. The information collected by the hurricane hunters improves the accuracy of such forecasts by 30 percent—saving thousands of lives.



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## A Wheel of Wind

Scientists don't know why hurricanes start, but they do know hurricanes form only over warm ocean water. As the warm, moist air at the ocean surface rises, it cools. This cooling turns the water vapor in the air into drops of liquid water that form storm clouds. More air moves in to take the place of the rising warm air, creating wind. The wind begins to spin, blowing the clouds into a spiral. Why does the wind spin? Because the earth rotates, giving everything on its surface a slight twist.

Hour by hour, for days or weeks, this wheel of wind spins faster and faster as it moves across the warm ocean, sucking in air from thousands of miles away. When the winds strengthen, reaching a speed of 74 miles an hour, the storm is called a hurricane. Fortunately, once a hurricane reaches land and is no longer over warm ocean water, it begins to lose its power.

### **Activity: The Eye of a Hurricane**

The ferocious winds of a hurricane spiral around the calm central eye. The fastest-spinning winds are found in the eyewall, right at the edge of the eye. To make your own hurricane eye and eyewall, fill a bathtub or large sink with 3 or 4 inches of water. When you pull the plug, you'll see the water spiral around the drain. The water will spiral faster and faster as it goes down the drain, and when it is shallow enough, you'll be able to look right through the "eye" of the spiral into the drain. If you put your finger into the middle of this eye, you might not even get wet. The eye stays calm and the fastest-spinning water surrounds it, just like the eye and eyewall of a hurricane.

