

How Does a Hurricane Work?

By Sharon Fabian

¹ *Cyclone Catarina, 2004, seen from the ISS. Photo courtesy of NASA*

² It's been front page news many times. A hurricane makes landfall and causes tremendous damage and loss of life in communities along the coast. But why does it happen this way? How does a hurricane work?

³ A hurricane begins with a cluster of thunderstorms known as a tropical depression. A tropical depression is an area of low pressure with wind speeds of less than thirty-eight miles per hour. Some tropical depressions grow and increase in wind speed until they become tropical storms. A tropical storm has wind speeds of thirty-nine to seventy-three miles per hour. Some tropical storms continue to grow until they become hurricanes, huge storms with wind speeds of seventy-four miles per hour or more.



⁴ Hurricanes begin over the ocean in particular areas of the world. It takes a specific set of circumstances to create a hurricane. There must be warm water and warm, moist air that rises. That is why hurricanes usually begin in the tropical latitudes over oceans.

⁵ For a hurricane to develop, a cycle of air flow must form. It begins with warm, moist air rising over the tropical ocean. This warm, moist air condenses into rain clouds, and at the same time releases its heat into the air. The air begins to circulate, and as it does, it continues to draw in more and more air creating a wind cycle.

⁶ The wind begins to circle around a still area in the center known as the eye. The air spinning around the eye is similar to water spinning as it goes down a drain. This spinning motion is known as cyclonic action, which makes it easy to see why another name for a hurricane is a cyclone.

⁷ As long as the hurricane is over a warm ocean, it can continue to grow. Once it makes landfall, it loses energy and starts to die out. Before it dies out, however, a hurricane can do tremendous damage to coastal areas.

⁸ When a hurricane makes landfall, it brings with it some very dangerous conditions. One of these is heavy rainfall. Dozens of inches of rain can fall in the time span of only a day or two. It can cause severe flooding. Hurricanes also bring high winds. These winds can be strong enough to flip over cars, knock down trees, and tear the roofs off buildings. One especially fearful effect that may happen when a hurricane makes landfall is the storm surge. A storm surge is a giant wave. It hits the coastline like a huge wall of water that can wipe out everything in its way. Hurricanes sometimes bring one more effect that is even more deadly - tornadoes. Tornadoes, which sometimes spin off from hurricanes, are some of the most deadly storms in the world.

⁹ Meteorologists use a rating system to tell just how severe a hurricane is. They rate hurricanes from one to five, with five being the most destructive. A category one hurricane has wind speeds from seventy-four to ninety-five miles per hour. It causes some flooding but does little damage. Moving up the scale, a category three hurricane has wind speeds of one hundred eleven to one hundred thirty miles per hour. It causes severe flooding and some structural damage to homes. A category five hurricane, the most severe of all, has wind speeds of one hundred fifty-six miles per hour or more. It causes severe flooding even far inland. It can rip off roofs and cause major structural damage to buildings.

¹⁰ Since hurricanes are so dangerous, meteorologists use the latest equipment to track them. Satellites, specially equipped aircraft, radar, and computer simulations are some of the tools used by meteorologists to track hurricanes.

¹¹ The earlier the path of a hurricane can be determined, the earlier people living along the coast can be warned to evacuate. A hurricane may still cause great damage when it hits a coast, but with good forecasting and early warnings, the lives of people along the coast can often be saved.

How Does a Hurricane Work?

<p>1. Hurricanes begin over the _____.</p> <p><input type="radio"/> A Mountains</p> <p><input type="radio"/> B Plains</p> <p><input type="radio"/> C Lakes</p> <p><input type="radio"/> D Oceans</p>	<p>2. The first stage of a storm that may grow to become a hurricane is a _____.</p> <p><input type="radio"/> A Tropical depression</p> <p><input type="radio"/> B Tropical storm</p> <p><input type="radio"/> C Cyclone</p> <p><input type="radio"/> D None of the above</p>
<p>3. Hurricanes have wind speeds of _____ miles per hour or more.</p> <p><input type="radio"/> A Thirty-eight</p> <p><input type="radio"/> B One hundred eleven</p> <p><input type="radio"/> C Seventy-four</p> <p><input type="radio"/> D One hundred fifty-six</p>	<p>4. A category _____ hurricane is the most destructive.</p> <p><input type="radio"/> A Five</p> <p><input type="radio"/> B Zero</p> <p><input type="radio"/> C One</p> <p><input type="radio"/> D Ten</p>
<p>5. _____ is/are used to make predictions about a hurricane.</p> <p><input type="radio"/> A Radar</p> <p><input type="radio"/> B Airplanes</p> <p><input type="radio"/> C Computers</p> <p><input type="radio"/> D All of the above</p>	<p>6. The center of a hurricane is known as the _____.</p> <p><input type="radio"/> A Nose</p> <p><input type="radio"/> B Wheel</p> <p><input type="radio"/> C Eye</p> <p><input type="radio"/> D Cyclone</p>
<p>7. Why do hurricanes begin over the ocean?</p> <p>_____</p> <p>_____</p>	<p>8. Why do hurricanes usually begin in the tropics?</p> <p>_____</p> <p>_____</p>

