

Hurricanes

A **cyclone** is a low-pressure system that develops in the mid-latitudes when cold and warm fronts interact. Near the equator, cyclones develop in a different way, but are also low-pressure systems.

When cyclones near the equator become large enough, they are further classified as a hurricane, typhoon, or tropical cyclone, depending on where they are located.

A **hurricane** is a severe cyclone that occurs in the western Atlantic Ocean, the Caribbean Sea, the Gulf of Mexico, or the eastern Pacific Ocean. A **typhoon** is a severe cyclone that develops in the northwestern Pacific Ocean or the China Sea. A **tropical cyclone** is a severe cyclone that develops in the Indian Ocean and the area around Australia.

How Cyclones Form Near the Equator

Near the equator the air above the ocean is warm, so it rises. This warm, rising air carries a lot of moisture with it. As the warm, moist air reaches higher altitudes, the water vapor condenses, releasing heat that increases the rate at which the air rises.

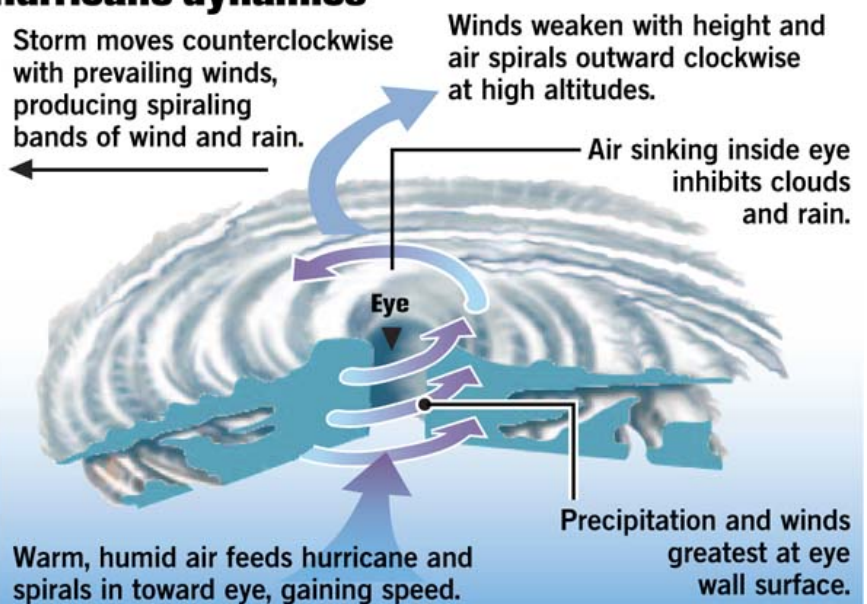
Because rising air leaves behind a low-pressure area, the first stage of the formation of a hurricane is called a **low**. Within the storm, the rising air turns to the right (in the Northern Hemisphere), resulting in a storm system that rotates counterclockwise.

High above the surface low, a high-pressure area forms as air pushes up into the less dense upper levels of the troposphere. This air flows out over the storm, descending and turning to the right (clockwise) as it goes.

The faster the air is rising, the lower the pressure becomes in the center of the storm, and the faster the surrounding air moves into the low-pressure area. As the storm develops, surface winds become increasingly strong. When wind speeds reach 62 km/h the storm is classified as a **tropical storm**. At 119 km/h the system is officially a **hurricane**.

The central core of a hurricane is called the **eye**. Here the air is calm, air pressure is very low, and the sky is clear. At the border of the eye is the **eye wall**, where the swirling winds are moving fastest and the volume of rainfall is greatest.

Hurricane dynamics



Sources: *Ultimate Visual Dictionary*, University Corporation for Atmospheric Research

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Hurricane Intensity

Hurricanes and other major cyclones are classified according to their strengths. The scale below summarizes the five categories of hurricanes.

Category	Wind Speed (km/h)	Air pressure (kPa)	Storm Surge (m)	Damage Potential
1	119 – 153	98.0 +	1.0 – 1.7	damage to trees and signs, flooding in low-lying areas
2	154 – 177	96.5 – 97.9	1.8 – 2.6	trees blown down, evacuation of shore areas
3	178 – 209	94.5 – 96.4	2.7 – 3.8	serious coastal flooding, mobile homes destroyed
4	210 – 249	92.0 – 94.4	3.9 – 5.6	extensive damage to buildings, evacuation from shore required
5	250 +	< 92.0	5.6 +	buildings destroyed, evacuation up to 20 km inland required