



How Hurricanes and Tropical Storms Form

KS4 GEOGRAPHY

KS3 SCIENCE

Ages 10-14 ⌚ 3 min read

What are hurricanes and tropical storms?

Hurricanes and **tropical storms** are among the most powerful weather systems on Earth. They're giant spinning storms with winds that can reach over **150 miles per hour**. These storms form over warm tropical oceans and can cause devastating flooding, landslides, and damage to communities. The same type of storm is called a **hurricane** in the Atlantic Ocean, a **typhoon** in the Pacific, and a **cyclone** in the Indian Ocean.

Why do they form over warm water?

Tropical storms need warm ocean water to be born. When water temperature reaches at least **26.5 degrees Celsius**, it starts to evaporate rapidly, sending moisture high into the atmosphere. This warm, moist air rises quickly, creating an area of low pressure below. As this air cools at higher altitudes, the moisture condenses into clouds and releases huge amounts of heat energy—the fuel that powers the storm.

Think of it like a giant heat engine: warm water is the petrol, and the rising air is the engine burning that fuel to create power and motion.

How does the Coriolis effect create the spin?

Once a tropical storm forms, the **Coriolis effect** makes it spin. This is caused by Earth's rotation. As the storm system moves, Earth spinning beneath it pushes the wind patterns into a circular, rotating motion. Without the Coriolis effect, we'd just have strong winds and heavy rain—but no spinning vortex. This is why tropical storms only form at least **5 degrees away from the equator**, where Earth's rotation has enough effect to create spin.

Think of it like stirring a cup of tea: the spoon forces the tea to rotate in circles, just as Earth's rotation forces storm winds to spiral.

What feeds the storm and keeps it going?

As long as a hurricane stays over warm water, it continues to strengthen. The warm ocean keeps providing energy through evaporation. However, once the storm moves over cooler water or land, it loses its fuel supply and weakens. This is why hurricanes in the Atlantic weaken when they move north toward cooler waters, and why they fall apart after moving inland.

Understanding what causes these storms helps **meteorologists predict** where they'll go and how strong they'll become, giving communities vital time to prepare and evacuate.