

Storms, tornadoes and thunderstorm

Storms

Storms are associated with periods of strong often damaging winds, heavy flood-producing rainfall, thunder and lightning, heavy snowfall or blizzard conditions.

Storms are a meteorological event that can be studied to advance the science of meteorology. The study of storms can potentially save lives as scientists gain a better understanding of their nature. Learn more about storms [here](#).

Thunderstorms

A thunderstorm is produced by a cumulonimbus cloud, or thunderhead, that includes rain showers, lightning, and thunder.

They start when the sun heats the earth's surface and warms the layer of air above it. This warmed air rises and transfers heat to the upper levels of the atmosphere. As the air travels upward, it cools and the water vapor contained within it condenses to form liquid cloud droplets. As air continually travels aloft in this way, the cloud grows upward in the atmosphere, eventually reaching altitudes where the temperature is below freezing. Some of the cloud droplets freeze into ice particles, while others remain "supercooled." When these collide, they pick up electric charges from one another; when enough of those collisions happen, the big buildup of charge discharges, creating lightning.

Thunderstorms are most hazardous when rain decreases visibility, hail falls, lightning strikes or tornadoes develop.

Tornadoes

A tornado is a violently rotating column of air that extends down from the base of a thunderstorm to the ground.

When wind near the earth's surface blows at one speed and wind above that blows at a much faster speed, the air between them whips around into a horizontal rotating column. If this column gets

caught in the thunderstorm updraft, its winds tighten, speed up, and tilt vertically, creating a funnel cloud.

Tornadoes are dangerous—even deadly—because of their high winds and subsequent flying debris.

Hurricanes

A hurricane is a swirling, low-pressure system that develops over the tropics with sustained winds that have reached at least 74 miles per hour.

Warm, moist air near the ocean's surface rises upward, cools, and condenses, forming clouds. With less air than before at the surface, the pressure drops there. Because air tends to move from high to low pressure, moist air from surrounding areas flows inward toward the low-pressure spot, creating winds. This air is warmed by the ocean's heat and the heat released from condensation, so it rises. This starts a process of warm air rising and forming clouds and surrounding air swirling in to take its place. Before long, you have a system of clouds and winds that begins to rotate as a result of the Coriolis effect, a type of force that causes rotational or cyclonic weather systems.

Hurricanes are the most dangerous when there is a big storm surge, which is a wave of seawater that floods communities. Some surges can reach depths of 20 feet and sweep away homes, cars, and even people.