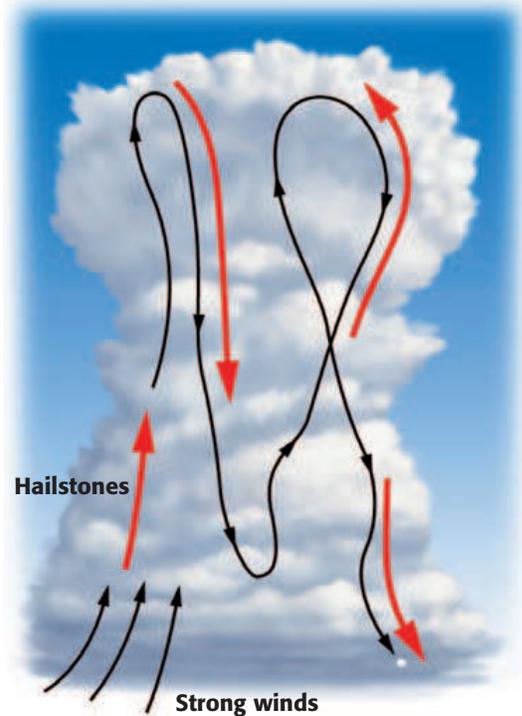


Severe Weather

Thunderstorms

When a cold front moves into a warm, moist air mass, the cold air slides under the warm air. The warm, moist air rushes upward along the cold front. This builds tall cumulonimbus clouds called thunderheads. These clouds can produce a huge amount of rain in just a few minutes.

This builds up electrical charges. The charges are released in lightning. The heat of the lightning makes the air around it expand explosively.



Hailstones form in a high part of a cloud where the air temperature is below freezing. Then they fall to a warmer part of the cloud. There, they pick up a layer of water. Winds blowing upward in the cloud move the hailstones up, where the water layer freezes. As winds keep moving the hailstones up and down, they grow larger and larger. Finally, the hailstones get too heavy and fall to the ground.

How to Stay Safe in a Thunderstorm

Lightning is the main danger in a thunderstorm. Follow these tips to stay safe if a thunderstorm strikes.

- Find shelter in a building or a car.
- Don't go under a tree to find shelter.
- If you are swimming, get out of the water. If you are in a small boat, get off.
- Do not stand in an open field. Crouch.
- If you are on a bike, get off.

Tornadoes

A **tornado** is a dark funnel of strong winds that spiral upward. Tornadoes are very powerful. A tornado's winds can reach speeds of 500 kilometers per hour.

Air pressure inside the tornado's funnel is much lower than the air pressure outside. This makes the tornado act like a huge, powerful vacuum cleaner. It can pick up or knock down trees, houses, cars, and other large objects.



In the United States, most tornadoes occur in the spring, and most occur in the Mississippi Valley and the Great Plains. They happen when a warm, moist air mass from the Gulf of Mexico runs into a cold front moving east from the Rocky Mountains.

How to Stay Safe When a Tornado Is Coming

The main danger from a tornado is the powerful winds. Follow these tips to stay safe if a tornado strikes.

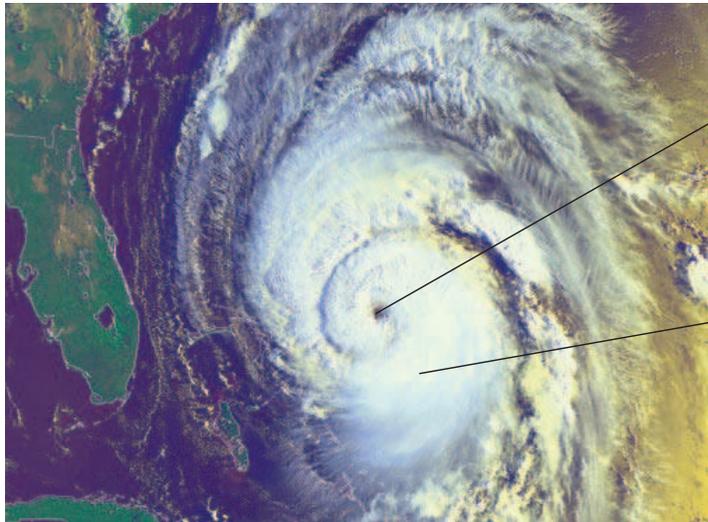
- Find shelter in a basement or a tornado cellar.
- Stay clear of outside walls, windows, and doors.
- Get away from cars, mobile homes, and other objects that might be flipped over or thrown by winds.
- If you are outdoors, find shelter in a ditch, ravine, or cave. Cover your head with your arms.

Hurricanes

Hurricanes are very large and violent tropical storms. They can be hundreds of kilometers wide. To be called a hurricane, the winds of a tropical storm must be greater than 117 kilometers per hour.

Hurricanes start as small thunderstorms over warm water. Heat from the water fuels the storm. Winds and moisture swirl upward and increase the storm's strength.

Hurricanes usually form in late summer when the sun heats huge masses of moist air.



The calm center of a hurricane is called the eye.

High clouds move clockwise around the eye.

Staying Safe in a Hurricane

The major dangers from a hurricane are high winds, flooding, and pounding waves. Follow these tips to stay safe if a hurricane is coming.

- Leave areas that are in the path of a hurricane well before it strikes.
- If you are caught in a hurricane, find shelter in a strong brick or stone building on high ground.
- Stay away from windows and doors.
- Keep extra food and water, a flashlight, a battery-operated radio, and, if possible, a cell phone with you.

Blizzards

A **blizzard** is a snowstorm with winds greater than 56 kilometers per hour and air temperature below -7°C at ground level. Blizzards usually include heavy snowfall.

Blizzards often form in winter when a warm air mass runs into a cold air mass. Clouds form, the cold air freezes the moisture in the warm air mass, wind speed increases, and snow falls. If the storm gets stuck in one place, snow can fall for many hours or even a few days.



Staying Safe in a Blizzard

A blizzard's main dangers are its strong winds, freezing temperatures, and deep snow. Follow these tips to stay safe if a blizzard strikes your area.

- Find shelter indoors.
- Stay away from windows and doors.
- If you are stuck in a car with the engine running to stay warm, keep the windows open a little bit. This will let poisonous carbon monoxide escape from the inside of the car.
- Keep extra food and water, a flashlight, a battery-operated radio, and, if possible, a cell phone with you.
- If you are trudging through deep snow, keep moving. Do not lie down to rest.
- If you are caught outdoors, use clothing to cover your face and as much of your skin as you can.



Air Masses
page 209

Weather Fronts
page 209