



Tornadoes

Glossary

anvil cloud: the upper portion of a cumulonimbus cloud that becomes flat and spreads out, sometimes for hundreds of miles. It may look smooth or fibrous, and its shape resembles a blacksmith's anvil. An anvil cloud indicates the mature or decaying stage of a thunderstorm.

Appalachian Mountains: a series of mountain ranges in North America extending from central Alabama to Newfoundland, Canada

community awareness: knowledge or understanding possessed by a group of people living within the same area of the conditions that affect, or could affect, their area and who know what to do

convection: the transport of heat and moisture by the movement of a fluid

condense: to reduce in volume, particularly by changing from a vapor into a liquid. Condensation is the process by which water vapor undergoes a change in state from a gas to a liquid. The physical process of condensation is the opposite of evaporation.

cumulonimbus cloud: the scientific term for a rain cloud. It is a very tall, anvil-shaped cloud that is associated with severe storms and sometimes tornadoes.

cumulus cloud: a puffy, detached cloud with a flat bottom

damage: loss or harm resulting from injury to person or property

debris cloud: a rotating cloud of dust or debris, near or on the ground, often appearing beneath a condensation funnel and surrounding the base of a tornado

devastation: the massive damage to homes and communities caused by disasters

Doppler radar: a type of weather radar that determines whether atmospheric motion is toward or away from the radar. It uses the Doppler effect to measure the velocity of particles suspended in the atmosphere.

downdraft: a small but strong, downward-moving current of air, usually accompanied by precipitation



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Enhanced Fujita Scale (EF Scale): an updated version of the Fujita-Pearson Scale, used to describe the damage caused by tornado winds. The scale was developed in 1971 by Dr. T. Theodore Fujita of the University of Chicago and Allen Pearson, then director of the National Severe Storms Forecast Center. The Enhanced Fujita scale is still a set of wind estimates—not measurements—based on damage. It uses three-second gusts estimated at the point of damage based on a judgment of eight levels of damage to 28 indicators. These estimates vary with height and exposure.

fact: something that exists or occurs; a piece of information

forecasting: predicting future weather conditions. A forecast is a statement of expected future weather occurrences. Today, skilled and experienced meteorologists make weather forecasts using objective models based on certain atmospheric considerations.

front: the interface or boundary between air masses of different temperatures

funnel cloud: a funnel-shaped cloud extending from a towering cumulus or cumulonimbus base. It is associated with a towering air column that is not in contact with the ground. If a ground-based debris or dust whirl is visible below the funnel, the cloud is a tornado.

gale force: the intensity of wind over water. On the Beaufort wind scale, a gale is a wind with speeds from 28 to 55 knots (32 to 63 miles [51 to 101 kilometers] per hour). For marine interests, gales are categorized as moderate (28 to 33 knots); fresh (34 to 40 knots); strong (41 to 47 knots); or whole (48 to 55 knots).

Great Plains: a huge expanse of prairie land lying east of the Rocky Mountains. Also known as The Plains, this land extends from south central to southwestern Texas, into Canada, and encompasses several states in the United States.

hail: precipitation in the form of balls or irregular lumps of ice

intensity: the strength of a tornado. The Enhanced Fujita Intensity scale (EF Scale) is used to estimate the intensity of a tornado.

mesocyclone: a region of rotation on a storm scale, typically around 2 to 6 miles (2 to 9 kilometers) in diameter and often found in the right rear part of a supercell. The circulation of a mesocyclone covers an area much larger than the tornado that may develop within it. Properly used, “mesocyclone” is a radar term; it is defined as a rotation signature appearing on Doppler radar that meets specific criteria for magnitude, vertical depth and duration. Therefore, a mesocyclone should not be considered a visually observable phenomenon, although visual evidence of rotation, such as curved inflow bands, may imply the presence of a mesocyclone.

moderate: not violent or extreme, as in a “moderate climate”



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myth: a traditional story of historical events that serves to reveal a part of a people's world view or explain a practice, belief, or natural phenomenon; a popular belief, not necessarily based on fact, that is passed from person to person or generation to generation

National Weather Service (NWS): a primary branch of the National Oceanic and Atmospheric Administration. The NWS is responsible for all aspects of observing and forecasting atmospheric conditions and their consequences, including severe weather WATCHES and WARNINGS.

Nexrad: a system of Doppler radar sites throughout the United States. Nexrad is the abbreviated name for Next Generation Weather Radar system.

occluded front: a combination of two fronts that forms when a cold front meets a warm front

radar: (RADio Detection And Ranging) the technique of using radio waves to detect distant objects and determine their position

Rocky Mountains: a system of mountains in the western part of North America, extending from New Mexico to British Columbia, Canada. They are also known as "The Rockies."

safe place: a building or other place or area deemed safe from a tornado

Saffir-Simpson Scale: a measure of hurricane intensity based on a scale of 1 to 5. The scale categorizes potential damage based on barometric pressure, wind speeds and storm surge. It was developed in the early 1970s by Herbert Saffir, a consulting engineer, and Robert Simpson, then director of the National Hurricane Center.

severe weather: any destructive weather event, generally, but usually localized storms, such as blizzards, intense thunderstorms, hurricanes or tornadoes. A severe thunderstorm has winds measuring 58 miles (93 kilometers) per hour or greater, or is accompanied by hail at least 3/4 inch (2 centimeters) in diameter or produces tornadoes. Severe thunderstorms may also produce torrential rain and frequent lightning.

significant: having, or likely to have, a major effect

simulation: the imitation of a potential situation, as in a practice

storm chaser: a person who chases severe storms, particularly tornadoes, that are imminent or actual, usually as part of a research team

straight-line winds: any wind that is not associated with rotation. Winds are usually called straight-line when it is necessary differentiate them from tornadic winds.



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supercell: a thunderstorm with a persistent rotating updraft. Supercells are rare, but are responsible for a remarkably high percentage of severe weather events, especially tornadoes, extremely large hail and damaging straight-line winds. Supercells frequently travel to the right of the main environmental winds, that is, they are right movers.

thunderhead: the inflated upper portion of a thundercloud, usually associated with a thunderstorm

thunderstorm: a storm produced by a cumulonimbus cloud. It is a storm of relatively short duration characterized by thunder, lightning, gusty surface winds, turbulence, hail, icing, precipitation, moderate to extreme updrafts and downdrafts, and under the most severe conditions, tornadoes.

tornado: a violently rotating column of air in contact with the ground and extending from the base of a thunderstorm

tornado WARNING: an advisory issued when tornado spotters have seen a tornado or one has been picked up on radar and is occurring or imminent in the warned area

tornado WATCH: an advisory issued when tornadoes and severe thunderstorms are possible for a specified area

updraft: a column of warm, moist air that is rising in a thundercloud or supercell

vertical wind shear: a sudden change in wind velocity in a vertical direction

vortex: a whirling mass of air in the form of a column or spiral. The strict definition of the term “vortex” includes suction; however, a tornado vortex is not a vacuum and does not suck things into itself.

wall cloud: a cloud formation which is the lowering of the base of a thundercloud. This formation occurs in the rain-free portion of the thundercloud and indicates the area with the greatest updraft. Wall clouds can range from a fraction of a mile up to nearly 5 miles (a fraction of a kilometer to 8 kilometers) in diameter, and normally are found on the south or southwest (inflow) side of the thunderstorm. Some wall clouds can be seen to rotate, and these usually develop before strong or violent tornadoes, by anywhere from a few minutes up to nearly an hour. Wall clouds should be monitored visually for signs of persistent, sustained rotation and rapid vertical motion.

whirlwinds: rapidly rotating, usually vertical, columns of air

wind shear: a strong wind that forms high in or near severe storms and has a sudden change in velocity. When these high winds blow straight down toward the ground, they spread out. If the winds are strong enough, wind shear can break or damage trees and buildings and cause airplanes to crash.



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