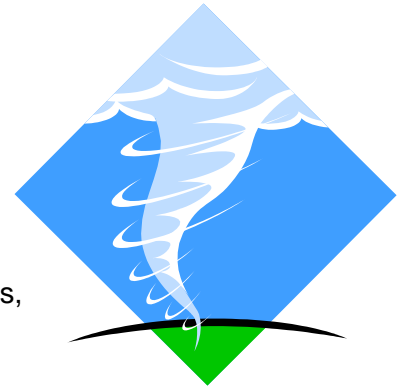


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A tornado is a narrow, violently rotating column of air that extends from the base of a thunderstorm to the ground. Because wind is invisible, it is hard to see a tornado unless it forms a condensation funnel made up of water droplets, dust and debris. Tornadoes are the most violent of all atmospheric storms.

### Where do tornadoes occur?

Tornadoes occur in many parts of the world, including Australia, Europe, Africa, Asia, and South America. Even New Zealand reports about 20 tornadoes each year. Two of the highest concentrations of tornadoes outside the U.S. are Argentina and Bangladesh.

### How many tornadoes occur in the U.S. each year?

About 1,200 tornadoes hit the U.S. yearly. Since official tornado records only date back to 1950, we do not know the actual average number of tornadoes that occur each year. Plus, tornado spotting and reporting methods have changed a lot over the last several decades.

### Where is tornado alley?

Tornado Alley is a nickname invented by the media for a broad area of relatively high tornado occurrence in the central U. S. Various Tornado Alley maps look different because tornado occurrence can be measured many ways: by all tornadoes, tornado county-segments, strong and violent tornadoes only, and databases with different time periods. *Please remember, violent or killer tornadoes do happen outside "Tornado Alley" every year.*

### When are tornadoes most likely?

Tornado season usually refers to the time of year the U.S. sees the most tornadoes. The peak tornado season for the Southern Plains is during May into early June. On the Gulf coast, it is earlier during the spring. In the northern plains and upper Midwest, tornado season is in June or July. But, remember, tornadoes can happen at any time of year. Tornadoes can also happen at any time of day or night, but most tornadoes occur between 4. 9 p.m.

### What is the difference between a Tornado WATCH and a Tornado WARNING?

A **Tornado WATCH** is issued by the [NOAA Storm Prediction Center](#) meteorologists who watch the weather 24/7 across the entire U.S. for weather conditions that are favorable for tornadoes. A watch can cover parts of a state or several states. Watch and prepare for severe weather and stay tuned to NOAA Weather Radio to know when warnings are issued.

A **Tornado WARNING** is issued by your local [NOAA National Weather Service Forecast Office](#) meteorologists who watch the weather 24/7 over a designated area. This means a tornado has been reported by spotters or indicated by radar and there is a serious threat to life and property to those in the path of the tornado. ACT now to find safe shelter! A warning can cover parts of counties or several counties in the path of danger.

Watch [this Youtube video](#) for a great explanation!

etermine the strength of a tornado is to look at the damage it  
e the wind speeds. An [Enhanced Fujita Scale](#) was  
nce in 2007 to rate tornadoes in a more consistent and accurate  
manner. The EF-Scale takes into account more variables than the original Fujita Scale (F-Scale) when  
assigning a wind speed rating to a tornado, incorporating 28 damage indicators such as building type,  
structures and trees. For each damage indicator, there are 8 degrees of damage ranging from the  
beginning of visible damage to complete destruction of the damage indicator. The original F scale did not  
take these details into account. The original F Scale historical data base will not change. An F5 tornado  
rated years ago is still an F5, but the wind speed associated with the tornado may have been somewhat  
less than previously estimated. A correlation between the original F Scale and the EF Scale has been  
developed. This makes it possible to express ratings in terms of one scale to the other, preserving the  
historical database.

## How do tornadoes form?

The truth is that we don't fully understand. The most destructive and deadly tornadoes occur from  
supercells, which are rotating thunderstorms with a well-defined radar circulation called a mesocyclone.  
(Supercells can also produce damaging hail, severe non-tornadic winds, unusually frequent lightning, and  
flash floods.) Tornado formation is believed to be dictated mainly by things which happen on the storm  
scale, in and around the mesocyclone. Recent theories and results from the VORTEX2 program suggest  
that once a mesocyclone is underway, tornado development is related to the temperature differences  
across the edge of downdraft air wrapping around the mesocyclone. Mathematical modeling studies of  
tornado formation also indicate that it can happen without such temperature patterns; and in fact, very little  
temperature variation was observed near some of the most destructive tornadoes in history on [3 May 1999](#).  
We still have lots of work to do.

## What do storm spotters look for when trying to identify a tornado or a dangerous storm?

**Inflow bands** are ragged bands of low cumulus clouds extending from the main storm tower usually to the  
southeast or south. The presence of inflow bands suggests that the storm is gathering low-level air from  
several miles away. If the inflow bands have a spiraling nature to them, it suggests the presence of  
rotation.

The **beaver's tail** is a smooth, flat cloud band extending from the eastern edge of the rain-free base to the  
east or northeast. It usually skirts around the southern edge of the precipitation area. It also suggests the  
presence of rotation.

A **wall cloud** is an isolated cloud lowering attached to the rain-free base of the thunderstorm. The wall  
cloud is usually to the rear of the visible precipitation area.

A wall cloud that may produce a tornado usually exists for 10. 20 minutes before a tornado appears. A wall  
cloud may also persistently rotate (often visibly), have strong surface winds flowing into it, and may have  
rapid vertical motion indicated by small cloud elements quickly rising into the rain-free base.

As the storm intensifies, the updraft draws in low-level air from several miles around. Some low-level air is  
pulled into the updraft from the rain area. This rain-cooled air is very humid; the moisture in the rain-cooled  
air quickly condenses below the **rain-free base** to form the wall cloud.

The **rear flank downdraft** (RFD) is a downward rush of air on the back side of the storm that descends  
along with the tornado. The RFD looks like a **clear slot** or **bright slot** just to the rear (southwest) of the  
wall cloud. It can also look like curtains of rain wrapping around the cloud base circulation. The RFD  
causes gusty surface winds that occasionally have embedded downbursts. The rear flank downdraft is the  
motion in the storm that causes the hook echo feature on radar.



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<http://www.spc.noaa.gov/faq/tornado/>

er droplets and extends downward from the base of the  
und it is a tornado; otherwise it is a funnel cloud. Dust and  
nfirm a tornado's presence.

s and answers about tornadoes can be found here: