

Tornadoes: Stay Alert and Stay Alive *Tornado Facts for Kids*

From the NOAA National Oceanic and Atmospheric Administration

What is a tornado?

A tornado is a violent rotating column of air extending from a thunderstorm to the ground. The most violent tornadoes are capable of tremendous destruction with wind speeds of up to 300 mph. They can destroy large buildings, uproot trees and hurl vehicles hundreds of yards. They can also drive straw into trees. Damage paths can be in excess of one mile wide to 50 miles long. In an average year, 1000 tornadoes are reported nationwide.

How do tornadoes form?

Most tornadoes form from thunderstorms. You need warm, moist air from the Gulf of Mexico and cool, dry air from Canada. When these two air masses meet, they create instability in the atmosphere. A change in wind direction and an increase in wind speed with increasing height creates an invisible, horizontal spinning effect in the lower atmosphere. Rising air within the updraft tilts the rotating air from horizontal to vertical. An area of rotation, 2-6 miles wide, now extends through much of the storm. Most strong and violent tornadoes form within this area of strong rotation.

What are some other factors for tornadoes to form?

Several conditions are required for the development of tornadoes and the thunderstorm clouds with which most tornadoes are associated. Abundant low level moisture is necessary to contribute to the development of a thunderstorm, and a "trigger" (perhaps a cold front or other low level zone of converging winds) is needed to lift the moist air aloft. Once the air begins to rise and becomes saturated, it will continue rising to great heights to produce a thunderstorm cloud, if the atmosphere is unstable. An unstable atmosphere is one where the temperature decreases rapidly with height. Atmospheric instability can also occur when dry air overlays moist air near the earth's surface. Finally, tornadoes usually form in areas where winds at all levels of the atmosphere are not only strong, but also turn with height in a clockwise or veering direction.

What do tornadoes look like?

Tornadoes can appear as a traditional funnel shape, or in a slender rope-like form. Some have a churning, smoky look to them, and others contain "multiple vortices", which are small, individual tornadoes rotating around a common center. Even others may be nearly invisible, with only swirling dust or debris at ground levels as the only indication of the tornado's presence.

What is a funnel cloud?

A funnel cloud is a rotating cone-shaped column of air extending downward from the base of a thunderstorm, but not touching the ground. When it reaches the ground it is called a tornado.

How do tornadoes stop?

It is not fully understood about how exactly tornadoes form, grow

and die. Tornado researchers are still trying to solve the tornado puzzle, but for every piece that seems to fit they often uncover new pieces that need to be studied.

What is a supercell thunderstorm?

A supercell thunderstorm is a long-lived thunderstorm whose updrafts and downdrafts are in near balance. These storms have the greatest tendency to produce tornadoes that stay on the ground for long periods of time. Supercell thunderstorms can produce violent tornadoes with winds exceeding 200 mph.

What is a mesocyclone?

A mesocyclone is a rotating vortex of air within a supercell thunderstorm. Mesocyclones do not always produce tornadoes.

What is a microburst?

A microburst is a downdraft (sinking air) in a thunderstorm that is less than 2.5 miles in scale. Although microbursts are not as widely recognized as tornadoes, they can cause comparable, and in some cases, worse damage than some tornadoes produce. In fact, wind speeds as high as 150 mph are possible in extreme microburst cases.

What is a wall cloud?

A wall cloud is an abrupt lowering of a rain-free cumulonimbus base into a low-hanging accessory cloud. A wall cloud is usually situated in the southwest portion of the storm. A rotating wall cloud usually develops before tornadoes or funnel clouds.

What is a waterspout?

A waterspout is just a weak tornado that forms over water. They are most common along the Gulf Coast. Waterspouts can sometimes move inland, becoming tornadoes causing damage and injuries.

What is hail?

Hail is created when small water droplets are caught in the updraft of a thunderstorm. These water droplets are lifted higher and higher into the sky until they freeze into ice. Once they become heavy, they will start to fall. If the smaller hailstones get caught in the updraft again, they will get more water on them and get lifted higher in the sky and get bigger. Once they get lifted again, they freeze and fall. This happens over and over again until the hailstone is too heavy and then falls to the ground.

What is the largest hailstone recorded in the United States?

According to the National Weather Service, the largest hailstone was 8 inches in diameter and weighed approximately 2 pounds. It fell in Vivian, South Dakota on July 23, 2010.

What is a gustnado?

A gustnado is a short-lived, relatively weak whirlwind that forms along a gust front. A gust front is the surge of very gusty winds at the leading edge of a thunderstorm's outflow of air. Gustnadoes are not tornadoes. They do not connect with any cloud-base rotation. But because gustnadoes often have a spinning

dust cloud at ground level, they are sometimes wrongly reported as tornadoes. Gustnadoes can do minor damage.

What is a landspout?

A landspout is a very weak tornado that is not associated with a wall cloud or a mesocyclone. It is the land equivalent of a waterspout.

What is a dust devil?

A dust devil generally forms in the hot sun during the late morning or early afternoon hours. These are mostly harmless whirlwinds and are triggered by light desert breezes that create a swirling plume of dust with speeds rarely over 70 mph. These differ from tornadoes in that they are not associated with a thunderstorm (or any cloud) and are usually very weak.

When are tornadoes most likely to occur?

Tornadoes can happen at any time of the year and at any time of the day. In the southern states, peak tornado season is from March through May. Peak times for tornadoes in the northern states are during the summer. A few southern states have a second peak time for tornado outbreaks in the fall. Tornadoes are most likely to occur between 3 p.m. and 9 p.m.

Where are tornadoes most likely to occur?

The geography of the central part of the United States, known as the Great Plains, is suited to bring all of the ingredients together to form tornadoes. More than 500 tornadoes typically occur in this area every year and that is why it is commonly known as "Tornado Alley". Texas, Oklahoma, Kansas, Nebraska, South Dakota, North Dakota, Iowa, Missouri, Arkansas and Louisiana all make up Tornado Alley.

Know the Lingo

TORNADO WATCH - Tornadoes are possible in your area. Stay tuned to the radio or television news.

TORNADO WARNING - A tornado is either on the ground or has been detected by Doppler radar. Seek shelter immediately!

Know the Facts

Tornadoes can occur at any time of the year.

No terrain is safe from tornadoes. Never open windows in severe weather situations. This allows damaging wind and debris to enter the structure.

69% of all tornadoes are labeled "weak tornadoes" meaning they have a lifetime of 1-10+ minutes and winds less than 110 mph.

Tornado Safety Tips

BEFORE A TORNADO: Have a disaster plan. Make sure everyone knows where to go in case a tornado threatens. Make sure you know which county or parish you live in. Prepare a kit with emergency food for your home. Have enough food and water for at least 3 days.

DURING A TORNADO: Go to a basement. If you do not have a basement, go to an interior room without windows on the lowest floor such as a bathroom or closet.

If you can, get under a sturdy piece of furniture, like a table. If you live in a mobile home, get out. They offer little protection against tornadoes. Get out of automobiles. Do not try to outrun a tornado in your car, leave it immediately. If you're outside, go to a ditch or low lying area and lie flat in it. Stay away from fallen power lines and stay out of damaged areas.

IF YOU'RE AT SCHOOL DURING A TORNADO: Every school should have a disaster plan and have frequent drills. Basements offer the best protection. Schools without basements should use interior rooms and hallways on the lowest floor away from windows.

AFTER A TORNADO: Stay indoors until it is safe to come out. Check for injured or trapped people, without putting yourself in danger. Watch out for downed power lines.

Facts on Tornado Chasers

Tornado chasers in the US park southeast of the tornado. It's usually the safest spot to film or record. The reason is because tornadoes normally travel from southwest to the northeast.

Tornado chasers may drive hundreds of miles during a single chase.

Most Tornadoes form in the afternoon. Tornado chasers start planning in the early morning.

Tornadoes aren't the only danger, Tornado chasers have to be careful of the lightning coming from the thunderstorms that produces tornadoes.

In 1983, lightning struck right next to five tornado chasers. Luckily they all lived.

Tornado chasers are prone to car crashes. Sometimes tornado chasers get hit by cars fleeing the same storm they were chasing.

Hail is a common concern for tornado chasers.

A tornado is a rapidly spinning tube of air that touches both the ground and a cloud above.

Tornadoes are sometimes called twisters.

Not all tornadoes are visible but their high wind speeds and rapid rotation often form a visible funnel of condensed water.

The Fujita Scale is a common way of measuring the strength of tornadoes. The scale ranges from F0 tornadoes that cause minimal damage through to F5 tornadoes which cause massive damage.

Most tornadoes have wind speeds less than 100 miles per hour (161 kilometres per hour).

Extreme tornadoes can reach wind speeds of over 300 miles per hour (483 kilometres per hour).

Most tornadoes travel a few miles before exhausting themselves.

Extreme tornadoes can travel much further, sometimes over 100 miles (161 kilometres).

The Tri-State Tornado that travelled through parts of Missouri, Illinois and Indiana in 1925 left a path of destruction over 219 miles (352 kilometres) long.

The Tri-State Tornado was the deadliest tornado in US history, killing 695 people.

The USA averages around 1200 tornadoes every year, more than any other country.

The majority of these tornadoes occur in a geographically unique area nicknamed "Tornado Alley".

US States most often hit by tornadoes include Texas, Kansas, Oklahoma and Florida.

In 1989 the deadliest tornado ever recorded in the world killed around 1300 people in Bangladesh.

In the southern hemisphere tornadoes usually rotate in a clockwise direction.

In the northern hemisphere tornadoes usually rotate in a counterclockwise direction.

A tornado that occurs over water is often called a waterspout.

Weather radars are used to detect tornadoes and give advanced warning.

Basements and other underground areas are the safest places to seek refuge during a tornado. It is also a good idea to stay away from windows.

Thunder is the sound caused by lightning.

The intense heat from lightning causes the surrounding air to rapidly expand and create a sonic wave that you hear as thunder.

The average temperature of lightning is around 20000 °C (36000 °F).

The sound of thunder can be anything from a loud crack to a low rumble.

Light travels faster than sound so we see lightning before we hear thunder.

The closer you are, the shorter the gap between the lightning and thunder.



Think you're prepared for the storm?

Before the storm

Reconsider your coverage:

- Not all policies cover water damage, debris or tree removal, sewer backup due to flooding, sump pump failure or the costs of having to stay somewhere while your home is repaired.
- Do you have comprehensive coverage on your vehicle in case of hail?
- Did you add flood insurance (a FEMA-run program) to your homeowners' policy?
- Have you updated your home inventory?

After the storm

Claims, repairs and settlements:

- Contact your agent immediately to report losses, and take notes about your conversation.
- Take photos of damage.
- Get instructions from your adjuster before making repair arrangements.
- Don't get scammed by questionable contractors.
- Don't accept an unfair settlement. If you can't reach a settlement with your insurance company, call our Consumer Assistance Hotline at **800-432-2484**.

Kansas Insurance Department

Sandy Praeger, Commissioner of Insurance
www.ksinsurance.org

Avoid surprises with your coverage.
We're here to help you with all of your insurance needs.

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BC-225196 - 4/12

Can YOU tell the difference?

Severe Thunderstorm Watch

Severe thunderstorms are likely to occur.

Severe Thunderstorm Warning

Severe thunderstorms have been spotted, and people in the path of the storm are in danger.

Tornado Watch

Tornadoes are possible in the area. Stay tuned to the radio or TV and watch the sky.

Tornado Warning

A tornado has been sighted. Take cover at once.

Be aware of weather around you and listen to watches and warnings!

Post this where you can see it when severe weather occurs

FROM THE

Norton County Sheriff's Office

Emergency - 911 • Administrative - 785-877-5780
Norton County Emergency Preparedness

REMINDER:

Norton County has a New Reverse 911 Emergency Calling System up and running.

Civic Ready

Go to www.ks-nortoncounty.civicready.com to enter your information to receive calls for life threatening or severe property damage incidents such as tornadoes. The system will also send texts and emails for public awareness information from local government entities for situations such as water main breaks or information pertaining to emergency snow routes.

Norton County Sheriff's Office

Emergency - 911
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— Always Be Prepared
— Listen to Watches and Warnings
— It's Up to **YOU** to Seek Shelter Before a Storm Arrives

It could be the most important decision you will ever make

THE NORTON TELEGRAM

215 South Kansas Avenue, Norton, KS - Phone 785-877-3361