

An outlook for the upcoming severe weather season

Fifty-six tornadoes were reported in Kansas last year, which made it the quietest year for tornadoes since 1994. According to the National Weather Service, only five of the tornadoes ranked as strong, violent tornadoes. There was one injury and no deaths.

The average number of tornadoes in Kansas, based on data from the past 30 years, is about 80 annually, said Chad Omitt, warning coordination meteorologist with the National Weather Service Office in Topeka.

Last year was a relatively quiet year in Kansas, because the pattern of the storm systems was set up to the east, said Mary Knapp, climatologist for Kansas State University. Although tornadoes can happen and have happened every month of the year in Kansas, May is historically the month with the most tornadoes.

"The expectation is as we move toward more normal rainfall patterns in April and May, we see an increase in severe weather outbreaks," Knapp said. "People should remember that it only takes one tornado to be devastating. Low numbers are no consolation when one creates havoc."

How severe weather develops
A sharp contrast in the air

masses, Knapp said, causes severe weather - thunderstorms and tornadoes. The contrast can be in temperature or in the amount of moisture, particularly if there is a dry line of air behind the storm system.

"Any of those imbalances can fuel the severe weather," she said. "If thunderstorms are large enough that they intersect with the jet stream, that puts the final ingredient in the mix and starts a rotation that can produce the severe events."

No area of Kansas is more susceptible to tornadoes than another, Knapp said, but people tend to hear more about the damages caused by tornadoes in the eastern part of the state due to the greater population density.

"The amount of damages that might occur in the western areas, including damages to fence rows and irrigation systems, tends to be underreported," she said. "When you talk about fence rows that might have taken 20 to 30 years to be developed to protect against erosion, and have been wiped out within a couple of hours, it can be very devastating to the area economy."

Although tornadoes can arrive at any time of the day, the most common times in Kansas are early afternoon to mid-evening, Knapp said.

"It tends to be earlier in the

western part of the state and later in the eastern part of the state, but it can vary widely depending upon how the storm actually develops and progresses across the country," she said. "You don't want to assume that it will be at a certain time."

Knapp said when there is a severe thunderstorm watch or warning, people should treat it with caution, as severe thunderstorms could produce a tornado with little or no warning. Even without a tornado, large hail, heavy rains that might produce flooding and damaging straight-line winds are possible.

Watch versus warning
In the event of a tornado or severe thunderstorm, Omitt said, people should know the difference between a watch and a warning.

"A watch is usually large in space, a large part of a state or many different states, and it runs on the order of four to eight hours," he said. "It's basically a heads up. Nothing could be happening right now, but in the next several hours thunderstorms could develop, and the atmosphere could produce tornadoes."

Omitt said a change in behavior is required when a watch is issued. People should consider staying in a safe place, rather than being outside, in a vehicle or in any situation of vulnerability. People should also consider reviewing their safety plan during a watch in case a warning commences.

"A warning is when something is either on the ground or there's a good chance that in the next half hour a tornado might develop in that warning area," he said. "That's when you put your plan into action and protect yourself and your family."

Sometimes when a warning is issued, Omitt said, people want to look outside and confirm the potentially dangerous situation for themselves. Worse yet is the situation where people go after the tornadoes to take photos and document them. It is important to seek shelter immediately in a warning.

"I worry that perhaps we're creating an environment where it becomes something that people want to do, forget the risk they are taking and forget the danger involved with these storms, not only the tornadoes

but the lightning and large hail that those can bring," he said.

The El Reno, Okla. tornado last May near Oklahoma City is an example of the dangers associated with going out in a vehicle and getting too close to a tornado.

"Specifically, these were people who were trying to chase the tornado, document it, take pictures," Omitt said. "They got too close to it. In fact, all of the fatalities in that event were people in automobiles who got too close to the tornado. I think that can be a cautionary tale."

Knapp advises people to never leave shelter during a severe weather event and wait for an "all-clear" report before going outside. Also, have multiple ways to receive weather reports in case one method of communication isn't working.

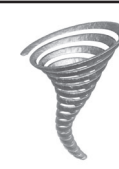
"In many cases, the tornado won't be that clean, visible funnel we're accustomed to seeing on television," she said. "It can be wrapped in rain and difficult to see that it's actually a tornado. If you're seeing a heavy rain shaft down the road, it might be best to delay your trip and wait it out in a safe place."

Don't underestimate lightning during severe thunderstorms, either, Omitt said. Lightning is so common that many people don't think of it as a threat.

"If you're close enough to hear thunder, you're close enough to be at risk," he said. "We always emphasize to people that if you can hear thunder and you're outside, just go to your vehicle, roll up the windows and keep your hands inside until the storm passes."

More information can be found at the K-State Research and Extension Weather Data Library (<<https://www.ksre.ksu.edu/wdl/>><https://www.ksre.ksu.edu/wdl/>).

Signs of an approaching tornado



Signs of an approaching tornado include:
the sky turning to a greenish black color
debris drops from the sky
sounds similar to a waterfall or rushing air.
A funnel-shaped cloud appears with other clouds moving quickly towards it.

Prepare for a weather disaster

You might not be able to tell exactly when a severe weather event will hit, but following weather updates, including watches and warnings, and being prepared for a weather disaster, could help keep you and your family safe.

Chad Omitt, warning coordination meteorologist with the National Weather Service Office in Topeka, said educating people on how to develop a plan has helped save more lives in recent years.

"We just need to plan and be as prepared as we can," Omitt said. "I think the easiest hazard to think about when we talk about having a plan is tornadoes. Ask yourself, 'What would I do if a tornado warning was issued right now, wherever I'm at, at home, school or work? What is the plan to shelter from that tornado?'"

Getting as low as possible and either getting under something sturdy or covering up with something heavy are important, Omitt said. People should have a plan in place on where to go if a tornado arrives no matter where they are. They should also discuss the plan with family members.

One of the major things learned from the 2011 tornadoes that struck Joplin, Mo., Alabama and Mississippi, was that a high percentage of the people who were injured sustained head injuries, he said. Having bicycle helmets in the lowest level of the house or in an emergency disaster kit is a good idea.

"Because of the people who suffered from blunt force trauma to the head, a lot of doctors asked, 'Are you emphasizing head protection, specifically helmets?'" Omitt said. "Before that, we hadn't specifically emphasized how important that could be. Now, when we go out and do our safety training, we talk about a bike helmet as a part of your disaster kit or your plan."

Emergency disaster kits

Laurie Harrison, emergency management coordinator for Riley County (<<http://www.rileycountyks.gov/207/Emergency-Management>><http://www.rileycountyks.gov/207/Emergency-Management>) in Manhattan, said there are other important items to consider for an emergency disaster kit. She recommends putting the kit inside a cooler or another container on wheels so it is easy to move.

Pack a gallon of water per person per day and non-perishable foods, Harrison said, and plan on enough water and food for three days. Other items to consider are: trash bags, toilet paper, first-aid kit, flashlight, battery-powered radio, batteries of the correct sizes, wind-up radio, weather radio, whistle, paper and pen with important addresses and phone numbers listed, toothbrush, cash, good shoes, and copies of important documents such as a driver's license and insurance information.

Matches and candles are not recommended in the emergency disaster kit if the home is heated by propane, because of potential gas leaks following a disaster, she said. During severe weather season, it might be a good idea to keep a bag of necessary medication set aside to also grab on the way to shelter.

For those who have pets or children, extra items will be needed. Consider including books, cards or entertainment items for children in the emergency disaster kit to help keep them calm and occupied, Harrison said. People should keep copies of pet shot records, food, toys and a picture of them with their pet in the emergency disaster kit as well, which might be helpful in claiming the pet at a shelter following the disaster.

Common myths

A myth many people believe is that the home will explode if they don't open the windows during a tornado warning, Omitt said. Although people think they are doing this to equalize the pressure, in reality opening windows is actually one of the worst things they could do.

"When the wind gets in, it's going to find a way out, and usually that's by lifting the roof off or blowing out the walls," Omitt said. "By opening your windows, you're allowing the wind to come in wherever it wants. It also takes extra time and makes your home more vulnerable to wind damage."

Caught outside during a tornado warning? Omitt said take every precaution beforehand to avoid being in that situation. This means paying attention to severe weather outlooks, typically released two to four days before the anticipated arrival of a storm system. Awareness during potentially severe weather events, particularly those high-risk days mentioned in the outlook, could help people so they are not caught outside or in a car, the worst places to be during a tornado.

Try to get into a ditch or culvert as an absolute last resort, Omitt said, or if in a car drive out of the way of the tornado's path and try to find shelter. Be aware that many ditches could be filled with water, which poses the threat of drowning.

When inside during a tornado warning, go to the lowest level and get under something sturdy, Omitt said, and remember that being underground is the best option.

"No specific part of the basement is better," he said. "When I was growing up, people said you should be in the southwest or northeast side of the basement. There is no research that suggests that one is better than the other. What is important is to get as low as you can, and get under something sturdy to protect yourself from blowing or falling debris."

The 25 Deadliest Tornadoes in the United States

The following table lists tornadoes by the number of fatalities

Date:	Location(s):	Deaths:
1. March 18, 1925	Tri-State (Mo., Ill., Ind.)	689
2. May 6, 1840	Natchez, Miss	317
3. May 27, 1896	St. Louis, Mo.	255
4. April 5, 1936	Tupelo, Miss	216
5. April 6, 1936	Gainesville, Ga.	203
6. April 9, 1947	Woodward, Okla.	181
7. April 24, 1908	Amite La.; Purvis, Miss.	143
8. May 22, 2011	Joplin, Mo.	122
9. June 12, 1899	New Richmond, Wis.	117
10. June 8, 1953	Flint, Mich.	115
11. May 11, 1953	Waco, Tex.	114
12. May 18, 1902	Goliad, Tex.	114
13. March 23, 1913	Omaha, Neb.	103
14. March 26, 1917	Mattoon, Ill.	101
15. June 23, 1944	Shinnston, W. Va.	100
16. April 18, 1880	Marshfield, Mo.	99
17. June 1, 1903	Gainesville, Holland, Ga.	98
18. May 9, 1927	Poplar Bluff, Mo.	98
19. May 10, 1905	Snyder, Okla.	97
20. April 24, 1908	Natchez, Miss.	91
21. June 9, 1953	Worcester, Mass.	90
22. April 20, 1920	Starkville, Miss.; Waco, Ala.	88
23. June 28, 1924	Lorain, Sandusky, Ohio	85
24. May 25, 1955	Udall, Kansas	80
25. Sept. 29, 1927	St. Louis, Mo.	79

Source: Storm Prediction Center at the National Weather Service, National Oceanic and Atmospheric Administration

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Norton City Sirens

TAKE COVER: An oscillating tone 8 times means take cover - a tornado has been sighted.

Sirens Blown One Time— means a call for Rural Firemen
Sirens Blown Two Times— means a call for City Firemen

Turn to KQNK Radio FM 106.7 or 1530 AM. For those who live in the country, the radio station will sound the alert. The sirens are an outdoor warning device. If you are indoors you will need a battery operated radio to hear the all clear alerts and further weather information.

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