



# SEVERE WEATHER 2009

## JEFF PENNER

### Meet Jeff Penner

Jeff Penner has been a weather fanatic for as long as he can remember. When he was 2 years old, he was making papers blow around by opening and closing doors. Weather is in his blood.

A native of the Kansas City area, he grew up in Prairie Village. Over the years he experienced some of the most incredible weather Kansas City has ever seen: the Plaza flood of '77, the winters of '77-'78 and '78-'79 (which produced two 10-inch snowstorms in one week), and an ice storm that crippled the city in 1984.

As weather producer for NBC Action News, Penner assists in putting unique shows together every day to best tell the current weather story. He also helps in creating predictions for Kansas City's most accurate forecast.

Penner also uses his weather expertise as a private weather consultant, providing timely and accurate weather information to snow removers along with lawn and construction companies. He also gives weekly seminars at the Kansas City Board of Trade, briefing traders on the weather for the very important hard red winter wheat crop that grows to our west.

He is a graduate of The Barstow School and attended the University of Wisconsin-Madison, where he received his Bachelor of Science degree in Meteorology. He is a member of the National Weather Association and American Meteorological Society.

In addition to his weather interests, Penner is a sports fan, following the Chiefs, Royals and Wisconsin Badgers. He also loves being a daddy. Jeff and his wife Edi are the proud parents of an almost-3-year-old-son, Skyler Hayden Penner. □

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# WHAT IS SEVERE WEATHER?

### By Jeff Penner

Severe weather can take many forms. Wind, rain, hail and lightning are all examples of weather events that impact our region. Knowing as much as you can about each of these potentially deadly events and how to protect yourself is crucial in preparing for the severe weather season.

## TORNADO WATCH vs. TORNADO WARNING

A Tornado Watch means conditions are favorable for severe thunderstorms that may produce tornadoes. A watch is often issued hours before you have any serious threat of severe weather in your local area. A Tornado Warning is issued when either a tornado has been spotted or is indicated on radar. You should take cover immediately if a Tornado Warning is issued for your local area. Turn on NBC Action News and we will let you know where the threat is heading.

## FLOODING

Flooding is the No. 1 severe weather killer and takes 130 to 140 lives each year. Flash flooding occurs when there is heavy or excessive rainfall (1 to 5 inches) in a short period of time, generally less than six hours. With this amount of rain, dams can fail, causing a flash flood, depending on the type of dam and time period during which the break occurs.

Flooding is the inundation of a normally dry area caused by an increased water level in an established watercourse, such as a river, stream, drainage ditch or a pond of water at or near the point where the rain fell.

### PROTECTING YOURSELF from floodwaters:

If you are inside and high water is threatening, leave immediately and get to higher ground. If you are caught outdoors, the most obvious preventive measure you can take is to get to higher ground. However, you will reduce the chance of encountering floodwater if you avoid small rivers or streams, low spots, canyons and dry riverbeds. Do not try to walk through even ankle-deep water, and don't allow children to play around

streams, drainage ditches or viaducts, storm drains or other flooded areas.

If you are in a vehicle, DO NOT DRIVE THROUGH FLOODED AREAS! Even if it looks shallow enough to cross, it is hard to estimate the force of the water. The large majority of deaths due to flash flooding are because people drive through flooded areas. Water only 1 foot deep can displace 1,500 pounds! Two feet of water can quickly and easily carry an automobile away.

## LIGHTNING

Lightning is the second most prevalent killer associated with the severe weather season. It's a visible electrical discharge produced by a thunderstorm. The discharge may occur within or between clouds, between the cloud and air, between a cloud and the ground or between the ground and a cloud. Between 90 and 100 people each year lose their lives due to lightning strikes. This is more than tornadoes and hurricanes combined. There are 20 million lightning strikes per year in the continental United States.

### PROTECTING YOURSELF from lightning:

If you are indoors during a lightning storm, avoid using the telephone or any other electrical appliance. Don't take a bath or shower. If you are caught outdoors, keep these things in mind:

- Lightning has been known to strike 10 miles away from the main thunderstorm. Most deaths by lightning have been found to occur before or after the most intense part of the storm. Just because the main action of the storm has ended does not mean the lightning abruptly ends.
- When you see the lightning, count the number of seconds until you hear the thunder. Five seconds means lightning is one mile away. This is not a myth. It's called the 30-30 rule and was devised by the National Weather Service. You'll know you are at risk if you see lightning, then hear thunder in 30 seconds or less. Go to a safe place. If you can't see the lightning, just hearing the thunder is a good back-

up rule to use to take cover. Wait 30 minutes or more after hearing the last thunder before leaving the safer location.

### If you get caught outside during a thunderstorm, remember these rules:

- Go to a safe shelter immediately. A sturdy building or a hardtop automobile with the windows up can also offer fair protection.
- If you are boating or swimming, get out of the water immediately and move to a safe shelter away from the water.
- If you are in a wooded area, seek shelter under a thick growth of relatively small trees.
- If you feel your hair standing on end, squat with your head between your knees. Do not lie flat.
- Avoid isolated trees or other tall objects, bodies of water, sheds, fences, convertible automobiles, tractors and motorcycles.

### Indoors:

The ground fault circuit in a home is one of the first things lightning hits. This includes much-needed safety equipment such as smoke detectors and other sensitive electronic equipment, including security systems and garage door openers. Lightning can also create power surges, which can overload your electrical system and lead to fire. There are preventive measures you can take to protect your home's electronic equipment as much as possible. Arrow Circle Electric in Kansas City highly recommends installing whole-house surge protection, which is inexpensive and easier to deal with than a multitude of surge protector strips.

## TORNADOES AND MICROBURSTS

The third deadliest severe weather events are tornadoes and microbursts. About 60 to 70 people each year lose their lives to these violent winds. Winds higher than 58 miles per hour are considered severe.

A tornado is a violently rotating column of air, usually located beneath a cumulonimbus (thunderstorm) cloud, with circulation reaching the ground. It nearly always starts as a

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## JEREMY NELSON



funnel cloud and may be accompanied by a loud roaring noise. On a local scale, it is the most destructive of all atmospheric phenomena. Tornado strength is classified on the Enhanced Fujita (EF) scale from 1 to 5.

A microburst is a convective downdraft with an affected outflow area of less than two miles wide and peak winds lasting less than five minutes. Microbursts can cause dangerous horizontal or vertical wind shears. The wind shears are strong enough to cause extensive property damage.

### PROTECTING YOURSELF from tornadoes and microbursts:

If you are in a home or small building, go to the basement first. If a basement is not available, go to an interior room on the lowest floor of the house, like a closet or bathroom. Wrap yourself in overcoats or blankets to protect yourself from flying debris.

If you are in a school, hospital, factory or shopping center, go to interior rooms and halls on the lowest floor. Stay away from rooms enclosed in glass or places with wide-span roofs such as auditoriums and warehouses.

Crouch down and cover your head. If you are in a high-rise building, go to interior small rooms or halls. Stay

away from exterior walls or glassy areas.

If you are in a car or mobile home, GET OUT IMMEDIATELY. Most deaths occur in cars and mobile homes. Go to a substantial structure or designated tornado shelter. If you can't get inside, lie flat in the nearest ditch or depression and use your hands to cover your head.

There is a great saying that summarizes the best tornado safety: "Go to the SMALLEST PART, LOWEST LEVEL, CENTER ROOM."

### HAIL

Hail seldom causes loss of human life. It can destroy crops, roofs, cars, lawn furniture and has been known to kill farm animals. Each year about \$1.5 billion in crop losses are due to hail. Hail 1 inch or more in diameter is considered severe.

You've often heard hail described as softball or marble size, but did you know those descriptions aren't just ballpark figures? There are very specific measurements to go along with each.

### PROTECTING YOURSELF from hail:

Stay inside and bring cars, pets, farm animals and lawn furniture inside as well. □

HAIL SIZE (in.)	OBJECT ANALOG REPORTED
.50	Marble, moth ball
.75	Penny
.88	Nickel
1.00	Quarter
1.25	Half dollar
1.50	Walnut, ping pong
1.75	Golf ball
2.00	Hen egg
2.50	Tennis ball
2.75	Baseball
3.00	Tea cup
4.00	Grapefruit
4.50	Softball

### Meet Jeremy Nelson

Jeremy joined the NBC Action Weather Plus team in November 2006 as the weekend meteorologist.

Nelson grew up in Windom, Minn., a small town of about 4,000 people. He experienced first hand what has been referred to as the "storm of the century in Minnesota," the 1991 Halloween Blizzard.

Jeremy graduated from the University of Wisconsin-Madison in 2000 with a degree in Meteorology. While in college, he worked for a weather company and television station providing live forecasts for area radio stations and learned the ins and outs of the TV business.

Before coming to NBC Action News, Nelson worked at the NBC station in Marquette, Mich. While there he experienced a record-setting winter with 272 inches of snow! After tiring of the snow and cold, Jeremy moved south to Madison, Wis. where he was the Chief Meteorologist at WMSN for five years. On June 23, 2004, a tornado moved within one mile of the station! Jeremy holds the American Meteorological Society's Seal of Approval and is a member of the National Weather Association.

Nelson enjoys spending time with his wife and two daughters. He also enjoys playing basketball, working out and watching sports. □

## EF SCALE

EF0	65-85 mph
EF1	86-110 mph
EF2	111-135 mph
EF3	136-165 mph
EF4	166-200 mph
EF5	200+ mph

## EF SCALE FOR MEASURING TORNADO INTENSITY

### By Jeremy Nelson

More than 1,200 tornadoes occur across the United States every year. Out of that total, Kansas averages 55 each year, while Missouri averages 28 each year. Tornado intensity is now measured using the EF Scale, or the Enhanced Fujita Scale. The original Fujita Scale to measure tornado intensity was developed in the early 1970s by Allan Pearson and the late Ted Fujita. Beginning in 2007 the new

EF scale was put into use to rate tornado intensity. The new scale is designed to rate tornadoes more accurately across a wide range of intensities and damage.

The EF scale determines tornado intensity by factoring damage to 28 different indicators, including mobile homes and trees. The EF scale ranges from 0 to 5, with a rating of 5 being the most destructive tornado possible. The devastating Greens-

burg, Kan. tornado of May 4, 2007, was rated an EF5, with winds over 200 mph!

Only days after the new year began, a major severe weather outbreak occurred over the Missouri Ozarks on Jan. 7-8. This tornado outbreak produced at least 33 confirmed tornadoes. The two strongest were rated EF-3, with winds up to 165 mph! This total already puts the state of Missouri ahead of its yearly tornado average. □

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