National Weather Service
Wichita, KS

Storm Fury on the Plains

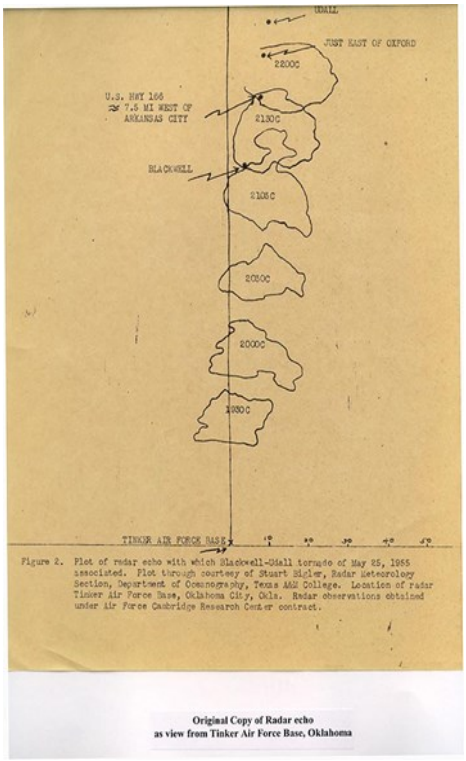
Spring Spotter Newsletter

April 2015

Inside this issue:

60 Years Later: A look back at the May 25, 1955 Udall Tornado

Try to imagine that you are back in the spring of 1955 winding down after a long day and getting ready for bed around 10 pm. As you get ready for bed, would you have been aware of the potential dangerous situation heading your direction?



Original Copy of Radar echo as view from Tinker Air Force Base, Oklahoma

There was no:

- weather radio
- wall to wall coverage on television
- weather spotters
- sirens
- live streaming on the internet by storm chasers
- dedicated weather channels over cable networks
- social media
- smartphones to get radar images or warnings

Odds are that you would have no clue what might transpire approximately 35 minutes later!

The F5 tornado struck the small community on a Wednesday night at 1035 pm. The tornado killed 83 people and injured 270 while reducing the majority of the community to splintered debris. There were 192 buildings and 170 homes completely destroyed. The few remaining homes left standing were found unlivable. It was stated by the City of Udall that approximately 50% of the families in Udall lost one or more members of their family. Can you even imagine something of that magnitude today?

Here is a recollection from the Town Marshal, Wayne Keelys who was watching some TV at the time along with some children.

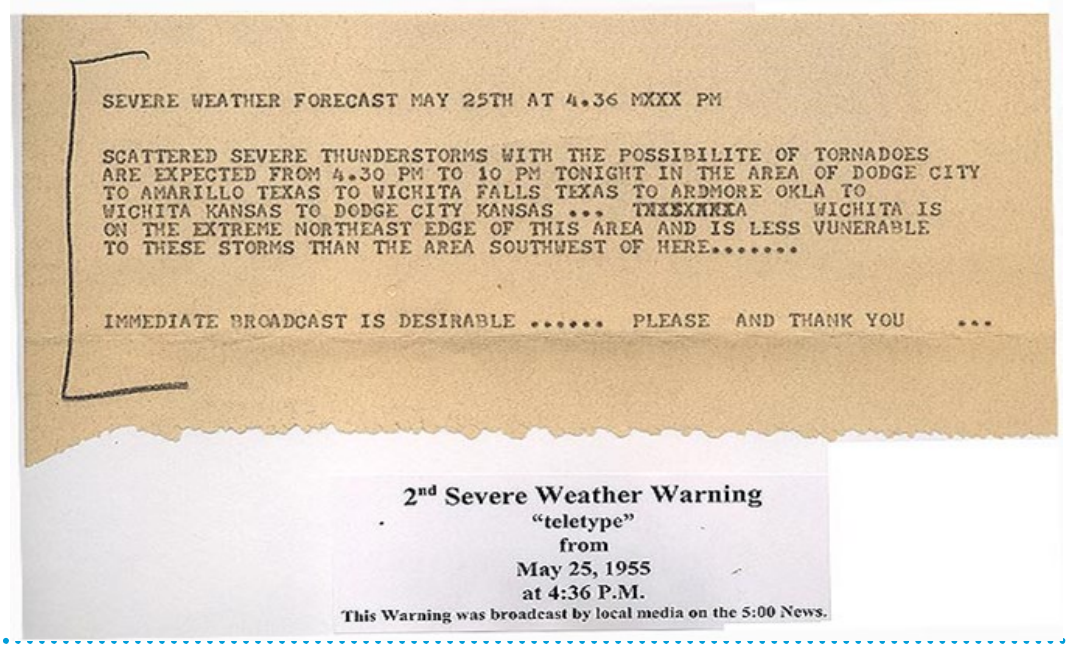
"I remember that there had been a tornado watch out earlier in the night, but it was canceled an hour and a half BEFORE the tornado hit. The first warning we had was the noise. It was like a jet aircraft coming into town. I got my family and the kids and got them into the cellar just before it hit. I remember my wife trying to light a candle, and myself not being able to breath to well. I was able to get a quick glance out of the cellar while the tornado was over us. It looked like there was electricity inside of it. I'm not sure if it was metal hitting together or maybe static electricity. Debris was coming into the cellar and blocked the entrance.

After the tornado passed we came out of the cellar. I looked down at my watch and it read 10:41 pm. The first thing I saw was a neighbor laying in a flooded street. One of the neighbors came up and said that my sister had been found in a ditch with a 2x4 through her. She made it, how I don't know, but she pulled through.

There was a 1952 Chevy pickup in the tree in my front yard. The owner of the truck was found dead later outside of town. I walked through the damage. I remember not being able to tell what part of town I was in. We found another neighbor sitting on a porch, sitting down leaning up next to a pole like they were sleeping, but they were gone. The water tower had been knocked over and the streets were flooded. I saw an old model Ford sitting in the street near the water tower and it looked

like it had not been touched. The front window was still up, and it had not been broke."

The Udall tornado remains the deadliest tornado to ever affect the state of Kansas and the 25th deadliest tornado of all time. This horrific event helped spawn storm spotter training to give communities better real time notification of impending hazardous weather. This is a practice still utilized today. Each year, tens of thousands of people are trained on the conditions needed for severe storms and the cloud features associated with tornadoes. The NWS works very closely with and solicits real time weather information from local emergency managers, storm spotter groups, television meteorologists, broadcast radio stations, amateur radio operators, and storm chasers to be better prepared within the warning decision process. All of these different groups are known as the weather enterprise. The NWS office in Wichita relies heavily on the weather enterprise to provide a better service to the citizens of Kansas. The frequent and enhanced communications between these entities along with greatly improved technology in both disseminating and receiving vital lifesaving information has brought about a much safer environment for all residents in Kansas.


SEVERE WEATHER FORECAST MAY 25TH AT 4.36 MXXX PM

SCATTERED SEVERE THUNDERSTORMS WITH THE POSSIBILITE OF TORNADOES ARE EXPECTED FROM 4.30 PM TO 10 PM TONIGHT IN THE AREA OF DODGE CITY TO AMARILLO TEXAS TO WICHITA FALLS TEXAS TO ARDMORE OKLA TO WICHITA KANSAS TO DODGE CITY KANSAS ... TXIXXXXXA WICHITA IS ON THE EXTREME NORTHEAST EDGE OF THIS AREA AND IS LESS VUNERABLE TO THESE STORMS THAN THE AREA SOUTHWEST OF HERE.....

IMMEDIATE BROADCAST IS DESIRABLE ..... PLEASE AND THANK YOU ...

2nd Severe Weather Warning
"teletype"
from
May 25, 1955
at 4:36 P.M.
This Warning was broadcast by local media on the 5:00 News.

Be sure to find us by searching for

NWS Wichita

on YouTube

Gloria Dill—NWS Wichita Administrative Assistant for 23 Years Retires with 32 Years of Federal Service

Mrs. Gloria Dill, Administrative Support Assistant, at WFO Wichita retired at the start of 2015 after 32 years of government service. Gloria had worked at WFO Wichita since 1992, so she is an original staff member of the weather forecast office in Wichita that was spun up as part of the National Weather Service Modernization that occurred in the late 1980's and 1990's.

She was born in Peoria, Illinois but grew up in Sterling, Kansas. Upon graduating from Sterling High School, Gloria attended Hutchinson Business College where she received a degree in business administration in 1967. Gloria began her federal service immediately after graduating from college with the Central Intelligence Agency. After returning to Kansas, she held administrative assistant positions at the U.S. Postal Service, McConnell Air Force Base and Federal Aviation Administration in Wichita. In 1968 she married her husband of 46 years, Robert Dill. Then in 1975, she took a break from federal service to raise her two children - Ryan and Brad. She returned to federal service in 1989 where she worked at the Internal Revenue Service before beginning her long-term service at WFO Wichita.

"We"ll Miss you Gloria Enjoy Retirement!."

Mrs. Dill was a beloved member of the staff, and we will miss her kind nature, willingness to help with activities, and always bringing treats to keep us fed. Mrs. Dill and her husband plan to continue participating in their many volunteer activities, travel and spend time with their children, grandchildren and other family.

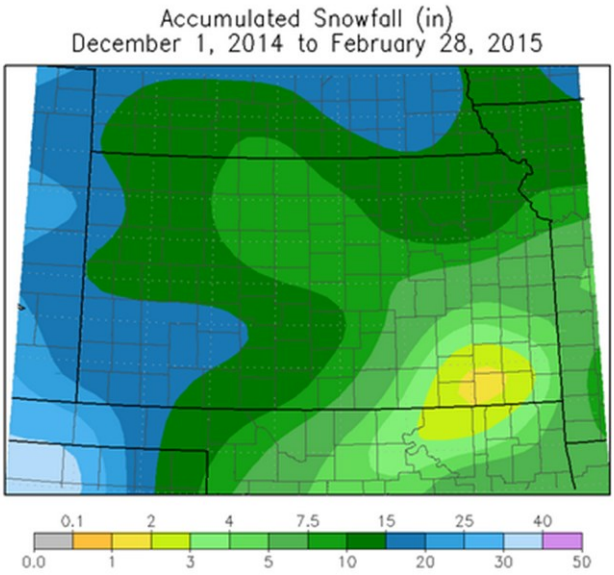
The whole NWS Staff wishes Gloria a happy retirement!

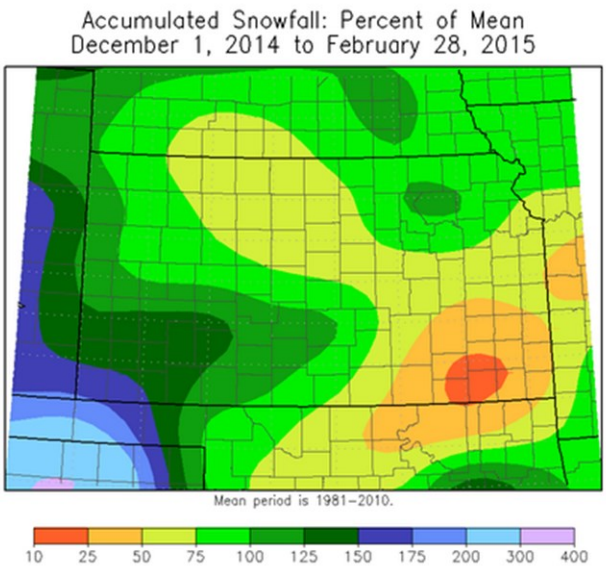
Winter 2014-2015 Recap

By: Andy Kleinsasser & Eric Schminke

Like most winters across mid-America, Kansan's experienced wide temperature fluctuations from month-to-month during the winter of 2014-15.

Even though meteorological winter runs from 1 December to 28 February the atmosphere jumped the gun by about 3 weeks when the first blast of Arctic arrived with a vengeance. On 10 November, Kansas basked in temperatures that reached the 70s which changed in a hurry as a powerful cold front plowed southeast across the state. The customary south/southwest winds abruptly shifted to the north/northwest and really hit the throttle as sustained speeds from 30 to 40 mph roared into the state with gusts that reached around 50 mph. By the morning of 11 November, temperatures had tumbled to around 20 degrees, but with gusty north winds that followed the front, Kansans were stung by wind chills in the single digits. This first arctic air mass gripped the neighborhood for 9 days. It was on the 18th that temperatures hit the trench as single digit lows gripped the region. Through this period temperatures were 20 to 25 degrees below normal. However, as November ended and meteorological winter began temperatures began to warm up.





Left: Climatological winter accumulated snowfall across Kansas

Right: Climatological winter accumulated snowfall percent of normal

A non-typical air mass ruled through December as an above normal high pressure center in the mid-levels of the atmosphere across the northern half of North America resulted in a warmer than average month across essentially the entire country including the Kansas region. The statewide average temperature for the month was 34.6 degrees, 3.1 degrees warmer than normal, and the 30th warmest December since 1895. Precipitation was generally above normal statewide with above normal snowfall experienced over central and especially northwest Kansas. One oddity for the month was the occurrence of an EF0 tornado that touched down just outside of Harper, KS and moved to the north for about 5 miles causing damage to trees and a deer stand. Tornadoes in December are a rare occurrence, and the warmer temperatures provided the opportunity for Mother Nature to cause a little bit of non-traditional havoc in the heartland.

The bottom then dropped out temperature-wise from the last few days of December through about mid-January as a broad area of low pressure deepened over the eastern half of North America. This allowed arctic air bottled up over northern Canada to plunge south across mid-America with temperatures 20 degrees below normal impacting Kansas. On four occasions, low temperatures plunged to between zero and 5 above in many areas; however, parts of central Kansas dove beneath the zero mark with lows as cold as 5 below towards the end of the first week of January. The various artic plunges of air produced wintry precipitation that impacted the area with multiple periods of light snow accumulations and wintry mixes. However, the eastern North American low eventually weakened and moved northeast resulting in well above normal temperatures at times for much of the second half of January. Precipitation was sparse for much of the Sunflower State in January, although portions of central and especially southwest Kansas ended the month with near to above normal precipitation/ snowfall.

Be sure to find

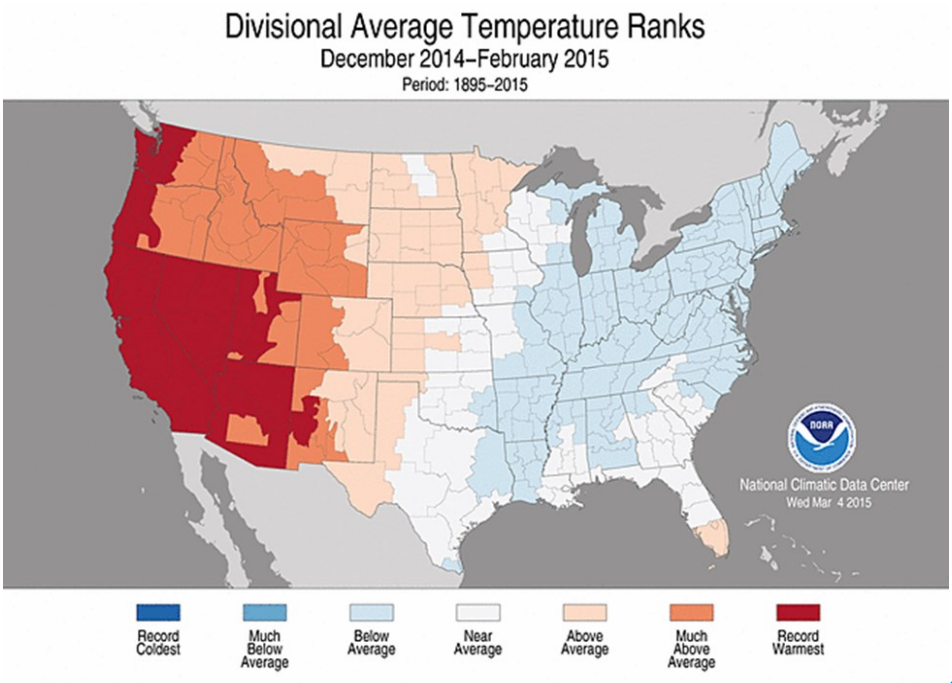
US National Weather Service Wichita Kansas

on Twitter at @NWSWichita

Also be sure to check if your county Emergency Manager has a Twitter account for the county.

With the exception of a few days the first half of the month, February temperatures dropped back below normal, especially over the eastern half of Kansas, as an eastern North American low pressure system deepened once again sending several shots of bitter arctic air southward across mid-America. Much of eastern Kansas ended the month roughly 3 to 6 degrees colder than normal, ranking close to the top 20 coldest February's since 1895. February ended with a flurry of activity when it handed off the baton to March with snow accumulations ranging from 2 to 5 inches. Monthly precipitation was generally near to below normal although portions of northeast and southwest Kansas experienced above normal snowfall.

Although there was no meteorological madness in March, the month did have a very chilly start with most temperatures between 15 and 20 degrees below normal for much of the first week. For the rest of March, the atmosphere behaved with above normal temperatures. In fact in mid-March, the neighborhood received an early taste of summer when temperatures soared into the upper80s and low 90s in most areas. This brought a winter marked by several arctic outbreaks to an end. Even with all of the arctic outbreaks, there were enough warm periods that kept the overall average temperature of the winter season near normal for most of the area.



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on facebook

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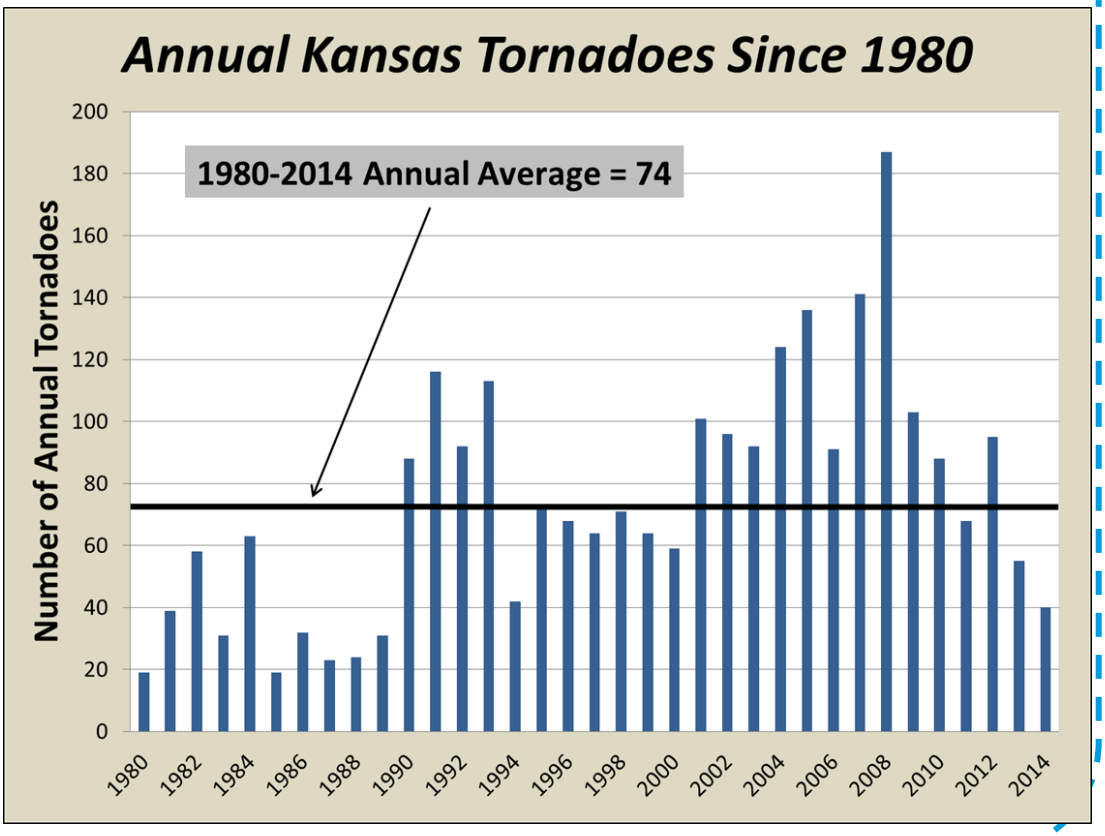
Lowest Number of Kansas Tornadoes Since 1989

By: Andy Kleinsasser — Meteorologist

Only 40 tornadoes occurred across the Sunflower State in 2014 which is about 34 below the 1980-2014 annual Kansas average and the lowest annual total since 1989 when only 31 tornadoes affected the state. The most Kansas tornadoes since 1980 occurred in 2008 when a whopping 187 twisters ravaged the state. The years with the fewest are 1980 and 1985 when only 19 known tornadoes occurred.

Additionally, only 20 tornado watches were issued across all or portions of Kansas in 2014. While this may seem like quite a few, it's only about one-half of the 1970-2014 Kansas average of 40 tornado watches per year and tied with 2012 for the 4th fewest since 1970. The fewest annual number of Kansas tornado watches is 14 in 1988, and the greatest is 96 in 1996. Furthermore, the 3-year period from 2012-2014 recorded only 58 total tornado watches across the state which is second to 1987-1989 when only 50 tornado watches were issued.

Finally, Sedgwick County (where Wichita is located) was never included in a tornado watch in 2014; the only time this has occurred on record (watch records date back to 1970). Second place is 1988 when Sedgwick County was included once. In 1973, it was included 22 times which is the highest on record for the county. Sedgwick County on average is included in a tornado watch about 9-10 times each year.



25 Year Anniversary
The Tornadic Outbreak of March 13th, 1990

March 13, 1990 will be remembered by many people in south central Kansas as one of the most prolific tornado outbreaks in history that occurred during the month of March. Even by south central Kansas standards, March tornadoes typically aren't as strong as those that occur from late April until mid-June. This outbreak ended a 25 year drought of F5 tornadoes for Kansas and occurred near the beginning of what we now call "storm chasing." At the time, only a few individuals traversed the countryside in an effort to experience the awe inspiring sights and sounds of a tornado producing supercell. Up to this point, it was alluded that this event may very well have been the most photographed and documented storm in history. Could this outbreak have been the one that sparked the new hobby of storm chasing and ignited the scientific community to begin field research to understand the micro-scale environment that produces such weather? Maybe so.

F#	Location	County	Time (UTC)	Path length
F1	NW of Jetmore	Hodgeman	0836	1 mile (1.6 km)
F5	Castleton to Hesston	Reno, Harvey, McPherson	2234	48 miles (77 km)
F1	E of Thornburg	Smith	2248	13 miles (21 km)
F1	NE of Esbon	Jewell	2300	1.5 miles (2.4 km)
F5	Goessel to NE of Hillsboro	Harvey, McPherson, Marion	2330	22.0 miles (35.4 km)
F0	SW of Portland	Sumner	0004	0.1 miles (160 m)
F0	N of Conway Springs	Sumner	0012	0.1 miles (160 m)
F2	W of Pilsen to NW of Volland	Marion, Morris, Geary, Wabaunsee	0015	55 miles (89 km)
F1	SW of Webber	Jewell	0020	5 miles (8.0 km)
F1	S of Danville	Harper	0035	12 miles (19 km)
F1	E of Randall	Jewell, Cloud, Republic	0045	13 miles (21 km)
F3	W of Moundridge	Reno, Harvey, McPherson	0055	18 miles (29 km)
F2	W of Belleville	Republic	0100	15 miles (24 km)
F0	S of Belleville	Republic	0116	0.5 miles (0.80 km)
F0	Salina	Saline	0150	0.2 miles (320 m)
F1	E of Wamego	Pottawatomie	0203	2 miles (3.2 km)
F0	S of Concordia	Cloud	0240	0.2 miles (320 m)
F1	S of Chetopa	Labette	0645	2 miles (3.2 km)

With this outbreak of 18 tornadoes came the now infamous "Hesston Tornado." The tornado began south of Castleton in Reno County and moved northeast across Harvey County before merging with a second tornado near Goessel in Marion County. Between the 2 tornadoes, there were 2 fatalities, 60 injuries, 226 homes damaged, and 21 businesses damaged.

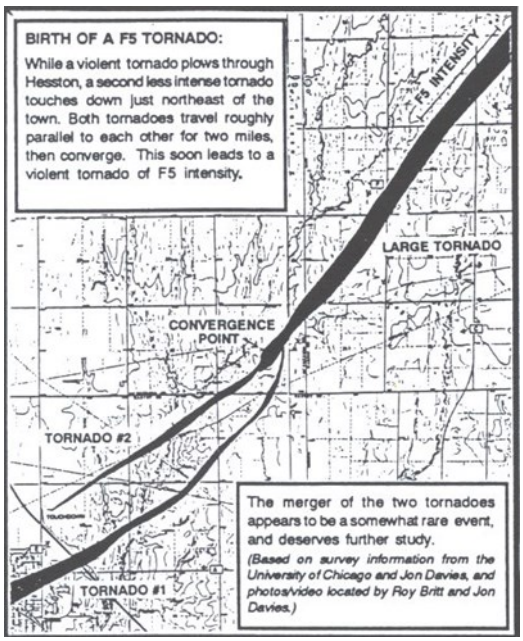
Many interesting stories and tales of survival have been relayed over the years. Below is an excerpt from Keven Darmofal, storm chaser at the time and current NWS employee.

> "Having only chased a few times since graduating a couple years before, we were relative novices back then and had yet to witness a tornado on a chase. We had to

gas up the car and get some film on the way out of town, and even then we only had 24 exposures in each 35mm camera. Little did we know of the monster tornado to come that afternoon and to rephrase a famous quote from the movie Jaws, 'we were gonna need a bigger camera.'

Photo by Kevin Darmofal:

We headed up K-96 toward Hutchinson as a storm was already developing to the west of Wichita (in Kingman County). It was about 4 pm when we arrived at a gas station in South Hutchinson and called WeatherData to see what was going on with the storm developing to our southwest. I recall that Mike Smith was looking at the 74C radar, and relayed that the storm was quickly becoming a supercell and developing a hook. Since it was really the only storm in the area at the time, we decided to head south of town on K-17. As we approached just northeast of Castleton, we began to get into a little bit of light rain and small hail. We could see the lowering and developing wall cloud to our southwest, probably 8-10 miles away, and decided to pull off on the dirt road to Castleton. It was soon after we pulled off about 200 yards west of K-17 that we experienced a brief period of nickel to golf ball sized hail. After the hail ended, it was only a matter of minutes before we saw the funnel cloud and a small tornado tail touch down (probably near Pretty Prairie). This being our first tornado, we were quite mesmerized and began snapping pictures. A woman came out the front door from the house behind us on the road to ask if we needed to take shelter. We declined thinking the storm would miss us to the south and told her to call in a report of a tornado. This was before the days of cell phones and was really the only way of relaying what we saw. It was not much longer that a sheriff's patrol car also pulled off the road where we were along K-17. From a chase perspective, we were not in a very good location (just north of the approaching storm), and as the storm grew closer and bigger in size, we did contemplate moving from our location but instead stayed fixed on the approaching tornado. In our awe and amazement of this tornado, we used up much of our 24 exposures in the first few minutes of the tornadoes life. However, the last several photos are quite impressive, as the large tornado passed just south and east of our location. It was approximately 430 pm when the last few pictures were snapped and the tornado moved off to our northeast."



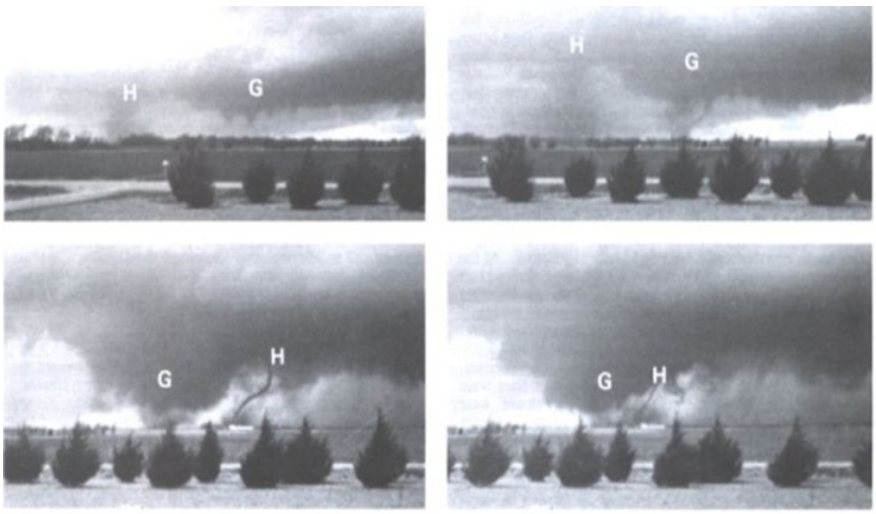


Figure 282. March 13, 1990 between Hesston and Goessel, KS
The merging of two tornadoes was captured on film for the first time, as the rope stage of the Hesston tornado (H) was absorbed into the circulation of the Goessel tornado (G). This situation produces a continuous tornadic damage track, despite the involvement of two distinctly individual tornadoes. Credit: Mrs. Nancy Franzen.

Another perspective from Randy Steadham, NWS employee at the time, the day following the devastating tornado outbreak.

> "We talked with people along the way. One man spoke of an eighteen wheeler that had apparently vanished from existence. That is, the engine or frame hadn't been located. One man held his arms widely up to the southwest. He, as I basically recall, said, —Coming over that hill the storm was so wide that it didn't look like a twister.
>
> We eventually arrived at the western outskirts of Hesston. I saw the horrendous reality associated with yesterday's image of a storm on a cathode-ray tube. Looking east into the remains of Hesston, I remember thinking —the hook echo seemed so sterile and benign while all this was happening. There were few vertical obstructions down the wide swath the tornado took through the town. Objects were often unidentifiable. The bare stump remains of a once large old tree contained a remarkably twisted car or truck frame. What stands out most in my memory of the Hesston tornado is the small death toll. What I dreadfully remember is two people did die. One young boy went with his family to the basement only to have the chimney fall in on him. A lady perished near Goessel. It was said she may have not been attentive to the weather. She may have been despondent after visiting her ill husband at a nearby hospital."

Congratulations are Due…

Observation Program Leader:

In July of 2014 the Wichita National Weather Service Office hired a new Observation Program Leader, Scott Smith. Scott oversees the Cooperative Observer Network and data acquisition program. Scott was promoted from a Meteorologist Intern position and before that was in the Air Force. He continues to help out in day to day forecast functions as well as managing the Observation Program. Congratulations Scott!

New Electronic System Analyst:

In September of 2014 the Wichita National Weather Service Office hired a new Electronic System Analyst, Richard (Rich) Fallin. Rich helps keep the various electronic systems, instrument systems, radar and the NWS computer systems running. He also manages a team of Electronic Technicians that support him and the whole of NWS Wichita to keep us up and running each day! Congratulations Rich!

Wichita, KS - Reporting Hotline

Report to @NWSWichita

Report

Time of Event
Event Type
Location of the Storm
Location of Yourself

www.weather.gov/wichita

Example: "I saw a tornado at 4:43pm approximately 2 miles south of my location, which is 4 miles NW of Winfield."

Hail Sizes

0.75"	Penny
1.00"	Quarter
1.25"	Half Dollar
1.75"	Golf Ball
2.50"	Tennis Ball
2.75"	Baseball
4.00"	Grapefruit
4.50"	Softball

Tornadoes
Damaging Winds
Wall Cloud
Funnel Cloud
Hail
Flooding
Snow Totals
Ice Accumulation

Wind Reports

> 58 MPH	Twigs & small limbs break off
58-72 MPH	Shingles damaged & large limbs broken
73-112 MPH	Roof damage, windows break, & trees uprooted
113+ MPH	Roofs torn off & trailer homes destroyed

2014 Cooperative Observer Awards

The following cooperative observers were presented Length of Service Awards in 2014. We would like to thank and congratulate our observers for volunteering their time in providing us with the climatic data which is published by the National Climatic Data Center on a monthly basis and made available to the private, public, and government entities. Their dedication to service is greatly appreciated!

Observer	Station	Years
Bob Frazee	Arkansas City	10
Larry Jones	Barnard 7W	10
Mark Helwig	Altamont	10
Kenneth Becker	Sylvan Grove 1NE	10
Jerrold Houlden	Corbin 3W	15
Ron Jerrick	Belle Plaine 4W & River	15
Joe Bruce	Atlanta	15
Johnny Redford	Cambridge	15
Jerald Steiner	Claflin	20
Peggy Bewley	Thrall 4S	25
Linda Noakes	Erie 1N	30
Beverly Ditty	Virgil	35
Clifford Jordan	Great Bend	35
Edwin Andres	Elbing	45
City of Wichita (Institutional Award)	Cheney 5 N	50
US Corps of Engineers (Institutional Award)	Wilson Lake	50

Special Award:

Darla Sue Loyd of Sedan was also recognized with the John Campanius Holm Award for Outstanding Service to the National Weather Service. This award is only honored to 25 cooperative observers nationwide, and the Wichita NWS is proud that Darla Sue was the proud recipient of the award in 2014. Congratulations!

A Severe Thunderstorm Warning has been issued, Do I really need to pay attention?

The damaging straight line wind event that occurred on the 2nd and 3rd of April highlighted a very important issue in regards to seeking refuge. Three manufactured homes were completely destroyed due to straight line winds from a microburst. Fortunately, those involved survived and did not have significant injuries. Most people understand the need to seek shelter if they are included in the path of a tornado warning. Whether or not they choose to seek shelter is up to them and demonstrates if they take personal responsibility seriously.

Unfortunately, most people do not understand the need to seek shelter when hurricane force, straight line winds are forecasted/warned to impact them. Just because these winds are not spinning (tornadic) doesn't mean that it is any less potent. Some squall lines have the potential to produce wind gusts up to 125 mph (the same as an EF2 tornado); however, most remain less than 75 mph (EF0 tornado). The heightened risk is why people should remain vigilant even during a severe thunderstorm warning. The current minimum wind speed for a severe thunderstorm warning is 58 mph. Now, do we expect you to always run for the basement during a severe thunderstorm warning, no we do not. However, we do want you to pay close attention to the wind speed that is being forecasted or observed within the warning.

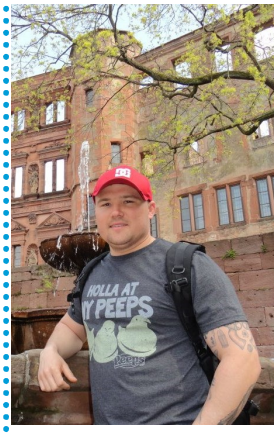
For example;

If we issue a warning for 58 to 75 mph winds, you may just want to move away from exterior windows and towards the center of your home or business. If stronger winds than 75 mph are being observed or forecast, a person in a manufactured home or weakly built structure should treat the severe thunderstorm warning similar

to a tornado warning and immediately enact their tornado safety plan. Those in better constructed buildings should definitely move to the center of the structure away from all windows. Lastly, if we are forecasting or observed winds are expected to exceed 100 mph, everyone should treat the severe thunderstorm warning just like a tornado warning and enact your tornado safety plan. Wind is wind; does it really matter if it is going in a circular pattern vs. a straight line? No it does not. You can find out the wind speeds expected within the storm from the NWS warnings and statements, NOAA Weather Radio, television, commercial radio, internet, etc.

In summary, if you are in a severe thunderstorm warning please pay attention to the expected wind speeds and act accordingly. The higher the winds are forecast or observed, the closer to the center of your structure you need to be or in a tornado shelter if they are expected to be over 100 mph.

Josh Johnson: Wichita's Newest Electronic Technician



Welcome Josh!

Josh Johnson is the newest electronics technician to arrive at the Wichita National Weather Service Office.

Josh was born and raised outside of Tulsa, OK. He spent 10 years in the Air Force specializing in Air Traffic Control and Weather Radars. During his time in the Air Force Josh was deployed to Iraq, Afghanistan, and Africa. He also did a short tour in Turkey and a longer tour in Germany. During his last year before joining the NWS as a civilian, he worked at the Radar Operations Center in Norman OK providing service to NWS field meteorologists.

In his free time, Josh enjoys fishing, watching sports and spending time with his friends. He grew up in a smaller town and is happy to be back in the Midwest.

National Weather Service

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"The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information, database and infrastructure which can be used by other government agencies, the private sector, the public, and the global community."

Online: www. weather.gov/Wichita

Kansas Weather Facts

- Highest Temperature in Kansas:

  Answer: **121 degrees;** Alton, KS (7/24/1936) &

  Fredonia, KS (7/18/1936)
- Lowest Temperature in Kansas:

  Answer: **-40 degrees**; Lebanon, KS (2/13/1905)
- Most rainfall in 24 hours in Kansas:

  Answer: **12.59 inches**; Burlington, KS (5/31-6/1/1941)
- Highest precipitation total in one year in Kansas:

  Answer: **71.99 inches**; Hiawatha, KS (1973)
- Least amount of precipitation total in one year in Kansas:

  Answer: **4.77 inches**; Johnson, KS (1956)
- Record snowfall in 24 hours in Kansas:

  Answer: **30 inches**; Pratt, KS (3/27-28/2009)
- Record snowfall in a season in Kansas: