2014 KANSAS

SEVERE WEATHER AWARENESS WEEK

MARCH 3 - 7, 2014

TORNADO SAFETY DRILL
TUESDAY, MARCH 4th

1:30 PM CST

INFORMATION PACKET

National Weather Service

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2013 Kansas Tornado Facts

Tornadoes: **56** (5 below the 1950-2013 average of 61)
(25 below the past 30 year average of 81)
(53 below the past 10 year average of 109)

Fatalities: **0** **Injuries**: **1**

Longest track: **9.0 miles** (Lyon County, May 19, EF1)

Strongest: **EF4** (Pawnee County, May 18)

Most in a county: **4** (Ellis, Kearny, Sumner Counties)

Tornado days: **15** (Days with 1 or more tornadoes)

Most in one day: **12** (May 19)

Most in one month: **45** (May)

First tornado of the year: **April 7** (Russell County, 6:38 pm CST, EF0 0.48 mile length, 50 yard width)

Last tornado of the year: **August 13** (Lane County, 11:15am CDT, EF0 0.04 mile length, 25 yard width)

Length of tornado season: **128 days** (Days between first and last tornado)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
EF5	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
EF4	0	0	0	0	1	0	0	0	0	0	0	0	1	1%
EF3	0	0	0	0	3	0	0	0	0	0	0	0	3	6%
EF2	0	0	0	0	1	0	0	0	0	0	0	0	1	6%
EF1	0	0	0	0	8	1	1	0	0	0	0	0	10	27%
EF0	0	0	0	1	32	2	3	3	0	0	0	0	41	60%
Total	0	0	0	0	45	3	4	3	0	0	0	0	56	100%
Percent	0		0	0	80	5	7	5	0	0	0	0		

Violent (EF4—EF5) in red, Strong (EF2-EF3) in yellow, Weak (EF0-EF1) in green. Monthly totals in gray.
(Monthly percent values do not add to 100% due to rounding)

Annual Highlights: In terms of tornado count, 2013 was the quietest season since 1994 (42 tornadoes were reported that year). In 1976, only 14 tornadoes were reported, the fewest on record.

Last year's tornado season lasted 128 days, ranking it as the 7th shortest season. In fact, 41 of the 56 tornadoes (73%) occurred during an 11-day stretch in mid-to late May. The shortest season occurred in 1962 when the first tornado didn't occur until May 16th, with the final tornado on August 6th.

Fortunately, only five strong/violent tornadoes occurred in the state in 2013, compared to 13 in 2012 and 25 in 2008. The only injury reported last year was associated with an EF3 tornado which tracked from Smith County into Jewell County on May 27th. This large tornado produced $1.8 million in property damage and $3.5 million in crop damage along its 6 mile path. In contrast, 39 of the 56 tornadoes (70%) occurring last year had path lengths shorter than one mile with 30 (53%) having path lengths shorter than 1/2 mile.

KANSAS TORNADO STATISTICS

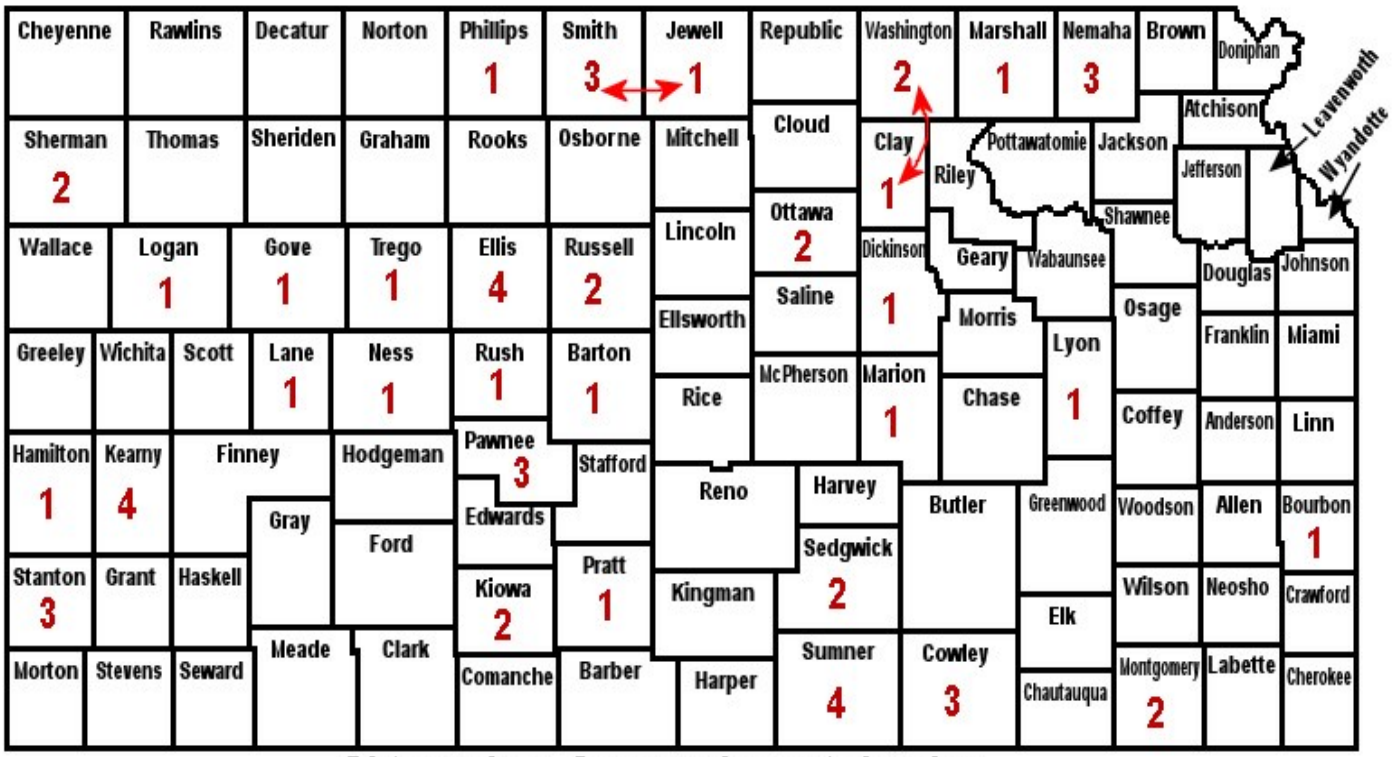
by County

1950 - 2013

TORNADOES, FATALITIES, AND INJURIES

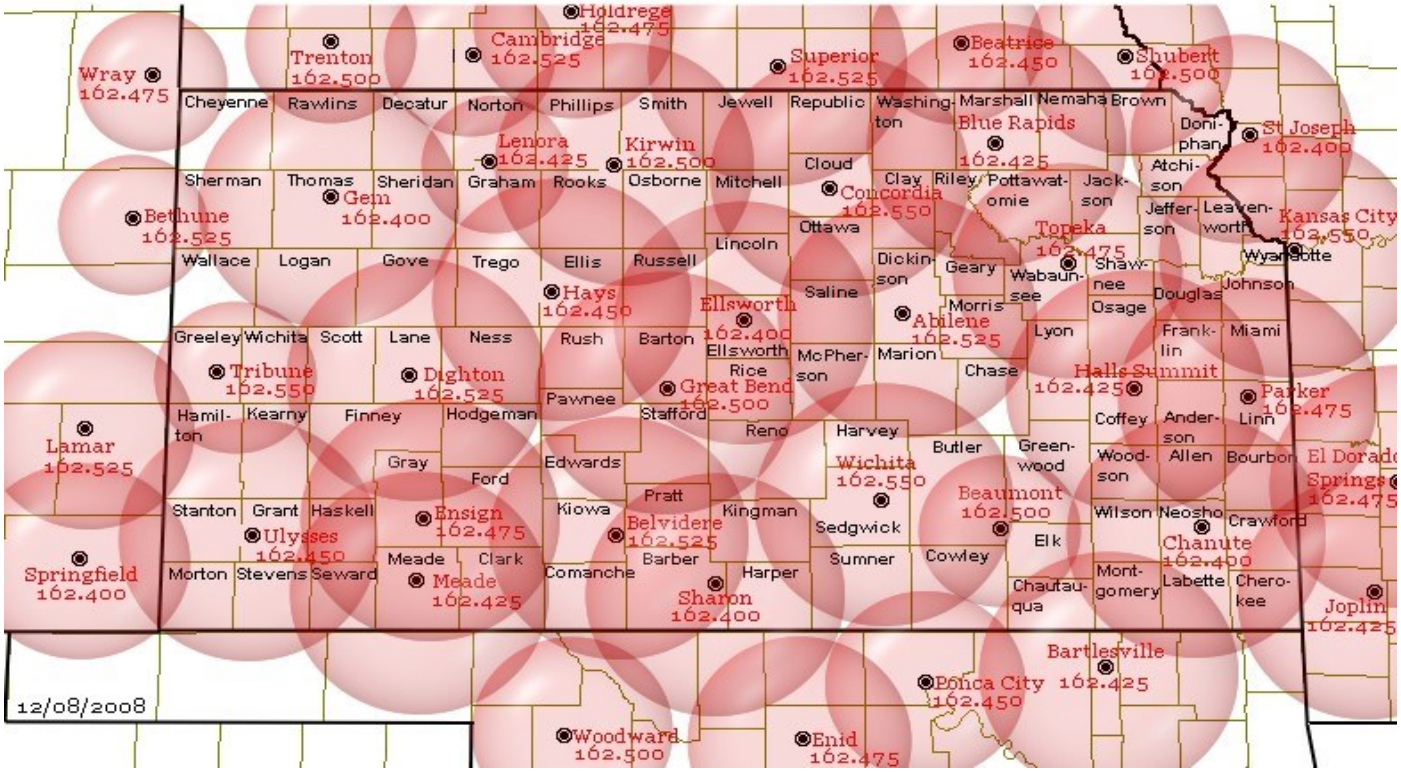
County	Tor	Fat	Inj
Allen	27	0	4
Anderson	15	3	12
Atchison	15	0	11
Barber	33	0	2
Barton	95	2	38
Bourbon	18	0	7
Brown	43	0	5
Butler	77	28	225
Chase	38	0	2
Chautauqua	17	0	0
Cherokee	35	4	41
Cheyenne	39	0	0
Clark	39	0	0
Clay	38	1	31
Cloud	47	1	8
Coffey	23	0	5
Comanche	38	0	2
Cowley	68	77	293
Crawford	33	4	43
Decatur	45	0	5
Dickinson	37	1	12
Doniphan	19	0	2
Douglas	39	1	48
Edwards	46	0	7
Elk	24	2	8
Ellis	57	0	6
Ellsworth	49	0	0
Finney	88	1	41
Ford	82	0	0
Franklin	29	3	34
Geary	17	0	3
Gove	47	0	3
Graham	38	0	0
Grant	24	0	9
Gray	39	0	3
Greeley	33	0	0
Greenwood	40	0	10
Hamilton	22	0	1
Harper	60	0	1
Harvey	47	1	63
Haskell	29	0	10
Hodgeman	46	0	4
Jackson	30	4	17
Jefferson	40	0	101
Jewell	38	0	1
Johnson	40	0	12
Kearny	38	0	0
Kingman	62	0	1
Kiowa	57	11	74
Labette	35	1	29
Lane	33	0	2
Leavenworth	30	2	30
Lincoln	31	0	2
Linn	13	0	3
Logan	25	0	0
Lyon	45	7	222
Marion	47	1	2
Marshall	32	0	1
McPherson	51	1	16
Meade	44	0	0
Miami	19	4	9
Mitchell	47	0	5
Montgomery	33	1	1
Morris	31	0	7
Morton	18	1	2
Nemaha	36	0	1
Neosho	31	0	4
Ness	45	0	4
Norton	27	0	0
Osage	43	17	6
Osborne	41	0	13
Ottawa	27	2	9
Pawnee	49	0	1
Phillips	41	0	1
Pottawatomie	31	1	5
Pratt	69	3	10
Rawlins	46	0	4
Reno	77	0	22
Republic	50	0	1
Rice	43	0	6
Riley	27	0	51
Rooks	48	0	6
Rush	49	0	8
Russell	76	1	7
Saline	38	0	66
Scott	44	1	1
Sedgwick	86	13	359
Seward	34	0	15
Shawnee	49	18	528
Sheridan	38	0	0
Sherman	103	0	0
Smith	43	0	2
Stafford	69	3	5
Stanton	22	0	0
Stevens	24	1	5
Sumner	83	5	14
Thomas	44	0	1
Trego	59	5	101
Wabaunsee	32	1	26
Wallace	35	0	4
Washington	36	2	12
Wichita	25	0	4
Wilson	15	0	0
Woodson	12	0	8
Wyandotte	10	2	36
Total	**4291**	**237**	**2882**

Kansas Tornadoes 2013



56 tornadoes, 2 crossed county borders

Kansas Area NOAA All-Hazards Weather Radio Stations



Check out a Storm Spotter and Weather Safety Training presentation near you this spring…

Each spring, the National Weather Service offices that serve the state of Kansas conduct storm spotter and weather safety training sessions in most counties in the state. The sessions are free and open to the public. You are not required to become a storm spotter nor will you have to take a test; however the presentations provide a great deal of information on severe weather in Kansas. They cover severe weather safety, ways to get weather information from the National Weather Service, and you can meet a meteorologist from your local National Weather Service office.

The schedule for storm spotter training sessions varies in each community, please check out www.weather.gov and click on your location for more information on a training session in your area.

Did you know that there are seven National Weather Service offices that serve portions of Kansas?

The NWS offices are located in Goodland; Dodge City; Wichita; Topeka; Hastings, Nebraska; Pleasant Hill, Missouri; and Springfield, Missouri. Each office is staffed by a team of highly trained meteorologists, technicians, electronics technicians, information technology specialists, hydrologists, and administrative assistants. The NWS offices are staffed 24 hours a day, seven days a week, 365 days a year.

Contact the NWS office in your area to learn more about weather, weather safety, NOAA Weather Radio, for office tours, or to learn more about careers in meteorology in the NWS or in NOAA. We are here to serve you!

Kansas Tornado Facts

Days with more than 20 tornadoes

Date	#Tornadoes
05/23/08	70
04/14/12	43
06/15/92	39
05/05/07	36
06/04/55	33
05/29/04	28
10/26/06	28
05/25/97	25
06/09/05	25
05/15/91	24
07/07/04	23
04/26/91	21
06/15/09	21

Kansas Tornado Count By Decade

1950s: 560
1960s: 457
1970s: 303
1980s: 339
1990s: 789
2000s: 1192
2010s: 306 (through 2013)

Most Tornadoes in One Episode

May 23, 2008	70 Tornadoes
April 14, 2012	43 Tornadoes
June 15-16, 1992	41 Tornadoes

2013 Severe Weather Summary
Extreme East Central and Northeast Kansas
National Weather Service Pleasant Hill, MO

2013 proved to be another extraordinarily quiet year for severe weather. However winter weather was quite active in the first half of the year which set the stage for the drought to ease by mid-year.

The most notable hazardous weather began in February as a series of winter storms buffeted the region. On February 21 up to 14 inches of snow was measured in Leavenworth County with amounts tapering to 8 inches to the south in Linn County and 6 inches further north in Doniphan County. The snow came down so heavy at times that thunder-snow was reported, and the white stuff accumulated at a rate of up to 3 inches an hour.

This system was followed very quickly by another system less than a week later from February 25th through the 27th. Snowfall amounts were less with this system, generally from 7 to 10 inches, but the snow was wetter and heavier than before causing numerous power outages. Yet another winter system produced snowfall amounts of 6-10 inches on March 23rd and 24th.

By May, much to the chagrin of many, winter flexed its muscle one last time producing an unusually late snowfall of a few inches on May 2nd and 3rd. Although May began with winter, it ended with spring. By the end of the month, periodic severe thunderstorms returned bringing quarter sized hail and damaging straight-line winds to a few locations. During the last few months of May, minor flash flooding accompanied the thunderstorms in Doniphan, Linn, and Johnson counties.

The biggest positive impact from the active winter storm track was to alleviate drought conditions across eastern Kansas by May. By midsummer, despite limited severe weather, rainfall was plentiful enough to combine with earlier snowfalls to completely alleviate the drought across eastern Kansas.

The remainder of the 2013 proved to be quite unremarkable as mostly sporadic, marginally severe thunderstorms affected the region from August through November before two minor winter storms struck in late December.

Be sure to find your local NWS office on facebook

US National Weather Service Dodge City, Kansas
US National Weather Service Goodland, Kansas
US National Weather Service Hastings, Nebraska
US National Weather Service Kansas City, Missouri
US National Weather Service Springfield, Missouri
US National Weather Service Topeka, Kansas
US National Weather Service Wichita, Kansas

Also be sure to check if your county Emergency Manager has a facebook page for your county.

2013 Severe Weather Summary
Northeast and North Central Kansas
National Weather Service-Topeka, KS

The 2013 severe weather season across northeast Kansas was characterized by long quiet stretches interrupted by occasional episodes of severe storms. The severe storm season got off to a delayed start due to a record cold early Spring with snow falling in March, April and even in May across the area! The highlight of the severe weather season for northeast Kansas was the week of May 27th-31st when six tornadoes struck the area including two strong EF3 tornadoes. However for the second straight year there were no tornadoes across northeast Kansas in June which is notable since the climatological peak for tornadoes across northeast Kansas is the first two weeks of June. 2013 saw a total of 10 tornadoes across northeast Kansas, including three EF0, four EF1, one EF2 and two EF3 tornadoes.

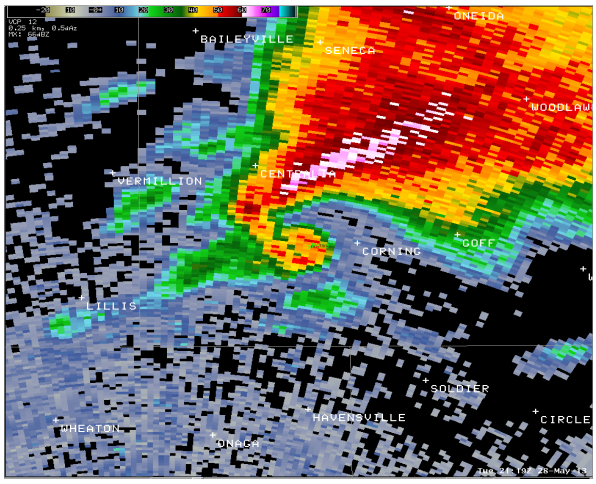
April 9 - A Wild Storm Brings Rare Weather Combinations- A wild storm system brought a variety of weather types rarely seen in a single day, and even some strange weather combinations occurring at the same time!

Above: Ice accumulation in Dickinson County from severe thunderstorms that produced large hail and freezing rain! April 10th 2013 Photo courtesy of Chuck Moore

For instance:

- At one point, a winter weather advisory and severe thunderstorm watch were issued for the same areas at the same time.
- Slightly later in the evening, severe thunderstorm warnings were issued in the same area as the winter weather advisory.
- One particular strong thunderstorm in north central Kansas produced a combination of nickel size hail and heavy freezing rain as it travelled over ground level air that was only 30 degrees.
- At Concordia, the temperature fell from 64 degrees at 7 AM to 40 degrees at 2 PM as the cold front passed through.
- During the afternoon and evening, hail up to the size of golfballs fell from severe thunderstorms in Dickinson county. By sunrise on the next day, a quarter of an inch of freezing rain was clinging to the trees at the same location.
- Driving conditions became quite hazardous on the next morning across areas west of a Marysville to Manhattan to Council Grove line due to repeated rounds of freezing rain that eventually froze to the roadways.

This was surely a storm system to remember!



Above: A supercell with a hook echo and associated tornado approaching the community of Corning in Nemaha County Kansas. May 28th 2013

Above: A large tornado in Ottawa County Kansas. May 28th 2013 Photo courtesy of Dustin Globe

May 28th Nemaha County Tornadoes - Around 4 pm, isolated supercell thunderstorms developed across parts of northeast Kansas. One supercell developed over Nemaha County and quickly developed low level rotation and a tornado. The tornado touched down initially around 416 pm, four miles west of the small community of Corning. The tornado intensified rapidly and became large around 900 yards wide producing EF3 damage with winds to around 150 mph as it moved very slowly northeast. Thankfully, there were only a handful of homes in the path of the tornado and no serious injuries were reported as the tornado dissipated before ever reaching Corning. However two additional smaller tornadoes did develop from the same supercell storm. Each produced minor damage along their paths.

May 28th Ottawa County Tornadoes – A supercell thunderstorm developed across Ottawa County Kansas during the late afternoon on May 28th. This supercell gradually organized and a large tornado developed around 545pm CDT and proceeded to move slowly east for approximately two miles before turning back to the west and south toward highway 18. The tornado was lost in rain and was not visible after approximately 630 pm; however, mobile Doppler radar supplemental data indicates that this tornado likely persisted through around 645 pm CDT. This tornado was nearly one half mile wide at times, and a NWS damage survey found EF3 damage indicators suggesting winds to at least 150 mph. Two mobile Doppler radars were within 3-4 miles of this tornado and did measure winds at 100m (328 feet) well in excess of 166 mph. In fact, at one point during the tornado's life they measured winds of 247 mph at 100m! Nothing close to EF5 damage was revealed on the survey. Given the lack of damage indicators available within the track of the tornado we have incorporated the mobile Doppler wind data into our assessment of the tornado strength, and we believe that this could have been a violent tornado with winds in excess of 166 mph. Amazingly no serious injuries or fatalities were reported. However, there were approximately 100 head of cattle that were killed by the tornado. Additional photos and information regarding this tornado can be found at http://www.crh.noaa.gov/news/display_cmsstory.php?wfo=top&storyid=94990&source=2

2013 Severe Weather Summary
Portions of Central, South Central and Southeast Kansas
National Weather Service - Wichita, KS

Record-setting snowfall in February and severe thunderstorms with 90 to 100 mph winds highlight 2013

Weather wise, the year 2013 will most likely be remembered for a winter that ended with late season snowstorms and severe thunderstorms that tore through neighborhoods with winds that reached an incredible 100 mph.

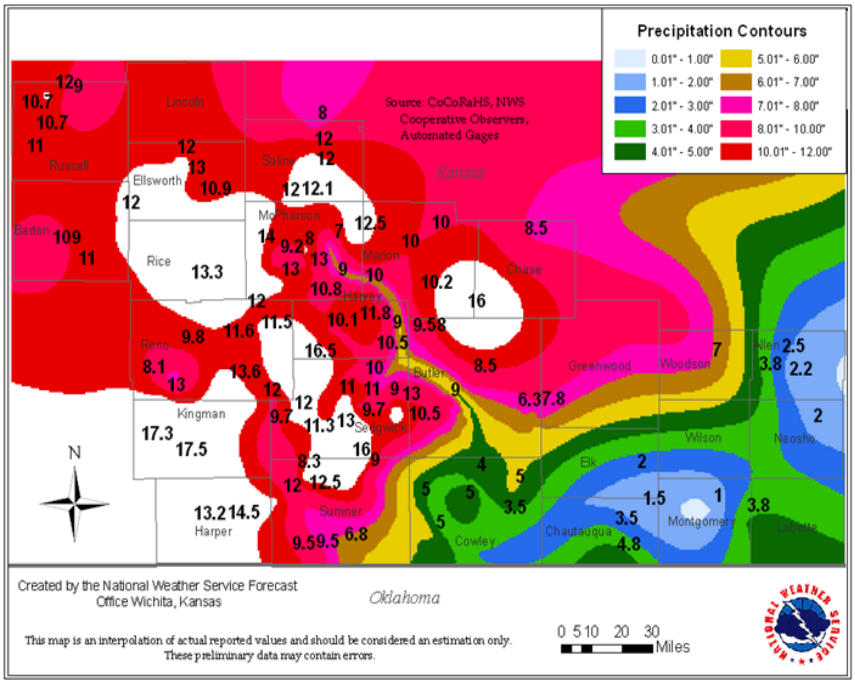
Winter 2012-2013 was quiet until February 20th, when old man winter was suddenly in the mood for some fun and games.

The morning of February 20th, the first of two historic snowstorms arrived. The snow began during the day and increased during the evening. Overnight thunder-snow occurred, greatly increasing the rate of snowfall.

By the next morning, February 21st, the heavy snow covered nearly all of central and south central Kansas with 12 to 15 inch accumulations. One exception was extreme southwest Kingman County which was buried under 17 to 18 inches. Travel was dangerous if not impossible. Even emergency vehicles were stuck while responding to calls. Meanwhile over southeast Kansas the event started as a mixture of sleet and freezing rain and ended as snow. A half inch of ice covered by 5 to 7 inches of snow covered southeast Kansas.

An astonishing 14.2 inches was measured at Mid-Continent Airport. This made the February 20th and 21st snowstorm the second greatest in Wichita's history. Of this total 6.2 inches occurred on the 20th and 8 inches on the 21st.

Storm Total Snowfall as of 7am February 20th-22nd, 2013



The second snowstorm hit the region between February 25th and 27th. While it didn't produce quite as much snow, it whipped the area with 25 to 40 mph winds that produced a blizzard in several areas. Around one foot of snow buried Harper and Kingman counties with 5 to 8 inches prevalent in much of the rest of south-central Kansas. The 6.8 inches measured at Mid-Continent Airport added to the 14.2 inches with the previous winter storm made 2013 Wichita's snowiest February on record. Not only did this total of 21 inches break the record for snow fall for the month of February, it broke the record

Snow Rollers in Anthony, KS on February 25th-26th.

for any month in Wichita's recorded history. The season snowfall total of 24.5 inches made 2012-2013 Wichita's 5th snowiest on record.

Tornadoes and severe storms track towards Wichita on May 19th

May was relatively quiet until May 19th when exceptionally powerful severe thunderstorms pummeled south central Kansas with hail as large as baseballs and several tornadoes. One tornado moved toward the National Weather Service forecast office when it veered slightly to the right and lifted about two miles south of the station. The EF-2 twister had a track 4.6 miles long and reached 1/2 mile wide.

Severe thunderstorms pack a nasty punch on June 27th

Picture of an anemometer that was broken in McPherson, KS. Picture courtesy of Jeremy Cate.

The greatest highlight in June, by far, was that of incredible severe thunderstorms that tore through central, south central, and southeast Kansas in the late afternoon and evening of the 27th. The exceptionally powerful thunderstorms were prolific damaging wind-producers, although early in the event, a few parts of central Kansas, Lincoln and Barton counties, were bombarded by hail as large as softballs.

The storms began across Lincoln and Barton counties with large hail and 80 mph winds. As the storms tracked south they became more powerful. Destructive 80 to 90 mph winds tore through McPherson for nearly 20 minutes! A 92-mph gust was measured when the anemometer snapped (image to the left)! Damage to trees was obviously widespread with power lines and power poles wiped out all across town.

The mayhem then spread across south central Kansas where 70 to 90 mph winds tore through many areas. Several trees were uprooted, a few of which were close to 20 feet tall with 1 to 3 foot diameter trunks. A 92-mph gust was measured at Mid-Continent Airport. It was the second highest gust ever recorded at Mid-Continent, exceeded only by the 101-mph wind gust that occurred on July 11th 1993. Several baggage carts were flipped over and a small Federal Express cargo plane was spun 180 degrees.

July 2013 a sharp contrast to its 2012 predecessor

In razor-sharp contrast to its 2012 predecessor during which the entire region sweltered in 110 to 112 degree heat for most of the month, July 2013 was invaded by incredibly severe thunderstorms that produced a

4 3/4" hail near Yoder, KS that fell on July 23rd, 2013.
Picture courtesy of KWCH viewer.

trifecta of extremely large hail, destructive winds, and torrential rains that caused significant flooding.

The most violent period occurred on the 23rd, when monstrous supercells with hail that reached the size of grapefruit, destructive winds that reached close to 100 mph and torrential rains.

Damage was obviously major and very widespread. Hundreds of trees were uprooted. Some fell onto houses and numerous power lines. The most serious roof damage occurred in Hutchinson where a car dealership lost a large section of roofing and in extreme southeast Kingman County where another building was unroofed completely.

The grapefruit-sized hail landed in Reno County, first in Hutchinson and then in Yoder, while 3-inch diameter hail pummeled part of Cheney Lake.

Drought dissolves, as heavy rains close out July and begin August

Just 3 days later, on July 26th, more thunderstorms visited the region along a slow-moving cold front that setup across Kansas. Over a 4-day period, from July 26th to the 29th, many areas were overwhelmed by 5 to 10 inch amounts. The totals for the month of July was an amazing 150 to 300% of normal. The monthly totals for most of Saline and northern McPherson counties were close to 350% of normal which is equivalent to 7.5 to 8 inches above normal! The 7.69 inches measured in Wichita made 2013 the air capital's 4th wettest July on record.

Wichita experienced 9th wettest year on record

In razor-sharp contrast to the summer of 2012 during which exceptional drought plagued the region, the 2013 edition was the exact opposite as prolonged, very heavy rains soaked the region in July and August.

Gypsum Creek looking south toward the K-4/ Gypsum Valley Road intersection. Photo taken at 7:45 AM on July 30, 2013 by Lyman Bearden.

No doubt, the sensational, historic February snowfall played a major role in enabling 2013 to become Wichita's 9th wettest on record, but the greatest contributor to this year's hefty precipitation total was a sopping wet summer during which an amazing 18.32 inches of rain soaked the air capital in July and August.

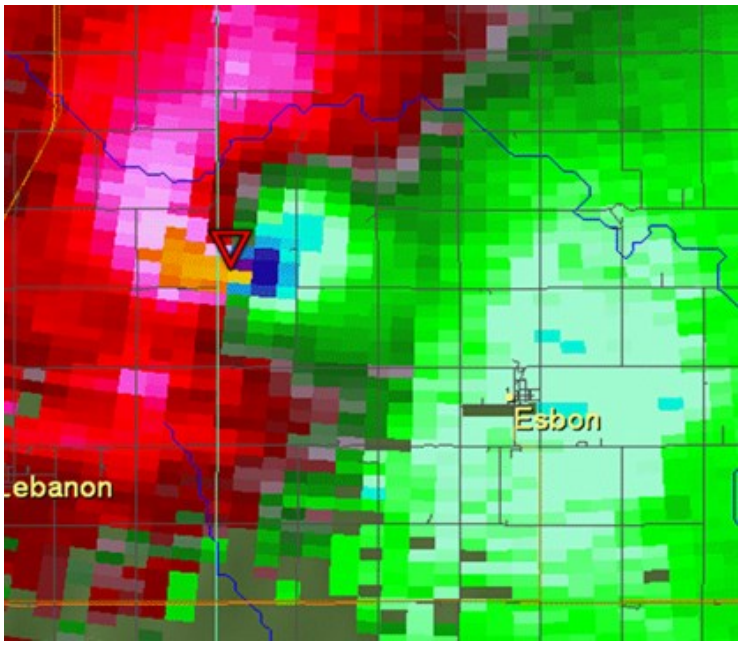
In August, a tremendous 10.63 inches swamped the air capital. This not only made 2013 the 2nd wettest August on record but the 10th wettest month ever as well as only one of 15 months to overrun the 10-inch barrier. The August rainfall record holder is 2005 when 11.96 inches inundated the city.

2013 Severe Weather Summary
North Central Kansas
National Weather Service - Hastings, NE

The cold spring helped keep early season severe weather at bay across north central Kansas. Only two events occurred in April. The first was April 7, when severe thunderstorms dropped ping pong ball size hail, which measured six inches deep, in Rooks County southwest of Plainville. High winds also tore a car port apart near Lebanon in Smith County. A second, less widespread event, occurred on April 22, during which nickel to quarter size hail fell across Rooks and Phillips counties.

May is normally the most active month for severe weather in north central Kansas, and in 2013, the last half of the month had plenty of severe weather "action". On the 19th, 60-75 mph winds downed trees and caused minor damage from the Osborne area, through Glen Elder and into the Beloit area. High winds were also reported in Smith Center on the 26th with a wind gust of 67 mph recorded at the airport.

May 27th turned out to be the second and most prolific severe weather day during a nearly daily barrage of severe weather which lasted five days. A large EF3 rated tornado ripped a six mile path from two miles north of Lebanon in Smith County to just northwest of Esbon in Jewell County. With winds estimated around 140 mph and a width of nearly 1600 yards, this tornado damaged four homesteads, one of which the home was a total loss, along with outbuildings and equipment. One person was treated and released from a local hospital for minor injuries. The tornado formed from a large, high-precipitation (HP) supercell which tracked east/southeast across Phillips, Smith and



May 27, 2013 radar image from the KUEX WSR-88D radar. The image depicts a strong circulation of winds within the supercell. The inverted red triangle roughly depicts the location of the tornado northeast of Lebanon.

Photo of damage at a farm northeast of Lebanon caused by the May 27th tornado. The home completely lost its 2nd floor and a semi-trailer was lifted and dropped several hundred feet from its original location.

Jewell counties. The HP nature of the storm proved challenging as precipitation formed a curtain around the tornado, which made it hard for spotters to see. Damage was estimated to be 3 to 4 million dollars just from the tornado. Once the tornado lifted, the same supercell produced tennis ball size hail in Jewell County east of Mankato around Montrose. In fact, one hail stone was larger than a tennis ball and measured 5.25" in diameter.

As mentioned, the severe weather in May continued for another three days. During that time, a EF1 rated tornado touched down briefly just south of Prairie View as a line of severe thunderstorms rolled into Phillips County. The tornado caused mostly minor damage to a farmstead with winds estimated at 90 mph and a path width of 40 yards. A series of 60-70 mph wind gusts followed across Phillips and Smith counties as the line moved through. The severe weather wrapped up on the 30th, with 60+ mph winds around Hunter and Tipton in Mitchell County.

In June, wind and hail was the story. On the 16th, winds of 60-70 mph and quarter size hail cut across Smith and Osborne counties. In addition, heavy rain of nearly 5" fell southwest of Jewell. June 18th brought quarter size hail to Burr Oak and Portis. This was followed by an active stretch of weather from June 22nd to June 27th. In general, most of the severe weather was in the form of quarter size hail and wind gusts of 60-70 mph during that period with the majority of the reports occurring on June 26-27.

After July 1st, severe weather is usually pretty sparse across the area as the heat of summer sets in, and 2013 was no different. Only two more significant events were reported for the season including a 3-4 inch rainfall in parts of Smith, Osborne and Mitchell counties on July 20th and 21st. Cora reported 4" of rain on the 20th, most of which fell in about 1 hour. September 28th brought the final round of severe weather. High winds caused minor damage to a home in Downs; widespread tree damage was reported near Cawker City, and a few power poles were knocked down in parts of Jewell County. Winds were estimated to be in the 60 mph range.

Severe Weather Terminology

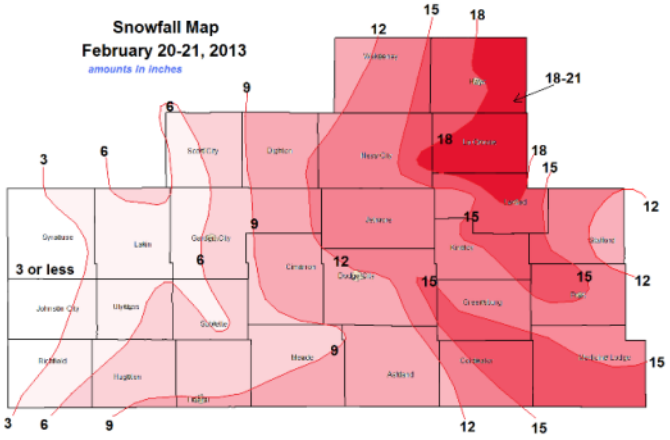
- **Severe Thunderstorm** – The National Weather Service issues severe thunderstorm warnings for thunderstorms that are currently producing or are capable of producing winds of 58 mph or stronger and/or hail one inch in diameter or larger. Severe thunderstorms often may be much stronger than this minimum criteria, so it is a good idea to take severe thunderstorm warnings seriously.
- **Tornado** – A tornado is a violently rotating column of air, in contact with the ground, either pendant from a cumuliform cloud or underneath a cumuliform cloud, and often (but not always) visible as a funnel cloud. A funnel cloud is a condensation cloud, typically funnel-shaped and extending outward from a cumuliform cloud, associated with a rotating column of air.
- **Flash Flood** – A flash flood is flooding that occurs very rapidly, usually within 6 hours of heavy rainfall. Flash flooding may occur along creeks, rivers or streams. It can also occur in low lying or urban areas where drainage is poor. Water levels can rise very quickly during flash flooding including locations that did not receive the heavy rainfall but are located downstream from areas that received an extreme amount of rainfall. Flash flooding can occur in the winter months when rain falls on existing snowpack and causes it to melt rapidly. Flooding is the number one severe weather killer in the U.S.

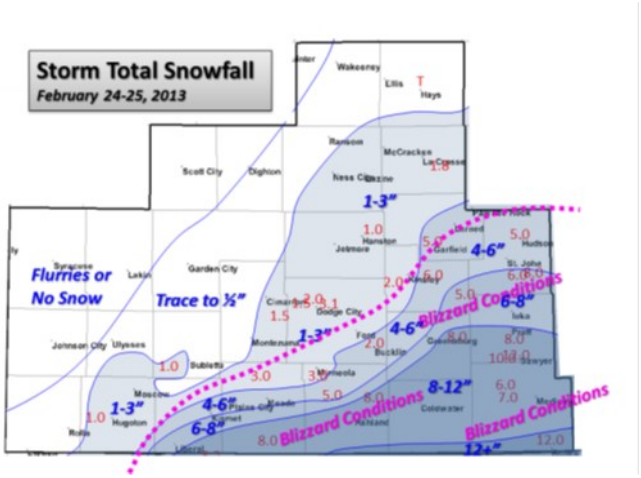
2013 Severe Weather Summary

Southwest Kansas

National Weather Service - Dodge City

It didn't take long to start the year with wickedness! A massive dust storm moved across western Kansas on the 11th of January with some instances reminiscent of the "Dirty Thirties". Visibilities dropped to zero, especially near the Colorado border. There were numerous vehicle accidents along highway 160, but fortunately no major injuries or deaths were reported.





In February a major winter storm pounded the area, especially in the central portion of Kansas. From the 20th through the 21st excessive amounts of snow in excess of 18 inches fell. In addition, strong winds produced whiteout conditions and huge drifts of at least 15 feet! Another snowstorm occurred on the 24th and 25th bringing additional heavy snow and blizzard conditions.

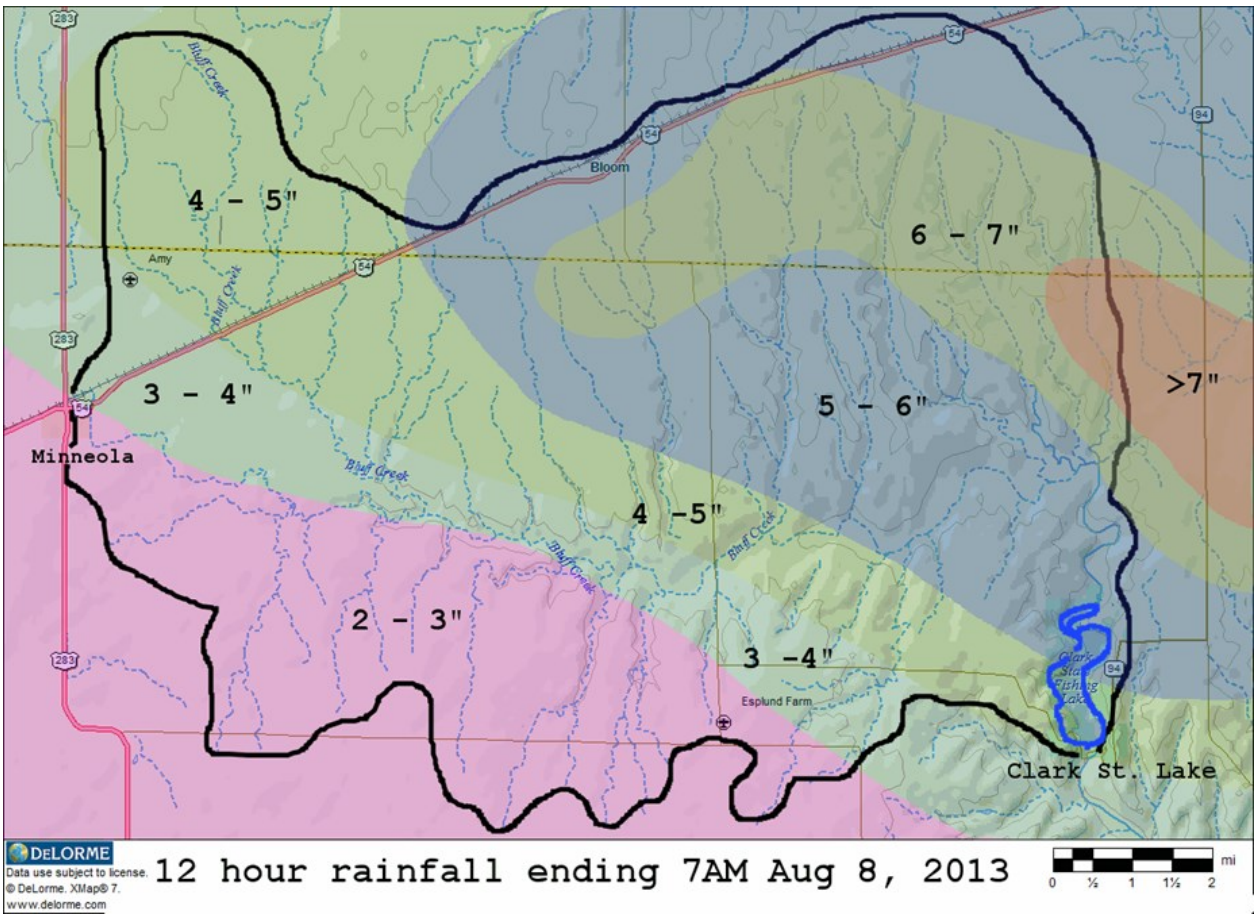
A wall of dirt moves into Ulysses on May 8th

Other than a few typical spring severe thunderstorms, it was somewhat quiet until late spring. On May 8th severe weather comprising of hail and 2 weak tornadoes occurred in the warm and humid sector of a weather system. However, on the cool and dry side a major dust storm developed. Much like what occurred earlier in January, walls of dirt rolled in along the edge of the higher wind across western counties.

The most significant event of the year occurred on the 18th of May when severe thunderstorms spawned several tornadoes, including the EF4 tornado that did damage near Rozel in Pawnee County. Fortunately there were no injuries or fatalities.

The weather for the remainder of the spring and through most of the summer was fairly typical for western Kansas. That all changed in August when thunderstorms produced excessive rainfall on two separate occasions. The first episode was observed on the 4th and 5th when widespread rains of 4 to 6 inches fell across parts of Hodgeman, Ness, Rush, Edwards, and Ford counties. Another heavy rain event occurred late on the 7th with amounts greater than 8 inches reported. Flooding was widespread across Ford and Clark counties from that particular event.

In Clark County, Clark State Fishing Lake, that had been 9 feet low, filled to capacity and overflowed the spillway. There were numerous county roads that received extensive damage.

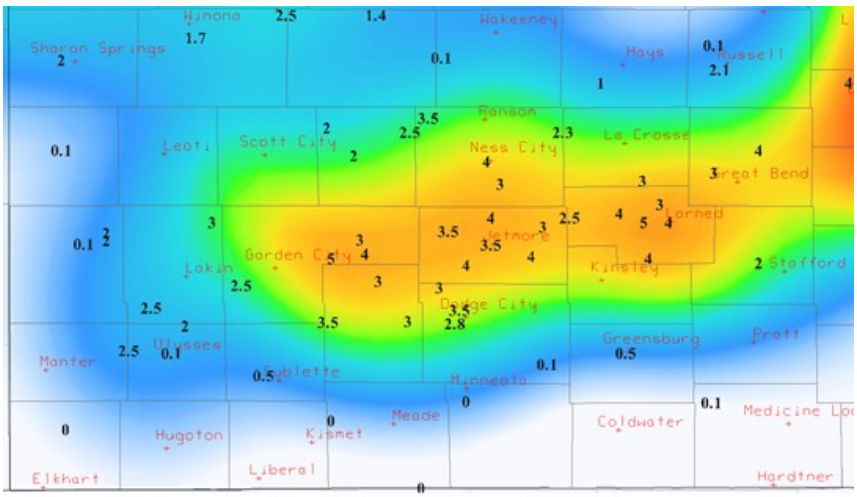


The drainage basin for Clark State Fishing Lake

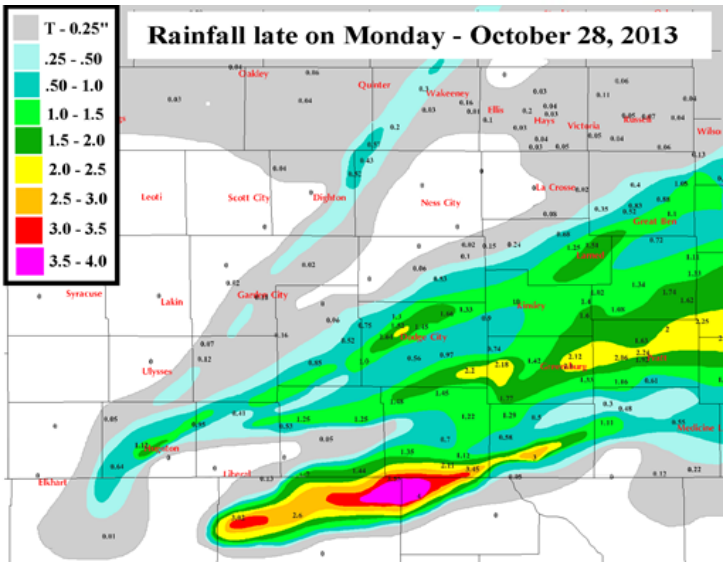
Clark State Fishing Lake – before and after the flooding

An early season winter storm on October 18th produced a band of snow 3 to 5 inches along highway 156 stretching from Garden City to Larned. It wasn't a record by any means but did seem to set the stage for winter.

However, winter conditions didn't last long as another storm moved into southwest Kansas on the 28th but this time brought rain, some of it heavy, especially near the Oklahoma border.



Snowfall on October 18, 2013



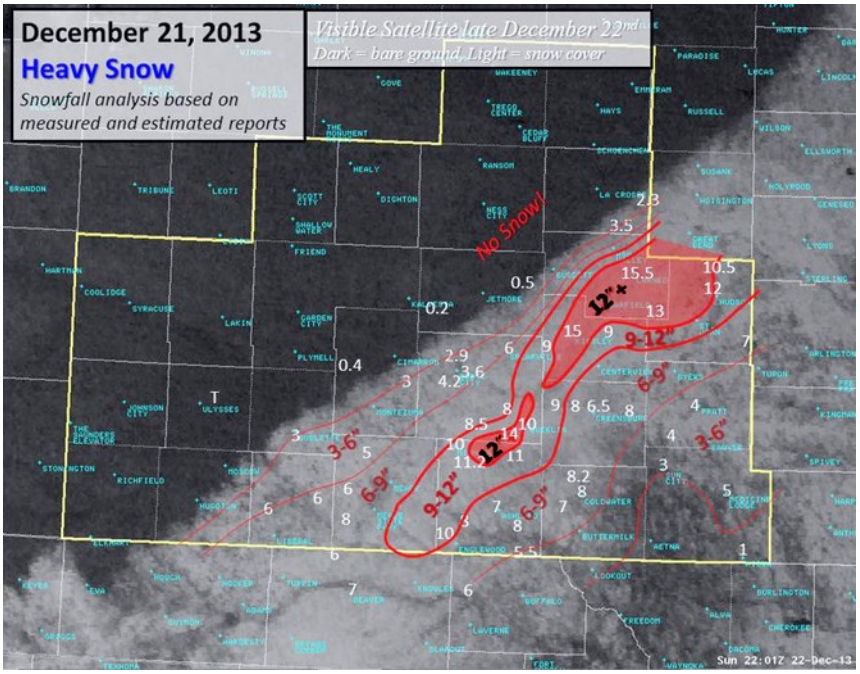
The first true Arctic air intrusion made it into Kansas on December 3rd. Temperatures fell to below zero across the area on several occasions during an eight day stretch. Mild weather returned by the middle part of the month.

On the 21st a winter storm moved into Kansas bringing freezing rain and sleet to south central and southeast Kansas and heavy snow to parts of southwest and central Kansas. The heaviest snow fell along a band from south of Dodge City to Larned. The largest amounts reported were 14 to 15 inches at Kingsdown, Kinsley and Larned.

Summarizing the tornadoes that occurred across southwest Kansas:

The first tornado observed during 2013 was on the 8th of May in Ellis County, but it was very weak and did not produce damage. The strongest tornado occurred on the 18th of May near Rozel and was rated and EF4. Other weak tornadoes were reported in June and July and the last to occur was on August 13th when a very weak tornado was observed in Lane County north of Healy.

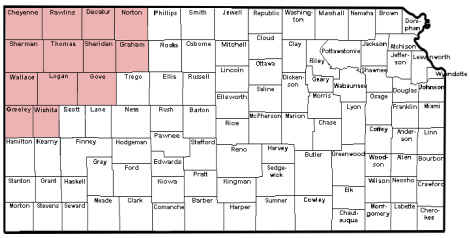
A total of 22 tornadoes were observed during the year and this was more than normal. However, most of them were short lived and very weak in strength.



2013 Severe Weather Summary
Northwest Kansas
National Weather Service - Goodland, KS

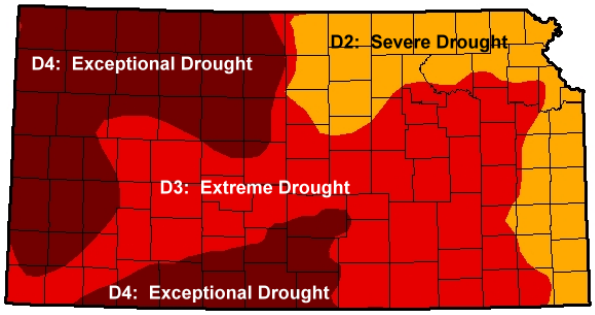
2013 weather highlights for northwest Kansas include several spring snowstorms, continued drought, four weak tornadoes and a major September rain event.

Kansas Counties Served By WFO Goodland



The one significant weather event in January besides a continuation of drought conditions from 2012 was a dust storm which occurred during the afternoon on the 11th. Winds gusting to 55 mph picked up dirt and carried it downwind for hundreds of miles. Visibility dropped to near zero at times until a cold front moved in from the northwest and winds subsided.

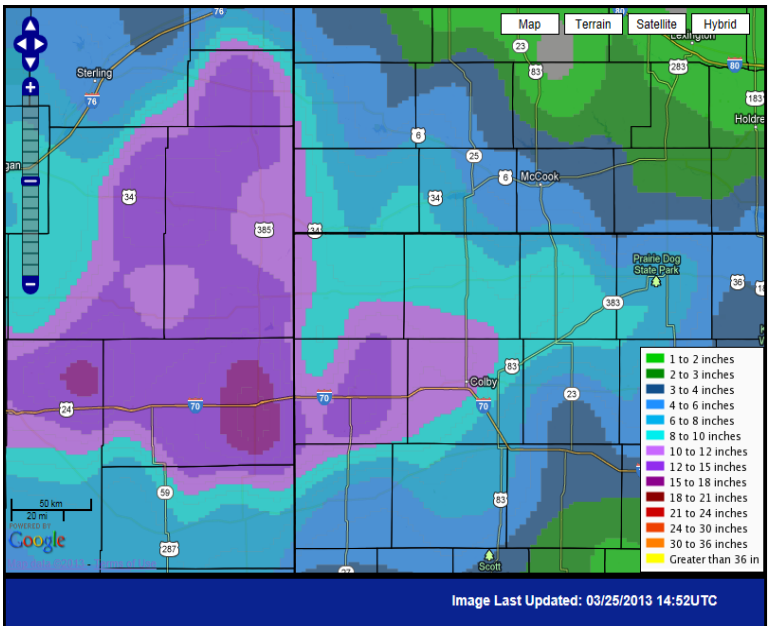
January 1, 2013



All of northwest Kansas remained in Exceptional Drought (D4, dark red shading) during the month of January. Precipitation during the month was generally a few tenths of an inch, however, eastern counties (Norton, Decatur, Sheridan, Graham, and Gove) received between a half and three-quarters of an inch of moisture.

In February, an intense weather system brought high winds gusting to 60 mph on the 9th and 10th including a localized dust storm in Sherman County which dropped visibility to under a quarter mile. The first major snow of the year arrived on the 22nd of February with a large band of 12-15 inches falling from Atwood southeast to Hill City and Quinter.

The major weather story in March was a winter storm which began late on the 22nd and continued into the afternoon hours of the 24th. Snowfall was heaviest from eastern Colorado extending east along the I-70 corridor to Colby. St. Francis and Colby each picked up 12 inches of snow with Goodland receiving 15 inches and Atwood 9 inches. The map to the right shows the location of the heaviest snowfall. The middle purple shading represents 12-15 inches.

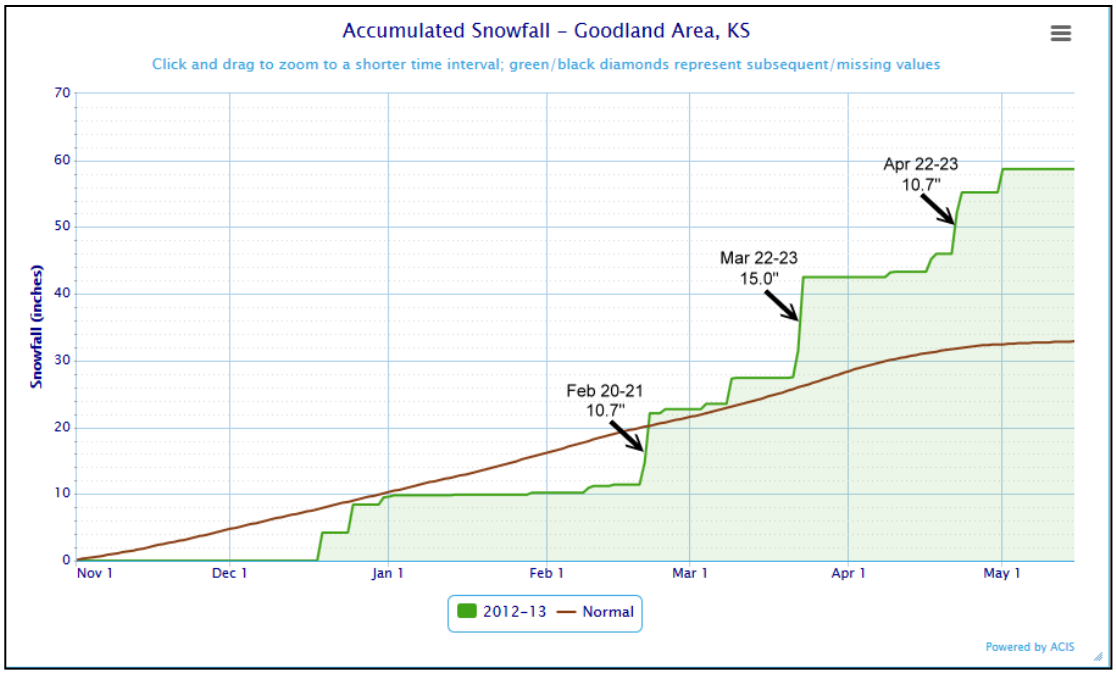


March 22-23, 2013 Snowfall

The severe thunderstorm season got off to a sluggish start in late March. The first severe report came in from Rawlins County on March 29th during the evening when a spotter reported golf ball sized hail north

of Blakeman, and nickel to golf ball hail covering the ground. Other hail reports ranging from half dollar to golf ball size came in from Sheridan, Norton and Graham counties.

Mother Nature shifted gears back to winter in late April with a band of heavy snow falling along Interstate 70 across Sherman and Thomas counties on the 22nd-23rd. Snowfall ranged from 10" inches in Kanorado to 6" in Colby with lesser amounts further east over Sheridan County. By early May, Goodland had recorded its sixth snowiest season with 59.2", thanks in part to the three major snows which occurred almost exactly four weeks apart from late February to late April.

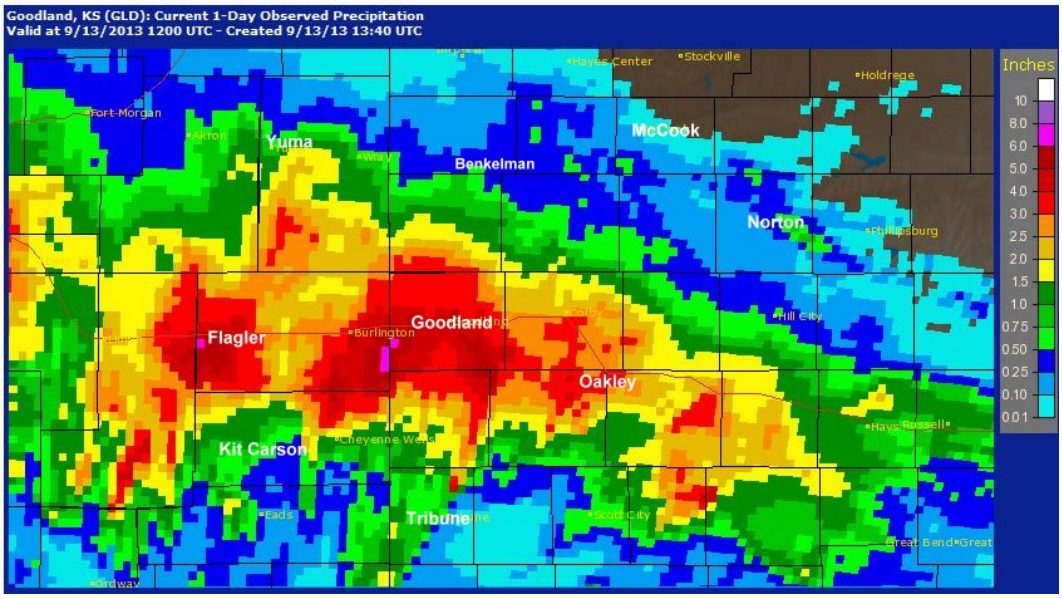


Severe weather began in earnest during May with eight severe thunderstorm days. The biggest day was May 29th as a line of severe storms brought two weak tornadoes, 12 severe hail reports, and 17 severe wind reports. The first tornado of 2013 occurred on the 29th in Logan County at 1535 CDT south of Russell Springs. A short time later, a second tornado developed in Gove County east of Grinnell. Winds estimated at 80 mph destroyed a grain bin and brought down six power poles in Sherman County, while gusts to 85 mph in Norton County damaged a pole barn.

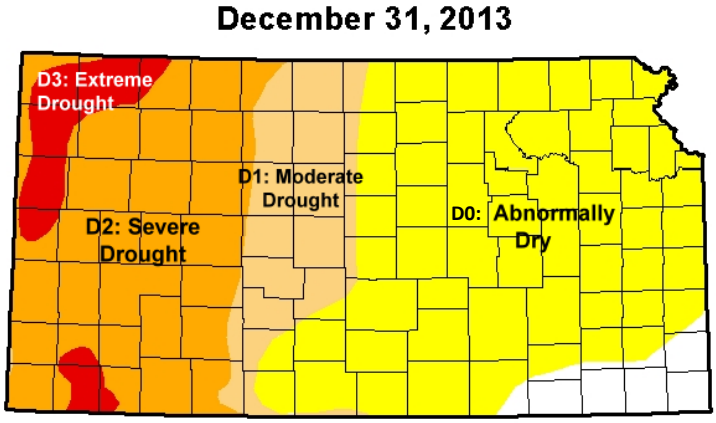
June was active with 11 severe weather days mostly in the middle part of the month. Forty two severe reports were received in June with a few hail reports from half dollar to golf ball size and wind gusts reaching 75 mph on a few occasions. Law enforcement reported flash flooding in Greeley County on the 18th when officers were forced to turn around due to water covered roads.

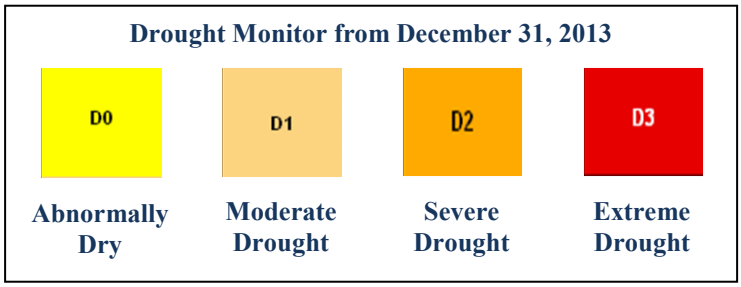
After a slow July, August ramped up the severe reports once again with several days of flash flooding, two weak tornadoes, baseball size hail and damaging winds. Slow-moving thunderstorms rolled southeast into Logan County late on the first and lingered overnight. Flooding was reported near Winona and Monument with over five inches of rain reported.

Two weak tornadoes formed on an outflow boundary just north of Goodland and were seen from the NWS office just after noon on August 5th. The following afternoon, hail up to softball size fell in Greeley County as storms moved in from Colorado. On the 7th, widespread rainfall of three to six inches produced flooding over Wallace, Logan, Greeley and Wichita counties with 1-2 feet of water over some roads. On the 31st, estimated 80 mph winds swept through Cheyenne County northwest of St Francis with several trees two to three feet in diameter either blown down or damaged.



Total rainfall on September 13th across northwest Kansas.





The main weather story in September (and for the year in some areas) was several days of heavy rainfall which eased the ongoing drought conditions. Widespread two to four inches of rain fell across the area with four to eight inches occurring over Sherman, Thomas, Wallace and Logan counties (see map above). Despite receiving a half a foot of rain in some areas, precipitation for the year as a whole remained below normal.

After two active severe weather days in mid-October, the remainder of the fall proved fairly quiet. At year's end, drought conditions had improved, but some counties in northwest Kansas continued in Extreme (D3) Drought as shown in the image to the left.

Be sure to find your local NWS office on YouTube

NWS Dodge City, KS at www.youtube/user/NWSDodgeCity
NWS Goodland, Kansas at www.youtube/user/NWSGoodland
NWS Hastings, Nebraska at www.youtube/user/NWSHastings
NWS Kansas City, Missouri at www.youtube/user/NWSKansasCity
NWS Springfield, Missouri at www.youtube/user/NWSSpringfield
NWS Topeka, Kansas at www.youtube/user/NWSTopekaKS
NWS Wichita, Kansas at www.youtube/user/NWSWichita

2013 Severe Weather Summary

Southeast Kansas

National Weather Service - Springfield, MO

The severe weather season in southeast Kansas in 2013 was rather mild due to a persistent northwesterly flow pattern that worked to keep much of the severe weather and tornadic activity to the south and east of the region.

Tornado Damage from July 29th on the west side of Bourbon County State Lake .

One tornado did touch down on the 29th of July in Bourbon County. The brief EF-1 tornado produced an estimated 90 mph winds as it touched down near the southern end of the Bourbon County Lake and traveled northwestward to the west side of the lake. Damage was limited to a mobile home and several outbuildings.

Perhaps the most noteworthy event though was a hail storm that produced up to baseball size hail that caused $30M in damages in Bourbon County on April 7th. Baseball size hail was also reported in Crawford County on May 31st resulting in $100K in damages. Otherwise, numerous storms produced varying amounts of flooding rainfall and scattered reports of wind damage throughout the year.

Lastly, the drought that began in the summer of 2012 lingered through the winter, showed improvement in the spring before officially ending in the fall of 2013.

Be sure to find your local NWS office on Twitter

NWS Dodge City, Kansas at @NWSDodgeCity
NWS Goodland, Kansas at @NWSGoodland
NWS Hastings, Nebraska at @NWSHastings
NWS Kansas City, Missouri at @NWSKansasCity
NWS Springfield, Missouri at @NWSSpringfield
NWS Topeka, Kansas at @NWSTopeka
NWS Wichita, Kansas at @NWSWichita

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

National Weather Service

Weather Safety

Kansas

Have you ever sat down with your family to discuss and plan what you would do in case of an immediate weather threat? If you haven't, now would be an excellent time to sit down with your family and devise a plan. Finding the time to do this can be difficult, but taking the 15 minutes to develop and practice a plan could save the lives of ones you love. Please remember these tips when planning and carrying out your actions.

Tornado Safety Tips

Before the storm:

- Develop a plan of action
- Have frequent drills
- Have a NOAA Weather Radio with a warning alarm tone
- Listen to radio and television for information
- If planning a trip outdoors, listen to forecasts

In Homes or Small Buildings:

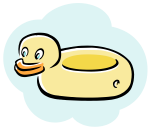
Go to the basement or to an interior room on the lowest floor (e.g. closet or bathroom). Upper floors are unsafe. If there is no time to descend, go to a closet, a small room with strong walls or an inside hallway. Wrap yourself in overcoats or blankets to protect yourself from flying debris.

In Schools, Hospitals, Factories, or Shopping Centers:

Go to interior rooms and halls on the lowest floor. Stay away from glass enclosed places or areas with wide span roofs such as auditoriums and warehouses. Crouch down and cover your head. Don't take shelter in halls that open to the south or the west. Centrally-located stairwells are good shelter.

If a warning is issued or threatening weather approaches

- Always remember **"DUCK"**



- Stay away from windows
- Get out of automobiles and get into a sturdy structure or ditch.
- Or, buckle your seat belt and get below window level of your vehicle.

"DUCK"

Down to the lowest level
Under something sturdy
Cover your head
Keep in the shelter until the storm has passed

In High-Rise Buildings:

Go to interior small rooms or halls. Stay away from exterior walls or areas with glass.

In Mobile Homes:

ABANDON THEM IMMEDIATELY!!!

Many deaths occur in mobile homes. If you are in a mobile home when severe weather approaches, leave it immediately and go to a substantial structure or designated tornado shelter. Determine your shelter ahead of time so you don't have to think about it when weather strikes.

If no Suitable Structure is Nearby:

Lie flat in the nearest ditch or depression and use your hands to cover your head. Be alert for flash floods.

Tornadoes and Overpass Safety

Many people mistakenly think that a highway overpass provides safety from a tornado. In reality, an overpass may be one of the worst places to seek shelter from a tornado. Seeking shelter under an overpass puts you at greater risk of being killed or seriously injured by flying debris from the powerful tornadic winds.

Tornadic winds can make the most benign item a dangerous missile. In addition to the debris that can injure you, the winds under an overpass are channeled and could easily blow you or carry you out from under the overpass and throw you 100s of yards.

As a last resort, lie flat in a ditch, ravine or below grade culvert to protect yourself from flying debris. If no ditch is available, you may remain in your vehicle, put on your seatbelt, lower yourself below window level, and cover your head with your hands or a blanket.

Lightning Safety

- Watch for developing thunderstorms and be ready to act when thunder is heard.
- Lightning can strike as far as 10 miles from an area where it is raining. That's about the distance you can hear thunder.

If you can hear thunder, you are within striking distance. Seek safe shelter IMMEDIATELY!

- Outdoor Activities: Minimize the risk of being struck by moving indoors or to vehicles at the first roar of thunder.
- Inside Activities: Things to avoid
  - Corded phones
  - Computers
  - Other electrical equipment
  - Indoor/Outdoor pools
  - Tubs and showers and other things connected to metal plumbing

  Wait 30 minutes after the last roar of thunder before going outside again.
- Help a Lightning Victim: Call 911 and get help immediately. You are in no danger when helping a lightning victim. The charge will not affect you.

When Thunder Roars, Go Indoors!

Flood Safety

- Floods, especially Flash Floods kill more people each year than any other weather phenomenon.
- As little as 6 inches of fast moving water can sweep you off of your feet.
- As little as 18-24 inches of water is enough to float a car and carry it away.
- If you see a road barrier across a flooded roadway....

TURN AROUND. DON'T DROWN!

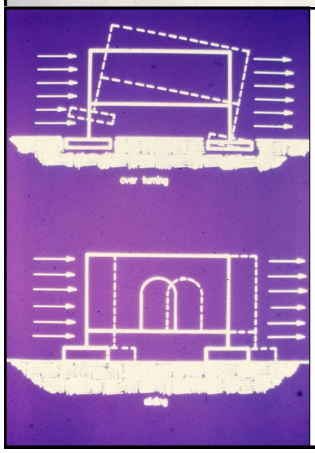
- Tune to the NOAA Weather Radio, or your favorite news source for all flood and any other weather related information.
- Leave areas subject to flooding, such as dips, low spots and underpasses.
- Do not attempt to cross flowing streams, you don't know how deep the water could be.
- Never drive through flooded roadways.
- If your vehicle is suddenly caught in rising water, leave it immediately and seek higher ground.
- Report any flooding to your local authorities or to the National Weather Service.

Turn Around. Don't Drown!

Mobile Home Safety

- The average annual death rate in mobile homes due to tornadoes is **20 times** higher than in permanent homes
- Mobile homes were the most common location for **tornado fatalities (44%)** from 1985 to 2005, followed by permanent homes (25.3%) and vehicles (9.9%). This disparity is more striking when considering that mobile homes accounted for a mere 5%–8% of U.S. housing units during this period.
- The National Weather Service (NWS) considers mobile homes unsafe during a tornado.
- Mobile home residents should go to the nearest sturdy building or storm shelter. Do NOT seek shelter inside your mobile home!
- In many cases, your car can be a safer sheltering option than staying in your mobile home.

Rolled mobile home – stopped by tree 70 mph



Mobile homes:

- **overturn or slide between 70 and 100 mph**
- **Are completely blown away at 110-137 MPH EF2**

Truck stays - M. Home flipped

Picher, OK 2008

Remember!

1) Participate in a tornado drill in your mobile home community. If you don't have one, then organize a tornado drill!

2) Understand the definition of a tornado warning*

3) Have an emergency response plan for seeking shelter **away** from your mobile home.

By following these 3 points you can lower the risk to you and your family from the hazards posed by tornadoes in Kansas.

***A Tornado Warning means:** there is immediate danger for the warned area. All in a tornado warning are urged to seek shelter immediately, as it can be a life-threatening situation. For our residents who live in mobile homes, this means evacuating the mobile home and seeking shelter in the nearest sturdy building or storm shelter.

National Weather Service Kansas

Disaster Kit

www.weather.gov

Are you ready?

When disaster strikes, it pays to be prepared. Having a disaster kit prepared will save you time and could save your life. A disaster kit should be in your *designated shelter* and it would also be helpful to have a *smaller version in a small backpack or other containers that are easily carried if you need to evacuate your home*. Disaster kits should be reviewed annually to be kept up-to-date with your family's needs. Items in your kit should include, but are not limited to:

BE PREPARED

Staple Items

- □ 3 day supply of water (1 gallon per person per day)
- □ 3 day supply of nonperishable, ready to eat food items and manual can opener
  - □ high energy foods, e.g. peanut butter
  - □ juices, dried milk
  - □ sugar, salt, pepper
- □ First Aid Kit (see list for individual items)
- □ Flashlight and extra batteries, or ones that generate their own energy by shaking them
- □ Battery operated or Hand Crank radio
  - □ NOAA All-Hazard Weather Radio
- □ Clothing— Think about the climate: warm and/or cool season clothes
- □ Shoes
- □ Sanitation and hygiene items (such as hand sanitizer, moist towelettes, and toilet paper)
- □ Matches in waterproof container
- □ Whistle
- □ Blankets
- □ Other tools (e.g. hammer, pliers)
- □ Cash and coins
- □ Photocopies of important documents, personal ID's and credit cards
- □ Baby needs
- □ Special Needs
  - □ Prescription medications, eye glasses,
  - □ Contact lens solution, etc.
- □ Games to pass the time (e.g. cards)
- □ Pet food and extra water

First Aid Kit

- □ Sterile adhesive bandages in assorted sizes
- □ 2-inch and 4-inch sterile gauze pads
- □ Hypoallergenic adhesive tape
- □ Triangular bandages
- □ Scissors & tweezers
- □ 2-inch and 3-inch sterile roll bandages
- □ Waterless alcohol-based hand sanitizer
- □ Antiseptic wipes
- □ Petroleum jelly or other lubricant
- □ Latex gloves
- □ Anti-bacterial ointment
- □ Aspirin or non-aspirin pain reliever
- □ Antacid (for upset stomach)
- □ Cold pack
- □ CPR breathing barrier, such as a face shield
- □ Assorted sizes of safety pins

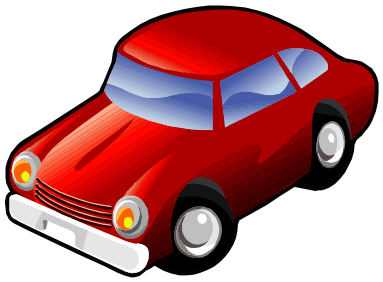
Winter Disaster Kit

Winterizing your Disaster Kit

If you live in a cold climate, you must think about warmth. It is possible that you will not have heat during or after a disaster. Think about your clothing and bedding needs. Be sure to include one set of the following for each person to add to your Disaster Kit.

- ◻ Jacket or Coat
- ◻ Long pants and long sleeve shirt
- ◻ Sturdy Shoes
- ◻ Hat, Mittens, and Scarf
- ◻ Sleeping Bag or Warm Blanket
- ◻ Extra Blankets
- ◻ Lantern or Flashlight

A Disaster Kit for your Vehicle



You may be in your vehicle when disaster strikes, or possibly stuck in your vehicle in a summer/winter environment. Below are a few items that you should keep in your car as part of your Vehicle Disaster Kit.

- ◻ Flashlight and extra batteries
- ◻ Maps
- ◻ Small First Aid Kit
- ◻ White Distress Flag
- ◻ Tire Repair kit
- ◻ Booster/Jumper cables
- ◻ Air pump
- ◻ Flares
- ◻ Bottled water
- ◻ Non-perishable foods such as granola bars

<u>Winter supplies</u>

- ◻ Blanket or Sleeping Bag
- ◻ Hat and Mittens
- ◻ Shovel
- ◻ Sand Bags
- ◻ Tire Chains
- ◻ Windshield Scraper
- ◻ Florescent Distress Flag

<u>Summer Supplies</u>

- ◻ Sunscreen
- ◻ Shade Item (umbrella or wide brimmed hat)
- ◻ Bug spray

Sirens Are An Outdoor Warning System

Every year the National Weather Service and the emergency management communities get together and provide severe weather information for the public. Each year we emphasize the fact that the outdoor sirens are just that…an Outdoor Warning System. Every year we get a multitude of calls telling us that the sirens can't be heard while in the house.

Severe weather season usually begins in the early spring in Kansas. We all need to be prepared for severe weather at any time of the day or night and at any time of year. The National Weather Service, emergency management, law enforcement, the 9-1-1 center, and the fire department cannot notify every individual of the possibility of severe weather in their town. The local media outlets and All Hazards NOAA Weather Radio are your best sources for information concerning severe weather watches and warnings. Do not wait for the sirens to be your warning system at home. Sirens may not be working if the power is out and oftentimes cannot be heard indoors. Sirens may not be activated for other severe threats such as damaging straight line winds in excess of 60 mph, large hail, and flooding. Monitor NOAA Weather Radio and local media then take the appropriate action for the severe weather threat. If it appears that a severe thunderstorm is approaching your location, do not wait for the outdoor sirens, take immediate action to protect your life and the lives of others in your home.

Hundreds of volunteer storm spotters, amateur radio operators, and first responders put their lives on the line every time there is severe weather in the local area. They do this because they care about the people in their communities and want to make sure those people are given the best chance at survival. The storm spotters, emergency managers, law enforcement and other volunteers immediately relay severe weather reports to the National Weather Service. The National Weather Service in turn disseminates that information to the media and public through warnings, statements, and local storm reports. Getting the word out to the public in a timely manner may save lives. When severe weather threatens at night while most people sleep, it can be especially dangerous. Oftentimes in the heat of the spring and summer, we cannot hear outdoor sirens over running air conditioners. A NOAA Weather Radio with a back-up battery can make the difference for you and your family.

Take responsibility…listen to the media….take protective action….survive to enjoy the wonderful warm sunny days that also come this time of year.

Weather Safety Handout In Spanish

El Servicio Nacional de Meteorología

Medidas de seguridad en clima severo

¿Tiene un plan familiar en caso de que se presente una emergencia? Si no, entonces ahora es un tiempo perfecto para hacer lo. Sólo le llevará 15 minutos hacer y practicar su plan. Tome en cuenta los siguientes consejos .

Consejos de seguridad en caso de tornados

Antes de la tormenta:

- Tenga un plan de acción
- Practique frecuentemente los procedimientos a seguir
- Compre un radio del tiempo NOAA para que tener una alarma
- Escuche el radio y la televisión para tener más información
- Si está planeando una actividad al aire libre primero investigue el pronóstico del tiempo

Si se emite una alarma

- Evite las ventanas
- Abandone los autos y busque un refugio en una zanja o una cuneta (drenaje vial).

Está en una casa o en un edificio pequeño:

Busque un refugio en el sótano, en una habitación o en el pasillo del nivel más bajo del edificio. Si no le da tiempo de bajar busque refugio en un ropero, un cuarto dentro de la casa que tenga paredes resistentes. Cúbrase con unas cobijas o una bolsa de dormir para protegerse de los escombros que salgan volando.

Está la escuela, hospital, una fábrica o en un centro comercial:

Busque refugio en un cuarto interior o un pasillo del nivel más bajo. Evite las ventanas o las áreas abiertas como un almacén o un auditorio. Las escaleras en el centro son un buen refugio.

Está en un edificio de muchos pisos:

Busque refugio en un cuarto interior o un pasillo. Evite las ventanas y las paredes exteriores.

Está en una casa prefabricada o un auto: ¡¡¡Abandónelo Inmediatamente!!!

La mayoría de las muertes ocurren en casas prefabricadas o en autos. Si está en una casa prefabricada o un auto entonces abandónelo inmediatamente y busque refugio en un edificio con una estructura fuerte. Planee y determine su refugio antes que el clima severo ocurra.

Si no hay edificio cerca:

Busque un refugio en una cuneta y cobra su cabeza o zanja y cubra su cabeza con sus manos. Esté alerta por si hay una inundación.

Tornados y Seguridad en Puentes

Muchas personas piensan, equivocadamente, que los puentes o pasos a desnivel en las carreteras son lugares seguros para protegerse de un tornado. En realidad, esos puentes son los peores lugares para buscar refugio de un tornado. Buscar protegerse debajo de un puente le pone en mayor riesgo de muerte o de ser fuertemente herido debido a los escombros que los fuertes vientos del tornado arrastran.

Los vientos del tornado pueden convertir los objetos menos peligrosos en armas de muerte. Además del peligro de los escombros, los vientos debajo del puente son más intensos y pueden fácilmente sacarlo de ahí y aventarlo cientos de millas.

Como último recurso, acuéstese boca abajo en una zanja a lado de la carretera, o entre en un tubo de drenaje para protegerse de ser arrastrado. Si no hay ninguna zanja o tubo quédese en su carro con su cinturón de seguridad puesto y póngase debajo del nivel de la ventana. Cubra su cabeza con sus manos o con una sábana.

Aléjese de los Relámpagos

- Esté al pendiente de saber si habrá tormentas eléctricas y alístese para actuar.
- Los rayos pueden caer hasta 10 millas de distancia de donde está lloviendo. Esa es la distancia aproximada de donde se puede escuchar un trueno.

Si puede escuchar el trueno, significa que está en un área peligrosa donde puede caerle un rayo ¡Aléjese y busque refugio!

- Actividades al aire libre: Para evitar ser tocado por un rayo mejor realice las actividades en un lugar techado o entre en su carro cuando escuche el primer trueno.
- Actividades Interiores: Cosas a evitar
  - Teléfonos conectados a la electricidad
  - Computadoras
  - Cualquier equipo eléctrico
  - Albercas techadas o al aire libre
  - Tuberías, regaderas y cualquier otra cosa que esté conectada a la tubería

Después de escuchar el último trueno espere 30 minutos antes de salir.

Para ayudar una victima de un rayo: Llame al 9-1-1 o a su servicio local de ambulancia. Y pida ayuda inmediatamente. Usted no corre peligro al ayudar a una víctima de un rayo. La energía que esa persona recibió no le afectará a usted.

¡Cuando escuche un trueno,

Seguridad de Las Inundaciones

- Las inundaciones, particularmente las riadas, cada año provocan la muerte de muchas personas más que cualquier otro evento asociado con clima severo .
- Aguas de 6 pulgadas de profundidad que se muevan rápidamente pueden arrastrar a casi cualquier persona.
- Su auto, camión o SUV puede empezar a flotar en agua de menos de 2 pies de profundidad y que se están moviendo rápidamente.
- Cuando vea una calle inundada...

  ¡ES MEJOR REGRESARSE, QUE AHOGARSE!
- Escuche el radio de NOAA o su noticiero local para más información de las inundaciones.
- Salga de las áreas que son susceptibles a la inundación por ejemplo sótanos y valles.
- No trate de cruzar los riachuelos.
- Nunca conduzca en caminos inundados.
- Si su auto está en un lugar donde el nivel del agua sube rápidamente, abandónelo y busque refugio en un lugar alto.
- Llame a las autoridades locales o su Servicio Nacional de Meteorología para informar de la inundación

¡ES MEJOR REGRESARSE, QUE AHOGARSE!

Americans live in the most severe weather-prone country on Earth, and the state of Kansas is no exception. Each year a startling 10,000 thunderstorms, 2,500 floods, 1,000 tornadoes, and 10 hurricanes impact the United States. Potentially deadly severe weather impacts every American. Communities can rely on the National Weather Service's StormReady program to help them guard against the ravages of Mother Nature.

What is StormReady?

Ninety percent of all presidentially declared disasters are weather related. Through the StormReady program, NOAA's National Weather Service gives communities the skills and education needed to survive severe weather – before and during the event. StormReady helps community leaders and emergency managers strengthen their local hazardous weather operations.

StormReady Does Not Mean Storm Proof

StormReady communities are better prepared to save lives from the onslaught of severe weather through better planning, education and awareness. Communities have fewer fatalities and property damage if they plan before dangerous weather arrives. No community is storm proof, but StormReady can help communities save lives.

How Can My Community Become StormReady?

The entire community – from the mayor and emergency managers, to business leaders and civic groups – can take the lead on becoming StormReady. Local National Weather Service forecast offices work with communities to complete an application and review process. To be recognized as StormReady, a community must:

- ✔ Establish a 24-hour warning point and emergency operations center.
- ✔ Have more than one way to receive severe weather warnings and forecasts and to alert the public.
- ✔ Create a system that monitors local weather conditions.
- ✔ Promote the importance of public readiness through community seminars.
- ✔ Develop a formal hazardous weather plan, which includes training severe weather spotters and holding emergency exercises.

Go to http://www.stormready.noaa.gov for more information.