



# 2013 KANSAS

## SEVERE WEATHER AWARENESS WEEK

MARCH 3 - 9, 2013

**TORNADO SAFETY DRILL**

**TUESDAY, MARCH 5th**

1:30 PM CST



**INFORMATION PACKET**

National Weather Service

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# 2012 Kansas Tornado Facts

**Tornadoes:** 94 (33 above the 1950-2012 average of 61)  
 (14 above the past 30 year average of 80)  
 (18 below the past 10 year average of 112)

**Fatalities:** 1      **Injuries:** 50

**Longest Track:** 50.3 miles (Rice-Ellsworth-McPherson-Saline counties, April 14, EF4)

**Strongest:** EF4 (Rice-Ellsworth-McPherson-Saline counties)

**Most in a county:** 12 (Rush County - April 14th)

**Tornado Days:** 13 (Days with 1 or more tornadoes)

**Most in one day:** 43 (April 14)

**Most in one month:** 52 (April)

**First tornado of the year:** February 28 (Jewell County, 5:28 pm CST, EF0, 2.4 mile length, 50 yard width)

**Last tornado of the year:** September 17 (Shawnee County, 3:20 am CDT, EF0, 0.1 mile length, 10 yard width)



*Tornado near Kanopolis Lake, KS on April 14, 2012. Photo courtesy of Scott Blair.*

## ----- 2012 Monthly Tornado Totals -----

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	1	0	0	0	0	0	0	0	0	1	1%
EF3	0	0	0	4	2	0	0	0	0	0	0	0	6	6%
EF2	0	1	0	1	4	0	0	0	0	0	0	0	6	6%
EF1	0	1	0	19	5	0	0	0	0	0	0	0	25	27%
EF0	0	6	4	27	16	1	1	0	1	0	0	0	56	60%
Total	0	8	4	52	27	1	1	0	1	0	0	0	94	100%
Percent	0	9	4	55	29	1	1	0	1	0	0	0		100%

**2012 Highlights:** The tornado season began February 28th. Unfortunately, one of the eight tornadoes occurring that day struck the town of Harveyville resulting in damage, injuries and one fatality. April 2012 was a record month in terms of tornado count. The 52 tornadoes logged surpassed the old April record of 46 set in 1964. Forty three tornadoes occurred on April 14th resulting in 38 injuries.

As the table indicates, the tornado season shut down dramatically after May when a large and persistent high pressure area dominated the remainder of the year. Only three weak tornadoes were logged after June 1st.

Some noteworthy tornadoes include:

- February 28th Wabaunsee County - one fatality, 12 injuries.
- April 14th Sedgwick County - ~\$500 million dollars in damage, 38 injuries.
- April 14th Rice County - ultimately traveled 50 miles into Ellsworth, McPherson and Saline counties. It was the only tornado in the state in 2012 classified as violent, rated an EF4.
- April 14th Stafford County - tornado reached a width of 1.5 miles

# KANSAS TORNADO STATISTICS

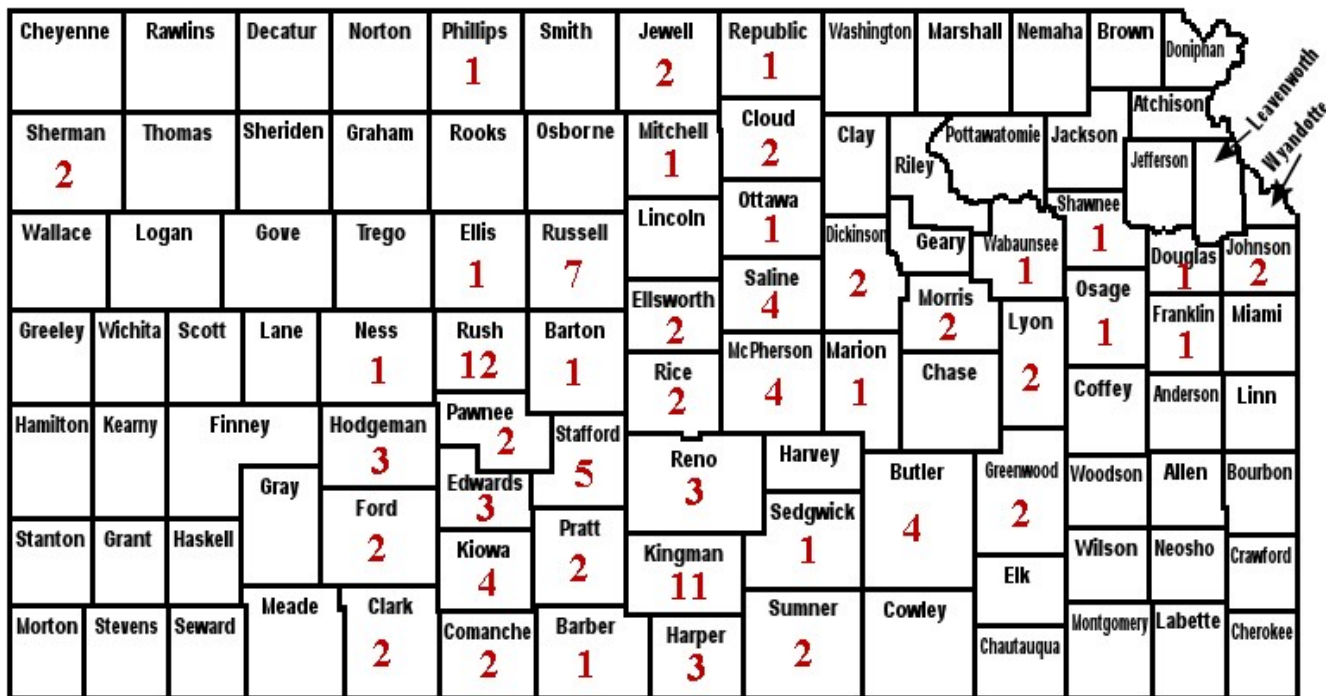
by County

1950 - 2012

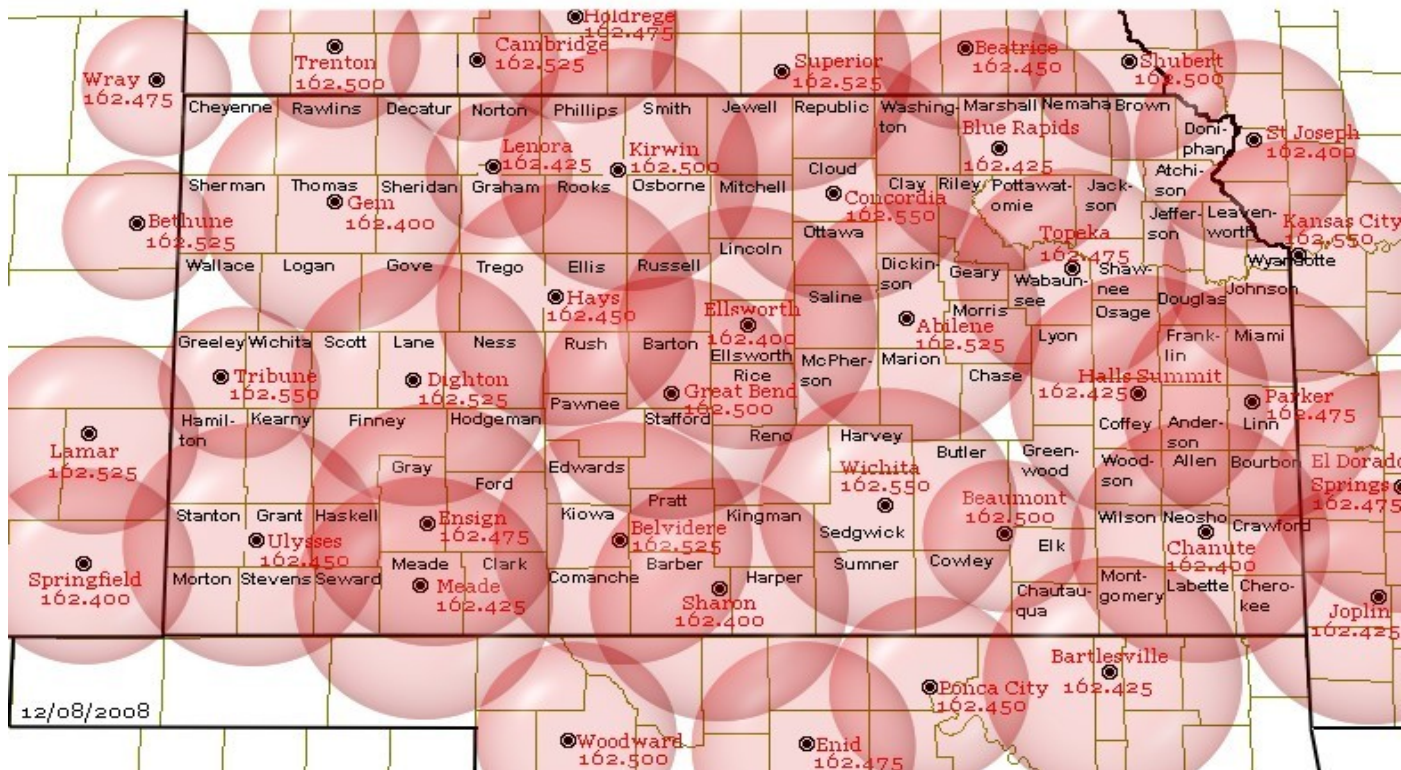
## TORNADOES, FATALITIES, AND INJURIES

County	Tor	Fat	Inj	County	Tor	Fat	Inj	County	Tor	Fat	Inj
Allen	27	0	4	Greenwood	40	0	10	Pawnee	46	0	1
Anderson	15	3	12	Hamilton	21	0	1	Phillips	40	0	1
Atchison	15	0	11	Harper	60	0	1	Pottawatomie	31	1	5
Barber	33	0	2	Harvey	47	1	63	Pratt	68	3	10
Barton	94	2	38	Haskell	29	0	10	Rawlins	46	0	4
Bourbon	17	0	7	Hodgeman	46	0	4	Reno	77	0	22
Brown	43	0	5	Jackson	30	4	17	Republic	50	0	1
Butler	77	28	225	Jefferson	40	0	101	Rice	43	0	6
Chase	38	0	2	Jewell	37	0	1	Riley	27	0	51
Chautauqua	17	0	0	Johnson	40	0	12	Rooks	48	0	6
Cherokee	35	4	41	Kearny	34	0	0	Rush	48	0	8
Cheyenne	39	0	0	Kingman	62	0	1	Russell	74	1	7
Clark	39	0	0	Kiowa	55	11	74	Saline	38	0	66
Clay	37	1	31	Labette	35	1	29	Scott	44	1	1
Cloud	47	1	8	Lane	32	0	2	Sedgwick	84	13	359
Coffey	23	0	5	Leavenworth	30	2	30	Seward	34	0	15
Comanche	38	0	2	Lincoln	31	0	2	Shawnee	49	18	528
Cowley	65	77	293	Linn	13	0	3	Sheridan	38	0	0
Crawford	33	4	43	Logan	24	0	0	Sherman	101	0	0
Decatur	45	0	5	Lyon	44	7	222	Smith	40	0	1
Dickinson	36	1	12	McPherson	51	1	16	Stafford	69	3	5
Doniphan	19	0	2	Marion	46	1	2	Stanton	19	0	0
Douglas	39	1	48	Marshall	31	0	1	Stevens	24	1	5
Edwards	46	0	7	Meade	44	0	0	Sumner	79	5	14
Elk	24	2	8	Miami	19	4	9	Thomas	44	0	1
Ellis	53	0	6	Mitchell	47	0	5	Trego	58	5	101
Ellsworth	49	0	0	Montgomery	31	1	1	Wabaunsee	32	1	26
Finney	88	1	41	Morris	31	0	7	Wallace	35	0	4
Ford	82	0	0	Morton	18	1	2	Washington	34	2	12
Franklin	29	3	34	Nemaha	33	0	1	Wichita	25	0	4
Geary	17	0	3	Neosho	31	0	4	Wilson	15	0	0
Gove	46	0	3	Ness	44	0	4	Woodson	12	0	8
Graham	38	0	0	Norton	27	0	0	Wyandotte	10	2	36
Grant	24	0	9	Osage	43	17	6				
Gray	39	0	3	Osborne	41	0	13				
Greeley	33	0	0	Ottawa	25	2	9				
								<b>Total</b>	<b>4233</b>	<b>237</b>	<b>2881</b>

# Kansas Tornadoes 2012



## 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](http://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**

<b><u>Date</u></b>	<b><u>#Tornadoes</u></b>
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: 250 (through 2012)

### **Most Tornadoes in One Episode**

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

# 2012 Severe Weather Summary

## Extreme East Central and Northeast Kansas

### National Weather Service Pleasant Hill, MO

2012 began like 2011 ended, mild. This warm streak continued throughout much of the year. The only taste of winter eastern Kansas received early in 2012 was a 1 to 3 inch snowfall event in mid-February which produced very little in the way of impacts.

The quiet weather continued into the early severe weather season as just a few minor events occurred in eastern Kansas, one on February 28<sup>th</sup> and another a month later on March 28. The first event produced fairly wide-spread 60 mph winds across Leavenworth, Johnson, and Wyandotte counties. The second produced just a few dime to quarter sized hail reports in Leavenworth and Miami Counties.

Severe weather didn't make a return appearance in far eastern Kansas until May 6<sup>th</sup> when a few supercell thunderstorms produced widespread quarter to golfball sized hail mainly across Johnson County. More importantly, one of these storms produced two brief EF0 tornadoes in Johnson County, neither of which produced any damage. There were a few other even more minor severe thunderstorm events to finish out May.

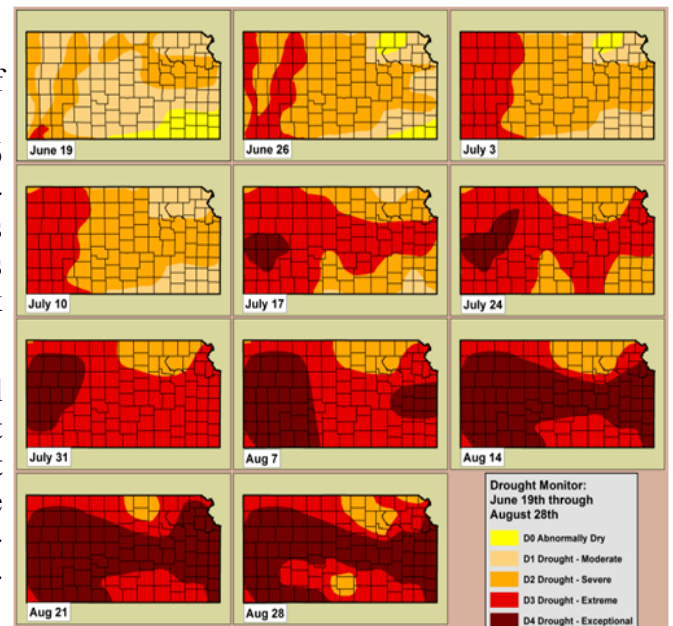
As we rolled into summer, the rains dried up and the heat set in. Numerous excessive heat warnings and advisories were issued during the summer months. This led to the biggest weather story of the year out east, the so-called "flash drought" of 2012. The term flash drought was coined by climatologists due to the intense and rapid onset of drought conditions across the region. Refer to table 1 to see that all but three months of 2012 had above normal temperatures and all but two experienced below normal precipitation.

The hot temperatures and persistent and drastic lack of precipitation caused the region to advance from a D1 (moderate) to a D4 (exceptional) drought in a matter of 6 weeks. (see graphic to the right) Agriculture was especially hard hit by the drought as crops failed and streams and stock ponds dried up. By the end of 2012, numerous communities around the region were working to cut back on water usage.

August and September brought a return to near normal precipitation which helped ease the drought slightly, but not completely eliminate it as eastern Kansas closed out the year with a significant precipitation deficit. The storms which brought the rains also brought isolated severe weather, but nothing widespread or extremely damaging.

Month	Temp. Departure	Precip. Departure
January	+6.4	-1.11
February	+4.6	-0.99
March	+13.3	+1.55
April	+4.9	-2.55
May	+5.2	-0.36
June	+3.5	-4.27
July	+6.9	-3.01
August	-0.3	-0.41
September	-0.5	+0.29
October	-2.6	-2.32
November	+2.8	-1.06
December	+4.4	-0.81

Table 1 Monthly departure from average at Johnson County Executive Airport



## 2012 Severe Weather Summary Northeast and North Central Kansas National Weather Service-Topeka, KS

The 2012 severe weather season remained relatively quiet across northeast Kansas; however, there were a few remarkable events that occurred early in the season. The highlight of the severe weather season for northeast Kansas occurred the night of February 28th when a strong tornado impacted the town of Harveyville, Kansas. Due to the relatively arid conditions across northeast Kansas a severe drought took hold of the area and has persisted through the end of 2012 into 2013. By the end of the year a total of 12 tornadoes occurred across northeast Kansas including nine EF-0, two EF-1, and one EF-2.

**February 28** - On the evening of Tuesday, February 28, 2012, a very strong upper level storm system caused widespread thunderstorms to form across most of central and eastern Kansas. The storms initiated approximately 4:00 PM and increased in coverage and intensity throughout the night. Since atmospheric instability was not extremely high there were few reports of severe hail; however, many structures across the area were damaged due to strong, straight-line thunderstorm winds. The most significant event from the evening of February 28 was a strong tornado that impacted Harveyville, Kansas at approximately 9:03 pm CST. The town sustained significant damage to some structures including an apartment complex and a church. On Wednesday, February 29 a National Weather Service survey crew traveled to Harveyville to assess the damage and rated the tornado an EF-2 indicating wind speeds of 111-135 mph. The tornado caused at least 12 injuries and one fatality. Three other tornadoes occurred across the area that night, but no injuries and only marginal damage to outbuildings and structures occurred from these other tornadoes.



*A strong tornado impacted Harveyville, Kansas on the night of February 28, causing significant damage to the town. Photos from NWS storm survey*



**March 28** - On the evening of March 28, 2012, northeast Kansas was impacted by large hail, one tornado and heavy rain. One storm impacted Osage County with hail larger than baseballs. A funnel cloud was also reported with this storm near Carbondale. Another storm impacted eastern Morris and Lyon counties bringing hen egg sized hail to Council Grove and golfball sized hail to Dunlap. The storm continued to move slowly and intensify across Lyon County and produced a brief tornado touchdown in rural Lyon County. Additional large hail reports of 2 inches were reported near Bushong. Heavy rain also fell from this storm due to its slow movement eastward and several Lyon County roads had to be barricaded due to water running over the road. Other storms moved across the area with hail up to the size of golf balls in Nemaha and Pottawatomie counties during the late evening hours.



**April 14** - A volatile environment developed across Kansas that featured extremely strong wind shear and sufficient buoyancy (called convective energy) to allow supercell thunderstorms to develop ahead of a dry line across central Kansas. The supercells produced strong to violent tornadoes across central Kansas and tracked into parts of the NWS Topeka county warning area during the evening. A handful of tornadoes were reported along with some large hail reports with the most numerous reports of large hail occurring after midnight .

*A tornado crosses the Saline/Ottawa County line on April 14th. Photo courtesy of Scott Blair*

**April 27** - Supercell thunderstorms developed along a warm frontal boundary that was draped from near Concordia, Kansas to near Emporia, Kansas. Storms that developed moved northeast. As they encountered the warm front, they were able to exhibit low level rotation, and 2 brief weak tornadoes were confirmed during the evening. Otherwise, sporadic thunderstorm wind damage and large hail reports were more common.

### **Be sure to find your local NWS office on facebook**



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

- 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**

## 2012 Severe Weather Summary

### Portions of Central, South Central and Southeast Kansas

#### National Weather Service - Wichita, KS

Below are summaries of notable 2012 weather events across central, south-central and southeast. While we realize that not all weather events affect everyone the same, we feel that the below list encapsulates some of the most memorable 2012 weather events across the area. The events are not listed in any particular order of magnitude or importance.

### *Record Warmth of 2012*

Primarily due to a very warm first 7 to 8 months of the year with all sites recording their warmest spring on record, 2012 went down into the record books as the warmest year on record for both Wichita and Chanute. This was the 6th warmest year for Salina. By early August, it was looking like summer 2012 was going to give summer 2011 a run for its money, although that ended with the arrival of somewhat cooler temperatures around August 10th. Much of the Sunflower State recorded a record or near-record warm 2012. In fact, the nation as a whole experienced a record warm year even exceeding all of the notoriously hot years of the 1930s and 1950s.

See Table below summarizing 2012 temperature data for Wichita, Salina and Chanute along with the rankings and normals.

<b>2012 Temperature Highlights</b>								
	Annual Average Temperature (Normal)	Days 100F or Above (Normal)	Days 90F or Above (Normal)	Days 32F or Below (Normal)	Mornings 10F or Below (Normal)	Warmest Day	Coldest Morning	Other Highlights
<b>Wichita</b>	<b>61.4</b> <i>1st Warmest</i> (57.0)	<b>36</b> <i>7th Most</i> (12.2)	<b>95</b> <i>3rd Most</i> (61.7)	<b>7</b> <i>Tied 5th Least</i> (18.3)	<b>2</b> <i>Tied 4th Least</i> (9.6)	<b>111</b> <i>Jul 29, 30</i>	<b>7</b> <i>Dec 29</i>	<i>*5th Warmest Winter *1st Warmest Spring *6th Warmest Summer *All Monthly Temperatures Above Normal</i>
<b>Salina</b>	<b>59.4</b> <i>6th Warmest</i> (56.1)	<b>37</b> <i>Tied 8th Most</i> (14.5)	<b>96</b> <i>Tied 5th Most</i> (62.1)	<b>11</b> <i>Tied 14th Least</i> (20.6)	<b>8</b> <i>Tied 15th Least</i> (13.5)	<b>110</b> <i>Jun 27</i>	<b>6</b> <i>Dec 10, 26, 29</i>	<i>*1st Warmest Spring *7th Warmest June *4th Warmest July *All Monthly Temperatures Above Normal Except Aug, Sep, Oct</i>
<b>Chanute</b>	<b>60.7</b> <i>1st Warmest</i> (56.9)	<b>25</b> <i>10th Most</i> (4.3)	<b>73</b> <i>Tied 25th Most</i> (44.7)	<b>5</b> <i>Tied 5th Least</i> (17.1)	<b>2</b> <i>6th Least</i> (9.6)	<b>110</b> <i>Jul 29</i>	<b>8</b> <i>Jan 18</i>	<i>*8th Warmest Winter *1st Warmest Spring *7th Warmest July *All Monthly Temperatures Above Normal Except Aug, Oct</i>

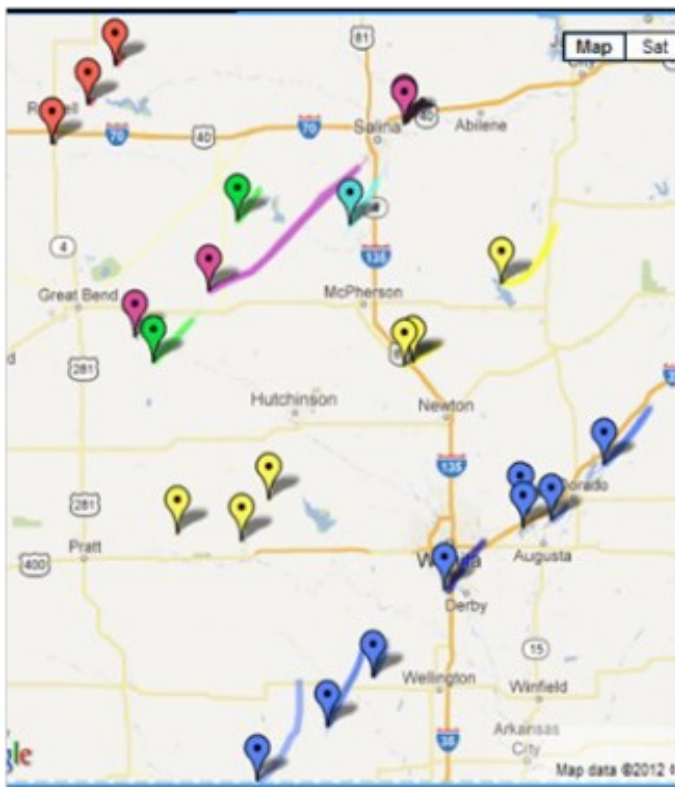
## *Rare February Tornadoes Impact South Central and Southeastern Kansas on February 28th, 2012*



*Photo Courtesy of Brandon Ivey*

A vigorous upper level system brought unusually rich gulf moisture northward into Kansas during the day on Tuesday, February 28th. A line of thunderstorms developed along a dryline over central and south central Kansas around 5pm once it encountered the deeper moisture. Severe weather began to break out over the region shortly thereafter with a tornado briefly observed in Reno County. The line of storms continued to race eastward producing damaging wind speeds of 60 to 110 mph and large hail ranging from walnut to baseball size. There were even a few storm related injuries reported in Labette County as the line of severe storms pushed through that area after 10pm.

## *April 14th, 2012 Tornado Outbreak*



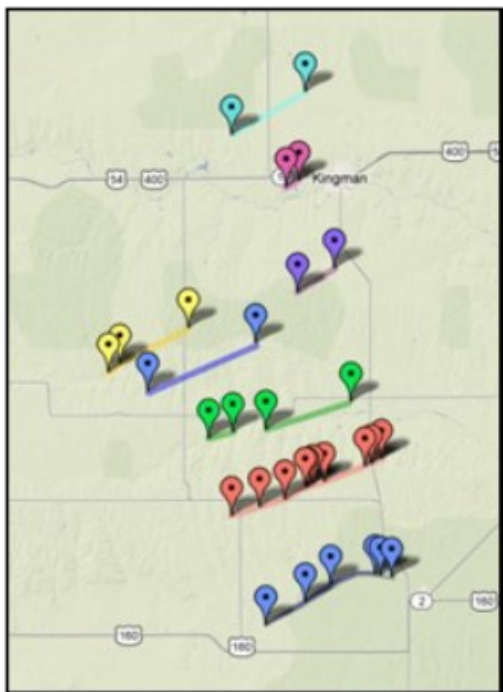
*Tornado tracks on April 14th, 2012 across Central and South Central Kansas*

April 14th, 2012 will go down as one of the more prolific days in severe weather history for central and southeast Kansas. In all, a total of 24 tornadoes touched down across the 26 counties served by the NWS Wichita, KS office. Of those 24 tornadoes, one was rated as an EF4 (winds up to 199 mph) and two were rated as EF3's (winds up to 167 mph). One surprising and fortunate statistic from this major event was the lack of injuries and fatalities considering that significant structural damage was noted to several homes and businesses. Each of the tornadoes classified as violent or strong were reported up to one mile in width at several points along their particular paths. Two other facts make this event memorable. First the NWS Wichita utilized enhanced hazard impact wording contained within the new Impact Based Warnings. Secondly, the Weather Channel broadcasted live from the NWS Wichita facility for approximately 9 hours. This was the first time that the Weather Channel

had access and broadcasted all facets of the event from the floor of the National Weather Service. This gave the public a unique perspective of how a NWS office operates during a severe weather event.



*EF 4 Damage in Ellsworth County*



*Tornado tracks on May 19th, 2013 in Kingman and Harper Counties.*

## *May 19th Kingman & Harper County Tornadoes*

May 19<sup>th</sup> was not a typical tornado day in KS. The first few tornadoes that developed were along a weak front situated in northern Kingman and southern Reno counties. The rotation within these tornadoes was so weak that the radar barely hinted at the possibility of a tornado. However, due to the efforts of Kingman County law enforcement and storm chasers, our office was able to effectively issue tornado warnings and notify the people in harms way. However, as the event continued to unfold, the weak circulations began to encounter a more favorable environment and quickly intensified in southern Kingman and Harper counties. The tornado that took place northwest of the town of Harper was rated as an EF3. This EF3 damage occurred when the tornado struck a farmstead 4 miles west and 2 miles north of the town of Harper, KS. Another EF3 tornado occurred along the Kingman/Harper county line as a strong tornado ripped through a wind farm causing damage to several turbines. One very interesting tidbit of information was also gathered from this tornado. A crane was left erect near the beginning of the wind field and recorded wind speed of 166 mph from approximately 200 feet off of the ground.



*EF3 damage to farmstead 4 miles west and 2 miles north of Harper, KS*



*EF1 damage to a wind turbine about 5 miles SE of Spivey, KS*

## *Drought 2012*

The year started out promising for much of the region with a precipitation surplus through early to mid-spring for many locations across the region. In fact, Wichita recorded its 3rd wettest winter on record (winter 2011-2012) tallying 7.29 inches of moisture. Ironically, most of that fell in the liquid form as relatively warm temperatures held the 2011-2012 season snowfall totals to a measly 3 inches. The faucet turned off by mid to late spring though, as high pressure in the mid and upper levels of the atmosphere began to dominate much of mid-America. This high pressure ridge, much like 2011, dominated through July resulting in persistent below normal rainfall. Salina recorded its 2nd driest May since 1900, Wichita had its 6th driest July since 1888, and Chanute had its 11th driest summer since 1894. With the exception of a few months early in the year, most months during 2012 recorded below normal precipitation. The drought has had a detrimental impact on agriculture and crops across the region. Due to a very dry fall, the winter wheat crop was already suffering. According to the Kansas Agricultural Statistics Service from late November and early December, 25% of the winter wheat across the state was in poor to very poor condition, 46% in fair condition, and only 28% in good condition; only 1% was rated excellent. Of course, livestock suffered terribly. Livestock producers were forced to move their animals off of pasture early because the grass was gone, and the water supply was depleted. As of September 10th, farmers and ranchers with cow/calf operations had been feeding hay for a couple of months. They were also forced to either deplete part of their herds or purchase high-priced feed. No doubt, the economic ramifications were significant. Furthermore, the drought has not only had a negative impact on agriculture and crops, but also has greatly reduced water levels on reservoirs and rivers, with many areas reporting very low and in some cases record low stream flows. This has adversely affected recreational boating. For additional information regarding the ongoing drought, please refer to the NWS Wichita's drought webpage.

The table below summarizes the 2012 precipitation data for Wichita, Salina and Chanute, along with rankings and normals.

<b>2012 Precipitation Highlights</b>								
	Annual Precipitation (Normal)	Days with at Least 0.01" Precipitation (Normal)	Days with at Least 0.50" Precipitation (Normal)	Annual Snowfall 2011-12 Season (Normal)	Days with at Least 1" Snow (Normal)	Wettest Day	Snowiest Day	Other Highlights
<b>Wichita</b>	<b>25.01"</b> <i>31st Driest</i> (32.64")	<b>64</b> <i>Tied 6th Least</i> (87.9)	<b>17</b> <i>Tied 31st Least</i> (21.2)	<b>3.0"</b> <i>Tied 7th Least</i> (14.9")	<b>1</b> <i>Tied 4th Least</i> (4.4)	<b>2.86"</b> Feb 3	<b>1.0"</b> Feb 12	*3rd Wettest Winter *6th Driest July *10th Driest October *Below Normal Precipitation All Months Except Feb, Mar, Apr
<b>Salina</b>	<b>18.01"</b> <i>7th Driest</i> (31.50")	<b>68</b> <i>Tied 14th Least</i> (88.0)	<b>10</b> <i>Tied 5th Least</i> (19.3)	N/A	N/A	<b>1.51"</b> Feb 3	N/A	*13th Wettest Winter *2nd Driest May *16th Driest Spring *Below Normal Precipitation All Months Except Feb
<b>Chanute</b>	<b>32.31"</b> <i>26th Driest</i> (42.07")	<b>74</b> <i>Tied 26th Least</i> (98.9)	<b>20</b> <i>Tied 16th Least</i> (26.6)	N/A	N/A	<b>2.28"</b> Sep 28	N/A	*3rd Driest January *12th Wettest March *11th Driest Summer *Below Normal Precipitation All Months Except Feb, Mar, Apr, Sep

## 2012 Severe Weather Summary

### North Central Kansas

#### National Weather Service - Hastings, NE

An “early start” would be a good way to describe the 2012 severe weather season across north central Kansas. The action began on February 28<sup>th</sup> with an EF-0 tornado southeast of Randall. This weak tornado, with winds estimated at 75 mph, broke power poles and tore some metal roofing from an outbuilding.



*A look at an approaching wall cloud southeast of Randall on February 28<sup>th</sup>. A tornado would eventually form, causing minor damage to the farmstead from which this photo was taken. Photo courtesy of Paula Jones.*

Similar to its predecessor, March brought another EF-0 tornado, this time to the Formoso area of Jewell County. This rare, near sunrise tornado, produced 80 mph winds which destroyed a machine shed. Thankfully the house was spared significant damage.

The tornadoes continued in April in Mitchell and Phillips counties on April 14<sup>th</sup> and April 27<sup>th</sup> respectively. On the 14<sup>th</sup>, a tornado near Tipton caused an estimated \$100,000 damage to outbuildings, garages and homes along its 4 mile path. This tornado was rated an EF -1 with maximum winds of 95 mph. Later that month, a storm chaser reported a short, EF-0 tornado near Woodruff. No damage was reported. Ironically, after a quick start, the tornado near Woodruff would be the last tornado reported in north central Kansas in 2012.



*A destroyed shed and mangled tree was just some of the damage from an April 14<sup>th</sup> tornado in the Tipton area. Photo courtesy of NWS Hastings.*

Though off to a quick and “tornadic” start, severe weather after April dwindled to some degree, at least when compared to previous years. Memorial Day weekend brought a couple rounds of severe storms producing high winds which were strong enough to flip a boat in Zurich. By mid-June, thunderstorm frequency had lessened further due to stifling

heat and the onset of drought. June 14<sup>th</sup> was an exception as thunderstorms produced several recorded winds gusts up to 65 mph from automated weather stations at Phillipsburg, Stockton, Smith Center and Beloit. It was late July, specifically the 25<sup>th</sup>, before storms of any significance roared into the area again. This time 70 mph winds broke power poles, rolled hay bales and pulled some tin from outbuildings in Rooks and Mitchell counties.

Interestingly, the “busiest” period for severe weather, at least in terms of storm reports, came from September 4<sup>th</sup> through the 6<sup>th</sup>. On the 4<sup>th</sup>, outflow-dominant thunderstorms rolled the six county region with 60-70 mph winds. A roof was ripped from a garage in Stockton, 40 power poles were broke near Woodston and several privacy fences were flattened by the intense wind. In one case, a home in Formoso caught fire after strong winds knocked tree limbs into a power pole which eventually broke causing the power lines to fall on the home. September 6<sup>th</sup> brought round two, albeit not as widespread. This time a 64 mph wind gust was recorded at the Stockton Airport. Damage on this day was minimal. All-in-all, no less than 13 high wind reports in excess of 60 mph were reported on the two days.

### 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.

## 2012 Severe Weather Summary

### Southwest Kansas

#### National Weather Service - Dodge City

After the devastating drought and heat of 2011, January started the year on a very dry note with minimal precipitation across western Kansas. But then changes finally took place that brought above normal precipitation from February through April that essentially saved the wheat crop. March ended up very mild and the month was the 2<sup>nd</sup> warmest March on record. One astonishing fact of the mild month was that the last freeze of the spring occurred on March 10<sup>th</sup> at Dodge City when the mercury fell to 29 and is by far the earliest last freeze that has occurred. The previous record was March 28<sup>th</sup> with the “normal” date April 21.

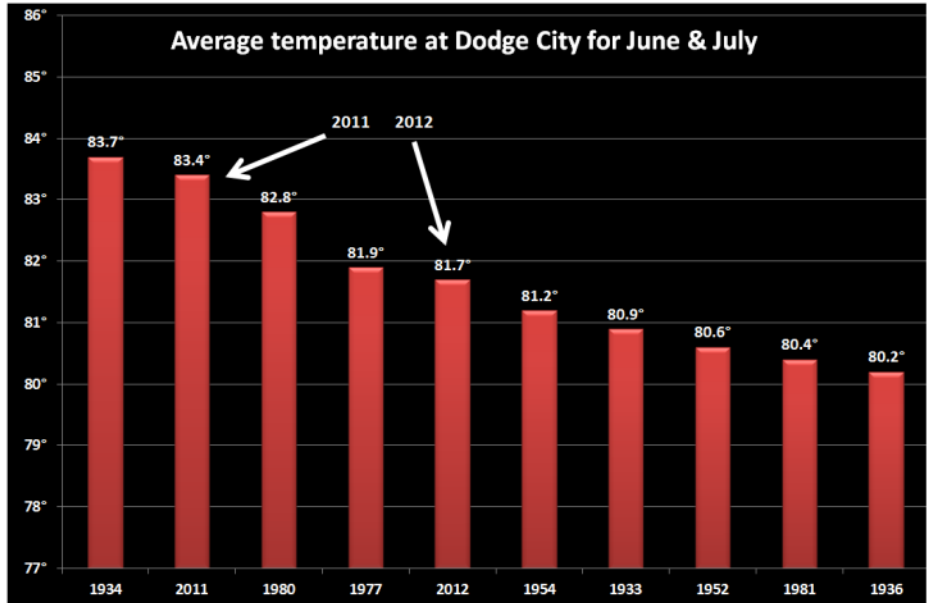
The first significant severe weather of the spring occurred in April. A vigorous storm system swept into the plains on Saturday, April 14, 2012 and helped to produce numerous tornadoes across the state of Kansas, including 16 tornadoes in the area that the Dodge City office serves. Thunderstorms developed rapidly during the mid-morning hours from near Liberal to Hays and intensified as the day progressed some producing tornadoes. The first tornado of the day formed just north of Dodge City. Later in the afternoon and late evening there were several monster tornadoes, one that had an astonishing maximum width of 1.5 miles! This larger tornado travelled 42 miles and had winds speeds up to approximately 140 MPH.



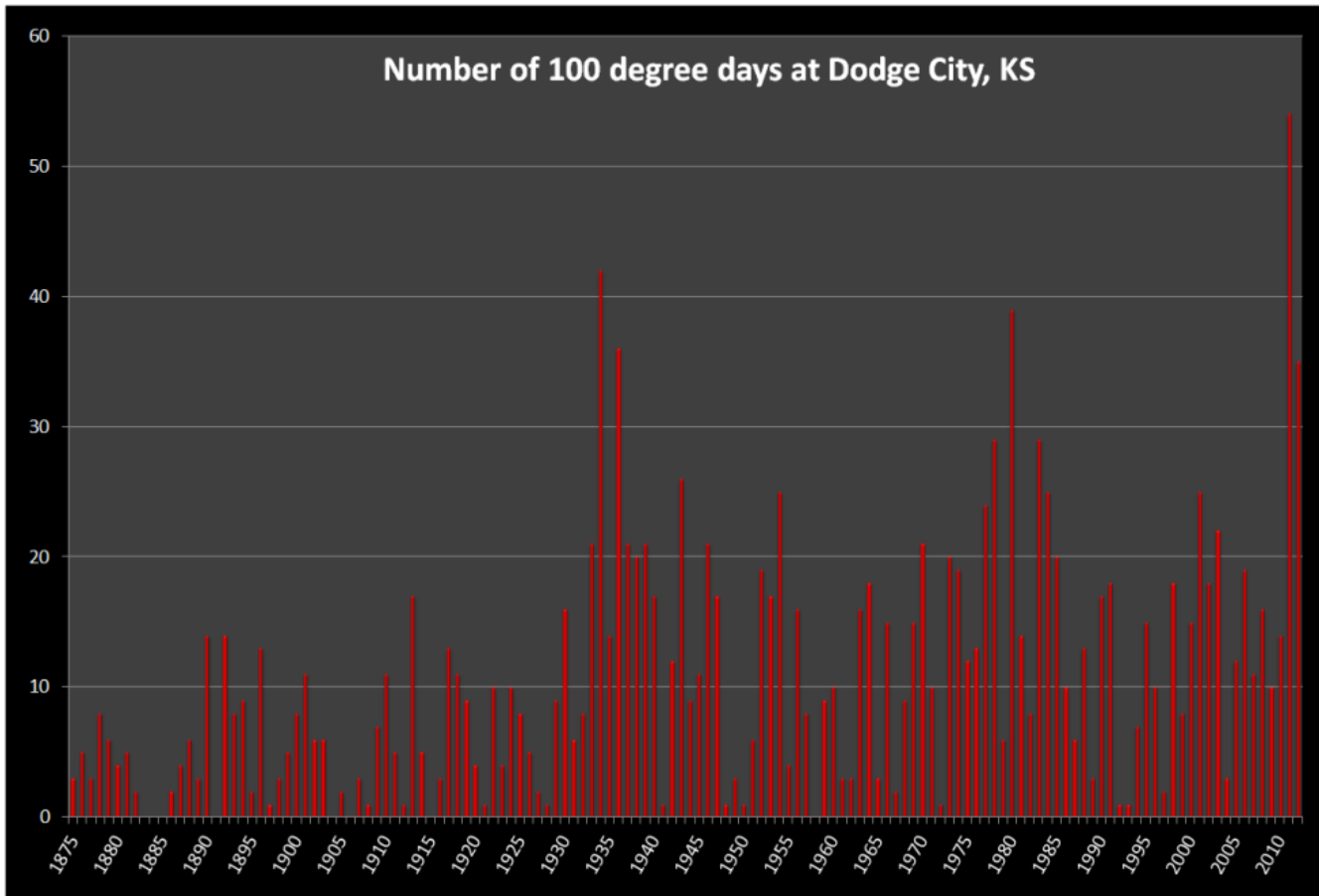
Another outbreak of tornadoes occurred on May 25<sup>th</sup> when nine tornadoes tore up Rush County. A satellite tornado moved through La Crosse and did extensive damage to trees and some buildings. There were three campers that were completely destroyed but thankfully the occupants had vacated them just before the storm hit. For the year there were 34 tornadoes, but the good news is there were no injuries or fatalities.



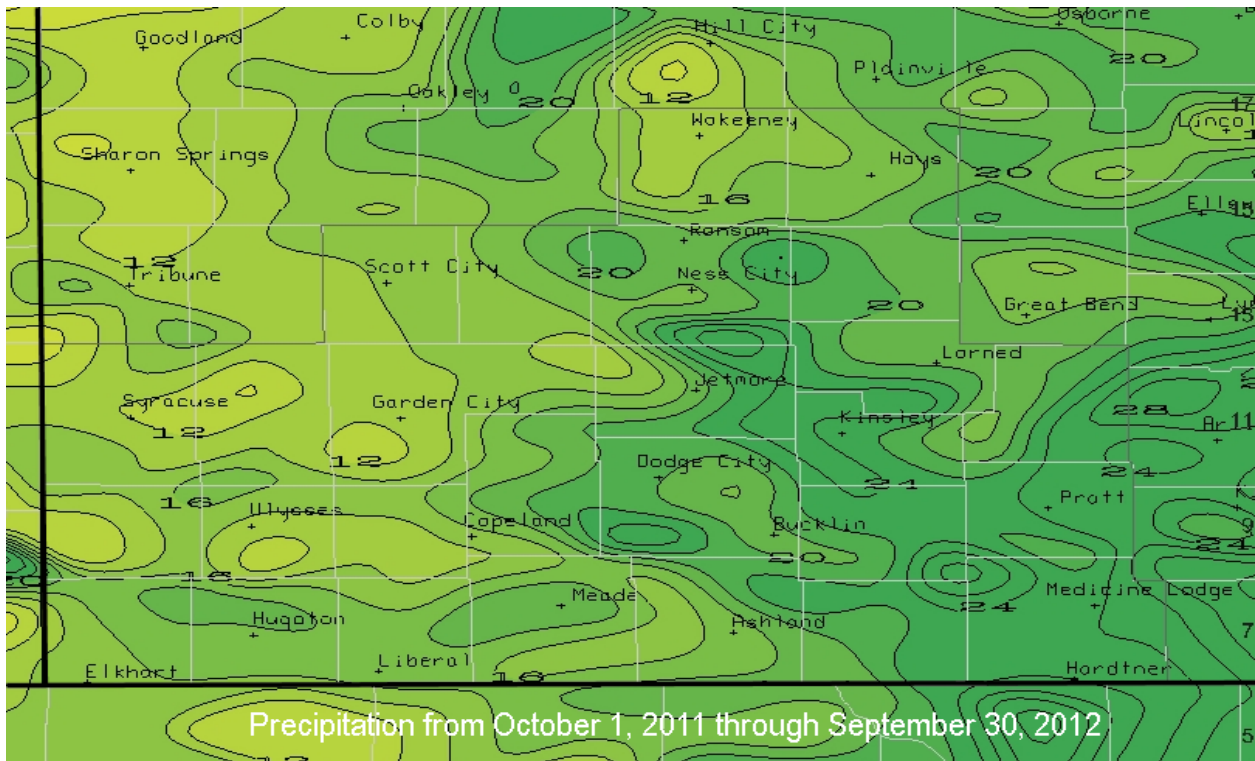
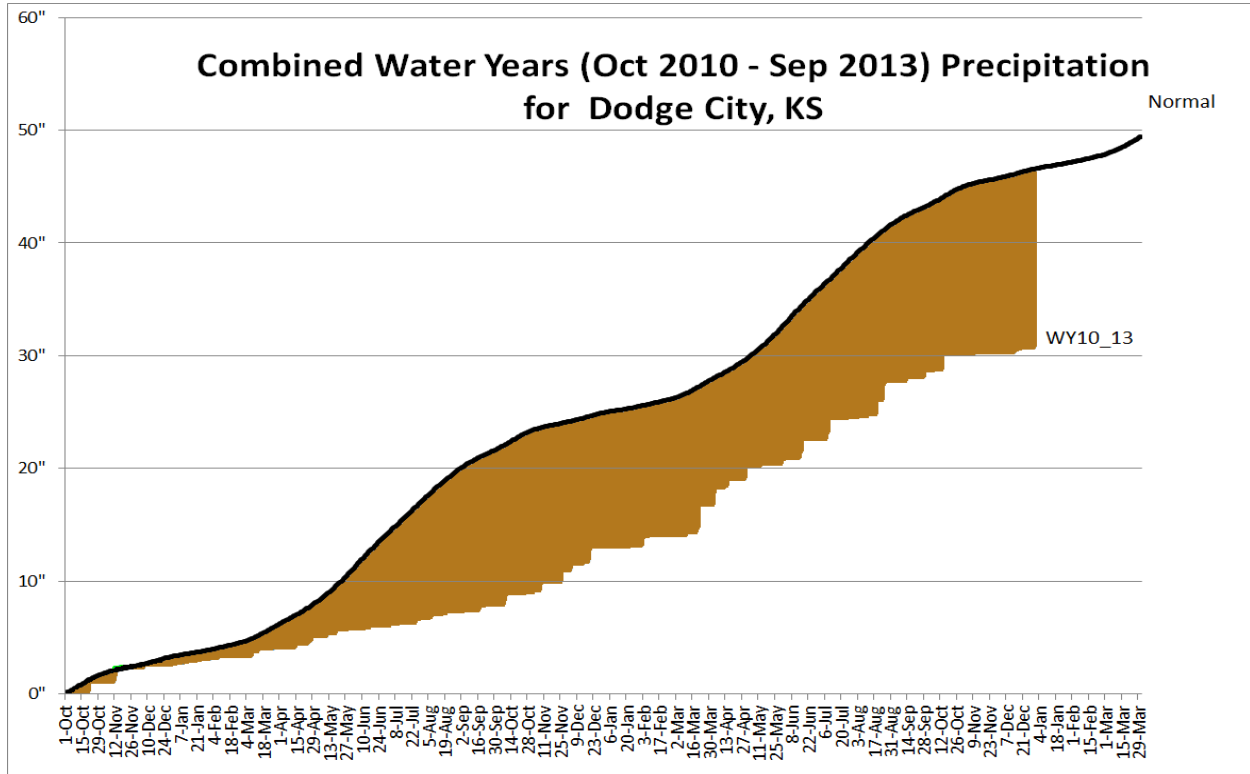
The biggest story of the year had to be the heat and drought that intensified during the summer. The first six months of 2012 averaged out to be the warmest start to the year on record. For Dodge City the average temperature of 55.5 degrees for that six month period was over a half degree warmer than the previous record and statistically very significant. The warm start (and especially the extremely warm March) helped carry the year to be the 2<sup>nd</sup> warmest on record, despite below normal temperatures from August through October.



The all-time record high temperature was set in Dodge City when the mercury rose to 111 degrees on June 27<sup>th</sup>. The previous record high was 110 and records date back to 1875! The number of 100 degree days at the Dodge City airport reached 35 and with the 54 days of 100 or hotter in 2011, the total of 89 days for 2011 and 2012 combined is by far the most recorded. Back in 1933/1934 there were 63 days.



Although there were pockets of above normal precipitation, most of the area had below normal moisture for 2012. There were some good rains in August that helped ease drought conditions somewhat and additional precipitation in October provided enough moisture to get the winter wheat crop germinated and growing. However, despite the moisture in August and October, the two year period 2011-2012 remained very dry with large rainfall deficits.



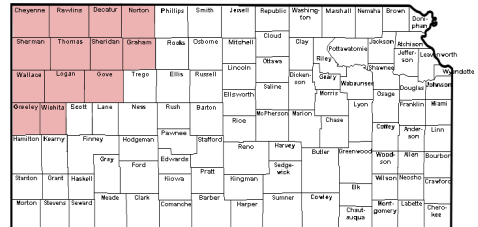
# 2012 Severe Weather Summary

## Northwest Kansas

### National Weather Service - Goodland, KS

The first significant weather event of 2012 occurred January 22<sup>nd</sup> behind a strong cold front. Wind gusts to 65 mph developed during the late morning and continued through the afternoon. Minor damage was reported in addition to several traffic accidents. The first significant snow of the year occurred February 3<sup>rd</sup>-4<sup>th</sup> when a large low pressure area moved in from the Central Rockies. Four to nine inches of snow was reported mainly along and north of Interstate 70, with highest amounts in Hill City, Norton and Oberlin. A few weeks later on February 20<sup>th</sup>, a strong weather system produced one to three inches of snow accompanied by 50-60 mph winds resulting in near blizzard conditions which caused I-70 to be shut down from Goodland west to Denver. Numerous minor traffic accidents occurred as a result of the inclement weather.

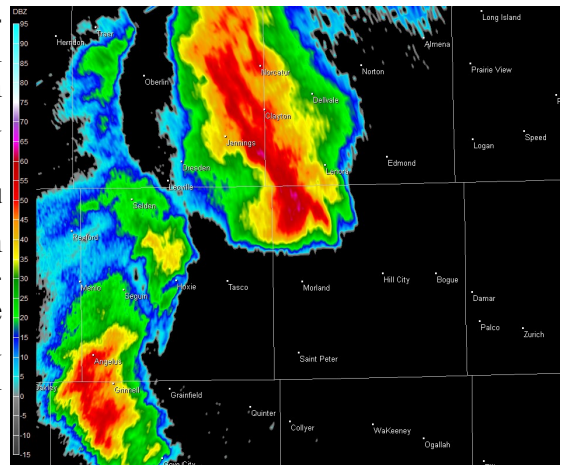
Kansas Counties Served By WFO Goodland



The severe convective weather season in northwest Kansas began in mid-April. Severe storms developed on April 12<sup>th</sup> and again on April 14<sup>th</sup> affecting mainly the northern tier counties in northwest Kansas. Quarter size hail occurred on the 12<sup>th</sup> and hail to the size of golf balls on the 14<sup>th</sup>.

In May, severe weather occurred on 6 days, but May 23<sup>rd</sup> and 26<sup>th</sup> were more noteworthy in terms of damage. On May 23<sup>rd</sup>, an intense thunderstorm produced winds estimated at 90 mph in northern Graham County. Fifty-five utility poles were broken, six irrigation pivots overturned and two outbuildings were damaged from storms which moved through the area around midnight.

Three days later during the evening, widespread reports of 60 to 80 mph winds were received as thunderstorm down-



*Radar image 12:03 am CDT May 24*



*Image taken across Rawlins county near Atwood . Photo courtesy of Laura Siefers.*



*Image taken across Rawlins county near Atwood . Photo courtesy of Laura Siefers.*

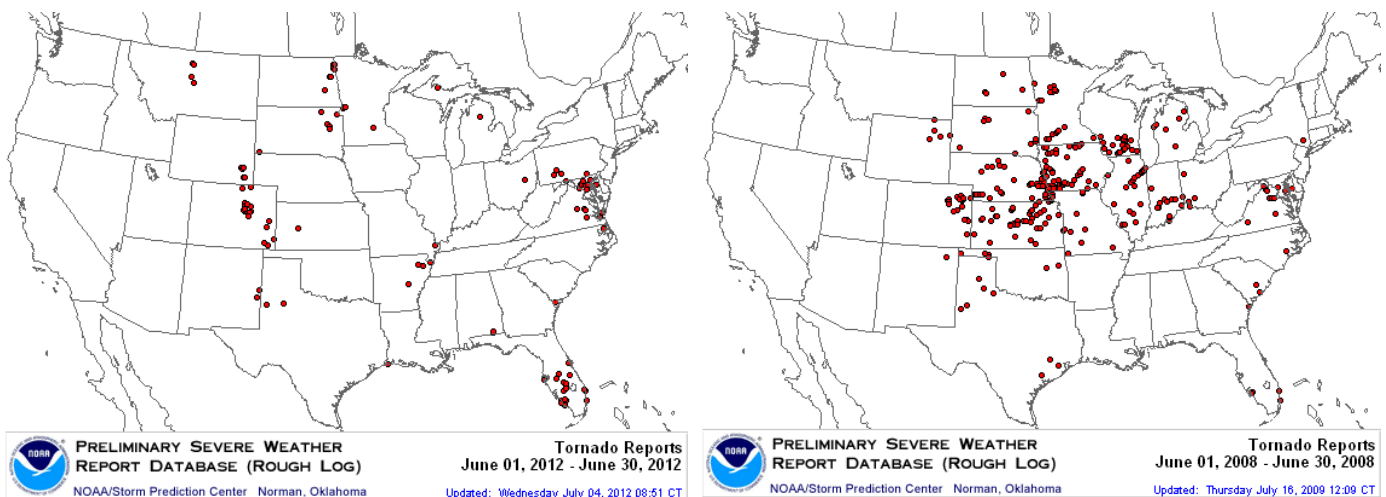
drafts channeled strong winds aloft to the surface. Mesonet stations measured winds just over 80 mph in Colby and Ludell. The result was significant localized damage and power outages. The thunderstorm outflows also caused utility wires to arc, igniting a large grass fire nearby.

**The first of only two tornadoes** in northwest Kansas in 2012 occurred on May 30<sup>th</sup>. A landspout tornado was observed in eastern Sherman County (Goodland) lasting for 20 minutes. The tornado moved very little during its lifetime and remained over open fields causing no damage.

June was the most active weather month in 2012 in terms of the number of severe reports, but as the month progressed the main weather story turned from severe storms to drought and extreme heat. Severe weather occurred on six days with only 39 severe reports received from spotters, law enforcement, emergency managers and the public. June 14<sup>th</sup> storms produced hail to the size of golf balls and winds to 70 mph across Rawlins, Norton and Graham counties early in the evening, while storms on the 30<sup>th</sup> produced severe wind gusts across Thomas, Gove, Sheridan and Graham counties, with a peak gust of 76 mph in Seguin.

**The second and final 2012 tornado** in the Goodland county warning area developed on July 17<sup>th</sup> over northeast Sherman County. This tornado lasted for 15 minutes and resulted in no damage as it remained stationary over open fields. Severe weather was reported on seven days in July, but reports were isolated and in many cases marginally severe. One flash flood event took place near Oakley on July 8<sup>th</sup> as thunderstorm outflows merged over the area resulting in 2-3 inches of rain. Rapid runoff flowed across highway 40 resulting in road closure for a short time until the water subsided.

As the summer progressed **the heat intensified**, thanks to a large ridge of high pressure aloft that began setting up across the Central U.S. in June. The high pressure area resulted in extended periods of high temperatures over 100 degrees, well below normal rainfall and a lack of severe weather. The two maps below compare tornado occurrences in June of 2012 (left) and a more active June (2008). Note the lack of tornado reports across Kansas last year beneath the upper ridge.



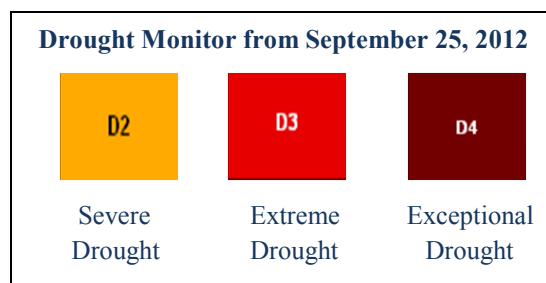
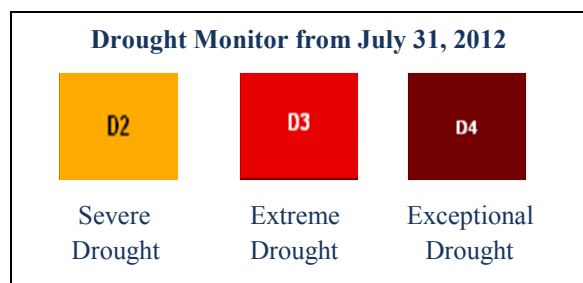
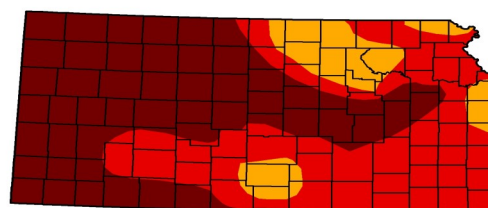
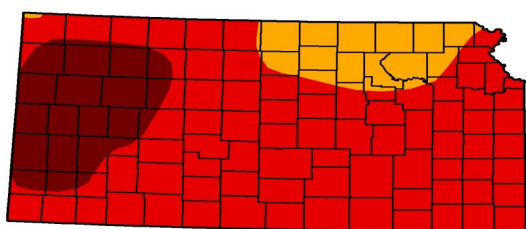
In addition, several observing stations in northwest Kansas either tied or set new all-time temperature records for the station in late June and early July, including an incredible 118 degrees in Norton County!

Colby, Kansas ... 113°F

Norton Dam, Kansas ... 118°F

Tribune, Kansas ... 111°F

**Drought became the main weather story** during the late summer months. By the end of July (left image below), the entire state was in drought with much of western Kansas listed as being in Exceptional (D4) Drought, the highest rating, shown in dark red. By the end of September (right image below), the lack of summer precipitation combined with well above normal temperatures pushed half the state into the Exceptional Drought classification. Goodland finished the summer with 27 days at or above 100 degrees which is the third highest number of 100 degree days on record.



After a dry and uneventful fall, Goodland found itself in the running for the driest year on record with 2012 annual precipitation at just 9.09 inches through mid-December. However, two winter storm systems, one on December 19<sup>th</sup> and another on the 31<sup>st</sup>, dropped just enough moisture to make **2012 the third driest year** coming in with a final total of 9.59 inches of moisture. The first December storm on the 19<sup>th</sup> brought blizzard conditions to the area with 45 to 55 mph winds and snowfall of up to six inches. Near zero visibility in falling and blowing snow resulted in the closure of nearly all area roads including Interstate 70. Another storm on New Year's Eve brought an additional 2-5 inches of snow across Gove, Sheridan, Graham and Norton counties.

# **2012 Severe Weather Summary**

## **Southeast Kansas**

### **National Weather Service - Springfield, MO**

**In extreme southeast Kansas, 2012 was a quiet year for severe weather though exceptional drought gripped the region for most of the year.**



Through the winter of 2011-2012 dry conditions were in place from an ongoing drought that had begun during the summer of 2011. Limited amounts of precipitation fell, including virtually no snowfall during the winter months which contributed to the continuation of the previous year's drought into the beginning of 2012.

After a wetter than normal April through June, the summer brought a return of drought conditions. Drought conditions deteriorated to Extreme (D3) to Exceptional (D4) Drought by late July into early August. As a result of the very dry conditions and periods of hot temperatures, grass and brush fires became a problem for some locations. The very dry conditions remained through much of the fall before rains returned in November helping to alleviate some of the worst drought conditions though severe (D2) drought remained at the end of the year.

Through the normal severe weather season from March through June, there were very few severe weather events. No tornadoes occurred in Bourbon, Cherokee or Crawford counties through the spring severe weather season. Occasional severe storms produced wind damage, hail and minor flooding with this trend continuing through the remainder of the year.

Be sure to find your local NWS office on Twitter



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

**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**



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:

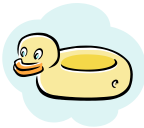
Go to the basement or to an interior room on the lowest floor (e.g. closet or bathroom). Upper floors are unsafe. If there is no time to descend, go to a closet, a small room with strong walls or an inside hallway. Wrap yourself in overcoats or blankets to protect yourself from flying debris.

### 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.



**"DUCK"**

**Down to the lowest level  
Under something sturdy**

**Cover your head**

**Keep in the shelter until  
the storm has passed**

- Or, buckle your seat belt and get below window level of your vehicle.

### 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.

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## 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!**

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## 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!**

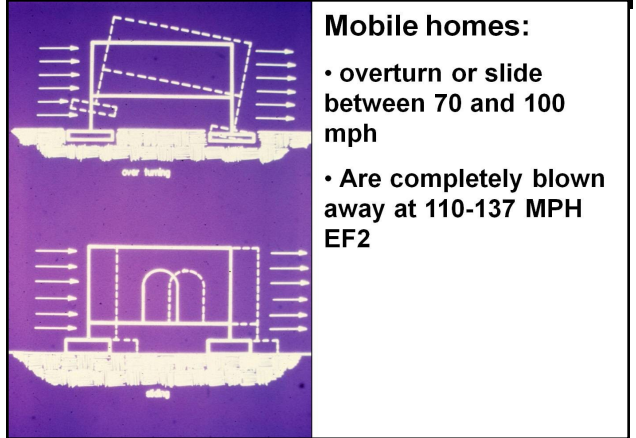
- Tune to the NOAA Weather Radio, or your favorite news source for all flood and any other weather related information.
- Leave areas subject to flooding, such as dips, low spots and underpasses.
- Do not attempt to cross flowing streams, you don't know how deep the water could be.
- Never drive through 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!** 24



# 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.



## Truck stays - M. Home flipped



Picher, OK 2008

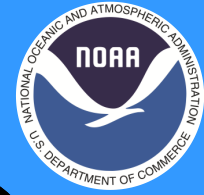
## Remember!

- 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](http://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:

#### Staple Items

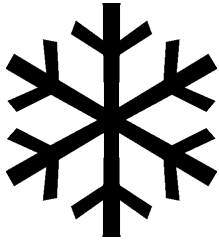
- 3 day supply of water (1 gallon per person per day)
- 3 day supply of nonperishable, ready to eat food items and manual can opener
  - high energy foods, e.g. peanut butter
  - juices, dried milk
  - sugar, salt, pepper
- First Aid Kit (see list for individual items)
- Flashlight and extra batteries, 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

**BE  
PREPARED**

#### 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

26



# Winter Disaster Kit

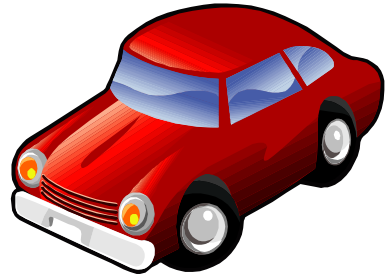
## Winterizing your Disaster Kit



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.

- |   |  |
|---|--|
| <input type="checkbox"/> Flashlight and extra batteries | <input type="checkbox"/> Booster/Jumper cables                     |
| <input type="checkbox"/> Maps                           | <input type="checkbox"/> Air pump                                  |
| <input type="checkbox"/> Small First Aid Kit            | <input type="checkbox"/> Flares                                    |
| <input type="checkbox"/> White Distress Flag            | <input type="checkbox"/> Bottled water                             |
| <input type="checkbox"/> Tire Repair kit                | <input type="checkbox"/> Non-perishable foods such as granola bars |

### Winter supplies

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

### Summer Supplies

- 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

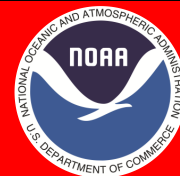
running air conditioners. A NOAA Weather Radio with a back-up battery can make the difference for you and your family.

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**



# 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 cubra 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.

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### 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 víctima 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,**

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### 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!**

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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.