

2024 KANSAS SEVERE WEATHER AWARENESS Information Packet



SEVERE WEATHER AWARENESS WEEK

March 4-8, 2024

TORNADO SAFETY DRILL

Wednesday, March 6, 2024

11AM CST/10AM MST

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[Check out these additional resources](#)

[Helpful Weather Websites](#) [Seasonal Safety Campaigns](#)

[Lightning Safety Toolkits](#) [StormReady Program](#)

**KANSAS SEVERE WEATHER AWARENESS WEEK
MARCH 4-8, 2024**

2023 Kansas Tornado Overview

Tornadoes: 44 17 below the 1950-2023 average of 61
 37 below the past 30 year average of 81
 41 below the past 10 year average of 62

Fatalities: 0 **Injuries:** 2

Longest track: 11.59 miles (Chase County, April 19, EF2)

Strongest: EF2 (Brown County, May 12 & two in Chase County, April 19)

Most in a county: 9 (Chase County)

Tornado days: 19 (Days with one or more tornadoes)

Most in one day: 11 (May 11)

Most in one month: 20 (May)

First tornado of the year: February 26 (Seward Co., 4:42PM CST, EF0, 3.89 mile length, 10 yard width)

Last tornado of the year: October 12 (Mitchell Co., 2:39PM CST, EF0, 0.01 mile length, 20 yard width)

Length of tornado season: 229 days (Days between first and last tornado)

----- 2023 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	0	0	0	0	0	0	0	0	0	0	0%
EF3	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
EF2	0	0	0	2	1	0	0	0	0	0	0	0	3	6.8%
EF1	0	0	0	3	3	0	0	0	0	1	0	0	7	15.9%
EF0	0	1	0	5	6	3	2	0	0	1	0	0	18	40.9%
Unknown	0	0	0	0	10	0	3	2	1	0	0	0	16	36.4%
Total	0	1	0	10	20	3	5	2	1	2	0	0	44	100%
Percent	0%	2.3%	0%	22.7%	45.5%	6.8%	11.4%	4.5%	2.3%	4.5%	0%	0%		

Violent (EF4—EF5) in red, Strong (EF2-EF3) in yellow, Weak (EF0-EF1) in green, Unknown in orange. Monthly totals in gray. Tornadoes not causing damage ranked as unknown due to insufficient data to assign a rating. (Percent values may not add to 100% due to rounding)

Annual Highlights: The 2023 tornado season had less tornadoes than last year but more than 2021. Comparatively, in 2022, 56 tornadoes were recorded with 37 reported in 2021. The strongest tornado in 2023 was an EF-2, of which there were three (two on April 19th in Chase County from the same storm and one in Brown County on May 12th). The first EF-2 on April 19th occurred near Elmdale, KS. This tornado twisted and scattered metal posts of an outbuilding and totally destroyed a couple other outbuildings along with causing significant tree damage. The tornado was 11.59 miles long and had a maximum width of 880 yards. The second EF-2 of the day occurred near Saffordville, KS. This tornado damaged power lines along with minor damage to a home; the tornado continued into Morris County before ending. The path length was 4.59 miles long and had a maximum width of 300 yards. For the third EF-2 tornado, it formed near Hamlin, KS. Notable damage from this tornado included damaging the roof and siding of a house and completely destroying outbuildings. The path length was 1.48 miles long and had a maximum width of 500 yards.

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Kansas Tornado Statistics

by County

1950 - 2023

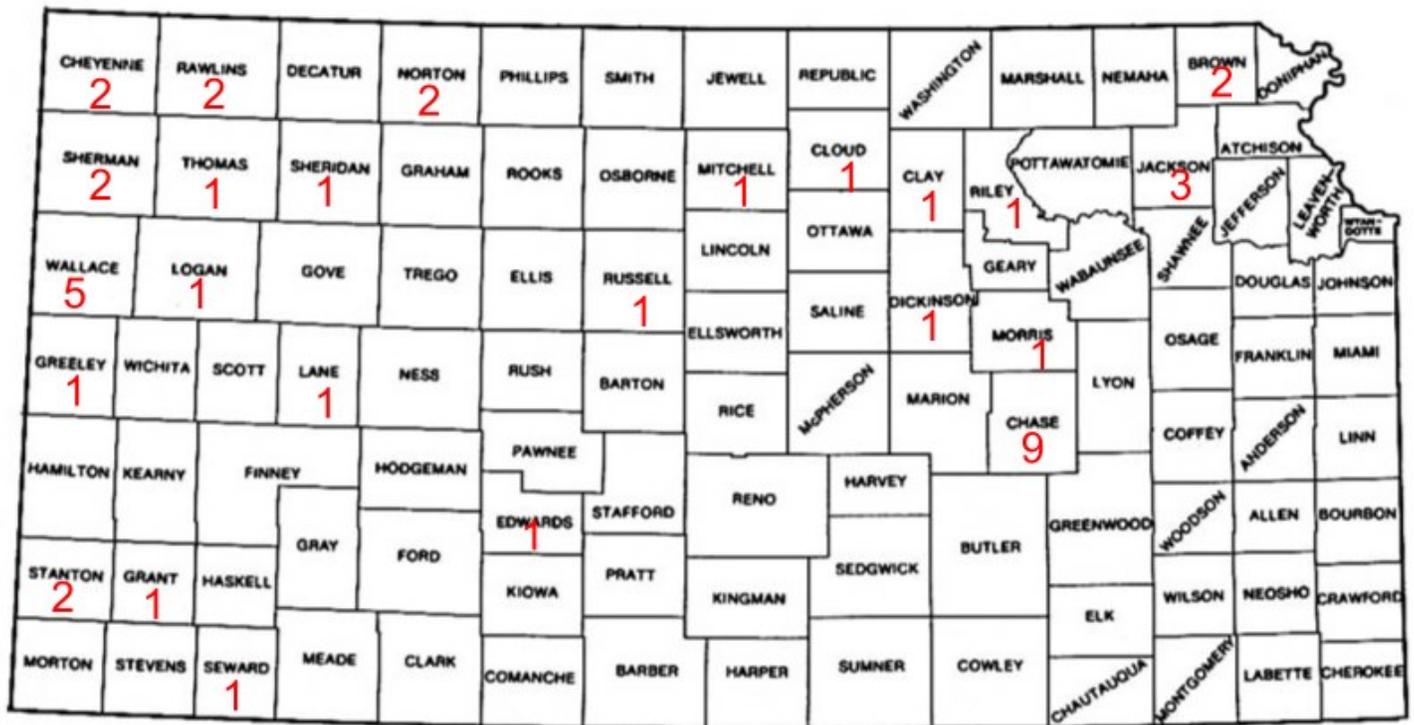
TORNADOES, FATALITIES, AND INJURIES

Legend: Tor = Tornado | Fat = Fatalities | Inj = Injuries

County	Tor	Fat	Inj	County	Tor	Fat	Inj	County	Tor	Fat	Inj
Allen	27	0	4	Greenwood	47	0	18	Pawnee	54	0	1
Anderson	15	3	12	Hamilton	33	0	1	Phillips	41	0	1
Atchison	16	0	11	Harper	64	0	1	Pottawatomie	37	1	5
Barber	41	0	2	Harvey	50	1	63	Pratt	74	3	10
Barton	107	2	40	Haskell	33	0	10	Rawlins	53	0	4
Bourbon	19	0	7	Hodgeman	59	0	4	Reno	87	0	22
Brown	48	0	5	Jackson	37	4	17	Republic	63	0	3
Butler	90	28	226	Jefferson	42	0	101	Rice	50	0	6
Chase	50	0	4	Jewell	43	0	2	Riley	33	0	51
Chautauqua	21	0	0	Johnson	46	0	12	Rooks	53	0	6
Cherokee	41	4	66	Kearny	46	0	0	Rush	53	0	8
Cheyenne	48	0	0	Kingman	67	0	1	Russell	82	1	7
Clark	42	0	0	Kiowa	61	11	74	Saline	48	0	66
Clay	46	1	31	Labette	43	1	29	Scott	58	1	1
Cloud	53	1	8	Lane	49	0	2	Sedgwick	90	13	362
Coffey	24	0	5	Leavenworth	31	2	30	Seward	40	0	15
Comanche	44	0	2	Lincoln	35	0	2	Shawnee	56	18	528
Cowley	85	77	293	Linn	14	0	3	Sheridan	46	0	0
Crawford	37	4	43	Logan	36	0	0	Sherman	116	0	0
Decatur	51	0	5	Lyon	50	7	222	Smith	45	0	2
Dickinson	44	1	17	Marion	51	1	2	Stafford	73	3	5
Doniphan	20	0	2	Marshall	41	0	1	Stanton	26	0	0
Douglas	43	1	64	McPherson	55	1	16	Stevens	25	1	5
Edwards	57	0	7	Meade	57	0	0	Sumner	88	5	14
Elk	26	2	8	Miami	23	4	10	Thomas	59	0	1
Ellis	66	0	6	Mitchell	52	0	5	Trego	63	5	101
Ellsworth	51	0	0	Montgomery	36	1	1	Wabaunsee	44	1	26
Finney	100	1	41	Morris	37	0	7	Wallace	46	0	4
Ford	113	0	2	Morton	20	1	2	Washington	41	2	12
Franklin	30	3	34	Nemaha	40	0	3	Wichita	35	0	4
Geary	21	0	3	Neosho	31	0	4	Wilson	16	0	0
Gove	59	0	3	Ness	53	0	4	Woodson	12	0	8
Graham	43	0	0	Norton	32	0	0	Wyandotte	10	2	36
Grant	27	0	9	Osage	48	17	6				
Gray	55	0	3	Osborne	46	0	13				
Greeley	43	0	0	Ottawa	35	2	12	Total	4963	237	2955

KANSAS SEVERE WEATHER AWARENESS WEEK
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Kansas Tornadoes 2023



44 tornadoes impacting 24 counties

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
05/24/16	34
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
05/06/15	22
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:	768
2020s:	154

Most Tornadoes in One Episode

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

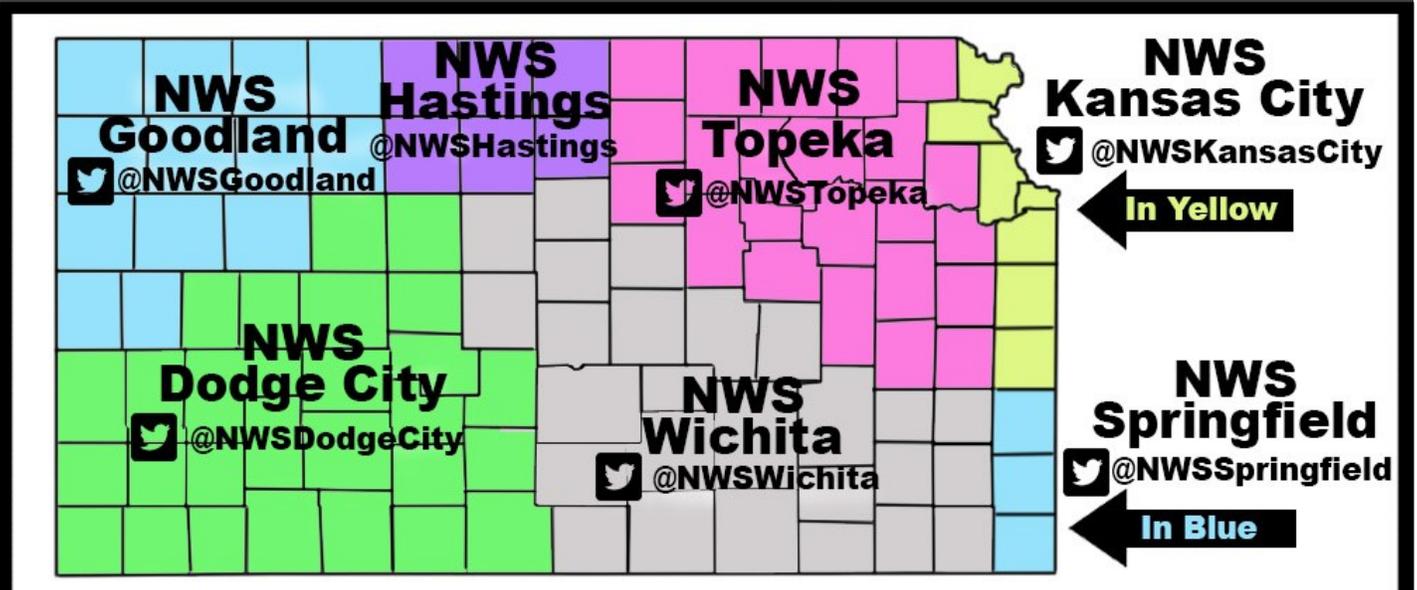
Did you know...

There are seven National Weather Service offices that serve portions of Kansas!

National Weather Service (NWS) offices serving Kansas are located in Goodland; Dodge City; Wichita; Topeka; Hastings, Nebraska; Pleasant Hill (Kansas City), 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, office tours, or to learn more about careers in meteorology in the NWS or in NOAA.

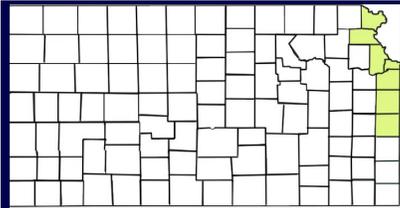
We are here to serve you!



The following pages contain 2023 weather summaries for each NWS office. Here is severe weather terminology you may encounter.

- **Severe Thunderstorm** – The National Weather Service issues severe thunderstorm warnings for storms that are currently or are capable of producing winds of 58 mph or stronger and/or hail one inch in diameter or larger. Severe thunderstorms are often 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 as a pendant from a cumuliform cloud or underneath a cumuliform cloud, and it is 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 and is associated with a rotating column of air that may or may not be in contact with the ground.
- **Flash Flood** – A flash flood is flooding that occurs very rapidly and usually within six 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.

**KANSAS SEVERE WEATHER AWARENESS WEEK
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2023 Weather Summary

Extreme East Central and Northeast Kansas

National Weather Service - Pleasant Hill, MO



79

**Severe
Thunderstorm
Warnings**



0

**Confirmed
Tornadoes**



Strongest Wind Gust:



89mph

**4 WSW Shawnee on
7/14**

Largest Hail:



**Tennis Ball (2.5" diameter)
2 W Lenexa on 9/23**



Hottest Temperature: Olathe (OJC)

105 °F (8/25)



10

**Most 100°+ Days:
10 - Gardner (OJC)**

**Coldest Temperature: Olathe
(OJC) and Gardner (IXD)**



-5 °F (1/29 & 1/30)

**Most 32° or Lower Days:
Olathe (IXD) & Gardner (OJC)**



7



36.18"

**Most Annual
Precipitation:
Gardner (IXD)**

(1.36" below average)



Highest 1-Day Rainfall:

2.72" Gardner (IXD) on 10/25



2023 Eastern Kansas: By the Numbers

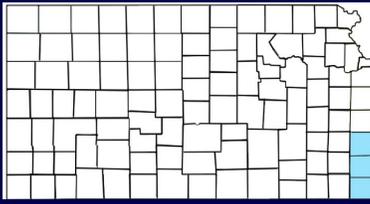
	Gardner <i>(Olathe New Century Airport)</i>	Olathe <i>(Johnson Co. Exec. Airport)</i>
Hottest Temperature	104° 7/28, 8/24, 8/25	105° Aug 25
Highest Heat Index	122° Aug 20	122° Aug 20
100°+ Days	10	9
Coldest Temperature	7° Jan 31 & Feb 1	9° Jan 25 & Feb 1
Lowest Wind Chill	-5° Jan 29 & 30	-5° Jan 30
32° or Lower Days	7	7
Annual Precipitation	36.18"	32.57"
Highest 1-Day Precipitation	2.72" Oct 25	2.31" Oct 25

Check out a storm identification and weather safety training presentation near you this spring!

Each spring, the National Weather Service offices that serve the state of Kansas conduct storm identification and weather safety training sessions in most counties in the state. The sessions are free and open to the public. These presentations provide a great deal of information on severe weather in Kansas including ways to get weather information from the National Weather Service. You can also meet a meteorologist from your local office.

The schedule for storm identification training sessions varies in each community, please check out www.weather.gov and click your location for more information on a training session in your area. Otherwise use this [link](https://bit.ly/40ksxUg): <https://bit.ly/40ksxUg>

**KANSAS SEVERE WEATHER AWARENESS WEEK
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2023 Weather Summary

Southeast Kansas

National Weather Service - Springfield, MO



62

**Severe
Thunderstorm
Warnings**



0

**Confirmed
Tornadoes**



Strongest Wind Gust:

79mph

Fort Scott on 7/14



Largest Hail:

Ping Pong (4" diameter)

Crawford Co. on 4/15



Hottest Temperature:
Fort Scott

104° F (8/21)



10

Most 100°+ Days:
Girard



Coldest Temperature:
Fort Scott

10° F (1/31 & 2/1)



5

Most 32° or Lower Days:
Pittsburg



42.79" **Most Annual
Precipitation:**
Pittsburg

(5.1" below average)



2.2"

**Most Annual
Snowfall**

Farlington

(About 7.3 below average)



Highest 1-Day Rainfall:
4.89" Pittsburg on 7/13



Highest 1-Day Snowfall:
1.8" Farlington on 1/25



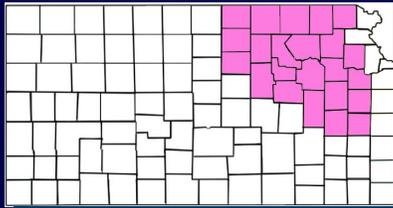
2023 Far Southeast Kansas: By the Numbers

	<i>Columbus</i>	<i>Pittsburg</i>	<i>Ft Scott</i>
Hottest Temperature	97° Sep 6	103° Aug 21	104° Aug 21
Coldest Temperature	17° Nov 1	14° Feb 1	10° Feb 1
Annual Precipitation	39.38"	42.79"	27.92"
Highest 1-Day Precipitation	4.64" Aug 5	4.75" Jul 13	1.83" Sep 24
Annual Snowfall	1.6"	1.5	0.0
Highest 1-Day Snowfall	1.0" Jan 25	1.0" Jan 25	0.00

In a year in which drought was the most captivating weather element, there were once again fewer severe storms including no confirmed tornadoes. The most significant severe thunderstorm event of the year in far southeast Kansas involved a pair of storms that moved through Bourbon County with the first just before midnight on April 4th that produced measured 79 mph winds at Fort Scott and a second damaging wind storm 90 minutes later. Together these storms resulted in nearly a half million in damages to homes and businesses. Several other storms produced wind damage during the year with noteworthy storms from July 12-14th producing up to 70 mph winds causing over \$250,000 in damages across parts of Bourbon and Crawford counties. These storms also led to flash flooding in Pittsburg with several water rescues. There were over 15 nickel to quarter sized hail events mainly in March and April with the largest being ping pong sized hail which fell to the southeast of Pittsburg on April 15th.

Varying amounts of rainfall led to far southeast Kansas remaining in stages of drought throughout 2023 causing estimated crop losses in excess of \$2M across Bourbon, Crawford and Cherokee counties as well as damages to cattle production. As 2023 ended, the region remained in Moderate to Severe Drought.

**KANSAS SEVERE WEATHER AWARENESS WEEK
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2023 Weather Summary

Northeast and East Central Kansas

National Weather Service - Topeka, KS

 **261** **Severe Thunderstorm Warnings***

 *Most since 2019, 3rd highest since 1986*
*Highest 2023 daily total: 30 on 4-19**

 **10** **Confirmed Tornadoes**

Strongest was EF-2.
Brown Co. on 5/12.

 **Strongest Wind Gust:**
90mph
Jefferson Co. on 6/30

 **Largest Hail:**
Softball (4" diameter)
Wabaunsee Co. on 6/30.

 **Topeka Hottest Temperature**
111°F (8/19)

 **15** **Topeka Days of 100°+ High Temperatures**

 **Topeka Coldest Temperature**
8°F (1/31, 2/1 & 2/3)

*7 days in a row from August 19-25**
Heat indices of 110-130°F

 **27.33"** **Topeka Total Precipitation**

9.20" below normal for the year
(Jan. through Dec.)

 **12.5"** **Topeka Total Snowfall**

4.6" below normal for the year
(Jan. through Dec.)

 **Highest Event Rainfall:**
6.00" in Franklin Co.
on 5/30-31

 **Highest Event Snowfall:**
6" in Washington Co.
on 1/21-22

The 2023 severe weather season across northeastern Kansas featured ten tornadoes, one microburst, several events with over 80 mph winds and very large hail.

The first impactful event occurred during the evening hours of April 19th. A series of storms produced an EF-1 tornado in Morris County, an EF-0 tornado in Riley County, and a microburst with estimated winds of 90 mph that impacted Clay Center which caused widespread tree damage. Another complex of severe storms moved through the area during the day on May 9th producing two small tornadoes, one in Cloud County and one in Clay County.

Only a few days later, five tornadoes occurred on May 12th including the largest tornado of the season - an EF-2 in Brown County that also produced 2" diameter hail. Winds were estimated to reach 112 mph with that tornado and damage included destroyed outbuildings, home and tree damage. Jackson County saw three smaller tornadoes that day as well.

**Tornado Northwest of Hiawatha, KS
on May 12, 2023**



**Tornado North of Whiting, KS
on May 12, 2023**



Late June was another active period in northeast Kansas. On the morning of the 29th, a large supercell thunderstorm moved through far northern Kansas and produced widespread 80 mph winds in that area. The next day, supercell thunderstorms caused 70 to 90 mph winds, the strongest of which occurred in Jefferson County, and very large hail. A squall line of thunderstorms then impacted Independence Day festivities as a cluster of storms in Nebraska developed into a severe line of storms in northern Kansas that evening. Wind gusts of 80 mph were reported. There were three more events later in July that produced winds of 80 to 85 mph and one landspout tornado in Dickinson County.

Outside of severe thunderstorms and tornadoes, northeast Kansas also experienced seven straight days of triple digit heat from August 19th-25th. At times temperatures exceeded 110 degrees and heat indices exceeded 120 degrees. Widespread drought also impacted the area from March through November. Finally, an early season impactful snowstorm occurred on November 25th. Amounts of 6 to 10 inches were common from Emporia through the Topeka area.



Also be sure to check if your county emergency manager has a facebook page for your county.

Be sure to find your local NWS office on facebook

NWSDodgeCity

NWSSpringfield

NWSGoodland

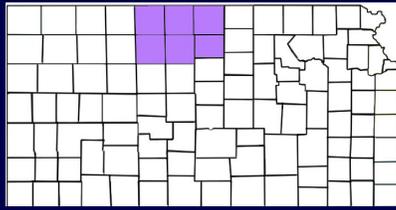
NWSTopeka

NWSHastings

NWSWichita

NWSKansasCity

**KANSAS SEVERE WEATHER AWARENESS WEEK
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2023 Weather Summary

North Central Kansas

National Weather Service - Hastings, NE



108

**Severe
Thunderstorm
Warnings**

October 3: Most warnings
in one day (15)



1

**Confirmed
Tornado**

October 12: Brief tornado 2.5
miles west of Beloit.
Rated: EF-U (no damage)



**Strongest
Wind Gust:**

May 9: 81 mph near Osborne



Largest Hail:

July 16: Tea Cup (3" diameter)
11 miles southwest of Osborne



NC Kansas Hottest Temperature

110° F (August 20)

- Webster Dam and Plainville

**NC Kansas Warmest
Overnight Low Temperature**

78° F (July 27)

- Lovewell Dam



NC Kansas Coldest Temperature

-4° F (Jan. 31 & Feb. 1)

- Phillipsburg/Smith Center/Kirwin Dam

**NC Kansas Coldest Daytime
High Temperature**

6° F

- Lovewell Dam (1/30)



Highest Total Precipitation - 29.56" in Lebanon

Lowest Total Precipitation - 20.86" in Cawker City



Highest Total Snowfall - 24.7" in Plainville



Highest 1-Day Rainfall:
August 26: 3.60" near
Lebanon



Highest 1-Day Snowfall:
January 19: 9" in Logan

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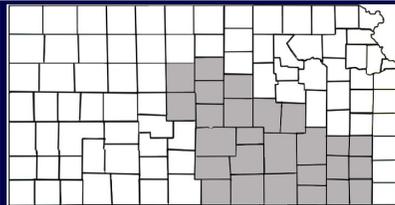


2023 In North Central Kansas: By the Numbers

(Jewell, Mitchell, Osborne Phillips Rooks and Smith counties)

	<i>Smith Center</i>	<i>Plainville</i>	<i>Beloit</i>
<i>Hottest Temperature</i>	106° July 27 & 29 Aug. 20	110° Aug 20	106° July 29 Aug. 20 & 26
<i>100°+ Days</i>	14	17	11
<i>Coldest Temperature</i>	-4° Feb. 1	-1° Feb. 24	2° Jan. 23 & 31
<i># of days Average Temp. 32° or Lower</i>	55	53	49
<i>Annual (2023) Precipitation</i>	25.23"	21.09"	22.52"
<i>Highest 1-Day Precipitation</i>	2.06" June 3	1.53" July 15	2.10" Aug. 26
<i>Annual (2023) Snowfall</i>	16.2"	24.7"	12.6"
<i>Highest 1-Day Snowfall</i>	5.0" Jan. 22	5.8" Feb. 16	5.0" Dec. 25
<i>Highest 1-Day Snow Depth</i>	7" Jan. 22 & 23	6" Feb. 16	6" Dec. 26

KANSAS SEVERE WEATHER AWARENESS WEEK
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2023 Weather Summary

Central, South Central & Southeast Kansas

National Weather Service - Wichita, KS

 **255** **Severe Thunderstorm Warnings**

 **10** **Confirmed Tornadoes**

 *Most since 2019, Average since 1990: 257*
Highest 2023 daily total: 19 on 7/14

Strongest was EF-2 Chase Co. on 4/19

 **Strongest Wind Gust:**
85mph
Yater Center on 7/14
Great Bend on 7/16

 **Largest Hail:**
Softball (4" diameter)
Chase Co. on 4/19
Barton Co. on 7/16

 **Hottest Temperature: Salina**
113° F (8/19)

 **25** **Most 100°+ Days: Hutchinson 10SW**

 **Coldest Temperature: Lincoln and Russell**
1° F (1/31 & 2/1)

 **14** **Most 32° or Lower Days: Russell**

 **38.99"** **Most Annual Precipitation: Anthony**
(5.85" above average)

 **16.5"** **Most Annual Snowfall**
Hillsboro 5 S, Lyons 8 NE
(About 4 inches above average)

 **Highest 1-Day Rainfall:**
4.95" Fredonia on 5/13

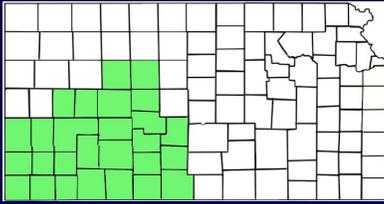
 **Highest 1-Day Snowfall:**
14" Marion 5 NNE on 11/26



2023 Central & Southeast Kansas: By the Numbers

	<i>Wichita</i>	<i>Salina</i>	<i>Chanute</i>	<i>Russell</i>
<i>Hottest Temperature</i>	111° Aug 19	113° Aug 19	106° Aug 2	107° Jul 28
<i>Highest Heat Index</i>	112° Jul 12, Aug 22	115° Aug 20	125° Aug 21	109° Jul 25, Aug 19
<i>100°+ Days</i>	20	20	14	18
<i>Coldest Temperature</i>	7° Jan 31	6° Feb 1	12° Jan 31	1° Jan 31
<i>Lowest Wind Chill</i>	-7° Feb 23	-14° Feb 23	2° Jan 31	-20° Feb 23
<i>32° or Lower Days</i>	7	10	3	14
<i>Annual Precipitation</i>	30.77"	23.35"	31.35"	21.76"
<i>Highest 1-Day Precipitation</i>	4.24" Oct 25	1.52" Jun 30	2.46" Aug 13	1.98" Aug 4
<i>Annual Snowfall</i>	9.6"	N/A	N/A	N/A
<i>Highest 1-Day Snowfall</i>	7.8" Nov 25	N/A	N/A	N/A

KANSAS SEVERE WEATHER AWARENESS WEEK
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2023 Weather Summary Southwest Kansas National Weather Service - Dodge City, KS

 **304** **Severe
Thunderstorm
Warnings**

 **5** **Confirmed
Tornadoes**

 **Strongest Wind Gust:**
95mph
Jetmore on 2/27

 **Largest Hail:**
Softball (4" diameter)
Pawnee Co. and Morton
Co

 **Hottest Temperature:**
Jetmore
109° F (8/19)

 **21** **Most 100°+ Days:**
Medicine Lodge

 **Coldest Temperature:**
Syracuse
-6° F (1/31)

 **11** **Most 32° or Lower Days:**
Garden City

 **30.78"** **Most Annual
Precipitation:**
Medicine
Lodge
(7/6)

 **16.3"** **Most Annual
Snowfall**
Dodge City

 **Highest 1-Day Rainfall:**
5.43" Lake City

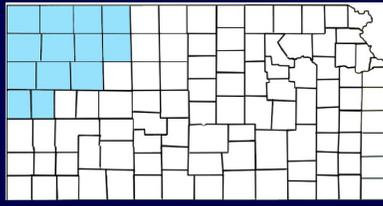
 **Highest 1-Day Snowfall:**
10" Dighton on 1/21



2023 Southwest Kansas: By the Numbers

	<i>Dodge City area</i>	<i>Garden City regional</i>	<i>Medicine Lodge</i>
<i>Hottest Temperature</i>	107° Aug 19	101° Jul 17	106° Aug 21
<i>Highest Heat Index</i>	108 Jul 17	107 Jul 25	116 Jul 12
<i>100°+ Days</i>	16	3	21
<i>Coldest Temperature</i>	4° Feb 23	-1° Jan 31	7° Jan 31
<i>Lowest Wind Chill</i>	-18° Feb 23	-19° Feb 23	-6° Jan 29
<i>32° or Lower Days</i>	9	11	6
<i>Annual Precipitation</i>	24.10"	23.87"	30.78"
<i>Highest 1-Day Precipitation</i>	3.27" Jul 20	2.64" Jul 7	5.27" Jul 5
<i>Annual Snowfall</i>	16.3"	N/A	8.0"
<i>Highest 1-Day Snowfall</i>	7.4" Jan 21	N/A	N/A

KANSAS SEVERE WEATHER AWARENESS WEEK
MARCH 4-8, 2024



2023 Weather Summary Northwest Kansas National Weather Service - Goodland, KS

 **413** **Severe
Thunderstorm
Warnings**

 **17** **Confirmed
Tornadoes**

 *Second highest since 1986*
Highest 2023 daily total: 29 on 8-7 *Strongest was EF-1.*
Cheyenne and Wallace Co. on 5/11,
and Norton County on 10/3.

 **Strongest Wind Gust:**
110 mph
Norton Co. on 8/5

 **Largest Hail:**
Softball (4" diameter)
Rawlins Co. on 8/7.

 **Goodland Hottest Temperature**
102° F (7/25)

 **2** **Goodland Days of
100°+ High
Temperatures**

 **Goodland Coldest Temperature**
-6° F (1/31)

(7/24-25 and 9/1-2)

 **Goodland Total
22.11" Precipitation**

 **Goodland Total
12.5" Snowfall**

3.08" above normal for the year

2.5" above normal for the year

 **Highest Event Rainfall:**
6.30" in Rawlins Co.
on 5/25-28

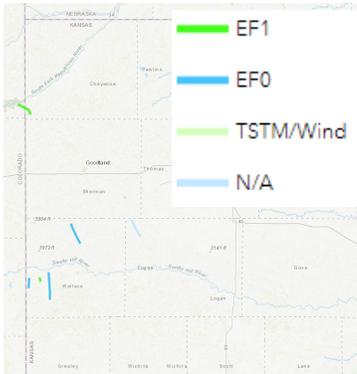
 **Highest Event Snowfall:**
14" in Norton Co.
On 1/19-23

There were a total of 17 tornadoes reported this past year in northwest Kansas. The first tornado began on May 10th in Sheridan County, and the last one was on October 3rd in Norton County. The strongest tornado for the year was an EF-1, which occurred three different times: May 11th in Cheyenne County, May 11th in Wallace County, and October 3rd in Norton County. Nearly all of the tornadoes for northwest Kansas occurred on May 11th. Aside from tornadoes, the highest estimated thunderstorm wind gust of 110 MPH occurred on August 5th in Alma based on damage caused by the winds. The largest hail reported was four inches which occurred on August 7th in southwest Rawlins County.



Large limb from hackberry tree broken off in Alma. Courtesy of NWS damage survey.

May 11th Severe Weather Outbreak



An unseasonably strong weather system moved over the Tri-State Area from the Desert Southwest. On May 10th numerous showers and thunderstorms had contributed to widespread heavy rainfall. The storm activity continued onto the 11th when thunderstorms began to develop during the morning hours with the intensity of the storms increasing as the day progressed.

The severe weather reached a peak during the afternoon. During this time there were scattered thunderstorms across northwest Kansas. The environment was exceptionally favorable for any thunderstorm updraft to rotate which would allow tornadoes to form with any thunderstorm. However, nearly all of the updrafts which fueled the thunderstorms were not tall enough to support large hail even though they were rotating enough to support tornado development. As a result, there were almost no reports of hail with these thunderstorms. Of the few hailstones that were reported, the largest was half dollar size near Sharon Springs.



Nearly all of the tornadoes on the 11th occurred over open country. The tornado which caused the most damage was an EF-1 in Wallace County. It formed just south of the high school in Weskan causing damage to the new bleachers that were purchased by a community fundraiser and had just been installed. The tornado also caused damage to the roof of the school building that had been repaired from storm damage that had occurred last year. Even though this tornado caused the most damage, it only had a path length of a mile and a quarter. Conversely one of the longest tornado path lengths was almost eight and a half miles. This one, also in Wallace County, only impacted one residence, breaking sliding glass windows and lifting part of the porch roof back onto the house. The shortest path length was three quarters of a mile long in southeast Sherman County. There were ten tornadoes in northwest Kansas on this day which is nearly half of the annual number of tornadoes during a typical year.

There was one report of thunderstorm winds during the afternoon. The report came from Campus in Gove County. Thunderstorm wind gusts were estimated to be 60-65 MPH.

By mid evening the threat for tornadoes ended as temperatures cooled. However the threat for hazardous weather continued. The environment was rich with moisture, which allowed the storm activity to produce high rainfall rates. A compounding problem was the training characteristics of the thunderstorms, bringing repeated rounds of heavy rainfall to the same location. The town of Ludell was impacted the most by the repeated rounds of heavy rainfall. Beaver Creek, which flows by Ludell, was full of water from the heavy rainfall upstream during the day. The added water from Beaver Creek exacerbated the flooding situation at Ludell, causing flood waters to go over the road between Ludell and Herdon. Flooding continued into the early morning hours of the 12th.



Tornado south of Weskan. Courtesy of Cameron Nixon

Emergency Kit

Make sure your emergency kit is ready to go!

- ✓ First Aid Kit
- ✓ 3 day supply of water/non-perishable food (for each family member including pets)
- ✓ Change of clothes/shoes for each family member



- ✓ Prescription medicine & special needs items
- ✓ Battery powered radio & NOAA Weather radio
- ✓ Cash & credit card
- ✓ Flashlight & extra batteries
- ✓ Whistle (to call for help)
- ✓ Cell phone & charger (solar/battery powered)

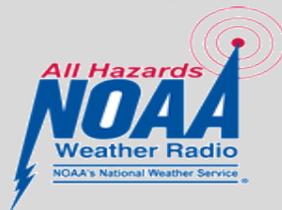
Do you have a NOAA Weather Radio?

What is it?

NOAA Weather Radio (NWR) broadcasts National Weather Service warnings, watches, forecasts and other hazard information 24 hours a day.

How does it notify you?

Weather radios equipped with a special alarm tone feature can sound an alert and give you immediate information about a life-threatening situation. During an emergency, NWS forecasters will send out a special tone to activate weather radios in the listening area.



Where do you get a NWR?

You can buy receivers at many retail outlets such as electronics, department, sporting goods, and boat and marine accessory stores and their catalogs as well as online at: <http://www.nws.noaa.gov/nwr/info/nwrrcvr.html#residential>

How much does it cost?

Prices vary from \$20 and up depending on the model.

Options for those with special needs?

The hearing- and visually impaired can get these warnings by connecting weather radios with alarm tones or other such as strobe lights, pagers, bed-shakers, personal computers and text printers.

Public safety experts agree: a NOAA Weather Radio should be standard equipment in every home.

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