

Storm Fury on the Plains

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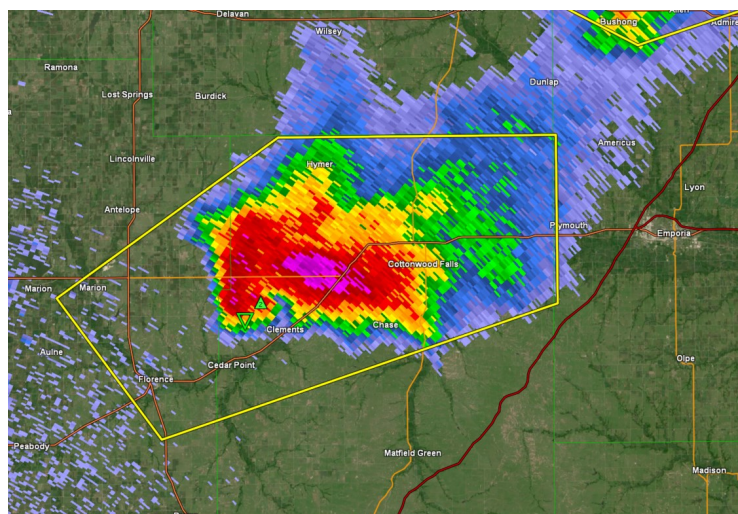
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A Dangerous Evening Evolved Across Chase County on April 19th, 2023

By Bryan Baerg— Meteorologist

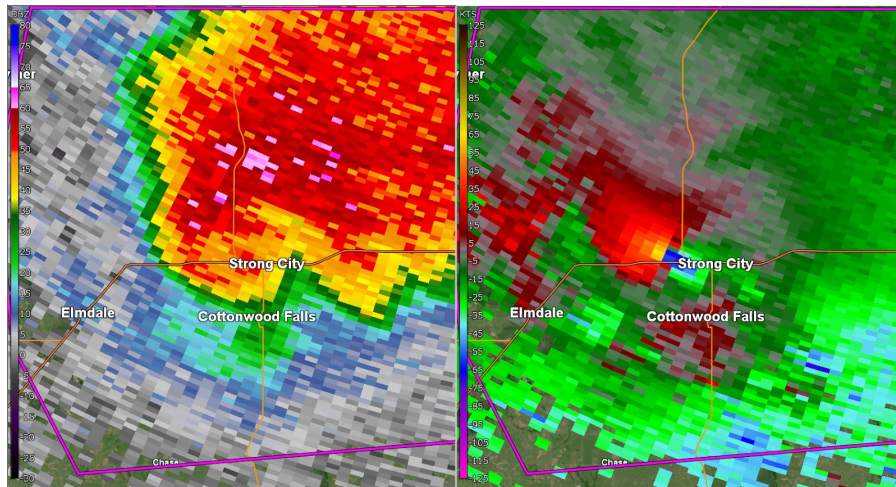
A classic severe weather setup was taking shape across the Central Plains in the days leading up to April 19. The biggest limiting factor in the severe weather outbreak was meager available moisture in the lowest few thousand feet of the atmosphere. That being said, NWS Wichita forecasters had a keen eye at the more-significant threat should a single storm develop during the early evening hours. This scenario is exactly what played out that evening. Forecasters watched as several thunderstorms attempted to develop southwest of Wichita during the early to mid afternoon hours with little success. Eventually, the thunderstorm that ultimately caused havoc in Chase County developed near Clearwater, Kansas during the late afternoon hours and rapidly moved northeast. Satellite and radar imagery revealed a cyclic pattern to this initial thunderstorm in which an updraft would explode into the atmosphere and quickly thereafter diminish. Soon after, another updraft would explode and subsequently diminish. This pattern continued across northern Sedgwick, Harvey, and Marion counties before an updraft began to take on rotation and quickly became a bonafide supercell in western Chase County.

Shortly after 8 PM, the first signs of a funnel cloud were reported by NWS spotters in the area. Just 13 minutes later, a brief tornado was reported 5 miles southwest of Elmdale. As the previous tornado dissipated, a second tornado developed very near Elmdale which toppled a semi on Highway-50. The strongest tornado of the evening developed just southeast of Elmdale tracking northeast towards Strong City. As this tornado approached Strong City it widened to nearly one-half of a mile

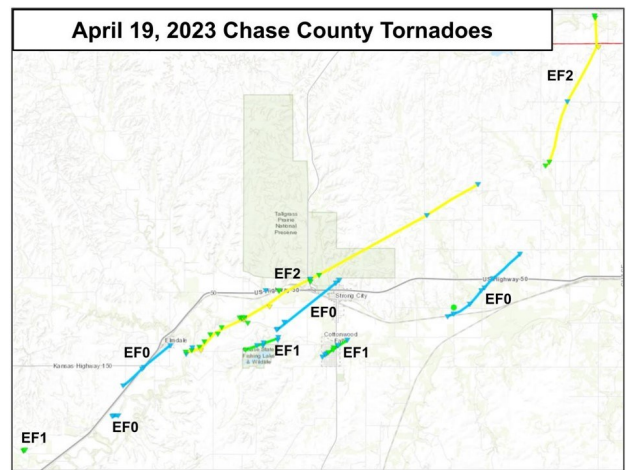


with wind speeds near 125 mph. Fortunately, the town was narrowly missed to the west and sustained only minor damage from rear-flank downdraft winds.

All-in-all this cyclic supercell went on to produce 6 additional tornadoes across northeast Chase County bringing the total count to 9 that evening.



This picture was taken on Highway 50 just west of Strong City looking to the northeast. Credit: Kelly Butler



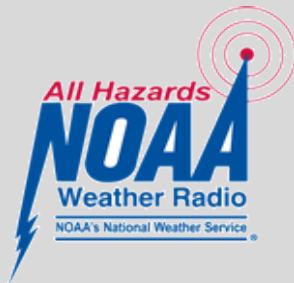
Do you have a NOAA Weather Radio?

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: <https://www.weather.gov/nwr/>

How much does it cost?

Prices start at \$20 & 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.

We Still Need Your Reports

By Vanessa Pearce – Warning Coordination Meteorologist

After a fruitful and dedicated 31 years of service, our Warning Coordination Meteorologist Chance Hayes retired on January 13th, 2024. We will miss his outside of the box thinking, long-winded stories and Okie commentary. His passion for presenting to all ages was easily felt. You may see him around a local lake or the casino as he remains local for now. NWS Wichita wishes him the very best in this next chapter of life and whatever adventures may come his way.

Even though there will undoubtedly be changes with new personnel, your valuable reports remain essential to our operations. Your reports of the weather conditions are highly valuable for our warning decision process. In the last year, we have found that fewer spotters in our database are picking up our phone calls. The increase in spam calls likely has many of us avoiding unknown numbers. If you see a missed call from (316) 942-8483 or (316) 945-4846, it is not spam but the National Weather Service, and we are likely looking for a report. If you happen to miss the call, call our 800 number that you either received when you signed up or saw during our Storm Fury on the Plains presentations.

Please let me know if you have any questions or concerns, vanessa.pearce@noaa.gov.

Thank You for Your Years of Federal Service thru 2023

30 years—Ken Cook & Rich Fallin

20 years—Eric Metzger



34 years—Mike Urban
(retired Dec 29th, 2023)



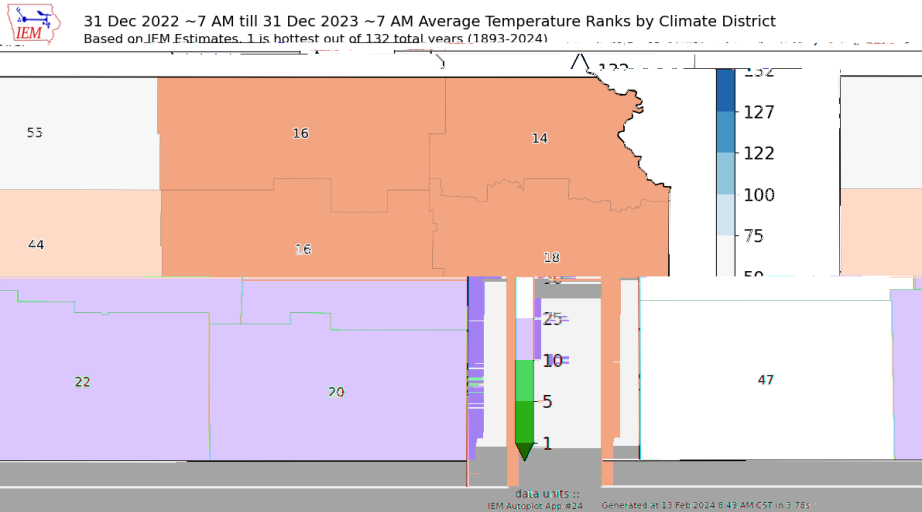
32 years 3 mos—Brad Ketcham
(retired Dec 29th, 2023)



31 years—Chance Hayes
(retired Jan 13th, 2024)

2023 Climatology Statistics & Notable Anomalous Events

By James Cuellar – Meteorologist



Temperatures across the eastern two-thirds of Kansas were solidly above average for the year with many locations experiencing a top-20 warmest year. Meanwhile, western Kansas was only slightly warmer than average for the year.

The four climate sites across the Wichita forecast area experienced average temperatures 1.5 to 2.2 degrees above average for the year. Chanute had the most anomalous year temperature-wise experiencing their 4th warmest year and their warmest year since 2012. Salina and Wichita experienced their warmest years since 2017, and Russell experienced its warmest year since 2016.

The most anomalous temperature event of the year was the heat wave in mid-late August. Several long-standing daily record highs fell from August 19 to August 25 across the area.

Annual 2023 Temperatures

| Site | 2023 Average Temperature (°F) | Departure from Normal | Rank | Warmest/Coldest Since |
|---------------------------------------|-------------------------------|-----------------------|-------------------|-----------------------|
| Wichita <i>(Since 1888)</i> | 59.2 | +1.5 | Tied 12th Warmest | Warmest Since 2017 |
| Salina <i>(Since 1900)</i> | 57.8 | +2.0 | 17th Warmest | Warmest Since 2017 |
| Chanute <i>(Since 1897)</i> | 60.2 | +2.2 | Tied 4th Warmest | Warmest Since 2012 |
| Russell <i>(Since 1950)</i> | 56.5 | +1.7 | 6th Warmest | Warmest Since 2016 |

August 2023 Record Daily Highs Set

Wichita:

August 19: **111** (broke record: **105** in 1936 & 2011)
 August 20: **108** (broke record: **106** in 1896 & 2001)
 August 21: **106** (broke record: **105** in 1896)
 August 22: **105** (tied record: **105** in 1922)
 August 25: **106** (broke record: **105** in 2000)

Salina:

August 19: **113** (broke record: **111** in 1936)
 August 20: **106** (tied record: **106** in 2003)
 August 21: **108** (tied record: **108** in 1922)
 August 22: **107** (broke record: **106** in 1918)

Chanute:

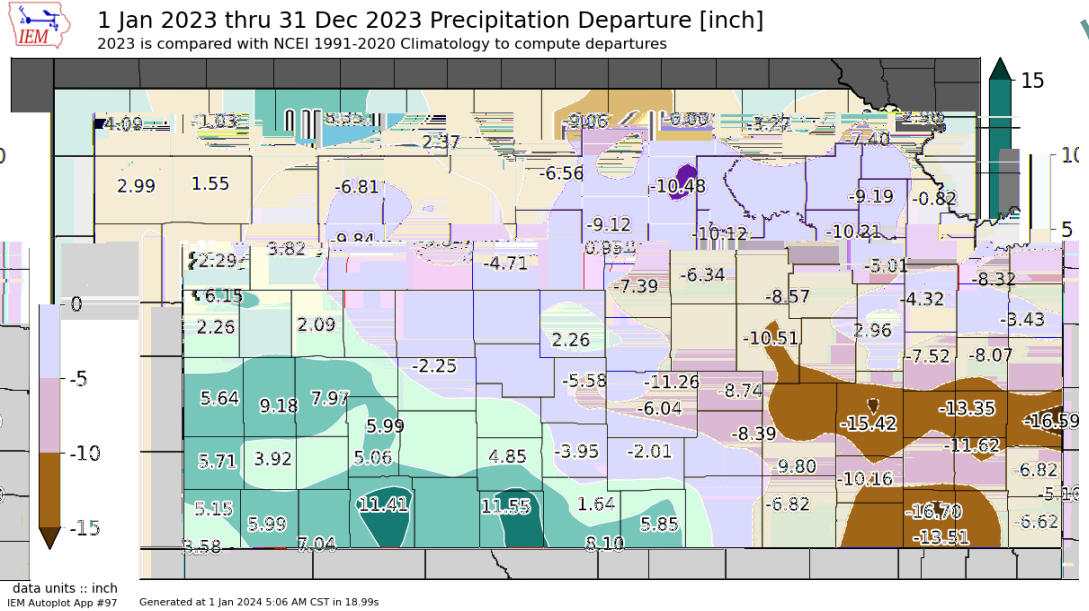
August 20: **105** (broke record: **103** in 1962)
 August 21: **104*** (tied record: **104** in 1913)

**Unofficially recorded 3rd highest heat index since 1948 on August 21: 126*

Russell:

August 19: **106** (broke record: **103** in 1962)
 August 20: **104** (tied record: **104** in 1952)
 August 21: **103** (tied record: **103** in 2001)
 August 22: **103** (tied record: **103** in 2000)
 August 23: **103** (broke record: **102** in 2011)

In terms of precipitation, much of the eastern half of Kansas experienced a particularly dry year. Many locations saw drier years last year; however, other locations experienced their driest years since 2011 or 2012. Independence saw their driest year since 1980 as they fell behind on their annual precipitation by 16.70 inches!



Annual 2023 Precipitation

| Site | 2023 Precip (Inches) | Departure from Average | Rank | Wettest/Driest Since |
|-----------------------|----------------------|------------------------|--------------|----------------------|
| Wichita Eisenhower | 30.77 | -3.54 | 66th Driest | Driest Since 2022 |
| Salina Airport | 23.35 | -6.34 | 35th Driest | Driest Since 2012 |
| Chanute Airport | 31.35 | -9.34 | 24th Driest | Driest Since 2022 |
| Russell Airport | 21.76 | -3.08 | 23rd Driest | Driest Since 2022 |
| Winfield COOP | 32.10 | -8.59 | 52nd Driest | Driest Since 2022 |
| Newton COOP | 25.03 | -8.74 | 23rd Driest | Driest Since 2011 |
| Cottonwood Falls COOP | 29.06 | -8.93 | 33rd Driest | Driest Since 2012 |
| Anthony COOP | 38.99 | +5.85 | 14th Wettest | Wettest Since 2019 |
| Sedan COOP | 29.19 | -11.35 | 20th Driest | Driest Since 2022 |
| Independence COOP | 28.70 | -16.70 | 11th Driest | Driest Since 1980 |

Despite the dry year and persistent drought, Wichita still managed to enter the record books during the month of October for rainfall. Smashing a daily precipitation record, Wichita recorded 4.24 inches of rain on October 25, and it would go down as the second wettest October day on record for the city.

Wettest October Days on Record in Wichita

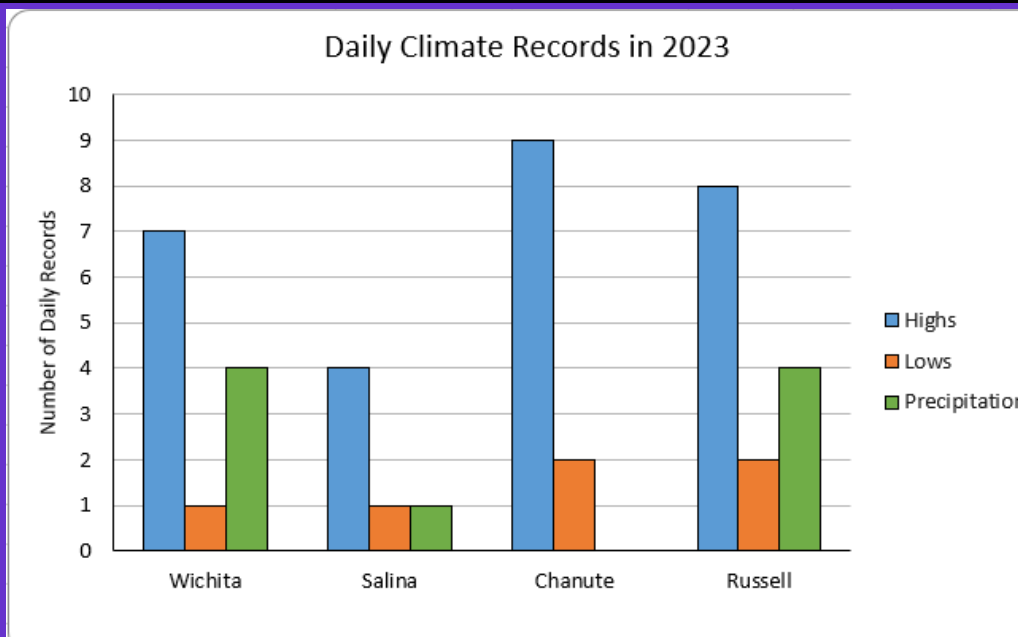
Today (Oct. 25, 2023) has been the second wettest October day on record in Wichita

October 25, 2023
4:39 PM

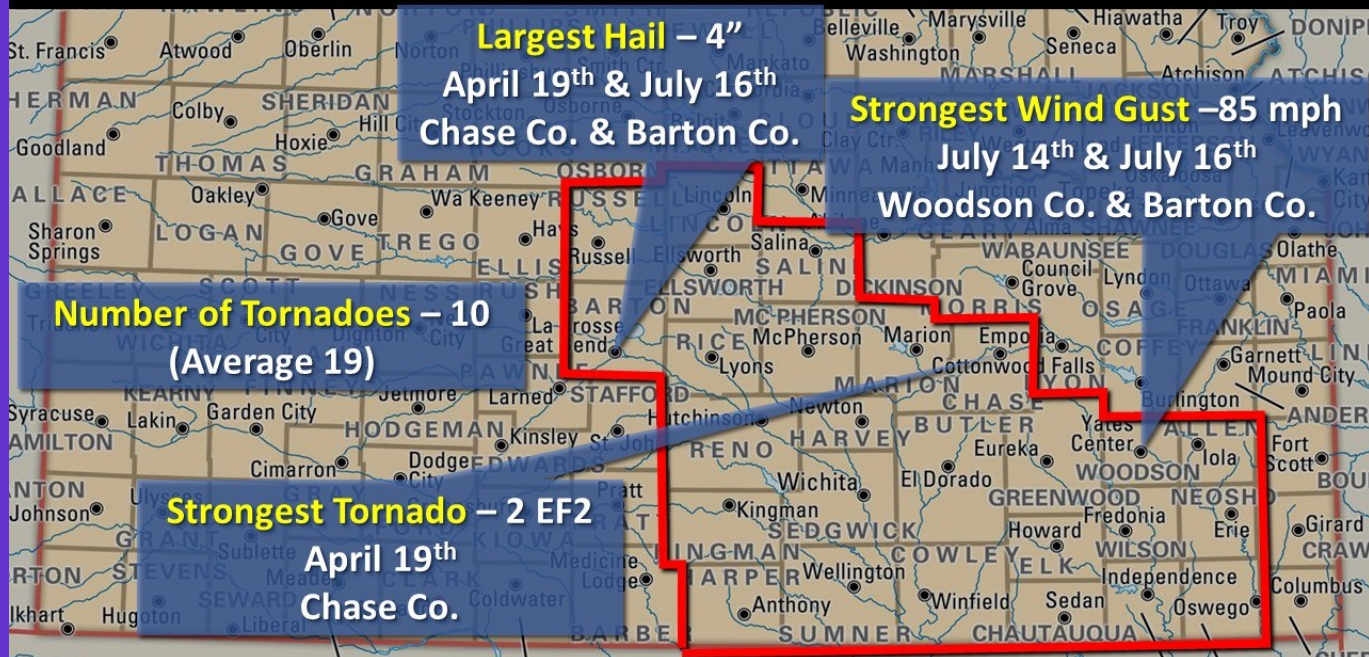
| Wettest October Days (Wichita, KS) | Rainfall (in) |
|------------------------------------|------------------|
| October 31, 1998 | 5.79 |
| October 25, 2023 | 4.24 (as of 5pm) |
| October 2, 1955 | 4.14 |
| October 9, 1985 | 3.09 |
| October 8, 2018 | 3.02 |
| October 8, 2003 | 2.78 |
| October 3, 2002 | 2.73 |
| October 10, 1897 | 2.72 |

2023 Climate Statistics

| Weather Element | Wichita | Salina | Chanute | Russell |
|----------------------------|--------------|--------------|-------------|--------------|
| Highest Temperature | 111° on 8/19 | 113° on 8/19 | 106° on 8/2 | 107° on 7/28 |
| Lowest Temperature | 7° on 1/31 | 6° on 2/1 | 12° on 1/31 | 1° on 1/31 |



Greatest of 2023: Hail, Tornado, Wind



For additional yearly climate information, check out www.weather.gov/ict/2023Climate

Recognizing our Cooperative Observers

By: Scott Smith—Observation Program Leader (OPL)

The National Weather Service would like to recognize the following individuals for their years of service in the all-volunteer Cooperative Weather Observing program. Volunteer observers use official National Weather Service equipment to report parameters such as high and low temperatures, precipitation, river level readings and other weather phenomena at their location on a daily basis. These highly accurate and timely observations are critical to weather forecast operations across the nation. Thank you for your dedicated service to the nation!

Cooperative Observer Awards for 2023

| Observer | Location | Years of Service |
|-----------------|------------|------------------|
| Randy Patterson | Anthony | 35 |
| Keith Haberer | Russell 7E | 15 |
| Shirley Mertes | Chautauqua | 15 |
| Craig Schneider | Ellinwood | 15 |



Scott Smith (OPL) presenting award to Randy Patterson (Anthony observer) with Ken Cook (Meteorologist in Charge).

Storm Fury on the Plains presentations

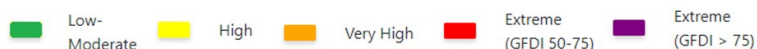
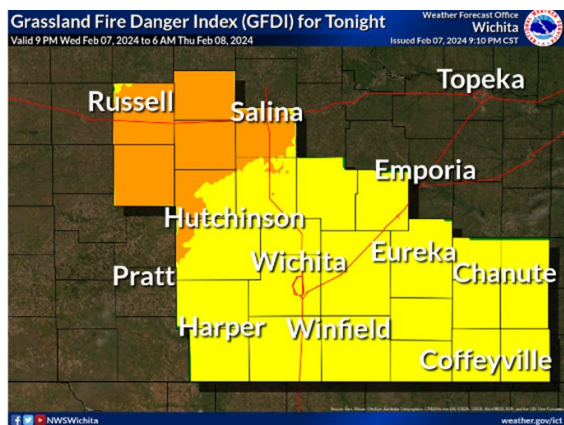
In-person & one virtual for 2024

For the few remaining dates, check:

www.weather.gov/ict/spottertalks

Grassland Fire Danger Index (GFDI)

By Mick McGuire – Meteorologist & Fire Weather Focal Point



rial. Cured grasses (typically in the winter months or early spring) contain less moisture and typically will burn much more efficiently than green grasses. Wind speed often has the greatest effect on the overall fire danger for grasslands in Kansas. Therefore, even on hot and dry days when grasses are cured, it is difficult for the fire to carry at very high rates of speed if the winds are not particularly strong.

Why can the Grassland Fire Danger Index vary from day to day?

Temperature, relative humidity, and wind can vary greatly from day to day. Since the formula used to compute the Grassland Fire Danger Index includes temperature, relative humidity, and wind, it is a bit easier to understand how the Index can change easily from one day to the next.

Here is an example: Let's say it's late in the summer and grasses are fully cured. It will be hot, dry and windy this afternoon with temperatures in the mid 80s and a minimum relative humidity around 15 percent. This scenario would likely lead to a Very High or Extreme Grassland Fire Danger Index. Cloudy and much cooler conditions are expected tomorrow behind a cold front, with highs in the 50s and a minimum relative humidity around 45 percent. Winds will be light and variable in the afternoon. Even though grasses are still fully cured, the Grassland Fire Danger Index will be much lower on the second day due to the big change in weather conditions.

What is the Grassland Fire Danger Index?

The Grassland Fire Danger Index is a forecast of the potential for non-agricultural grasslands to carry fire. It provides an indication of fire potential for grasslands, including its ability to spread. The index contains five categories: **Low, Moderate, High, Very High, and Extreme**. Should a fire ignite, it is more likely that it would grow or spread during higher rating days (**Very High and Extreme**).

When is the Grassland Fire Danger Index issued?

The NWS in Wichita issues the Grassland Fire Danger Index daily throughout the year. Keep in mind, the Grassland Fire Danger Index does NOT account for rainfall or snow on the ground.

How is the Grassland Fire Danger Index calculated?

The Grassland Fire Danger Index is based on a mathematical formula that uses temperature, relative humidity, wind speed, and curing data. Curing is related to the "greenness" of the plant material.

The five categories explained:

Low: Favorable weather conditions and a high moisture content of grasses, and other dry organic material on the ground indicate that the probability of a fast moving fire is low. Outdoor burning under these conditions can usually be performed with reasonable safety precautions.

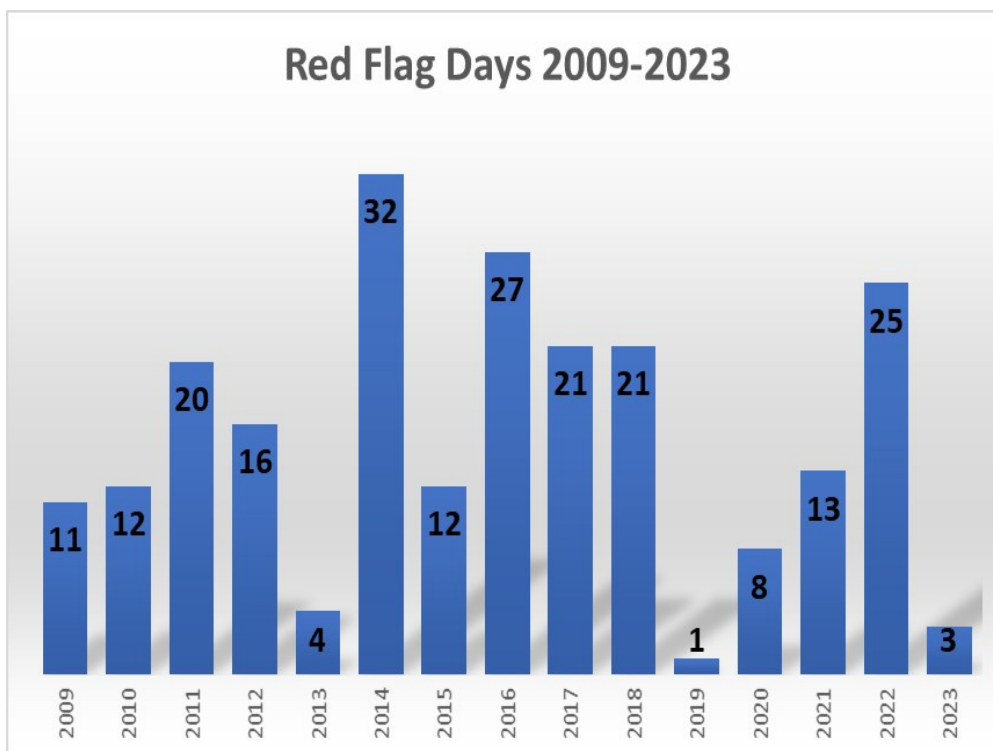
Moderate: Marginal weather conditions and lowering moisture content of grasses, and other dry organic material on the ground indicate that there is some potential for a fire to spread. Any outdoor burning should be closely monitored.

High: Unfavorable weather conditions and low moisture content of grasses and other dry organic material on the ground indicate that there is high potential for a fire to spread. Outdoor burning should be restricted to early morning or evening hours when wind speeds are usually lower and the relative humidity is higher.

Very High: Very poor weather conditions and very low moisture content of grasses and other dry organic material on the ground indicate that dangerous burning conditions exist. Fires will spread rapidly and show erratic behavior. **Outdoor burning is not recommended.**

Extreme: Extreme weather conditions and very low moisture content of grasses and other dry organic material on the ground indicate that critical burning conditions exist. All fires have the potential to become large and spread quickly becoming erratic with extreme behavioral characteristics. We issue **Red Flag Warnings** on days when we are forecasting extreme grassland fire danger.

In a typical year we issue Red Flag Warnings on **16** days, mostly during the late winter and early spring months. We call it a red flag day if we issue a red flag warning. The following graph shows the distribution of red flag days in our area of responsibility since 2009.



Where can you access the grassland fire danger index?

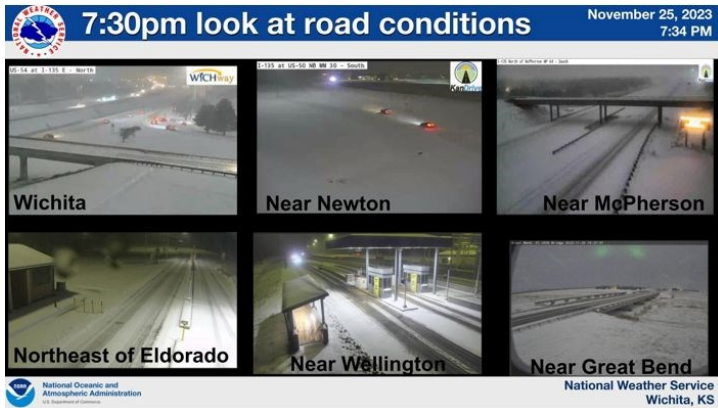
You can find the grassland fire danger index (GFDI) on our web page at the following url: <https://www.weather.gov/ict/fire>

Top Social Media Posts of 2023

By Robb Lawson – Meteorologist

Top Facebook Posts

Top Tweets



1.3 Million views



411,000 Views



46,600 Views



30,000 Views

facebook



Be sure to find us on

Facebook: [US National Weather Service Wichita Kansas](#)

Twitter/X: [@NWSWichita](#)



National Weather Service Wichita, Kansas

Report

Time of Event

Event Type

Location of the Storm

Location of Yourself www.weather.gov/wichita



@NWSWichita



@NWSWichita
#kswz



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

Hail Sizes

| | |
|-------|-------------|
| 0.75" | Penny |
| 1.00" | Quarter |
| 1.25" | Half Dollar |
| 1.75" | Golf Ball |
| 2.00" | Egg |
| 2.50" | Tennis Ball |
| 2.75" | Baseball |
| 4.00" | Grapefruit |

Tornadoes

Damaging Winds

Wall Cloud

Funnel Cloud

Hail

Flooding

Snow Totals

Ice Accumulation

Wind Reports

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



Sign up your organization to be a
Weather Ready Nation Ambassador!
Help the NWS spread the word about weather safety and preparedness.
Go to: weather.gov/wrn/ambassadors

Looking for helpful severe weather links?

[Severe Weather Preparedness Week](#)
[Spring Weather Safety Campaign](#)
[Weather Safety and Education](#)
[Storm Prediction Center](#)



National Weather Service

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Meteorologists

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www.weather.gov/wichita

Feedback & article ideas? Please let us know!

Email: vanessa.pearce@noaa.gov