

March 7-11, 2022

## **TORNADO SAFETY DRILL**

Tuesday, March 8, 2022 10am CST/9am MST

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## **2021 Kansas Tornado Overview**

| <u>Tornadoes</u> : 37      | 25 below the 1950-2020 average of 62<br>49 below the past 30 year average of 86<br>34 below the past 10 year average of 71 |
|----------------------------|--|
| <u>Fatalities</u> : 0      | <u>Injuries</u> : 0  |
| Longest track:             | 12.89 miles (Haskell, October 12, EF1)   |
| <u>Strongest</u> :         | EF2 (Gray, March 13)   |
| <u>Most in a county</u> :  | 4 (Ford)   |
| <u>Tornado days</u> :      | 13 (Days with 1 or more tornadoes)   |
| <u>Most in one day</u> :   | 11 (October 12)  |
| <u>Most in one month</u> : | 18 (May)   |
|                            |  |

<u>First tornado of the year</u>: March 5 (Douglas County, 3:54 pm CST, EFU, 0.01 mile length, 10 yard width) <u>Last tornado of the year</u>: October 26 (Reno County, 9:10 pm CST, EF0, 0.43 mile length, 275 yard width) <u>Length of tornado season</u>: 235 days (Days between first and last tornado)

## 2021 Monthly Tornado Totals

| Month   | Jan  | Feb  | Mar | Apr  | Мау | 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    | 1   | 0    | 0   | 0    | 0    | 0    | 0    | 0   | 0    | 0    | 1     | <mark>3%</mark> |
| EF1     | 0    | 0    | 0   | 0    | 1   | 0    | 0    | 0    | 0    | 9   | 0    | 0    | 10    | 27%             |
| EF0     | 0    | 0    | 1   | 0    | 4   | 0    | 1    | 1    | 0    | 3   | 0    | 0    | 10    | 27%             |
| Unknown | 0    | 0    | 2   | 0    | 13  | 0    | 0    | 0    | 0    | 1   | 0    | 0    | 16    | <b>43%</b>      |
| Total   | 0    | 0    | 4   | 0    | 18  | 0    | 1    | 1    | 0    | 13  | 0    | 0    | 37    | 100%            |
| Percent | 0.0% | 0.0% | 11% | 0.0% | 49% | 0.0% | 2.5% | 2.5% | 0.0% | 35% | 0.0% | 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**: Over the course of 2021, a total of 37 tornadoes occurred in the state of Kansas. This is significantly lower than the 10 year average of 71 tornadoes per year and the 30 year average of 86 tornadoes per year. The strongest tornado was an EF2 occurring on March 13th in Gray County. With a path length of 12.15 miles, the tornado had the second longest path length for the year. Injuries and fatalities associated with the tornadoes was kept to a minimum with no known reports.

May was the most active month for tornadoes with 18 reported. Most of these tornadoes occurred between May 24th and May 26th where separate tornado outbreaks resulted in several a total of 12 tornadoes and damage to at least one town. A late season outbreak on October 12th resulted in an additional 11 tornadoes across the state.

Tornadoes leaving behind no noticeable damage are given an EF-U or EF-Unknown rating. Tornadoes are given a rating based on estimated wind speed. When a tornado does not leave behind damage, it is difficult to near impossible to make a correct wind speed estimate.

## Kansas Tornado Statistics by County 1950 - 2021

## TORNADOES, FATALITIES, AND INJURIES

|            | _   |     | -   |                      |          |        |          |              | _    |     |      |
|------------|-----|-----|-----|----------------------|----------|--------|----------|--------------|------|-----|------|
| County     | Tor | Fat | Inj | County               | Tor      | Fat    | Inj      | County       | Tor  | Fat | Inj  |
| Allen      | 27  | 0   | 4   | Greenwood            | 45       | 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 | 34   | 1   | 5    |
| Barber     | 41  | 0   | 2   | Harvey               | 49       | 1      | 63       | Pratt        | 74   | 3   | 10   |
| Barton     | 107 | 2   | 40  | Haskell              | 32       | 0      | 10       | Rawlins      | 51   | 0   | 4    |
| Bourbon    | 19  | 0   | 7   | Hodgeman             | 59       | 0      | 4        | Reno         | 87   | 0   | 22   |
| Brown      | 46  | 0   | 5   | Jackson              | 33       | 4      | 17       | Republic     | 62   | 0   | 3    |
| Butler     | 87  | 28  | 225 | Jefferson            | 41       | 0      | 101      | Rice         | 50   | 0   | 6    |
| Chase      | 41  | 0   | 2   | Jewell               | 43       | 0      | 2        | Riley        | 30   | 0   | 51   |
| Chautauqua | 21  | 0   | 0   | Johnson              | 45       | 0      | 12       | Rooks        | 53   | 0   | 6    |
| Cherokee   | 40  | 4   | 66  | Kearny               | 46       | 0      | 0        | Rush         | 53   | 0   | 8    |
| Cheyenne   | 47  | 0   | 0   | Kingman              | 67       | 0      | 1        | Russell      | 79   | 1   | 7    |
| Clark      | 42  | 0   | 0   | Kiowa                | 61       | 11     | 74       | Saline       | 46   | 0   | 66   |
| Clay       | 45  | 1   | 31  | Labette              | 43       | 1      | 29       | Scott        | 58   | 1   | 1    |
| Cloud      | 52  | 1   | 8   | Lane                 | 48       | 0      | 2        | Sedgwick     | 89   | 13  | 360  |
| Coffey     | 24  | 0   | 5   | Leavenworth          | 31       | 2      | 30       | Seward       | 39   | 0   | 15   |
| Comanche   | 42  | 0   | 2   | Lincoln              | 33       | 0      | 2        | Shawnee      | 56   | 18  | 528  |
| Cowley     | 82  | 77  | 293 | Linn                 | 14       | 0      | 3        | Sheridan     | 43   | 0   | 0    |
| Crawford   | 37  | 4   | 43  | Logan                | 33<br>50 | 0      | 0<br>222 | Sherman      | 114  | 0   | 0    |
| Decatur    | 48  | 0   | 5   | Lyon                 |          | 7      |          | Smith        | 45   | 0   | 2    |
| Dickinson  | 40  | 1   | 17  | Marion               | 47       | 1      | 2        | Stafford     | 73   | 3   | 5    |
| Doniphan   | 20  | 0   | 2   | Marshall             | 36       | 0      | 1<br>16  | Stanton      | 24   | 0   | 0    |
| Douglas    | 43  | 1   | 64  | McPherson<br>Moode   | 55<br>57 | 1      | -        | Stevens      | 25   | 1   | 5    |
| Edwards    | 56  | 0   | 7   | Meade<br>Miami       | 57<br>21 | 0<br>4 | 0<br>10  | Sumner       | 88   | 5   | 14   |
| Elk        | 26  | 2   | 8   | Mitchell             | 21<br>51 | 4      | 5        | Thomas       | 50   | 0   | 1    |
| Ellis      | 66  | 0   | 6   |                      | 36       | 1      | 1        | Trego        | 63   | 5   | 101  |
| Ellsworth  | 51  | 0   | 0   | Montgomery<br>Morris |          | -      | -        | Wabaunsee    | 43   | 1   | 26   |
| Finney     | 100 | 1   | 41  |                      | 35<br>20 | 0      | 7<br>2   | Wallace      | 40   | 0   | 4    |
| Ford       | 111 | 0   | 2   | Morton               | 20<br>40 | 0      | 2        | Washington   | 41   | 2   | 12   |
| Franklin   | 30  | 3   | 34  | Nemaha<br>Neosho     | 40<br>31 | 0      | -        | Wichita      | 35   | 0   | 4    |
| Geary      | 21  | 0   | 3   | Ness                 | 53       | 0      | 4        | Wilson       | 16   | 0   | 0    |
| Gove       | 58  | 0   | 3   | Norton               | 30       | 0      | 0        | Woodson      | 12   | 0   | 8    |
| Graham     | 42  | 0   | 0   | Osage                | 30<br>48 | 17     | 6        |              | 10   | 2   | 36   |
| Grant      | 26  | 0   | 9   | Osborne              | 46       | 0      | 13       | Wyandotte    | 10   | 2   | 30   |
| Gray       | 55  | 0   | 3   | Ottawa               | 35       | 2      | 12       | Total        |      |     |      |
| Greeley    | 42  | 0   | 0   | Ottawa               |          | 4      | 12       | - I Otal     | 4856 | 237 | 2950 |

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

# Kansas Tornadoes 2021

| neyenne     | Raw        | ins         | Decatur       | Norton                | Phillips          | Smith    | Jewell               | Republic         | Washington   | Marshall Ner  | naha Brown             | مکت                  | L            |
|-------------|------------|-------------|---------------|-----------------------|-------------------|----------|----------------------|------------------|--------------|---------------|------------------------|----------------------|--------------|
| 1           | 3          |             | 1             | nonton                |                   | omiti    | o cincin             | -                | masningcon   |               |                        | Doniphan             | ٢.           |
| herman<br>1 | Thom<br>3  |             | Sheriden<br>1 | Graham                | Rooks             | Osborne  | Mitchell             | Cloud            | Clay<br>Rile | - L           | Jackson<br>Jef         | ferson /             | Ň            |
| allace<br>3 | Logan<br>1 | _           | Gove          | Trego                 | Ellis<br>2        | Russell  | Lincoln<br>Ellsworth | Ottawa<br>Saline | ነ ኑ          | Seary Wabauns | Shawnee<br>ee<br>Osage | Douglas              | Johns        |
| eeley Wi    | ichita S   | cott        | Lane          | Ness                  | Rush              | Barton 2 | Rice                 | Mc Pherson       | Marion       | Chase         | n                      | Franklin<br>Anderson | Mian<br>Lini |
| milton Ke   | earny      | Fin         | ney<br>Gray   | Hodgeman<br>2<br>Ford | Pawnee<br>Edwards |          | Reno                 | Harv<br>Sedg     | But          | ler Greenwoo  | od Woodson             |                      | Bourt        |
| 1           |            | askell<br>1 | 2<br>Meade    | 4<br>Clark            | Kiowa             | Pratt    | Kingmar              |                  |              | Elk           | Wilson                 |                      | Crawf        |
| orton Ste   | evens So   | eward       |               |                       | Comanche          | Barber   | Harpe                |                  |              | Chautauq      | Montgomery<br>ua       | Labette              | Chero        |

37 tornadoes, 38 counties

## **Kansas Tornado Facts**

| Days with more<br>Date | than 20 tornadoes<br><u>#Tornadoes</u> |
|------------------------|--|
| 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: 54

## Most Tornadoes in One Episode

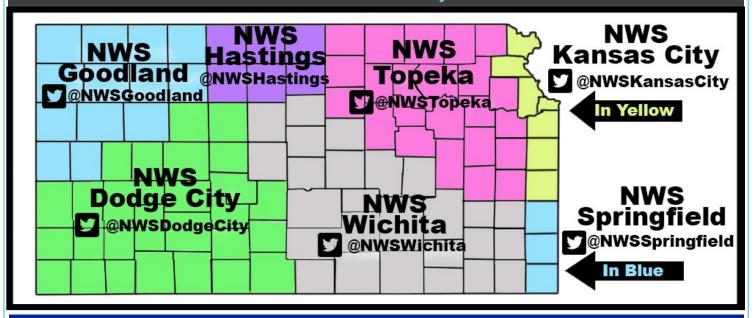
| May 23, 2008     | 70 Tornadoes |
|------------------|--------------|
| April 14, 2012   | 43 Tornadoes |
| June 15-16, 1992 | 41 Tornadoes |

## Did you know...

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

National Weather Service (NWS) offices in 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 <u>24 hours a day, seven days a week, 365 days a year</u>.

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!

## 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.
- 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.

## The Terrible Cyclone of December 15th, 2021

## 1. Weather Overview

A powerful and strengthening low pressure system moved rapidly from the Colorado Rockies into the Plains and eventually over Lake Superior on December 15, 2021. This system was very unusual for the strength of the winds associated with the low pressure system. The storm brought a devastating combination of multiple hazards across the state of Kansas including large devastating wild-fires, severe thunderstorms, damaging wind gusts, and blowing dust.

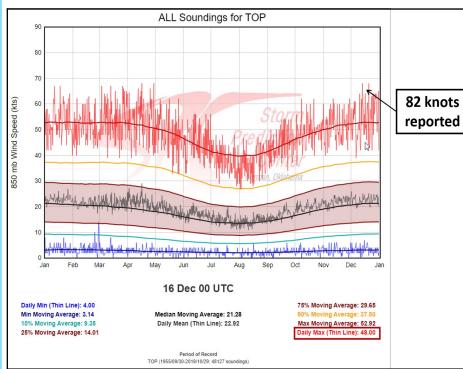


Image 1 (above) - Data plot of NWS Topeka upper air sounding climatology. The sounding measured wind speeds on December 15, 2021 of over 82 knots or 94 mph winds at 4000 feet which was stronger than anything recorded at that level going back to 1955.

## Non-Thunderstorm Wind Gusts:

Winds above the surface increased due to the strengthening of the low pressure system as it approached the state. In fact, the wind speeds captured by the NWS Topeka upper air sounding on December 15th showed over 90 mph winds at 4000 feet, which was stronger than anything recorded at that level on that date, going back to 1955 (see Image 1). The warm and dry air beneath the cold air above resulted in mixing, bringing those strona strong winds down to the surface. The end result was widespread non -thunderstorm wind gusts of 75-100

mph. These gusts resulted in damf age to homes, infrastructure, schools, and buildings (see Image 2).

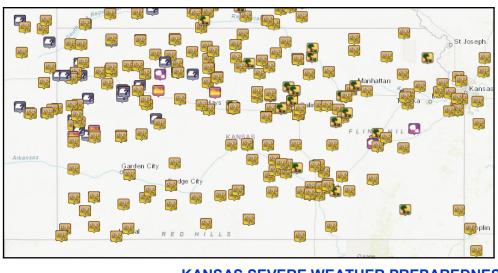
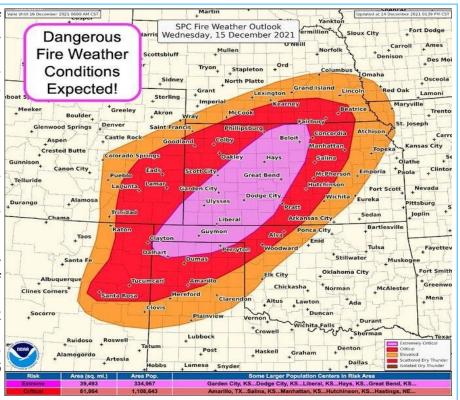


Image 2 (left) - Snapshot of multiple storm reports that occurred across the state of Kansas on December 15, 2021. See Section 2: Reports for more specific storm report details.

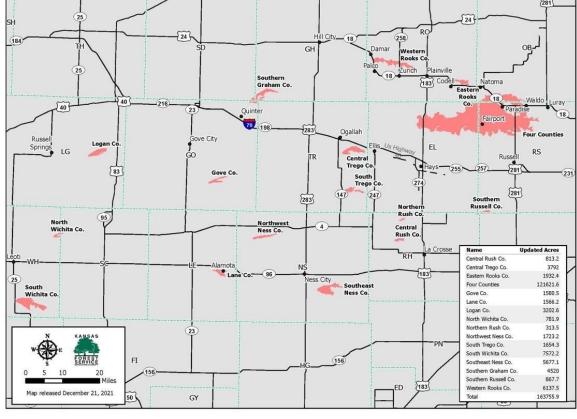
Wildfires: Due to the combination of intense non-thunderstorm winds of 75-100 mph, very dry air, unusually warm temperatures and low humidity, extremely critical fire weather conditions developed across parts of western and central Kansas during the day. From the Storm Prediction Center, this was the first Extreme Critical fire risk area for the month of December since records began in 1999 across the Central Plains (see Image 3). Once fires started they exhibited extreme behavior. including rapid spread at more than 50 mph. This led to extreme fire weather growth and spread over the course of 6-8 hours during the late afternoon and evening. Per the Kansas Forest Service, total acreage burned across December Kansas on 15 was 163.755.9 acres. with 121.621.6 acres burned in the Four County Fire (see Image 4). Three Fire Warnings



were issued for fires which threatened Image 3 (above) - From the Storm Prediction Center, this was the some structures in Kansas. Unfortu- first Extremely Critical fire risk area for the month of December nately, these fires did result in 2 fatali-

Image 4 (right) - From the Kansas Forest Service, the total acreage burned across Kansas on December 15, 2021 was 163,755.9 acres, with 121,621.6 acres burned in the Four County Fire.

ties.



December 15th, 2021 Wildfire Perimeters Update

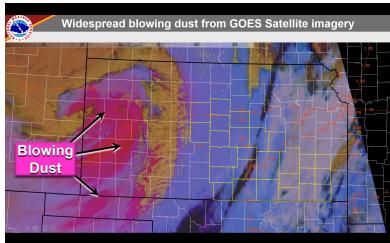


Image 5 - Satellite detected widespread blowing dust across western Kansas at 1 pm on Dec 15, 2021.

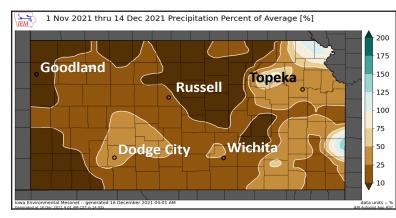


Image 6 - Precipitation Percent of Normal (Nov 1 - Dec. 14, 2021). Abnormally dry weather preceded the December 15, 2021 event, allowing widespread blowing dust to develop.

**Blowing Dust:** Once the non-thunderstorm winds of 75+ mph developed, widespread blowing dust was observed thanks to the very dry conditions over the previous month and a half (see Image 5). In fact, most of the state had received well below 50% of normal precipitation with moderate drought conditions expanding into portions of the western half of the state (see Image 6). At least one fatality was associated with a car accident in reduced visibility due to blowing dust in western Kansas.

Severe Weather: As the surface low pressure rapidly strengthened, a rapidly-moving line of severe thunderstorms developed and moved across the eastern half of the state bringing strong, damaging winds and large hail. Overall, there were 123 severe convective reports (tornado, hail, thunderstorm wind) from this event, which exceeds the previous December record of 20 back in 2016 (records began in 1950) (see Images 7 and 8). These storms resulted in damage to homes and infrastructure. The Storm Prediction Center has classified this event as a Derecho. For more information on derechos. visit: https:// www.spc.noaa.gov/misc/AbtDerechos/ derechofacts.htm

| K3 December Severe Reports Since 1950 (Tornado, Thunderstoffin Wind, Hall) |                                       |      |  |  |  |
|--|---------------------------------------|------|--|--|--|
| 2021   | 123 (Preliminary)                     |      |  |  |  |
| 2016   | 20                                    | Im   |  |  |  |
| 1975   | 14                                    | cei  |  |  |  |
| 2008   | 14                                    | tive |  |  |  |
| 1999   | 10                                    | ha   |  |  |  |
| 2002   | 9                                     | sin  |  |  |  |
| 1956   | 4                                     |      |  |  |  |
| 1982   | 4                                     | Ka   |  |  |  |
| 1988   | 4                                     | se   |  |  |  |
| 1972   | 2                                     | 12   |  |  |  |
| 2011   | 2                                     |      |  |  |  |
| 2014   | 2                                     |      |  |  |  |
| 1959   | 1                                     |      |  |  |  |
| 2003   | 1                                     |      |  |  |  |
| 2010   | 1                                     |      |  |  |  |
| 2019   | 1                                     |      |  |  |  |
|  | Courtesy: NCDC Severe Events Database |      |  |  |  |

KS December Severe Reports Since 1950 (Tornado, Thunderstorm Wind, Hail)

Image 7 - Kansas December severe convective reports (tornado, hail, thunderstorm wind) since 1950. Preliminary Kansas December 2021 severe reports are at 123, the most on record.

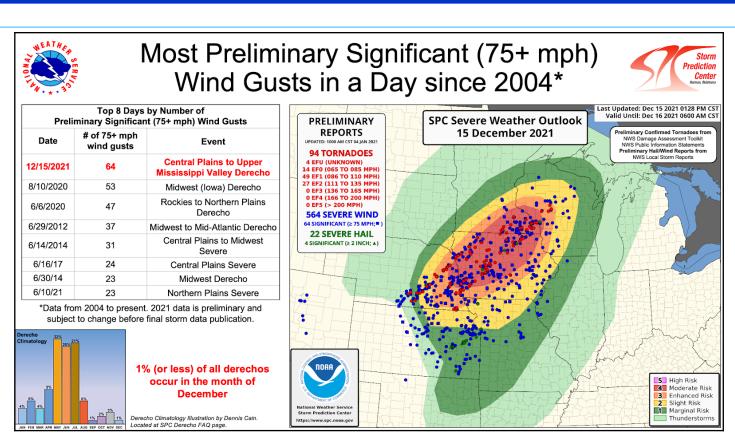


Image 8 - Information graphic from the Storm Prediction Center. This entire event had more 75+ mph wind reports than any event on record.

## 2. Reports

There were well over 300 reports documented for this event, which includes severe weather, non-thunderstorm wind gusts, dust storms, and wildfire. We included a small sampling of the various hazards in this report. For a comprehensive list of the damage reports including nonthunderstorm wind gusts, thunderstorm related winds, and wildfire reports in Kansas for December 15, 2021, please see:

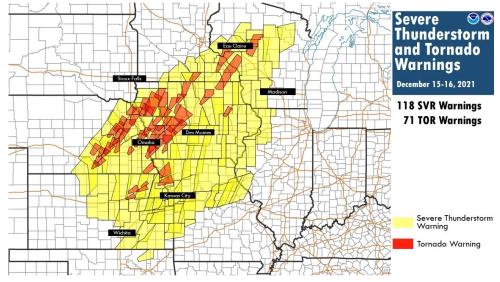


Image 9 - Map showing all severe thunderstorm and tornado warnings issued during the entire event across the Central Plains and Upper Midwest.

### Western KS: https://

nwschat.weather.gov/lsr/#ICT,DDC,GLD/202112150600/202112170559/0100

## Eastern KS:

https://nwschat.weather.gov/lsr/#ICT,GID,EAX,SGF,TOP/202112150600/202112170559/0100

| County    | Location           | Event Type   | Mag. (MPH) | Remark   |
|-----------|--------------------|--------------|------------|--|
| Clay      | 2 E Clay Center    | TSTM WND GST | 85         |  |
| Republic  | 2 NE Courtland     | TSTM WND GST | 84         | Large ash tree down. Bent metal basketball pole in half.   |
| Jefferson | 3 NW Perry         | TSTM WND GST | 80         |  |
| Phillips  | Woodruff           | TSTM WND GST | 80         |  |
| Rooks     | 8 NNE Codell       | TSTM WND GST | 80         |  |
| Cloud     | Concordia          | TSTM WND GST | 78         |  |
| Riley     | 2 NE Ogden         | TSTM WND GST | 76         |  |
| Lincoln   | Lincoln            | TSTM WND GST | 75         |  |
| Wabaunsee | 6 SSE Saint George | TSTM WND GST | 75         |  |
| Allen     | Moran              | TSTM WND GST | 70         | A large tree was knocked down as well as two power<br>poles. Moran was still without power in spots this<br>morning. |

## Top 10 Thunderstorm Wind Gusts for December 15, 2021

## Top 10 Non-thunderstorm Wind Gusts for December 15, 2021

| County  | Location              | Event Type       | Mag. (MPH) | Remark |
|---------|-----------------------|------------------|------------|--------|
| Russell | Russell Airport       | NON-TSTM WND GST | 100        |        |
| Saline  | 2 NNE Salina          | NON-TSTM WND GST | 98         |        |
| Smith   | 13 NNW Smith Center   | NON-TSTM WND GST | 97         |        |
| Rooks   | 8 NNE Codell          | NON-TSTM WND GST | 95         |        |
| Geary   | 1 ENE Grandview Plaza | NON-TSTM WND GST | 94         |        |
| Cloud   | Concordia             | NON-TSTM WND GST | 90         |        |
| Norton  | 1 ENE Lenora          | NON-TSTM WND GST | 90         |        |
| Finney  | 3 NW Pierceville      | NON-TSTM WND GST | 89         |        |
| Riley   | 3 NE Ogden            | NON-TSTM WND GST | 89         |        |
| Wallace | 2 WNW Sharon Springs  | NON-TSTM WND GST | 87         |        |

| <b>a</b>    |                    | F                | Mag. |  |
|-------------|--------------------|------------------|------|--|
| County      | Location           | Event Type       | (in) | Remark   |
| Logan       | Oakley             | DUST STORM       |      | Numerous wrecks due to low visibility and strong winds<br>during a dust storm.   |
| Sherman     | 3 W Edson          | DUST STORM       |      | A Semi-truck blew over due to strong winds.  |
| Thomas      | Rexford            | DUST STORM       |      | *** 1 inj *** Brown out conditions created zero visibility. An<br>accident occurred at mile marker 181 when a semi truck<br>rear ended another semi. |
| Lyon        | 6 WSW Emporia      | HAIL             | 4    | Softball-sized hail reported at mile marker 137 off I-35.  |
| Osage       | 3 NNW Melvern      | HAIL             | 2    |  |
| Ellsworth   | 9 WSW Westfall     | NON-TSTM WND DMG |      | A semi-trailer overturned on I-70 at mile marker 229,<br>blocking part of the interstate.  |
| Gove        | Gove               | NON-TSTM WND DMG |      | Multiple outbuildings destroyed across the county.   |
| Johnson     | 2 SSE Lake Quivira | NON-TSTM WND DMG |      | *** 1 inj *** A tree fell on an individual from high wind gusts ahead of storms.   |
| Russell     | Russell            | NON-TSTM WND DMG |      | West facing windows blown out in lots of homes. Numerous trees were knocked down in town.  |
| Saline      | 2 SW Assaria       | NON-TSTM WND DMG |      | *** 1 inj *** Overturned semi on interstate 135 just south of HWY 4 in Saline county. One man was injured.   |
| Jefferson   | Oskaloosa          | TSTM WND DMG     |      | Multiple power poles reported down. A large barn blown<br>down at Topeka and Union St.   |
| Leavenworth | 3 NNW Jarbalo      | TSTM WND DMG     |      | Several outbuildings with roofs blown off.   |
| Morris      | 1 W White City     | TSTM WND DMG     |      | Roofs peeling off buildings as well as the side of a metal<br>building got blown out.  |
| Osborne     | 13 SW Tipton       | TSTM WND DMG     |      | Large tree was blown over. Roof damage to outbuildings.  |
| Ottawa      | Minneapolis        | TSTM WND DMG     |      | Power lines and transformers down.   |
| Graham      | Saint Peter        | WILDFIRE         |      | Wildfire caused damage to several outbuildings.  |
| Osborne     | 3 S Natoma         | WILDFIRE         |      | Wildfire first visible on satellite around 330pm has<br>continued to burn to near natoma as of 715pm.  |
| Wichita     | Lydia              | WILDFIRE         |      | Wildfire north of the town of Lydia burned two homes.  |

## Various Other Notable Reports for December 15, 2021

### Summary

Kansas experienced a historically destructive weather event on December 15, 2021 that caused over 15 million dollars in damages. The high winds and low humidity led to large devastating wild-fires that spread with incredible speed and eventually consumed 163,755.9 acres and killed 2 people. The high winds also resulted in blowing dust, which led to injuries and one fatality due to vehicle accidents in low visibility. Lastly, this storm system also triggered a line of severe thunderstorms that produced widespread 60-100 mph wind gusts as the storms passed across central and eastern Kansas. In the end, the resulting strong winds (both thunderstorm and non-thunderstorm) caused a record number of weather stations to measure 75 mph wind gusts or greater across the state.

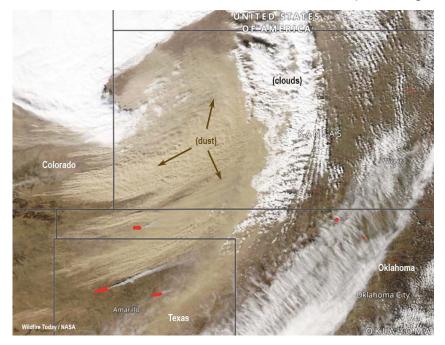


Image 10 - Satellite photo, fires in Oklahoma, and Texas, Dec. 15, 2021. The red areas indicate fires. Photo courtesy of Wildfire Today.

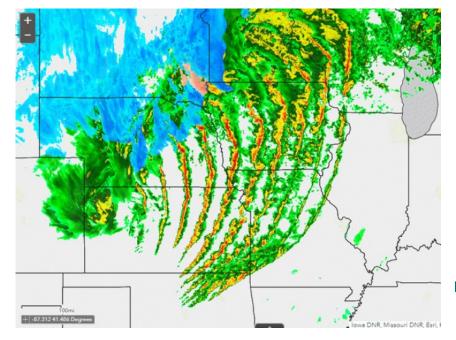


Image 11 - Progression of the line of severe storms, as shown on radar. Image courtesy of DTN.

# Be a Force of Nature Help Build a Weather-Ready Nation<sup>™</sup>

Do you know what to do in a severe weather emergency? Each year, people in this country are killed or seriously injured by all types of extreme weather, despite advance warning.

NOAA's Weather-Ready Nation (WRN) initiative is about helping our nation become more resilient to increasing extreme weather, water and climate events. NOAA is working to keep these threats from becoming disasters with greater accuracy in forecasts and

warnings, evolving services to community decision makers, and better ways to communicate risk to stakeholders and the public.

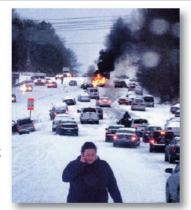
As part of the WRN initiative, NOAA partners with emergency management officials, businesses, and the media to motivate individuals and communities to prepare for a potential weather disaster. And these actions can save lives – at home, in schools, and in the workplace.

## What Does a Weather-Ready Nation Look Like?



A Weather-Ready Nation takes well-informed communities, businesses and individuals that are ready, responsive and resilient to extreme events. Key actions include:

Know your risk by discovering the weather risks where you live and closely following National Weather Service forecasts and warnings.



- Take action by creating a family emergency plan and kit, and making sure you can receive emergency messages (*e.g.*, NOAA Weather Radio, wireless emergency alerts).
- Be an example by using social media to share important hazard information.

## How Your Organization Can Help Build a Weather-Ready Nation

Building a WRN requires the participation and commitment of a vast nationwide network of "Ambassadors" – organizations contributing in the best ways they can:

Weather-Ready Nation National Oceanic and Atmospheric Administration

- Broadcasters advocating preparedness on-air
- Schools/universities teaching about the risks associated with severe weather and resiliency best practices
- Companies within the weather enterprise building the technological infrastructure for weather information and alerts
- Insurance companies providing discount incentives to policyholders who meet certain mitigation criteria

By becoming a **WRN Ambassador**, your organization can serve a pivotal role in affecting societal change by:

- Promoting Weather-Ready Nation messages
- Collaborating with NOAA
- Sharing your success stories
- Serving as an example

## Enroll Here to Become an Ambassador www.weather.gov/wrn/amb-tou