Winter 2023-2024
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National Weather Service Quad Cities IA/IL/MO

The Riverbend Reader

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The Riverbend Reader is a quarterly publication of the National Weather Service office in the Quad Cities.

Message from the MIC

Welcome to the first edition of our revitalized newsletter. I recently completed my first full year at the WFO Quad CIties, and 2023 was an active weather year across our 36 county area of responsibility in eastern Iowa, northwest Illinois, and far northeast Missouri. From major tornado outbreaks, river flooding, drought, heat waves, and winter storms, our dedicated staff was busy keeping you informed and prepared.

Our office will continue to look at ways to improve communication and important weather services in 2024. Our plans include efforts to 1) Expand our on-site Impact-Based Decision Support Services (IDSS) to critical partners. 2) Strengthen ties with nearby universities to enhance science sharing and provide opportunities to students. I am excited about the future and it is an honor to serve you across this region. Rest assured, you have a highly talented team dedicated to the mission of protection of life and property and enhancement of the national economy. If you have any comments or questions, feel free to reach out to me at the office at (563) 386-3976.

Photo of the office from a recent January 2024 snowstorm

2023 Year in Review

Mike McClure

The year 2023 was a wild one in weather and featured everything from tornado outbreaks to river flooding, winter storms, drought, dangerous heat, wildfire smoke and even a few displays of the aurora borealis (northern lights). Here's a look at some of the more notable events.

Williamsburg, Iowa Tornado (January 16)

A rare January tornado occurred near Williamsburg, Iowa, and was one of two tornadoes that occurred on this day with the other near Ely, Iowa. These were the first tornadoes reported in Iowa in the month of January since 1967! The Williamsburg, Iowa tornado was rated EF-1 with estimated peak winds of 90 mph, and was on the ground for nearly 5 miles as it crossed Interstate 80! A tractor trailer was overturned, but fortunately no injuries were reported.

Photo Courtesy of Kholby Martin

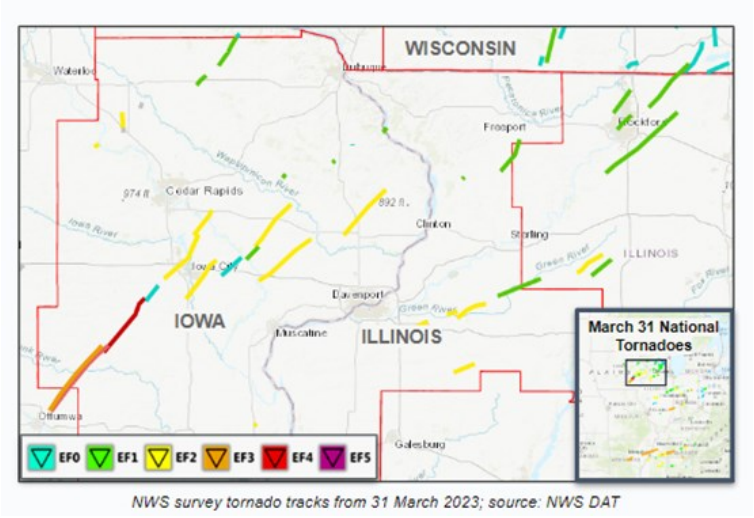
Historic March 31st Tornado Outbreak

A widespread outbreak of tornadoes occurred as a potent storm system tracked across Iowa. A total of 29 tornadoes occurred throughout the NWS Quad Cities County Warning Area (CWA), which is the most for an event in the CWA. The strongest tornado developed southwest of Keota, Iowa and moved northeast towards Wellman, Iowa before it finally dissipated in southwest Johnson County. It was rated EF-4 with maximum sustained winds estimated at around 170 mph. Of the 29 tornadoes that occurred on this day 15 were rated EF-2 or greater, which is the also the greatest number of strong tornadoes in the CWA for an event.

2023 Year in Review

(Continued from page 2)

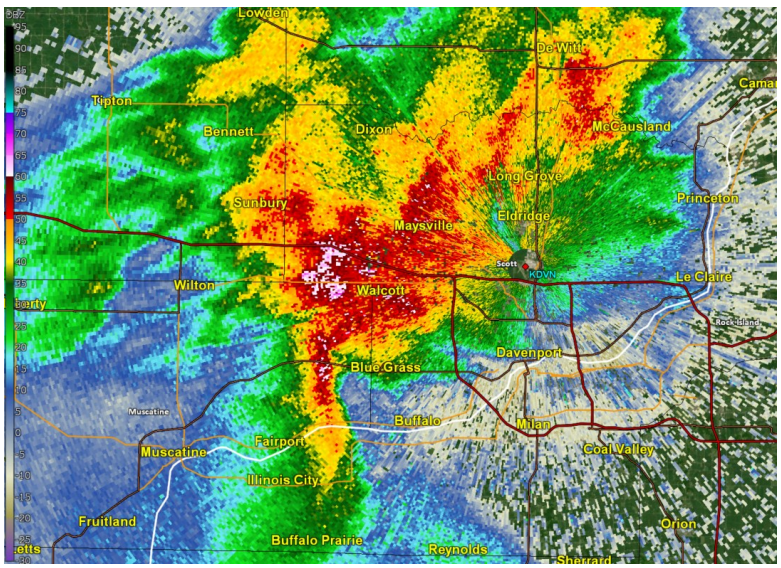
Keota, Iowa Tornado Photo: Andre Wehrle



NWS survey tornado tracks from 31 March 2023; source: NWS DAT

April 4-5th Severe Weather Outbreak

Just days after the historic tornado outbreak, another outbreak of severe thunderstorms occurred across eastern Iowa, northwest and west central Illinois and northeast Missouri producing 6 more tornadoes. There were 3 rounds of severe storms. The first round occurred early in the morning on April 4th and produced large hail up to tea cup size in Davenport, Iowa and a wind gust near 90 mph at the Quad City International Airport. A few tornadoes also occurred. One of the tornadoes was an EF-2 that occurred in Colona, Illinois ripping the entire roof off a gas station and tossing it into a brick building just to the south. The front wall of the building also collapsed. The tornado also uprooted trees, and caused minor house damage. The 2nd round of severe weather occurred during the late afternoon producing more reports of large hail and damaging winds, and most notably an EF-1 tornado near Industry, Illinois. The final round of severe weather developed overnight and into the early morning hours on April 5th as a strong cold front swept through the region. Storms became severe as they neared the Mississippi River producing 60 mph winds and large hail.



Radar Reflectivity of the Supercell over the Quad Cities Metro

Davenport, Iowa Photo: Maureen Murray

2023 Year in Review

Mississippi River Spring Snowmelt Flood (April-May)

An abnormally deep snowpack (4-10 inches of liquid equivalent) persisted across the headwaters of the Mississippi River, as well as other major river basins that feed into the mainstem through the month of March. However, an unusually warm (4 to 10 degrees above normal) first half of April resulted in rapid snowmelt across Minnesota and Wisconsin. Some of this water was able to be absorbed into the ground, but most became runoff causing major flooding on the upper tributaries as well as the Mississippi River mainstem down through Burlington, Iowa. Flooding in the Quad Cities Hydrologic Service Area (HSA) lasted from April 18th to May 21st. Major flooding occurred at 13 of the 15 forecast locations on the Mississippi River in the NWS Quad Cities HSA, with the other 2 locations reaching moderate stage.

August Heat Wave

While we had a period of hot weather with heat indices over 100 degrees for a few days in late July, by far the summer of 2023 will likely be best remembered for the record setting heat wave that gripped the Midwest in August. During the heat wave from August 20-25, several locations hit the century mark on the thermometer for the first time in nearly a decade! Heat index readings were even hotter and in the 110s/120s on several days!

Temperature Records / Facts

August 26, 2023
3:54 AM

August 20th - 25th, 2023 Heat Wave

Highlights

- Temperatures were in the 90s and low 100s each day.
- Several temperature records tied or broken during the period.
- 1st 100+ degree day in almost 10 years for several climate sites
  - Cedar Rapids, IA - August 30th, 2013
  - Iowa City, IA - September 9th, 2013
  - Moline, IL - July 25th, 2012
- Iowa City, IA saw 2 consecutive 100° days which hasn't happened since July 6th-7th, 2012

Site	Date	Temperature	Record
Cedar Rapids, IA	Aug 23rd	100°	High (Previous 99° in 1947)
Dubuque, IA	Aug 23rd	97°	High (Previous 97° in 1947)
	Aug 24th	77°	Warm Low (Previous 76° in 1948)
Moline, IL	Aug 23rd	77°	Warm Low (Previous 75° in 1975)
	Aug 24th	100°	High (Previous 100° in 1936)
	Aug 24th	78°	Warm Low (Previous 76° in 1975)

*Note: While Iowa City,IA did break high temperature records, it's period of record only goes back to 1948 and thus not included

National Oceanic and Atmospheric Administration
U.S. Department of Commerce

National Weather Service
Quad Cities, IA/IL

August 5th Significant Flash Flooding

A significant rain event occurred across northeast Missouri, extreme southeast Iowa, and west central Illinois, which resulted in flash flooding and a rapid rise on the Fox River near Wayland, Missouri. A slow moving mesoscale convective vortex (MCV) tracked over the area and brought very heavy rain in a short amount of time. Rainfall amounts between 4 and 8 inches fell in less than 6 hours which caused many stalled vehicles and several water rescues in the towns of Kahoka, Missouri and Keokuk, Iowa. A culvert was washed out south of Kahoka and many secondary roads had water over them. A new daily rainfall record of 6.14" of rain occurred in Burlington, which broke the previous record of 2.03" back in 1903. This record also is the second highest daily rainfall on any given day in Burlington. The wettest day was 6.28" on June 29th, 1933.

2023 Year in Review

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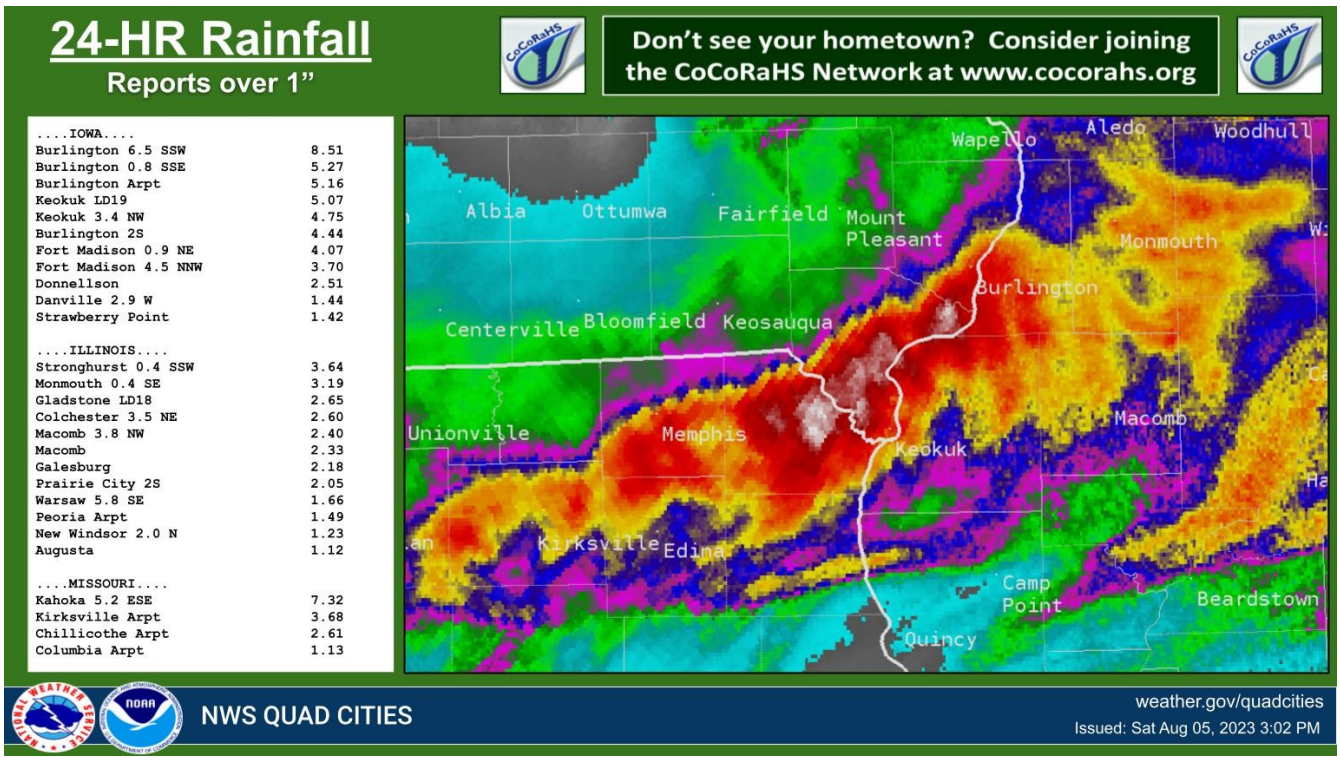
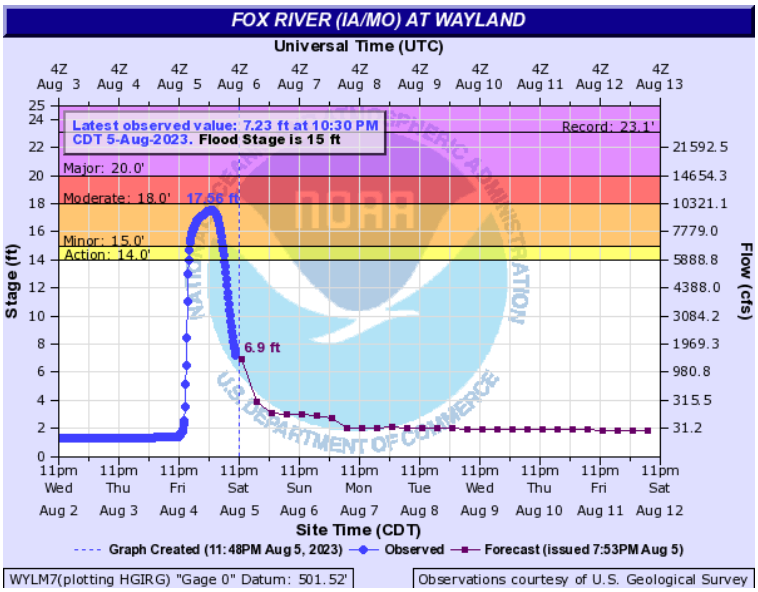


Graphic Showing a List of the Highest Rainfall Reports with Radar Estimates from Aug 5th
Yellow ~ 2.5" or Greater, Red ~ 4" or Greater, White ~ 6" or Greater



Hydrograph from the Fox River at Wayland, Missouri

Wever, Iowa Photo: Des Moines County EMA

Snowfall "Forecast" Posts on Social Media: Should You Trust Them?

Justin Schultz

Has this happened to you? You are relaxing on your couch one evening, winding down, scrolling through social media, and you come across a post from an account you're not familiar with. It has the headlines, "DEADLY SNOWSTORM COMING TO THE MIDWEST NEXT TUESDAY" with an image of a snowfall "forecast" of 24+ inches of snow right over your house! You begin to panic, with numerous questions going through your mind:

"What should I do to prepare for this storm?"
"School will definitely be cancelled with this storm. What will I do about childcare?"
"HOW MUCH MILK AND BREAD SHOULD I GET!?"

First of all, to quote the Wizard of Oz, "Not so fast! Not so fast!" We see this scenario a lot in the NWS, and we are asked a lot of questions about these posts that people see on social media. Today, we want to discuss what you're seeing, and why you should NOT panic!

First, to understand what you're seeing in these posts, we need to discuss computer models - the basis of our forecasts. As many of you are aware, these models are based on advanced, sound meteorological science, to depict the behavior of the atmosphere, including the models' expected snowfall for a certain date, time, and location for an upcoming system. The number of forecast models that we employ is only growing with time, which is a good thing since we can leverage this collection of forecast models at our disposal to look at the range of possible snowfall outcomes, which helps address our confidence in the forecast. You likely have heard us mention this before in our social media posts!

What you see in these particular posts are typically one single run of one single model. While the output is from a scientifically sound computer model, the output that is shared is usually taken from several days out from the current day. Small changes in the current weather conditions from the current time can amplify over time as the model runs, resulting in enormous changes. We have often seen that the Global Forecast System model (GFS; a.k.a., the "American" model by some media) can be very aggressive with snowfall amounts with winter storms several days out. This is a key reason why we wait to release our official snowfall forecast amounts until we are one or two days ahead of an expected winter storm, because there can be so much uncertainty on snow amounts that far out. This model output can be far too aggressive with snowfall amounts several days out! In fact, we have seen the same model go from indicating 24+" of total snowfall for a possible upcoming winter storm from one run, down to 3" or less the very next run of the same model for the same location.

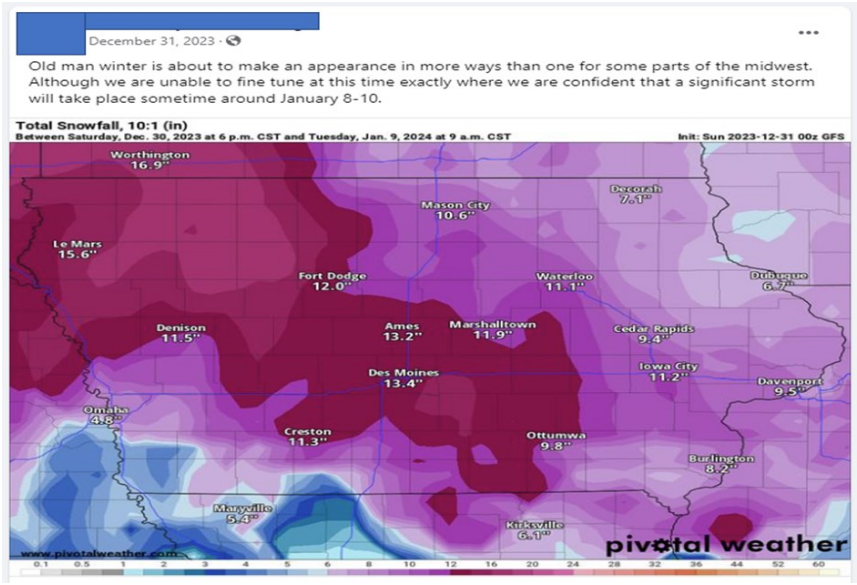
It would be a disservice to everyone for us to release a snowfall total map several days out, only for the forecast snowfall amounts to change significantly, perhaps multiple times.

Okay, then, what sources should I trust?! Always look for reliable sources of weather information, including us at the National Weather Service, or other trusted sources, such as local TV stations. While a lot of the social media posts you see that share these outrageously high snowfall "forecast" maps claim that they are meteorologists, they aren't. We at the National Weather Service want to ensure that you're prepared for upcoming inclement weather, be it winter storms or severe weather, so make sure that if you come across these kinds of posts, don't panic! Stop and think about the source, and whether they are credible.

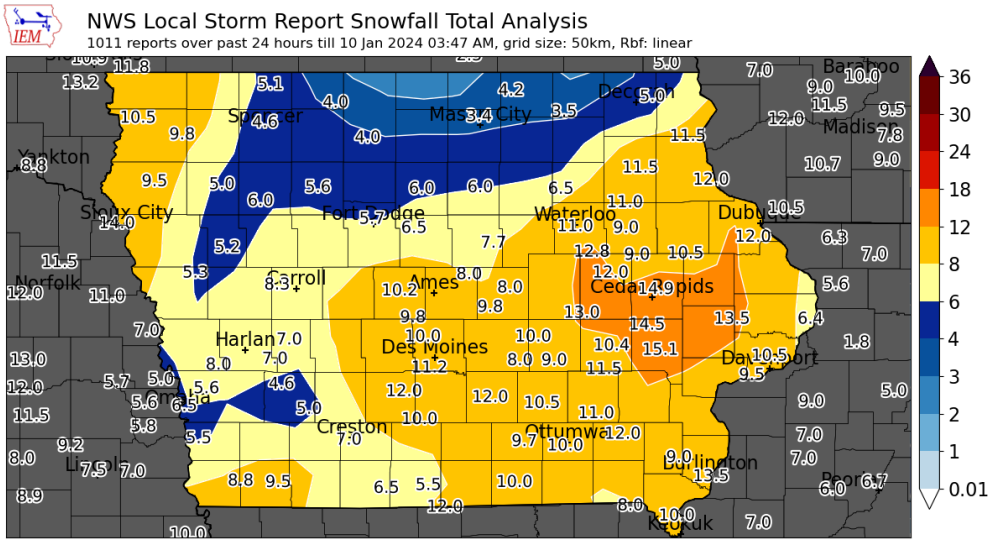
Snowfall "Forecast" Posts on Social Media: Should You Trust Them?

(Continued from page 6)

Here's an example of a snowfall "forecast" from social media of the January 9, 2024 winter storm. Note the model used began on the evening of December 30, a full 10 days before the winter storm!



Here's what actually happened. This map is based on snowfall totals reported from across the state of Iowa. Compare the maps for yourself!



Spotter Training and Severe Weather Awareness

Rich Kinney

SKYWARN

Spring 2024 Spotter Training Classes
NWS Quad Cities

In-person and virtual spotter training presented by Meteorologists at NWS Quad Cities will start the week of February 19th, and continue into early April. Information will be added to the spotter training calendar as new events are scheduled. You can access the training calendar here.

Spring Severe Weather Awareness Weeks
In Iowa, Illinois, and Missouri Coming Up in March

Statewide **Severe Weather Preparedness/Awareness Weeks** are an opportunity to increase awareness of and response to severe weather hazards. Most states also conduct a drill during their awareness week at a predetermined time. Please mark your calendar and plan to participate in the drill for your local area, as this is an opportunity to test your communication methods ***as if it were a real situation.***

Employee Spotlight

Ed Holicky

Meteorologist-in-Charge

Ed grew up most of his life outside Austin, Texas and was always fascinated by storms. His passion led him to go to the University of Nebraska where he graduated with a Bachelor of Science degree in 1994. He started his NWS career on Halloween in 1994 at the Weather Forecast Office (WFO) in Indianapolis. This was the unfortunate day of American Eagle Flight 4184 that crashed near Roselawn, Indiana where everyone perished due to atmospheric icing leading to loss of control. Ever since that day, Ed has had some passion for aviation meteorology. After a short period at Indianapolis, Ed was transferred to the office in Ft. Wayne, Indiana. When that office closed, he moved over to the new office in Northern Indiana. After a short period, he was selected to the office in Lincoln, Illinois. After about six years, he was then selected to the Aviation Weather Center (AWC) in Kansas City. He was at the AWC for many years and did thunderstorm forecasts around the country. He also did forecasts around the world and collaborated with other countries. He was the NOAA agency representative and was the International Federal Partnership (IFP) Chairman for several years at EAA AirVenture. Finally, Ed has a passion for helping with succession planning and helping staff members. He was selected as the Meteorologist-in-Charge (MIC) in Goodland, Kansas in 2019. There he gained a greater appreciation for wind and tornadoes. Finally in November 2022, Ed became the new MIC at the WFO in Quad Cities. Along the way, he received additional degrees to further his education. He has a strong passion for better communications with our partners and the public and providing opportunities for staff members. Ed believes it is an honor to serve in the Quad Cities region and looks forward to improving services to continue to save lives and property across eastern Iowa, northwestern Illinois and far northeast Missouri.

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