



United States Department of Agriculture  
Midwest Climate Hub



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

# North Central Region Climate and Drought Outlook

## February 15, 2024

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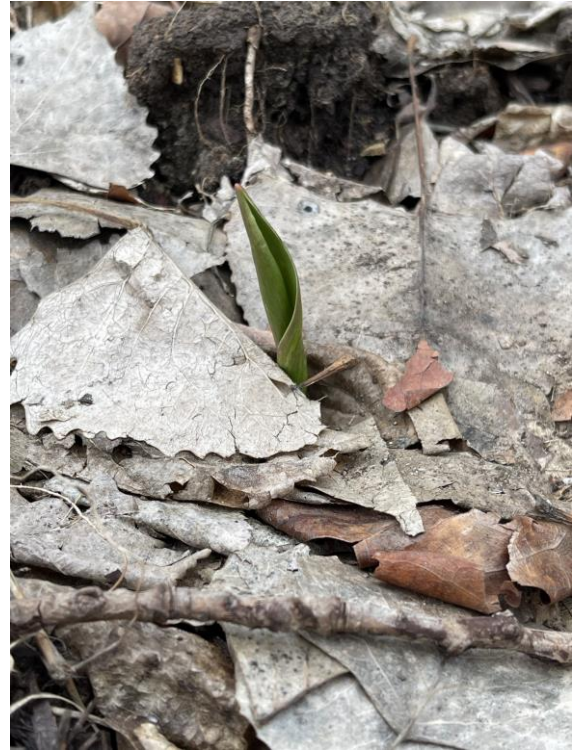
# General Information



- Collaborative Effort of:
  - NOAA NCEI / NWS / OAR / NIDIS
  - AASC: American Association of State Climatologists
  - USDA Climate Hubs
  - MRCC: Midwest Regional Climate Center
  - HPRCC: High Plains Regional Climate Center
  - NDMC: National Drought Mitigation Center
- Next Regular Climate/Drought Outlook Webinar
  - March 21, 2024 @ 1 PM CDT / 12 PM MDT
  - Presenter: Becky Bolinger, Colorado Assistant State Climatologist
- Past Webinars
  - <https://mrcc.purdue.edu/webinars/>
  - <https://hprcc.unl.edu/webinars.php>
- Questions?
  - Feel free to add questions into the chat window during and after the presentation.

# Presentation Outline

- Past Weather
  - January climate data
- Present Weather
  - February so far
  - Seasonal snowfall totals
  - Snowpack, Ice coverage
- Local Impacts
- US Drought Monitor
- Future Weather/Climate Outlooks
  - Precipitation forecasts
  - River flooding outlook
  - ENSO forecast



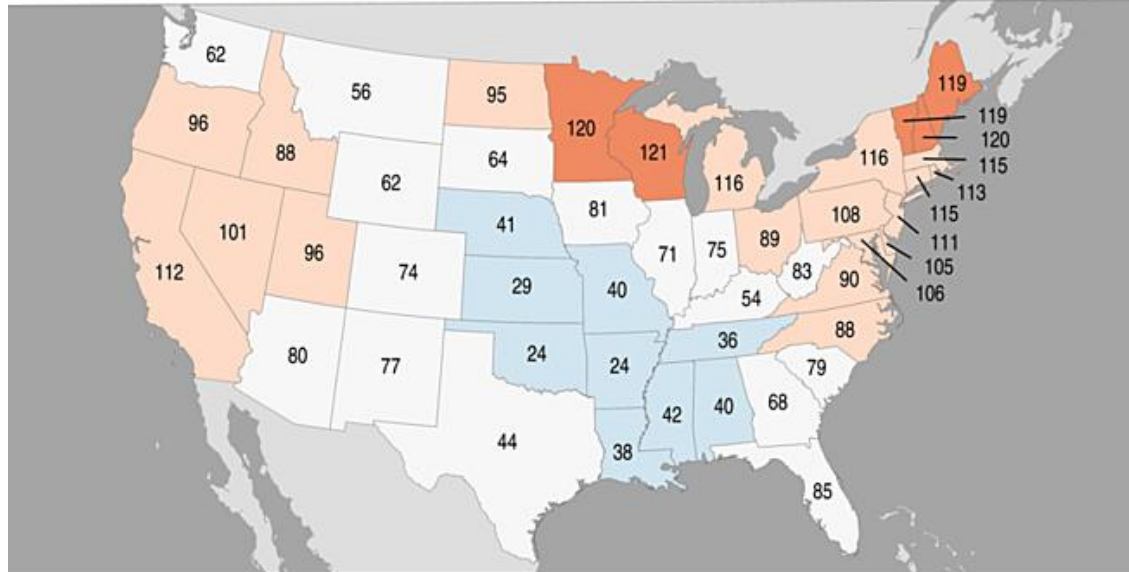
Tulip in Manhattan, KS, Feb. 11

# January 2024 – Temperature Rankings

## Statewide Average Temperature Ranks January 2024

Ranking Period: 1895–2024

NOAA's National Centers for Environmental Information



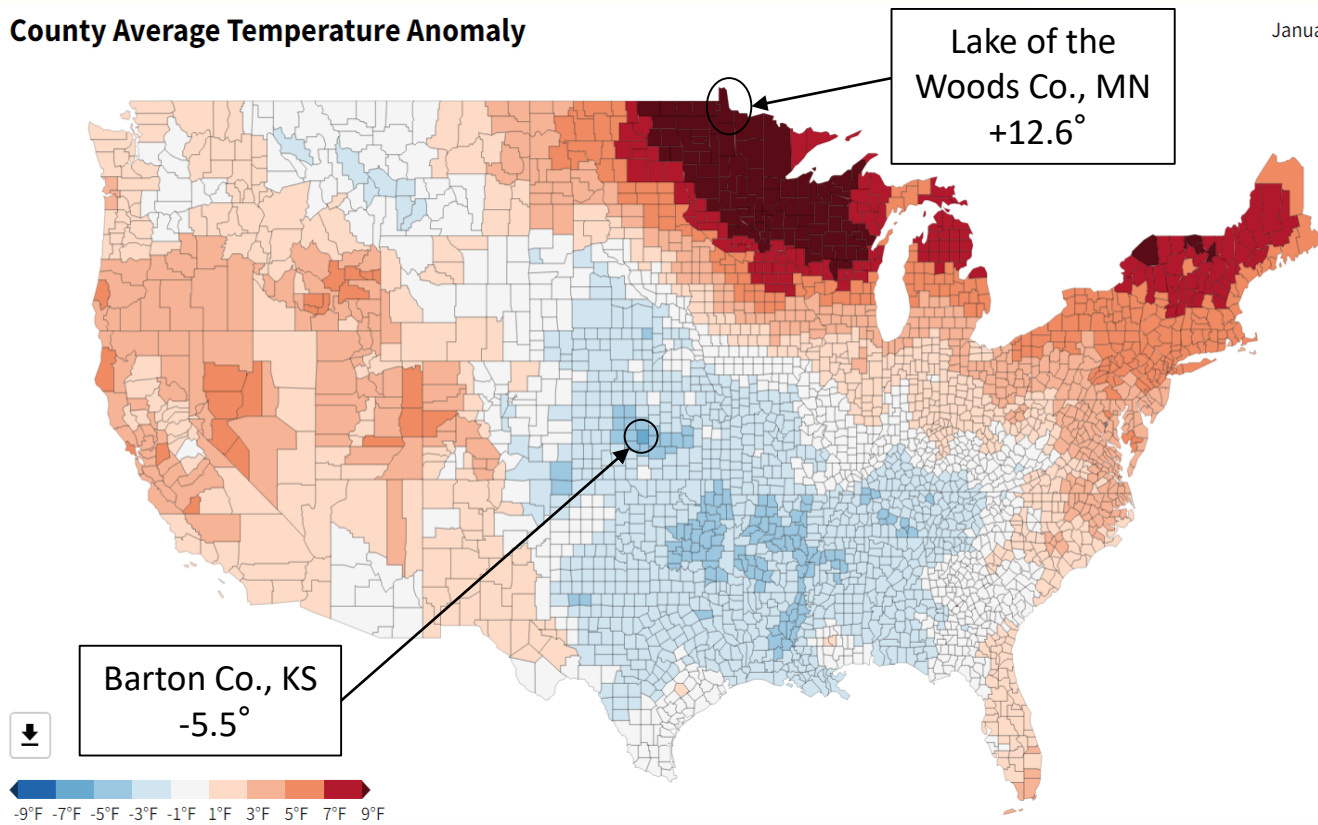
Created: Tue Feb 6 2024  
Source: nClimGrid - Monthly



# January 2024 – Temperature Rankings

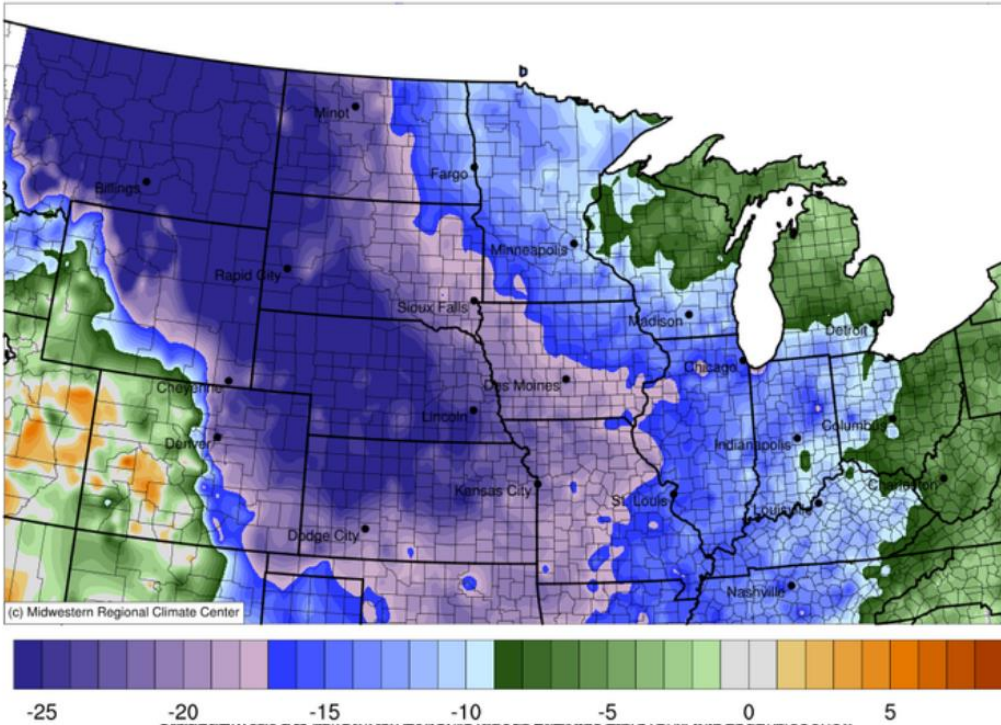
## County Average Temperature Anomaly

January 2024



# Mid-January Arctic Outbreak

**Average Temperature (°F): Departure from 1991-2020 Normals**  
January 12, 2024 to January 18, 2024



# New Monthly Record Lows for January

Location	Temperature	Date	POR (years)
Weston, WY	-46°	Jan. 13	63
Dillon, MT	-41°*	Jan. 13	84
Lead, SD	-37°	Jan. 13	115
Agate, NE	-34°^	Jan. 16	121
Limon, CO	-30°*	Jan. 15	75

Coldest reading: -54°  
Chester, MT  
Jan. 13

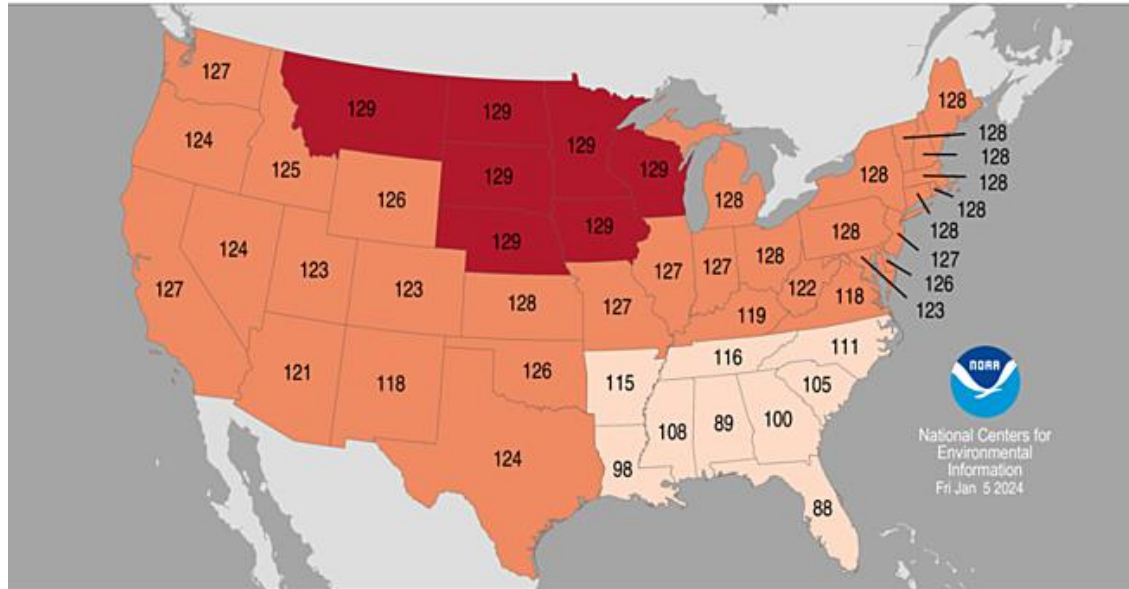
\* New all-time record low

^ tied an earlier record

# December 2023 – Temperature Rankings

## Statewide Average Temperature Ranks

December 2023  
Period: 1895–2023



National Centers for  
Environmental  
Information  
Fri Jan 5 2024

Record  
Coldest  
(1)

Much  
Below  
Average

Below  
Average

Near  
Average

Above  
Average

Much  
Above  
Average

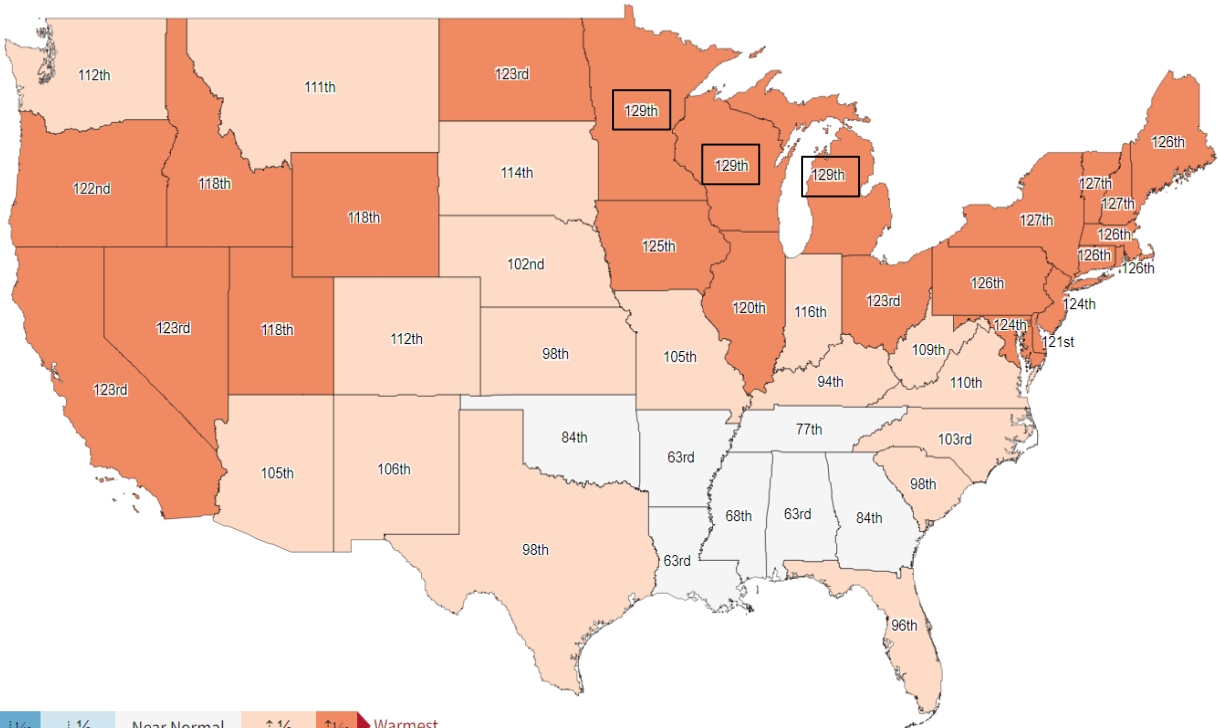
Record  
Warmest  
(129)



# Dec 2023 + Jan 2024 – Temperature Rankings

Statewide Average Temperature Rank (130 years)

December 2023 - January 2024



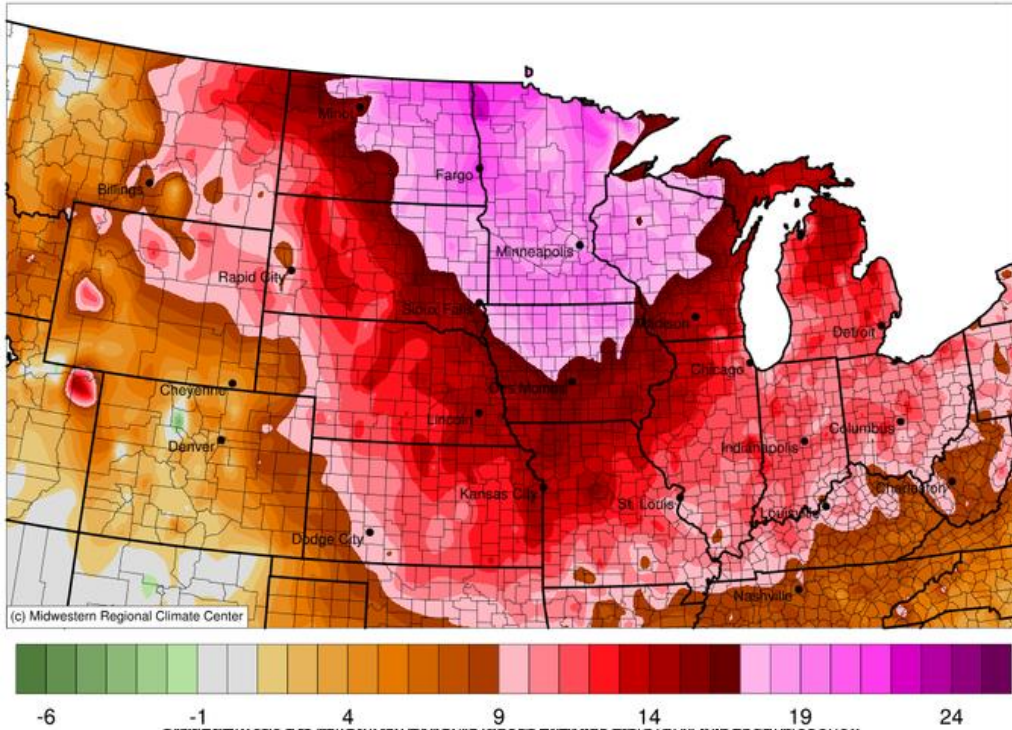
## Warmest Dec-Jan on record!

State	Avg. Temp.	Anomaly (1991-2020)	Old Record (Years)
Minnesota	22.7°	+10.6°	20.6° (2011-12)
Wisconsin	26.5°	+11.2°	25.8° (2001-02)
Michigan	29.8°	+9.1°	29.7° (2001-02)

# February 2024 Temperature Anomaly

Average Temperature (°F): Departure from 1991-2020 Normals

February 01, 2024 to February 15, 2024

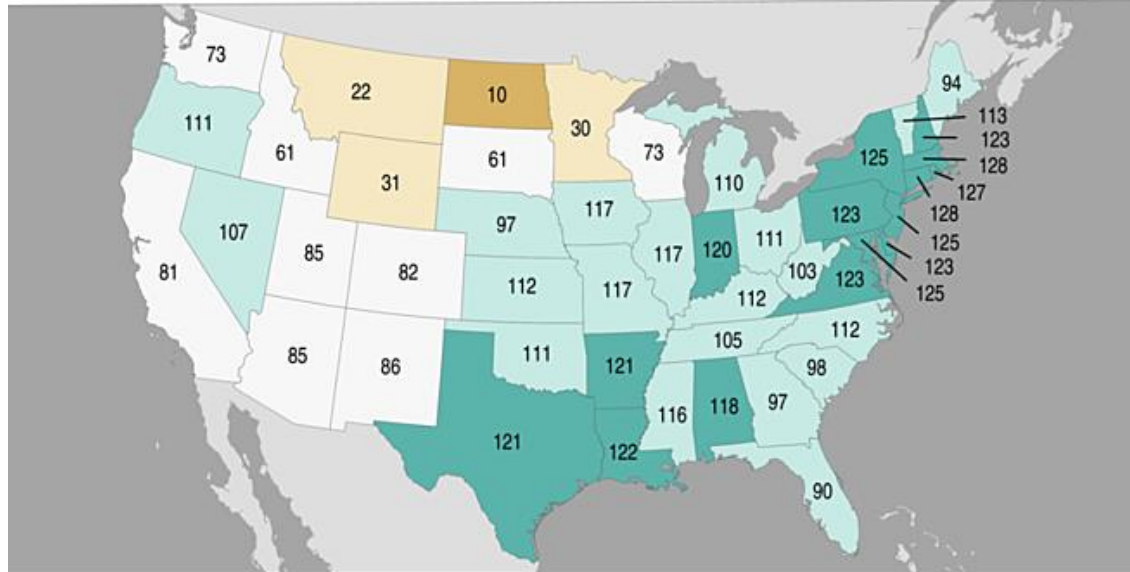


# January 2024 – Precipitation Rankings

## Statewide Precipitation Ranks January 2024

Ranking Period: 1895–2024

NOAA's National Centers for Environmental Information



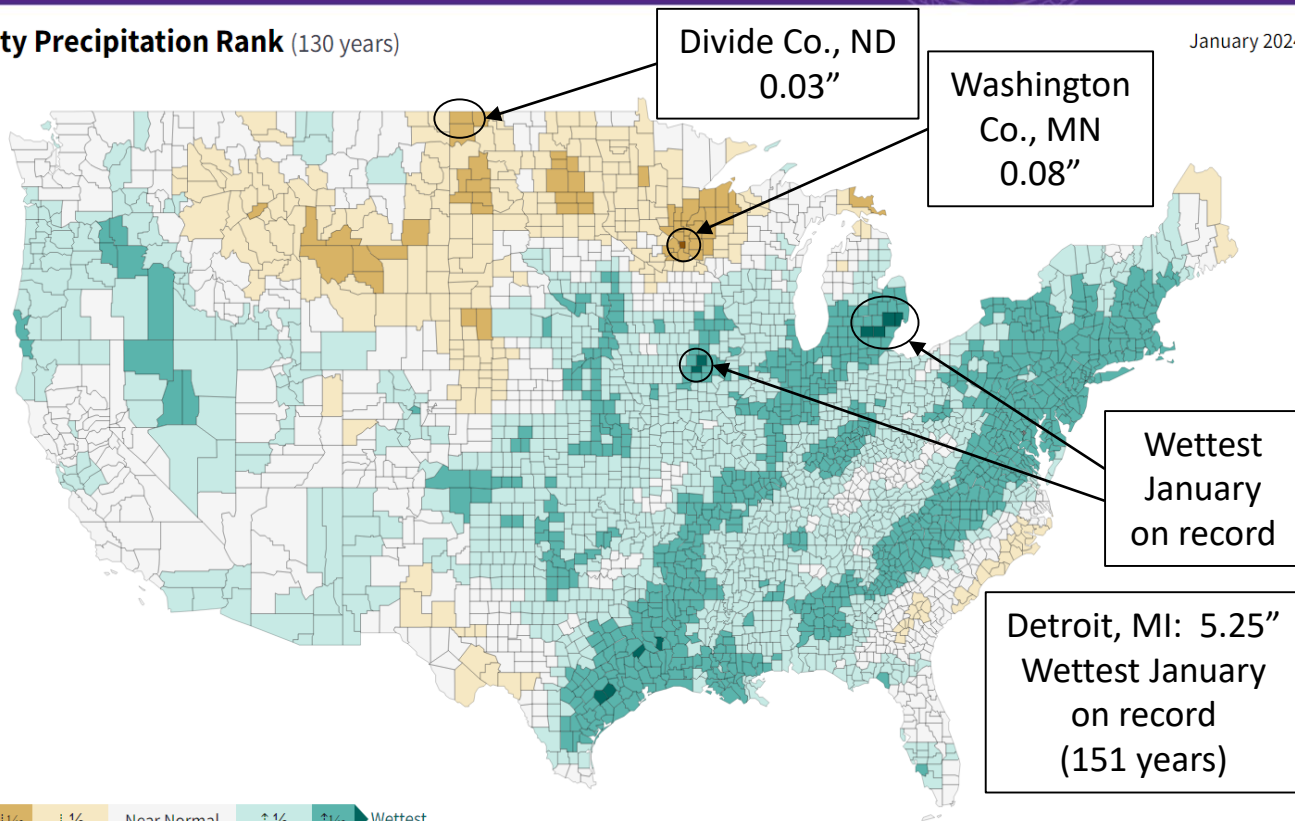
Created: Tue Feb 6 2024  
Source: nClimGrid - Monthly



# January 2024 – Precipitation Rankings

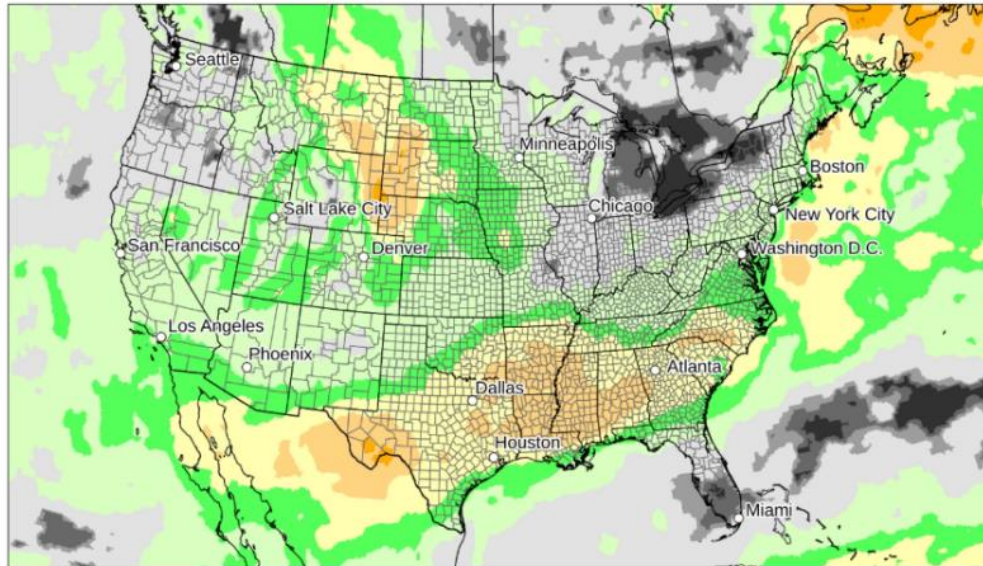
County Precipitation Rank (130 years)

January 2024



# January – Very Cloudy for some...

## Clouds Ranking for Jan 2024



Source: ERA5 Reanalysis

Lower 48 Rank for Jan 2024 is: 15 out of 85

Map by: Brian Brettschneider



# January 2024 – Cloudy Cities

Location	Average % of Overcast Days	2024 % of Overcast Days
Muskegon, MI	73	100
Grand Rapids, MI	66	97
Traverse City, MI	69	97
Alpena, MI	63	94
Saginaw, MI	53	94

First and only time since 1951 that Muskegon had 100% overcast for any month!

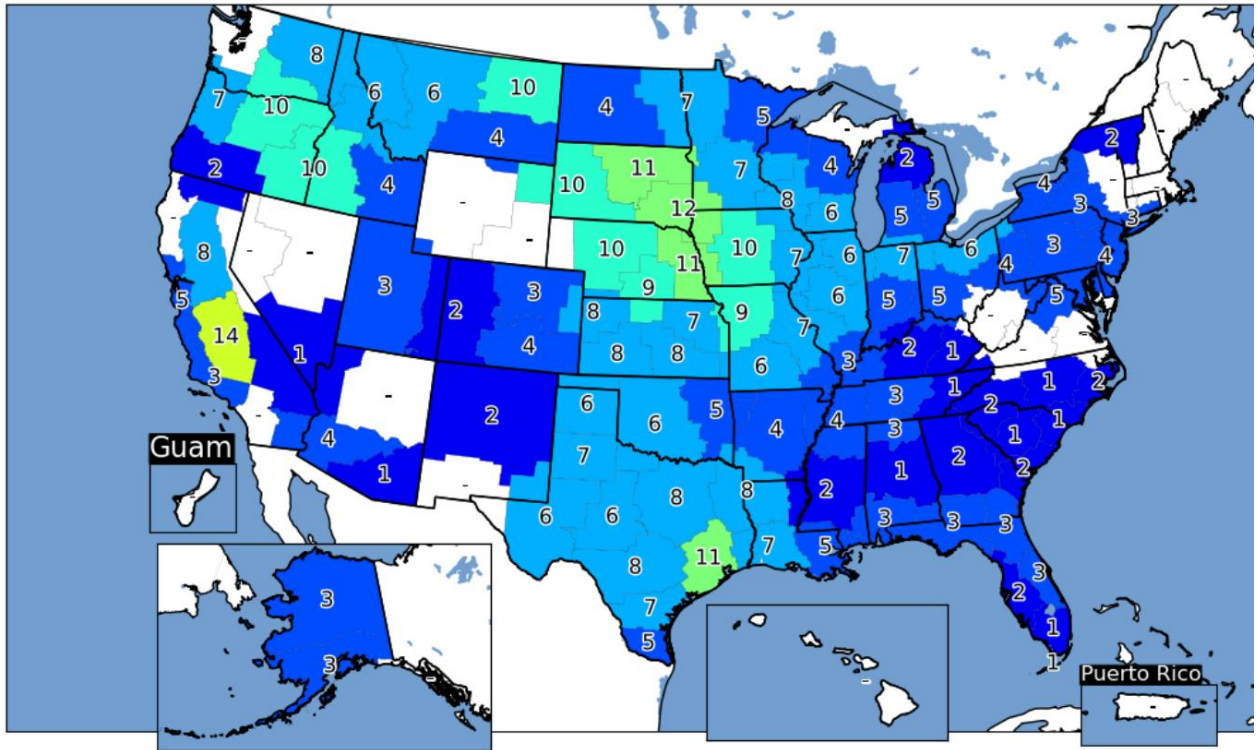
All five locations set new or tied existing marks for the cloudiest January on record.

# January – Very Foggy for some...



## Dense Fog Advisory Days with 1+ Events by WFO

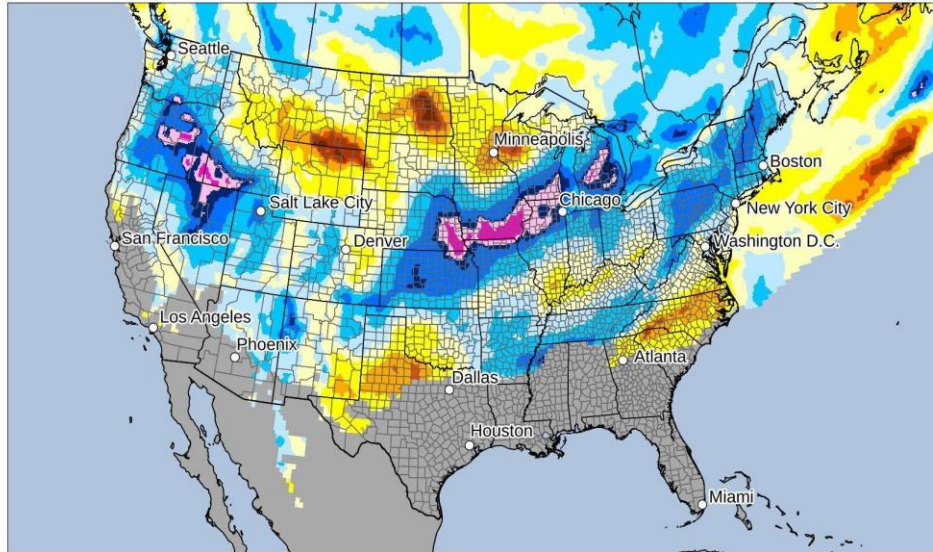
Valid 01 Jan 2024 00:00 - 31 Jan 2024 23:59 UTC, based on VTEC: FG.Y





# January – Very Snowy for some...

## Snowfall Ranking for Jan 2024



Source: ERA5 Reanalysis

Lower 48 Rank for Jan 2024 is: 15 out of 50

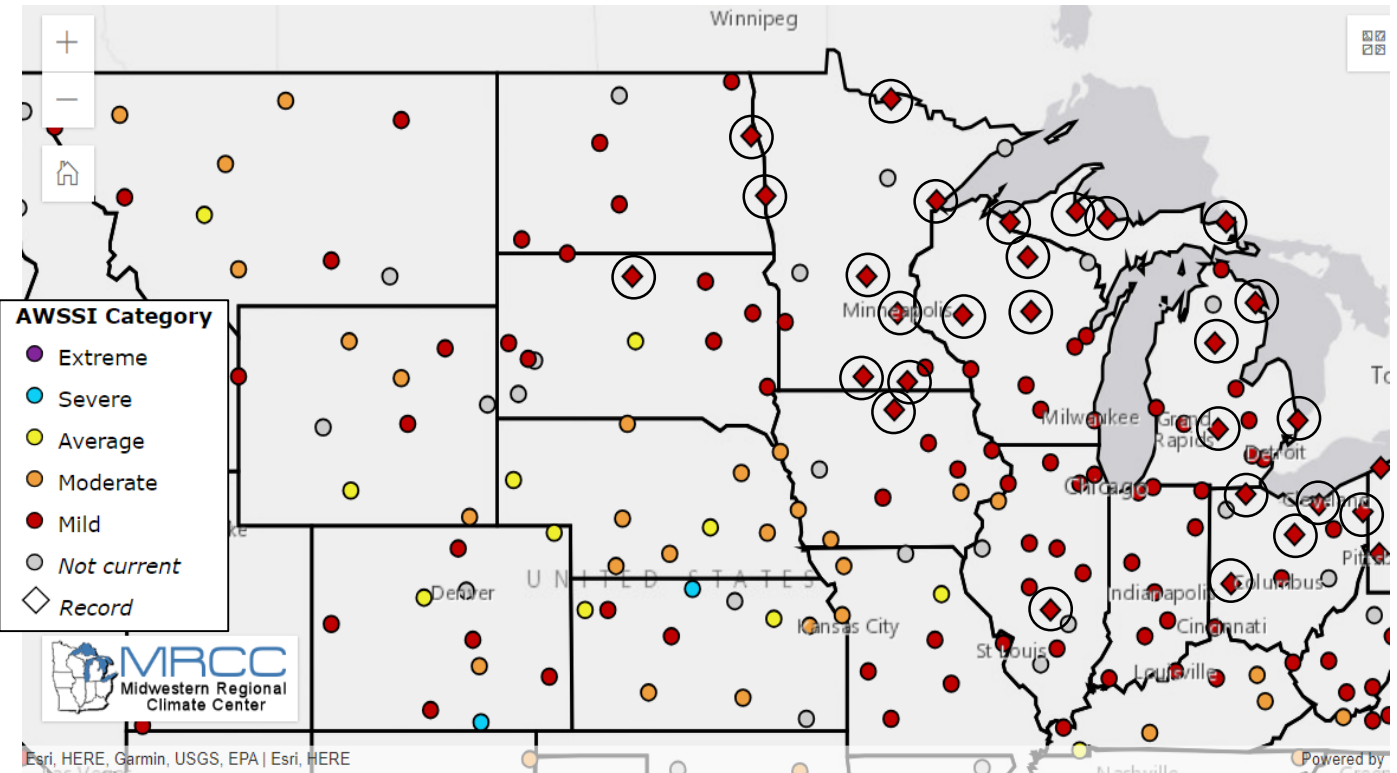
Map by: Brian Brettschneider



# January 2024 – Snowy Cities

Location	Average January Snowfall	January 2024 Snowfall	January 2024 Rank / Years
Ottumwa, IA	7.1"	31.1"	1 / 107
Waterloo, IA	10.1"	25.1"	1 / 130
Moline, IL	10.8"	27.2"	2 / 140
Des Moines, IA	9.4"	27.2"	2 / 140
Dubuque, IA	10.7"	26.5"	3 / 131

# AWSSI – Accumulated Winter Season Severity Index

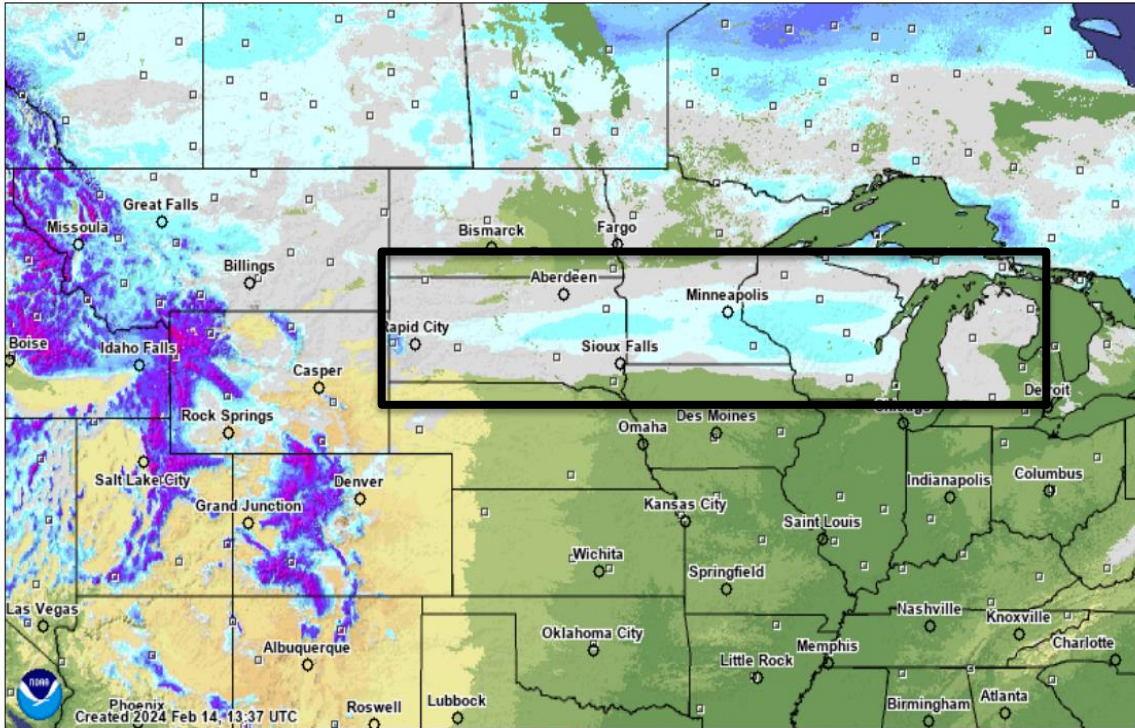
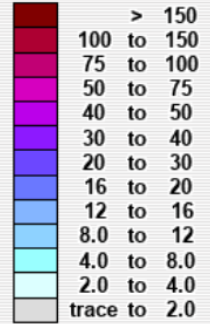


# Current Snow Depth Map

Modeled Snow Depth forecasted for 2024 February 15, 11:00 UTC

1469 mi

Inches of depth

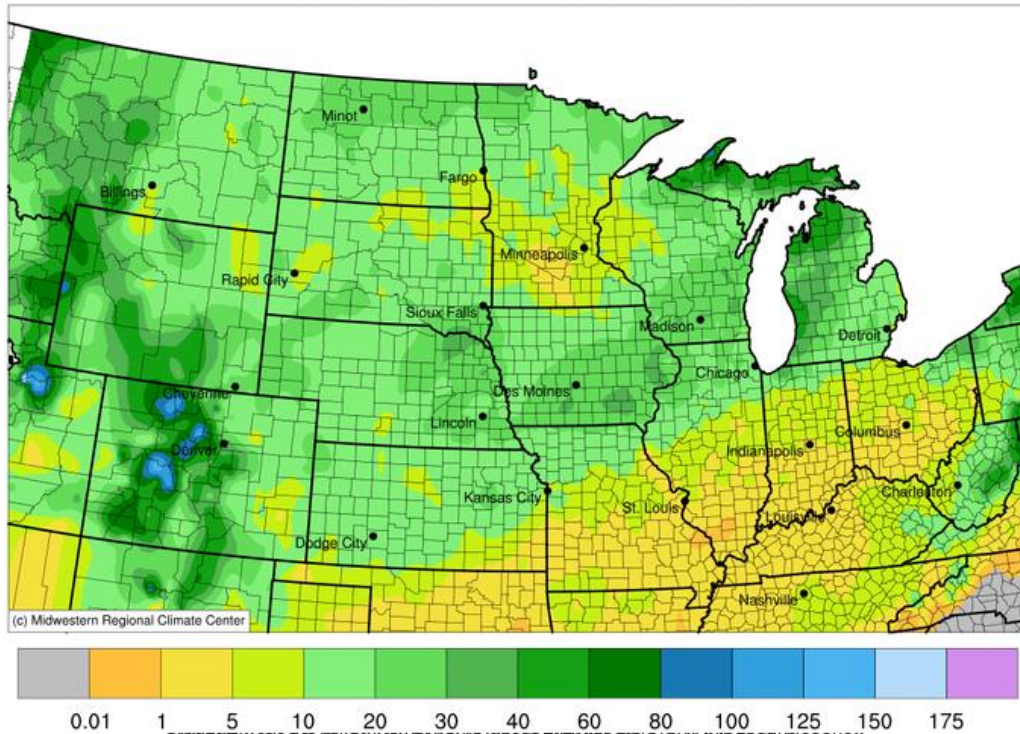


# 2023-24 Snowfall



## Accumulated Snowfall (in)

October 01, 2023 to February 15, 2024

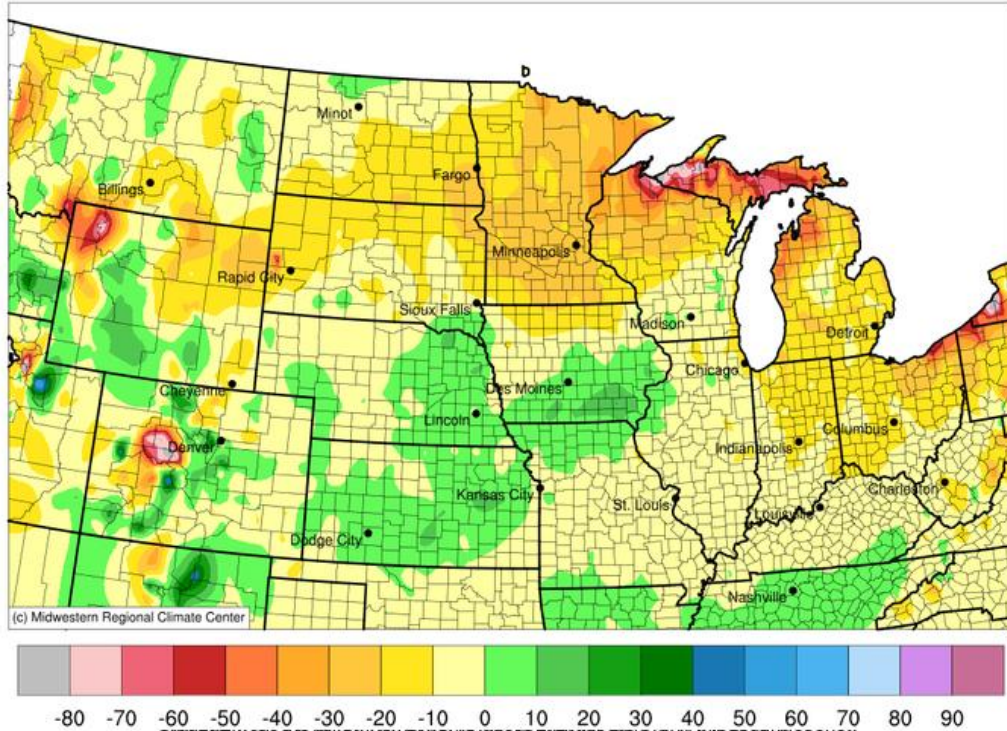


# 2023-24 Snowfall

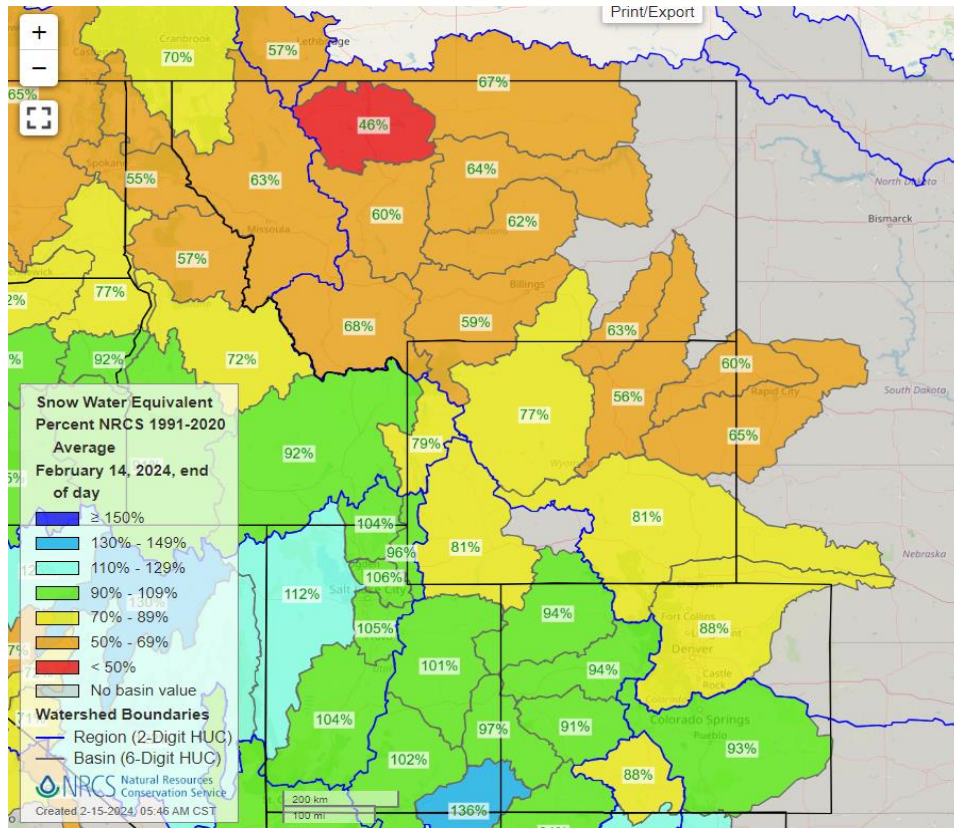


## Accumulated Snowfall (in): Departure from 1991-2020 Normals

October 01, 2023 to February 15, 2024

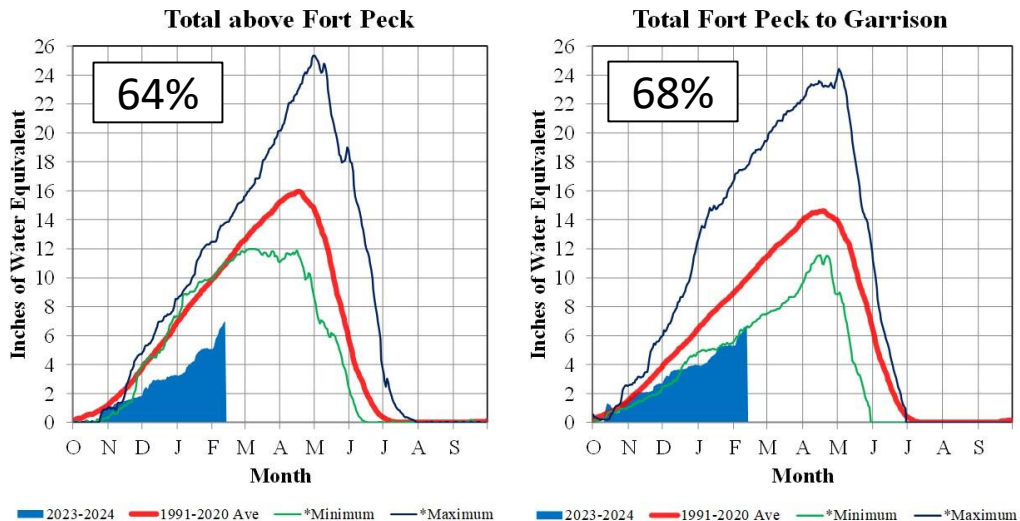


# Snow Water Equivalent – Percent of Average



# Missouri River Basin - Snowpack

## Missouri River Basin – Mountain Snowpack Water Content 2023-2024 with comparison plots from recent high and low years 12-Feb-2024



On February 12, 2024 the mountain Snow Water Equivalent (SWE) in the "Total above Fort Peck" reach is 7.0" and 64% of the (1991-2020) average. The mountain SWE in the "Fort Peck to Garrison" reach is 6.7" and 68% of the (1991-2020) average. The normal peak for both reaches occurs near April 17.

\*Minimum peak SWE between 1991-2020 occurred in 2015 above Fort Peck, and in 2001 between Fort Peck and Garrison.  
Maximum peak SWE between 1991-2020 occurred in 2011 above Fort Peck, and in 1997 between Fort Peck and Garrison.

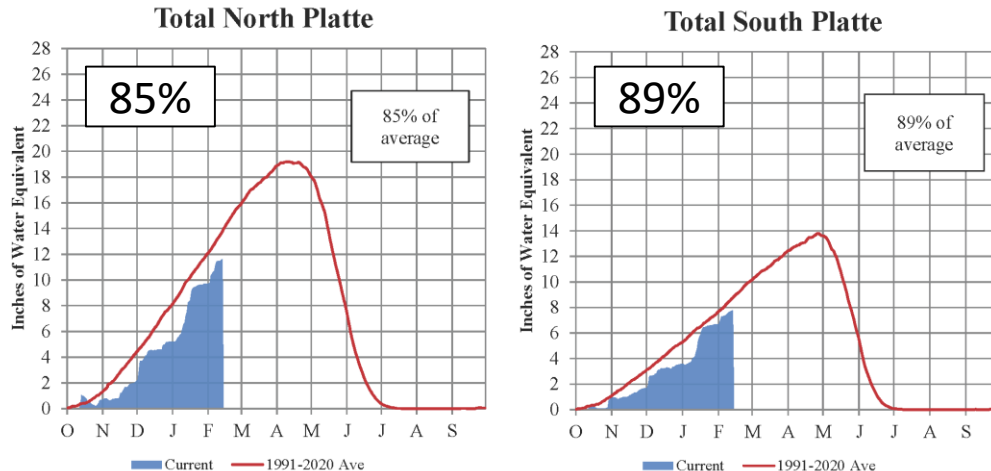
Provisional data. Subject to revision.



# Platte River Basin - Snowpack

## Platte River Basin - Mountain Snowpack Water Content Water Year 2023-2024

February 13, 2024

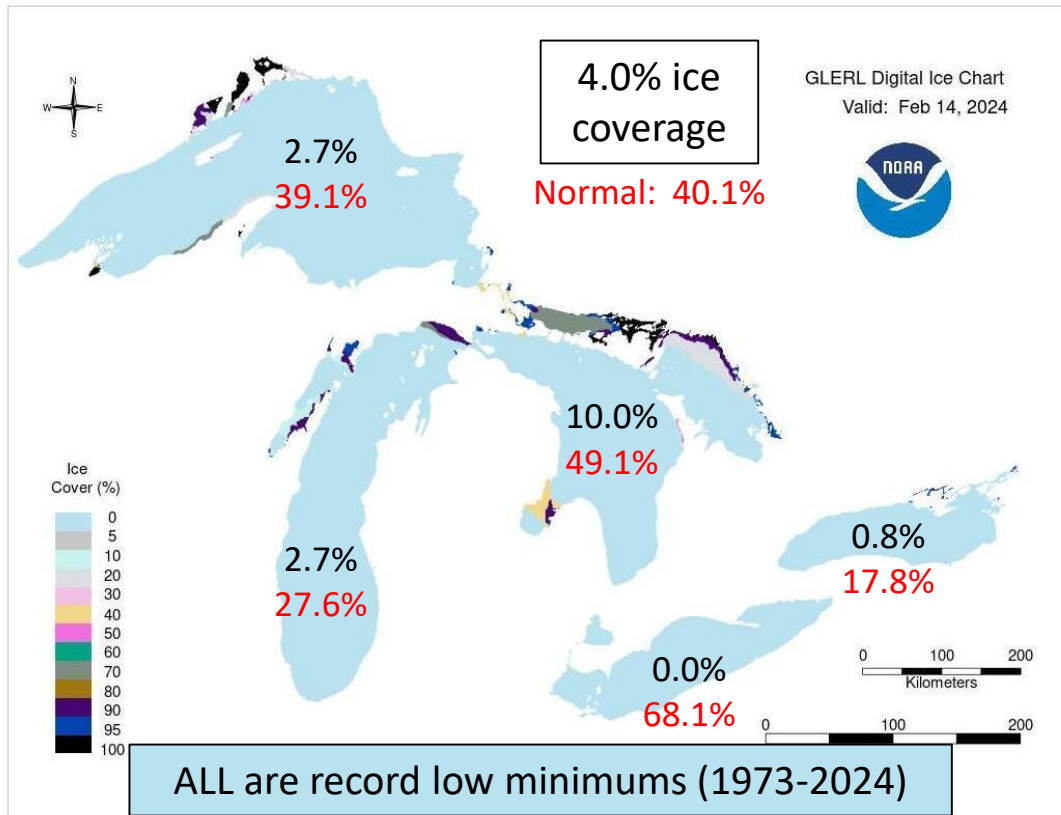


The North and South Platte River Basin mountain snowpacks normally peak near April 10 and the end of April, respectively. As of February 13, 2024, the mountain snowpack SWE in the "Total North Platte" reach is 11.6", 85% of the (1991-2020) average. The mountain snowpack SWE in the "Total South Platte" reach is 7.8", 89% of the (1991-2020) average.

Source: USDA, Natural Resource Conservation Service

Provisional Data. Subject to Revision

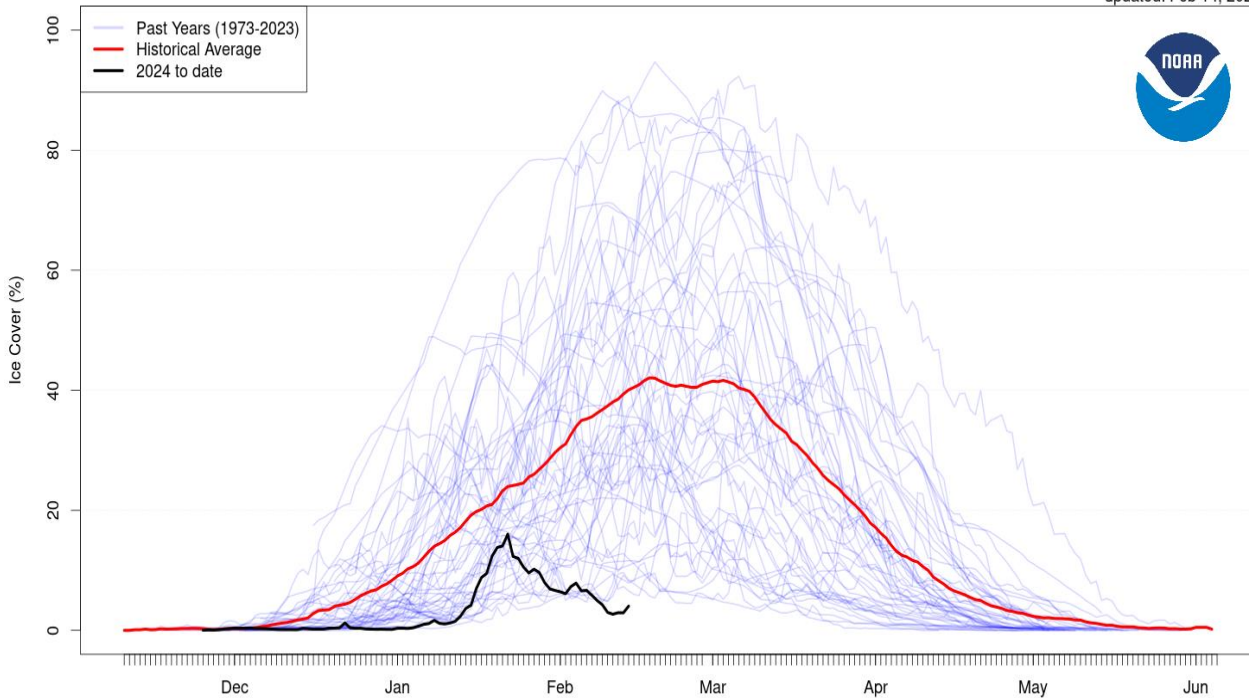
# Great Lakes Ice Coverage



# Great Lakes Ice Coverage

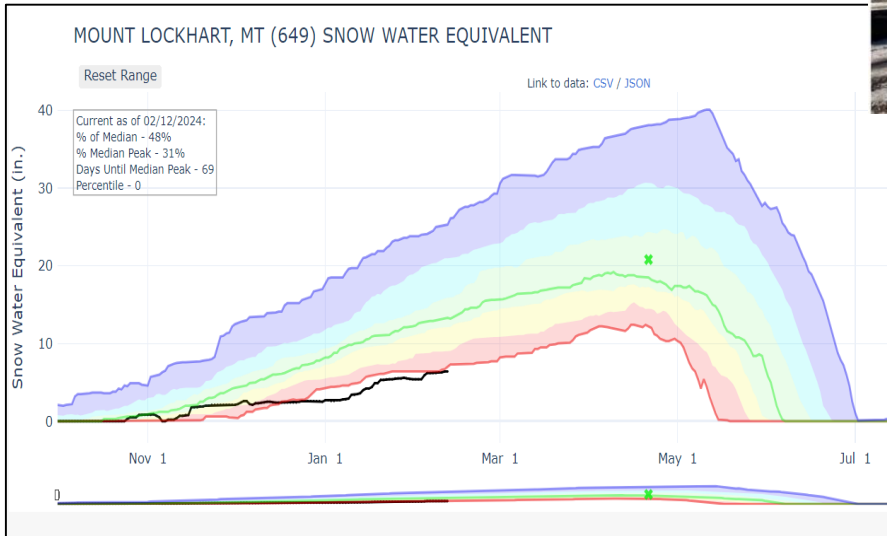
## Great Lakes Average Ice Cover

updated: Feb 14, 2024



# Montana – Ski Resort Closure

- Teton Pass Ski Resort
- Closed for Season
- Only open for 4 days
- “Lowest Levels of moisture...in 55 years”



# Minnesota – Winter Events

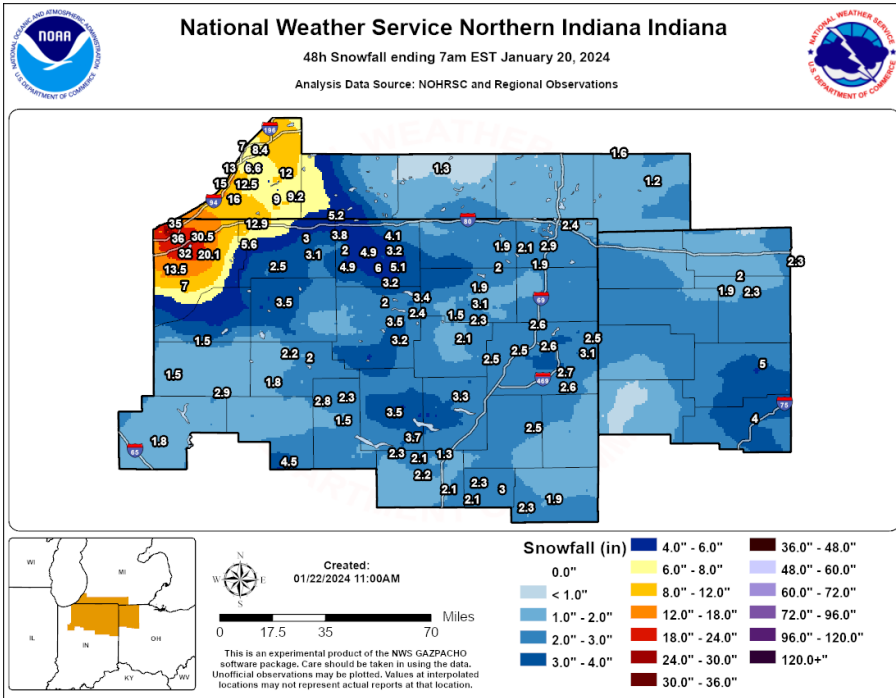
- Minnesota Ice Festival – Eagan
- US Pond Hockey Championships – Lake Nokomis
- John Beargrease Dog Sled Marathon – Duluth
- Chilly Open (Ice) Golf Tournament – Wayzata
- Ice Fest Snowmobile Drag Races – Breezy Point

**CANCELLED**

# Indiana – Lake Effect Snow

## Laporte: 21.9" of snow on Jan. 19

All-time 1-day snowfall record at that site (76-year POR)



# Wisconsin – Feb. 8 Tornadoes



- EF1 in Green County
- 8-mile tornado path
- First February tornadoes on record in Wisconsin

- High-end EF2
- Rock/Dane/Jefferson Cos.
- 4 homes destroyed
- 20 homes damaged
- 24-mile tornado path



# Spring Flowers – An Early Start

**Feb. 8, Smithville, MO**

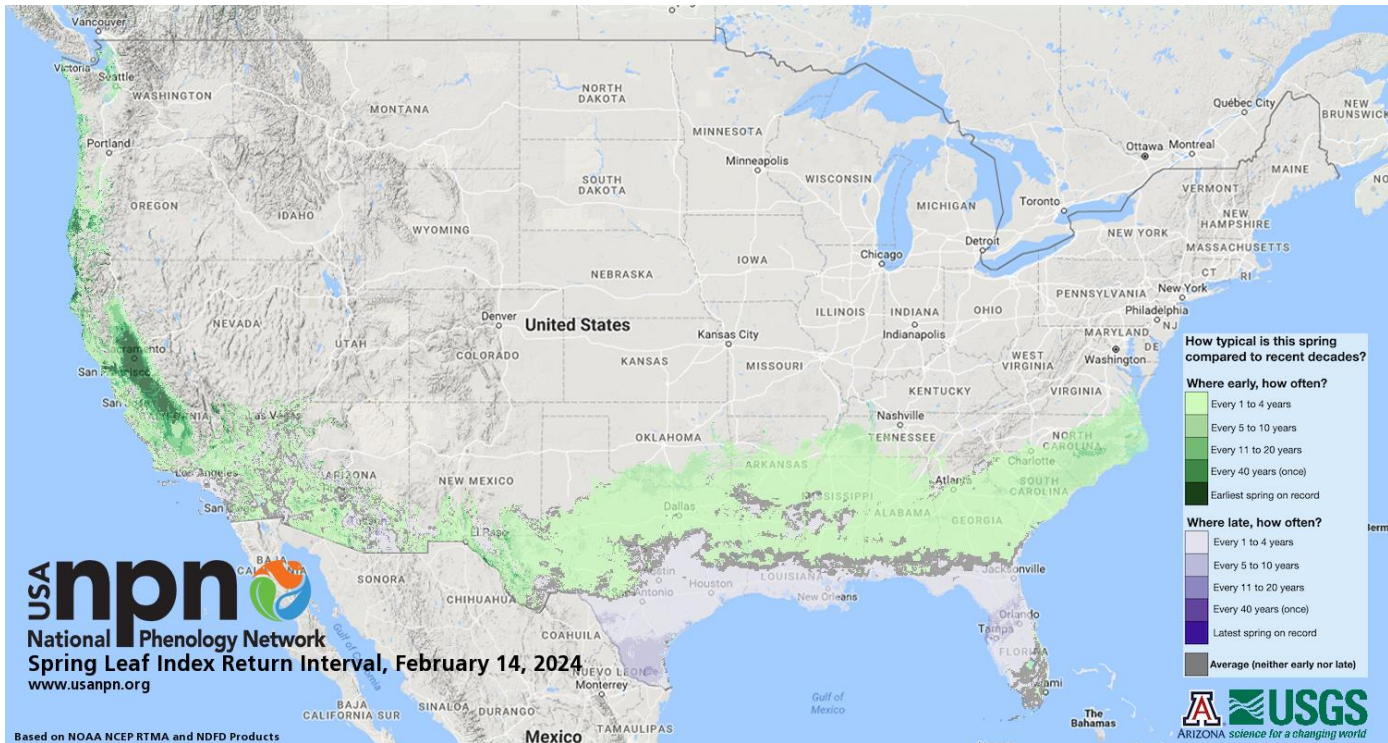


**Feb. 13, Manhattan, KS**



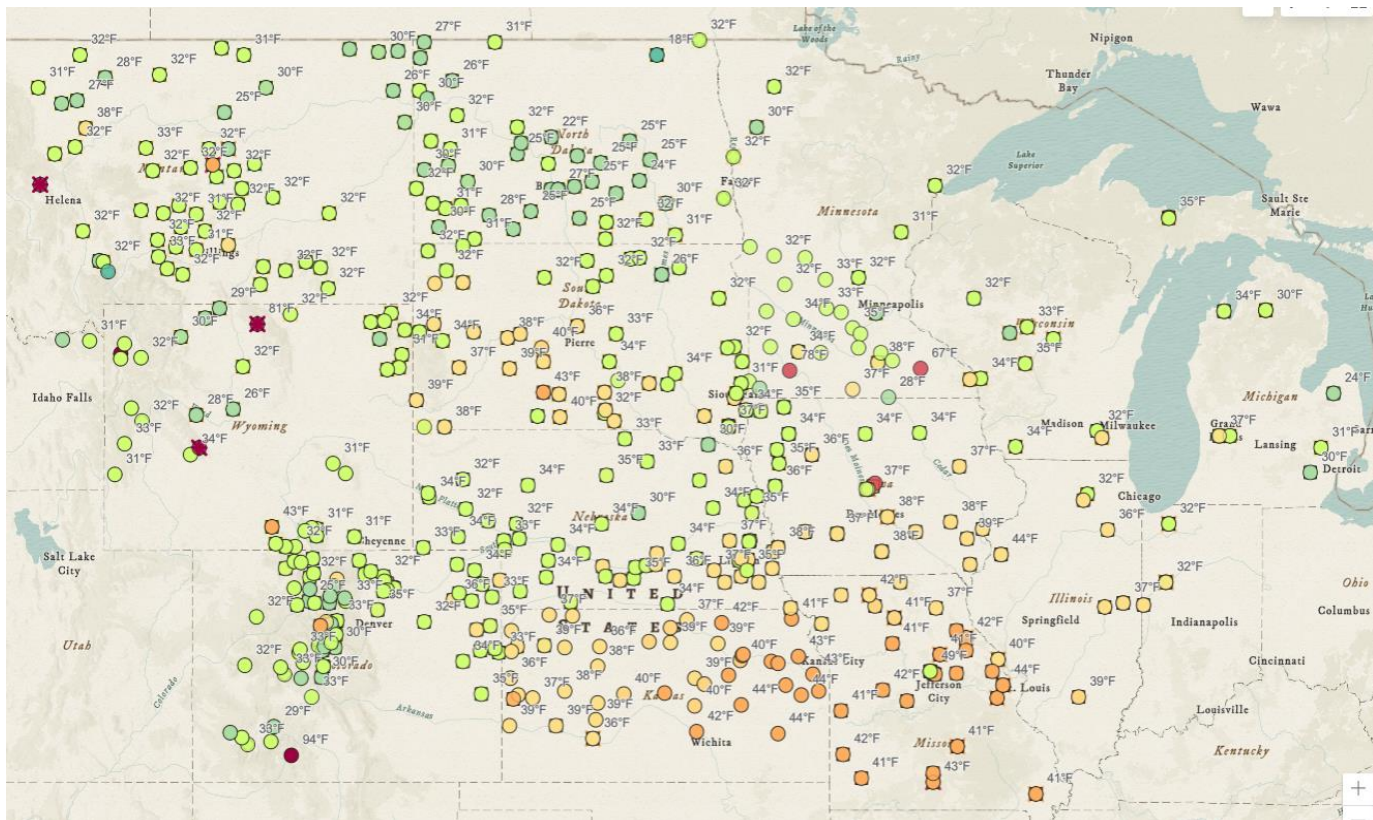


# Spring Leaf Index





# Soil Temperature – Feb. 15

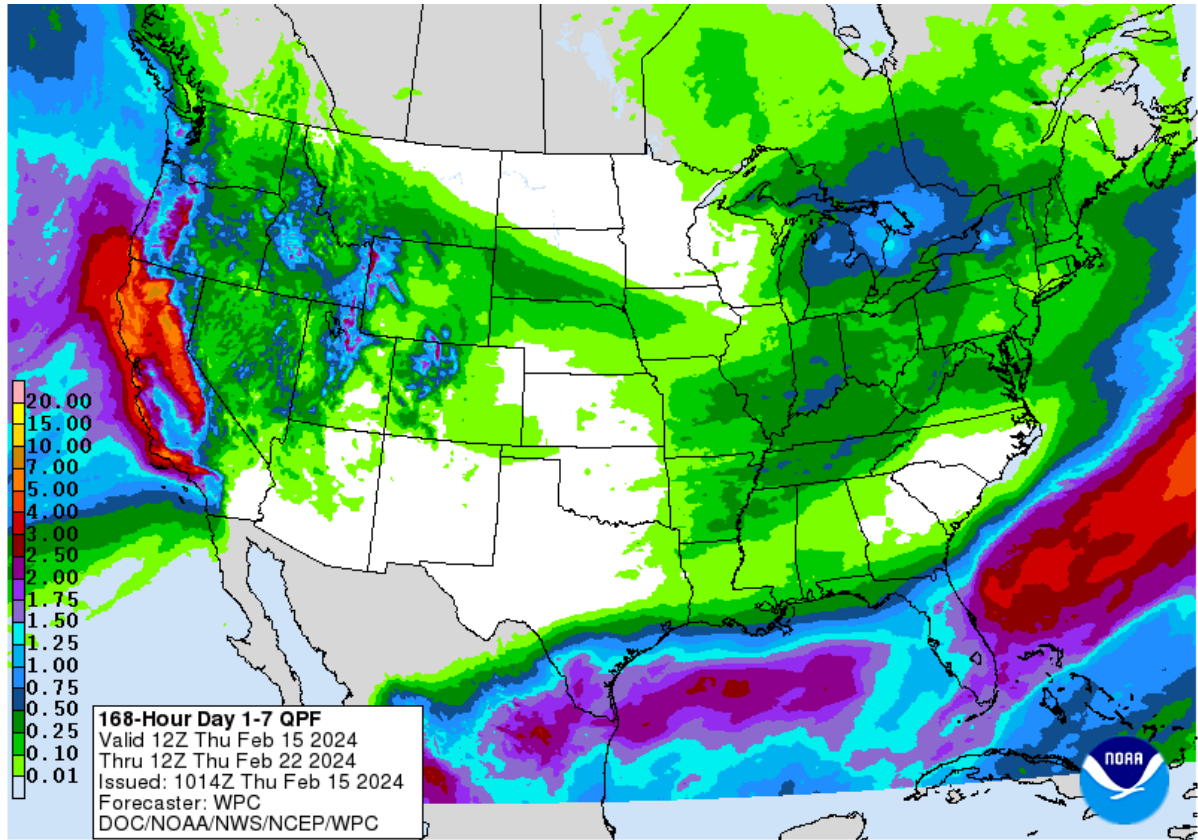




# Outlooks



# 7-Day Precipitation Outlook



# Feb 22-28 Temperature Outlook

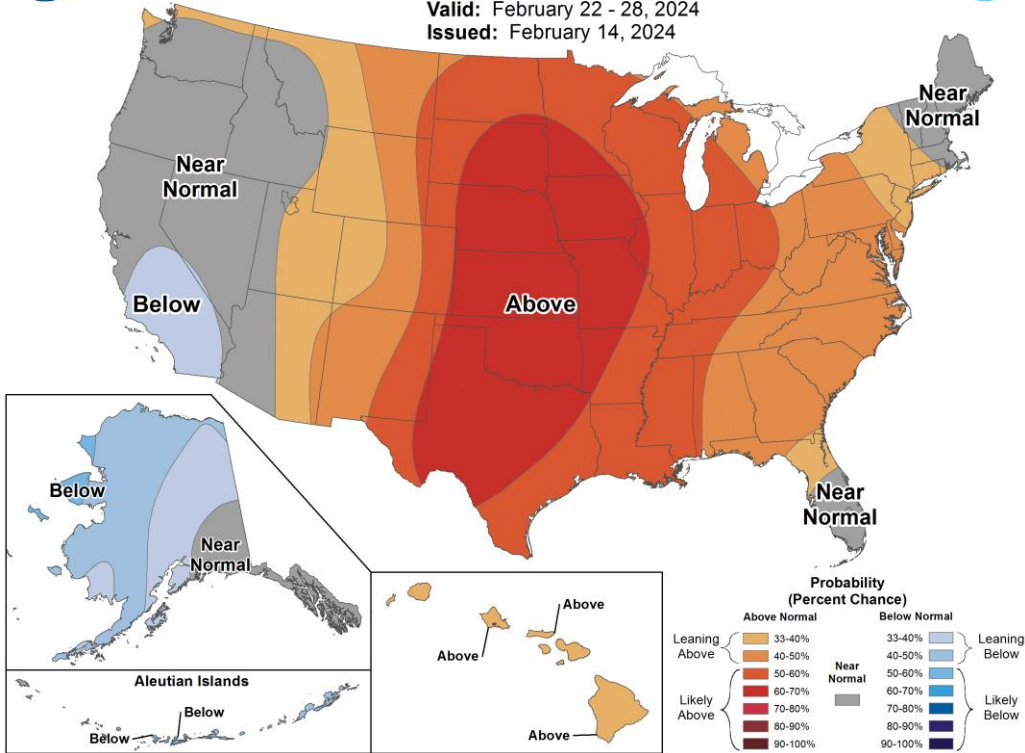


## 8-14 Day Temperature Outlook



Valid: February 22 - 28, 2024

Issued: February 14, 2024



# Feb 22-28 Precipitation Outlook

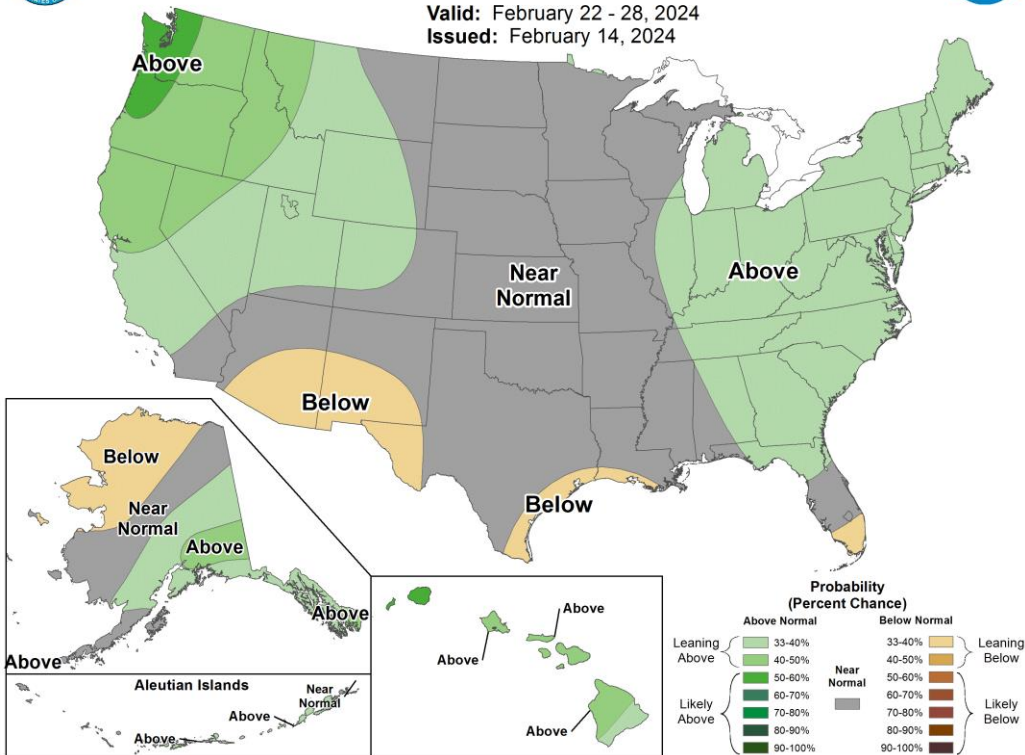


## 8-14 Day Precipitation Outlook



Valid: February 22 - 28, 2024

Issued: February 14, 2024



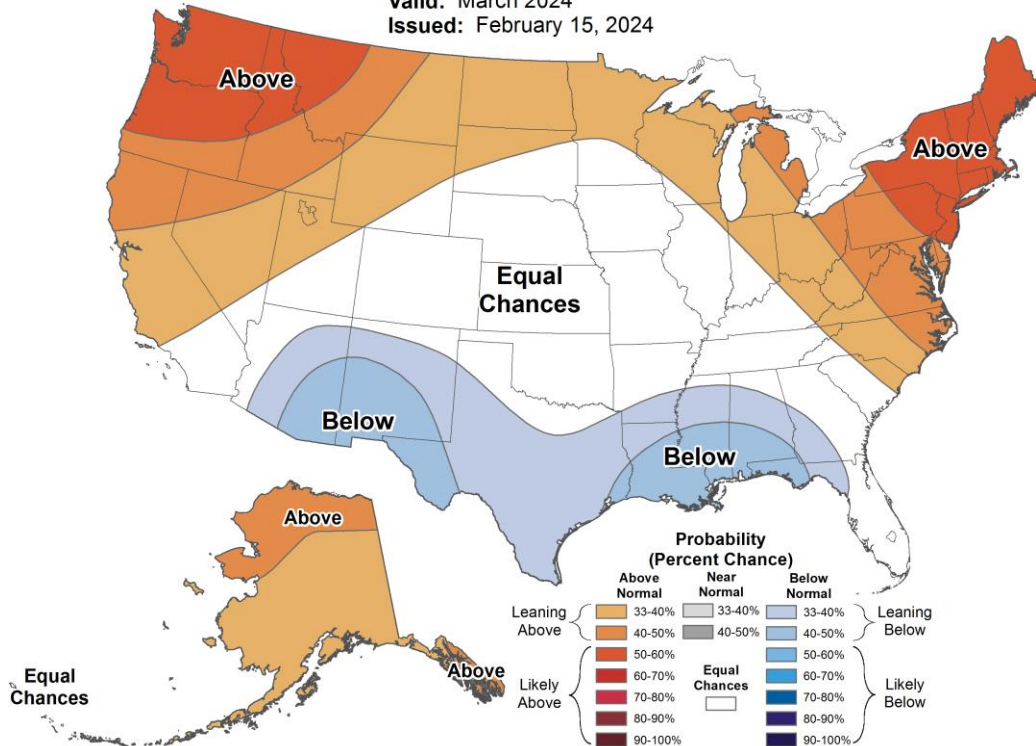
# March Temperature Outlook



## Monthly Temperature Outlook



Valid: March 2024  
Issued: February 15, 2024





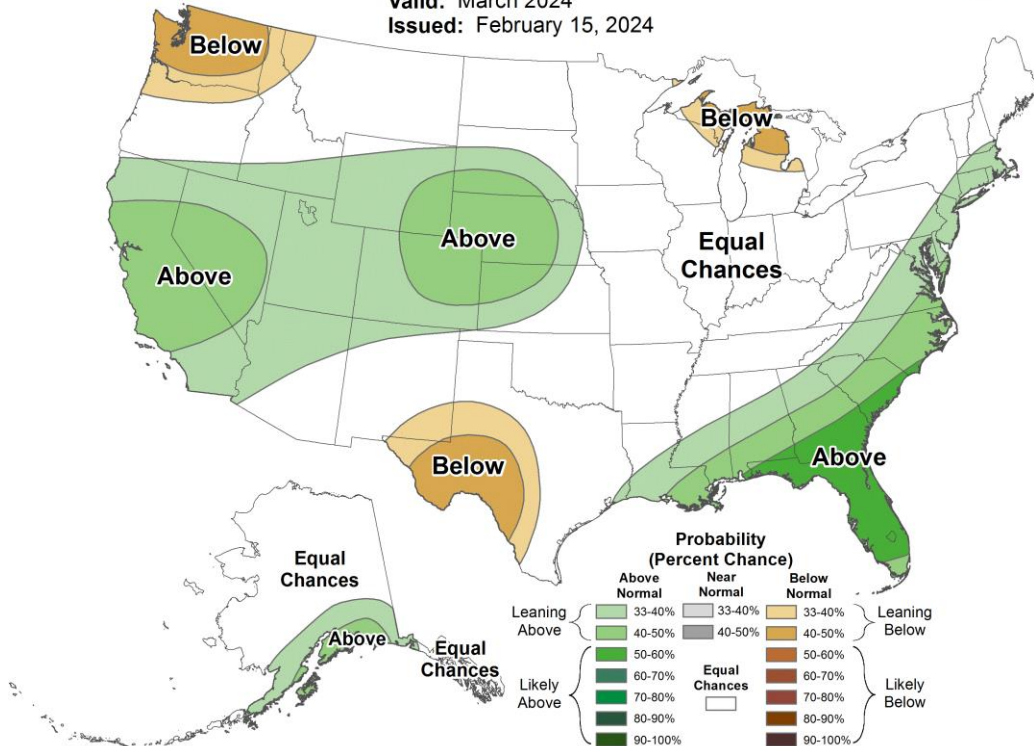
# March Precipitation Outlook



## Monthly Precipitation Outlook



Valid: March 2024  
Issued: February 15, 2024



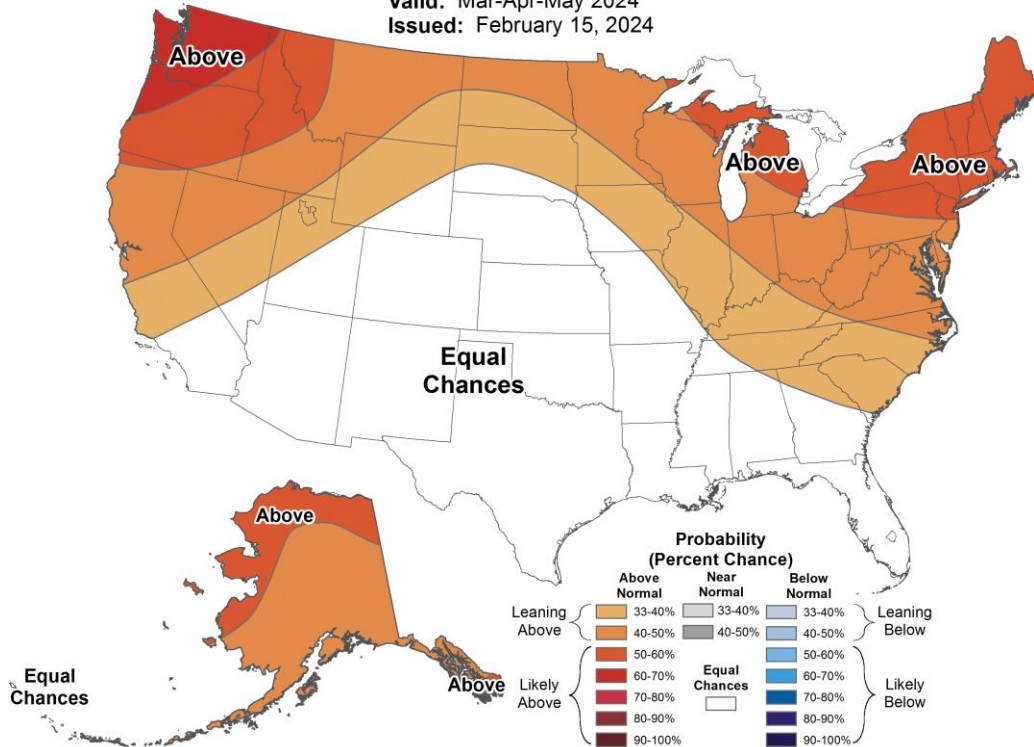
# Mar-Apr-May Temperature Outlook



## Seasonal Temperature Outlook



Valid: Mar-Apr-May 2024  
Issued: February 15, 2024



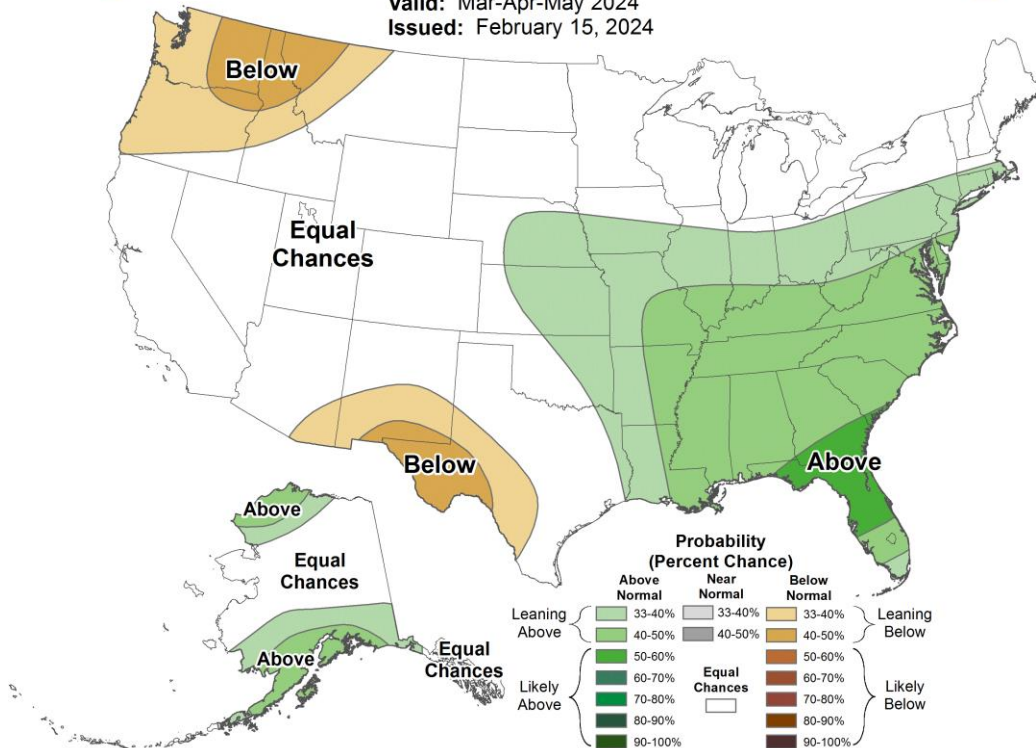
# Mar-Apr-May Precipitation Outlook



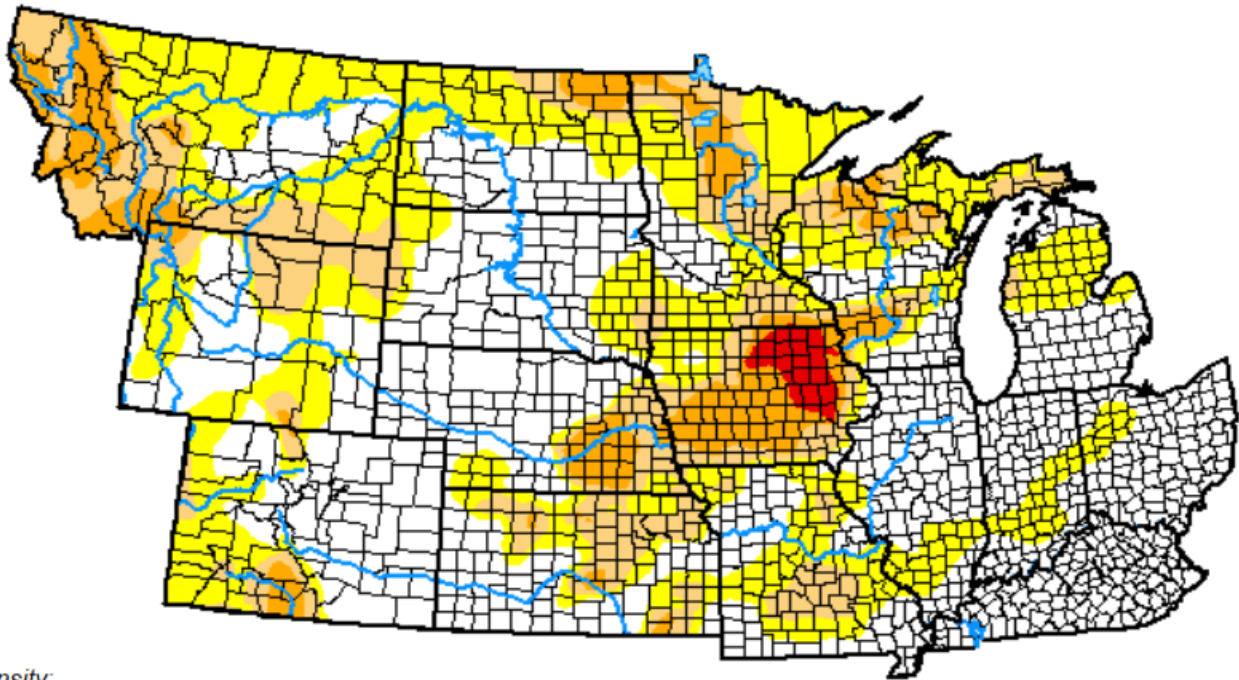
## Seasonal Precipitation Outlook



Valid: Mar-Apr-May 2024  
Issued: February 15, 2024



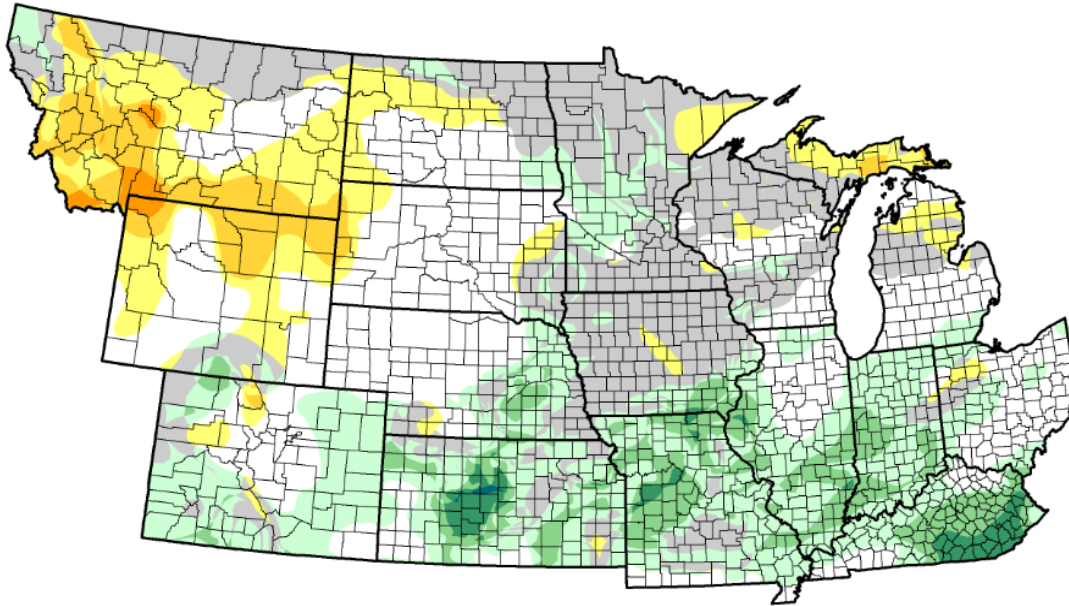
# US Drought Monitor – February 13, 2024



## Intensity:



# US Drought Monitor – Change since Dec 2023



- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

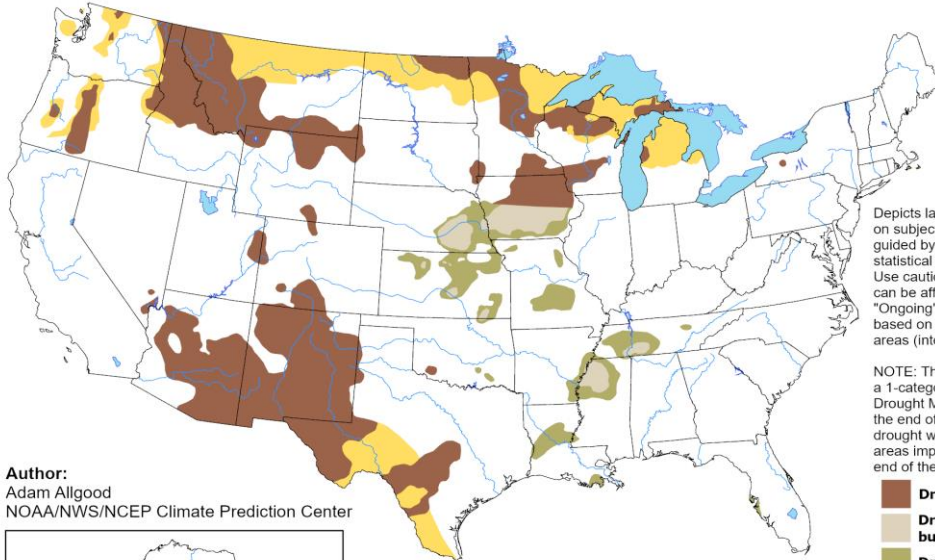
February 13, 2024  
compared to  
December 5, 2023

[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

# Feb-May 2024 Drought Outlook

## U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for February 15 - May 31, 2024  
Released February 15, 2024

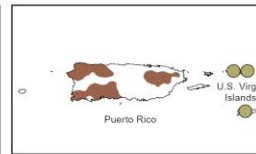
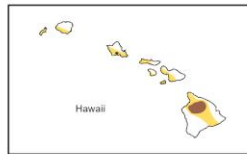


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

-  Drought persists
-  Drought remains, but improves
-  Drought removal likely
-  Drought development likely
-  No drought

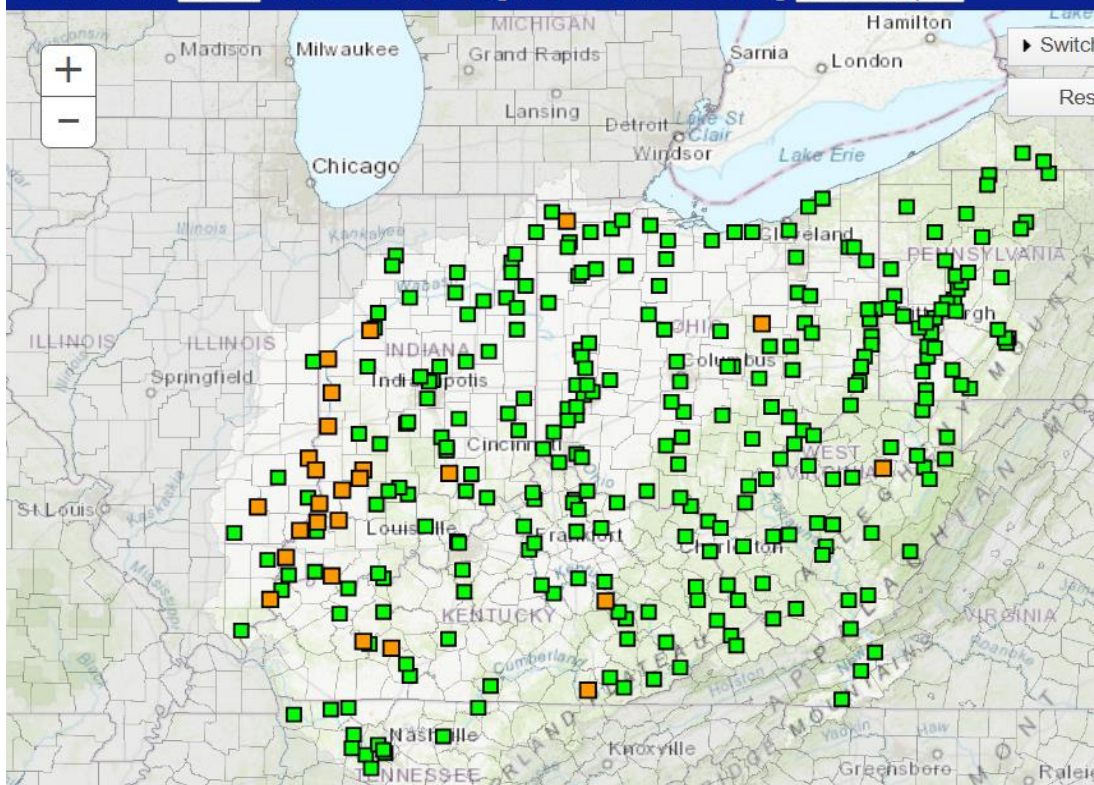
Author:  
Adam Allgood  
NOAA/NWS/NCEP Climate Prediction Center



<https://go.usa.gov/3eZ73>

# Feb-Mar-Apr River Flood Outlook – Ohio

Greater than:  chance of exceeding river flood levels during



> 50% Major Flooding

> 50% Moderate Flooding

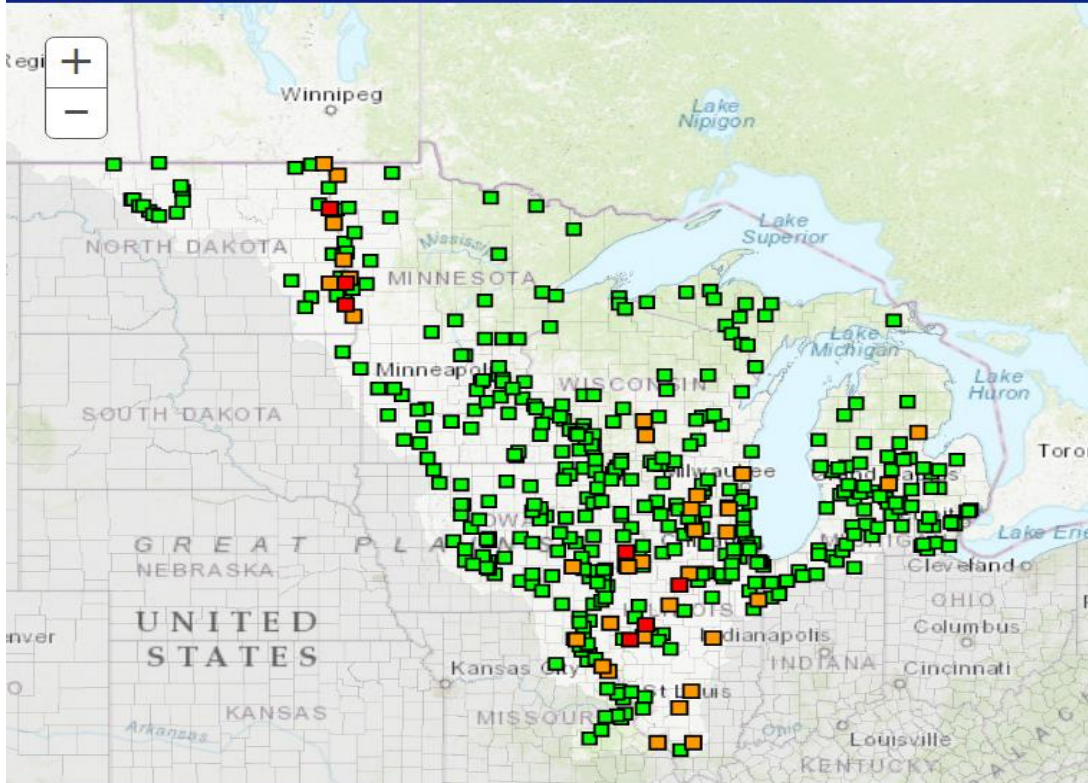
> 50% Minor Flooding

< 50% Chance of Flooding

Long-Range Flood Risk Not Calculated

# Feb-Mar-Apr River Flood Outlooks – North Central

Greater than: 50% chance of exceeding river flood levels during Feb-Mar-Apr

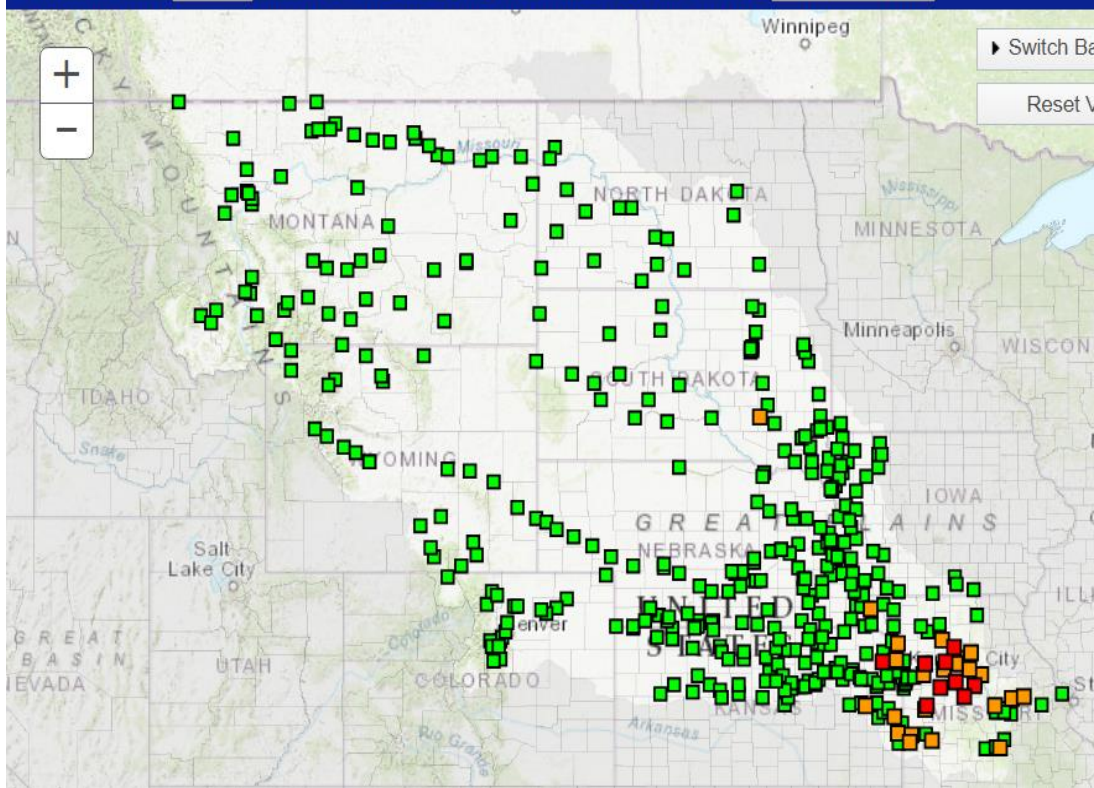


- > 50% Major Flooding
- > 50% Moderate Flooding
- > 50% Minor Flooding
- < 50% Chance of Flooding
- Long-Range Flood Risk Not Calculated



# Feb-Mar-Apr River Flood Outlooks - Missouri

Greater than:  chance of exceeding river flood levels during



> 50% Major Flooding

> 50% Moderate Flooding

> 50% Minor Flooding

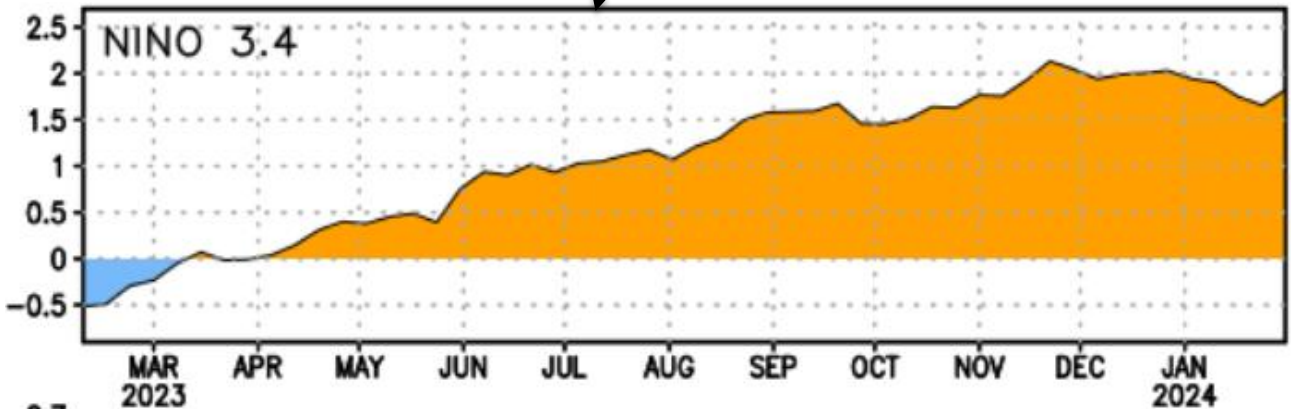
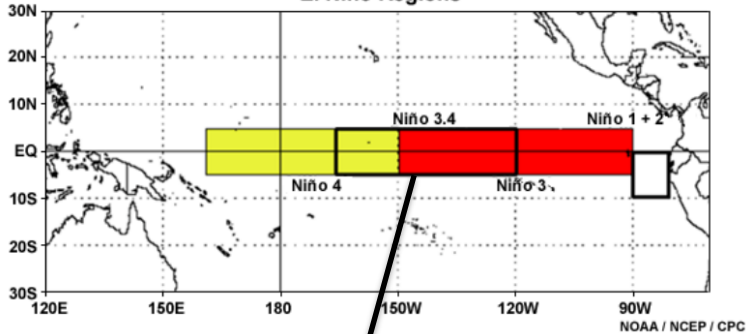
< 50% Chance of Flooding

Long-Range Flood Risk Not Calculated

# ENSO Status



El Niño Regions

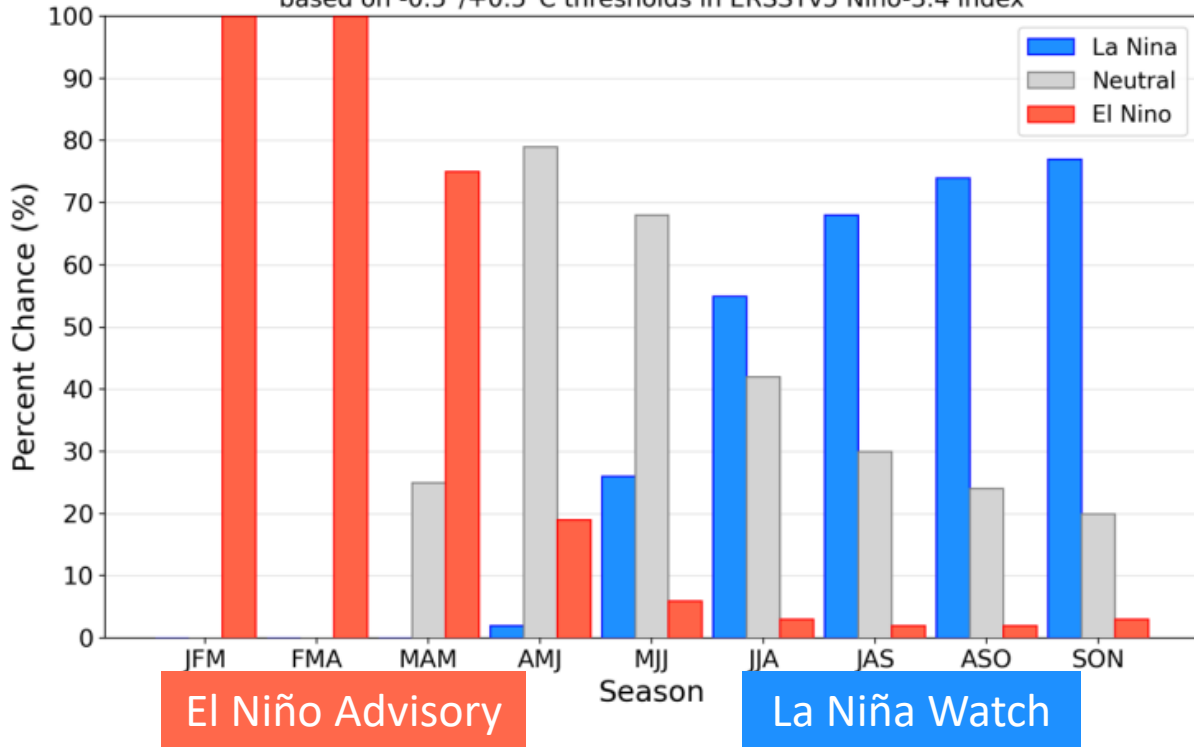


# ENSO Forecast



## Official NOAA CPC ENSO Probabilities (issued Feb. 2024)

based on  $-0.5^{\circ}/+0.5^{\circ}\text{C}$  thresholds in ERSSTv5 Niño-3.4 index



# Comments / Questions?

Contact: Matthew Sittel – [msittel@ksu.edu](mailto:msittel@ksu.edu)  
Dennis Todey - [dennis.todey@usda.gov](mailto:dennis.todey@usda.gov) - (515) 294-2013  
Doug Kluck - [doug.kluck@noaa.gov](mailto:doug.kluck@noaa.gov) - (816) 564-2417

Websites: [weather.gov](http://weather.gov), [climate.gov](http://climate.gov), [heat.gov](http://heat.gov), [drought.gov](http://drought.gov)

Past Webinars: <https://mrcc.purdue.edu/webinars/>  
<https://hprcc.unl.edu/webinars.php>

