



# Wisconsin Ag Climate Outlook

## Winter Edition

*December 2024*

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# Key Points

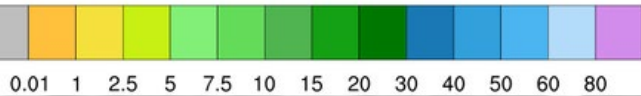
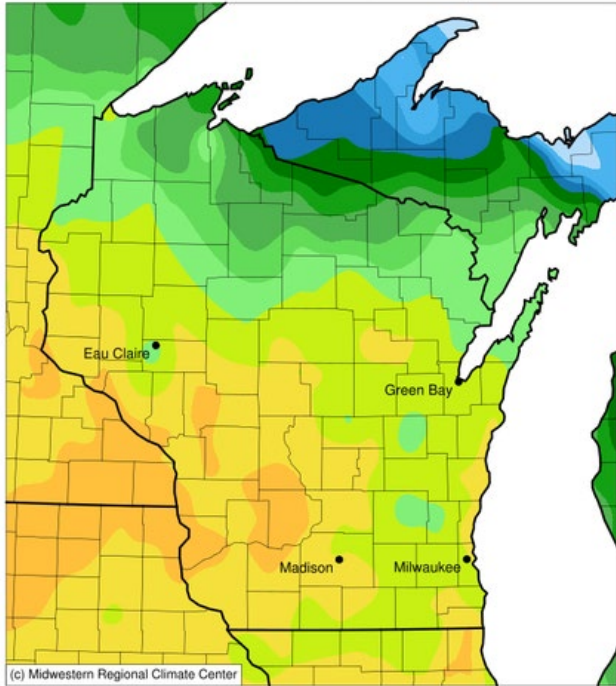
Navigate to select slides by clicking on the [links](#) below.

- 1) Many across the state have experienced [measurable snow](#) over the past month, but totals remain [well below normal](#).
  - 2) Drought severity has improved by [1-2 classes](#) across WI since mid-November.
  - 3) Precip chances exist [statewide](#) over the next week, with [warmer-than-normal](#) conditions looking likely as we wrap up 2024.
- *For this week's agronomic recommendations from UW Extension, click [here](#).*

# Snowfall Recap & Snow Depth

## Accumulated Snowfall (in)

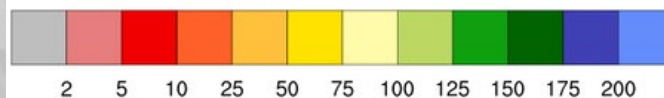
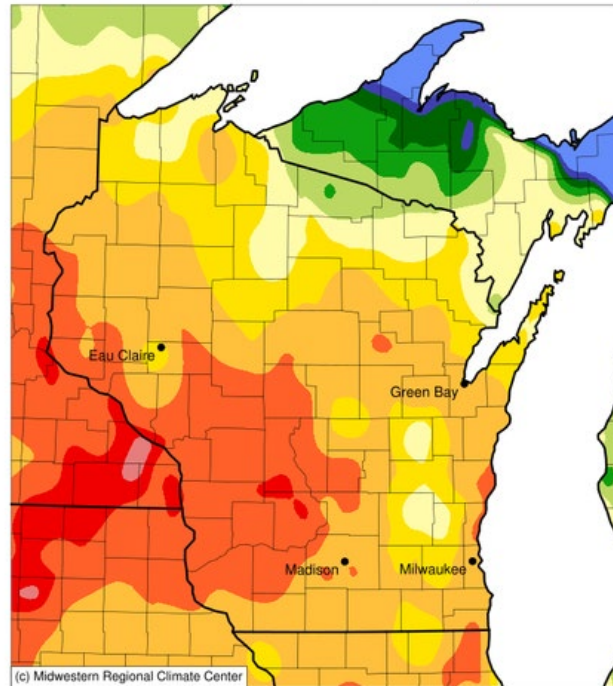
November 19, 2024 to December 18, 2024



- Current snow pack is limited to the **far north and parts of the Driftless Region**

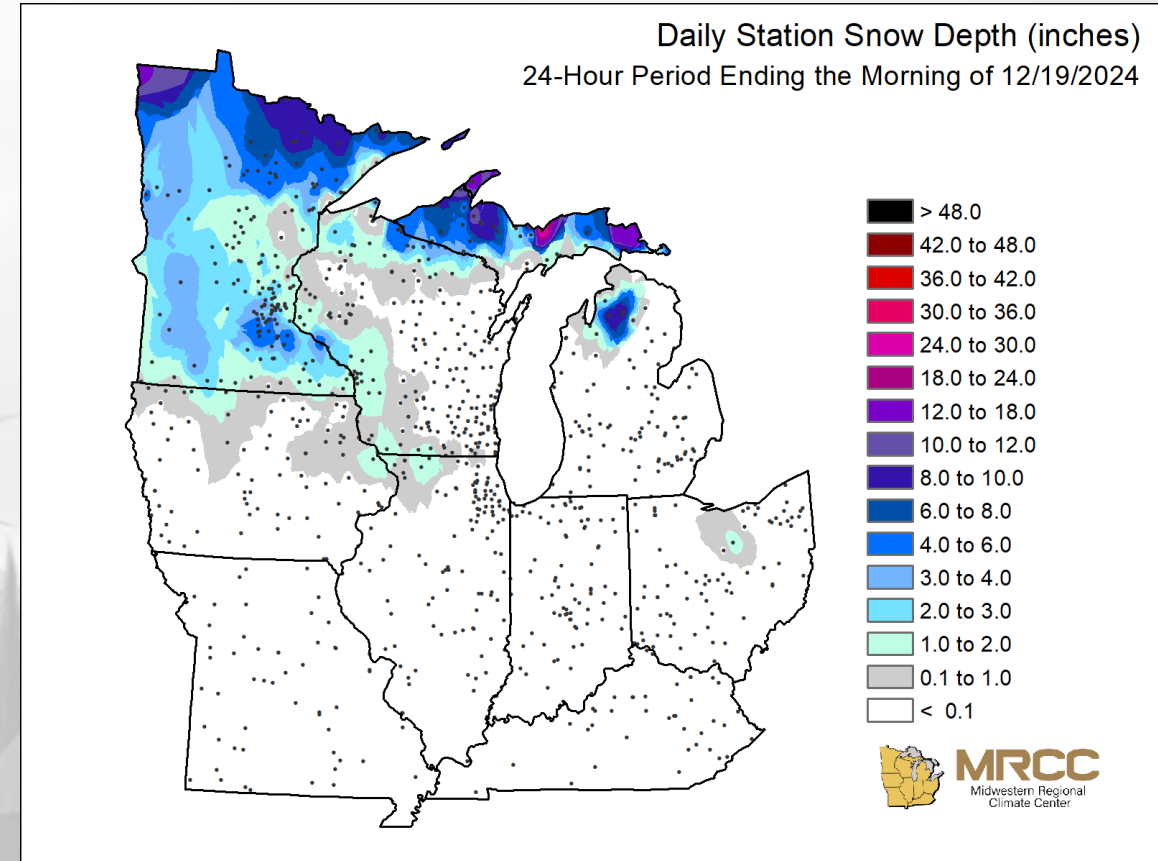
## Accumulated Snowfall (in): Percent of 1991-2020 Normals

November 19, 2024 to December 18, 2024



- **<5"** of snowfall in southern & central WI.
- **50% or less** of average snowfall accumulation across most of the state.

## Daily Station Snow Depth (inches) 24-Hour Period Ending the Morning of 12/19/2024

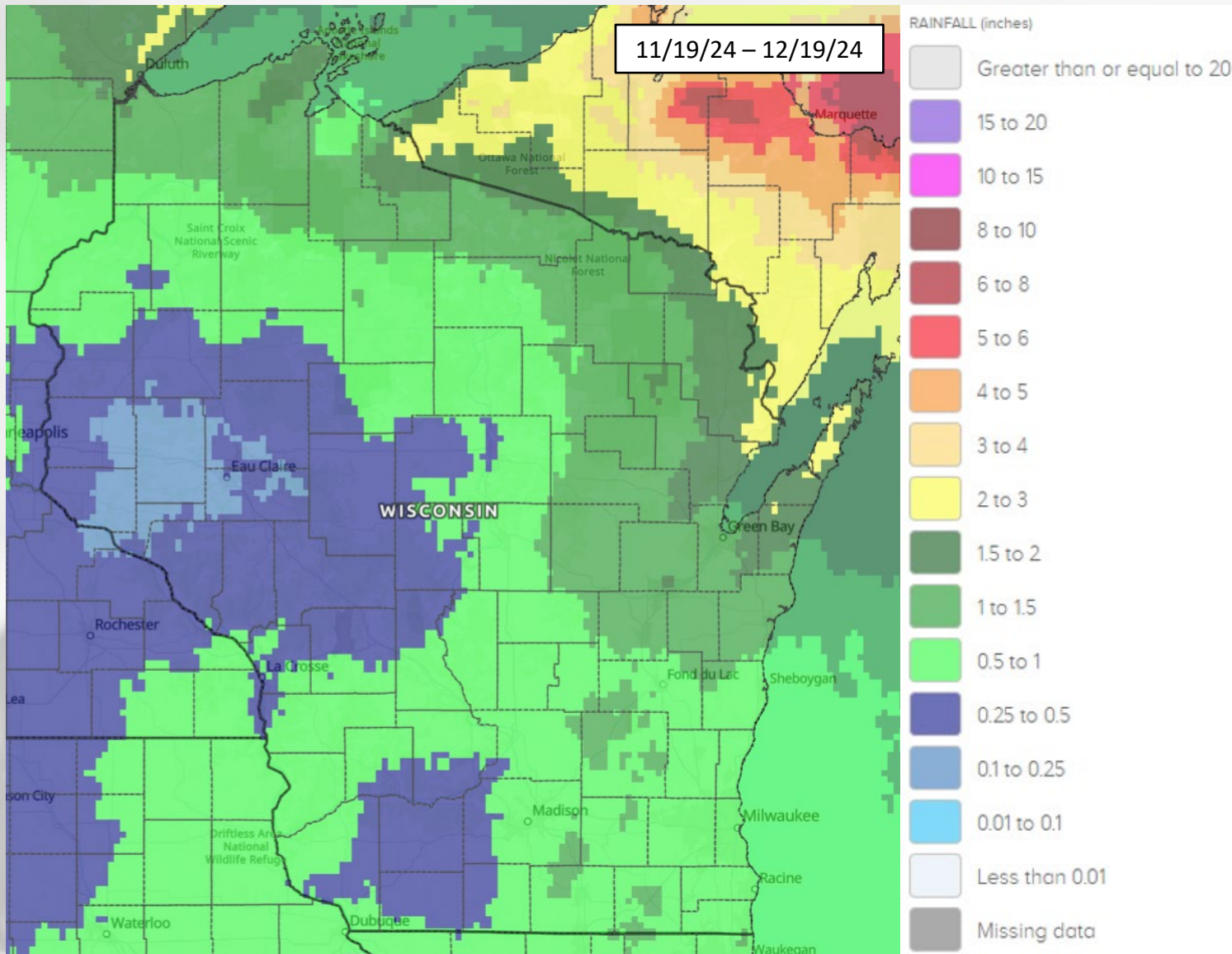


# Snowfall Stats

County	Highest 1-Day Snowfall Measurement (in)*
Iron	6
Vilas	5.6
Bayfield	5.5
Jefferson	5.3
Washington	5.2
Winnebago	5
Fond du Lac	4
Walworth	4
Marinette	3.6
Oconto	3.6

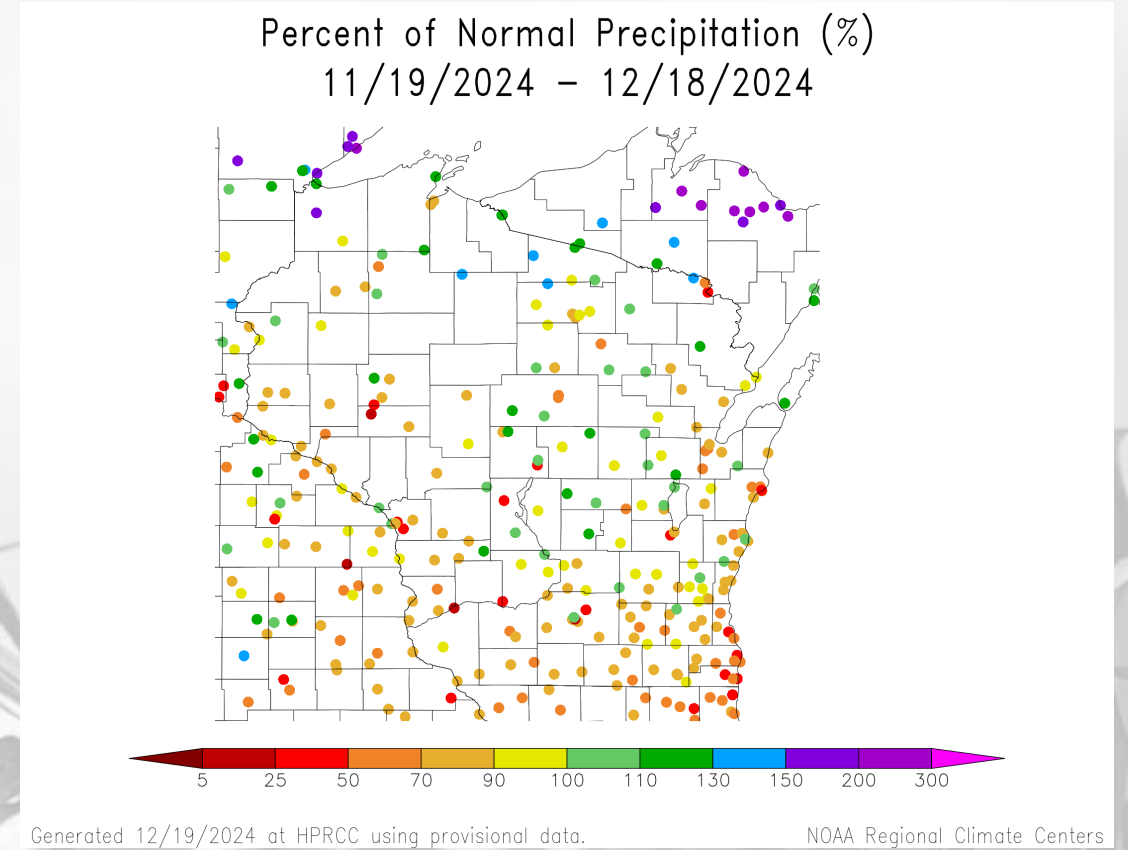
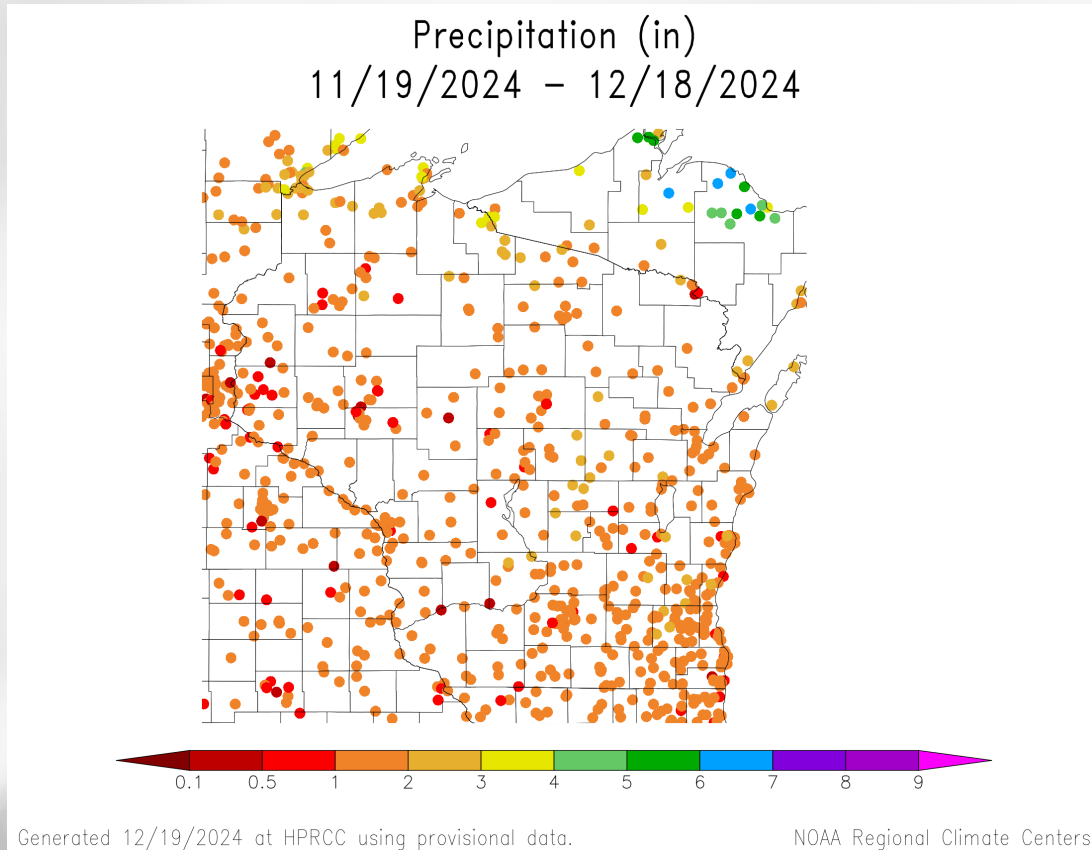
Date	No. of Stations Hitting a 30-Day Snowfall Maximum*
11/21	138
11/22	106
12/4	53
12/11	52
12/5	33
12/12	23
12/18	22
11/29	17
12/2	17
11/25	10

# 30 Day Precip



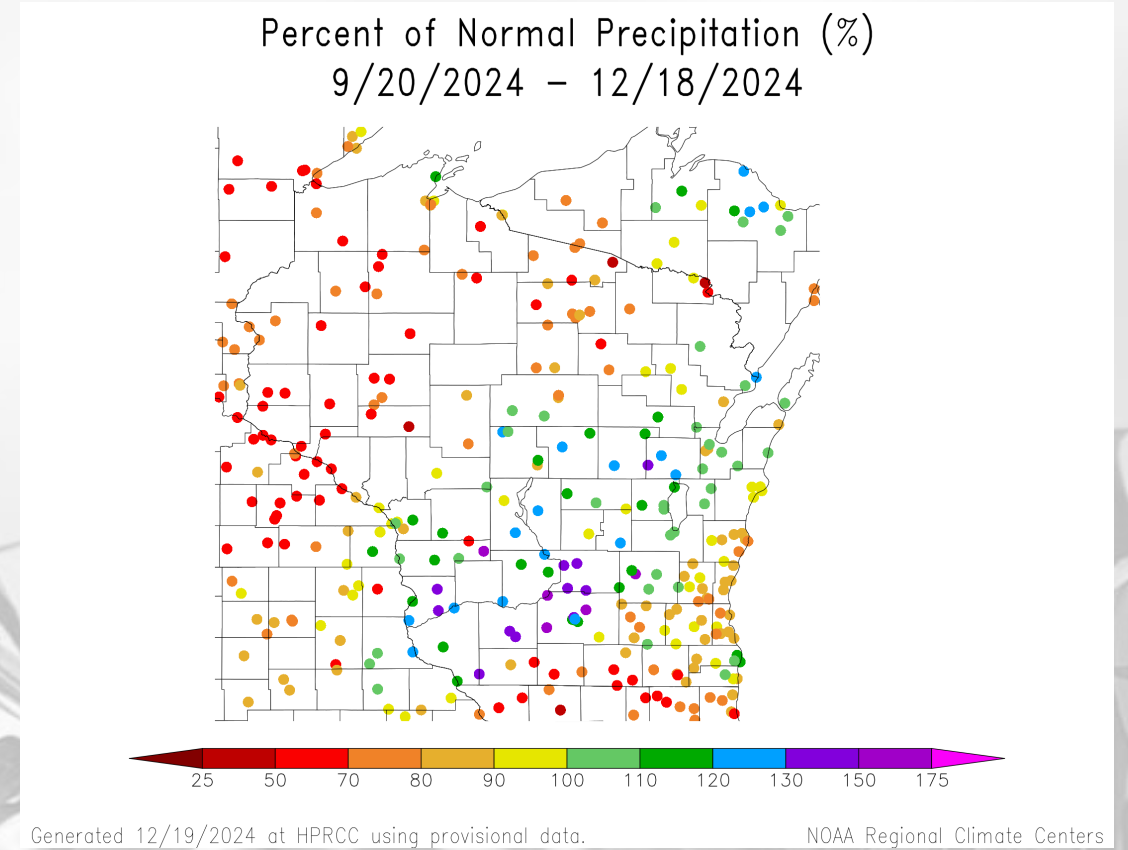
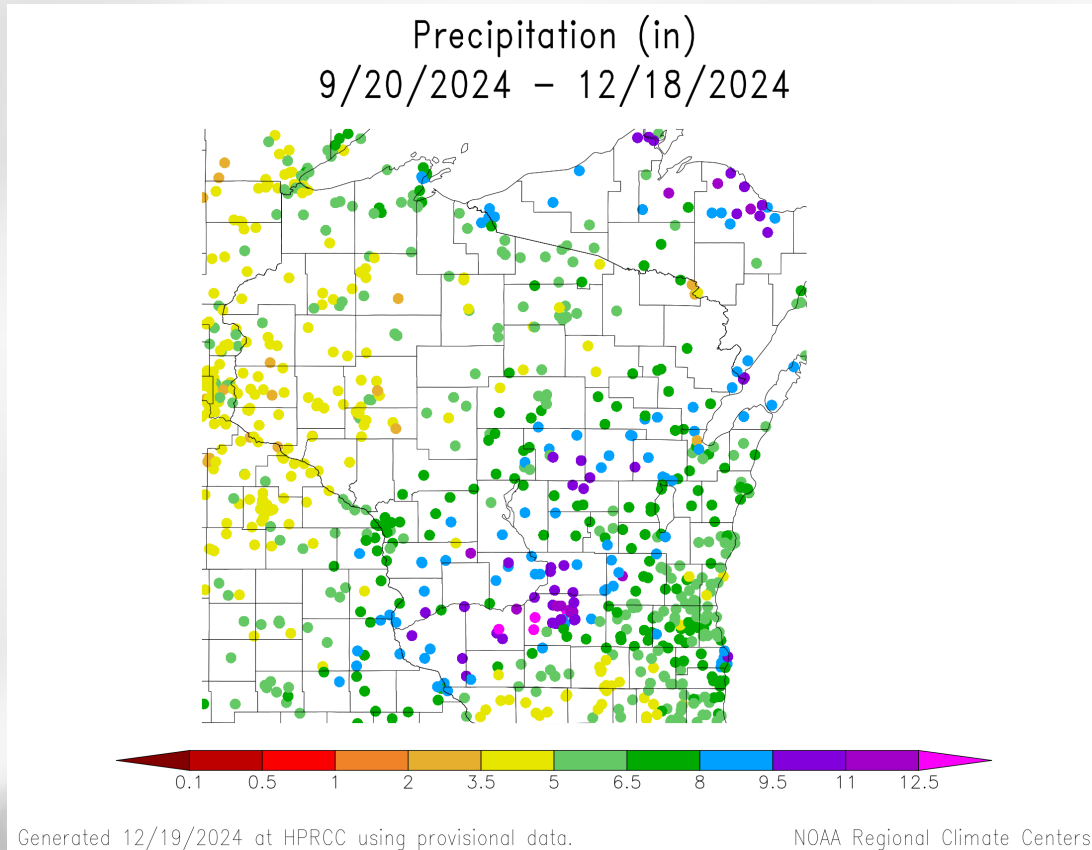
- **1" or more** in the north/northeast counties, where **snowfall events have been more common.**
- Lowest totals in the Driftless Region → **<0.5"** for most.
- We are getting to the time of year that is **climatologically drier.**

# 30 Day Precip Total/% Avg.



- Monthly totals of **1-3"** (liquid equivalent) across the majority of monitoring stations.
- Some instances of **>3"** in the **far north**, where snowfall totals have been higher.
- Slightly below climatological average in the **south**, and slightly above normal in the **central and north**.

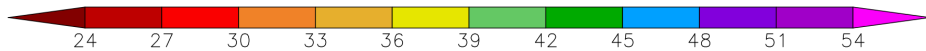
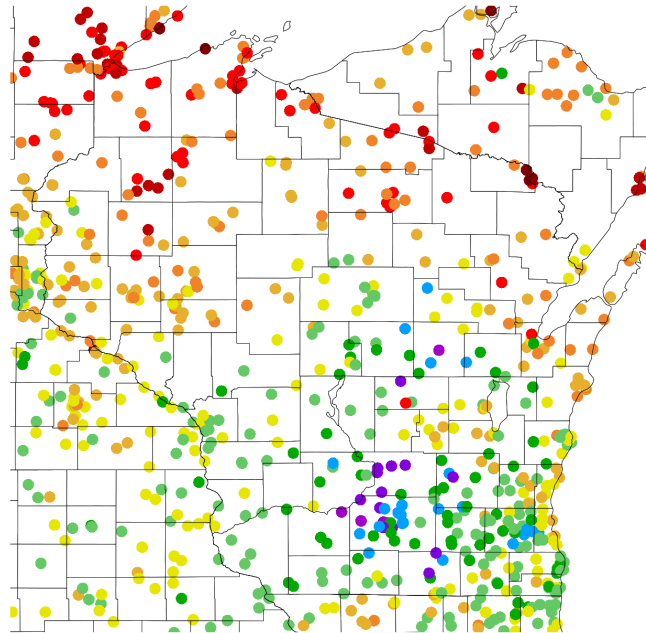
# 90 Day Precip Total/% Avg.



- **8-12+”** of rain across the SW-to-NE belt, most of which fell during the first part of November.
  - **Above** the climatological normal at most stations in this belt.
- **5-8”** in the SE and **3-6”** in the NW → **below** the climatological average.

# 2024 Precipitation (so far)

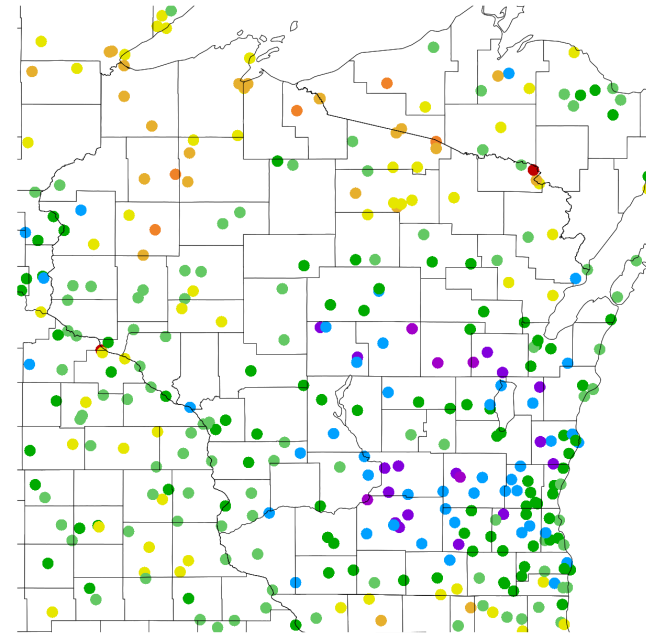
Precipitation (in)  
1/1/2024 - 12/18/2024



Generated 12/19/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

Departure from Normal Precipitation (in)  
1/1/2024 - 12/18/2024



Generated 12/19/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

<https://hprcc.unl.edu/maps.php?map=ACISClimateMaps>



# Soil Moisture Models

- **Not much change** since late November → moisture demand is not as high this time of year.
- **10<sup>th</sup>-30<sup>th</sup> percentiles** still in place in the south and west, with **near-normal conditions** common in the central and northern counties
- The eastern shore is still **trending very dry**.

## Model Notes:

**Red** areas = top 5 driest in 100 years.

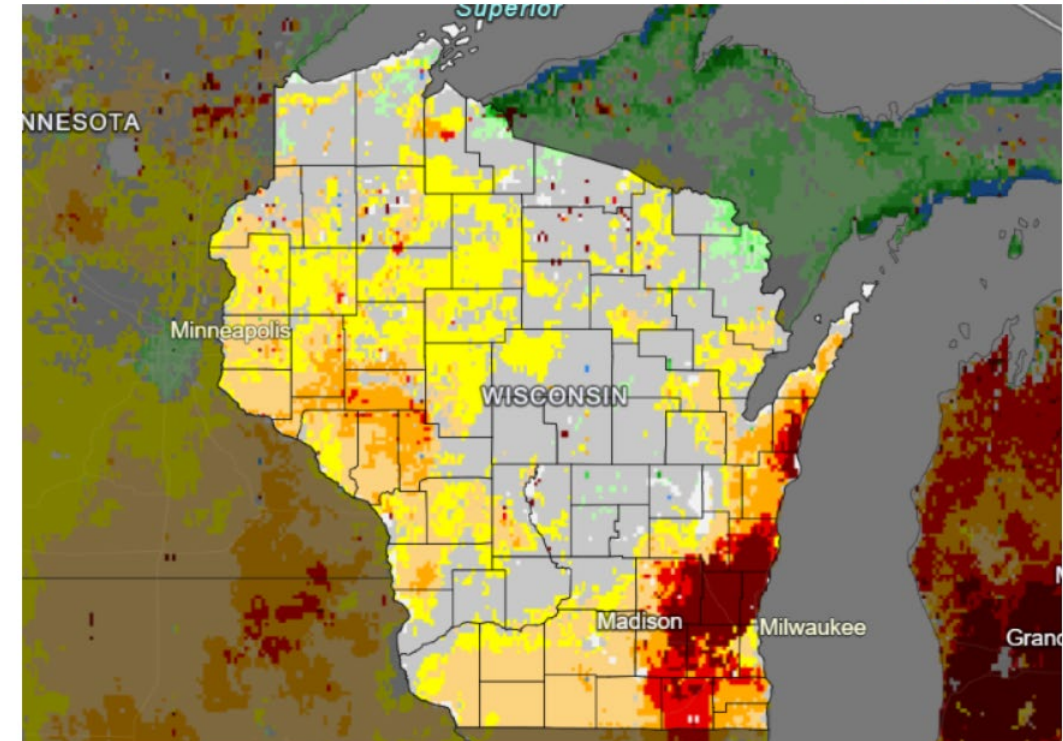
**Dark red** areas = top 2 driest in 100 years.

**Blue** areas = top 2 wettest in 100 years.

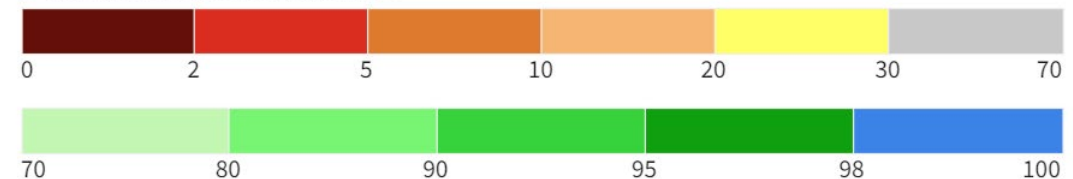
*It's worth noting that each soil moisture model has their own characteristics and input variables, so there tends to be variation between models. Thus, it's worthwhile to look at multiple models opposed to just one.*

[https://weather.msfc.nasa.gov/sport/case\\_studies/lis\\_CONUS.html](https://weather.msfc.nasa.gov/sport/case_studies/lis_CONUS.html)  
<https://www.drought.gov/states/wisconsin>

NASA SPoRT-LIS 0-100 cm Soil Moisture Percentile



0-100 cm Soil Moisture Percentile

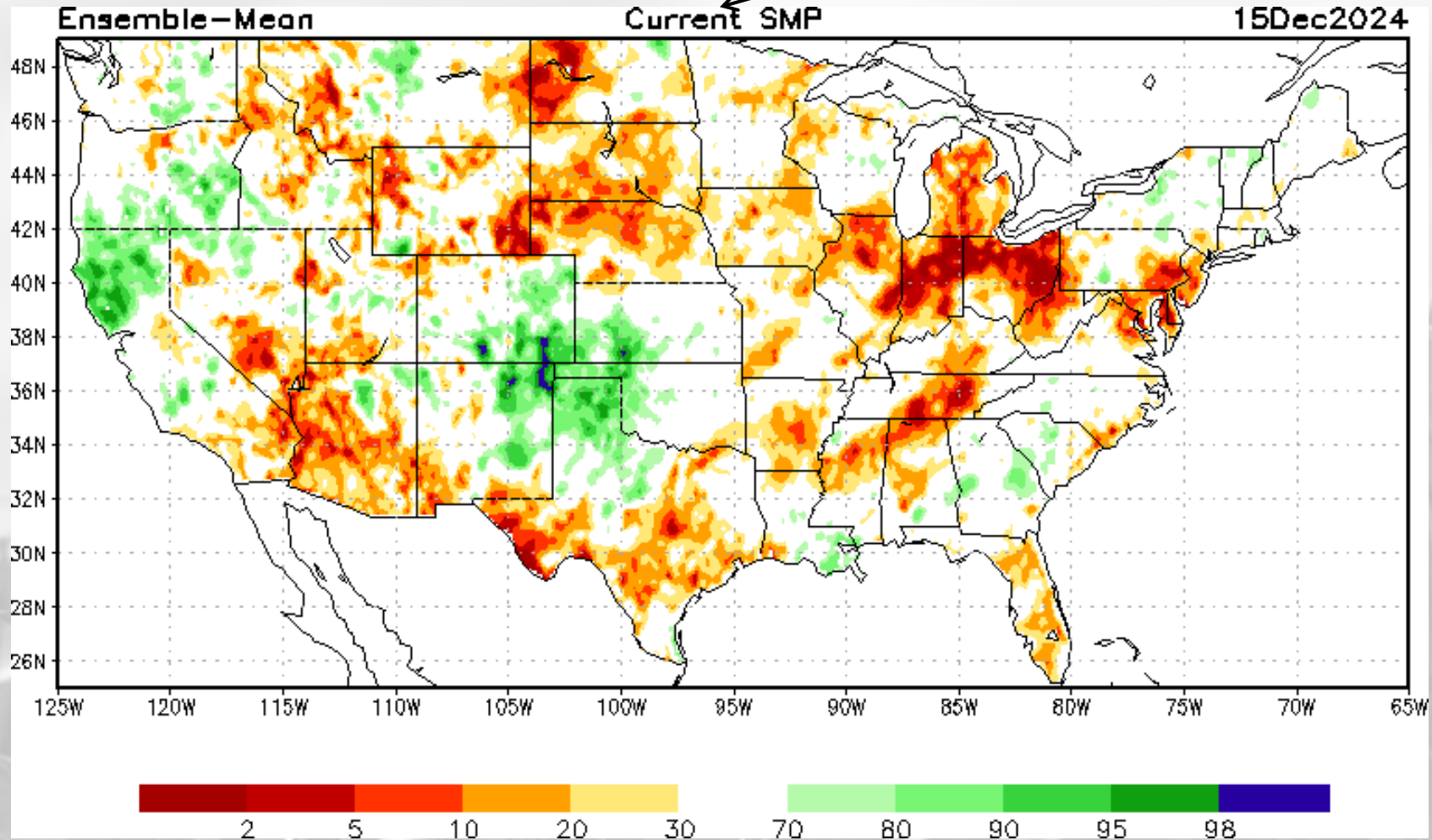


Source(s): NASA  
Data Valid: 12/19/24

**Drought.gov**

# Soil Moisture Models

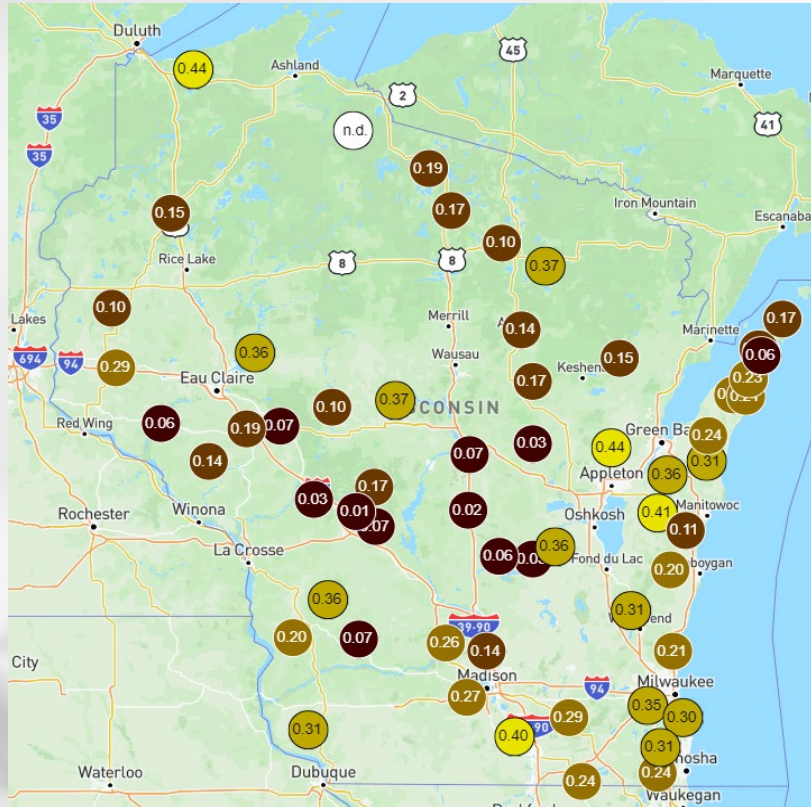
**NOTE:** this map displays the soil moisture percentile for Dec. 15. It was the most recent update on Dec. 19.



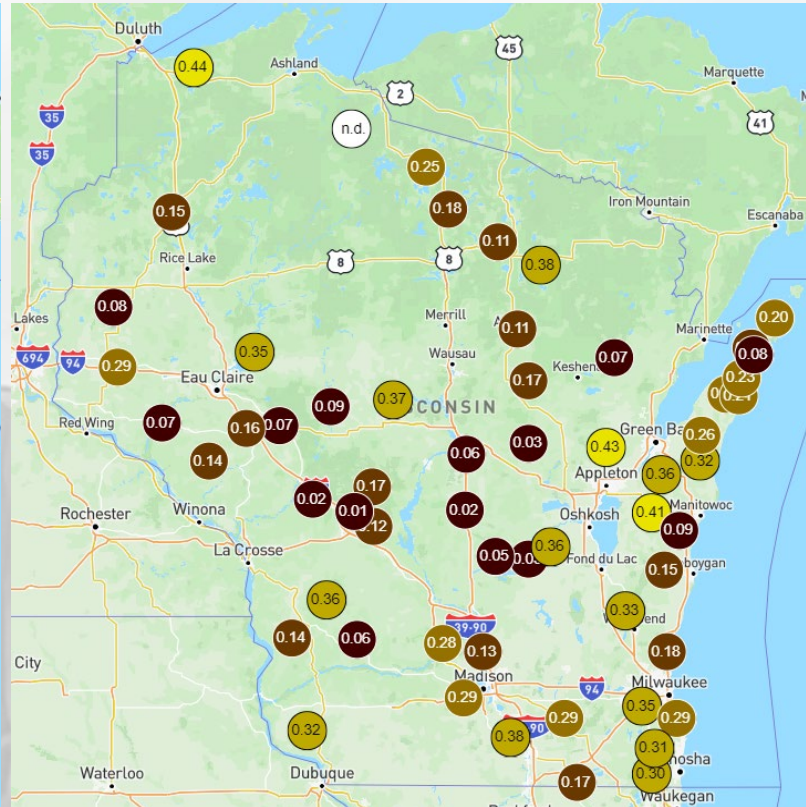
[https://www.cpc.ncep.noaa.gov/products/Drought/Monitoring/smp\\_new.shtml](https://www.cpc.ncep.noaa.gov/products/Drought/Monitoring/smp_new.shtml)

# Wisconet Soil Moisture (4" Depth)

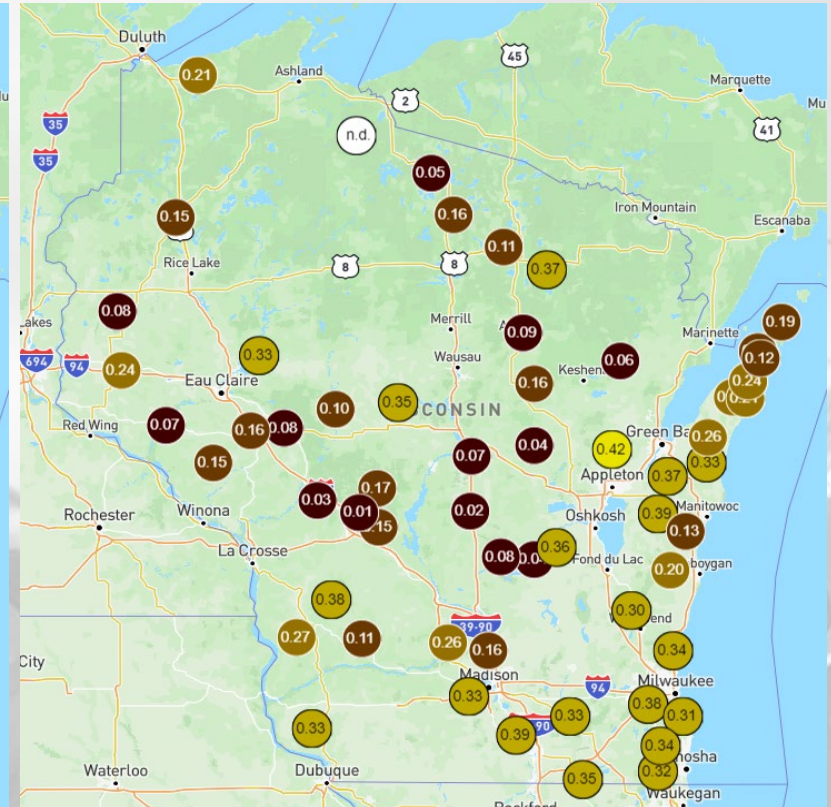
Thursday Dec. 5<sup>th</sup> @ Midday



Thursday Dec. 12<sup>th</sup> @ Midday



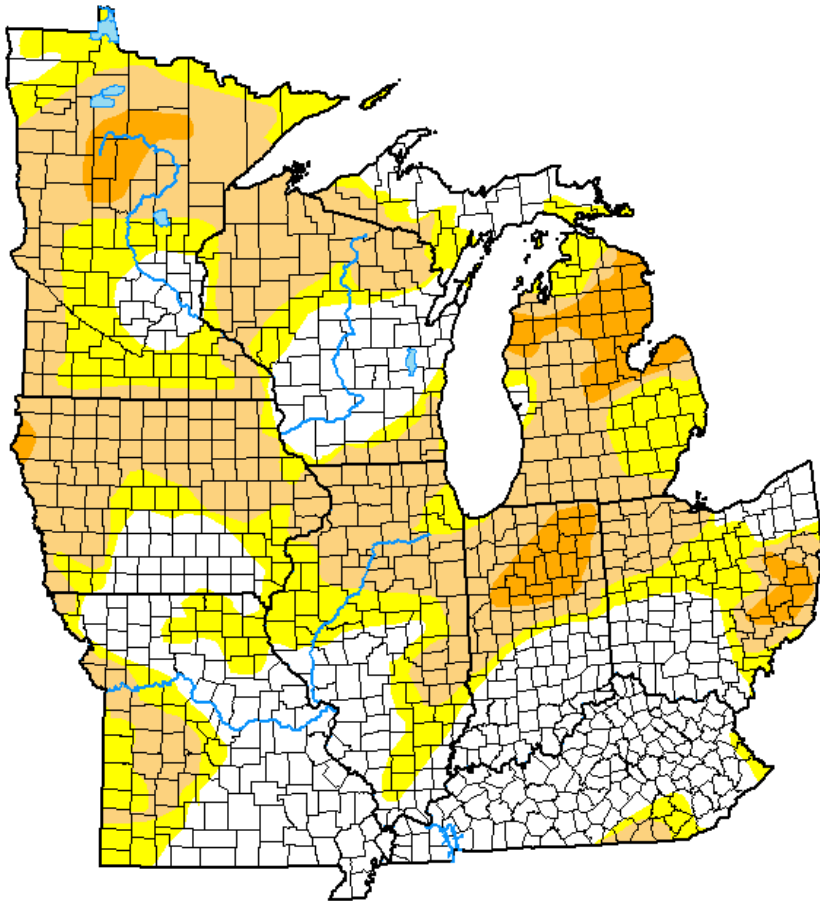
Thursday Dec. 19<sup>th</sup> @ Midday





# US Drought Monitor

## U.S. Drought Monitor Midwest



**December 17, 2024**

(Released Thursday, Dec. 19, 2024)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	36.65	63.35	40.17	5.57	0.00	0.00
<b>Last Week</b> <small>12-10-2024</small>	28.60	71.40	44.98	6.02	0.00	0.00
<b>3 Months Ago</b> <small>09-17-2024</small>	22.92	77.08	33.29	9.93	2.56	0.79
<b>Start of Calendar Year</b> <small>01-02-2024</small>	22.92	77.08	50.25	20.76	4.20	0.00
<b>Start of Water Year</b> <small>10-01-2024</small>	21.78	78.22	28.15	6.40	1.46	0.66
<b>One Year Ago</b> <small>12-19-2023</small>	19.20	80.80	49.10	22.83	4.22	0.00

Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

Brian Fuchs  
National Drought Mitigation Center



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

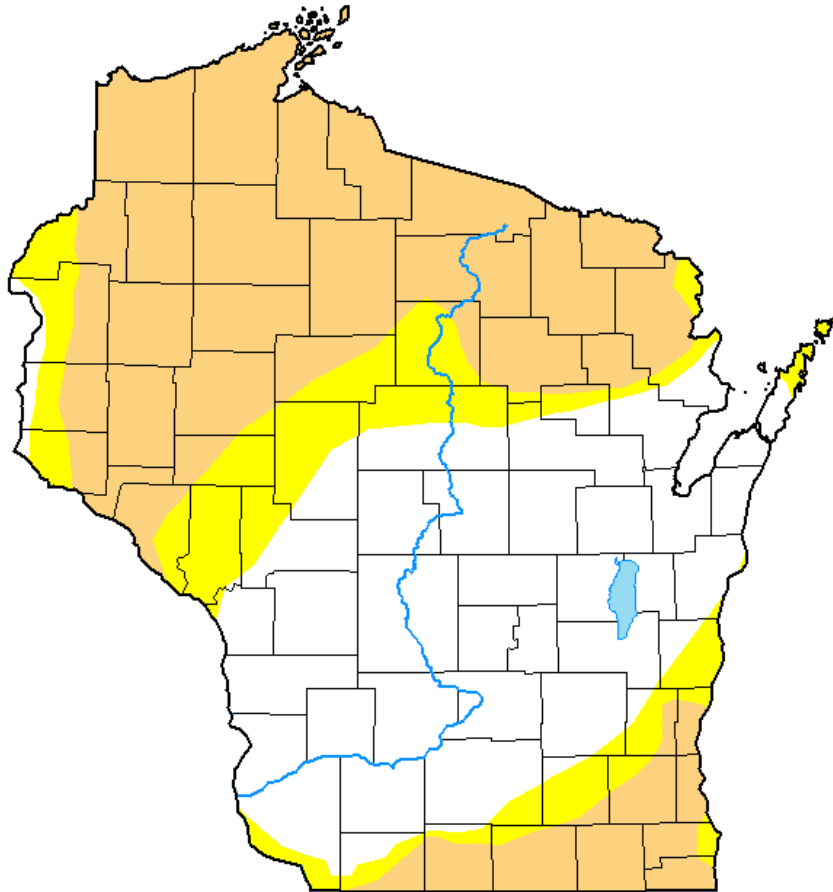
- Compared to 1 month ago:
  - **Decrease in all drought categories** since mid/late November. Largest improvements in OH, SE MO, and the UP of Michigan.
  - Central WI removed from **D0** coverage, and **D2** has been removed from NW & SE corners of the state.
  - **Extreme to exceptional drought (D3-D4)** has been removed from the map.

*Note: D0 is not considered drought.*

<http://droughtmonitor.unl.edu/>

# US Drought Monitor

## U.S. Drought Monitor Wisconsin



**December 17, 2024**

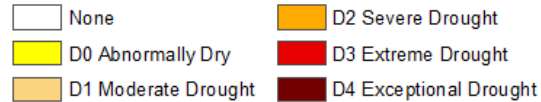
(Released Thursday, Dec. 19, 2024)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	40.89	59.11	43.70	0.00	0.00	0.00
<b>Last Week</b> 12-10-2024	40.91	59.09	43.89	0.00	0.00	0.00
<b>3 Months Ago</b> 09-17-2024	47.63	52.37	16.23	0.00	0.00	0.00
<b>Start of Calendar Year</b> 01-02-2024	33.04	66.96	37.34	16.80	0.26	0.00
<b>Start of Water Year</b> 10-01-2024	18.68	81.32	29.83	8.45	0.00	0.00
<b>One Year Ago</b> 12-19-2023	33.10	66.90	37.43	16.80	0.26	0.00

Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

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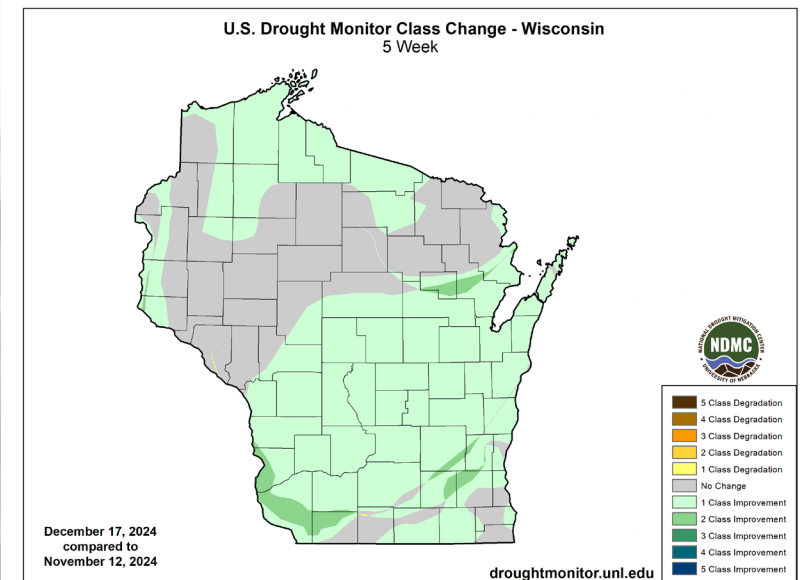
[droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)

<http://droughtmonitor.unl.edu/>

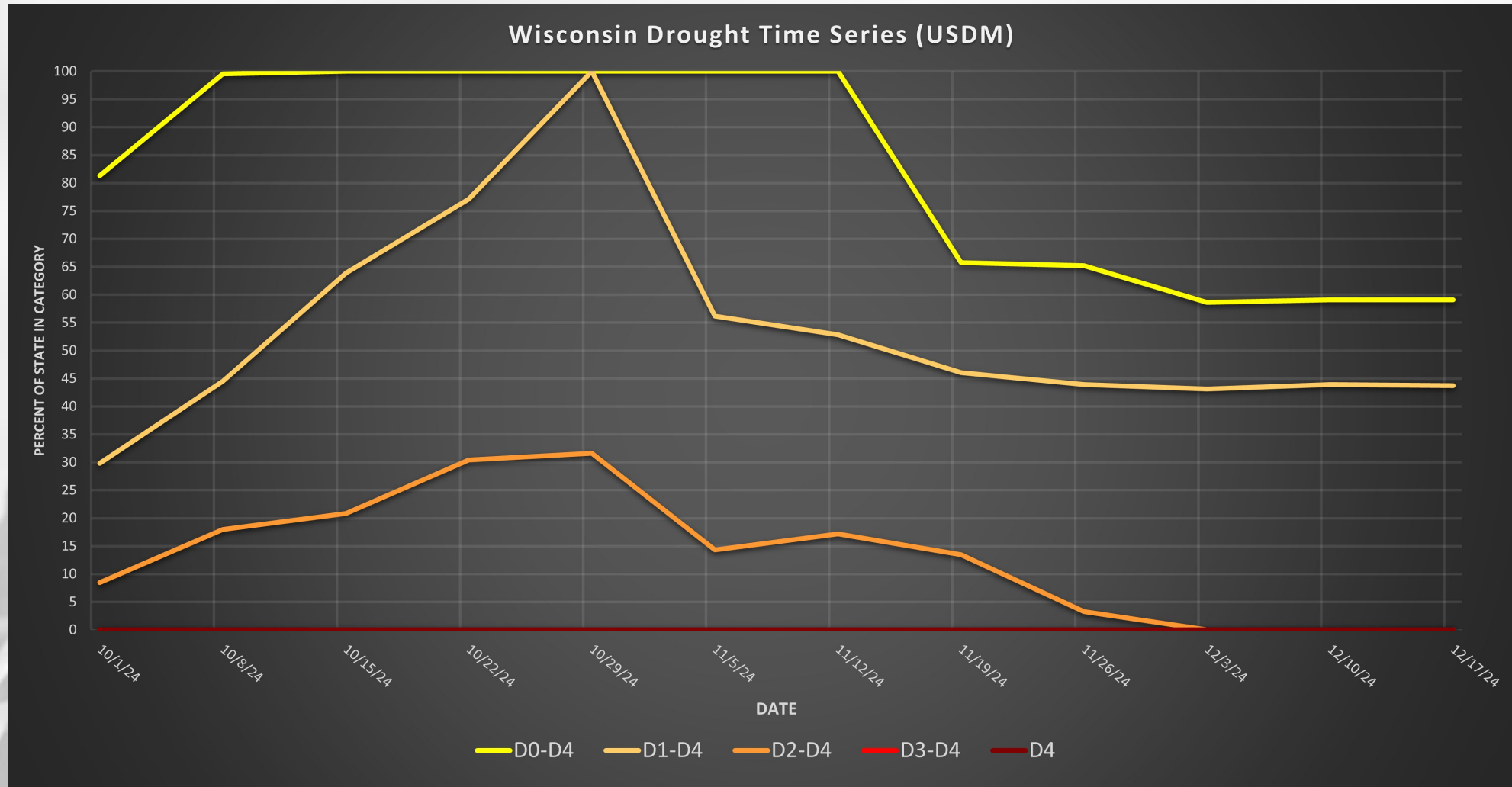
Amount of state in:

- **D1-D4** – 43.7% ↓
- **D2-D4** – 0.0% ↓
- **D3-D4** – 0.0% --
- **D4** – 0.0% --

*Note:* ↑ ↓ indicate change from last week. Red up arrows indicate increase in drought area; vice-versa for green arrows.



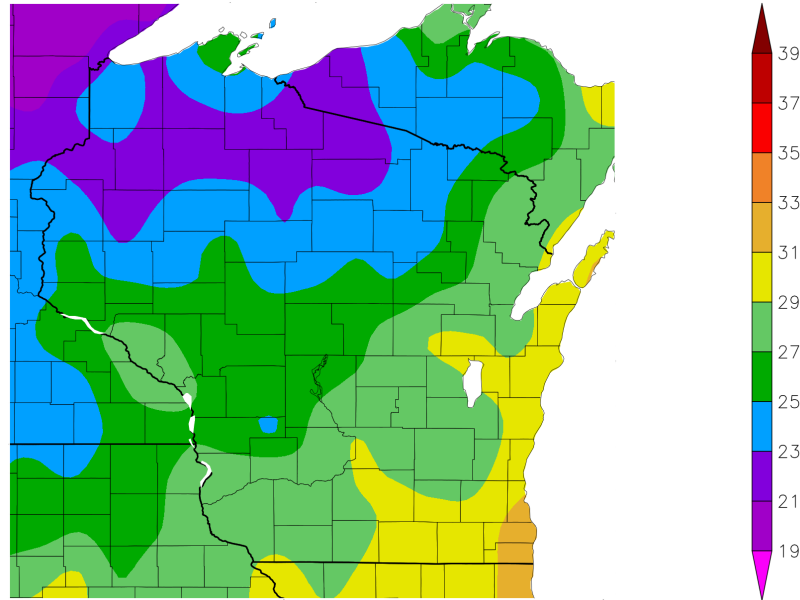
# USDM Time Series



<http://droughtmonitor.unl.edu/>

# 30 Day Temperatures

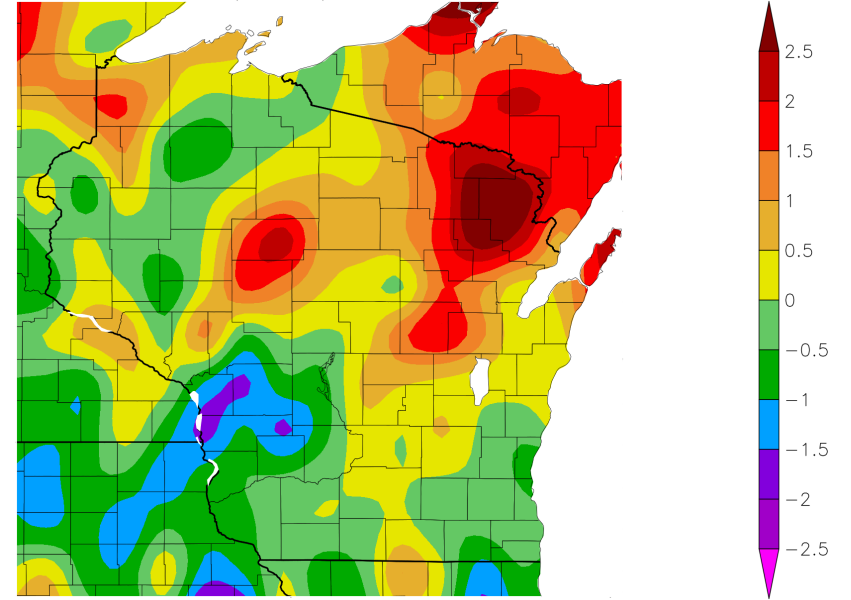
Temperature (F)  
11/19/2024 – 12/18/2024



Generated 12/19/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

Departure from Normal Temperature (F)  
11/19/2024 – 12/18/2024



Generated 12/19/2024 at HPRCC using provisional data.

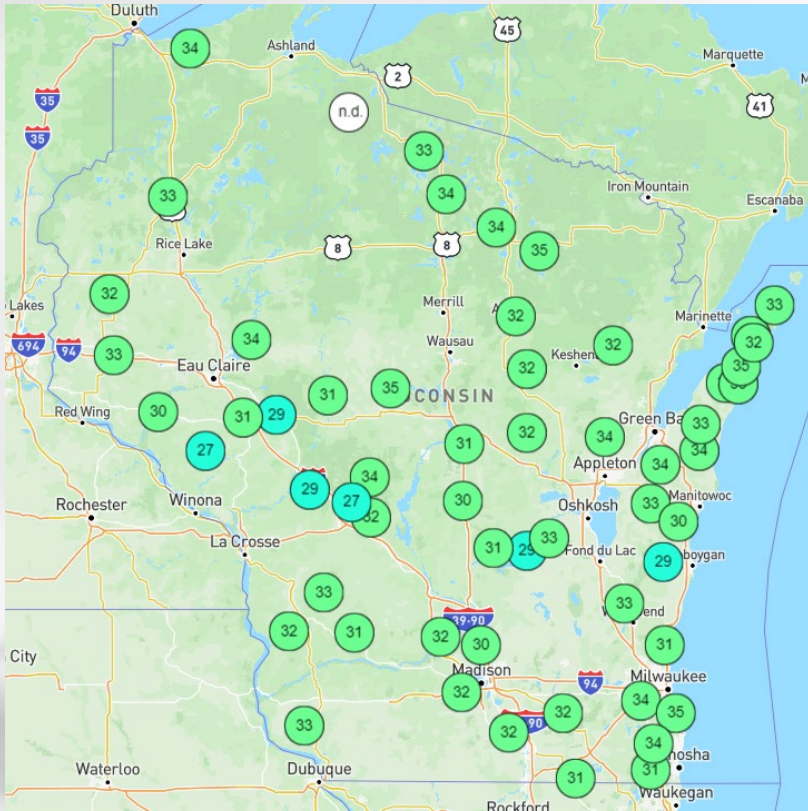
NOAA Regional Climate Centers

- Temperatures for the past month ranged from **29-33°F** in the SE to **21-25°F** in the NW.
- **A mixed bag** of temperatures compared to climatological (1991-2020) average.
  - Above normal in the **central and NE regions**.
  - Below normal in the **Driftless Region**.

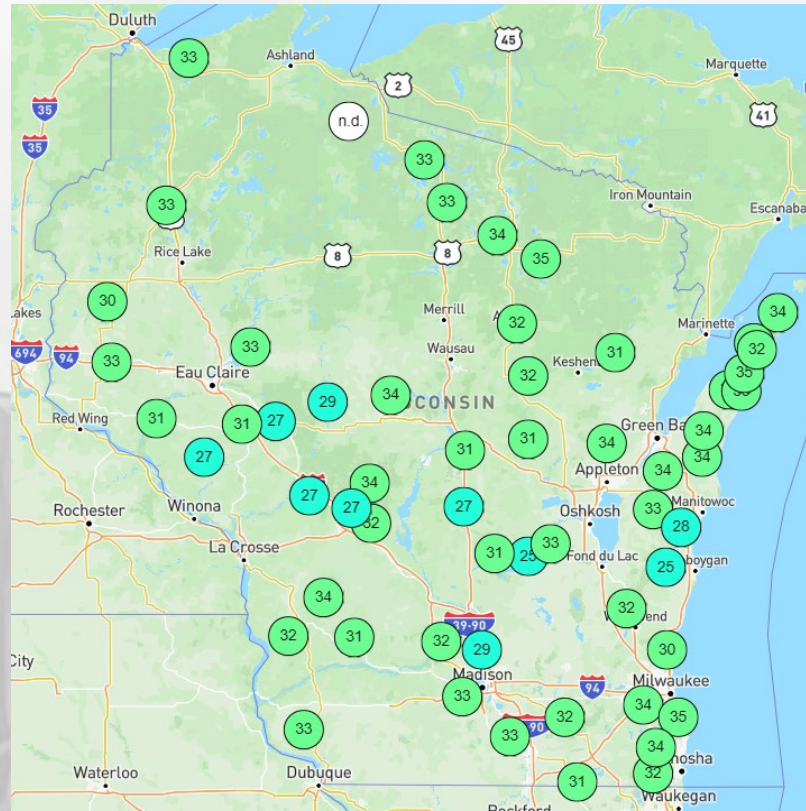


# Wisconet Soil Temp (4" Depth)

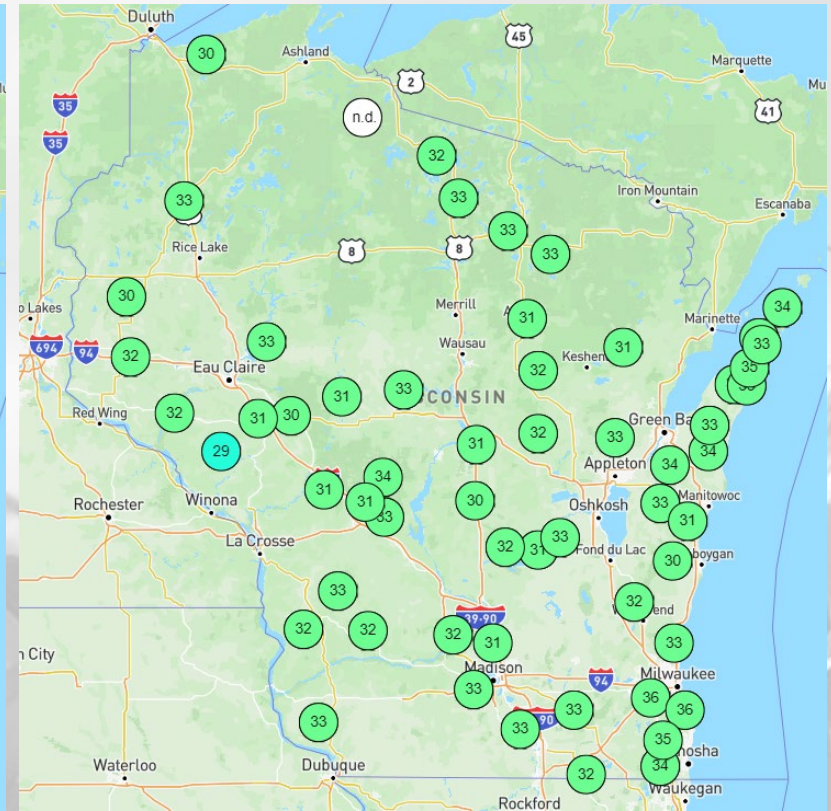
Thursday Dec. 5<sup>th</sup> @ Midday



Thursday Dec. 12<sup>th</sup> @ Midday

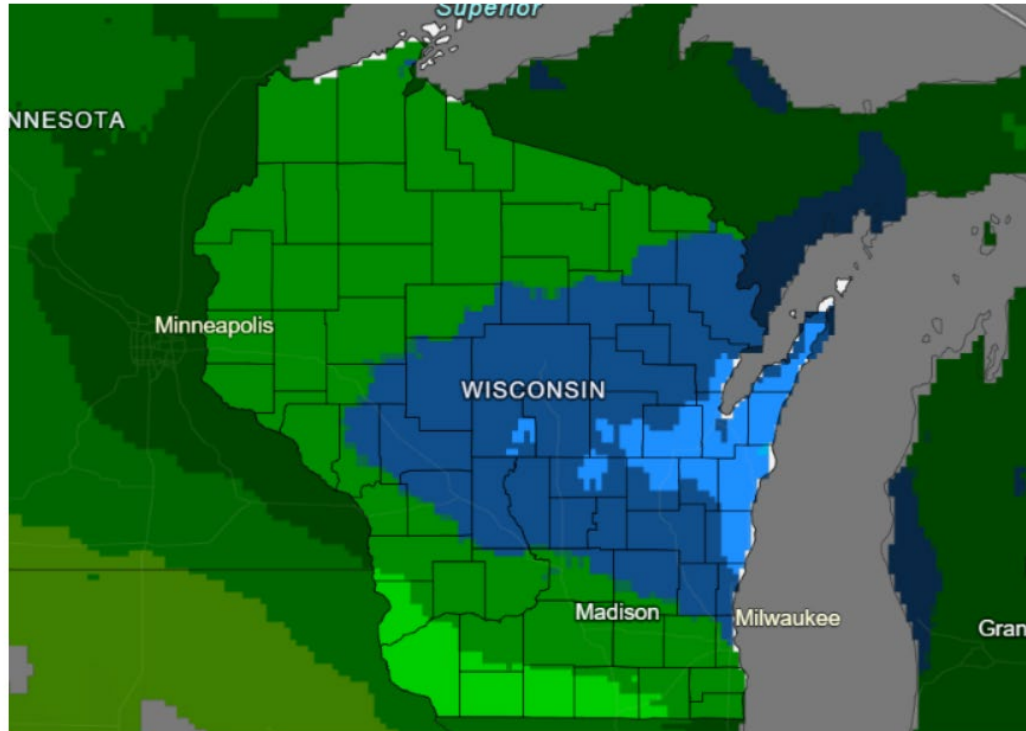


Thursday Dec. 19<sup>th</sup> @ Midday

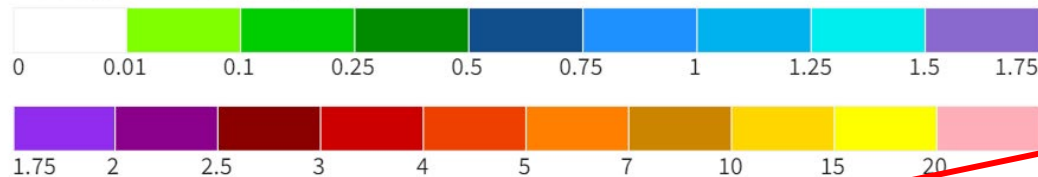


# 7 Day Precip Forecast

7-Day Quantitative Precipitation Forecast for  
December 19–26, 2024



Predicted Inches of Precipitation



Source(s): National Weather Service Weather Prediction Center  
Last Updated: 12/19/24

Drought.gov

- **Statewide chances** for precip during the next 7 days.
  - Location: Best chances in the **east central** region.
  - Timing: Snow system will impact the state on **Thursday (12/19)**, with another system forecasted for **Monday** (snow/rain).

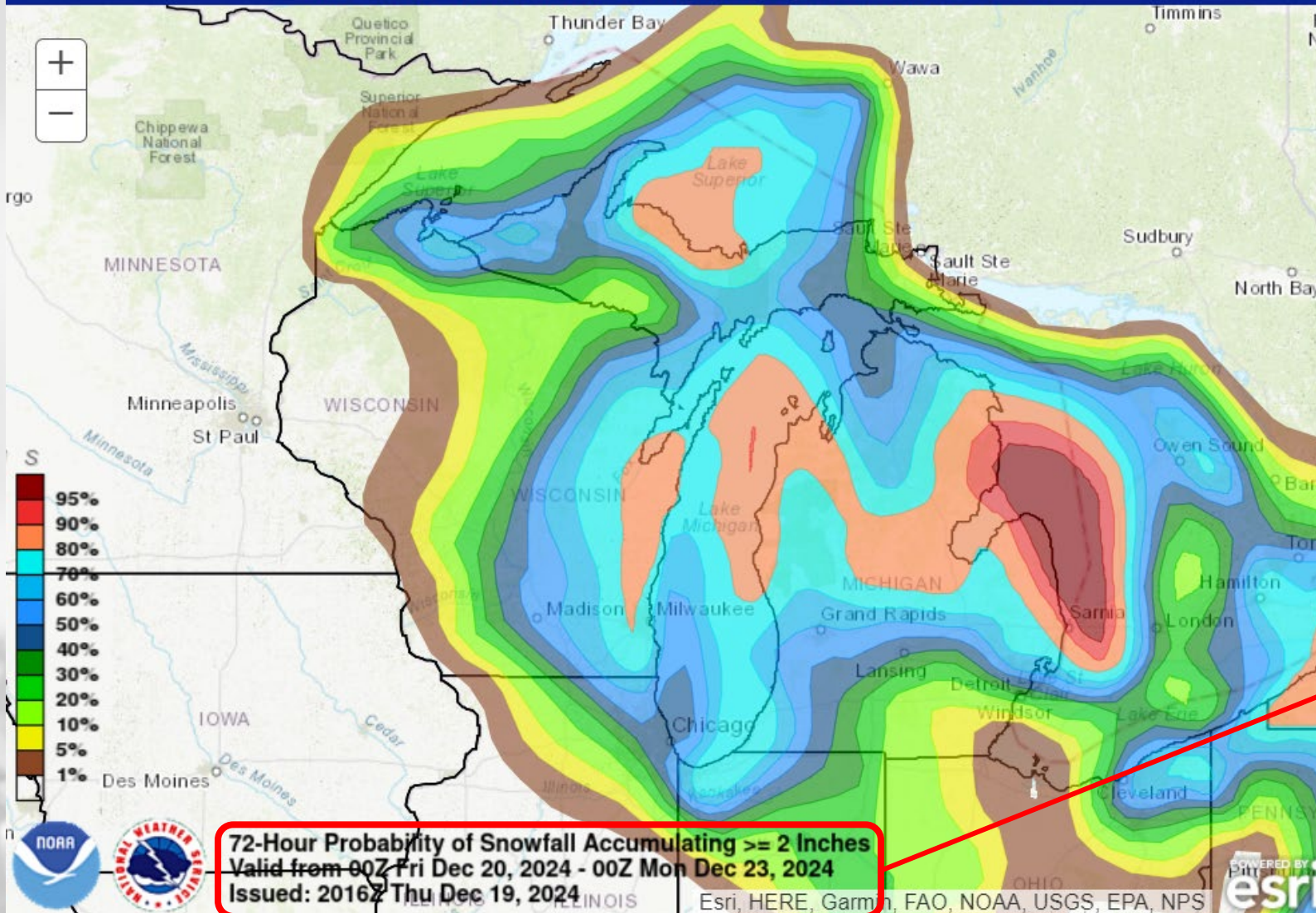
Forecast for 12/19/24 thru 12/26/24  
(Begins at 6am CST)

<https://www.wpc.ncep.noaa.gov/qpf/p168i.gif>  
<https://www.drought.gov/states/wisconsin>

# Near-Term Snow Forecast

## 72-Hour Probability of Snow Accumulating $\geq 2''$

Valid 00 UTC Fri December 20 through 00 UTC Mon December 23



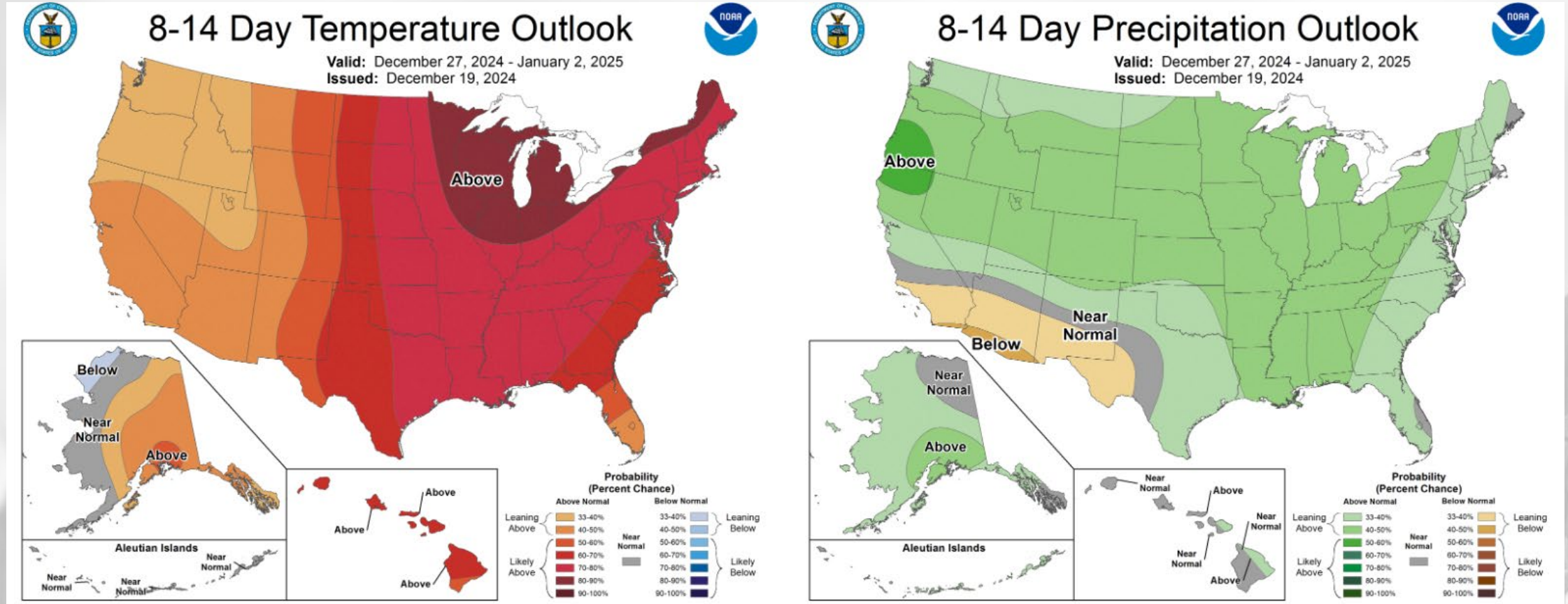
72-Hour Probability of Snowfall Accumulating  $\geq 2$  Inches  
Valid from 00Z Fri Dec 20, 2024 - 00Z Mon Dec 23, 2024  
Issued: 2016Z Thu Dec 19, 2024

- Major snowfall event will impact the state between **Thursday morning and early on Friday.**
- Highest totals forecasted along **Lake Michigan and by the Fox Cities.**

Forecast for 12/19/24 thru 12/22/24  
(Begins at 6pm CST)

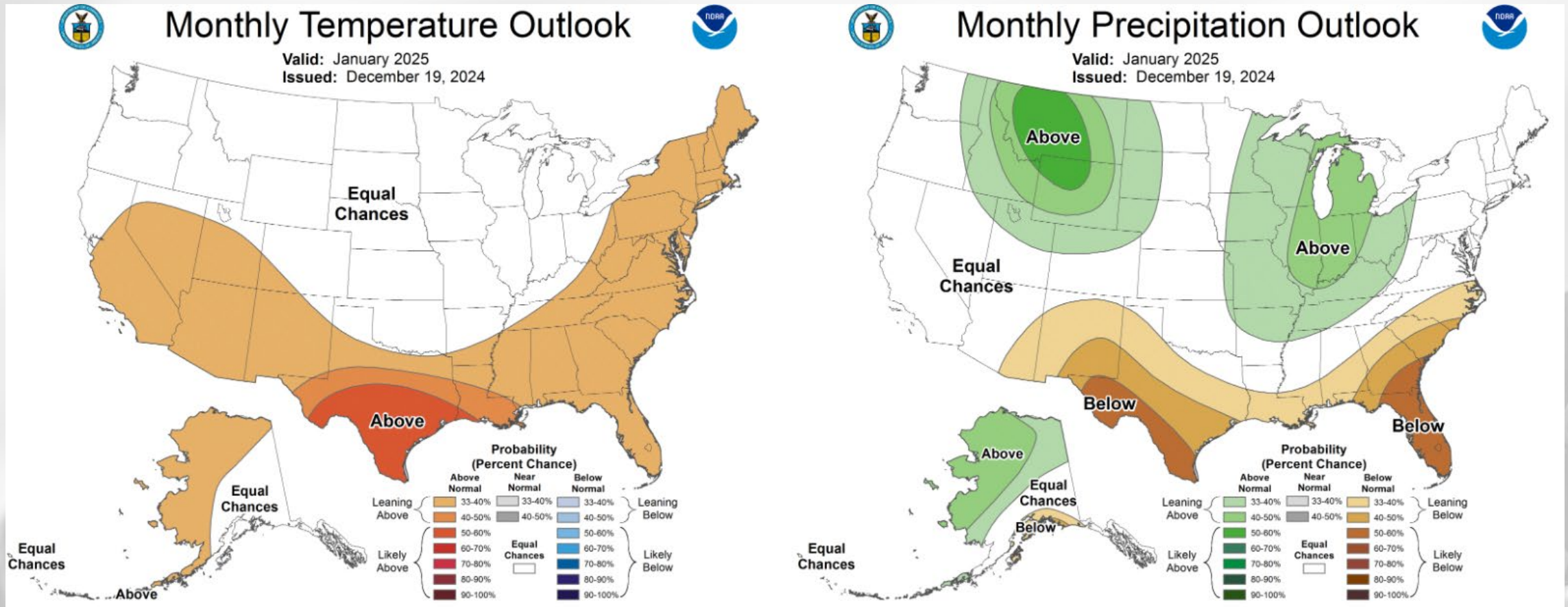
<https://www.wpc.ncep.noaa.gov/qpf/p168i.gif>  
<https://www.drought.gov/states/wisconsin>

# 8-14 Day Temp & Precip Outlook



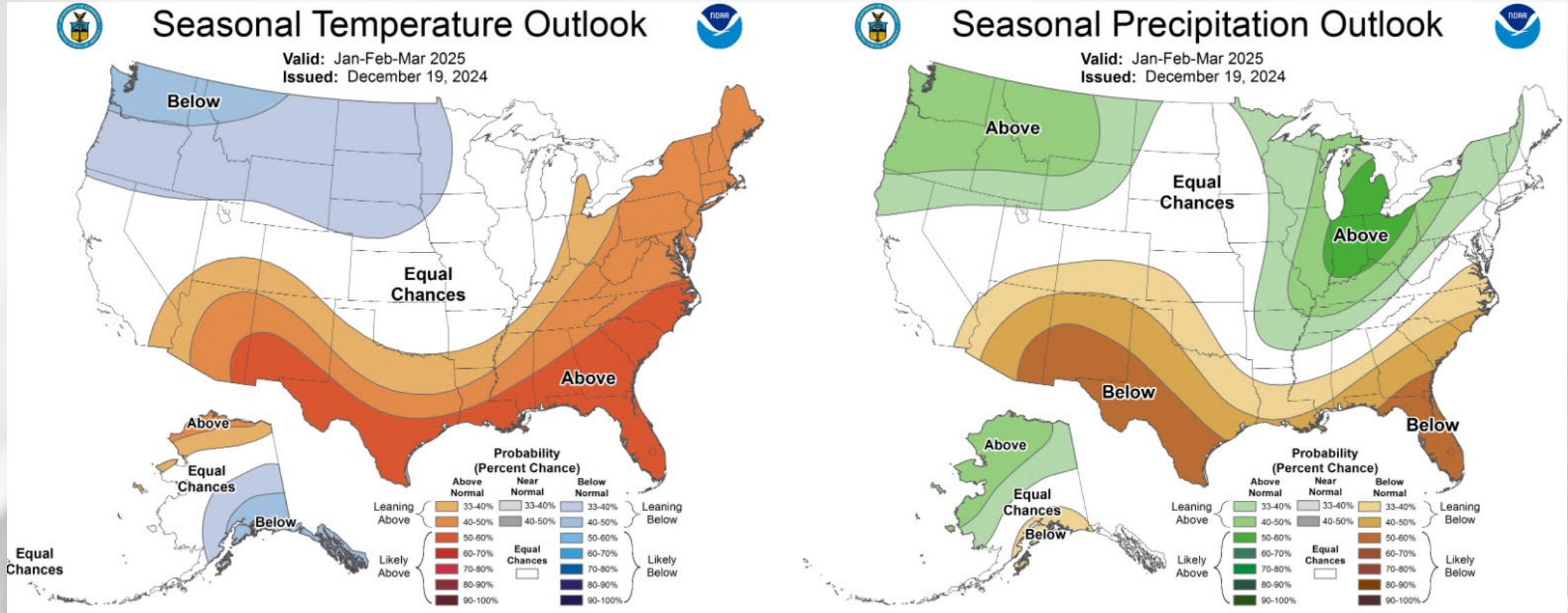
**Christmas to New Years:** Temperatures likely to be above normal, with precipitation leaning towards above normal as well.

# 30 Day Temp & Precip Outlook



**Month of January:** Temperatures uncertain with equal chances, with precipitation leaning towards above normal, especially in SE WI.

# 90 Day Temp & Precip Outlook



**Winter in Early Spring:** Temperatures uncertain with equal chances, with precipitation leaning towards above normal, especially in Eastern WI.

# Take-Home Points

## Current Conditions:

- Temperatures over the last month have been **within a degree above or below normal** across most of the state.
- A large portion of the state has experienced **50% or less of average snowfall** since late November, with the current snow pack **limited mainly to the far north**.
- Over the past 30 days, most of the state has experienced **less than 1” of precipitation**.

## Impact:

- A large portion of WI is in **near-normal soil moisture percentiles** thanks to rainfall during the latter part of fall.
- USDM drought severity **improved by 1-2 classes** since mid-November.
- Soil frost depth goes down a **few to several inches** across the state.

## Outlook:

- Best 7-day chances for precip exist in the **eastern and central counties**, mainly from a **significant snow event on Thursday (12/19)**.
- Following the snow, temperatures will **very likely be warmer than normal** to close out 2024, with a lean towards **above-normal precip**.
- The beginning of 2025 is more **uncertain** for temperatures and precip.
  - **La Niña** is favored to be in place by September-November (according to the CPC); **less of a chance** for having a colder-than-normal winter.

# Switch to Monthly Reports

- During the winter months, the Wisconsin Ag Climate Outlook (WACO) will be updated **once a month** as opposed to once a week.
- With the annual cropping season complete in the state, the WACO will shift to monthly updates on climate and soil conditions as we approach the 2025 growing season.
- As planting season nears in the spring of 2025, we will once again begin updating the WACO slides weekly to provide farmers with up-to-date climate & environmental data as they prepare to begin field work.
- Please feel free to reach out to the team at anytime with questions or feedback on our slides. We are always looking for ways to improve WACO to better serve our farmers!



# User Survey

Are you a regular user of the Wisconsin Ag Climate Outlook (WACO)? Or maybe you are viewing these slides for the first time this week? Either way, we want to hear **your** feedback on this new resource! Please take a few minutes and fill out this survey:

**[LINK TO SURVEY](#)**

Your feedback will help us better serve your ag-climate data needs through WACO.

If you have any trouble accessing or filling out the survey, please email Josh Bendorf at [Joshua.Bendorf@usda.gov](mailto:Joshua.Bendorf@usda.gov).

Thank you!!

-The WACO Team

# Contact Info



Photo Credit: USDA

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*Happy Holidays!*