



SOUTH DAKOTA STATE UNIVERSITY EXTENSION

North Central U.S. Climate & Drought Outlook October 2025

Laura Edwards
South Dakota State Climatologist
October 16, 2025



United States Department of Agriculture
Midwest Climate Hub



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Further Information & Partners

- **Today's and Past Recorded Presentations:**
<https://mrcc.purdue.edu/multimedia/webinars.jsp>
<https://hprcc.unl.edu/webinars.php>

Next webinar: November 20, 2025 with Madelyn Wuestenberg, Iowa State University Extension

- NOAA's Climate Prediction Center: www.cpc.ncep.noaa.gov
- NOAA Climate Portal: www.climate.gov
- U.S. Drought Portal: www.drought.gov
- National Drought Mitigation Center: <http://drought.unl.edu/>
- State climatologists
 - <http://www.stateclimate.org>
- Regional climate centers
 - Midwest: <https://mrcc.purdue.edu/>
 - High Plains: <http://www.hprcc.unl.edu>



Agenda

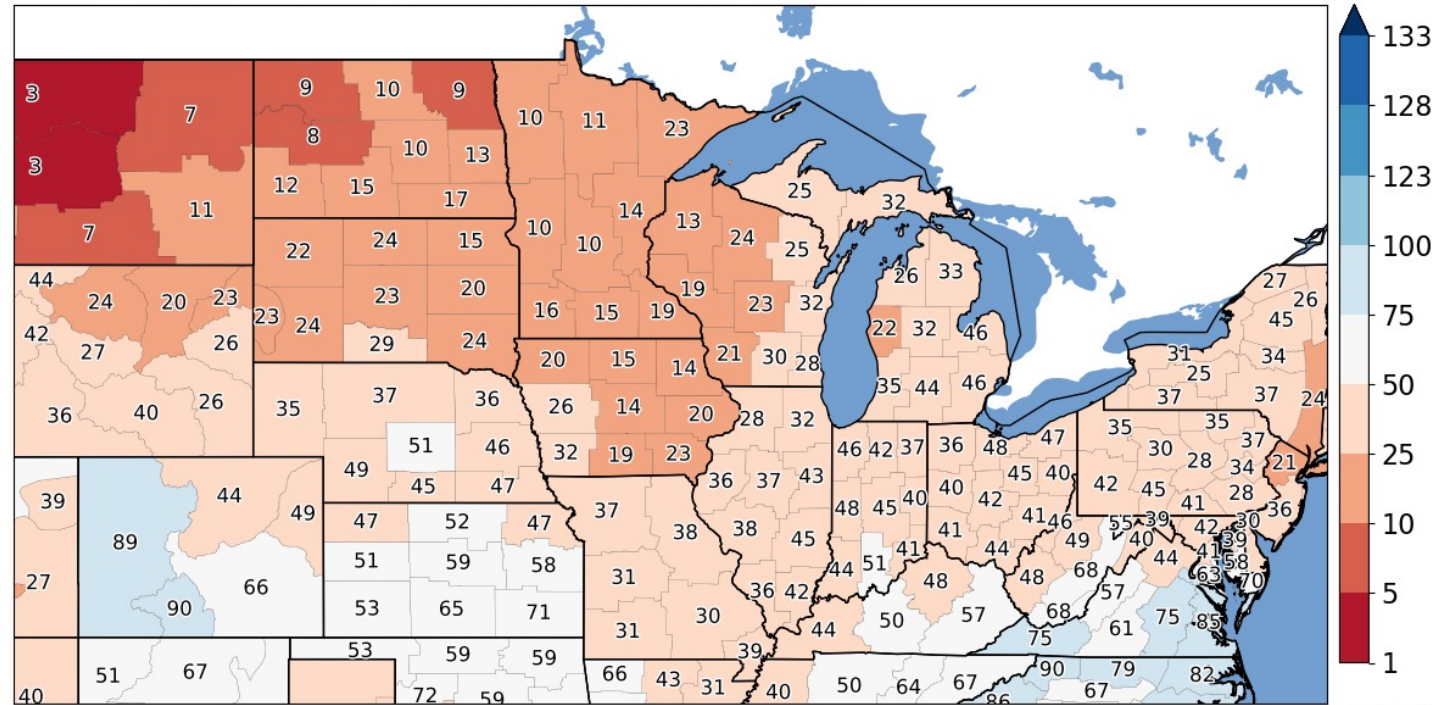
- Recent Conditions
- Impacts
- Outlooks
 - 1 to 3 months
 - Winter season



September Temperature Rankings



31 Aug 2025 ~7 AM till 30 Sep 2025 ~7 AM Average Temperature Ranks by Climate District
Based on IEM Estimates, 1 is hottest out of 133 total years (1893-2025)



Generated at 16 Oct 2025 11:10 AM CDT in 23.92s

data units ::
IEM Autoplot App #24



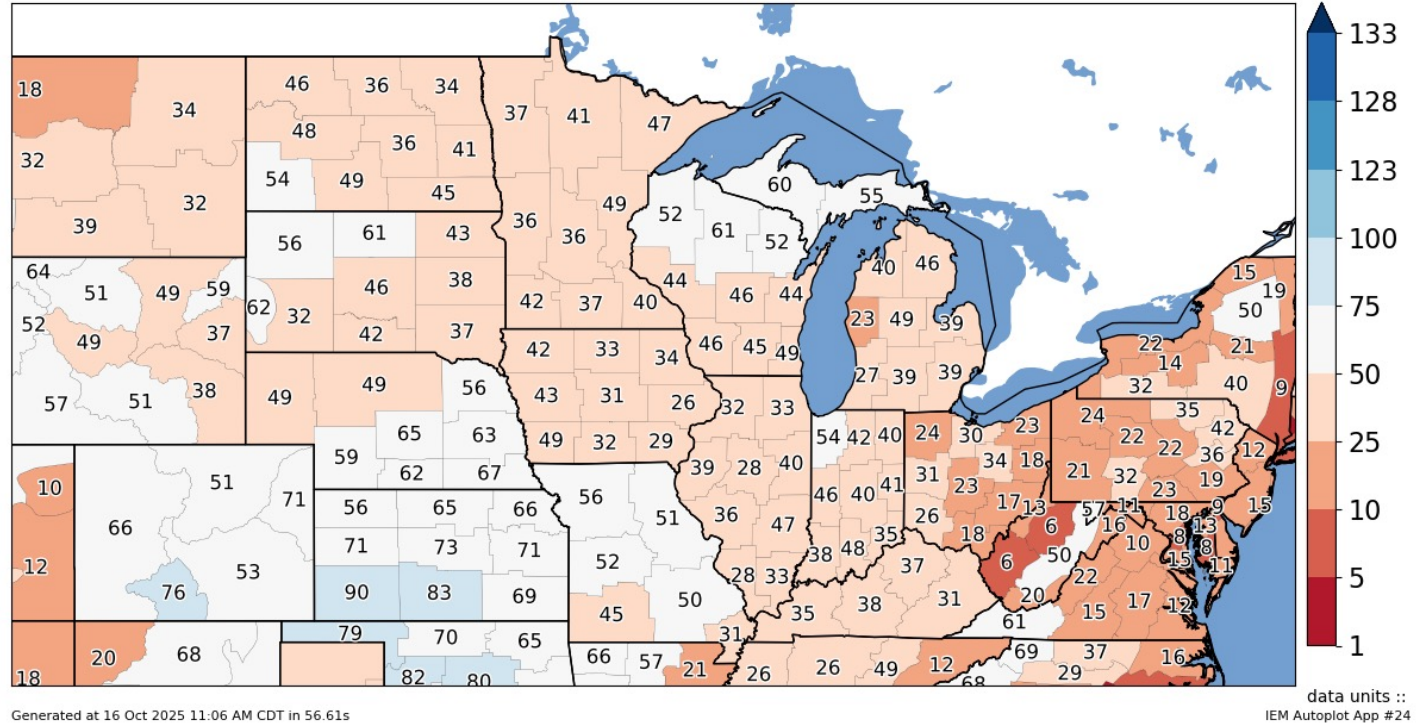
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<https://mesonet.agron.iastate.edu/plotting/auto/>

Growing Season Temperature Rankings



31 Mar 2025 ~7 AM till 30 Sep 2025 ~7 AM Average Temperature Rankings by Climate District
Based on IEM Estimates, 1 is hottest out of 133 total years (1893-2025)



Generated at 16 Oct 2025 11:06 AM CDT in 56.61s



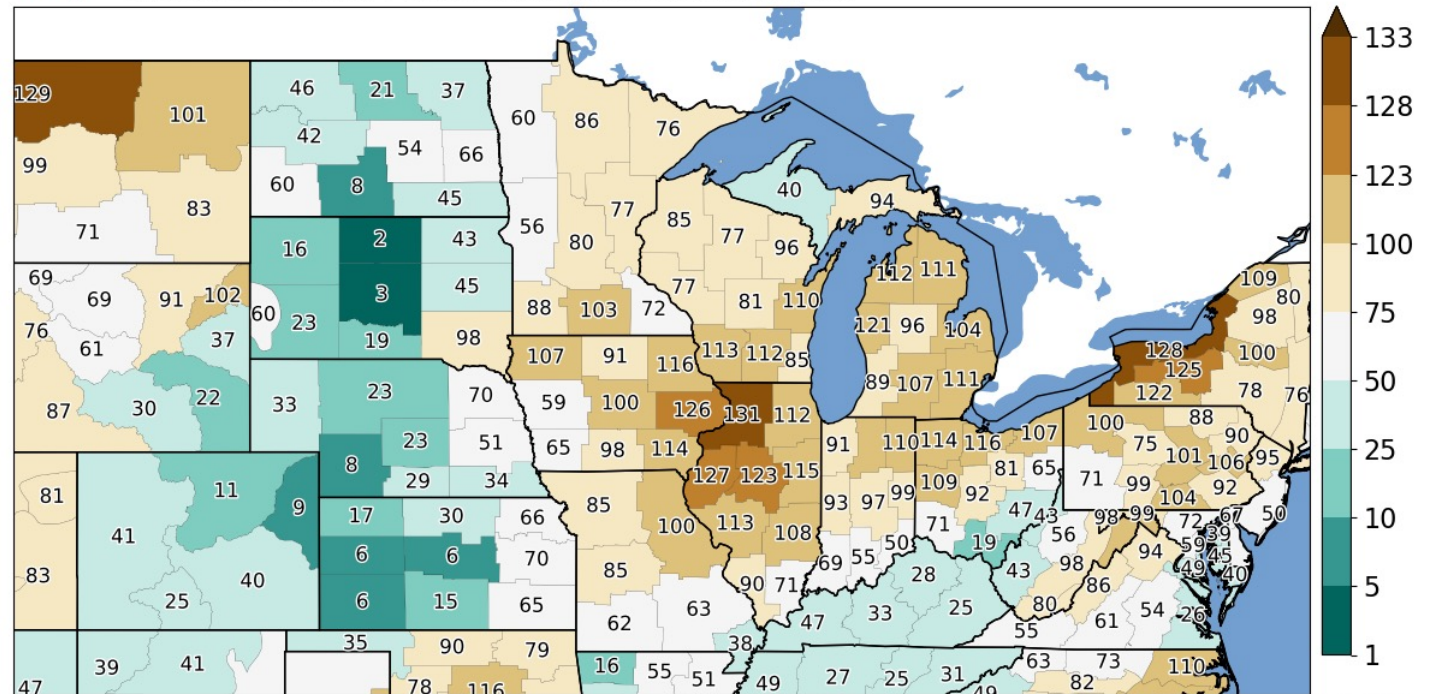
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<https://mesonet.agron.iastate.edu/plotting/auto/>

September Precipitation Rankings



31 Aug 2025 ~7 AM till 30 Sep 2025 ~7 AM Total Precipitation Ranks by Climate District
Based on IEM Estimates, 1 is wettest out of 133 total years (1893-2025)



Generated at 16 Oct 2025 10:51 AM CDT in 22.67s

data units ::
IEM Autoplot App #24



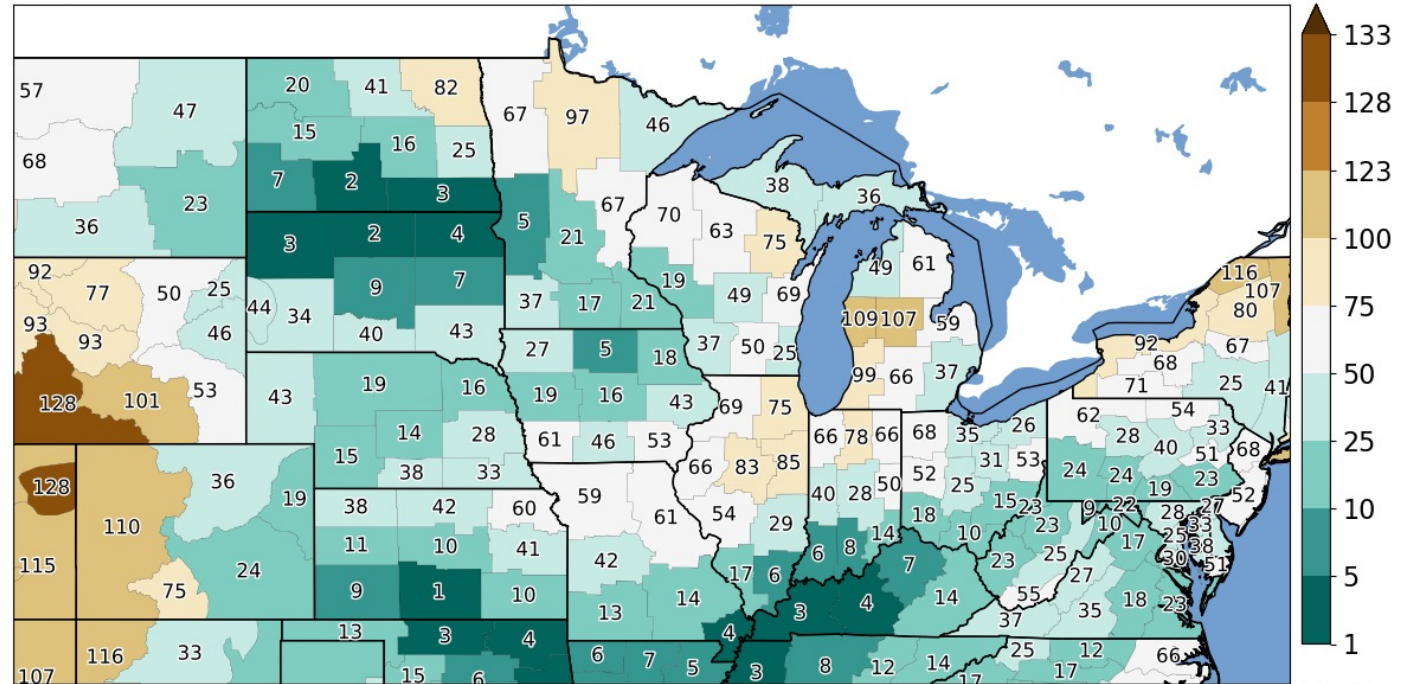
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<https://mesonet.agron.iastate.edu/plotting/auto/>

Growing Season Precipitation Rankings



31 Mar 2025 ~7 AM till 30 Sep 2025 ~7 AM Total Precipitation Ranks by Climate District
Based on IEM Estimates, 1 is wettest out of 133 total years (1893-2025)



Generated at 16 Oct 2025 11:08 AM CDT in 59.04s

data units ::
IEM Autoplot App #24

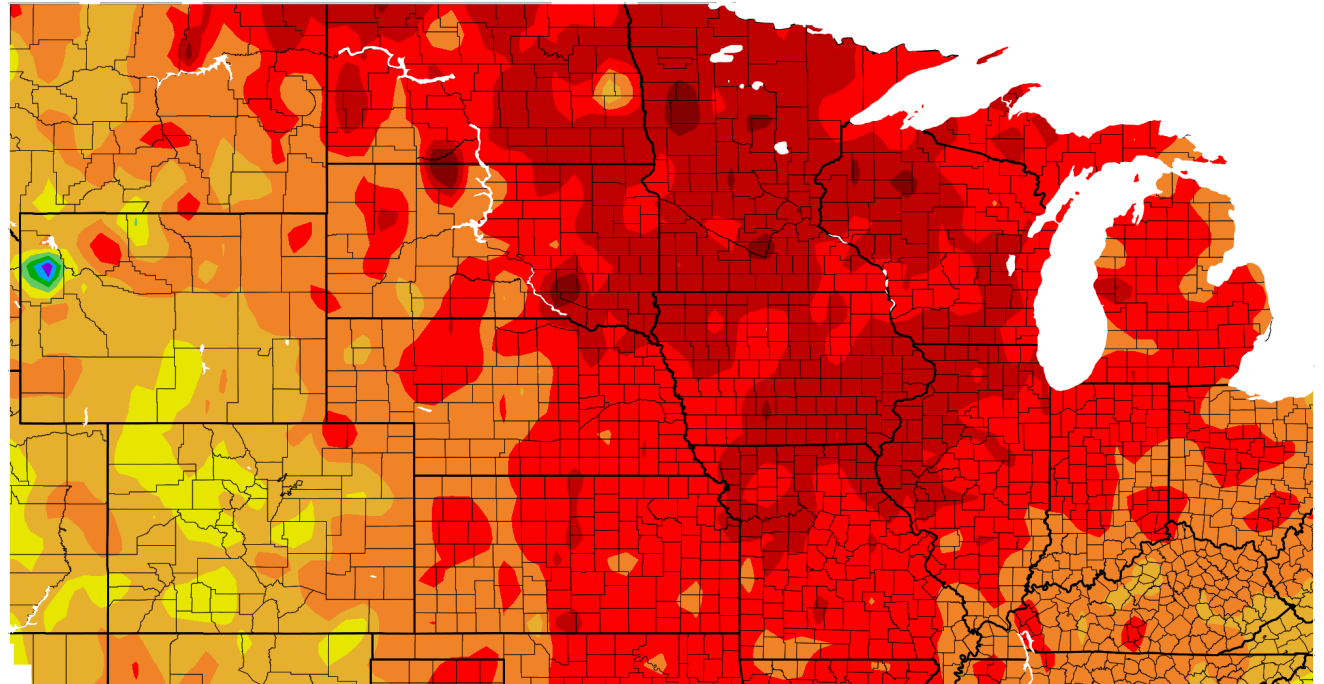


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<https://mesonet.agron.iastate.edu/plotting/auto/>

Last 30 Days

Departure from Normal Temperature (F)
9/16/2025 – 10/15/2025



Generated 10/16/2025 using provisional data.

ACIS Web Services

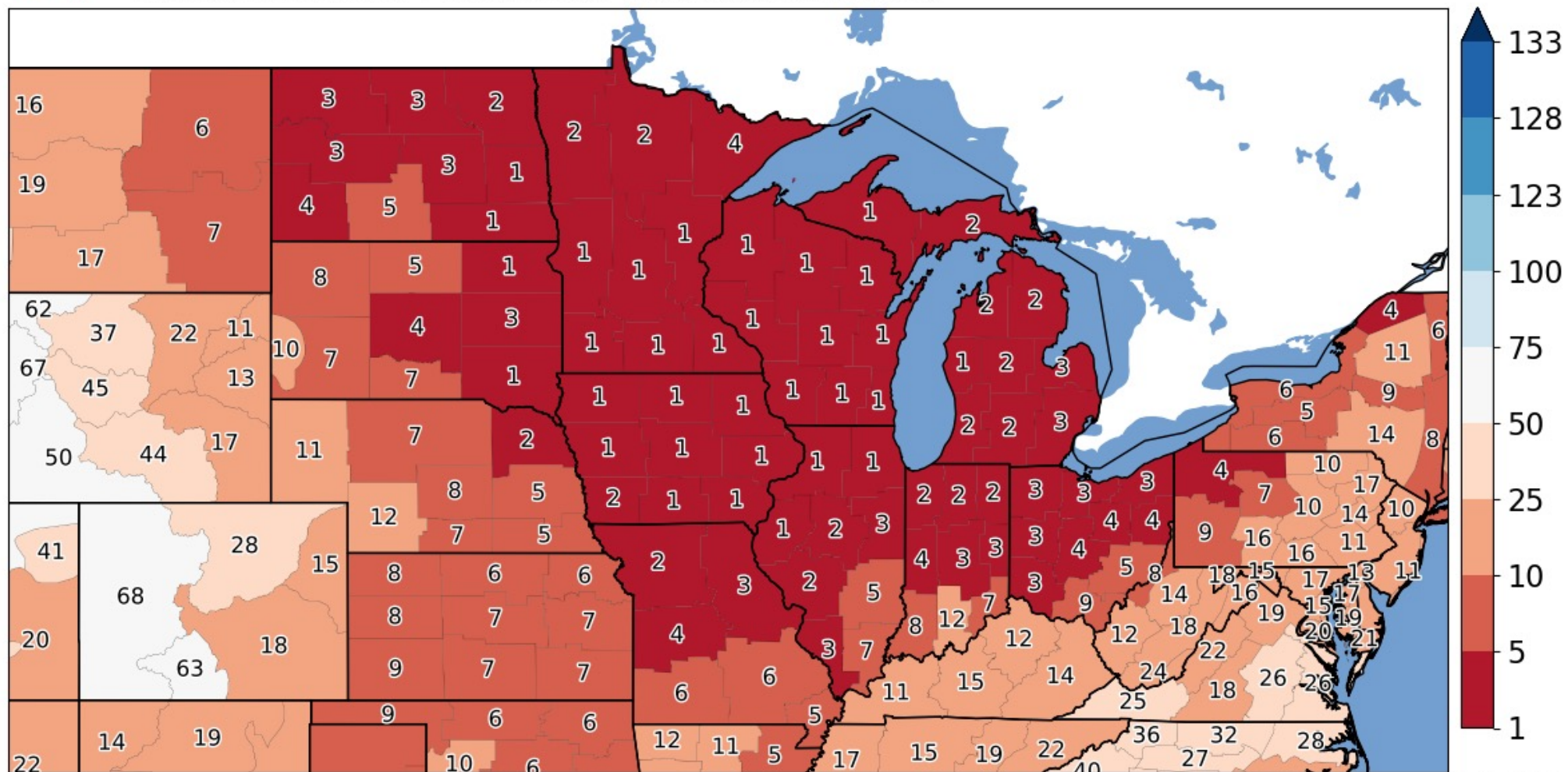
<https://hprcc.unl.edu/maps.php?map=ACISClimateMaps>



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16 Sep 2025 ~7 AM till 15 Oct 2025 ~7 AM Average Temperature Ranks by Climate District
Based on IEM Estimates, 1 is hottest out of 133 total years (1893-2025)

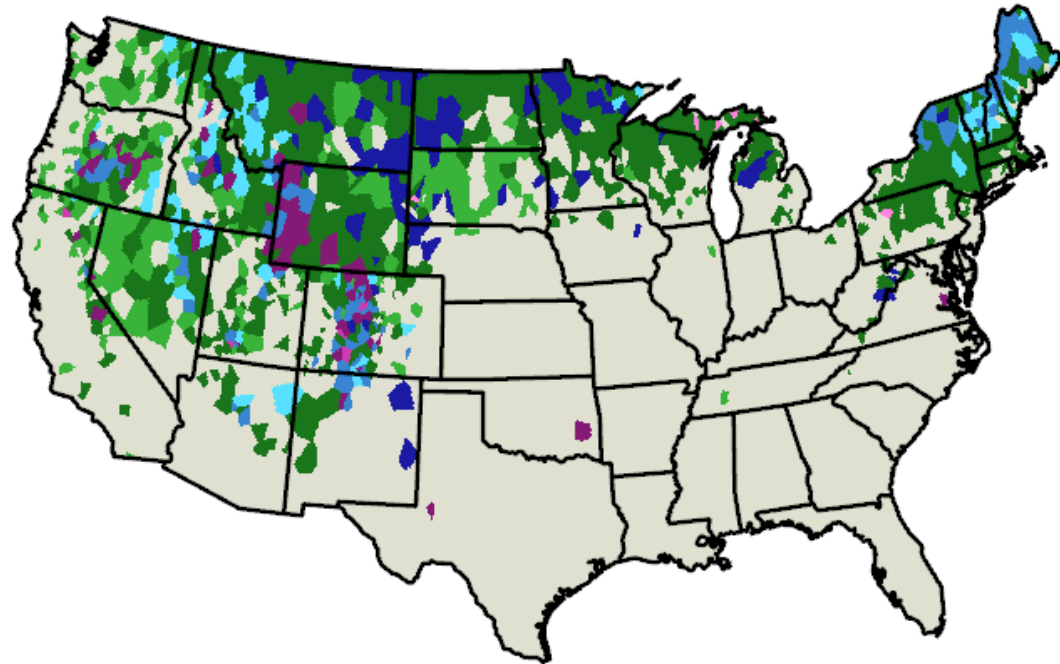


First 32°F Fall Frost Date



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Date of First 32°F Freeze
for period 7/1/25 to 10/15/25



MRCC Experimental Freeze Guidance:

These experimental maps may be utilized as a guide to local and regional freeze conditions but should NOT be used by themselves for decision processes.



MRCC
Midwestern Regional
Climate Center

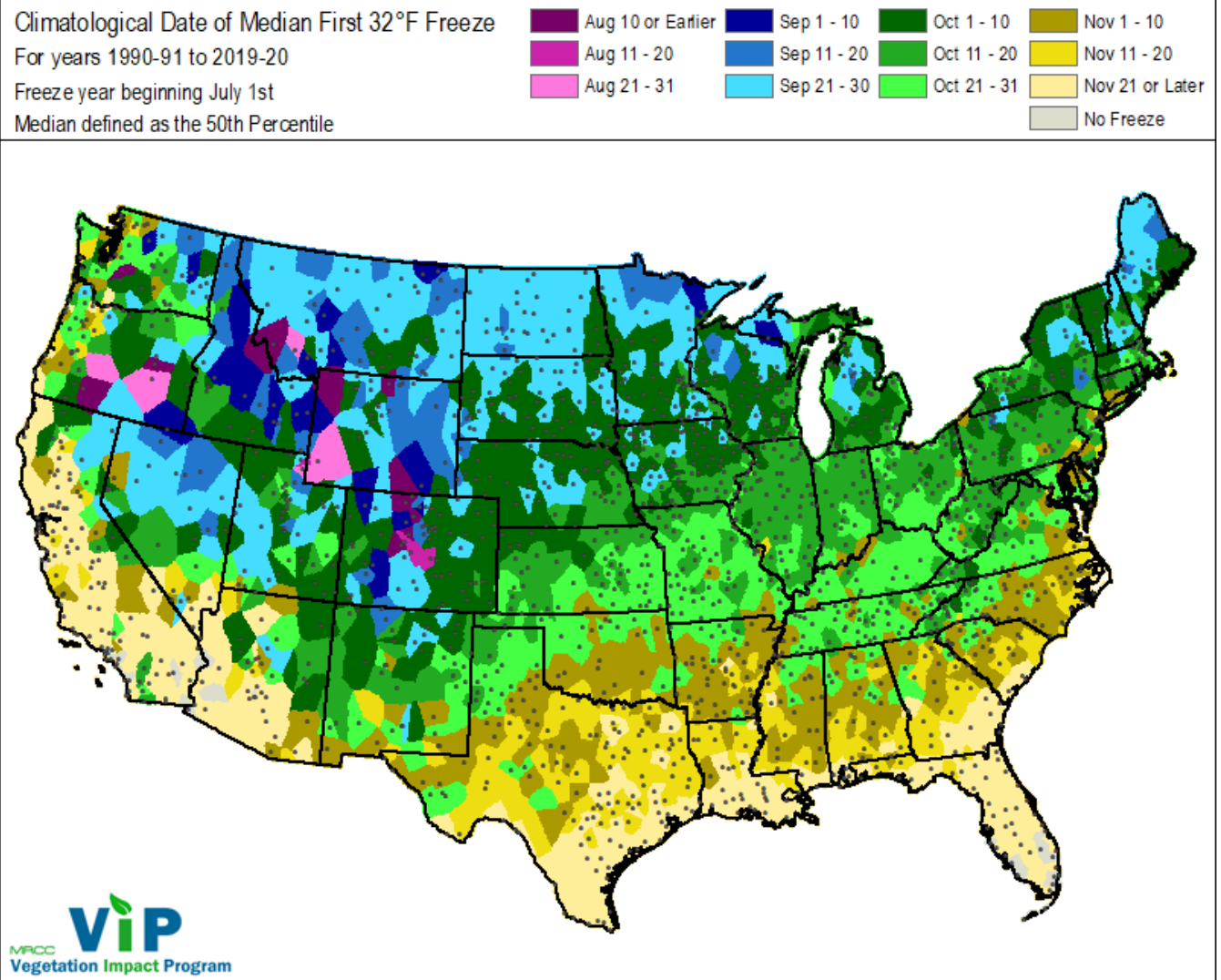
VIP
MRCC
Vegetation Impact Program

https://mrcc.illinois.edu/VIP/frz_maps/freeze_maps.html

First 32°F Fall Frost Date



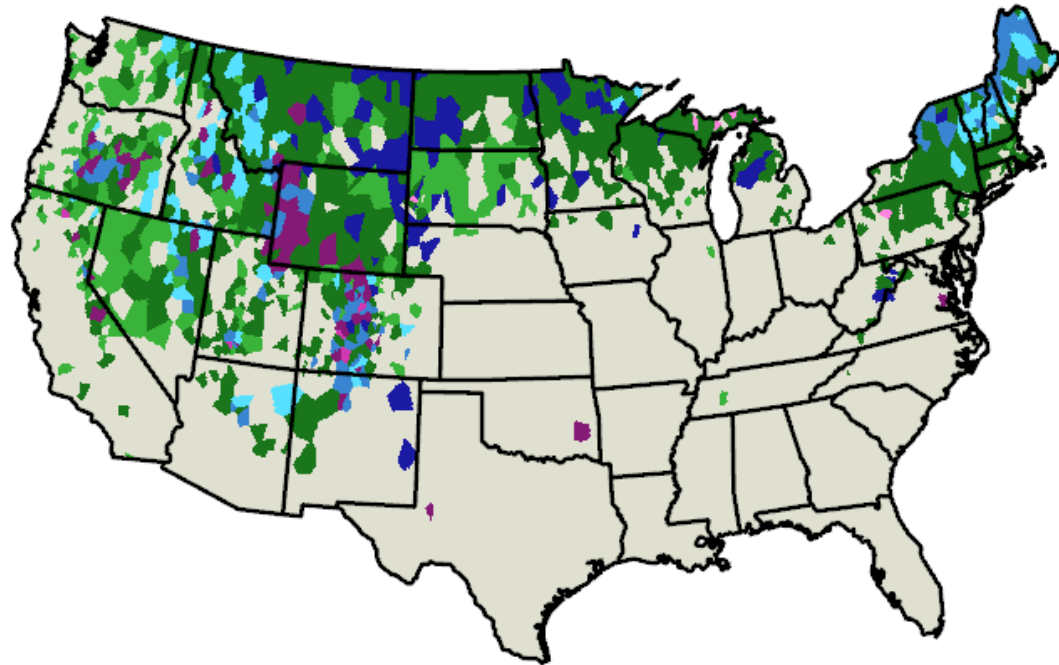
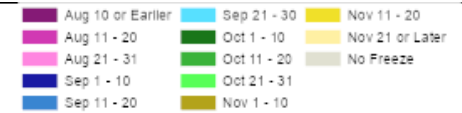
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https://mrcc.illinois.edu/VIP/frz_maps/freeze_maps.html

First 28°F Fall Frost Date

Date of First 28°F Freeze
for period 7/1/25 to 10/15/25



MRCC Experimental Freeze Guidance:
These experimental maps may be utilized as a guide to local and regional freeze conditions but should NOT be used by themselves for decision processes.



MRCC
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VIP
MRCC
Vegetation Impact Program



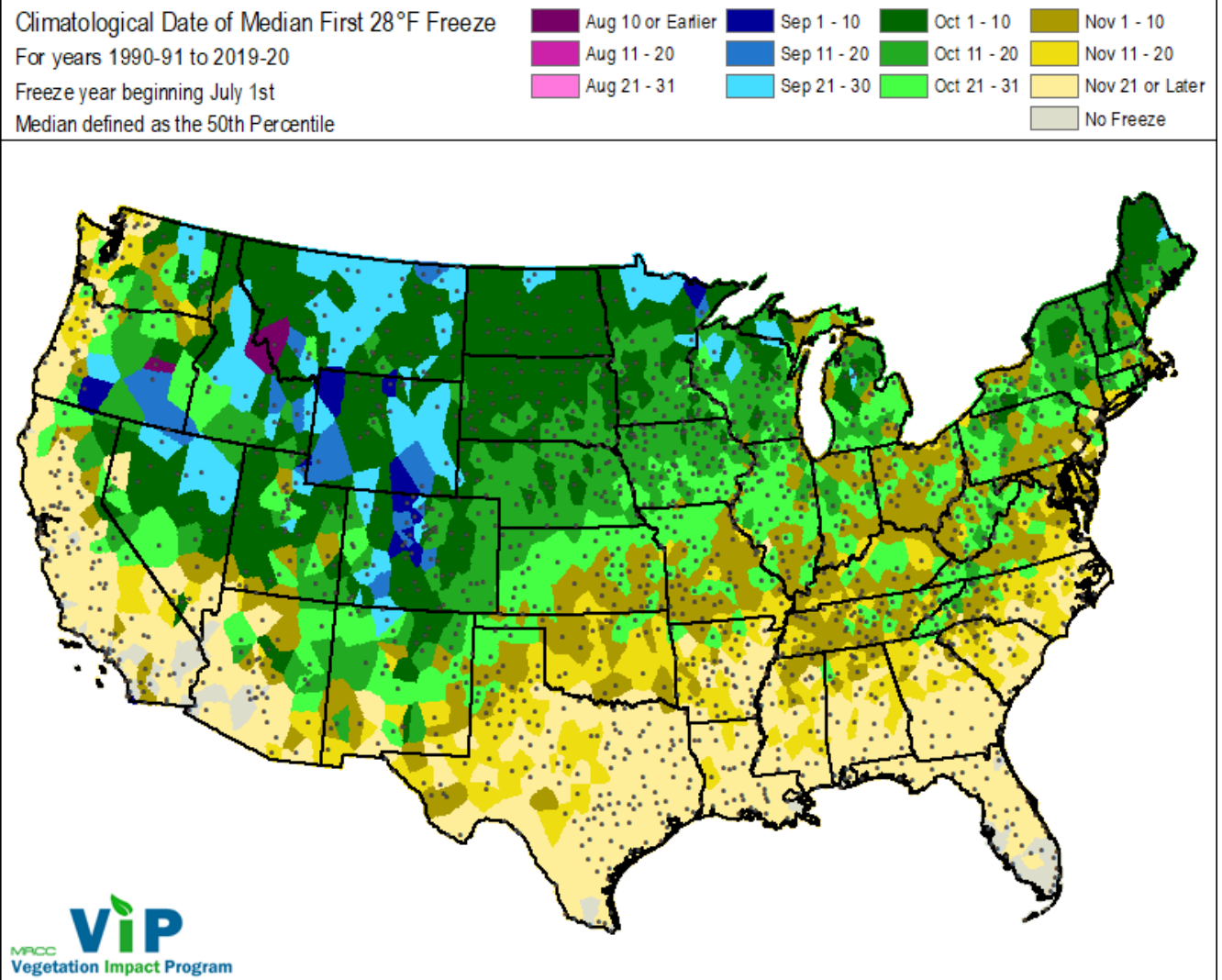
**SOUTH DAKOTA STATE
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https://mrcc.illinois.edu/VIP/frz_maps/freeze_maps.html

First 28°F Fall Frost Date



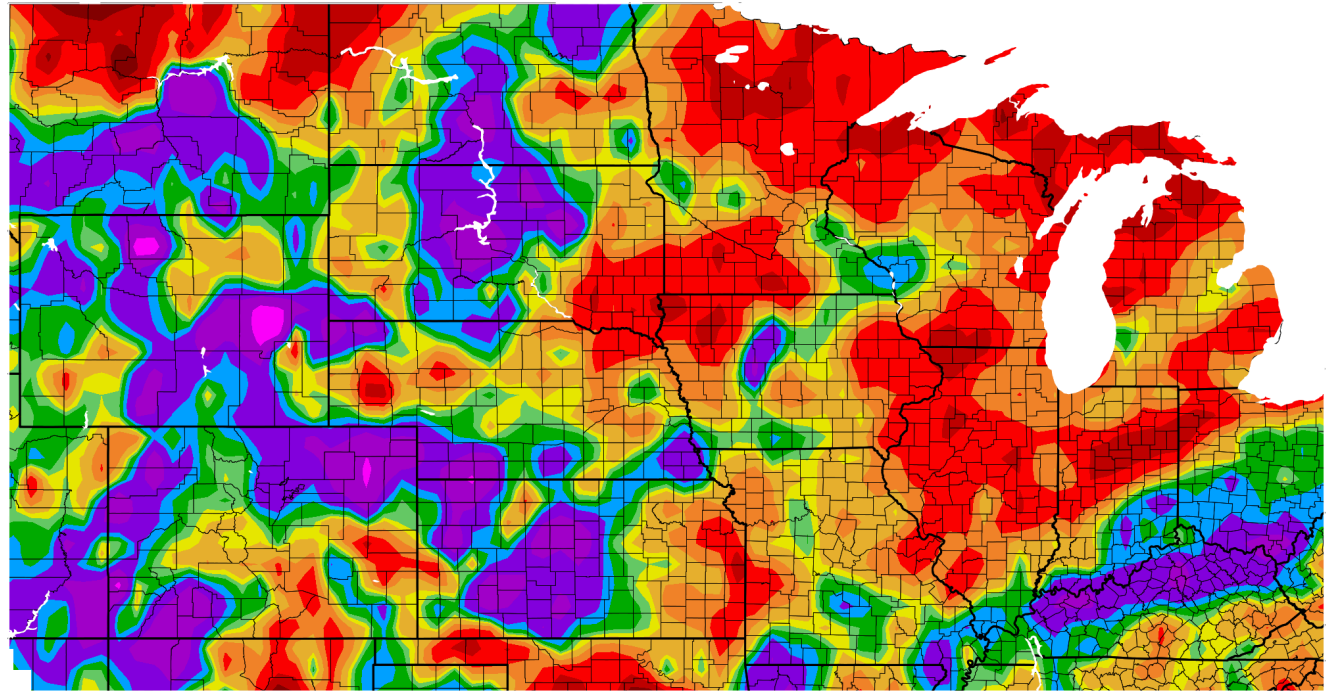
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https://mrcc.illinois.edu/VIP/frz_maps/freeze_maps.html

Last 30 Days

Percent of Normal Precipitation (%)
9/16/2025 – 10/15/2025



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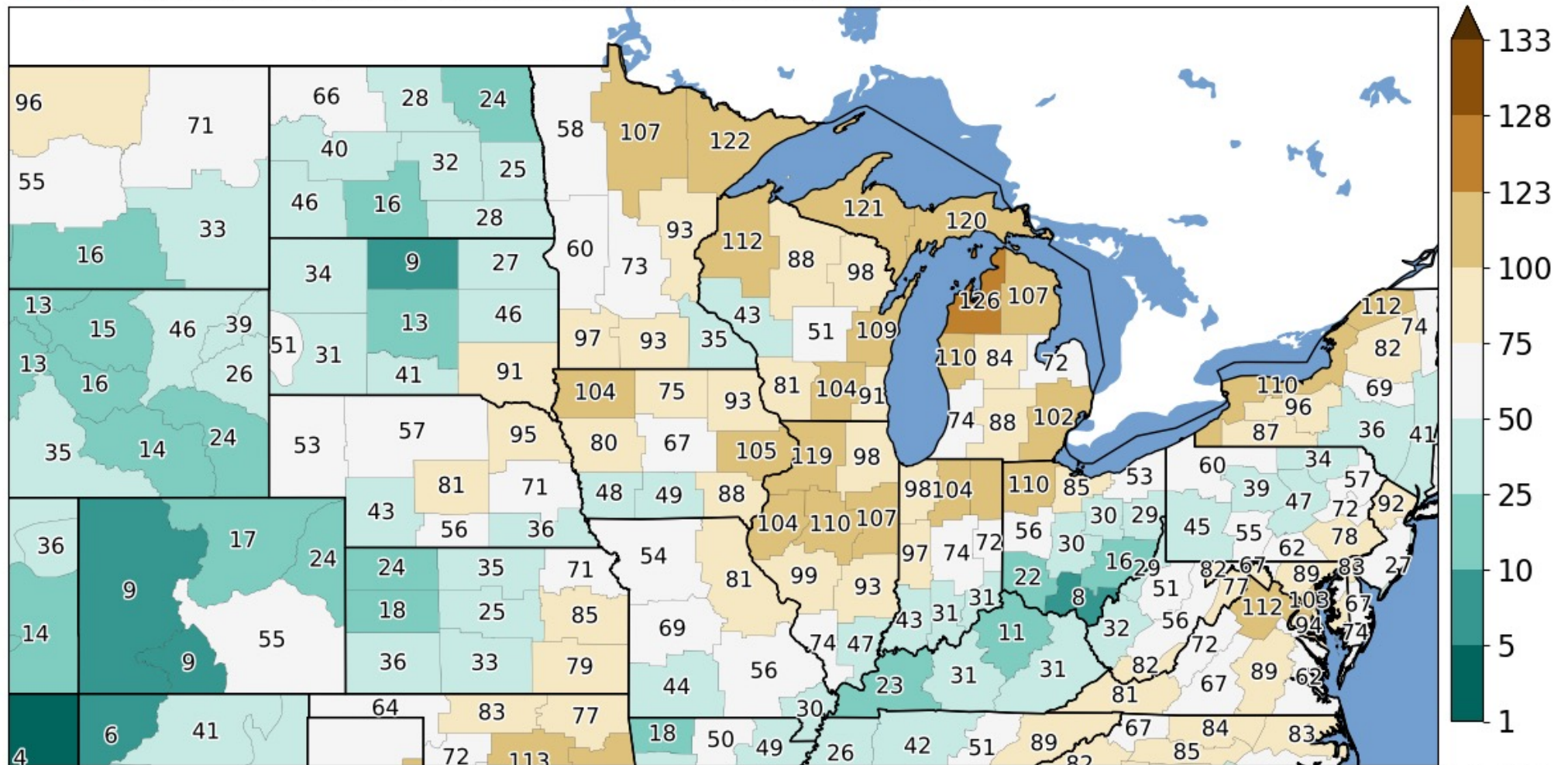
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<https://hprcc.unl.edu/maps.php?map=ACISClimateMaps>

ACIS Web Services

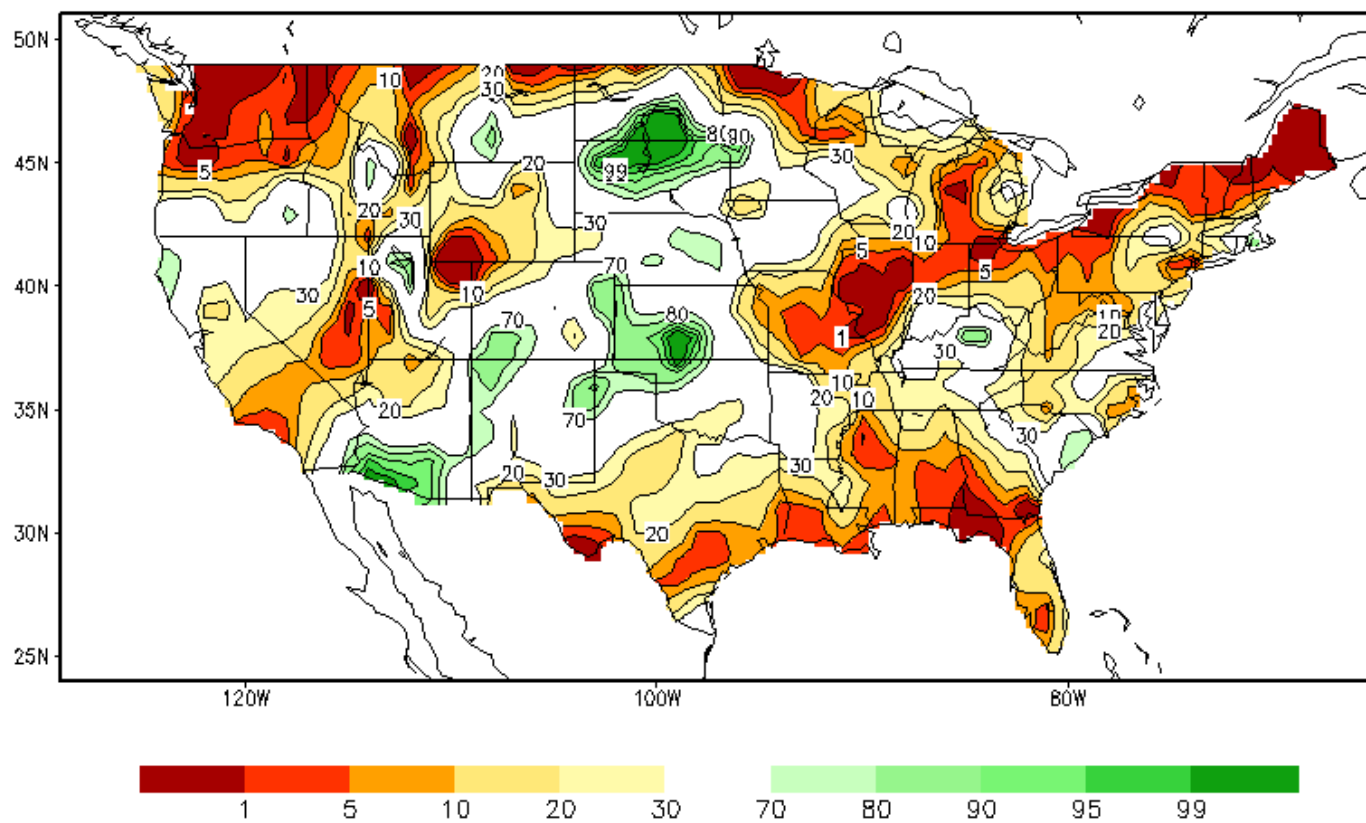


17 Sep 2025 ~7 AM till 15 Oct 2025 ~7 AM Total Precipitation Ranks by Climate District
Based on IEM Estimates, 1 is wettest out of 133 total years (1893-2025)



Soil Moisture

Calculated Soil Moisture Ranking Percentile
OCT 14, 2025

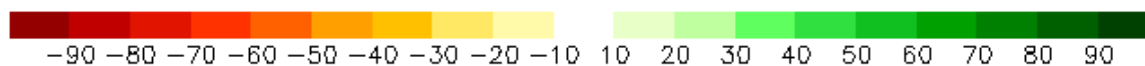
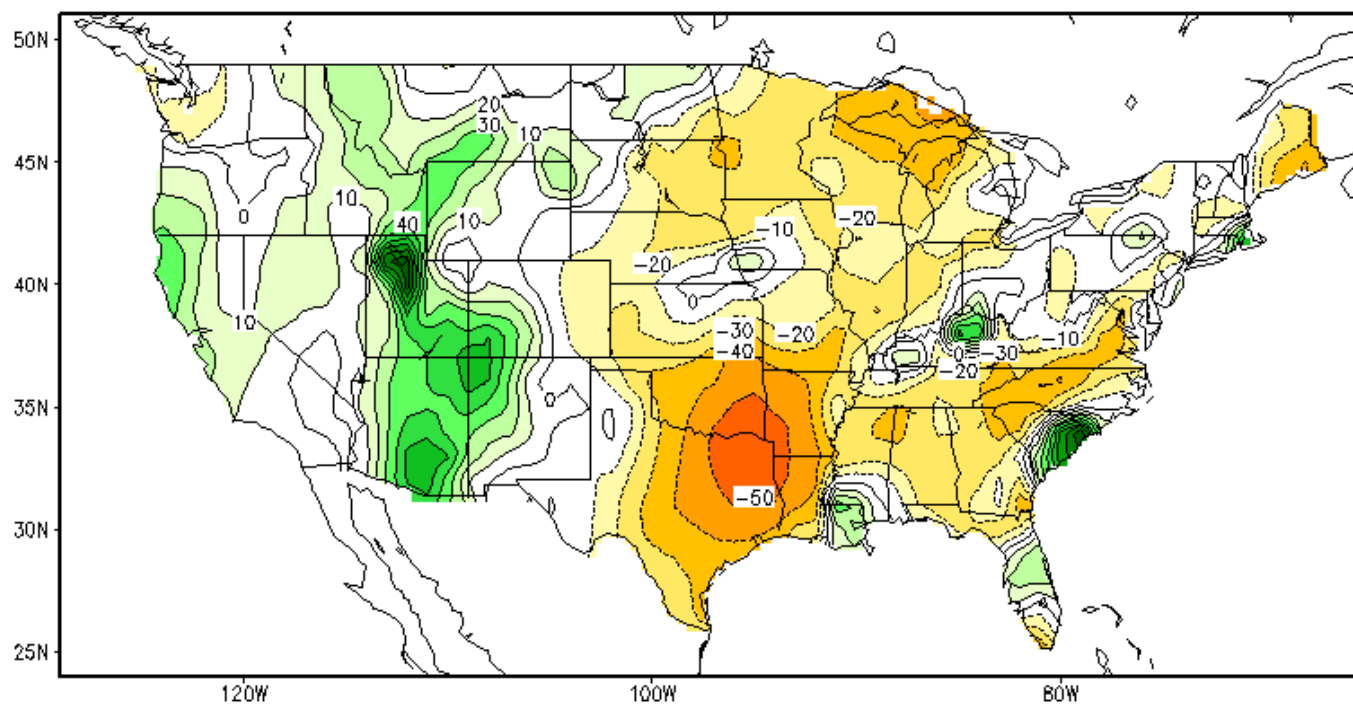


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https://www.cpc.ncep.noaa.gov/products/Soilmst_Monitoring/US/Soilmst/Soilmst.shtml#

Soil Moisture

Calculated Soil Moisture Anomaly Change
OCT 14, 2025 from SEP.30

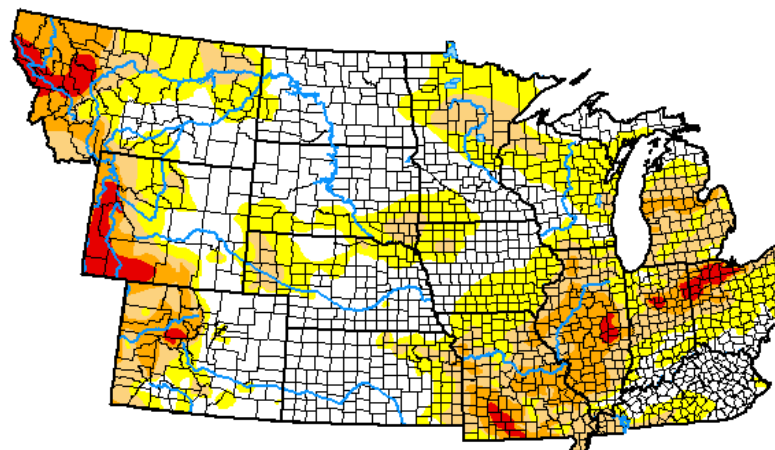


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https://www.cpc.ncep.noaa.gov/products/Soilmst_Monitoring/US/Soilmst/Soilmst.shtml#

U.S. Drought Monitor

U.S. Drought Monitor NWS Central



October 14, 2025
(Released Thursday, Oct. 16, 2025)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	42.00	58.00	30.72	14.03	3.44	0.00
Last Week 10-07-2025	40.75	59.25	31.32	15.13	4.17	0.00
3 Months Ago 07-15-2025	56.88	43.12	23.45	8.91	2.09	0.00
Start of Calendar Year 01-07-2025	31.02	68.98	45.49	19.38	5.80	0.00
Start of Water Year 10-01-2024	20.79	79.21	36.88	12.04	3.20	0.40
One Year Ago 10-15-2024	14.88	85.12	59.86	25.92	5.83	0.47

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:

Richard Tinker
CPC/NOAA/NWS/NCEP



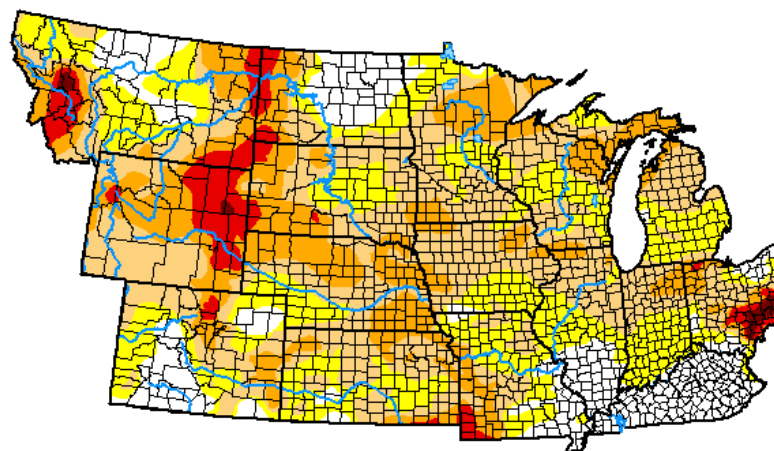
droughtmonitor.unl.edu

U.S. Drought Monitor



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U.S. Drought Monitor NWS Central



October 15, 2024

(Released Thursday, Oct. 17, 2024)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	14.88	85.12	59.86	25.92	5.83	0.47
Last Week 10-08-2024	16.21	83.79	50.71	18.56	4.84	0.47
3 Months Ago 07-16-2024	63.50	36.50	14.17	3.12	0.35	0.00
Start of Calendar Year 01-02-2024	39.12	60.88	34.11	13.18	2.68	0.01
Start of Water Year 10-01-2024	20.79	79.21	36.88	12.04	3.20	0.40
One Year Ago 10-17-2023	41.08	58.92	36.87	17.06	4.30	0.43

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



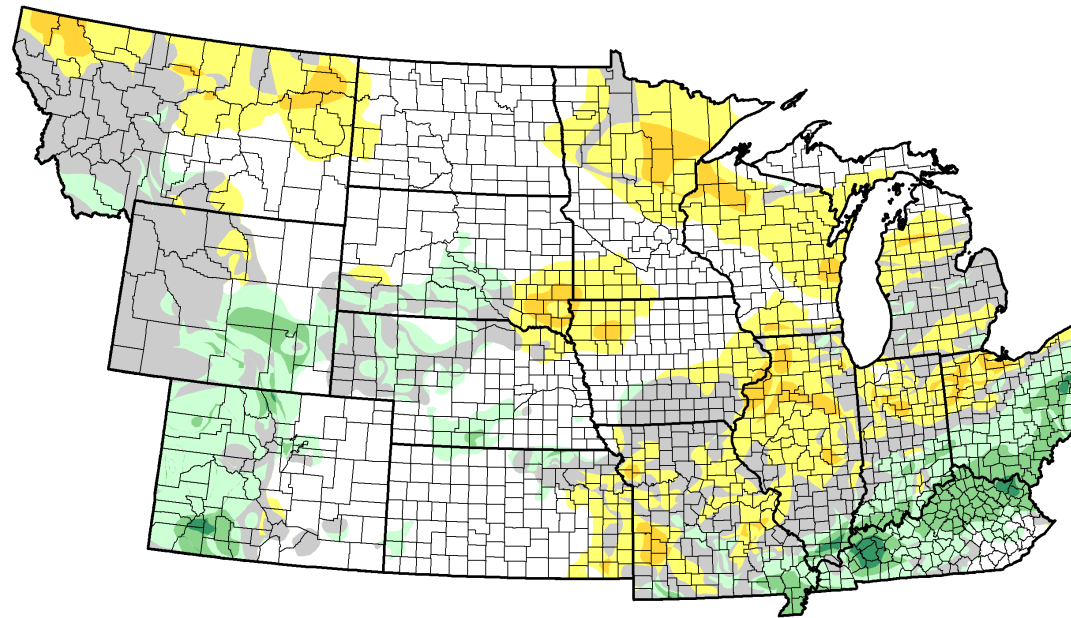
droughtmonitor.unl.edu

U.S. Drought Monitor



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U.S. Drought Monitor Class Change - NWS Central 4 Week



October 14, 2025
compared to
September 16, 2025

droughtmonitor.unl.edu



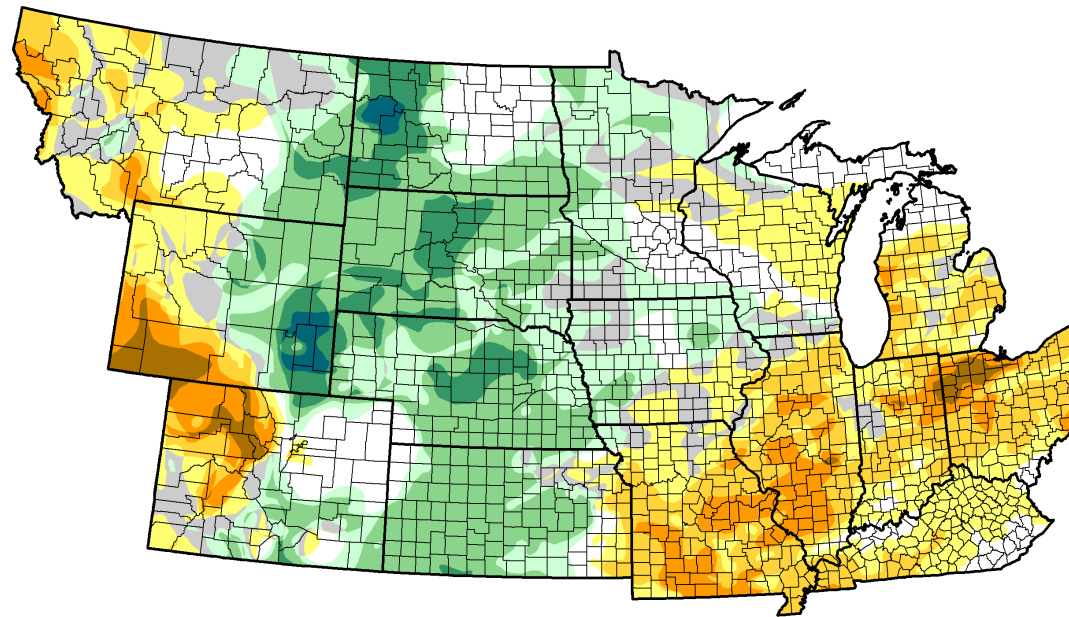
- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

U.S. Drought Monitor

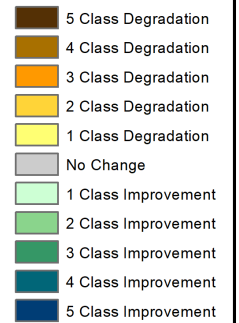


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U.S. Drought Monitor Class Change - NWS Central 24 Week

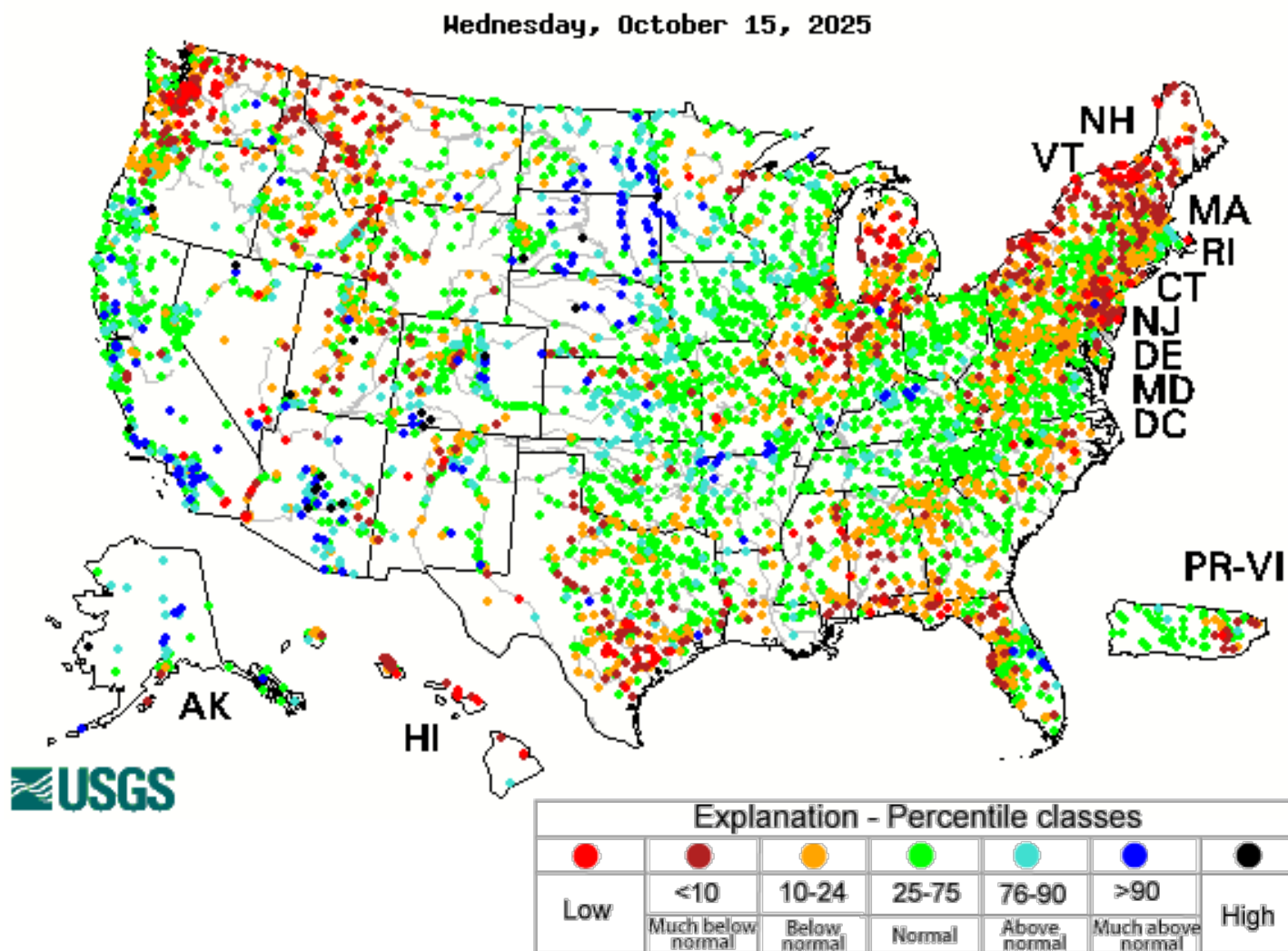


October 7, 2025
compared to
April 22, 2025



droughtmonitor.unl.edu

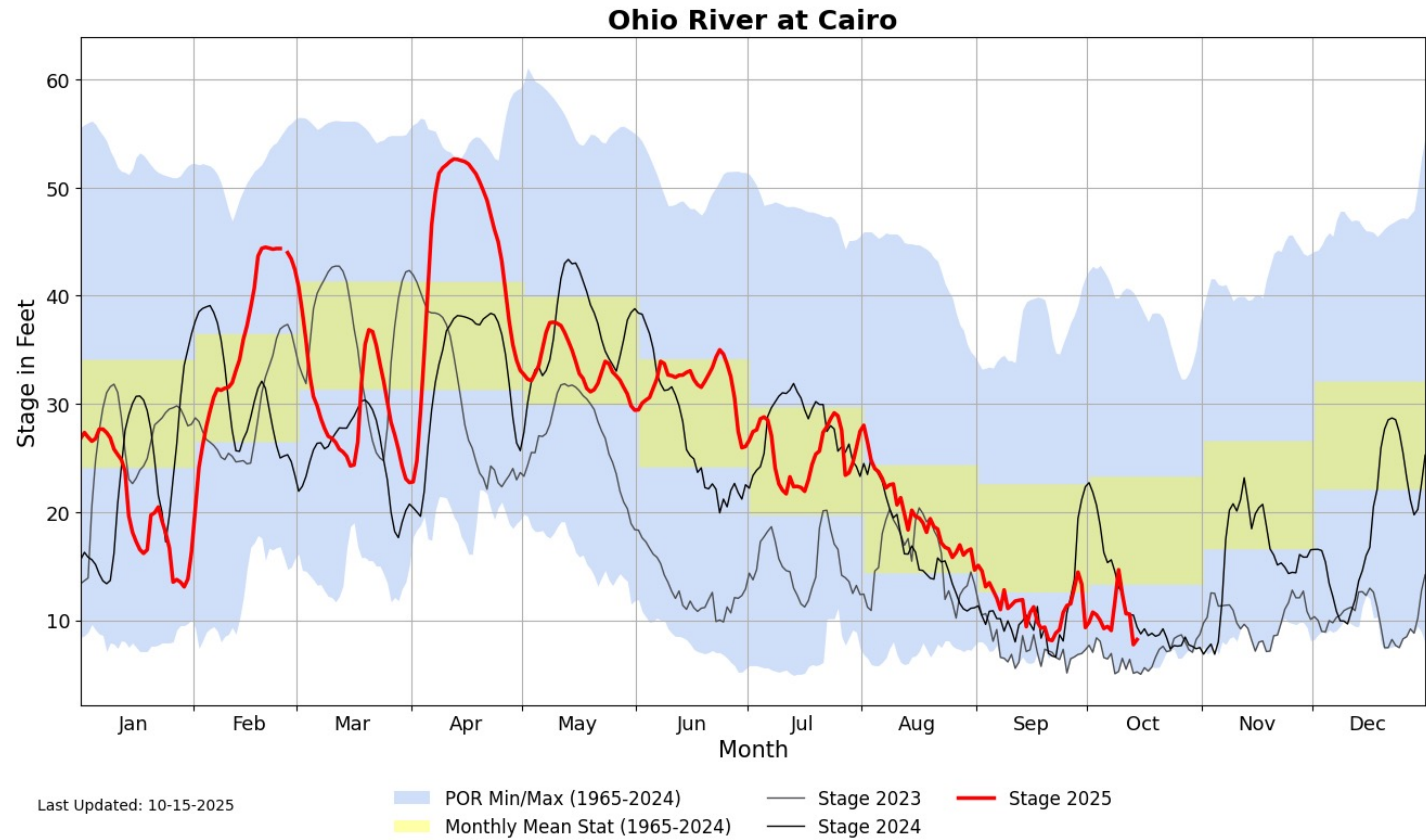
Streamflow



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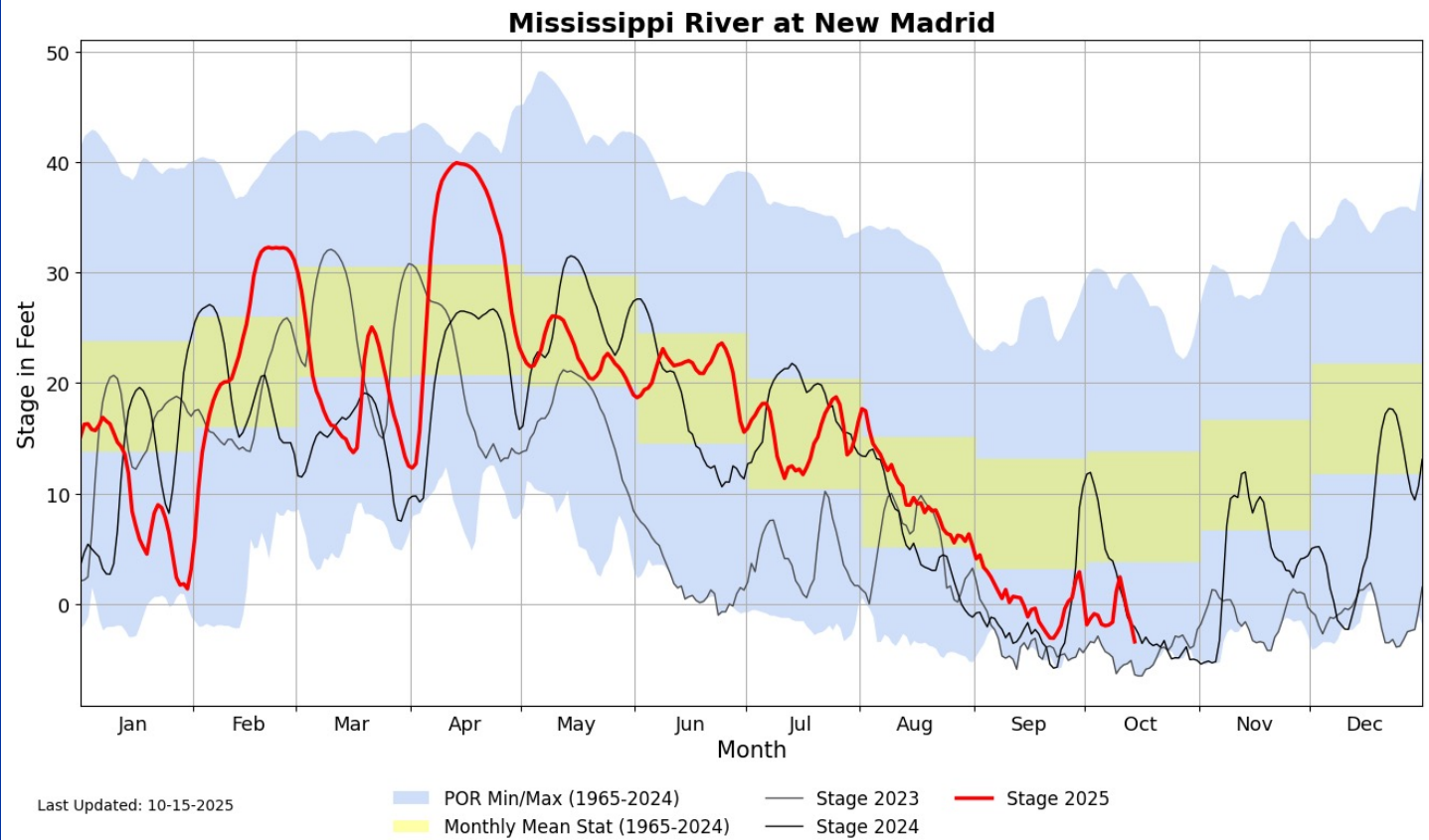
<https://waterwatch.usgs.gov/index.php?id=pa28d>

Streamflow



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Streamflow



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Mississippi River Update

- Low flow is typical this time of year
- Regular coordination among water managers to try to ensure navigable water in the main channel
- Low flow expected to continue until weather pattern changes

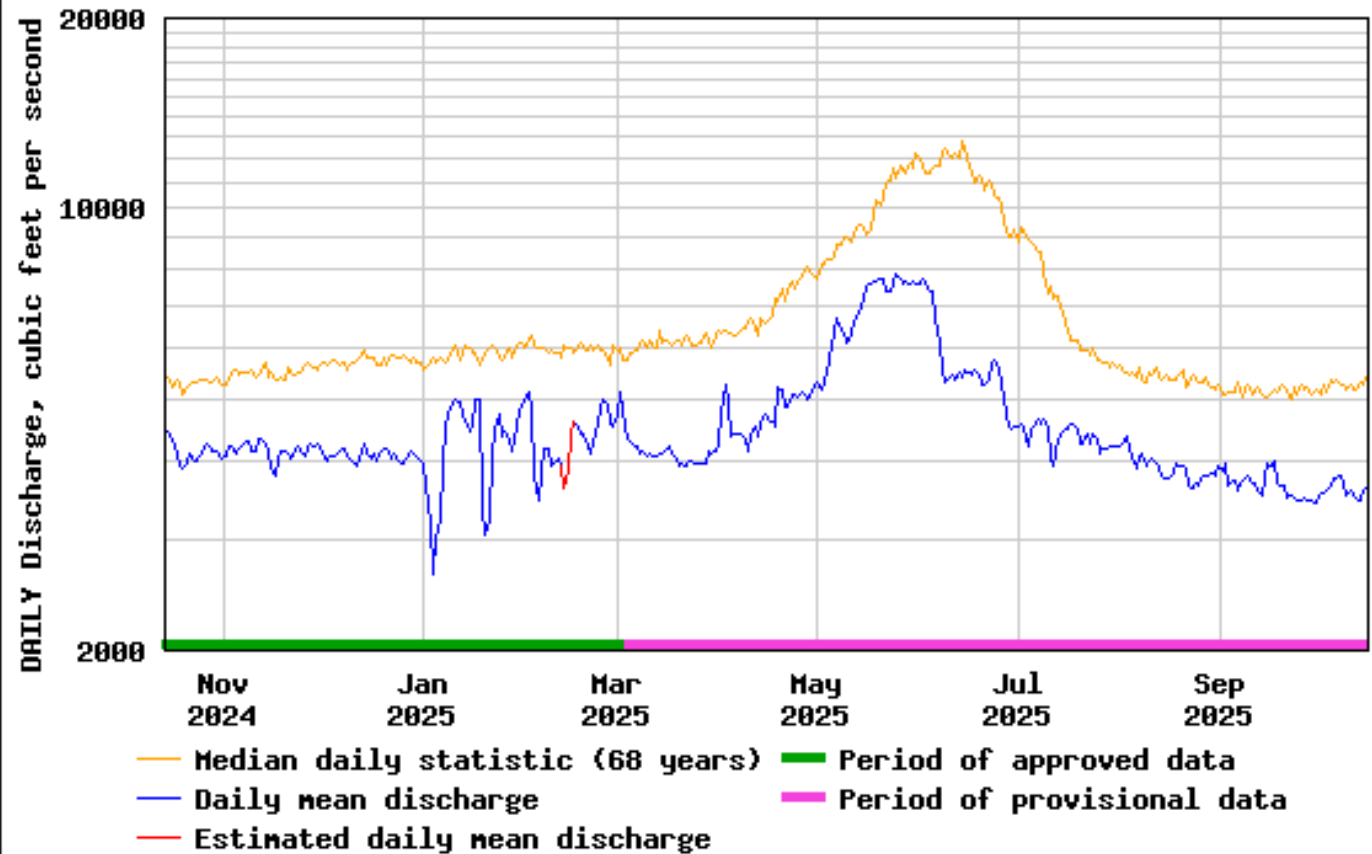


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Streamflow



USGS 06090300 Missouri River near Great Falls MT



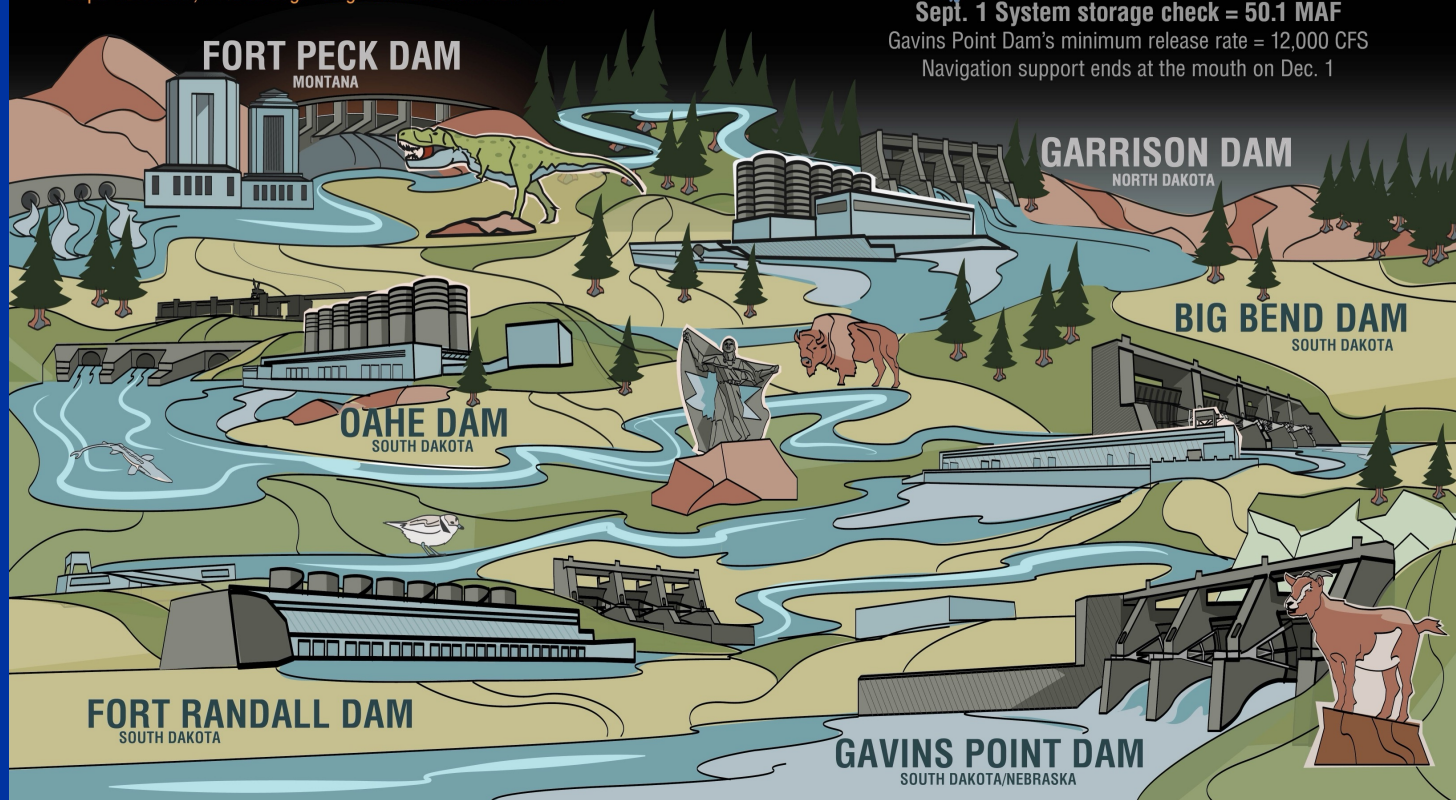
<https://waterwatch.usgs.gov/index.php?m=pa28d&r=mt&w=map>

Missouri River Update

MISSOURI RIVER MONTHLY UPDATE - OCT. 2025

Forecast above Sioux City, Iowa
October 19.6 MAF, 76% of avg.
Sept. 19.1 MAF, 74% of avg. - Avg. annual runoff 25.7 MAF

❄️ ❄️ ❄️ ❄️
Winter Release Rate
Sept. 1 System storage check = 50.1 MAF
Gavins Point Dam's minimum release rate = 12,000 CFS
Navigation support ends at the mouth on Dec. 1



“Although overall runoff for September 2025 in the upper Missouri River Basin was above average, runoff in the Fort Peck and Garrison reaches continues to be well-below average.”



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Missouri River Update

- Upper Basin runoff for October is forecast to be about 75% of average, due to ongoing below-average forecasts in the Fort Peck and Garrison reaches.
- The updated 2025 calendar year forecast for the upper Basin is 19.6 MAF, 76% of average. Average annual runoff for the upper Basin is 25.7 MAF.
- Navigation: Gavins Point Dam releases are being set to provide navigation flow support at a level 4,500 cfs below full service at all four target locations (Sioux City, Omaha, Nebraska City, and Kansas City). Season will end Dec 1.
- Fall public meetings set Oct 27-Nov 3.

<https://www.nwd.usace.army.mil/media/news-releases/article/4321093/september-runoff-above-average-fall-public-meetings-set/>

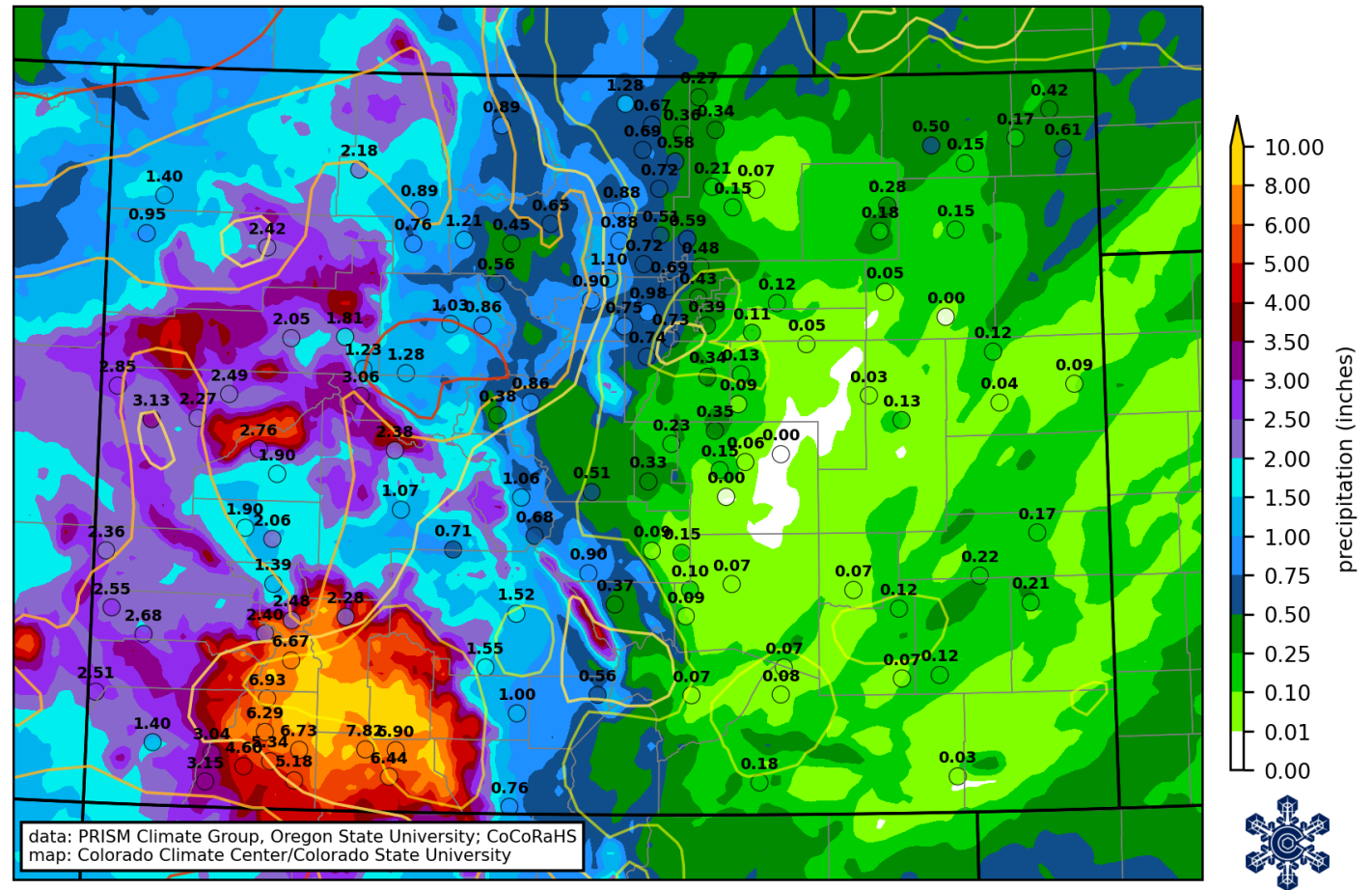


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Colorado Flooding

PRISM and CoCoRaHS month-to-date precipitation, US Drought Monitor

through 6:00am MDT Wed 15 October 2025



<https://climate.colostate.edu/blog/index.php/2025/10/12/major-rainfall-and-flooding-in-southwest-colorado/>



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Colorado Flooding: San Juan River, Pagosa Springs



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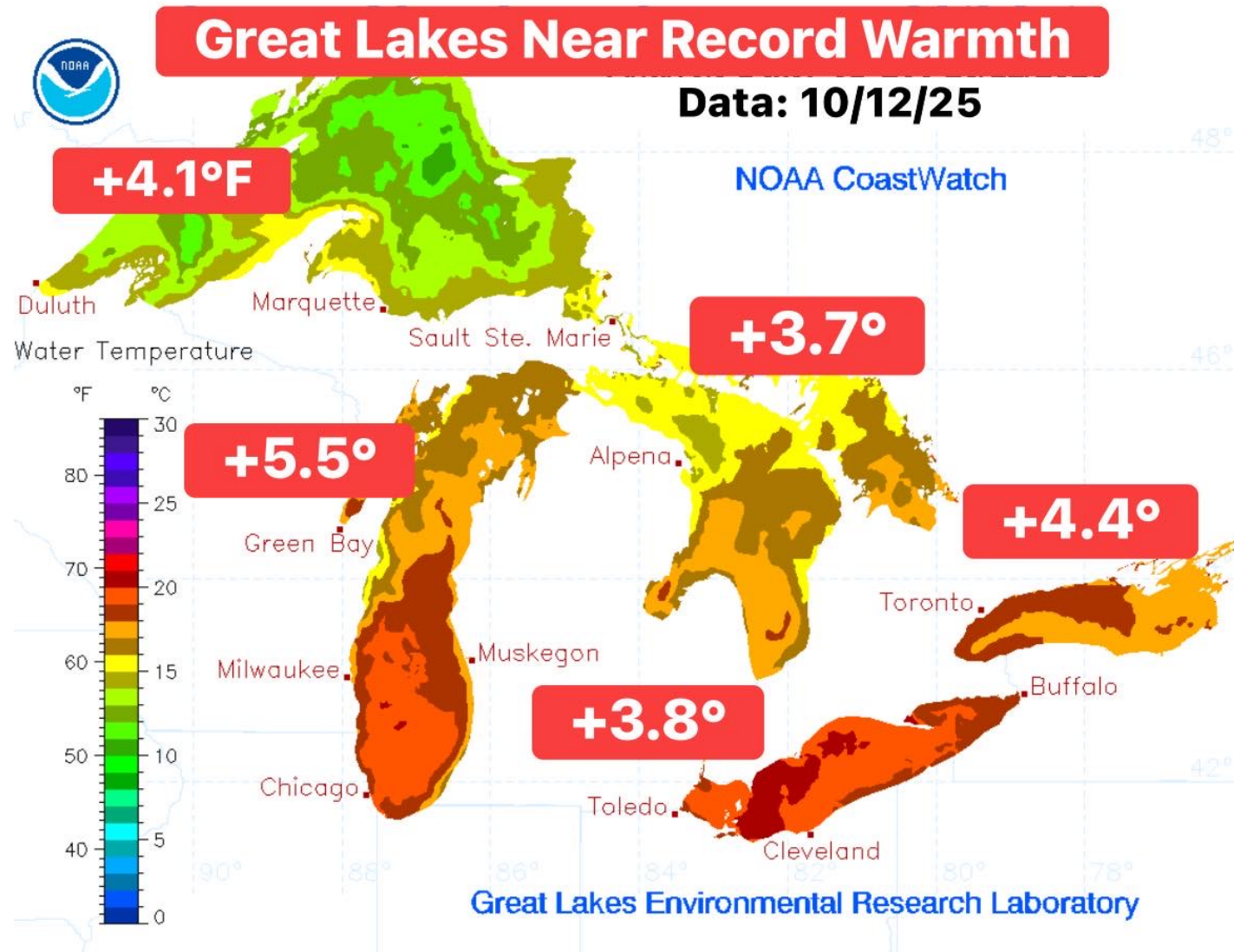
Upper San Juan SNOTEL largest 2-day precipitation totals Data since 1978

Rank	Precipitation (inches)	Dates
1	6.20	2005-01-10 through 2005-01-11
2	6.10	2025-10-10 through 2025-10-11
3	6.00	1989-02-03 through 1989-02-04
4	5.90	2007-12-07 through 2007-12-08
-	5.90	2007-11-30 through 2007-12-01

Vallecito SNOTEL largest 2-day precipitation totals Data since 1986

Rank	Precipitation (inches)	Dates
1	5.00	2025-10-10 through 2025-10-11
2	4.80	1989-02-04 through 1989-02-05
3	4.10	2007-11-30 through 2007-12-01
4	3.50	1997-09-20 through 1997-09-21
5	3.20	2023-03-20 through 2023-03-21

Great Lakes



Impacts



Photo: Mary Kay, 10/12/25

- Low streamflow in rivers causing concern for navigation, transporting of goods and water supply
- Favorable weather for corn mazes, pumpkin patches and outdoor recreation
- Reports of deer and pheasant populations are good for hunting season
- Extended growing season for backyard gardens
- “Remontant bloom” in some lilacs and other flowers



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Agriculture impacts



Photo: Justin Glisan



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- Dry fall conditions -> rapid harvest progress
- Highly variable yields due to periods of wet and dry throughout growing season
- Corn yields down in portions of central and eastern Corn Belt due to southern rust
- Pumpkin and melons had a great production year, some apples also
- Late frost/freeze across much of the region

Climate Outlooks

- La Niña
- 7-day precipitation forecast
- 8-14 day outlook
- November temperature and precipitation
- Winter season temperature and precipitation

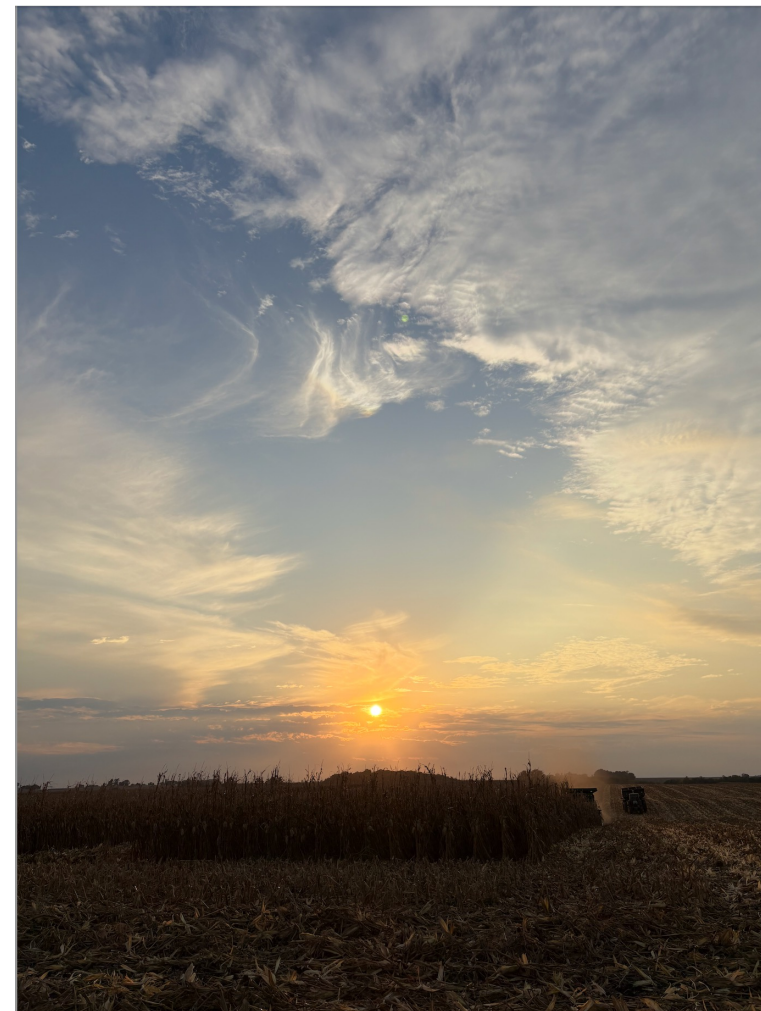
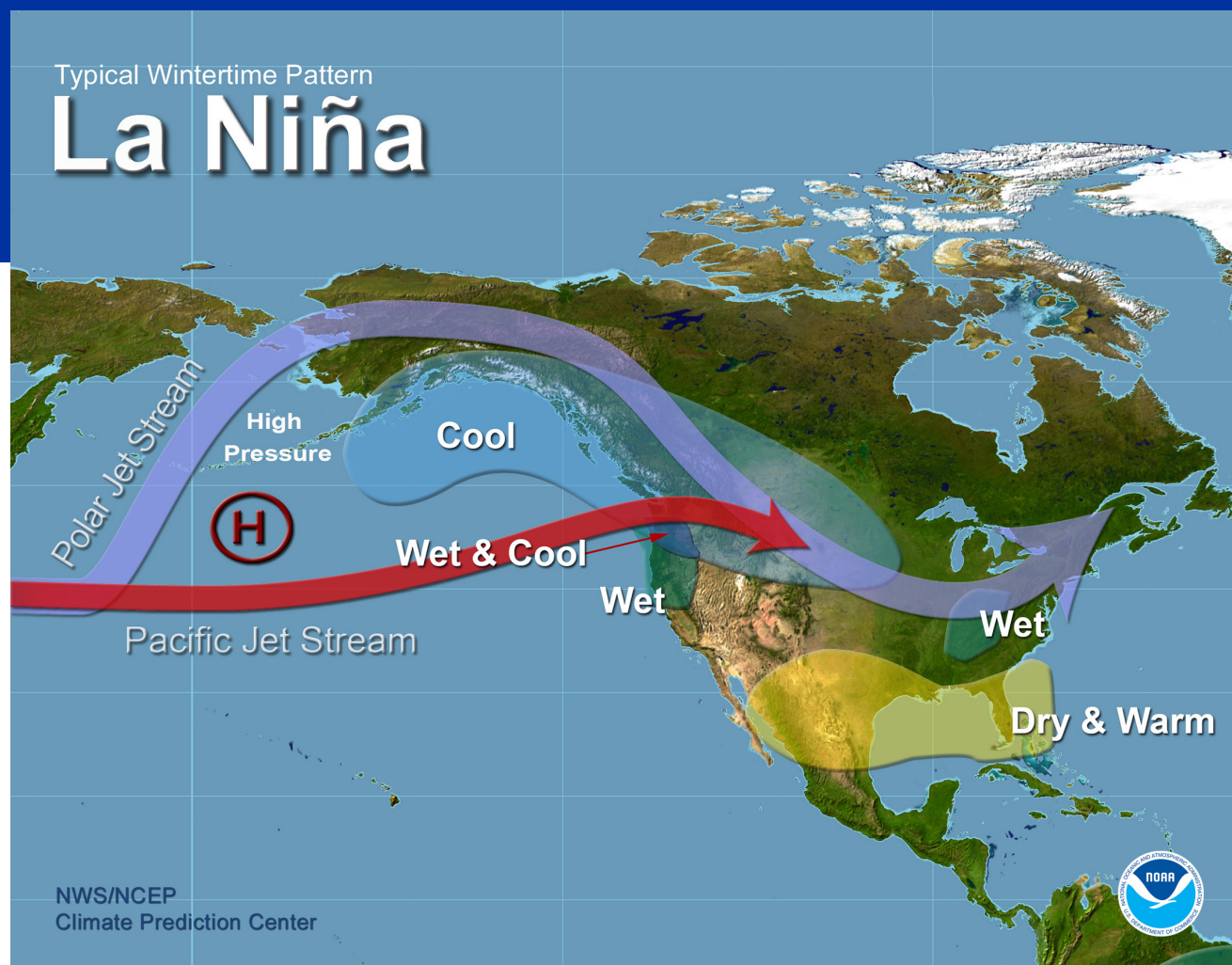


Photo: Justin Glisan, central IA

La Niña

- La Nina conditions present in sea surface temperatures now
- 55% chance of La Nina conditions through December-February
- Transition to ENSO-neutral likely in January-March 2026
- Weak event, so historical impacts are less reliable as indicators for this season's impacts but still expected to influence winter season climate



https://www.pmel.noaa.gov/el_nino/sites/default/files/thumbnails/image/LaNina-Jet-Wintertime-Pattern.jpg

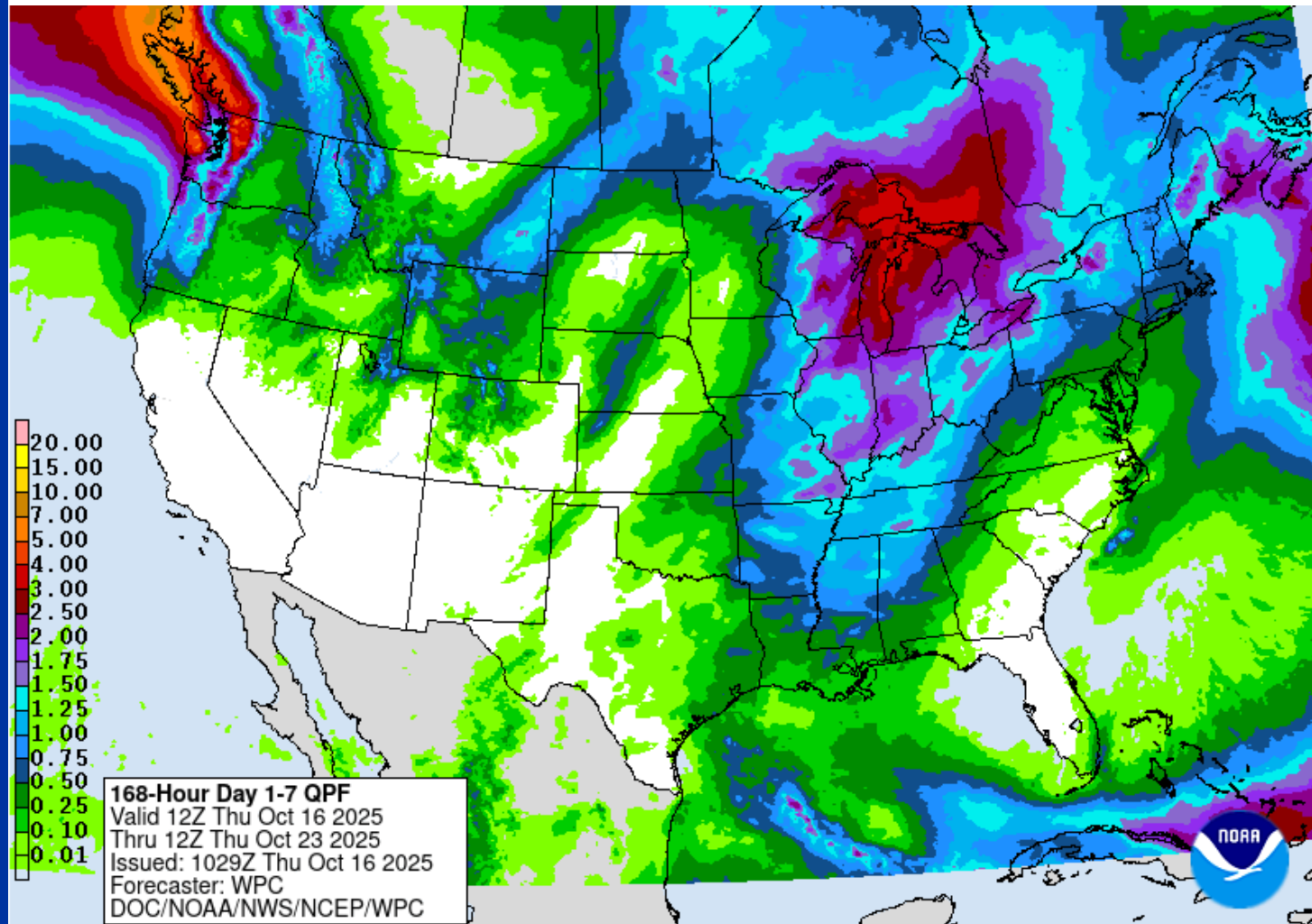


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7-day Precipitation



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<https://www.wpc.ncep.noaa.gov/index.shtml#>

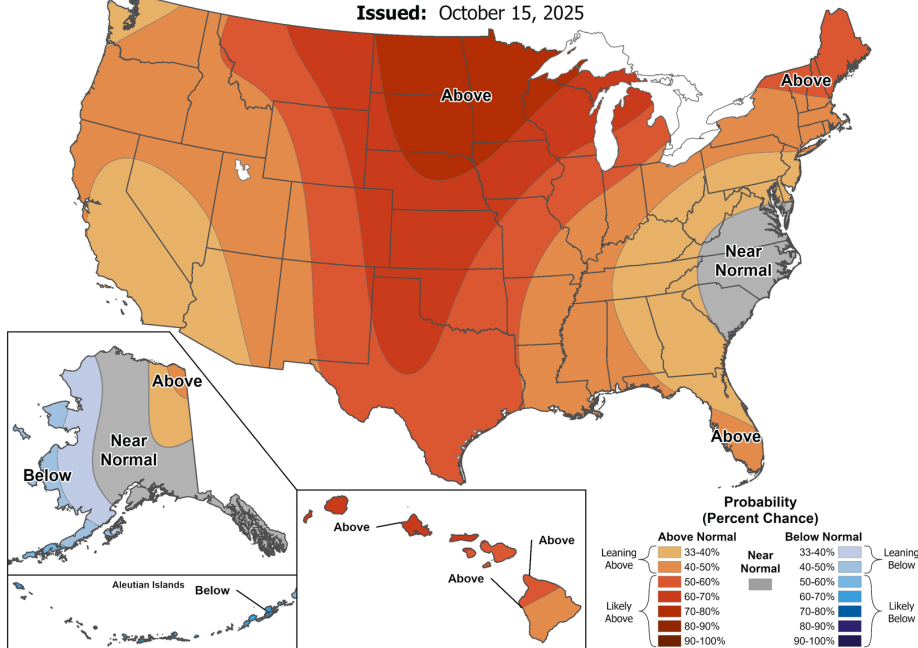
8-14 Day Outlook



8-14 Day Temperature Outlook

Valid: October 23 - 29, 2025

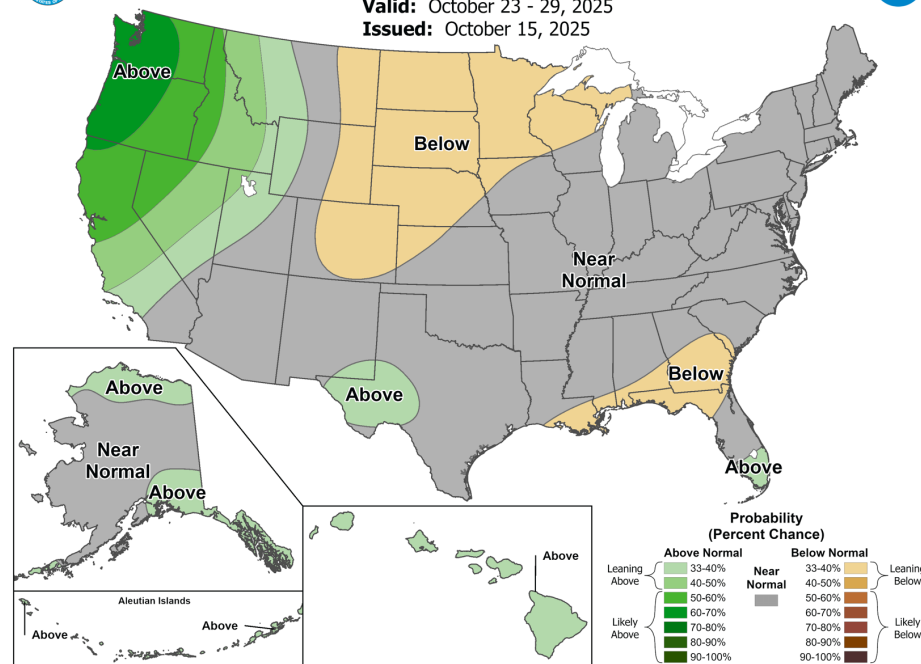
Issued: October 15, 2025



8-14 Day Precipitation Outlook

Valid: October 23 - 29, 2025

Issued: October 15, 2025



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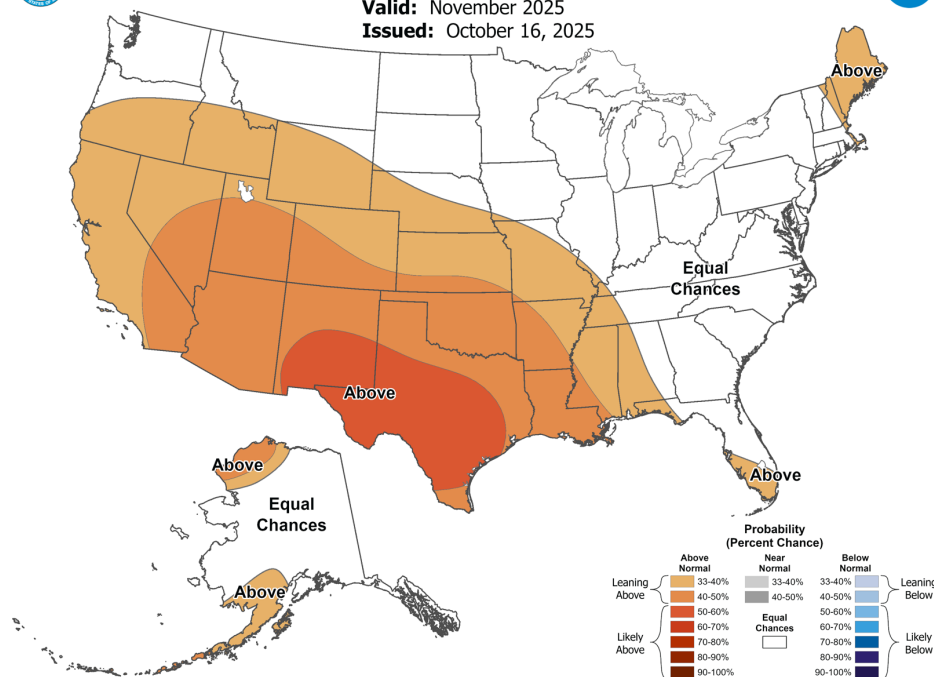
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November Outlook



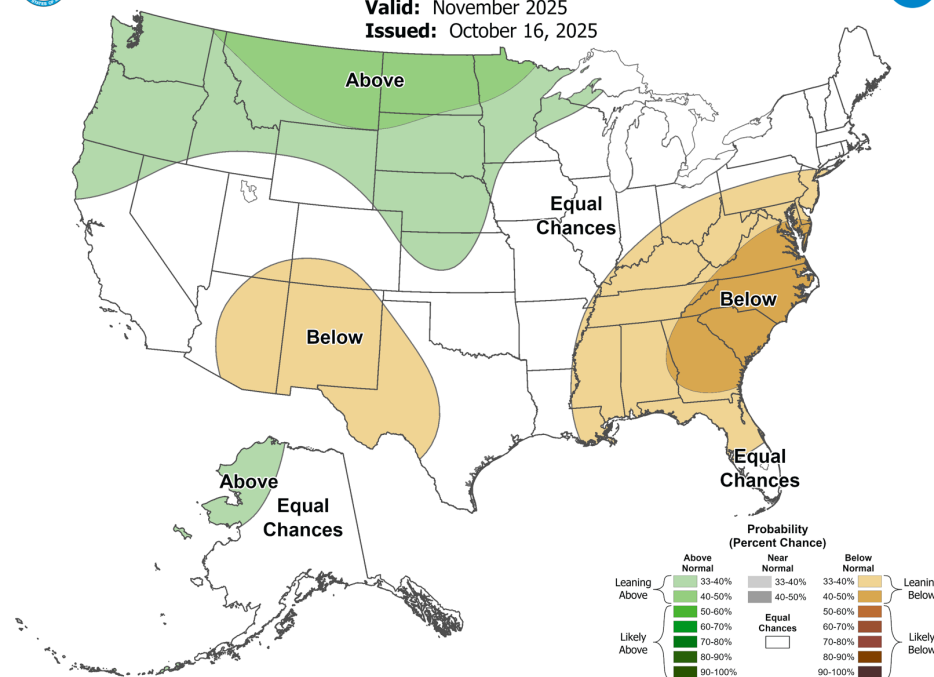
Monthly Temperature Outlook

Valid: November 2025
Issued: October 16, 2025



Monthly Precipitation Outlook

Valid: November 2025
Issued: October 16, 2025



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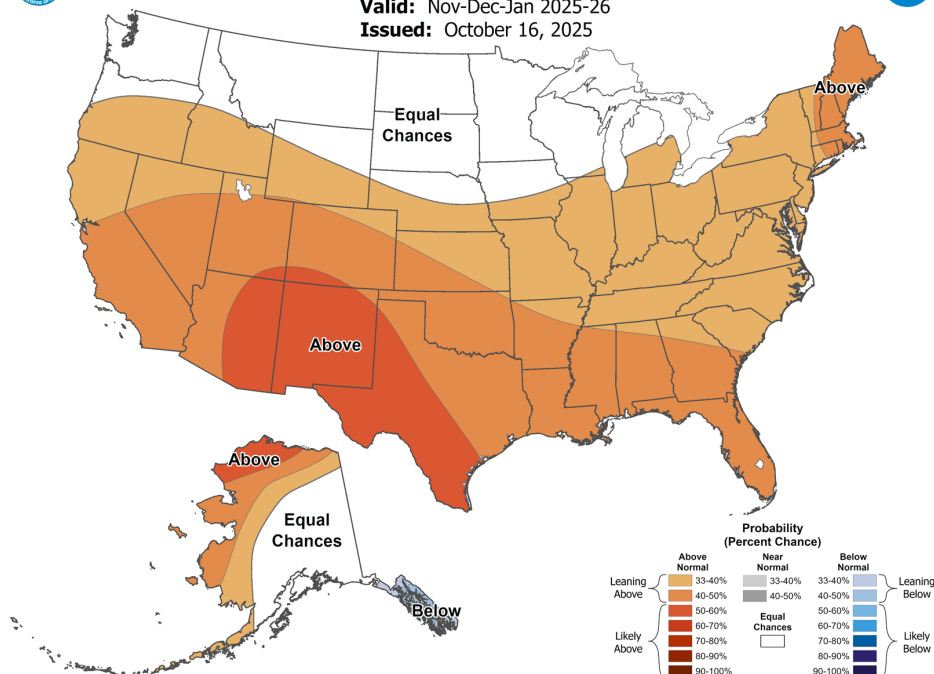
<https://www.cpc.ncep.noaa.gov/products/predictions/814day/>

November-January Outlook



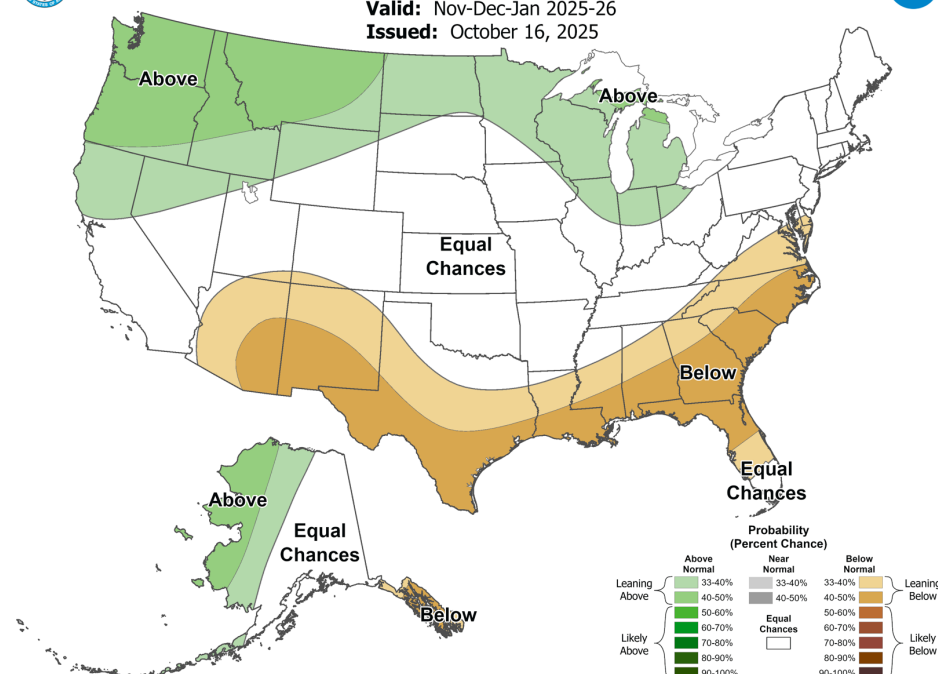
Seasonal Temperature Outlook

Valid: Nov-Dec-Jan 2025-26
Issued: October 16, 2025



Seasonal Precipitation Outlook

Valid: Nov-Dec-Jan 2025-26
Issued: October 16, 2025



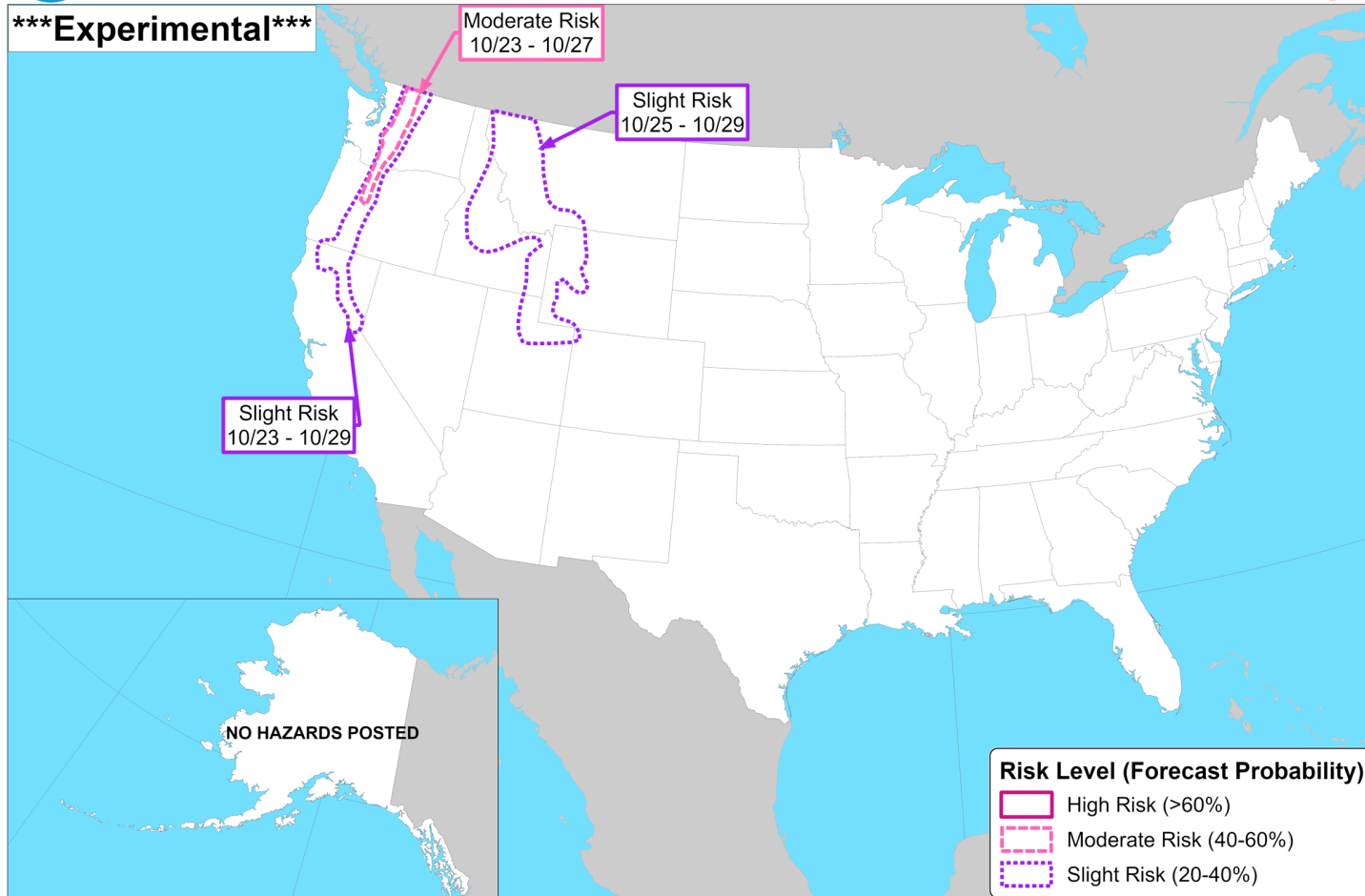
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<https://www.cpc.ncep.noaa.gov/products/predictions/814day/>

8-14 Day Hazard Outlook



Risk of Heavy Snow Valid: October 23 - 29, 2025



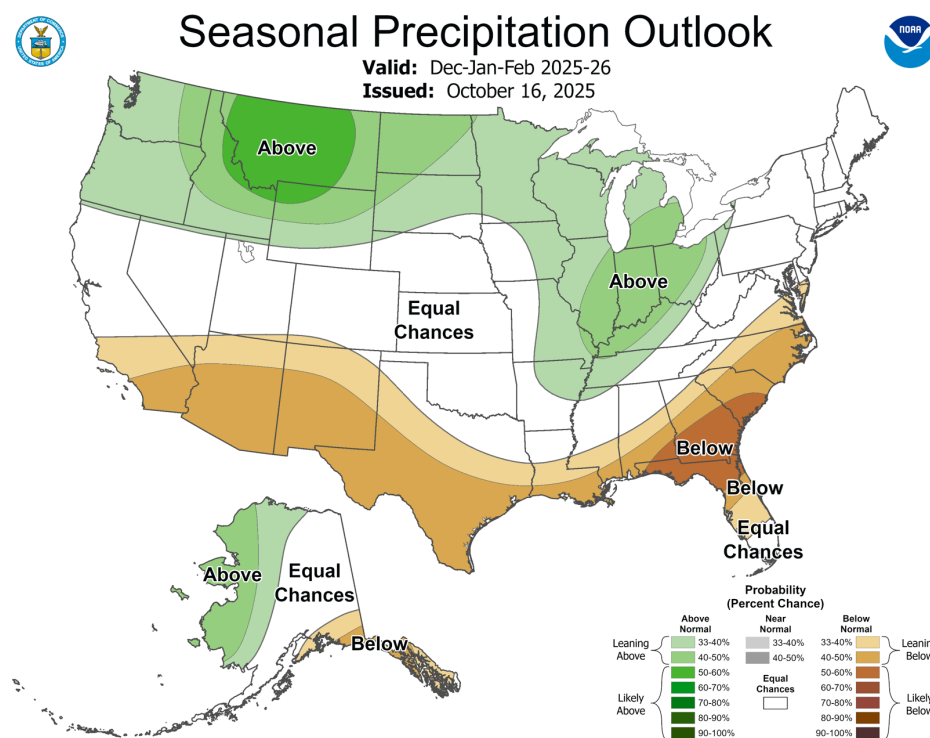
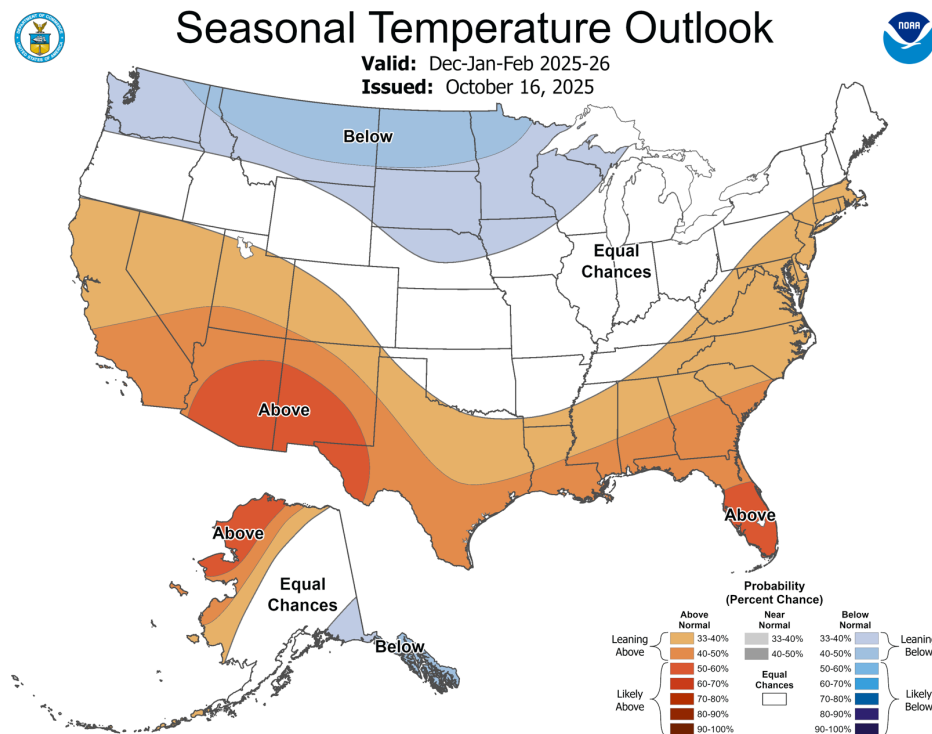
Climate Prediction Center

Released: October 15, 2025 3:00 PM EDT

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December-February Outlook



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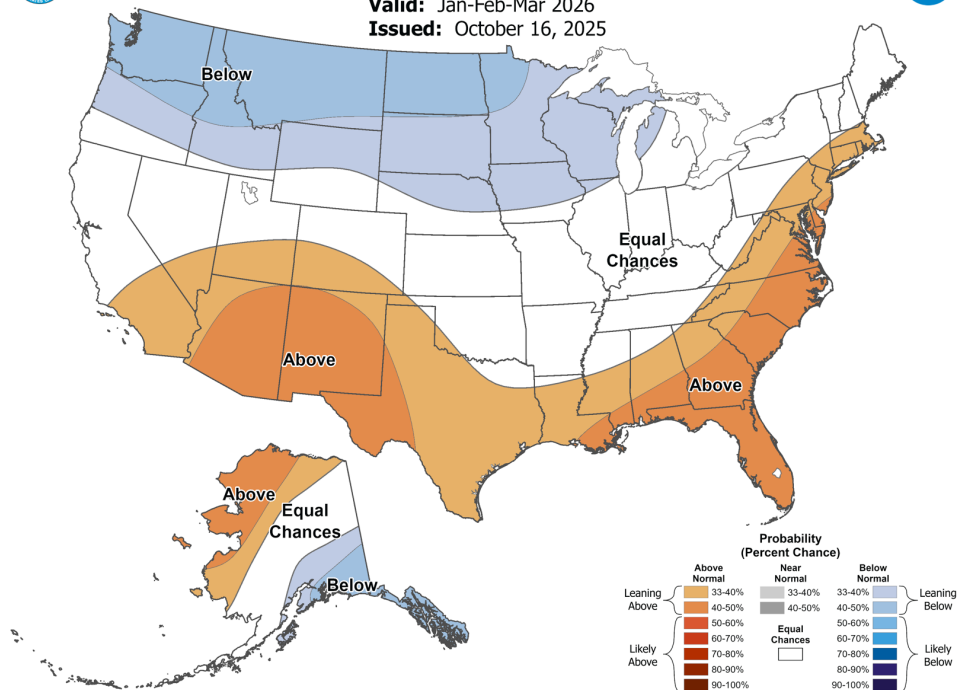
<https://www.cpc.ncep.noaa.gov/products/predictions/814day/>

January-March Outlook



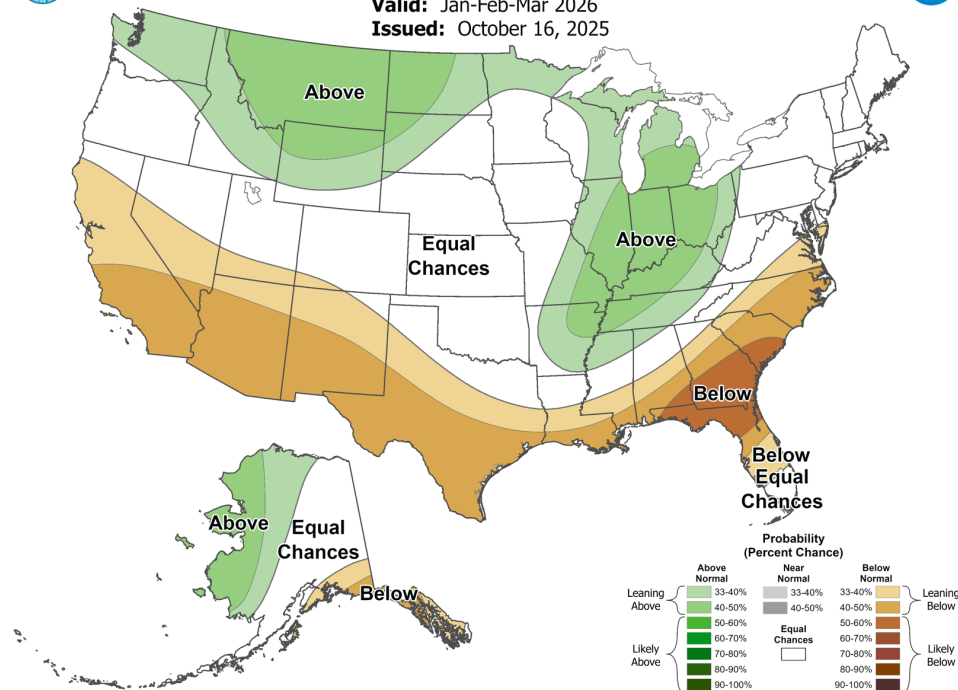
Seasonal Temperature Outlook

Valid: Jan-Feb-Mar 2026
Issued: October 16, 2025



Seasonal Precipitation Outlook

Valid: Jan-Feb-Mar 2026
Issued: October 16, 2025



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<https://www.cpc.ncep.noaa.gov/products/predictions/814day/>

Key Messages

- La Nina is here and likely to continue into winter season
 - Colder to the northwest, wetter to Great Lakes
- Extended frost-free season (again)
- Expanding drought in fall season
- Great Lakes: warm water temperatures could mean increase potential for lake effect snow
- Missouri and Mississippi Rivers both low for this time of year



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Thank You!

- Questions:

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- **Today's and Past Recorded Presentations:**

<https://mrcc.purdue.edu/multimedia/webinars.jsp>

<https://hprcc.unl.edu/webinars.php>



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