

# Current Conditions Across the Upper Midwest and Implications on Inland Waterways

Justin Glisan, Ph.D.

State Climatologist of Iowa

Iowa Department of Agriculture and Land Stewardship

Climatology Bureau



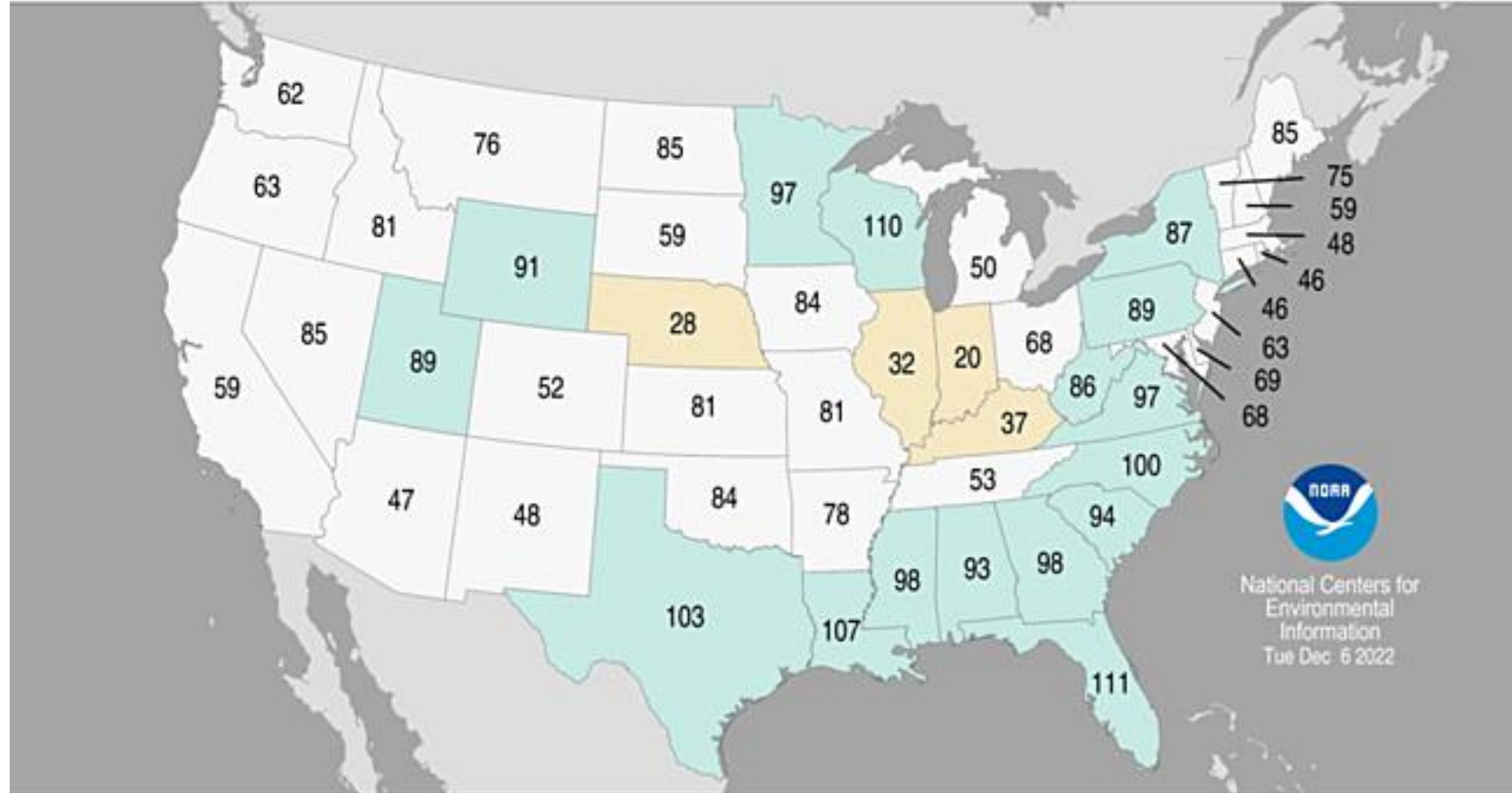
IOWA DEPARTMENT OF  
**AGRICULTURE &  
LAND STEWARDSHIP**

# November Precipitation Ranks

## Statewide Precipitation Ranks

November 2022

Period: 1895–2022



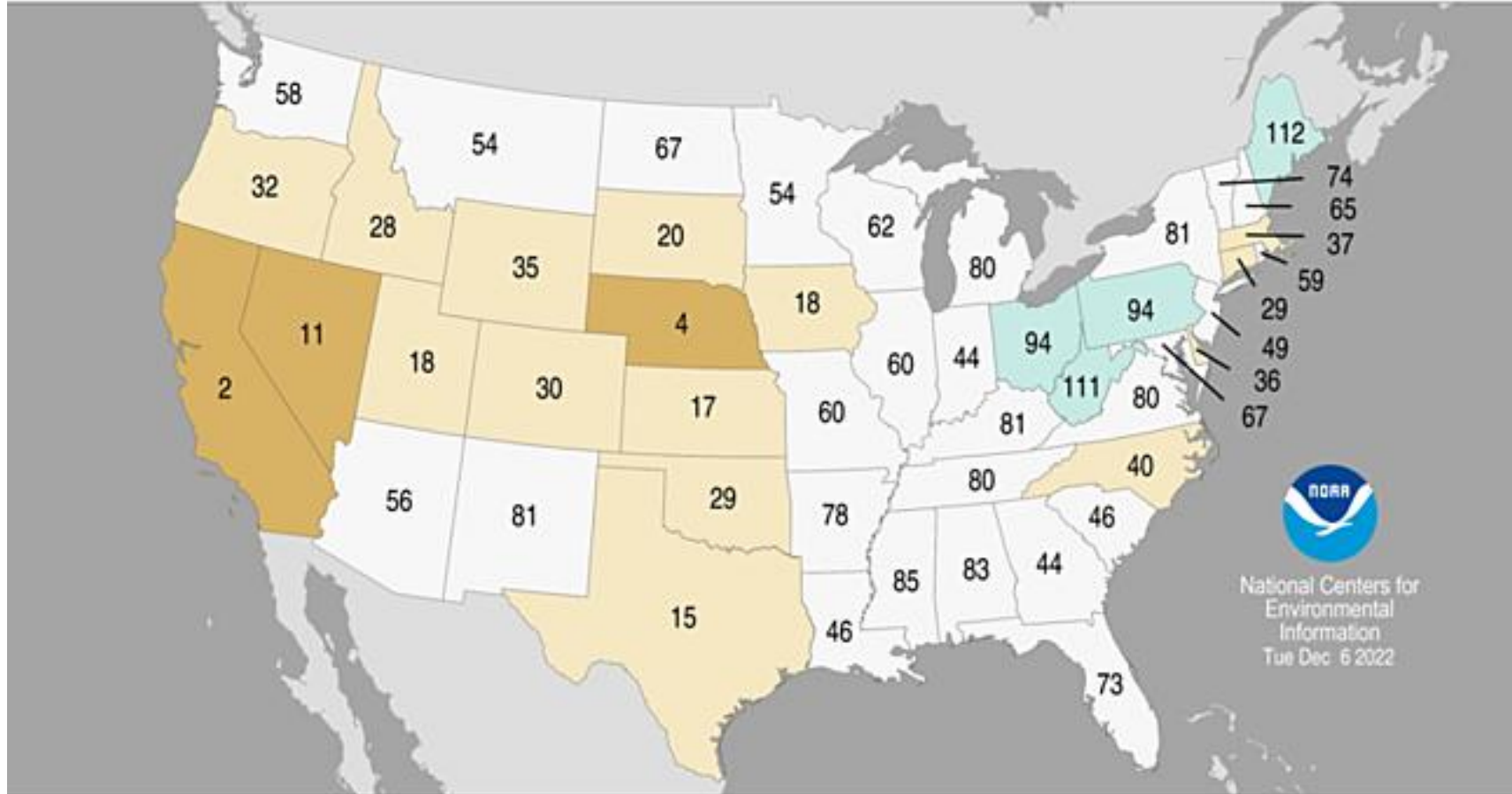
<http://www.ncdc.noaa.gov/temp-and-precip/us-maps/>

# Year-To-Date Precipitation Ranks

## Statewide Precipitation Ranks

January – November 2022

Period: 1895–2022



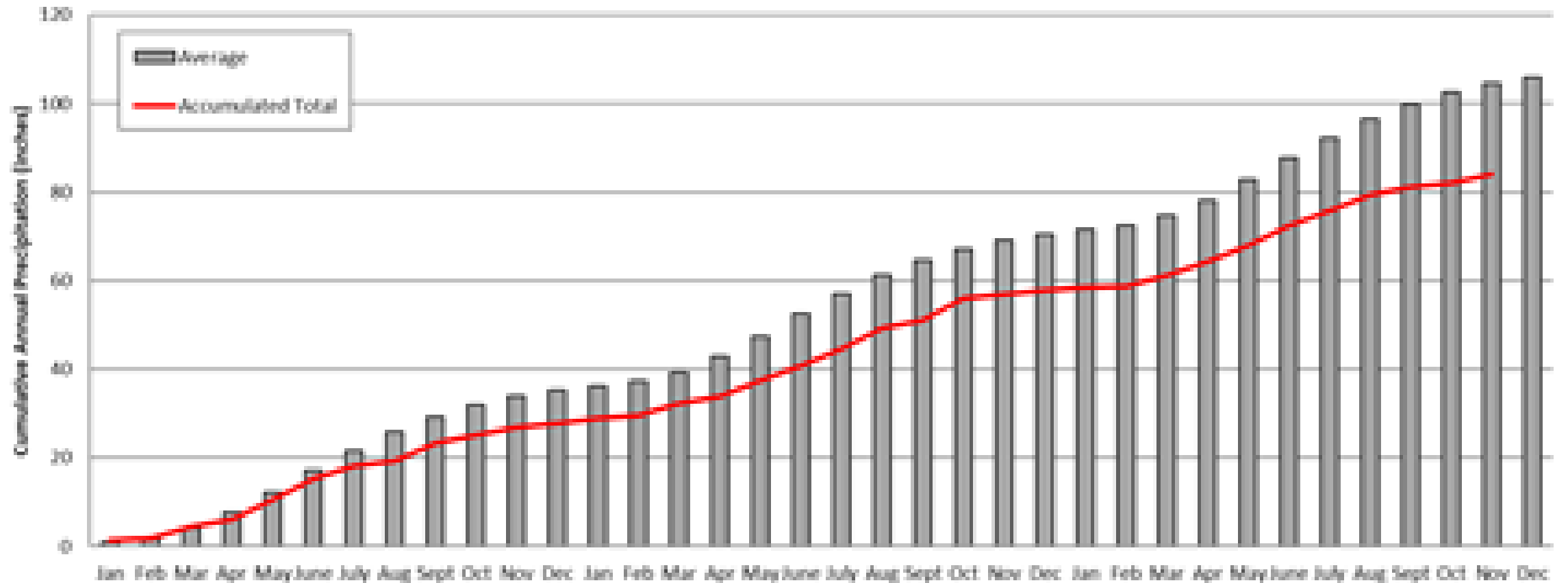
  
National Centers for  
Environmental  
Information  
Tue Dec 6 2022

<http://www.ncdc.noaa.gov/temp-and-precip/us-maps/>

## 2020, 2021, and 2022 Water Year Accumulated Precipitation

40

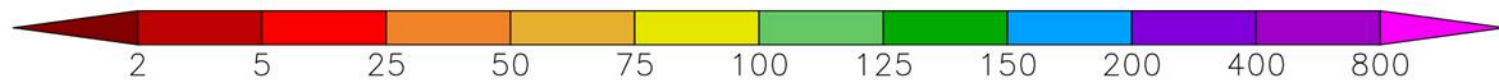
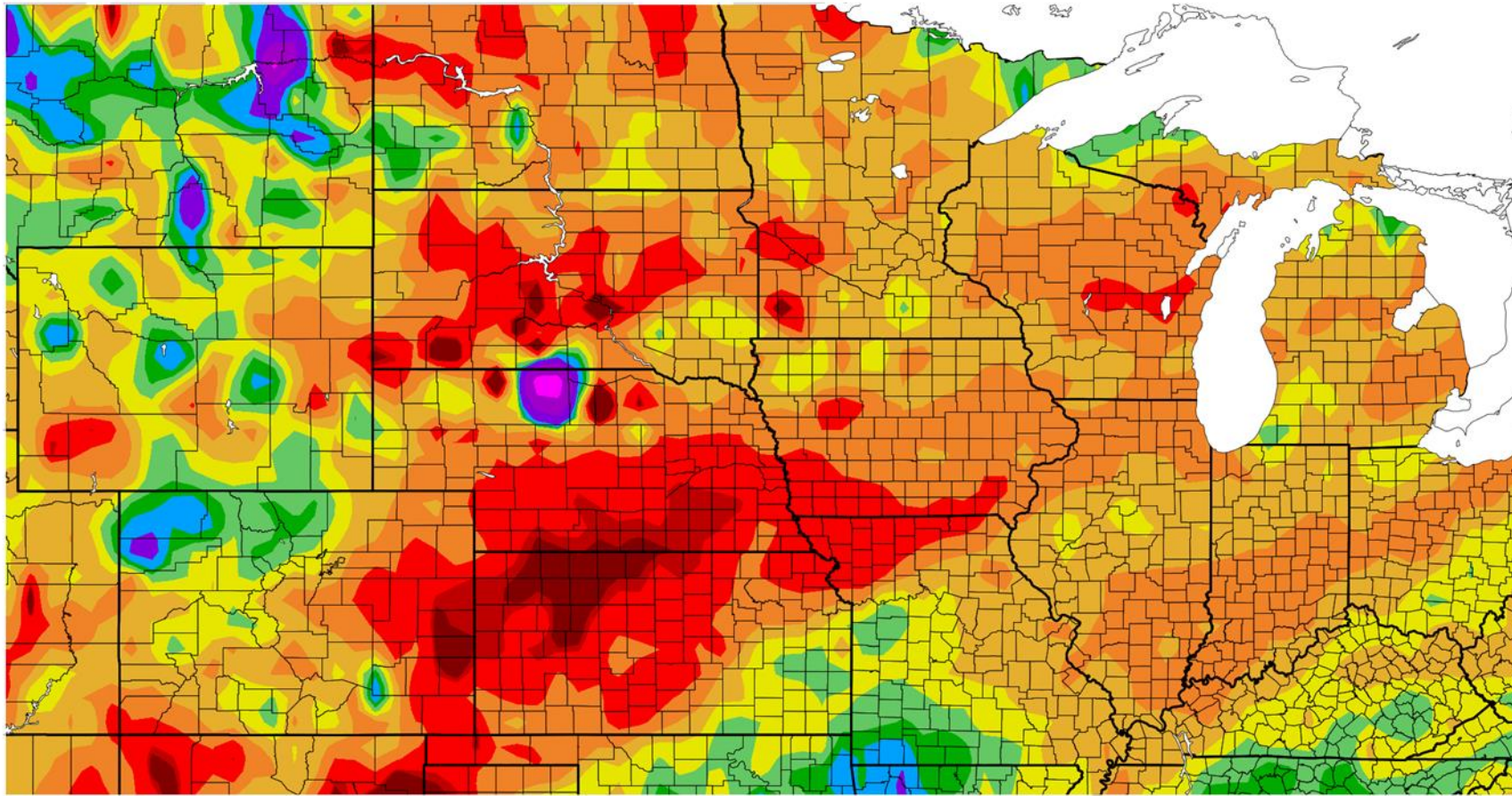
### January 2020 to Present Iowa Statewide Cumulative Precipitation





# Percent of Normal Precipitation (%)

## 11/13/2022 – 12/12/2022

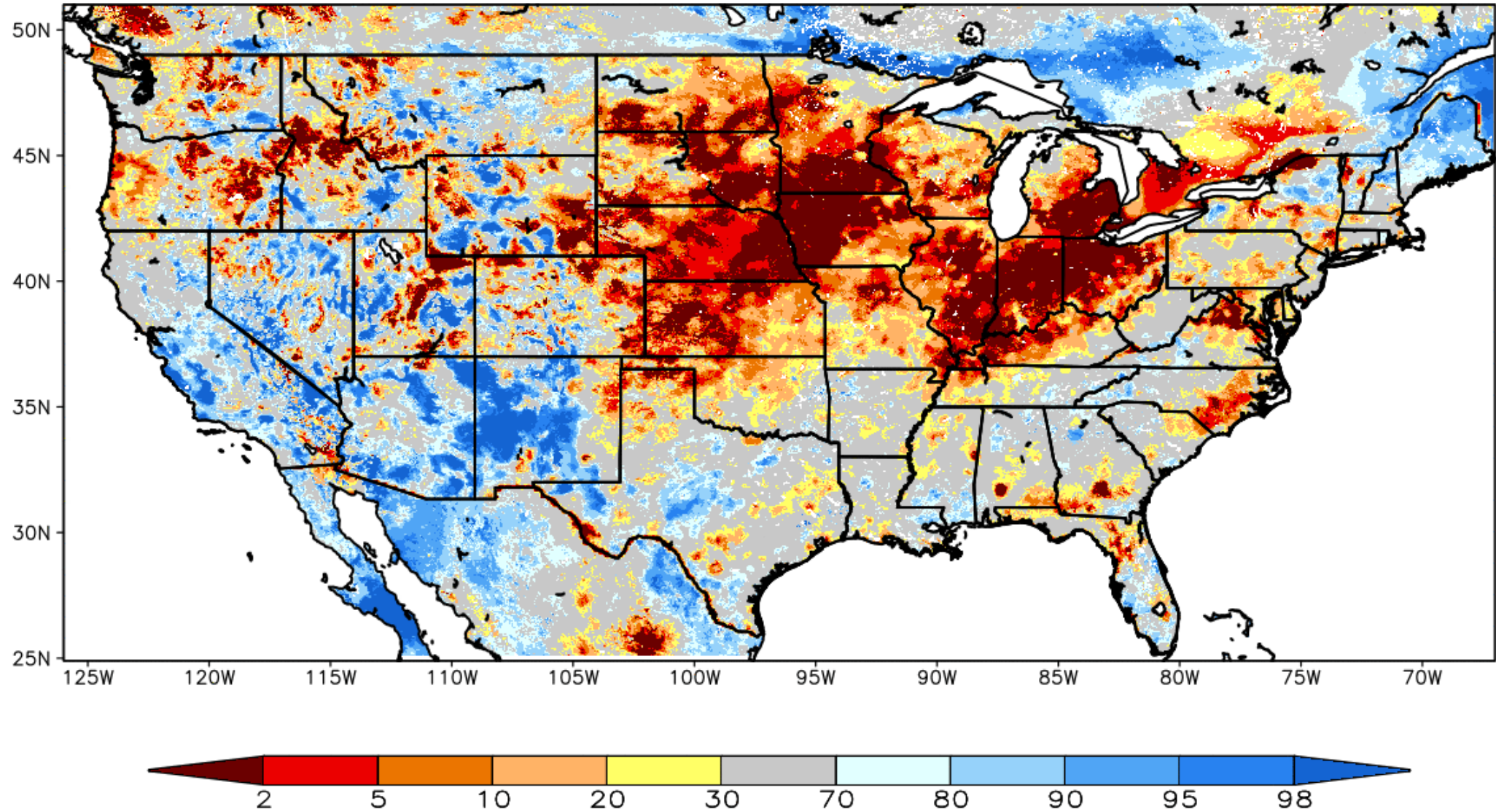


Generated 12/13/2022 at HPRCC using provisional data.

NOAA Regional Climate Centers



SPoRT-LIS 0-200 cm Soil Moisture percentile valid 13 Dec 2022

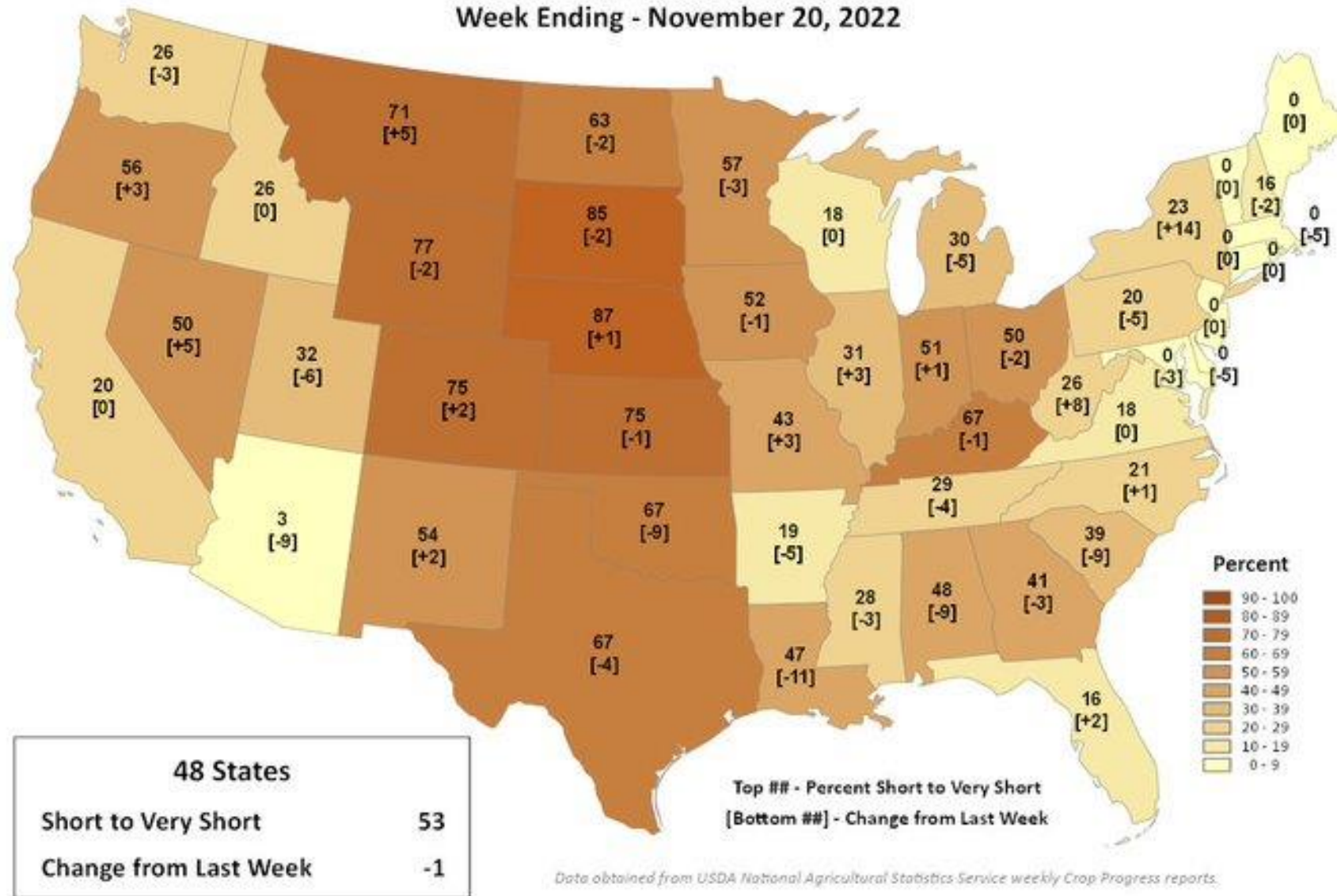


**\*\*NOTE\*\***  
**\*\*Experimental\*\***

# Topsoil Moisture

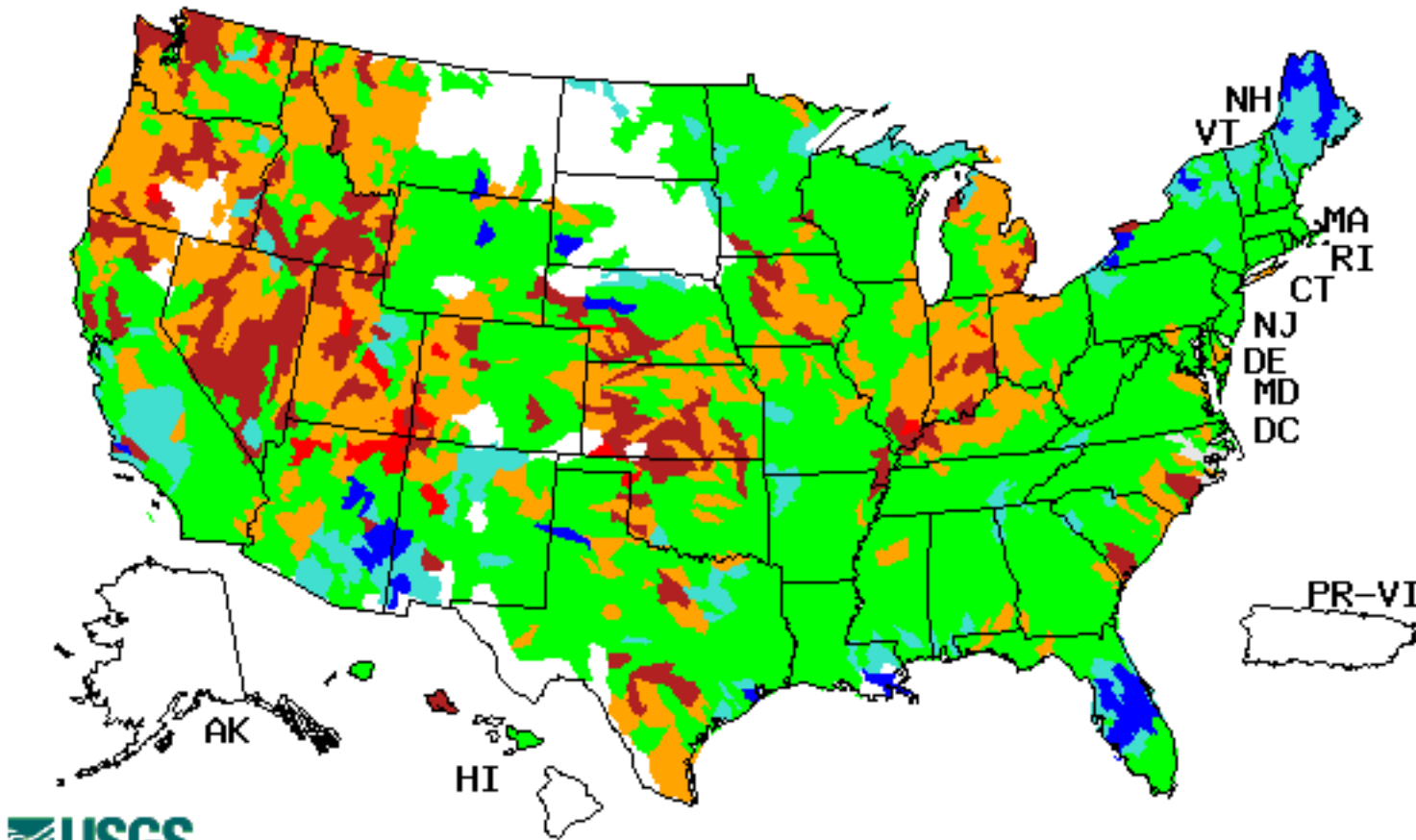
## Percent Short to Very Short

Week Ending - November 20, 2022



# 28-day Average Streamflow

Monday, December 12, 2022



USGS

| Explanation - Percentile classes |                   |              |        |              |                   |      |
|----------------------------------|-------------------|--------------|--------|--------------|-------------------|------|
|                                  |                   |              |        |              |                   |      |
| Low                              | <10               | 10-24        | 25-75  | 76-90        | >90               | High |
|                                  | Much below normal | Below normal | Normal | Above normal | Much above normal |      |

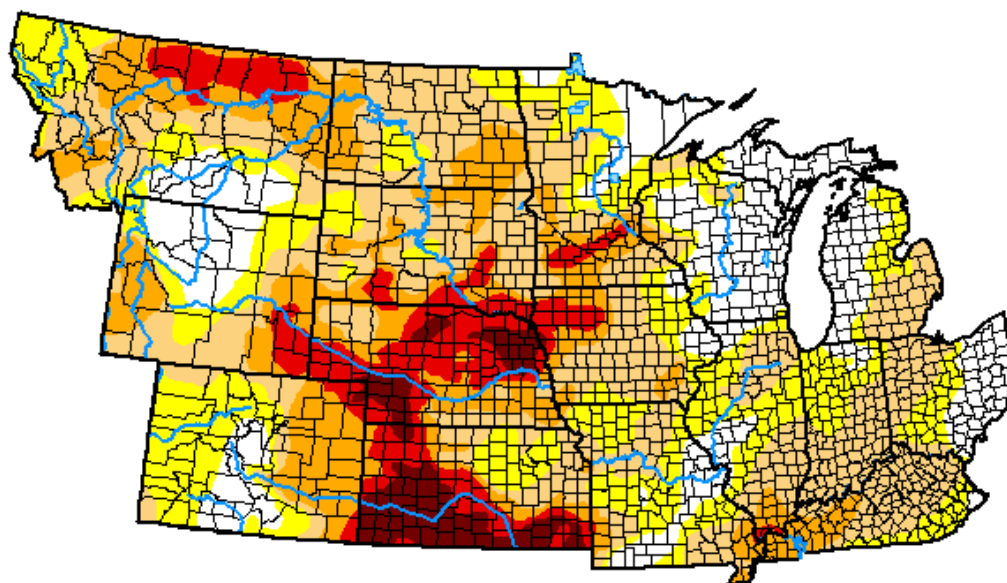
- Although streamflows are below average overall, ice-over is expected on most Upper Plains streams over the next two weeks with the forecasted cold snap.
- Again, don't expect much in way of hydrologic hazards associated with the impending freeze-up.

<http://waterwatch.usgs.gov/index.php?id=pa07d>



# U.S. Drought Monitor NWS Central

**December 6, 2022**  
(Released Thursday, Dec. 8, 2022)  
Valid 7 a.m. EST



*Drought Conditions (Percent Area)*

|                                             | None  | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4   |
|---------------------------------------------|-------|-------|-------|-------|-------|------|
| <b>Current</b>                              | 17.10 | 82.90 | 60.12 | 29.70 | 12.37 | 3.80 |
| <b>Last Week</b><br>11-29-2022              | 16.53 | 83.47 | 60.87 | 29.71 | 12.27 | 3.72 |
| <b>3 Months Ago</b><br>09-06-2022           | 42.42 | 57.58 | 32.56 | 16.75 | 6.15  | 1.51 |
| <b>Start of Calendar Year</b><br>01-04-2022 | 33.94 | 66.06 | 46.53 | 27.27 | 10.67 | 1.77 |
| <b>Start of Water Year</b><br>09-27-2022    | 27.00 | 73.00 | 47.70 | 23.08 | 8.80  | 2.73 |
| <b>One Year Ago</b><br>12-07-2021           | 33.81 | 66.19 | 48.99 | 30.10 | 12.71 | 4.21 |

## 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:

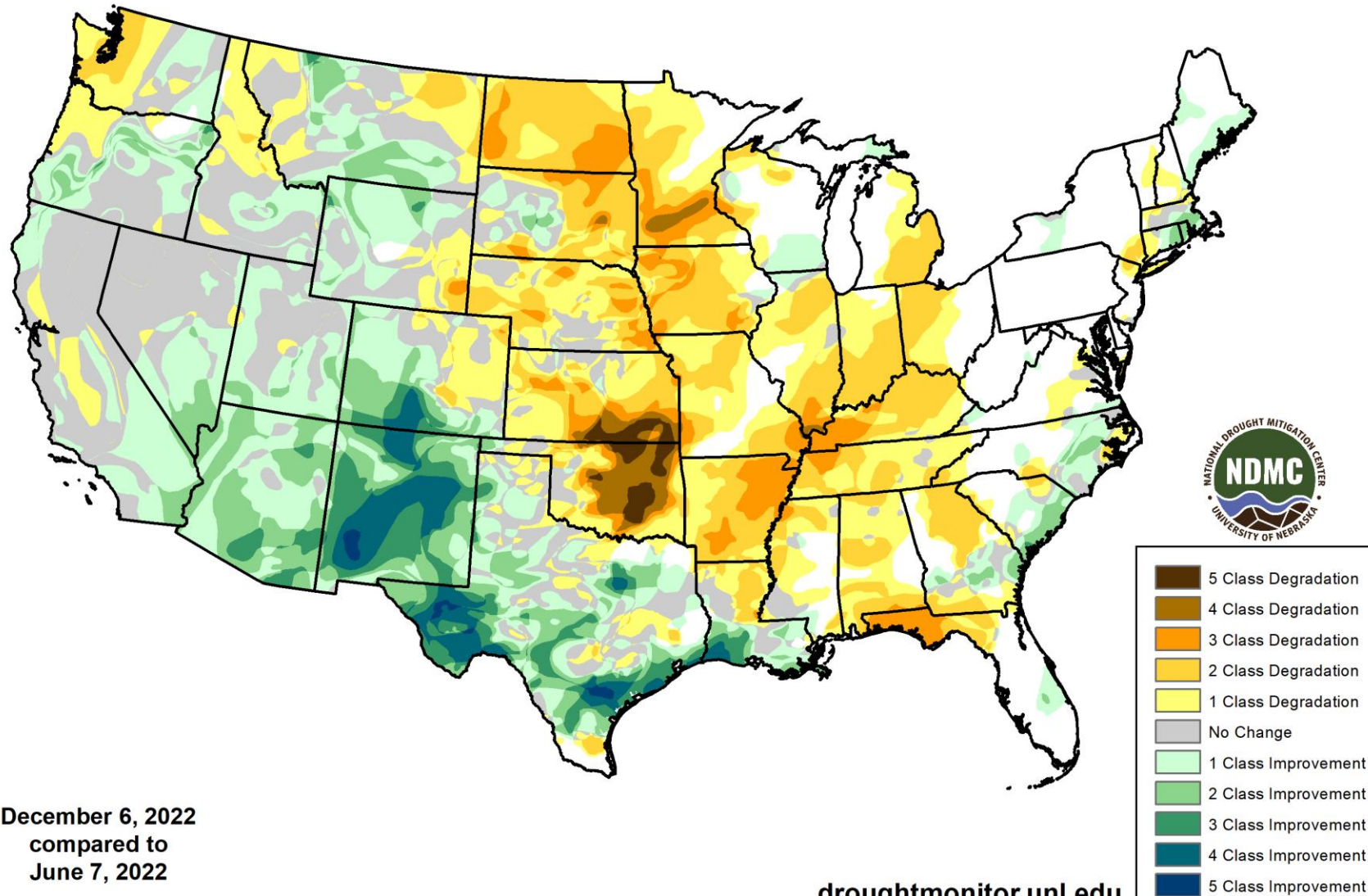
David Simeral  
Western Regional Climate Center



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

# U.S. Drought Monitor Class Change - CONUS

26 Week



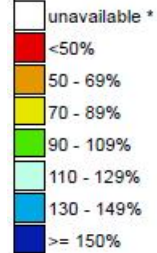
December 6, 2022  
compared to  
June 7, 2022

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

# Westwide SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Dec 13, 2022

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1991-2020 Median



\* Data unavailable at time of posting or measurement is not representative at this time of year

Provisional data subject to revision



0 75 150 300 Miles

The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by:  
USDA/NRCS National Water and Climate Center  
Portland, Oregon  
<https://www.nrcs.usda.gov/wps/portal/wcc/home/>

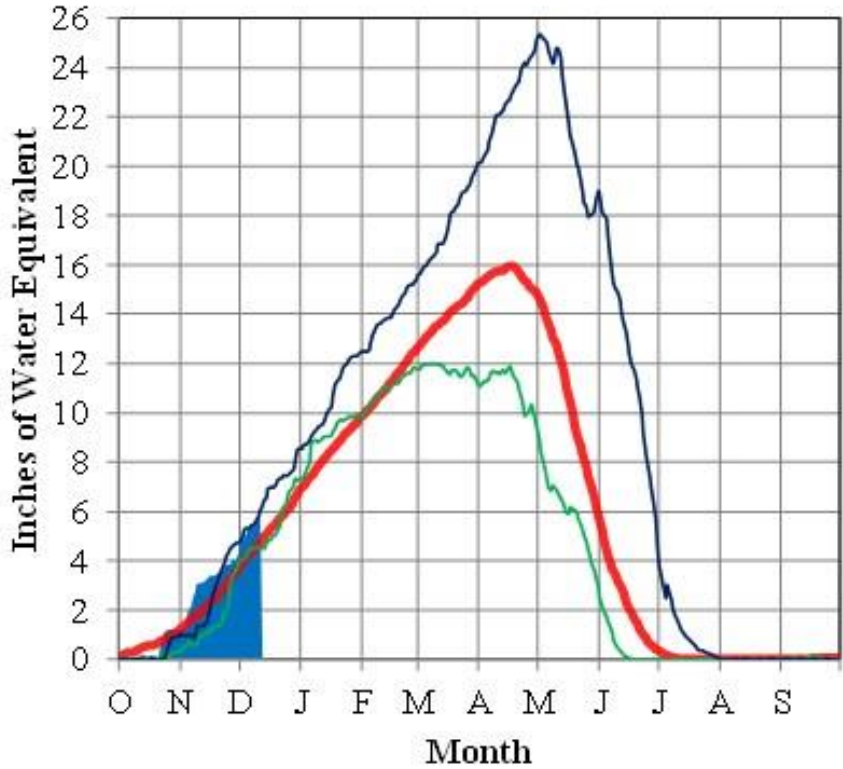


# Missouri River Basin – Mountain Snowpack Water Content

## 2022-2023 with comparison plots from recent high and low years

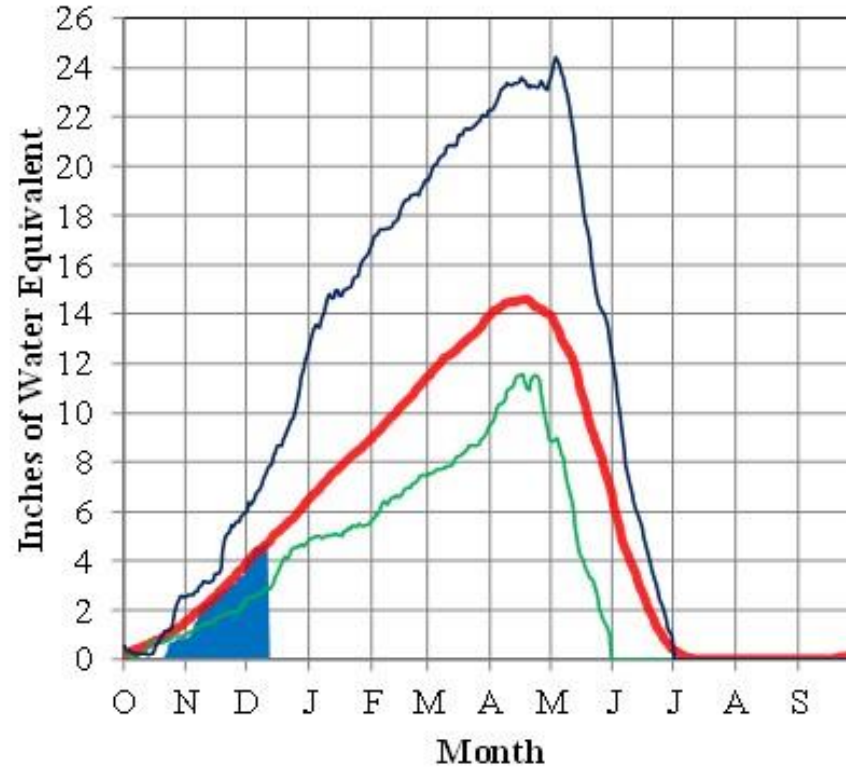
11-Dec-2022

Total above Fort Peck



2022-2023 1991-2020 Ave \*Minimum \*Maximum

Total Fort Peck to Garrison



2022-2023 1991-2020 Ave \*Minimum \*Maximum

- Mountain SWE is at 123% of normal above Fort Peck and near the 1991-2020 average from Fort Peck to Garrison
- Both reaches normally reach peak on April 17.

On December 11, 2022 the mountain Snow Water Equivalent (SWE) in the "Total above Fort Peck" reach is 5.8" and 123% of the (1991-2020) average. The mountain SWE in the "Fort Peck to Garrison" reach is 4.8" and 102% of the (1991-2020) average. The normal peak for both reaches occurs near April 17.

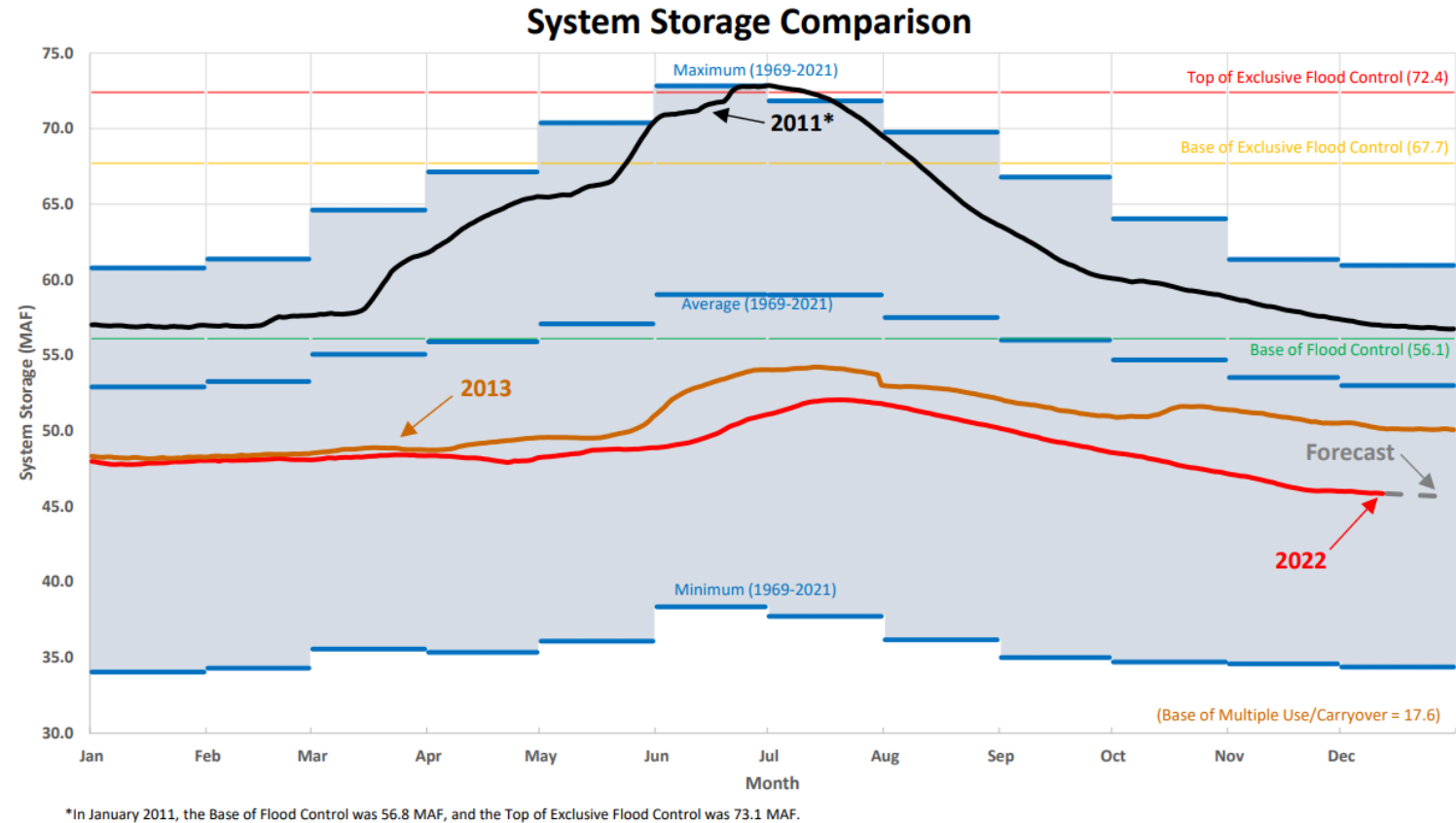
\*Minimum peak SWE between 1991-2020 occurred in 2015 above Fort Peck, and in 2001 between Fort Peck and Garrison.  
Maximum peak SWE between 1991-2020 occurred in 2011 above Fort Peck, and in 1997 between Fort Peck and Garrison.

Provisional data. Subject to revision.

# Missouri River System Storage

## Missouri Mainstem Reservoir Status (as of 12/6/22):

- System storage is 46.0 million-acre feet, below the 2013 minimum[?]
- The Gavins Point release is currently 13,000 cfs and forecasted to reach 12,000 cfs on Dec. 11.



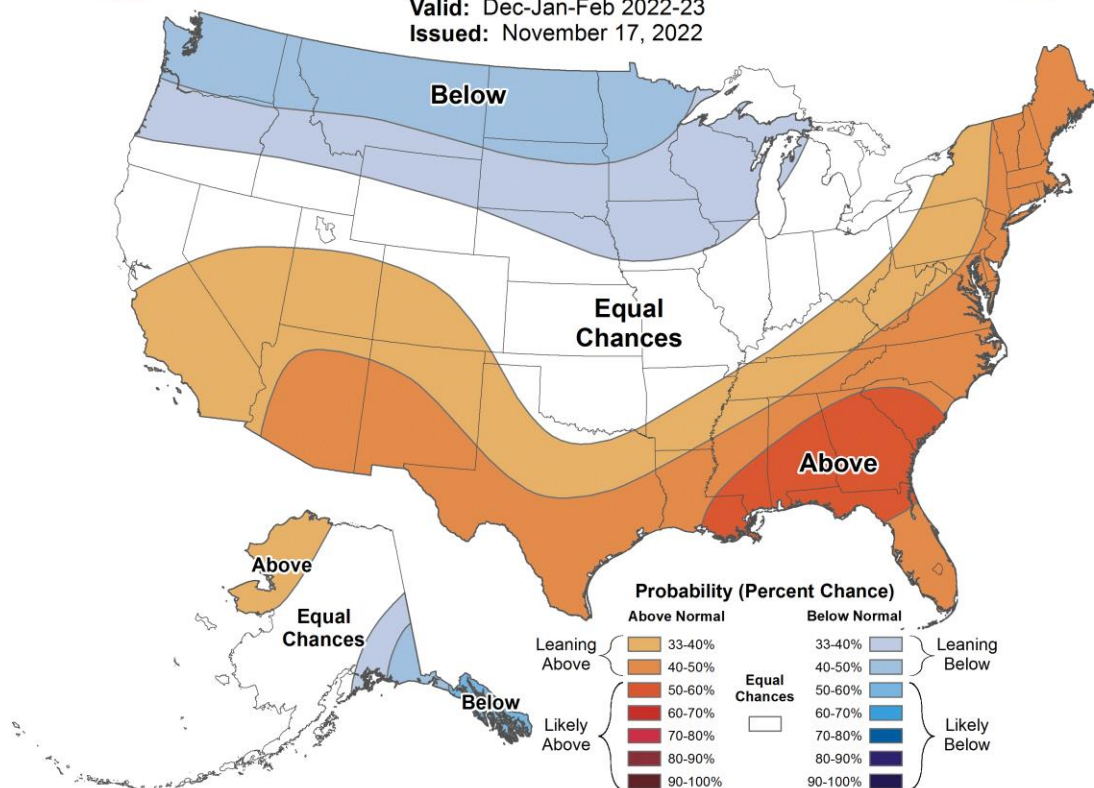
# December-January-February



## Seasonal Temperature Outlook



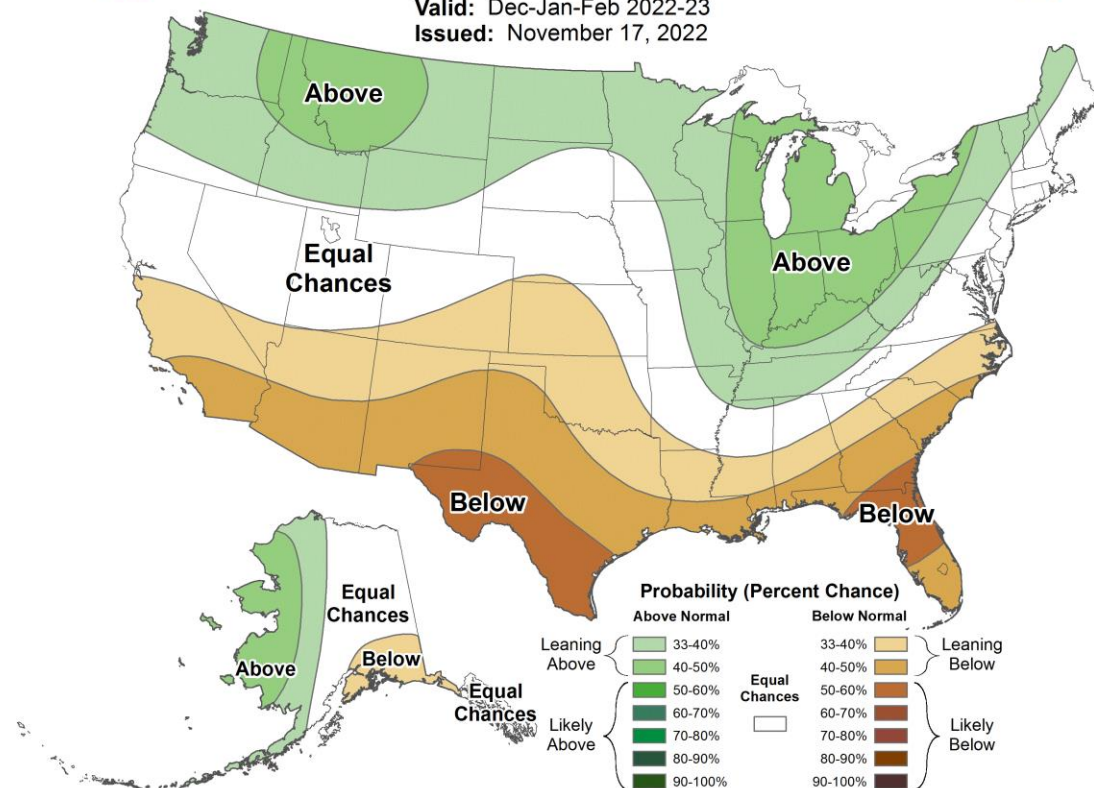
Valid: Dec-Jan-Feb 2022-23  
Issued: November 17, 2022



## Seasonal Precipitation Outlook



Valid: Dec-Jan-Feb 2022-23  
Issued: November 17, 2022



<http://www.cpc.ncep.noaa.gov/>



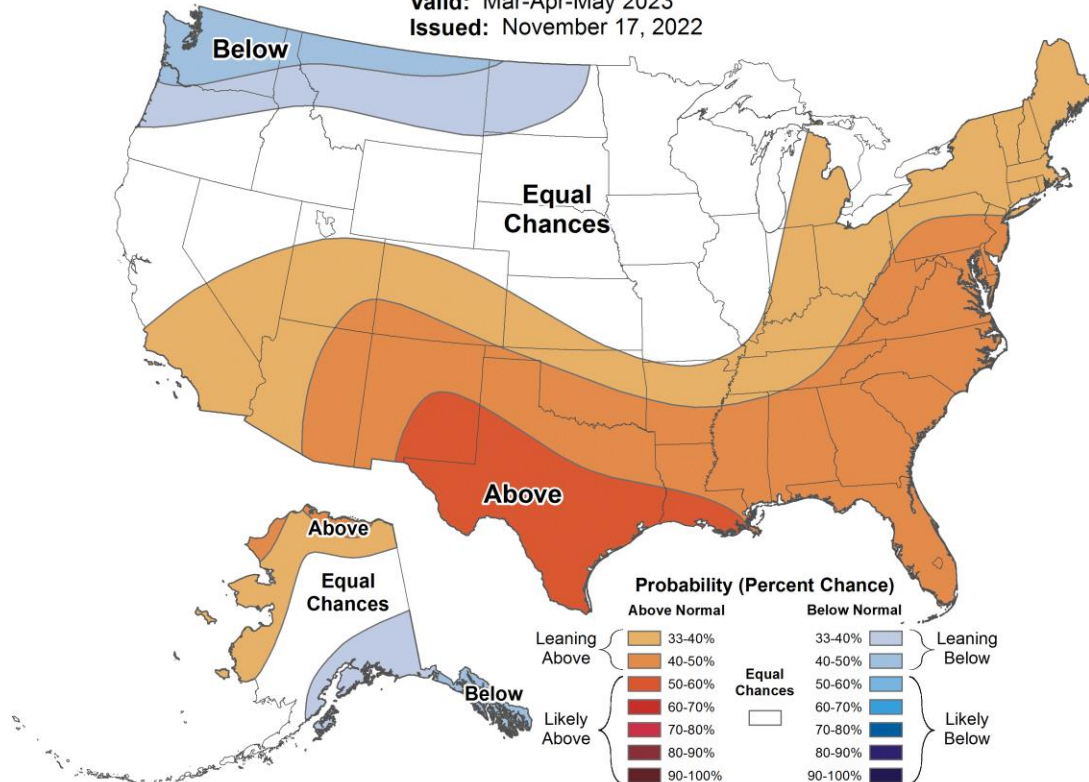
# March-April-May 2023



## Seasonal Temperature Outlook



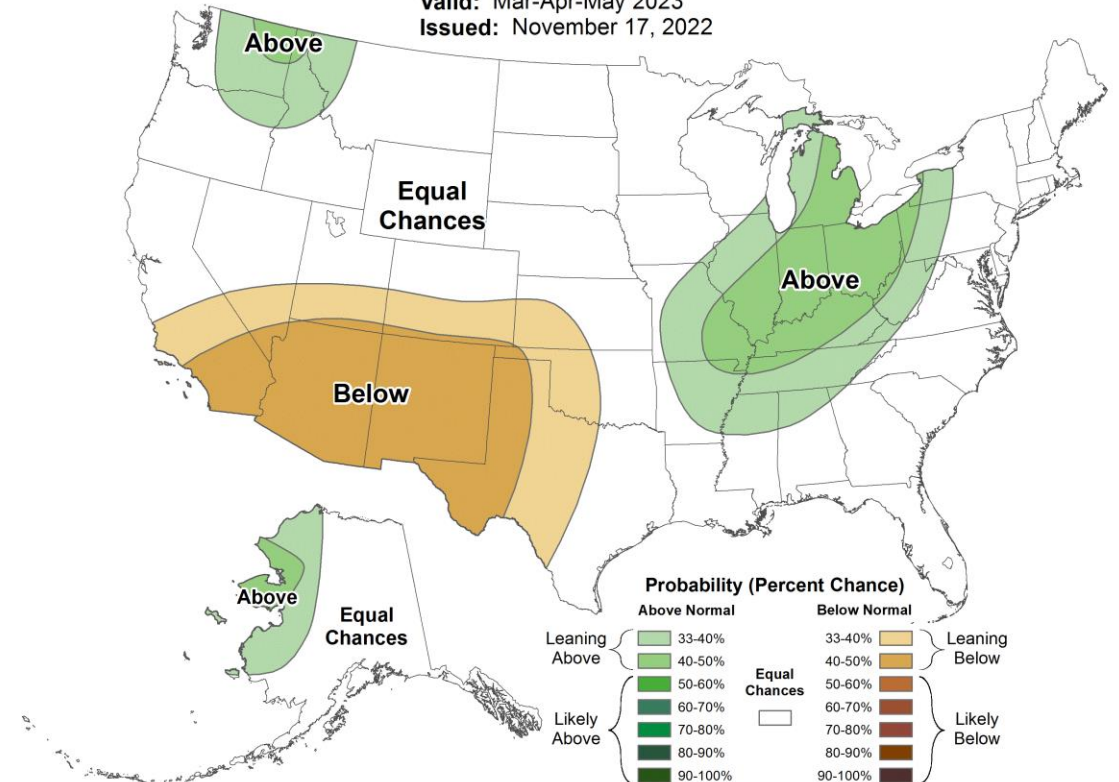
Valid: Mar-Apr-May 2023  
Issued: November 17, 2022



## Seasonal Precipitation Outlook



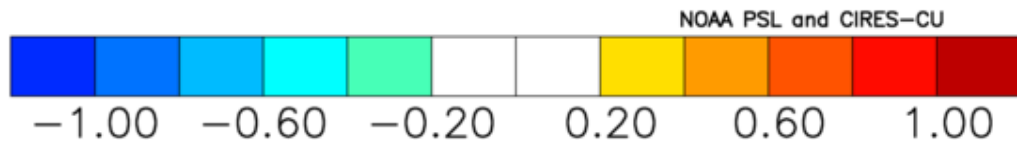
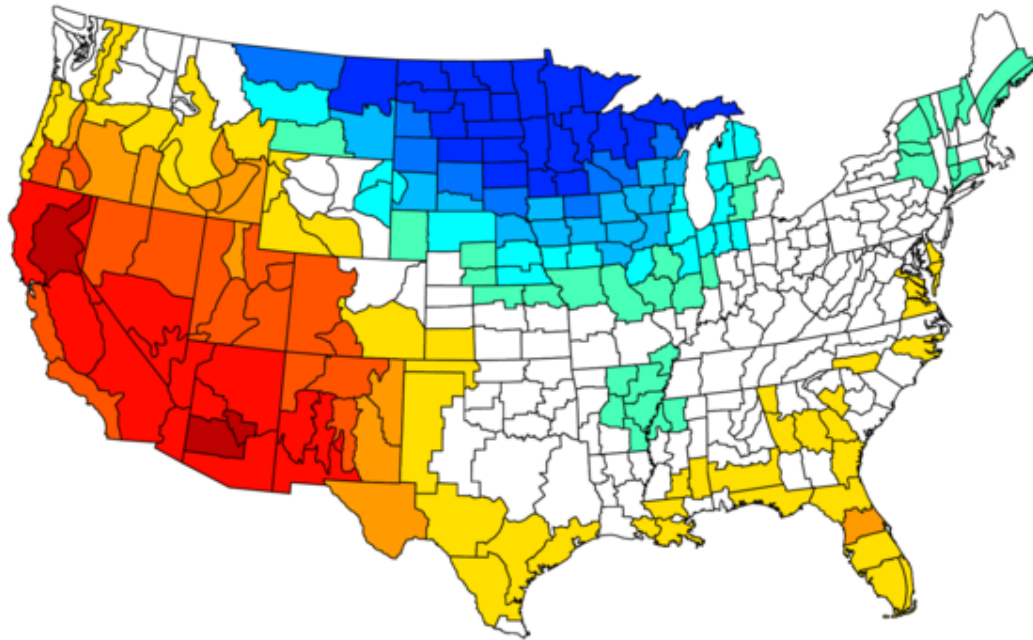
Valid: Mar-Apr-May 2023  
Issued: November 17, 2022



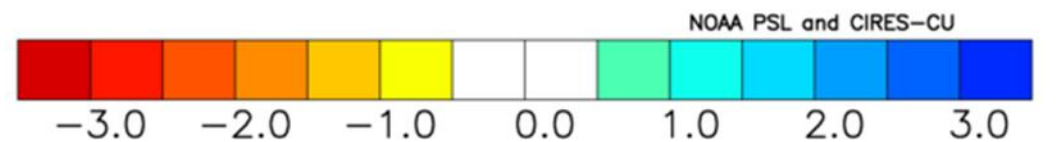
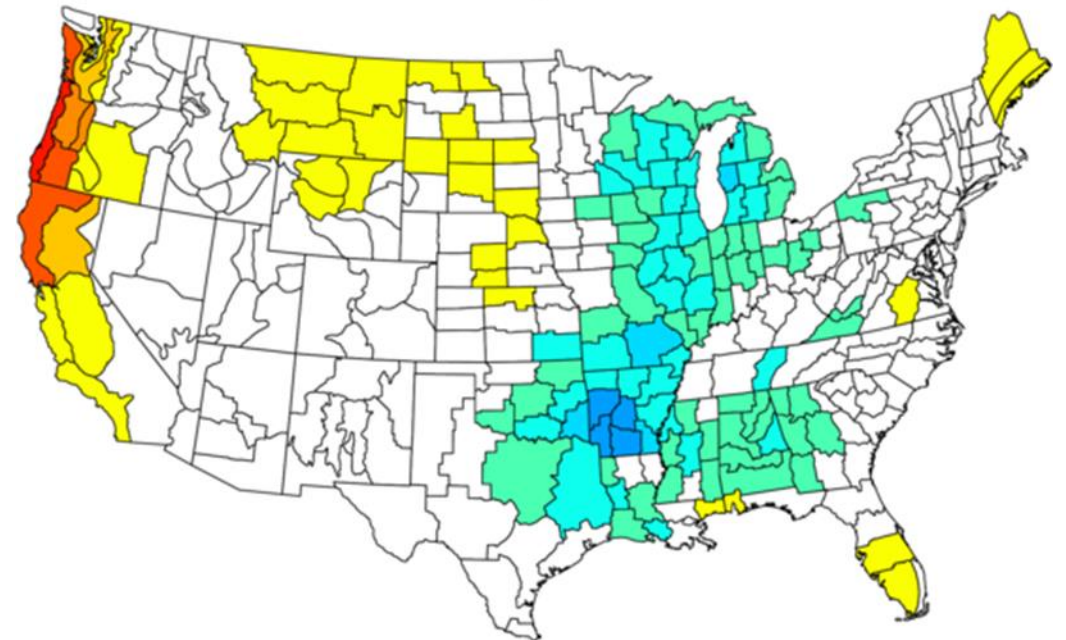
<http://www.cpc.ncep.noaa.gov/>

# ENSO-Neutral Spring Analogs

NOAA/NCEI Climate Division Composite Temperature Anomalies (F)  
Versus 1991–2020 Longterm Average  
Mar to May 2001,2002,2004,2006,2009,2013,2014,2015,2017,2018  
2019,2020



NOAA/NCEI Climate Division Composite Precipitation Anomalies (in)  
Versus 1991–2020 Longterm Average  
Mar to May 2001,2002,2004,2006,2009,2013,2014,2015,2017,2018  
2019,2020



# Outlook Summary

- The La Niña signal persist through Winter 2022/2023
  - Widespread precipitation variability of the wintertime LN pattern
  - Dominant behavior in precipitation shifting west into Midwest
  - Strength of LN will be a good indicator of snowpack potential
- Higher chances of a transition to ENSO-neutral into spring
  - This will be a slow transition as the atmosphere respond to oceanic behavior
  - Climatology and recent trends will provide better guidance as opposed to an EN/LN phase.





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# Thank you!

Justin.Glisan@IowaAgriculture.gov

Tel: 515-281-8981

<https://iowaagriculture.gov/climatology-bureau>