

MAC-T Monthly Call

Midwest Agriculture and Climate Team

December 15, 2022

For more information:

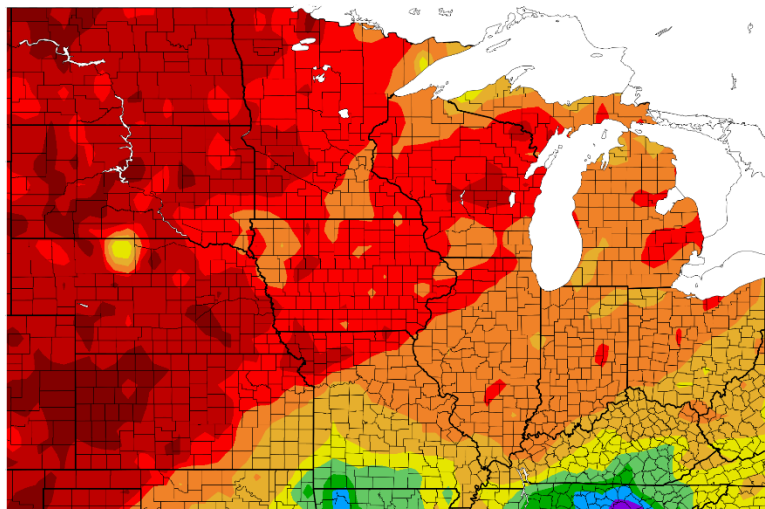
Dennis.todey@usda.gov



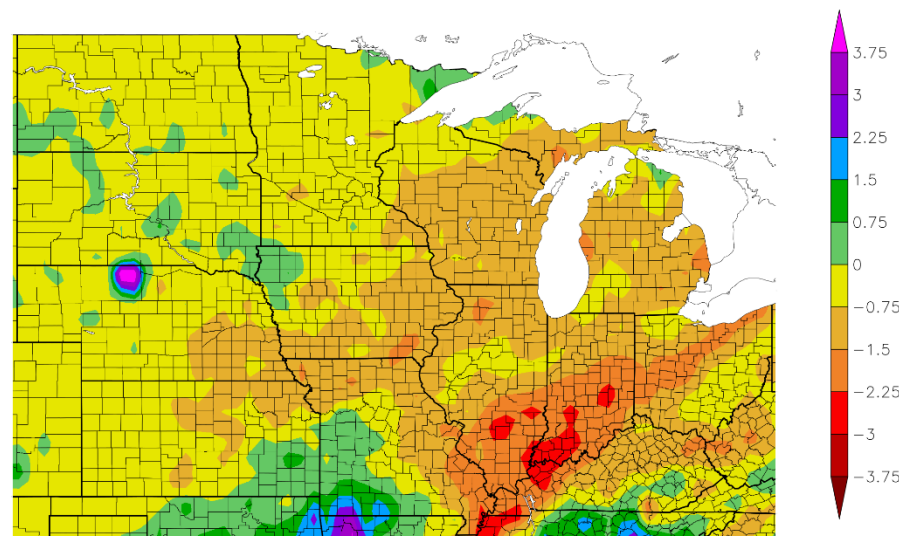
Midwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE



Precipitation (in)
11/14/2022 – 12/13/2022



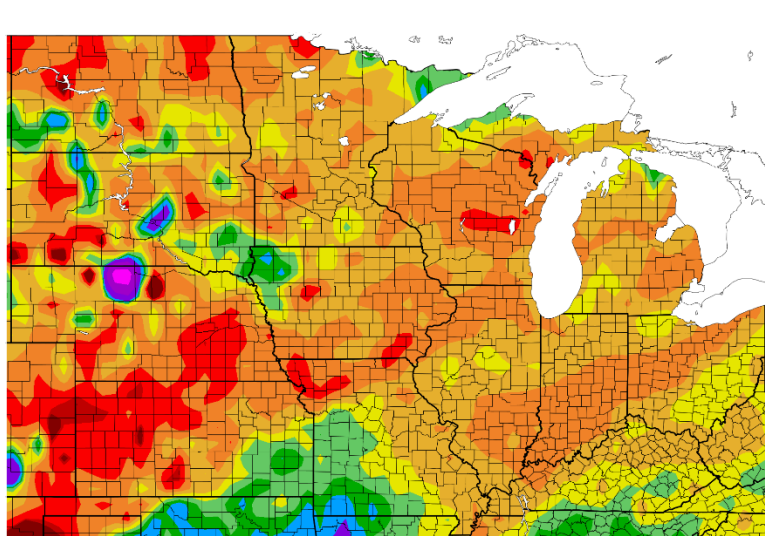
Departure from Normal Precipitation (in)
11/14/2022 – 12/13/2022



Generated 12/14/2022 at HPRCC using provisional data.

NOAA Regional Climate Centers

Percent of Normal Precipitation (%)
11/14/2022 – 12/13/2022



Generated 12/14/2022 at HPRCC using provisional data.

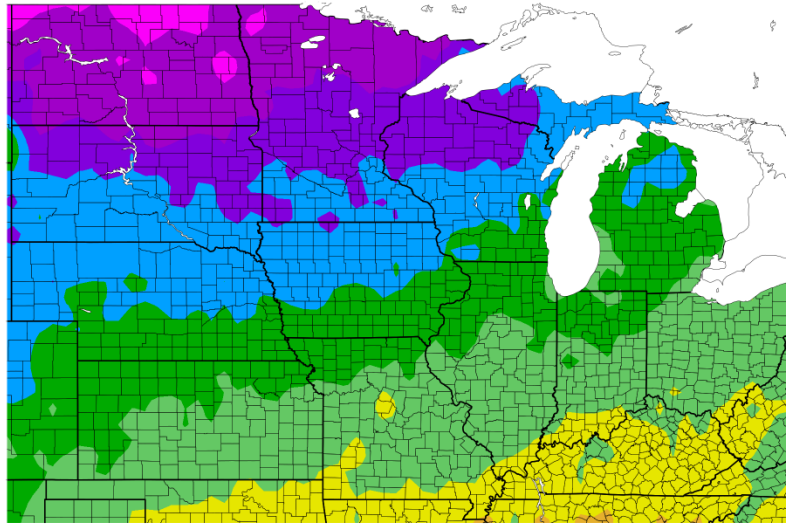
NOAA Regional Climate Centers

Generated 12/14/2022 at HPRCC using provisional data.

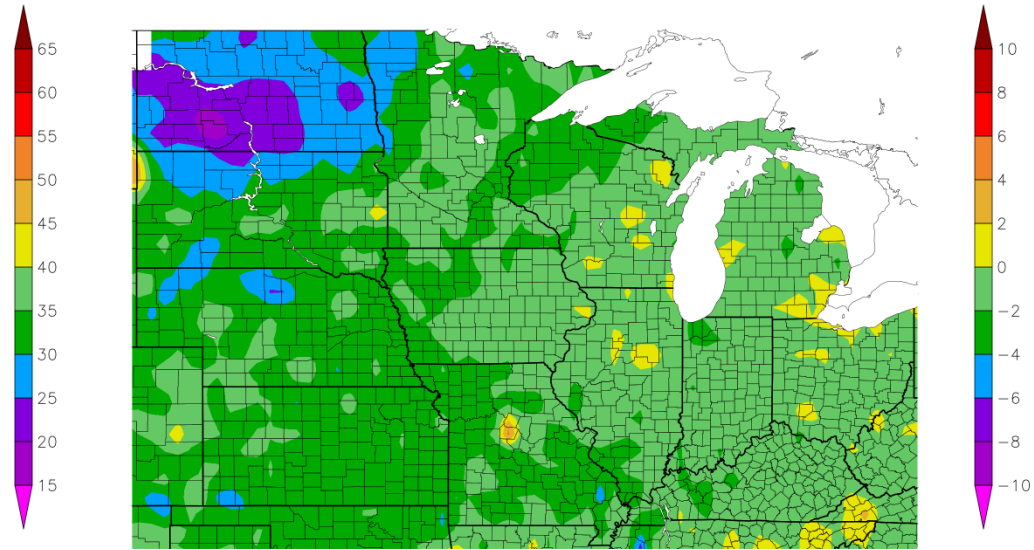
NOAA Regional Climate Centers

- Most of the region had below-average precipitation.
- Widespread less than 1-2"
- Large areas below 50% average
- Northern MN, WI, and Dakotas had some areas of above-normal precip.

Temperature (F)
11/14/2022 – 12/13/2022



Departure from Normal Temperature (F)
11/14/2022 – 12/13/2022



Generated 12/14/2022 at HPRCC using provisional data.

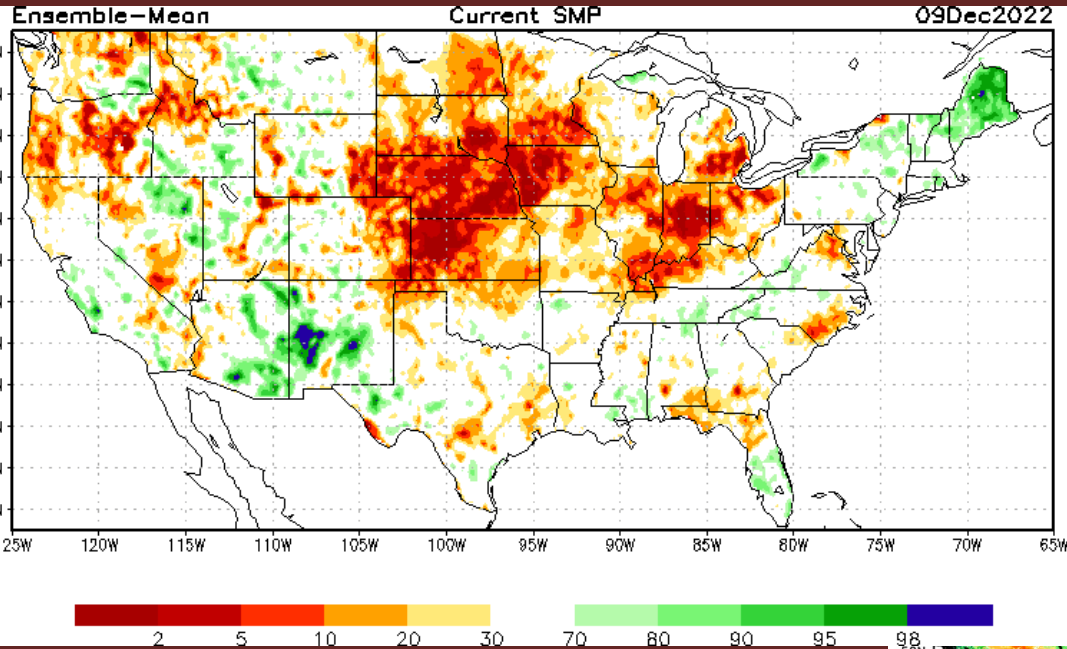
NOAA Regional Climate Centers Generated 12/14/2022 at HPRCC using provisional data.

NOAA Regional Climate Centers

- Average temperature around 40 south to low 20s north
- Most of the region had near-average temperatures, but North Dakota was 4-10 degrees colder than average.

Soil Moisture

https://www.cpc.ncep.noaa.gov/products/Drought/Monitoring/smp_new.shtml#

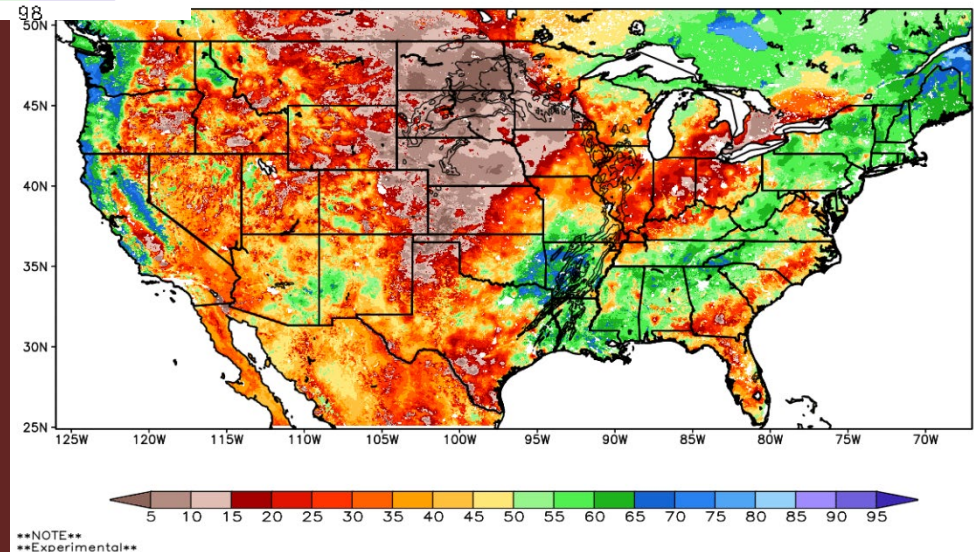


- Very dry soils in Plains, western Iowa, southern MN, and IN.
- Very dry soils at a dry soil time of year.
- Top image does not reflect precip that came through on 12/13-12/15

Both percentile maps

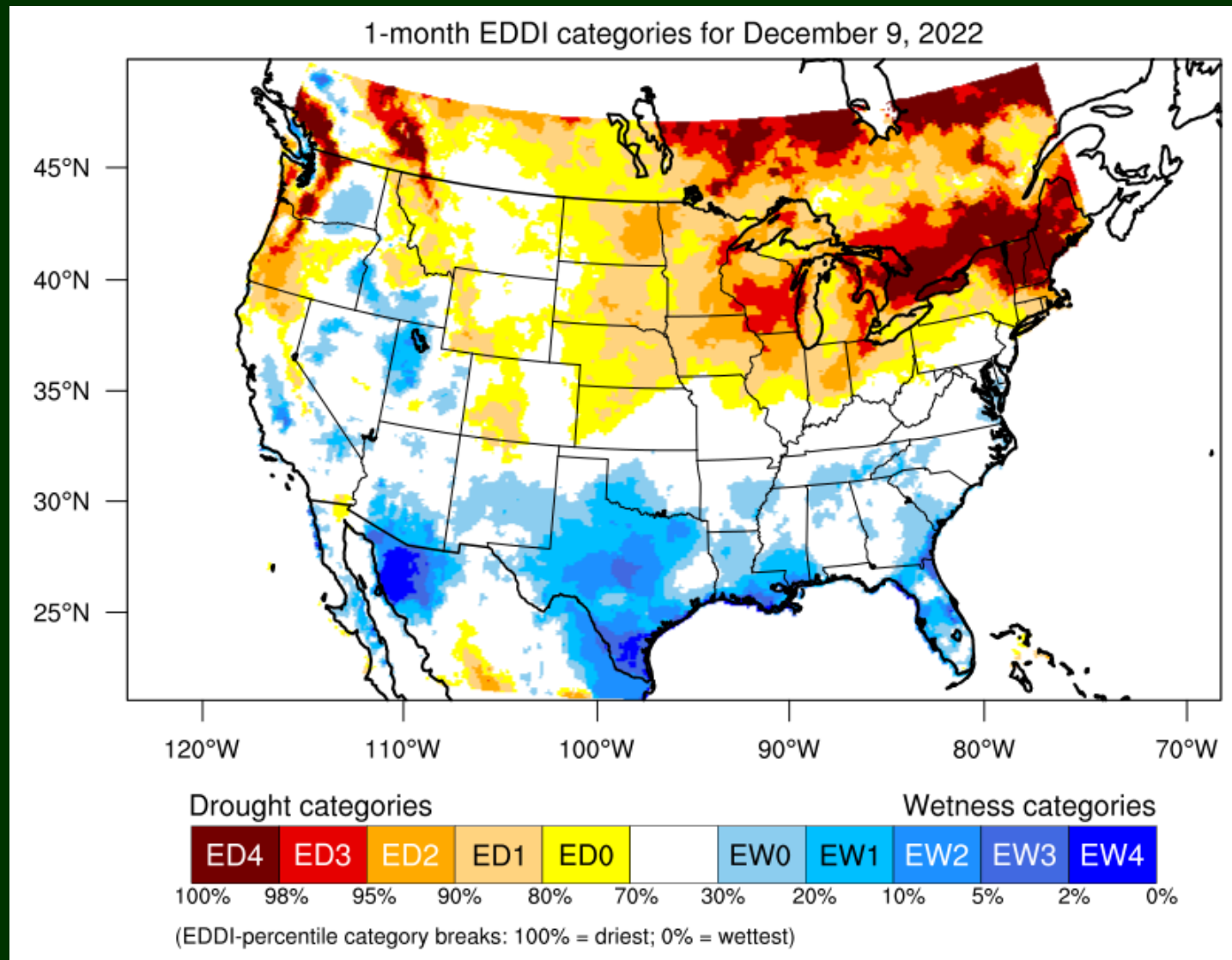
- Upper – whole profile
- Lower – top 100 cm (~40")

Relative Soil Moisture (available water; %) valid 00z 14 Dec 2022
Precipitation in previous hour (1,2,5,10,15,20,25 mm contours)



https://weather.msfc.nasa.gov/sport/case_studies/lis_CONUS.html

ET Estimates-EDDI

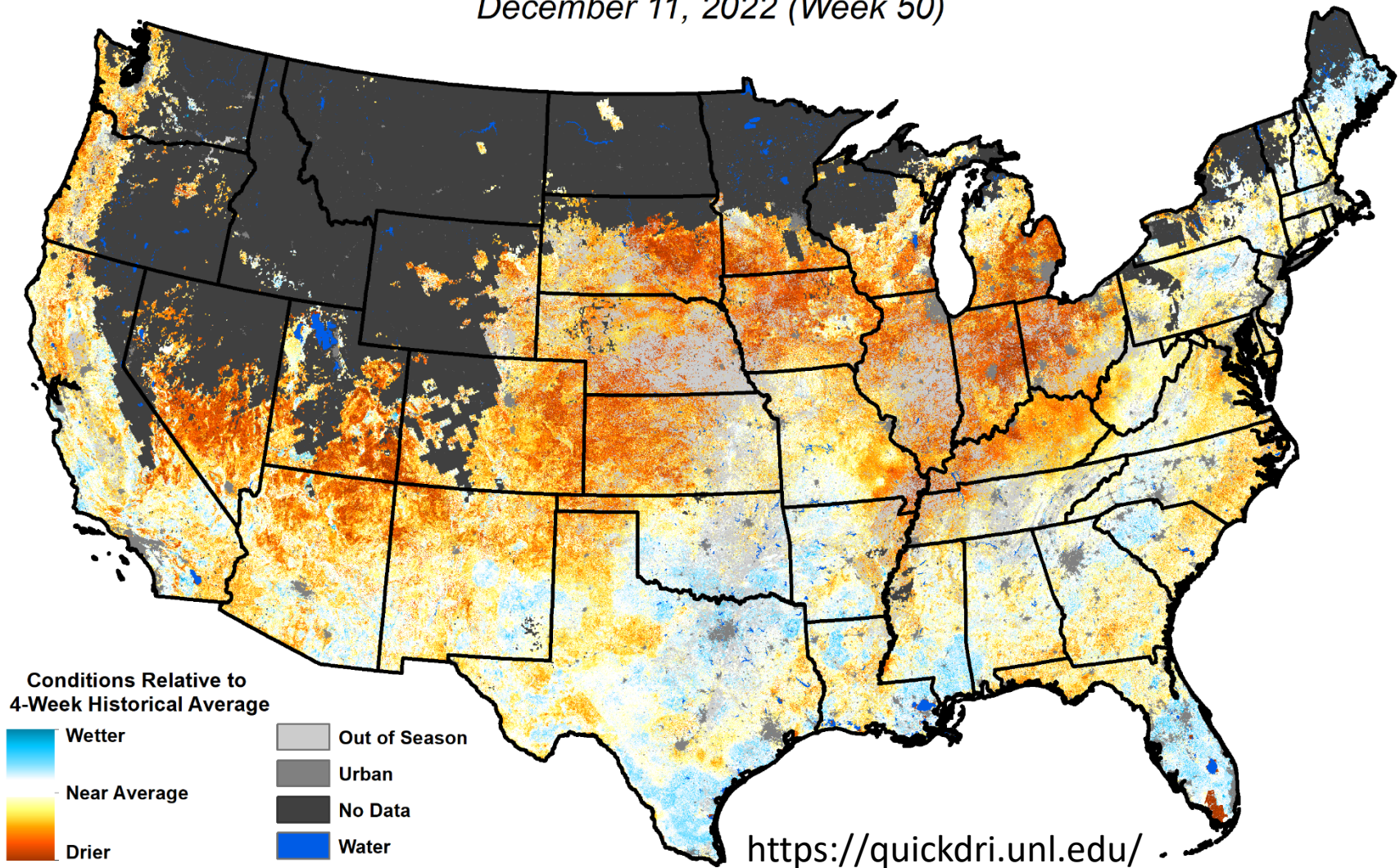


- Higher than average ET rates continue.

https://psl.noaa.gov/eddi/#current_conditions

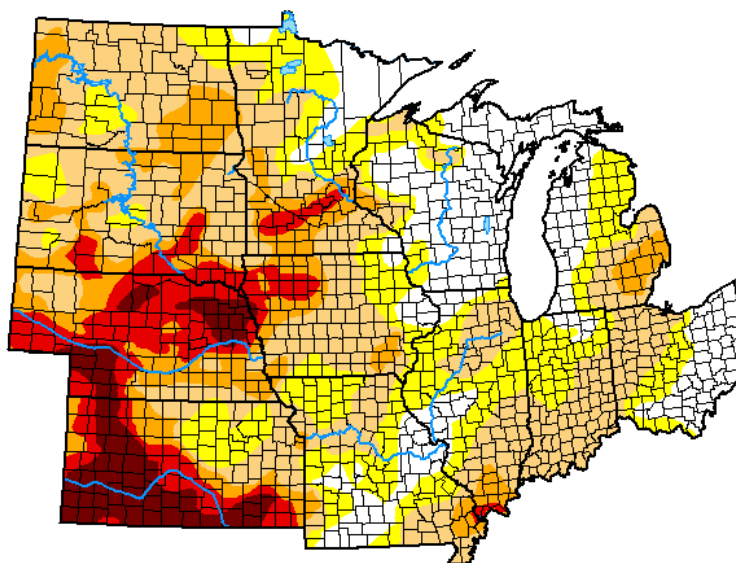
Quick Drought Response Index (QuickDRI)

December 11, 2022 (Week 50)



Drought in the Midwest

U.S. Drought Monitor North Central States



December 13, 2022

(Released Thursday, Dec. 15, 2022)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	18.10	81.90	60.77	28.72	14.68	5.75
Last Week 12-06-2022	17.89	82.11	61.29	28.22	14.91	5.65
3 Months Ago 09-13-2022	42.51	57.49	28.13	17.39	8.34	2.36
Start of Calendar Year 01-04-2022	44.51	55.49	27.55	7.10	1.31	0.00
Start of Water Year 09-27-2022	32.06	67.94	43.99	21.51	9.92	4.04
One Year Ago 12-14-2021	44.02	55.98	26.74	9.67	1.32	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:

Curtis Riganti
National Drought Mitigation Center



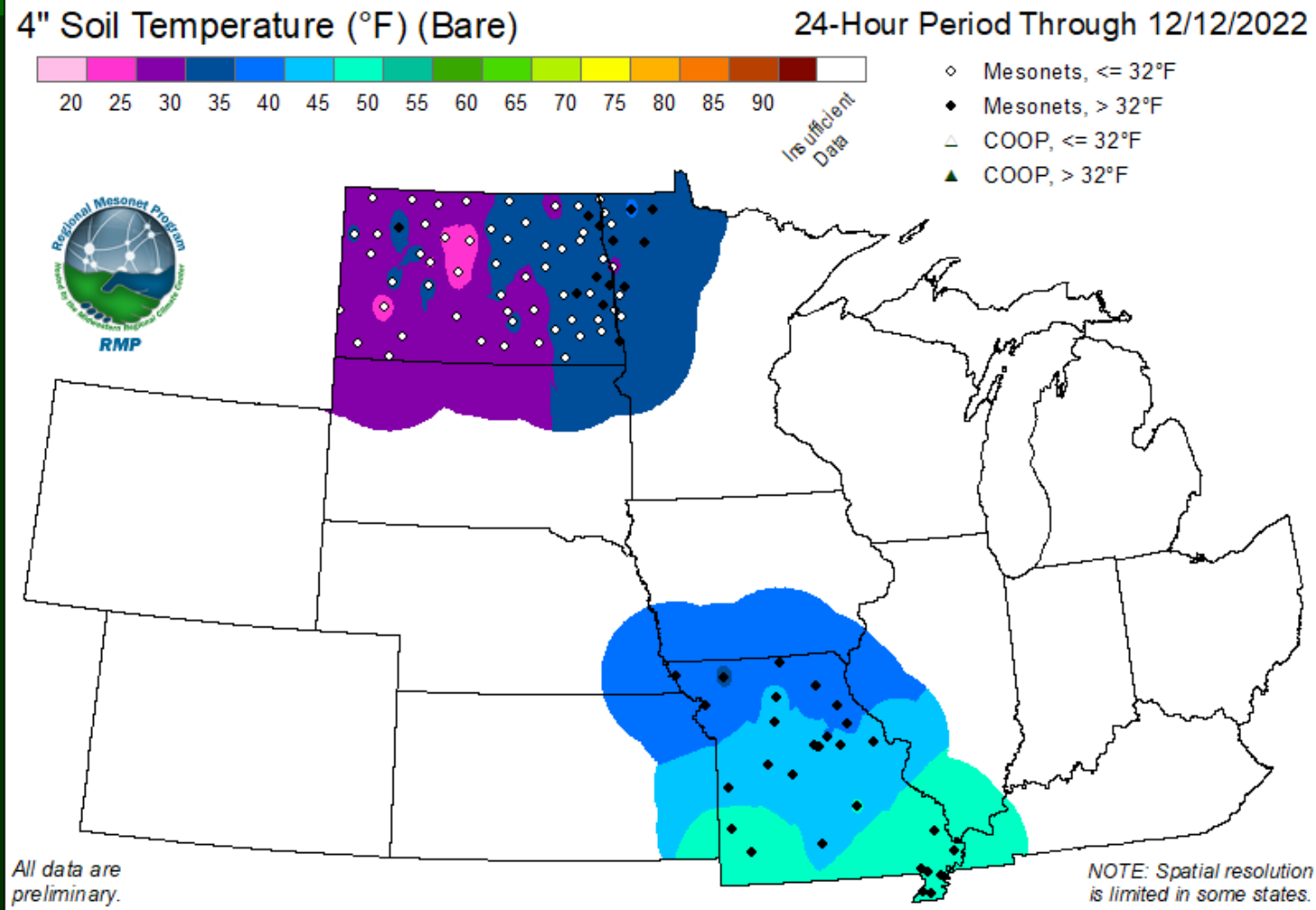
droughtmonitor.unl.edu

- Over 80% coverage with D0 or more. 61% in drought (D1+).
- Worst over Plains with large areas of D3-D4
- Some D3 into MN and IA, also.

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

Soil Temperatures

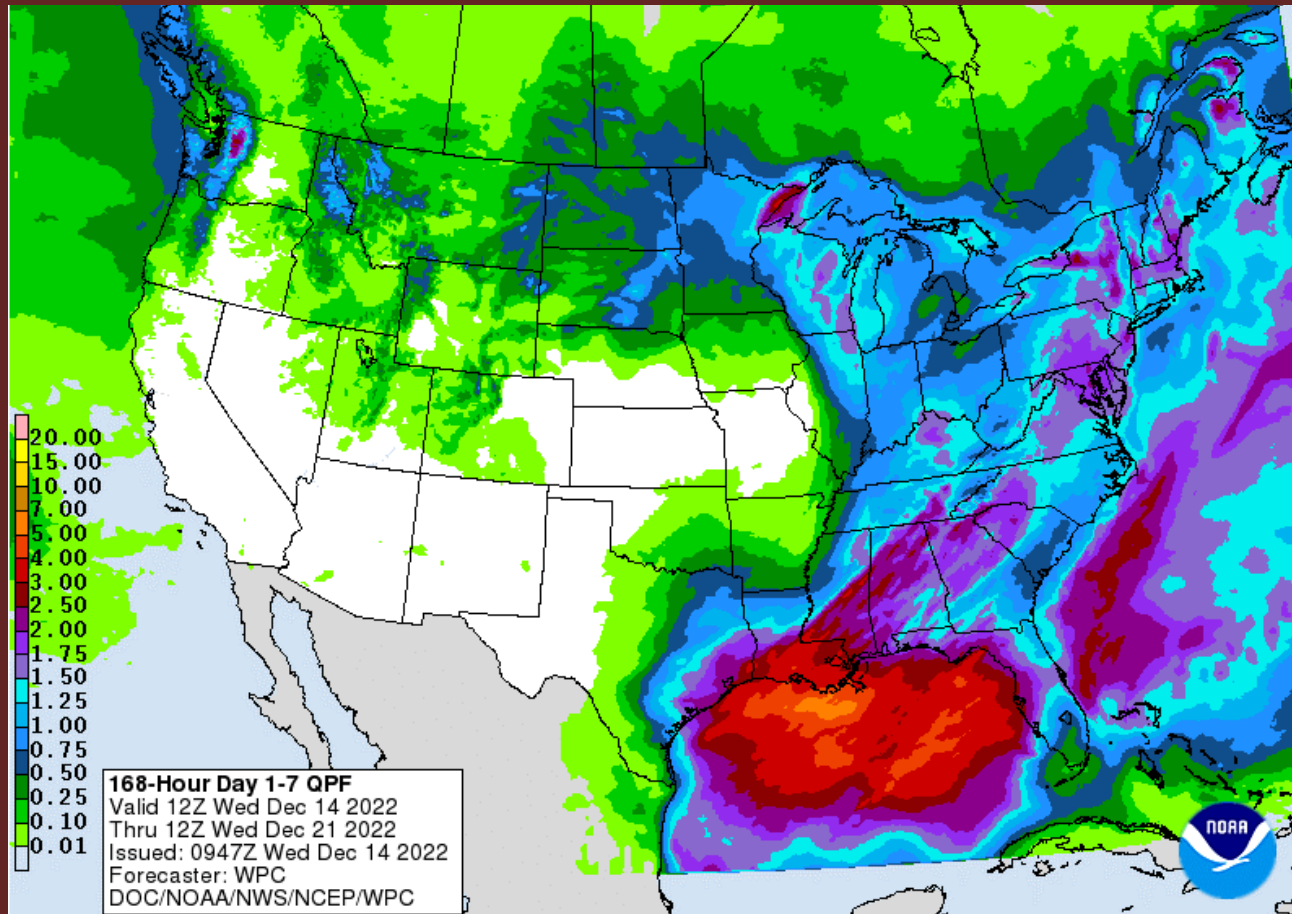
Much of region
still around 40-
50F.



Assorted AG Issues

- Very dry soils nearly whole region. Poor winter wheat establishment.
- Concerned about cover crop establishment (no data/comments on this at this time).

1-7 Day Precip

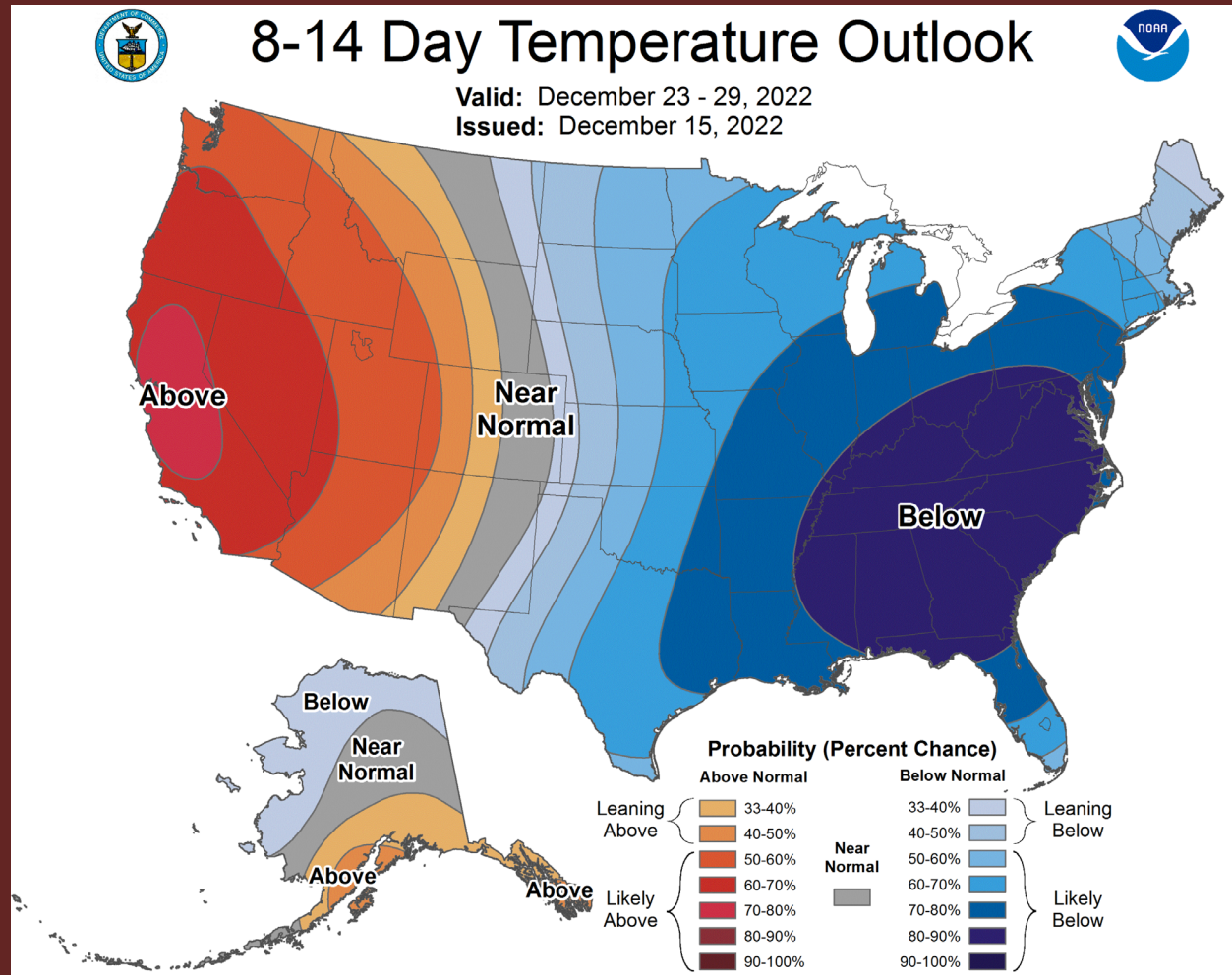


Next 7 days (Including 12/15 storms)

- More active central US from TX/LA to Great Lakes, and East coast. Some decent rains may occur in some of these areas along with the Midwest as a whole.
- Beneficial for some soil moisture and winter planting establishment
- Not a drought fix

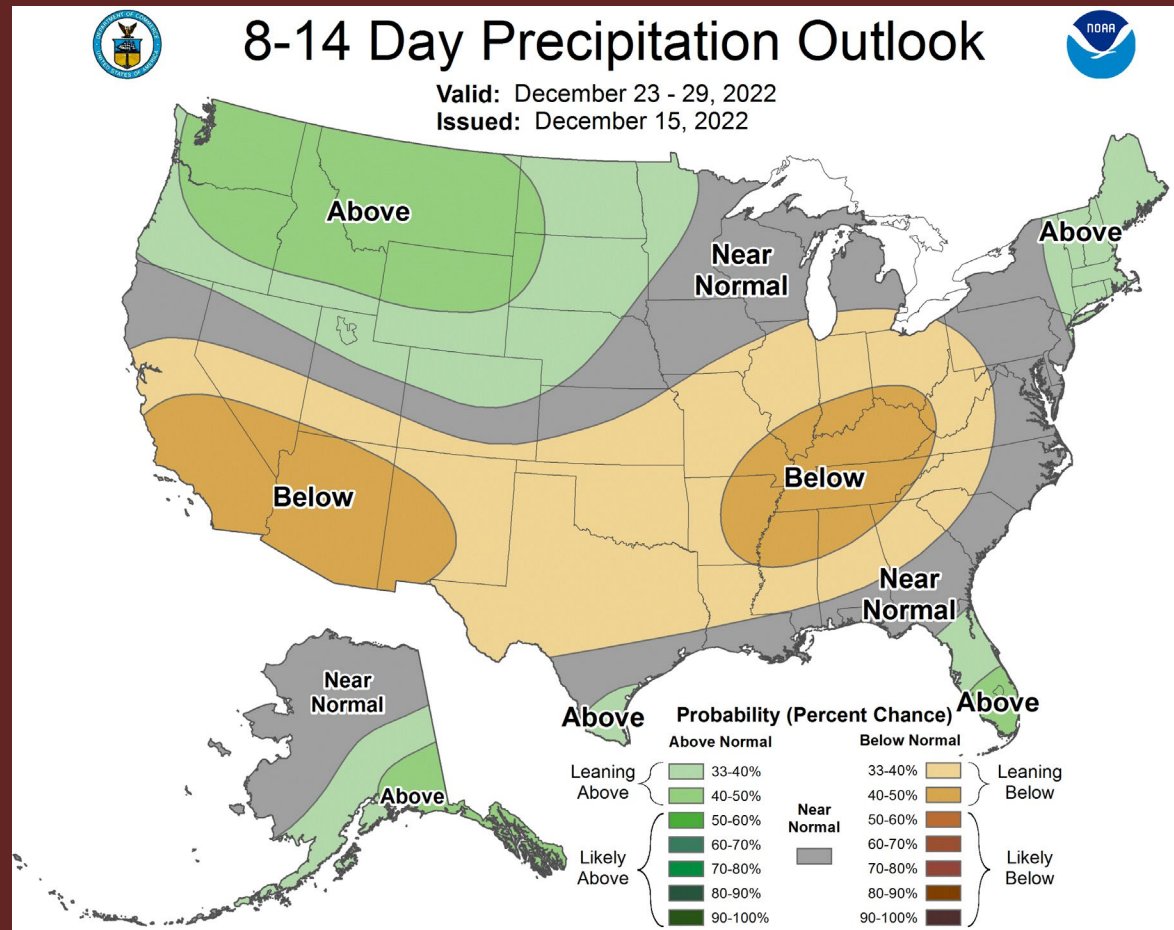
Temperature Outlook

- Likely colder-than-average conditions throughout the Midwest and Plains.



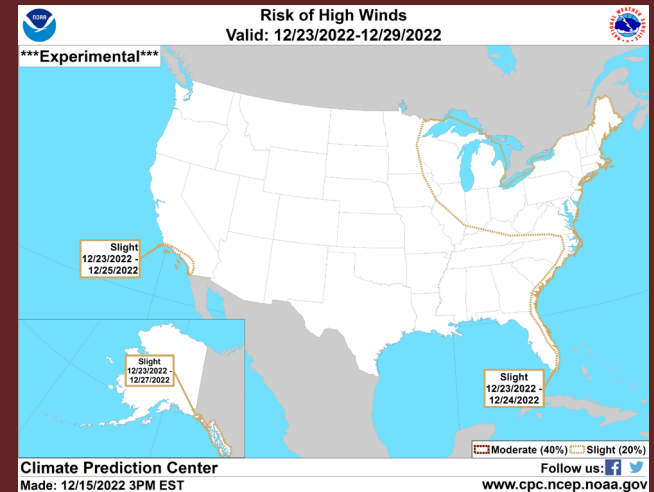
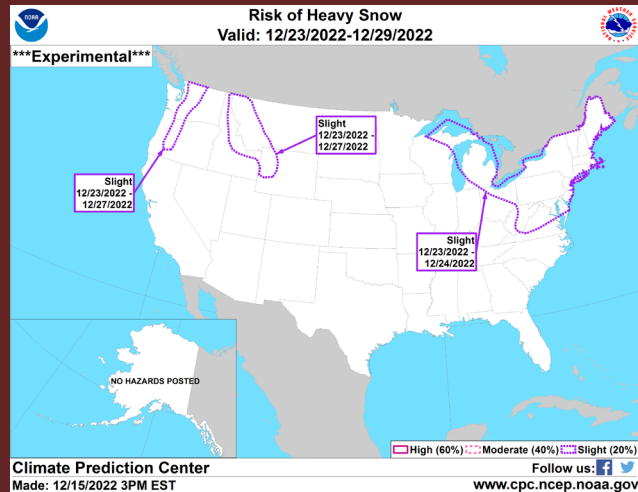
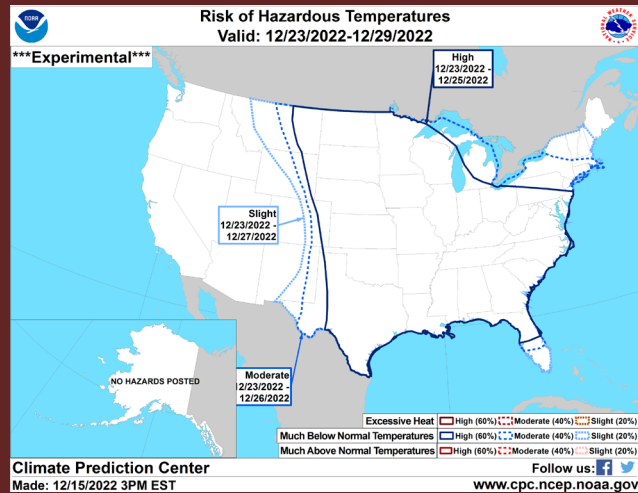
Precipitation Outlook

- Slightly more likely *wetter* north/west
- Slightly more likely *drier* or near normal south/east
- Reminder climatology is fairly dry in December – above normal precip may still not be that wet.



Other Risks

- High chance extreme low temperatures heading into the holidays. Slight risk of other winter hazards—snow and winds—in some parts of the region.

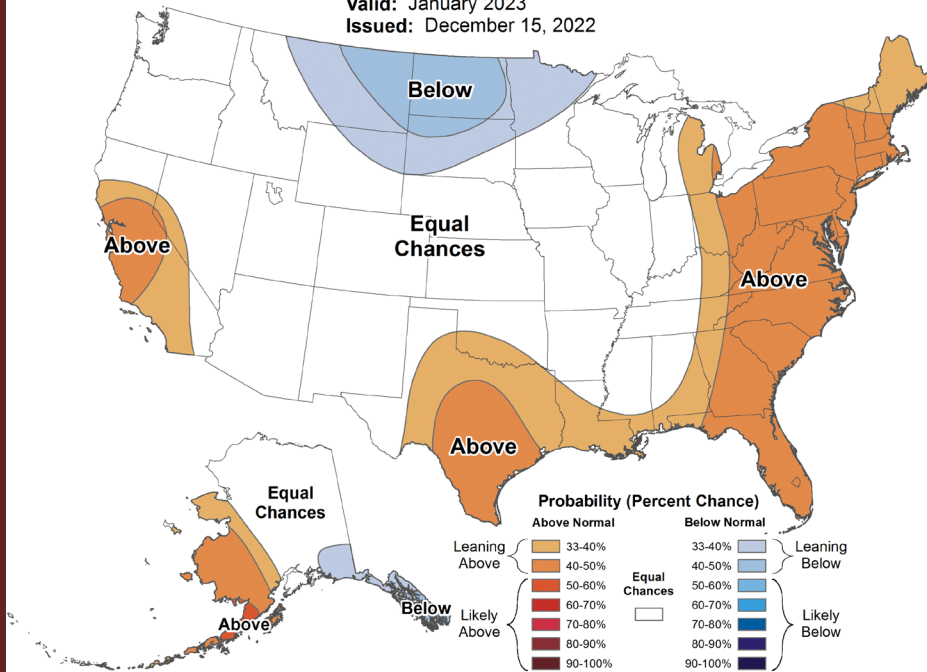


1-Month Outlook



Monthly Temperature Outlook

Valid: January 2023
Issued: December 15, 2022



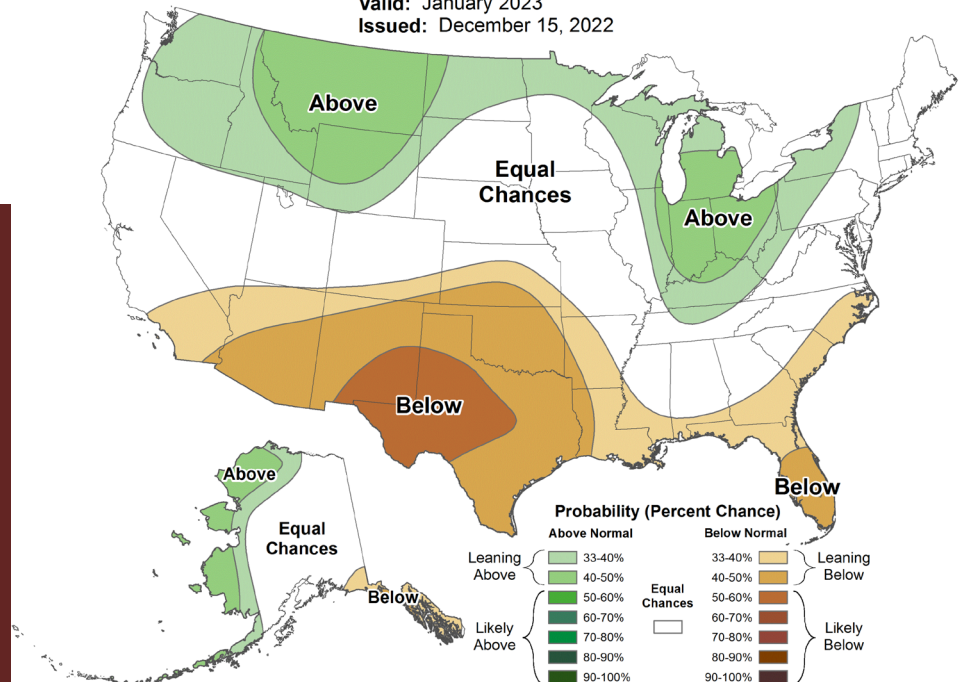
January Monthly Outlook

- More likely colder in northwest part of region, more likely warmer in MI/OH, equal chances elsewhere.
- Equal chances for precipitation in western Midwest, with above normal precip likely in eastern corn belt, KY, MI, and ND.

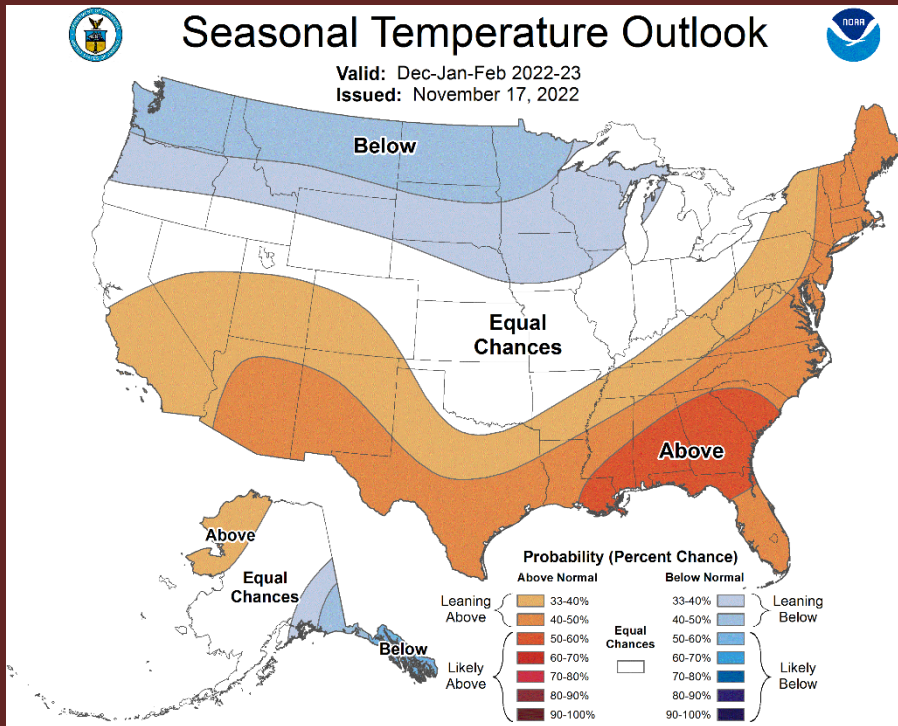


Monthly Precipitation Outlook

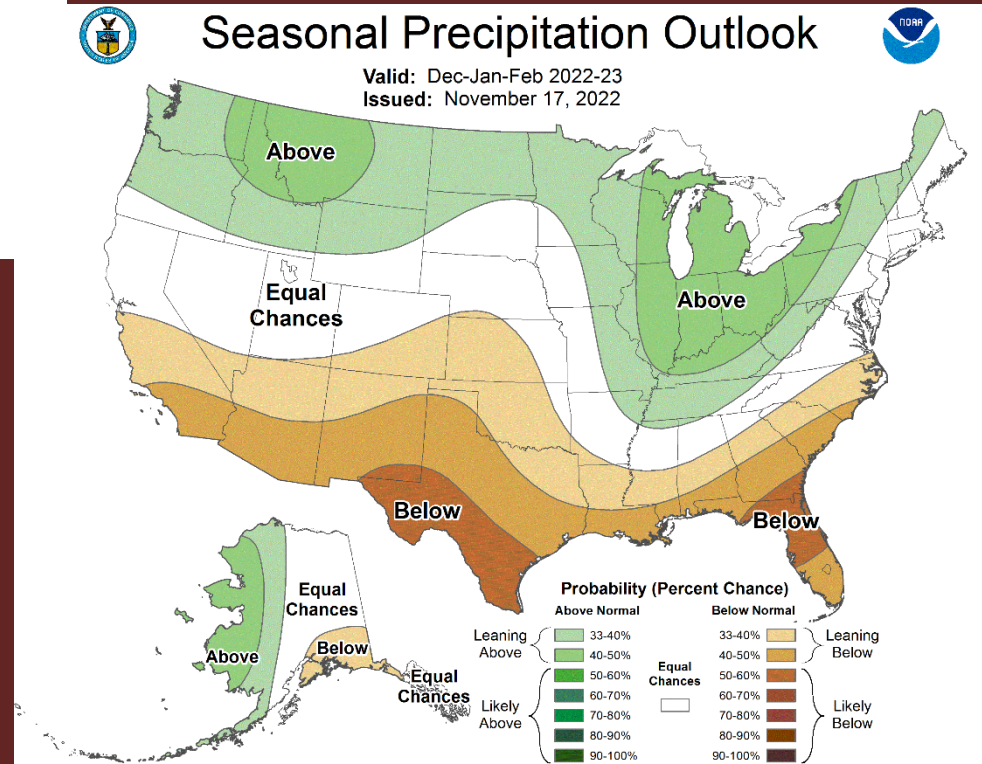
Valid: January 2023
Issued: December 15, 2022



November-January Outlook



- Still La Niña pattern – also soil moisture and computer model influence
- Possible above-normal precip in winter months for most of region, but with below normal chances in KS, and equal chances in KS/NE and western IA/MO.

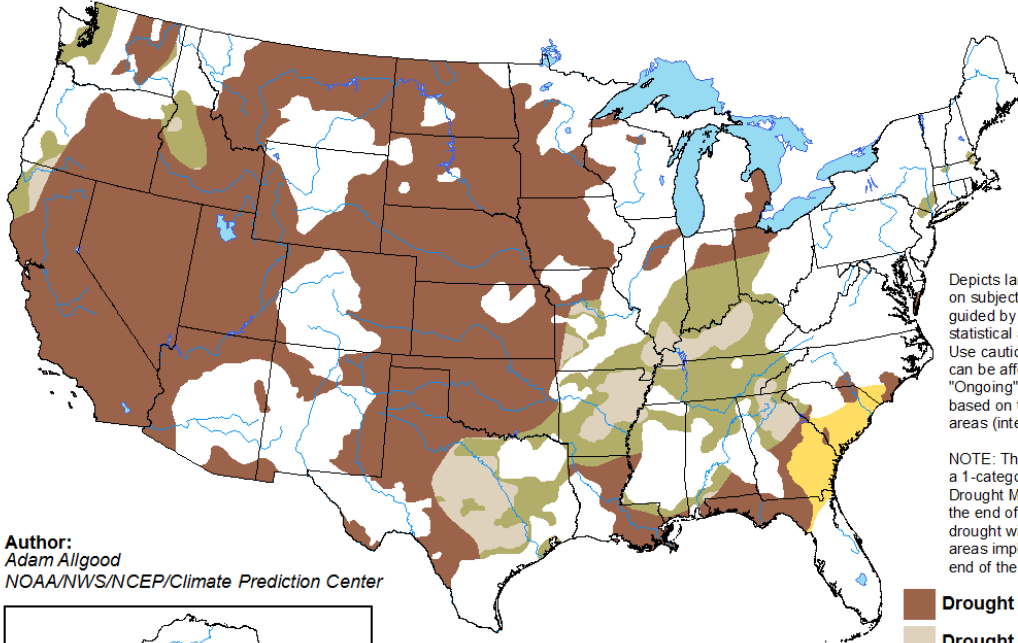


- Drought in Plains likely to remain

Drought in the Midwest/Plains

U.S. Monthly Drought Outlook Drought Tendency During the Valid Period

Valid for December 2022
Released November 30, 2022



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

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



<http://go.usa.gov/3eZGd>

- December 2022 outlook
- Mostly persistence
- Some possible improvement from early month rainfall.

Summary

- Early winter precipitation on non-frozen soils will help a bit with current dryness and drought. But, it's unlikely to be enough to significantly improve current drought conditions.
- Dryness and drought are still a substantial challenge in NW Iowa. Recovery unlikely during the winter. Early spring rains will be needed.
- La Niña influence into winter
- Soil moisture recovery likely limited
- Mississippi River shipping issues ongoing problem

Next MAC-T Monthly Call

Next Slides
January 4, 2023

Next Call (Tentative)
February 1, 2023, 9-10am CT