

North Central U.S. Climate and Drought Outlook

18 May 2023

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General Information

- **Providing climate services to the Central Region**
 - Collaboration Activity Between:
 - State Climatologists/American Association of State Climatologists
 - NOAA NCEI/NWS/OAR/NIDIS
 - USDA Climate Hubs
 - Midwest and High Plains Regional Climate Centers
 - National Drought Mitigation Center
- **Next Regular Climate/Drought Outlook Webinar**
 - June 15, 2023 (1 PM CST): Presenter: Dr. Aaron Wilson, State Climatologist of Ohio
- **Access to Future Climate Webinars and Information**
- <http://www.drought.gov/drought/content/regional-programs/regional-drought-webinars>
 - <https://mrcc.purdue.edu/multimedia/webinars.jsp>
 - <https://hprcc.unl.edu/webinars.php>
- **Open for questions at the end (enter them along the way).**

Presentation Outline

- Recent Conditions
 - Temperature and precipitation ranks
 - 30-day temperature and precipitation
 - Drought
- Planting/Growing Progress
- Impacts and Notable Events
- Outlooks
 - ENSO-neutral to El Niño
 - Short-term
 - Summer



Photo Credit: Brie Farina, NOAA

Recent Conditions

April Temperature and Precipitation Ranks

YTD Temperature and Precipitation Ranks

Departure from Normal Temperature and Precipitation

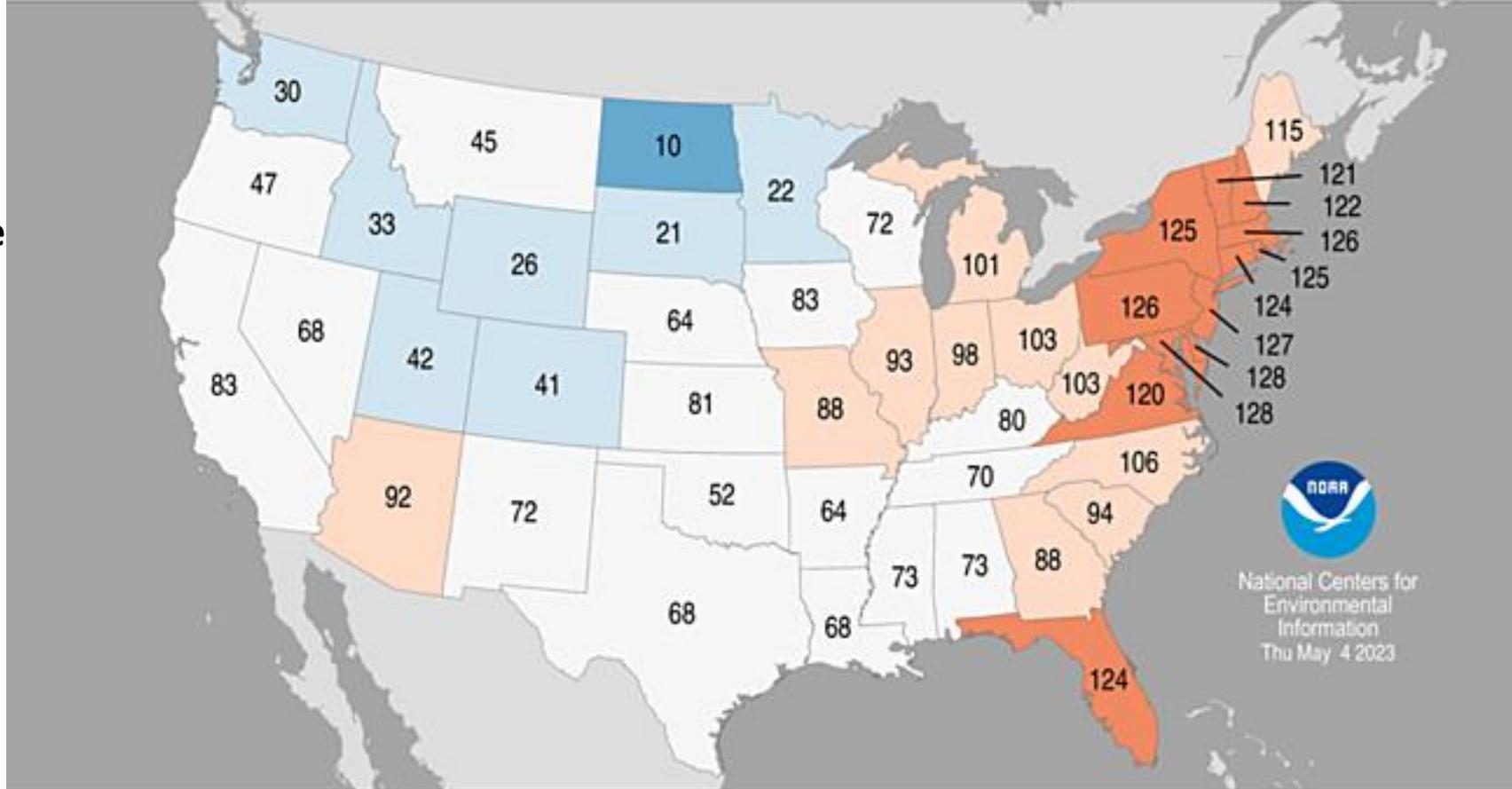
Long-term Precipitation Departures

Soil Moisture, Streamflow and Drought

April Temperature Ranks

Statewide Average Temperature Ranks

April 2023
Period: 1895–2023



NARR
National Centers for
Environmental
Information
Thu May 4 2023

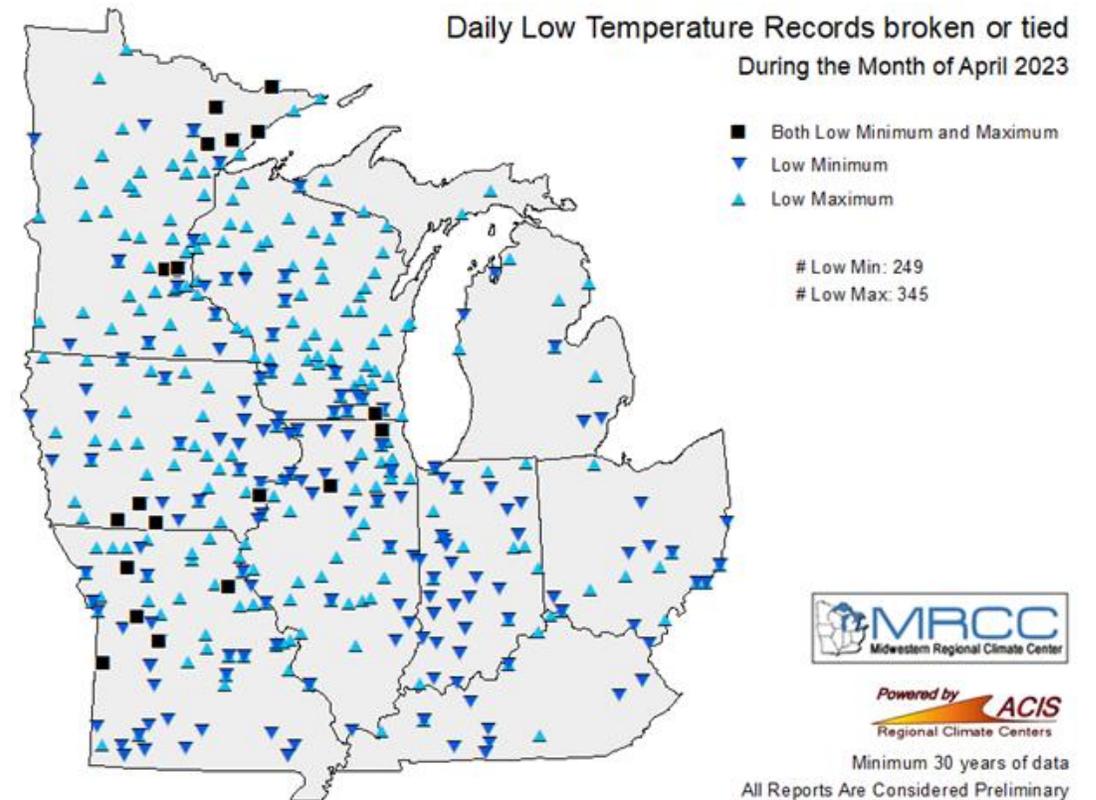
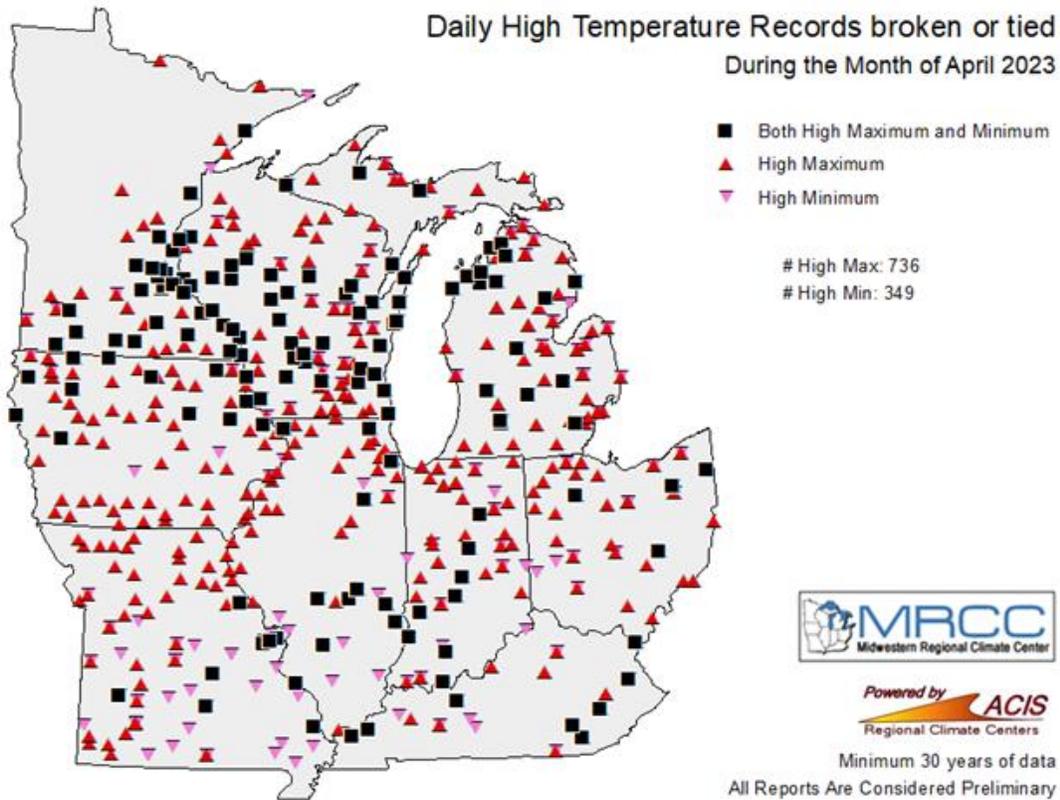


<http://www.ncdc.noaa.gov/temp-and-precip/us-maps/>

Colder conditions north, near-average central and warm east.

10th Coldest ND

Daily Temperature Records in April

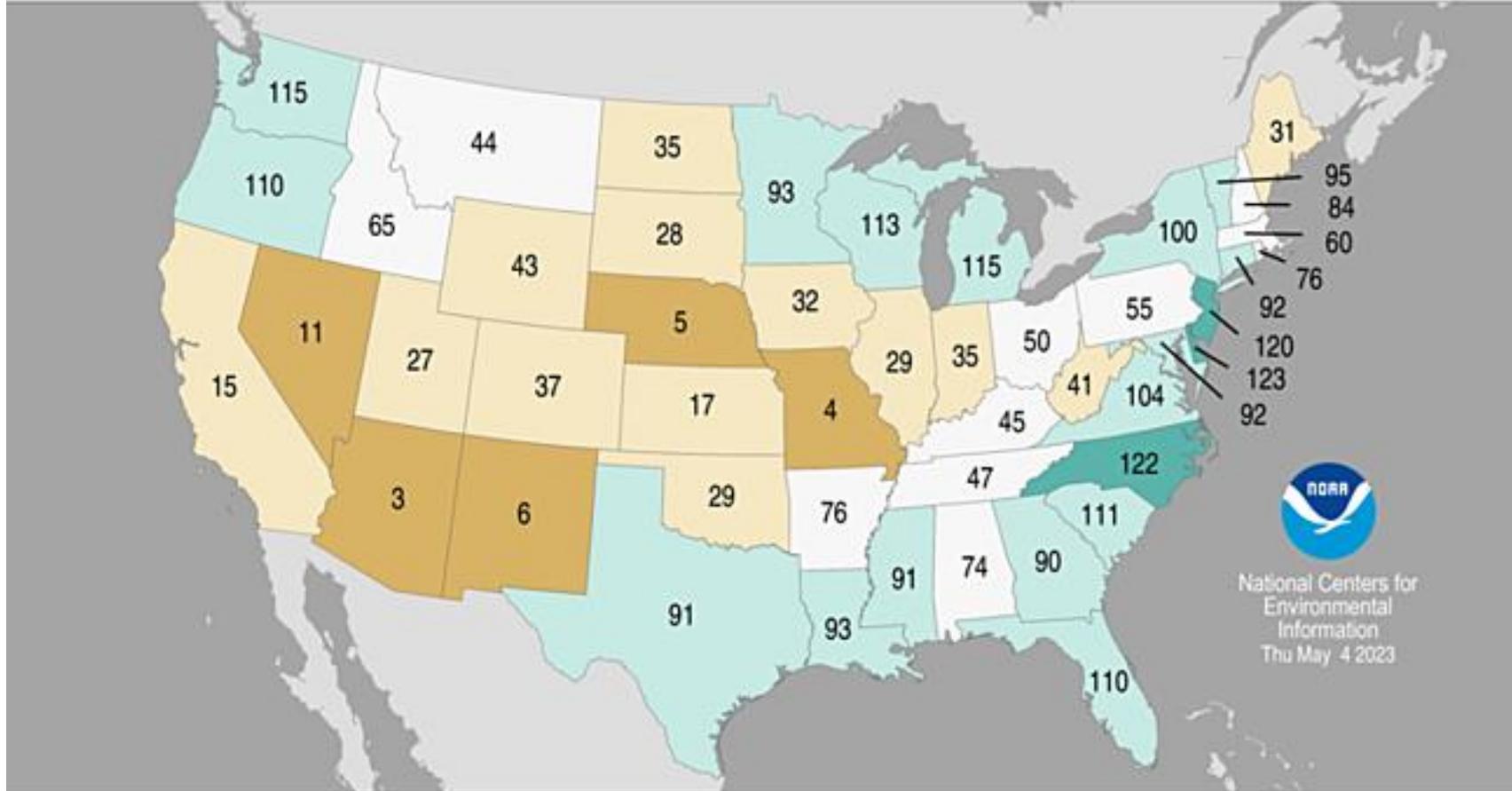


April Precipitation Ranks

Statewide Precipitation Ranks

April 2023

Period: 1895–2023



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

Wetter conditions from MN => MI.

Drier rest of region.

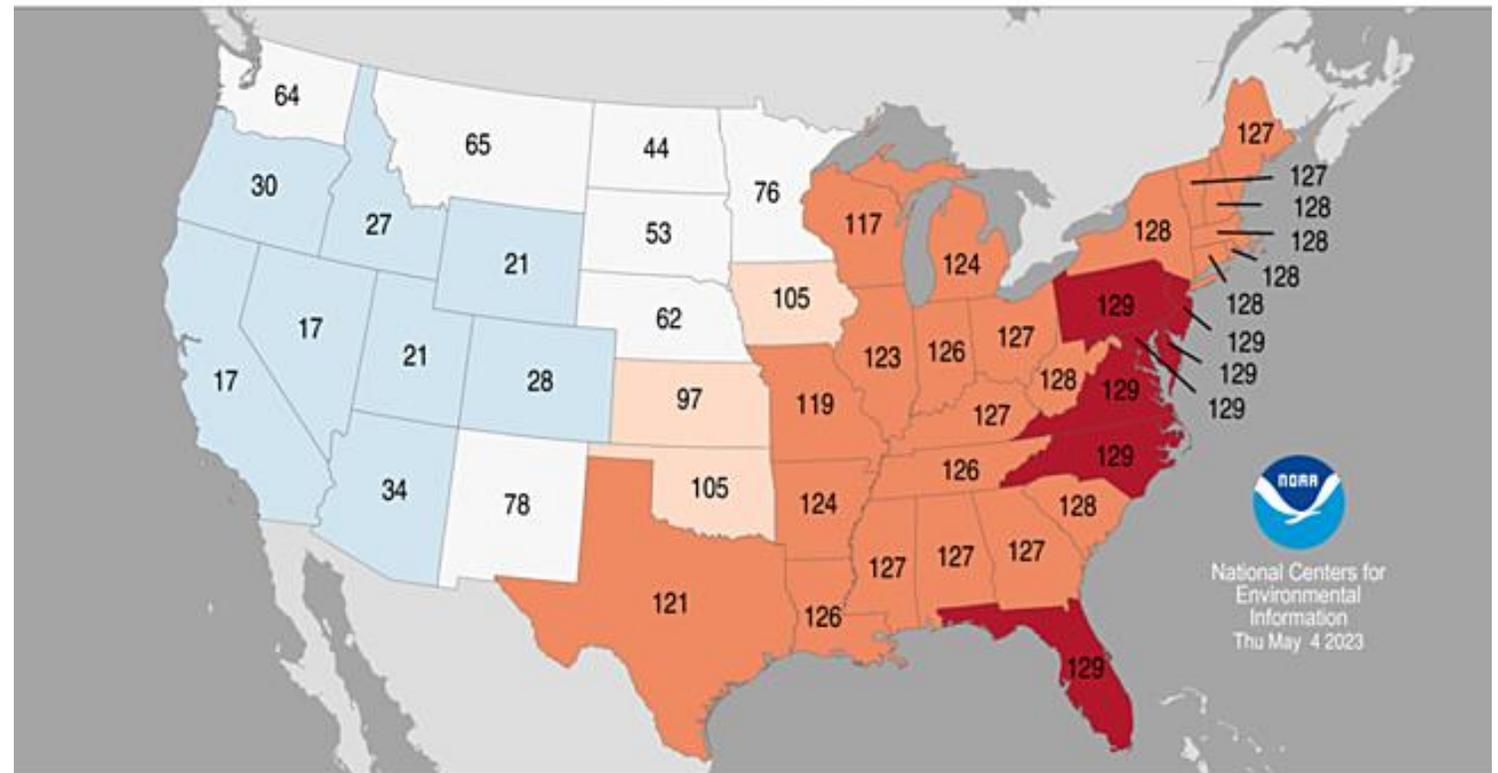
Top 5 Driest for NE and MO.

January-April Temperature Recap

Statewide Average Temperature Ranks
January - April 2023
Period: 1895-2023

Similar temperature pattern much of the winter. Warm east/cold west. Closer to average Plains.

Top 10 warmest MO to MI/OH.



January-April Precipitation Recap

Statewide Precipitation Ranks

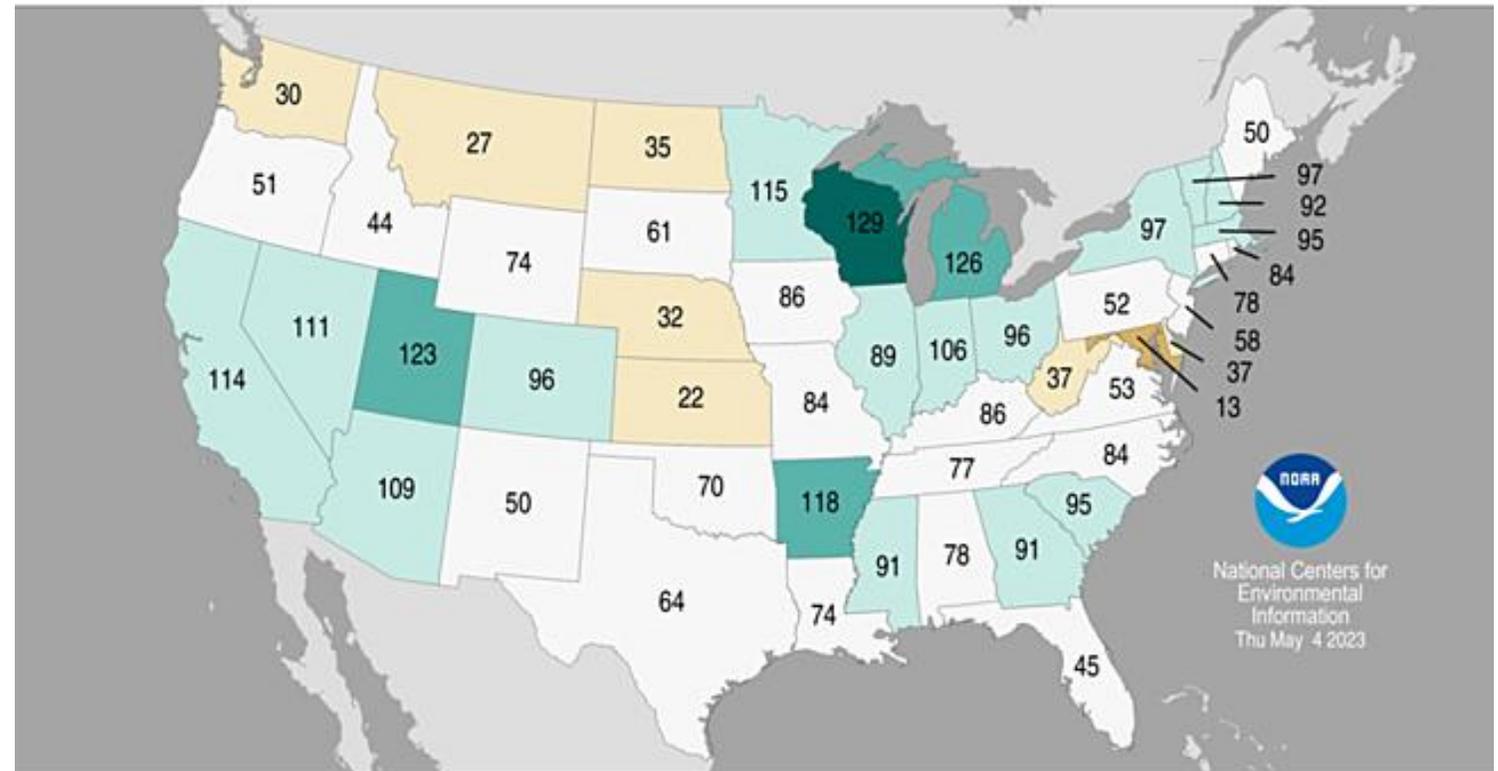
January - April 2023

Period: 1895-2023

**Wetter conditions
across eastern Corn
Belt to near-normal
west.**

**Very wet upper
Midwest**

**Wettest YTD start
for WI/top 5 for MI**



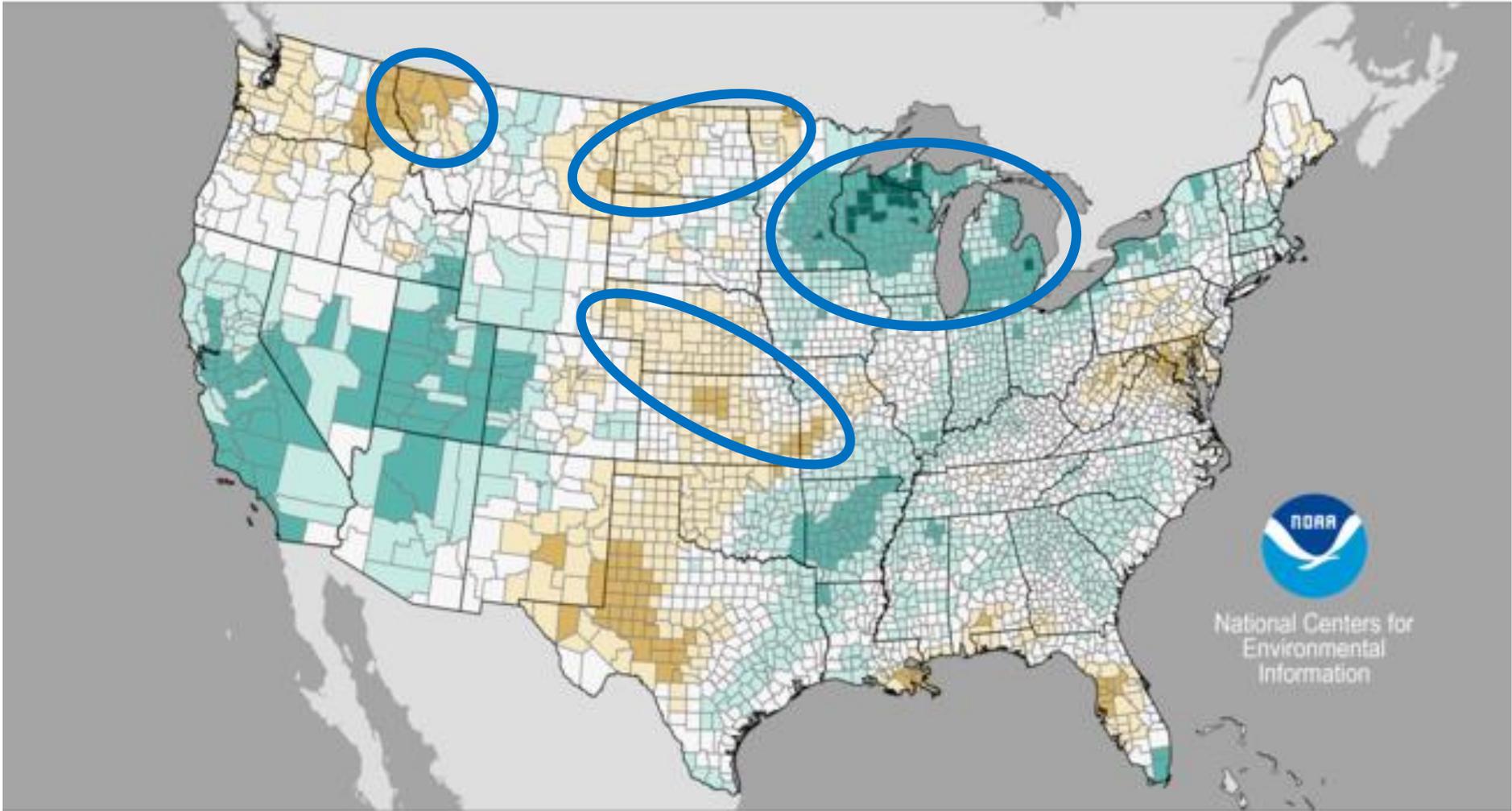
National Centers for
Environmental
Information
Thu May 4 2023



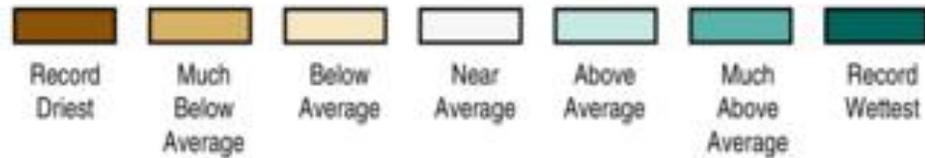
County Precipitation Ranks

January–April 2023

Period: 1895–2023

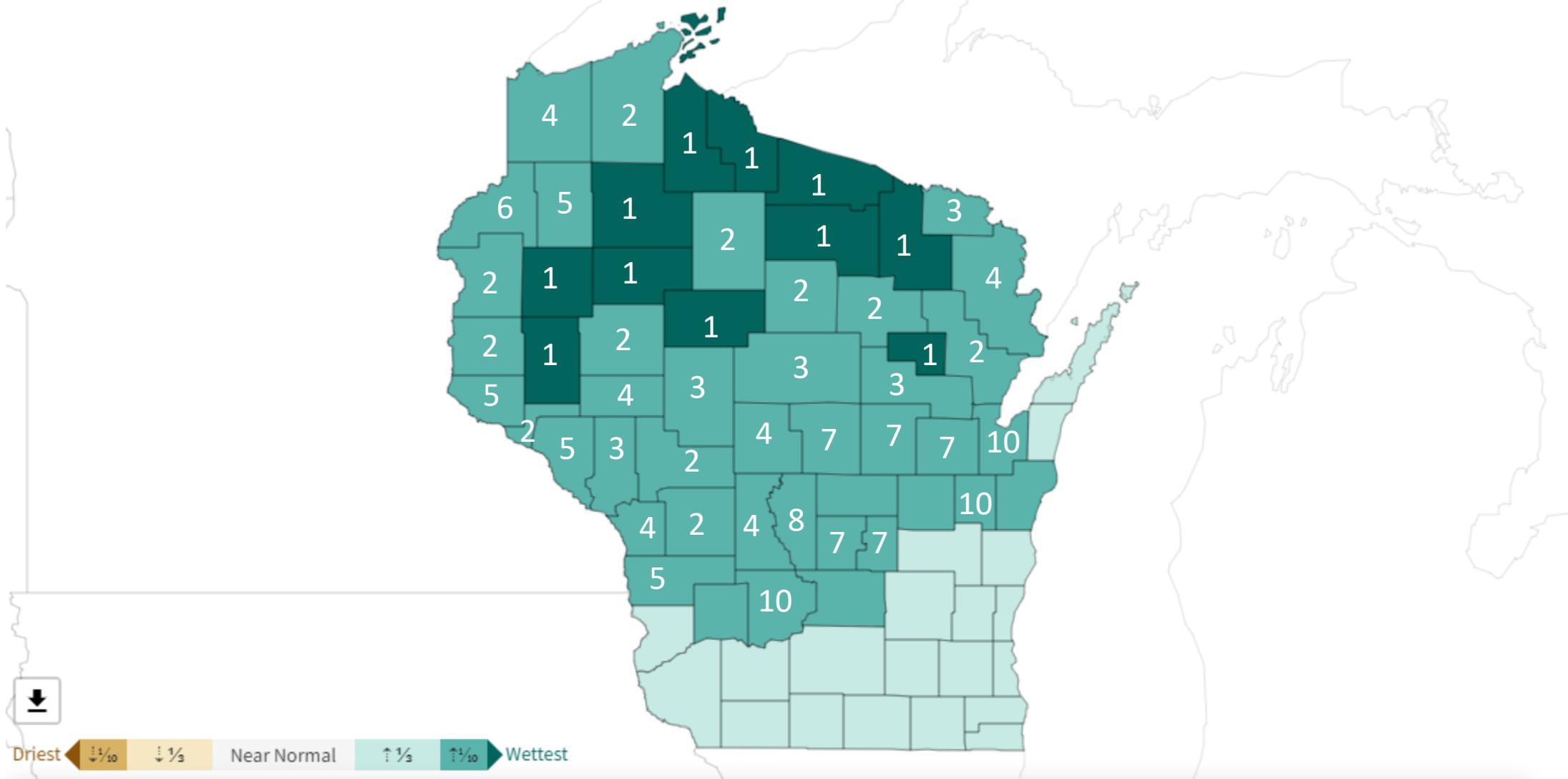


National Centers for
Environmental
Information



Created: Thu May 04 2023

Data Source: nClimGrid

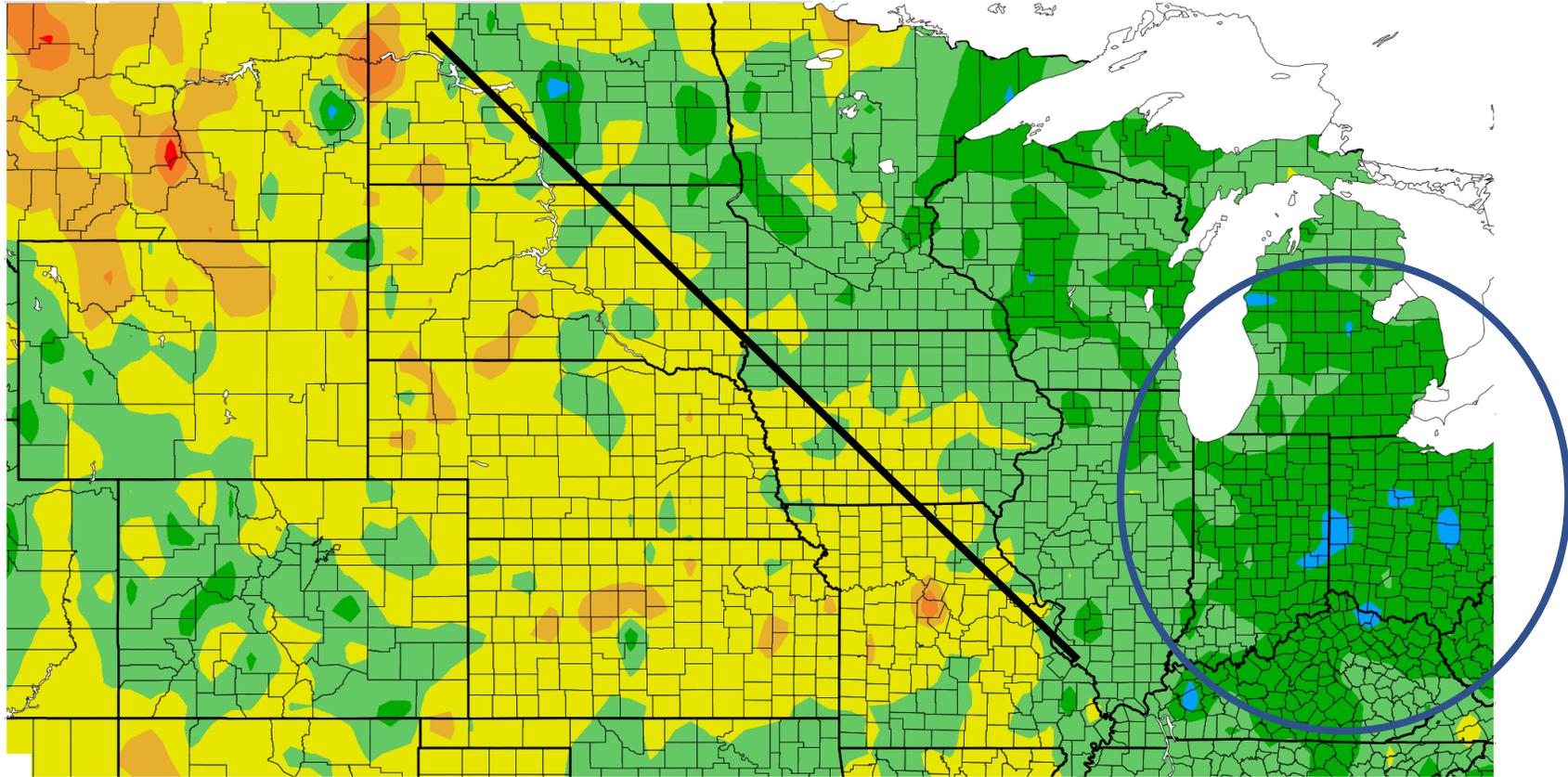


Wisconsin (Hover over a County)
Precip: 10.47" **Rank:** Wettest **Anomaly:** 3.87" **Mean:** 6.60"



Departure from Normal Temperature (F)

4/18/2023 – 5/17/2023



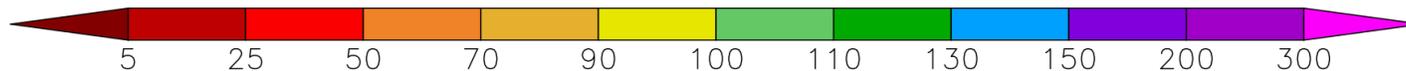
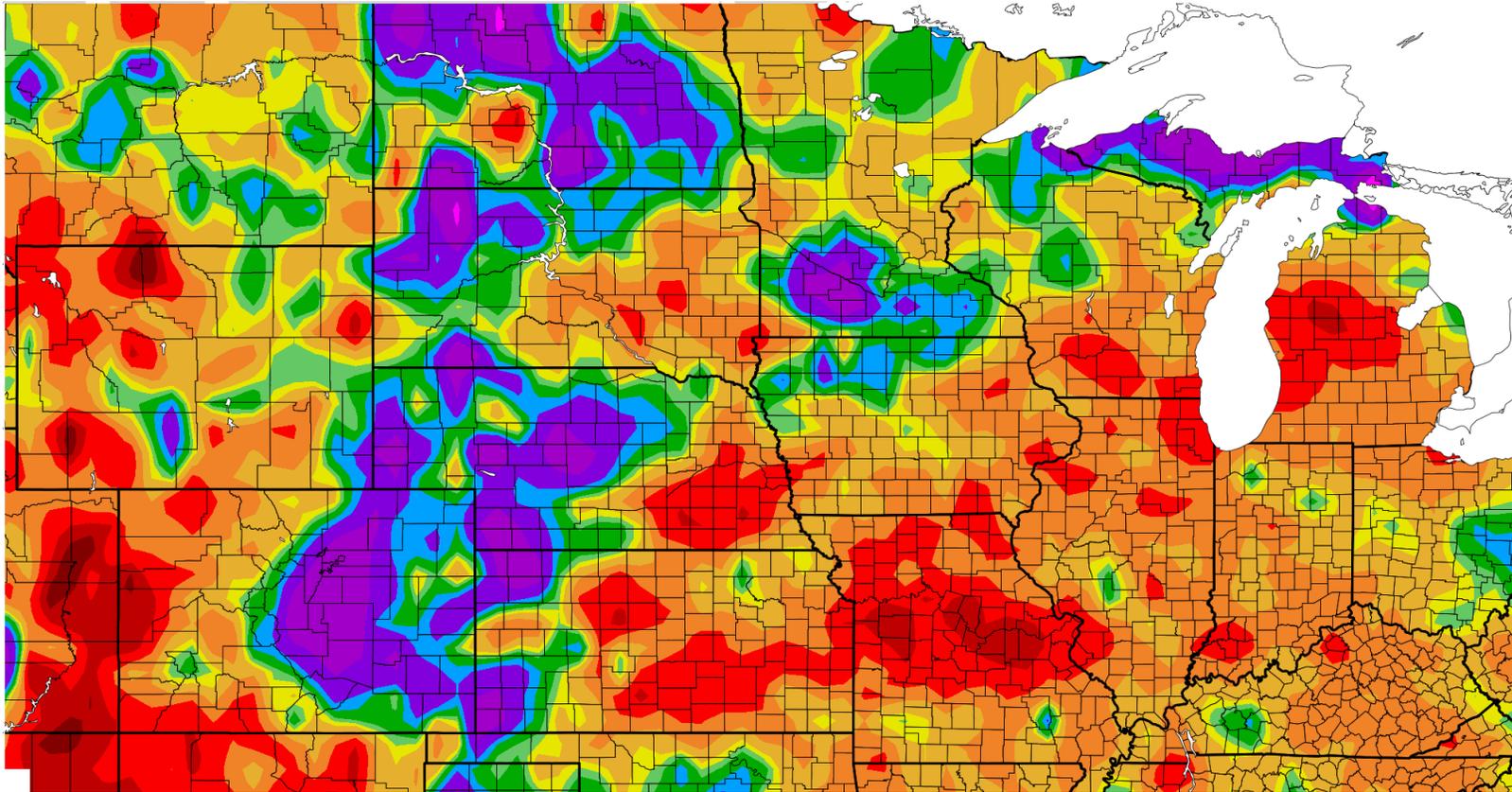
Generated 5/18/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

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

Percent of Normal Precipitation (%)

4/18/2023 – 5/17/2023



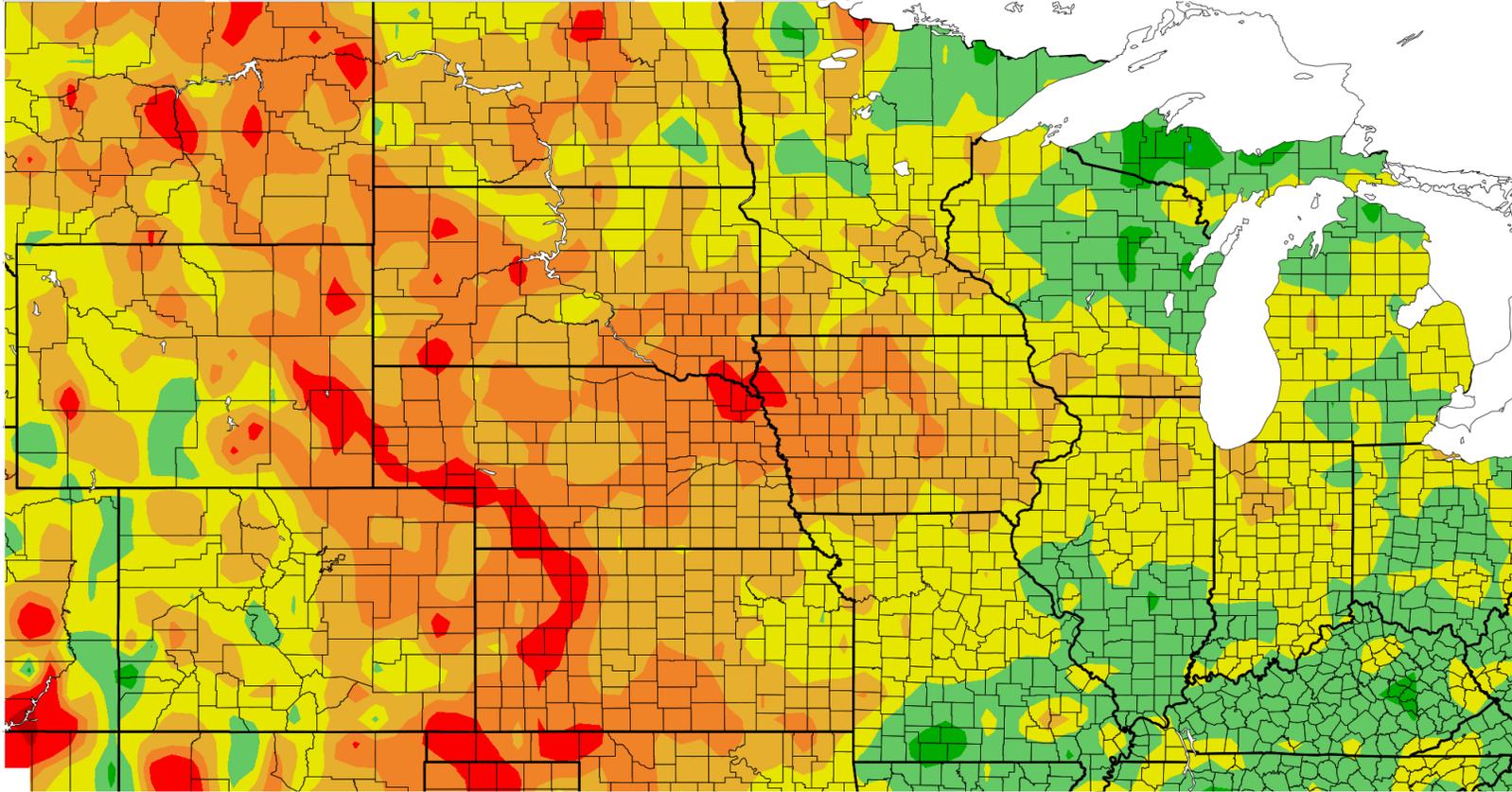
Generated 5/18/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

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

Percent of Normal Precipitation (%)

5/17/2020 – 5/16/2023

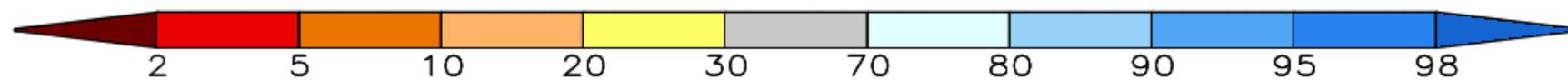
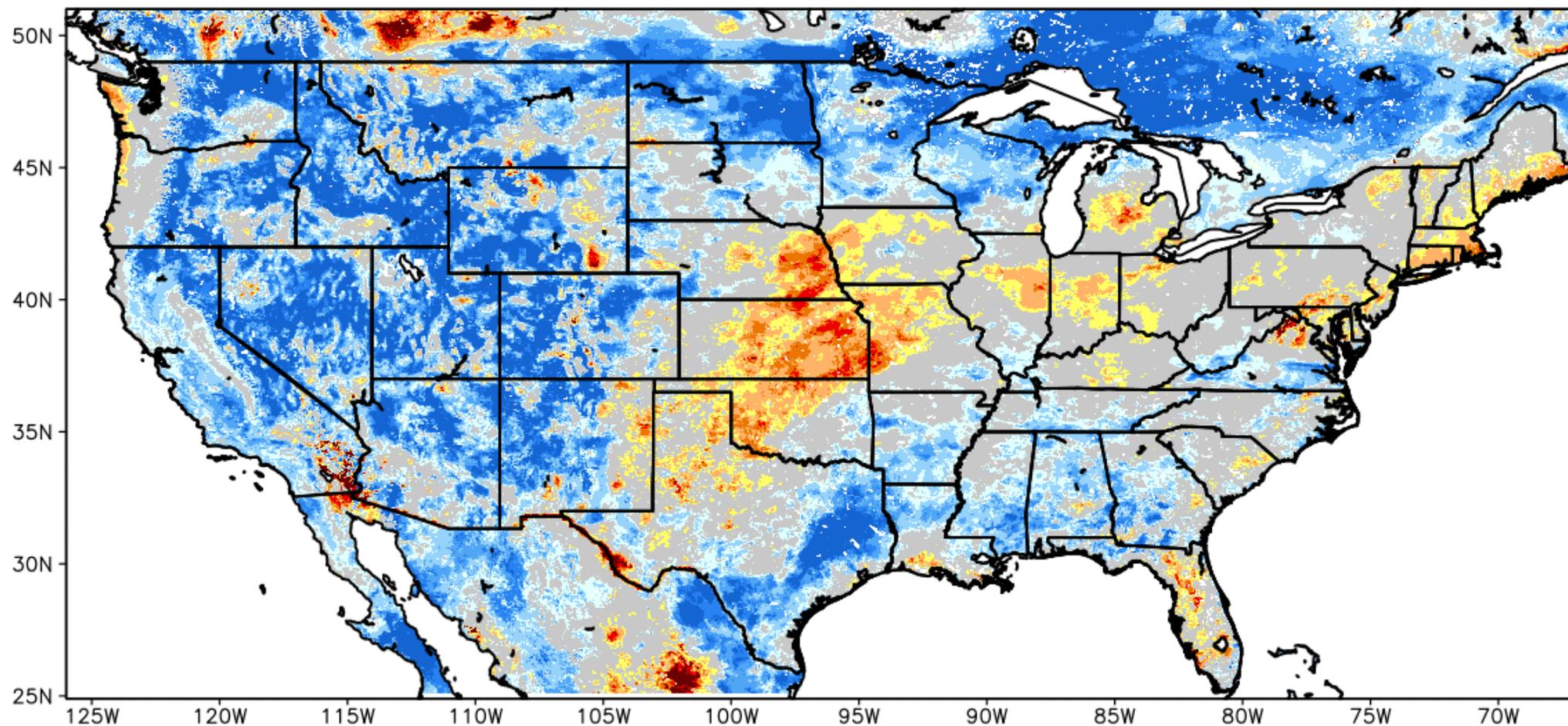


Generated 5/17/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

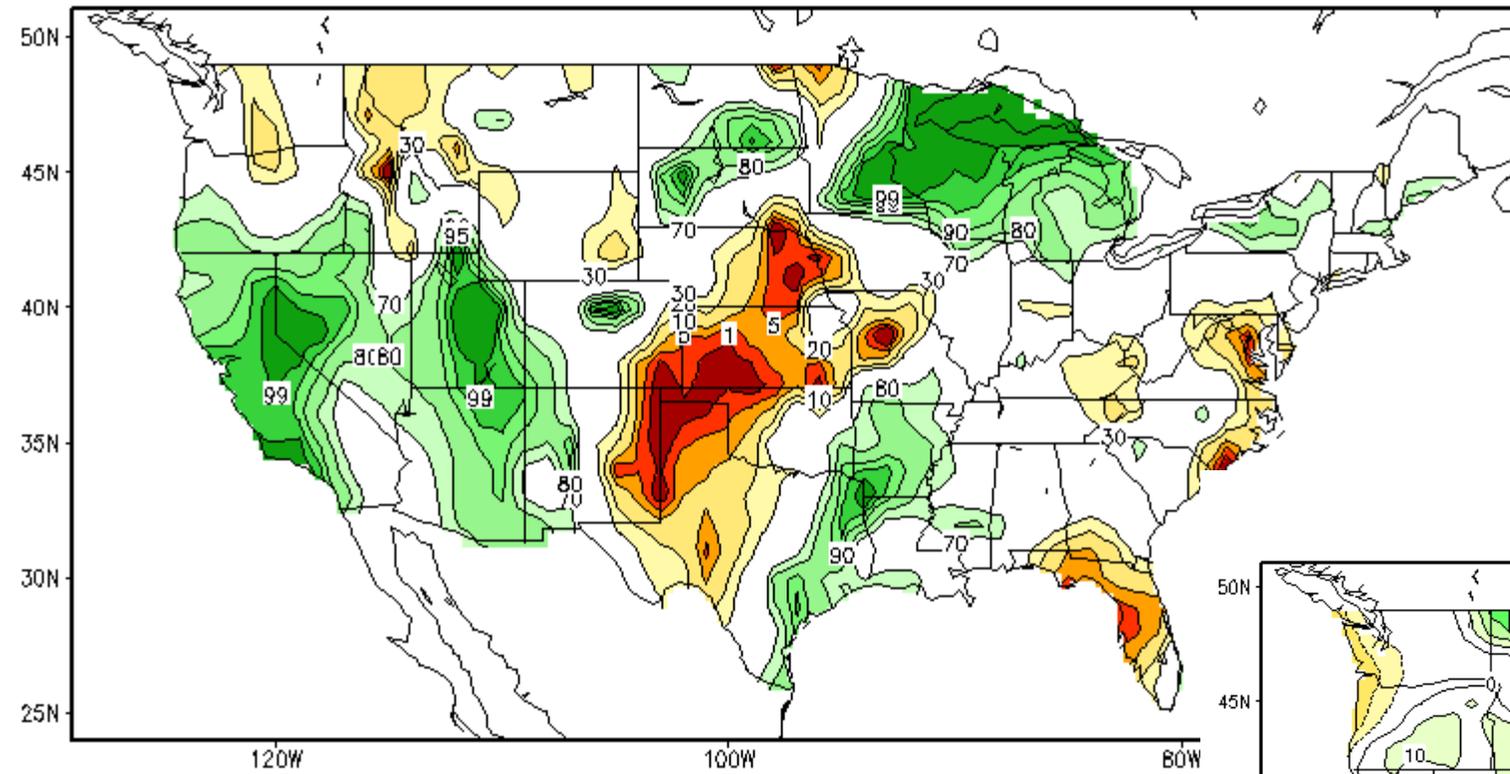
https://mrcc.purdue.edu/CLIMATE/Maps/stnMap_btd2.jsp

SPoRT-LIS 0-200 cm Soil Moisture percentile valid 18 May 2023

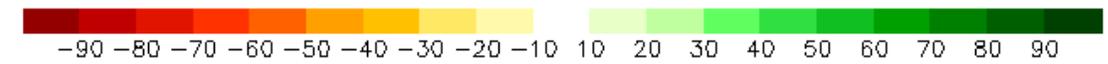
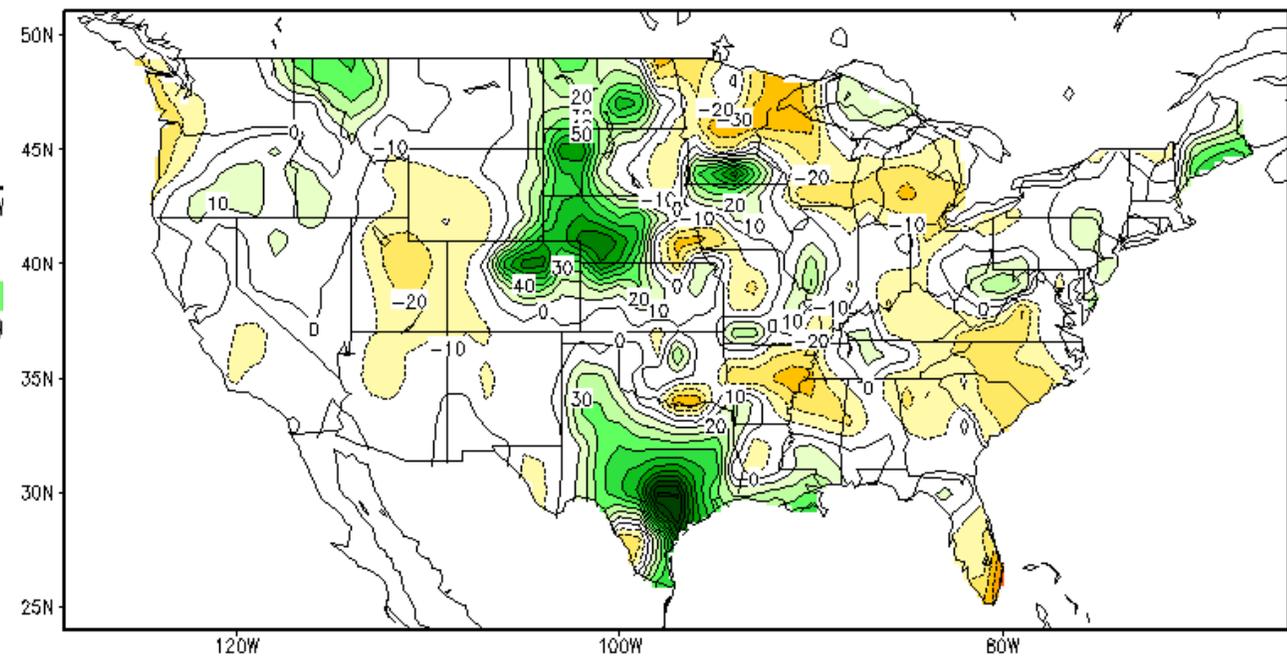


****NOTE****
****Experimental****

Calculated Soil Moisture Ranking Percentile MAY 16, 2023



Calculated Soil Moisture Anomaly Change MAY 16, 2023 from APR.30

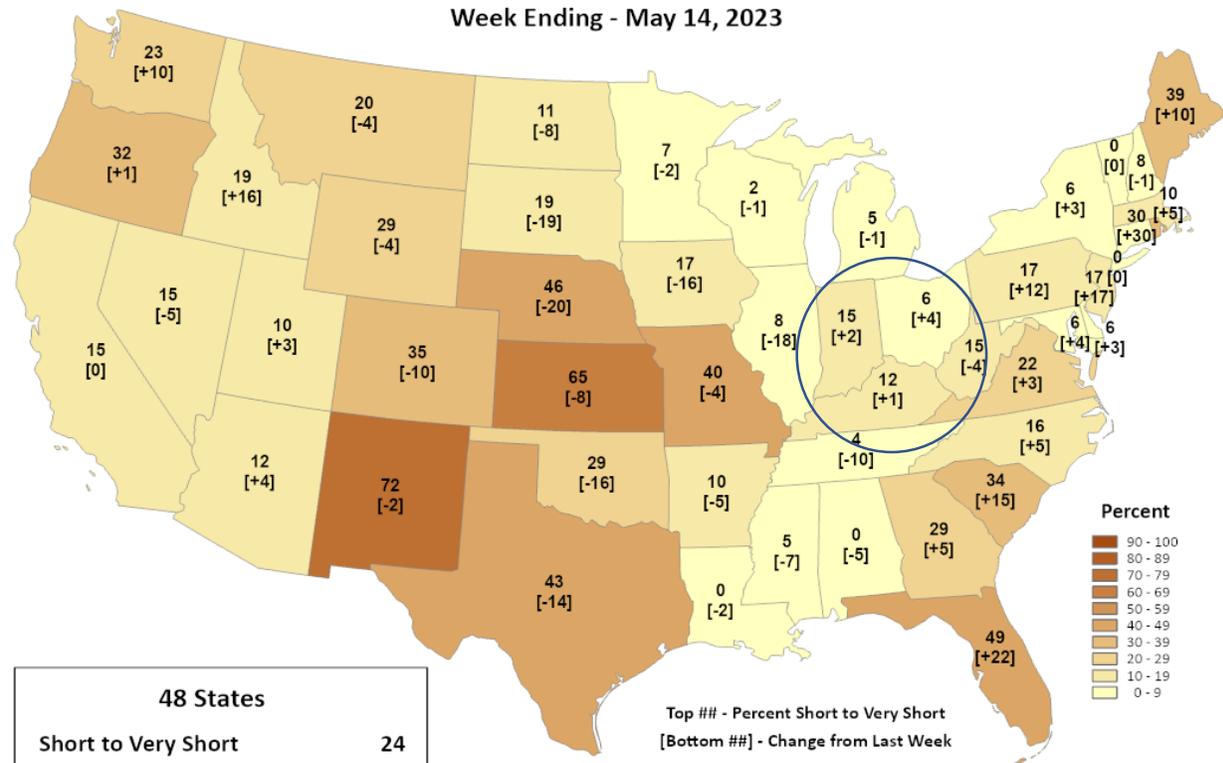


USDA NASS – Topsoil Moisture



This product was prepared by the
USDA Office of the Chief Economist (OCE)
World Agricultural Outlook Board (WAOB)

Topsoil Moisture Percent Short to Very Short Week Ending - May 14, 2023

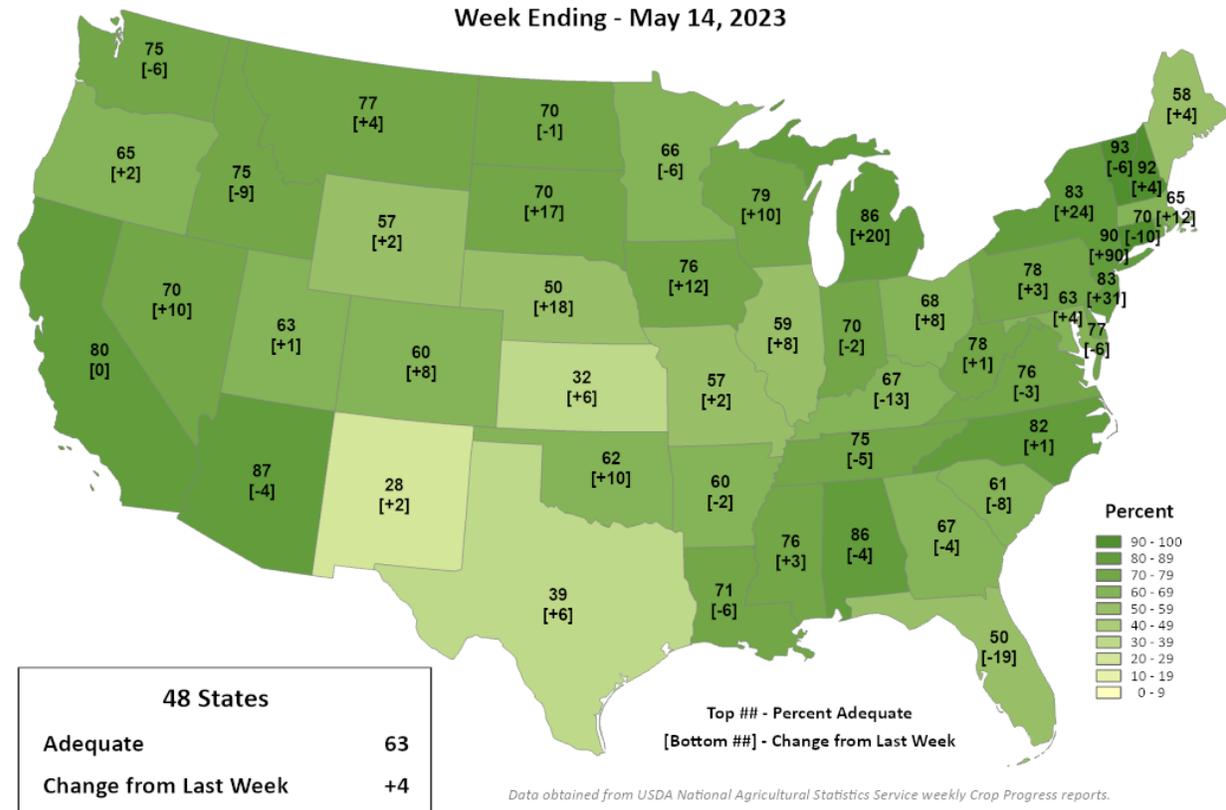


Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports.



This product was prepared by the
USDA Office of the Chief Economist (OCE)
World Agricultural Outlook Board (WAOB)

Topsoil Moisture Percent Adequate Week Ending - May 14, 2023



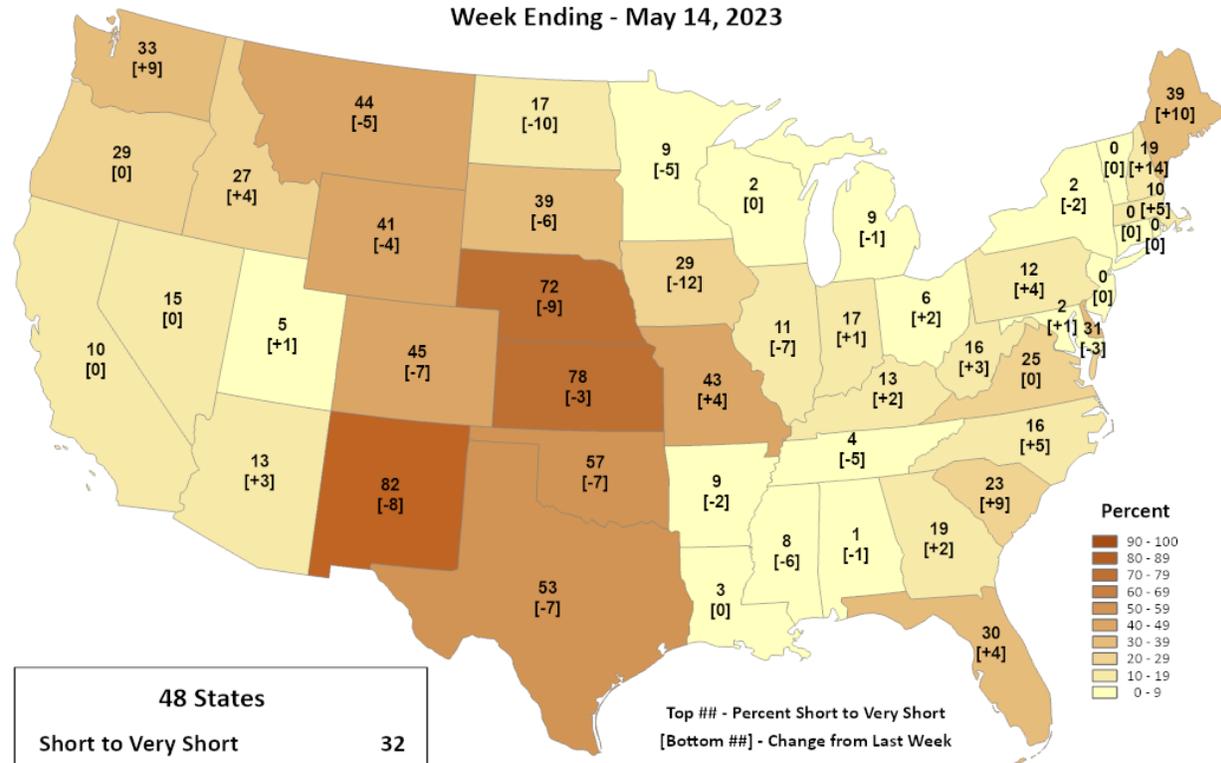
Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports.

USDA NASS – Subsoil Moisture



This product was prepared by the
USDA Office of the Chief Economist (OCE)
World Agricultural Outlook Board (WAOB)

Subsoil Moisture Percent Short to Very Short Week Ending - May 14, 2023

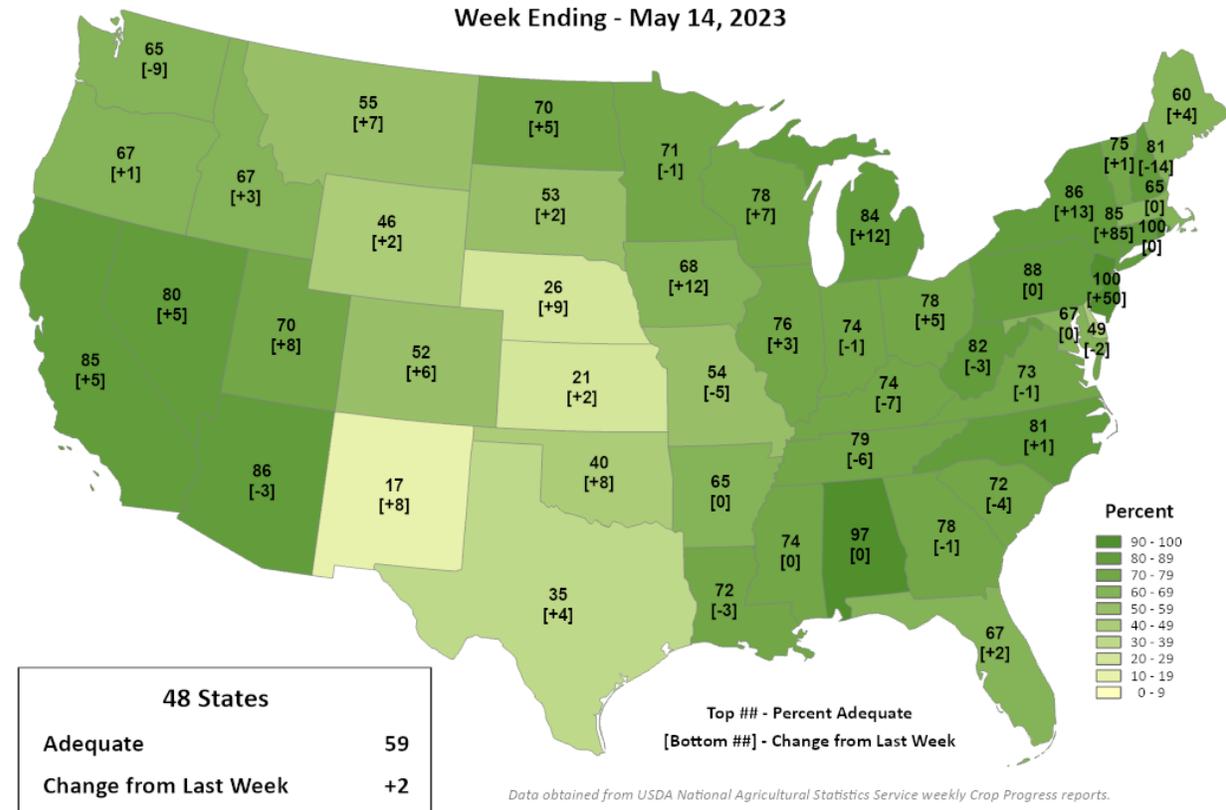


Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports.



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USDA Office of the Chief Economist (OCE)
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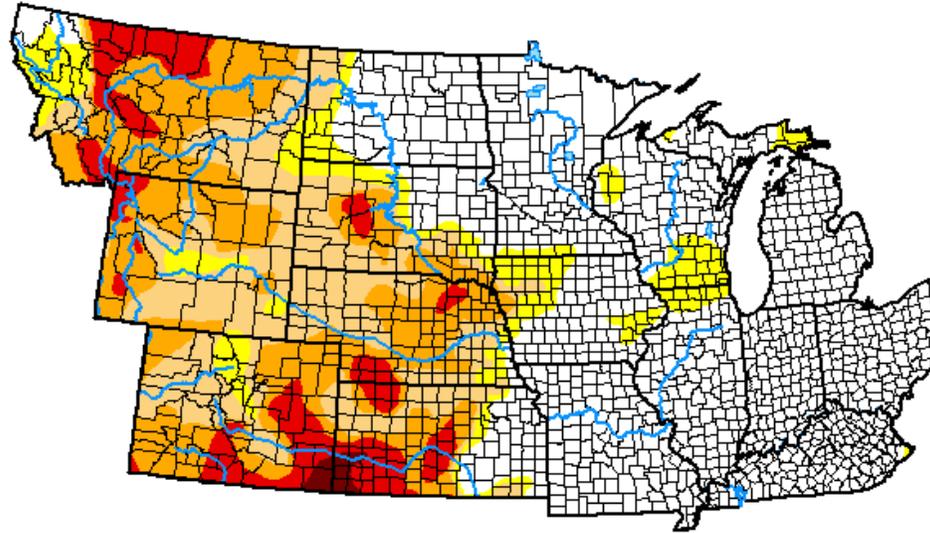
Subsoil Moisture Percent Adequate Week Ending - May 14, 2023



Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports.

U.S. Drought Monitor NWS Central

May 17, 2022
(Released Thursday, May. 19, 2022)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	48.83	51.17	42.62	25.71	7.64	0.53
Last Week <i>05-10-2022</i>	47.93	52.07	44.01	26.42	5.36	0.25
3 Months Ago <i>02-15-2022</i>	27.11	72.89	54.84	28.60	8.68	0.72
Start of Calendar Year <i>01-04-2022</i>	33.94	66.06	46.53	27.27	10.67	1.77
Start of Water Year <i>09-28-2021</i>	31.08	68.92	50.85	37.30	18.35	3.17
One Year Ago <i>05-18-2021</i>	40.78	59.22	39.28	19.29	11.37	2.50

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>

Author:

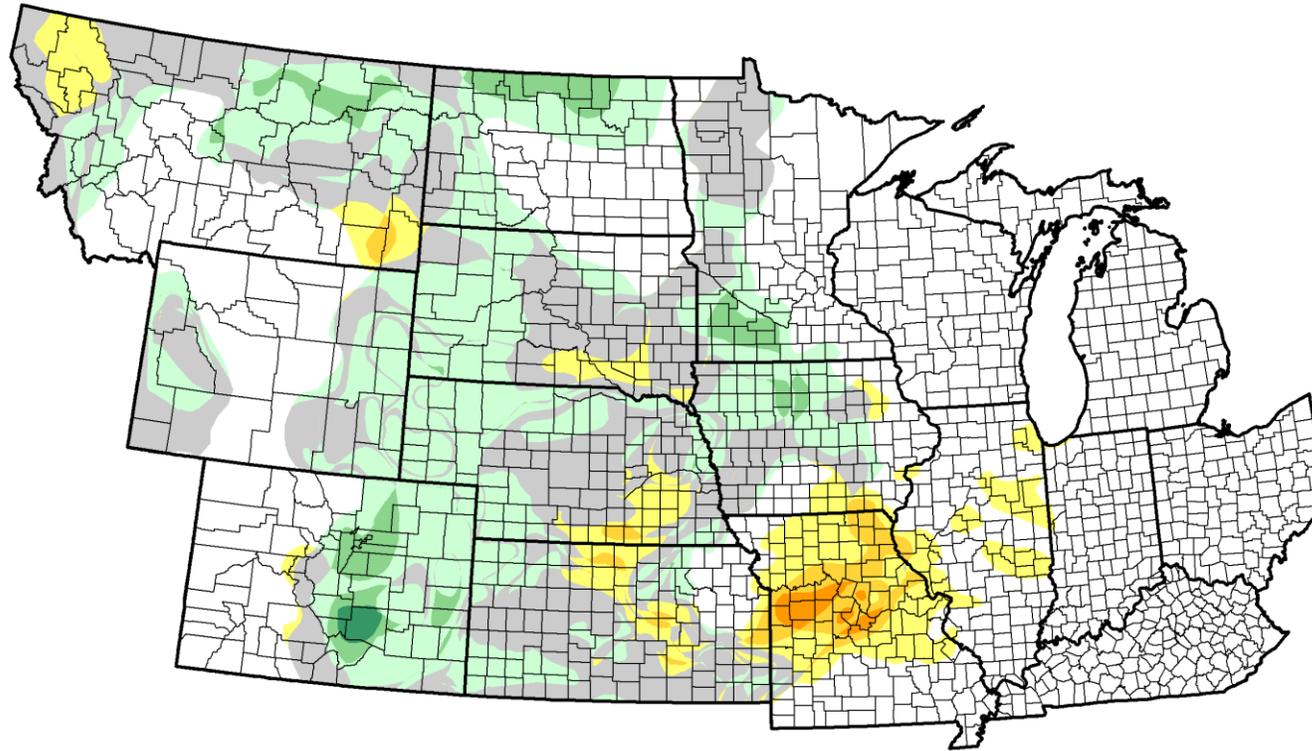
Richard Heim
NCEI/NOAA



droughtmonitor.unl.edu

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

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



- 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

May 16, 2023
compared to
April 18, 2023

droughtmonitor.unl.edu

Growing Season Progress



Photo Credit: Hans Schmitz

USDA NASS – Soybean Progress

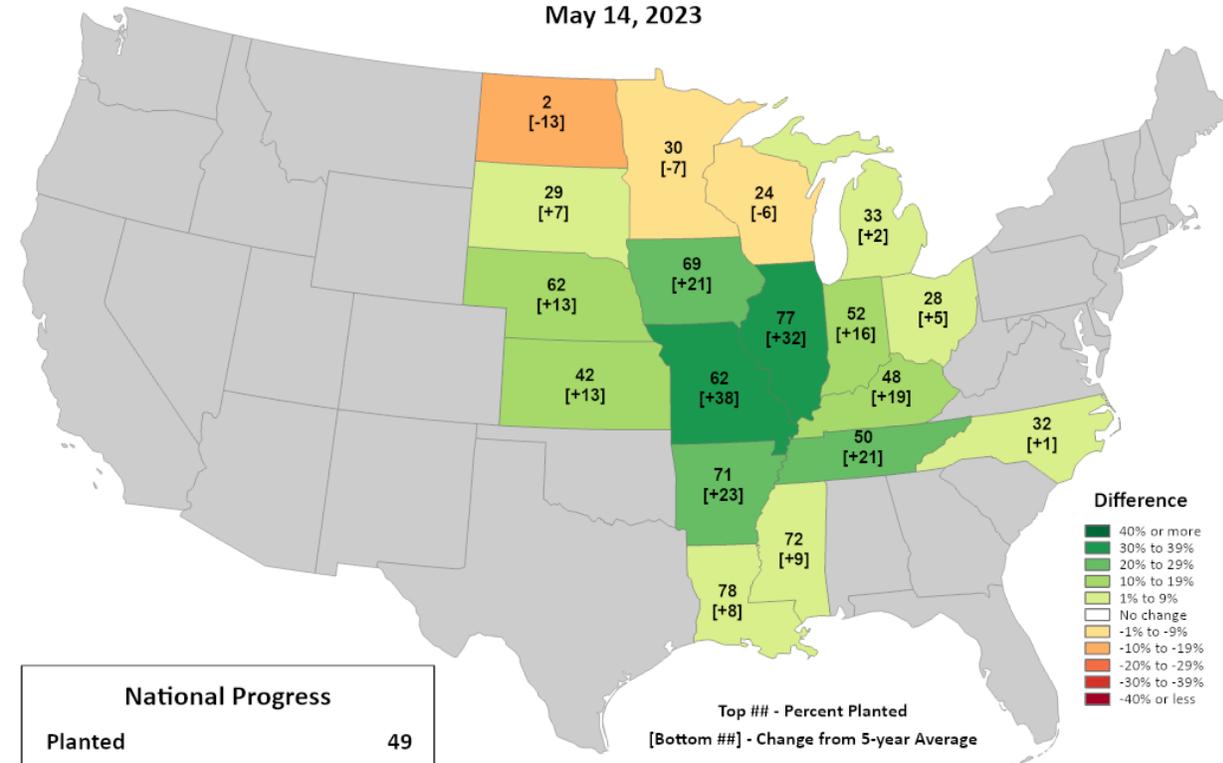


This product was prepared by the
USDA Office of the Chief Economist (OCE)
World Agricultural Outlook Board (WAOB)

Soybeans Progress

Percent Planted

May 14, 2023



National Progress

Planted 49
Change from 5-year Average +13

Top ## - Percent Planted
[Bottom ##] - Change from 5-year Average

Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports.

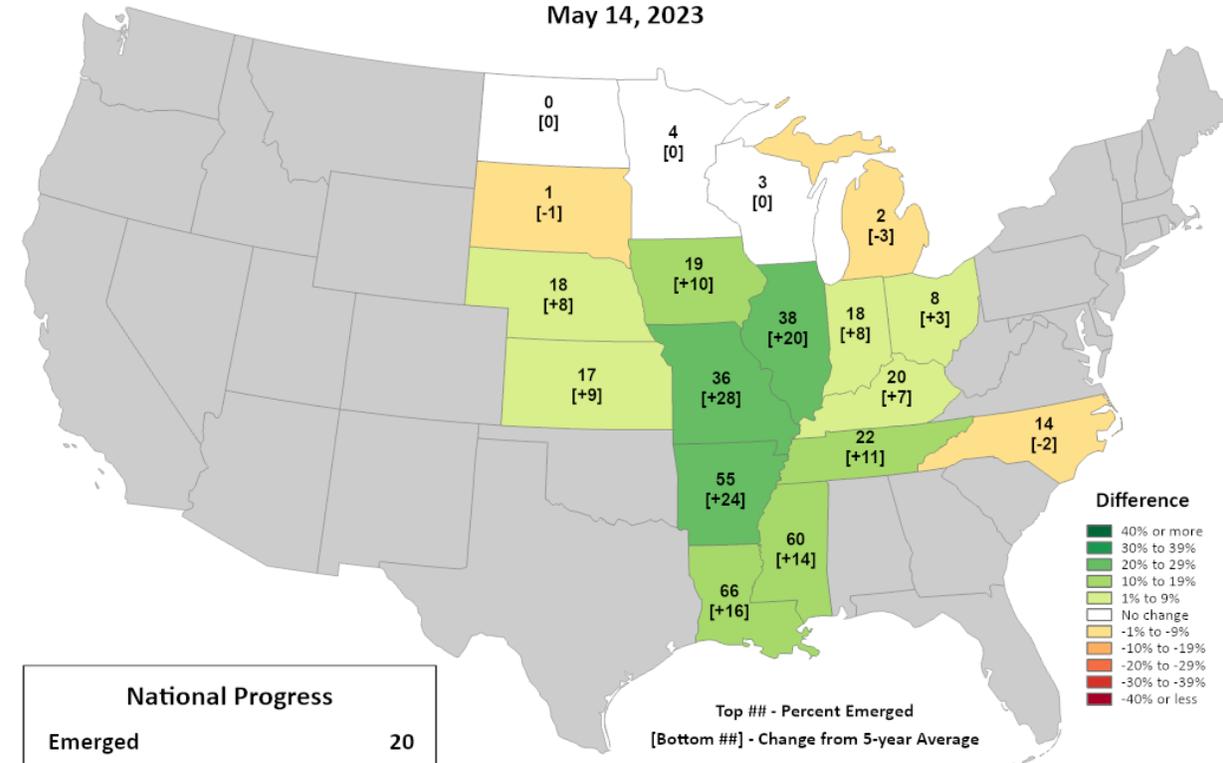


This product was prepared by the
USDA Office of the Chief Economist (OCE)
World Agricultural Outlook Board (WAOB)

Soybeans Progress

Percent Emerged

May 14, 2023



National Progress

Emerged 20
Change from 5-year Average +9

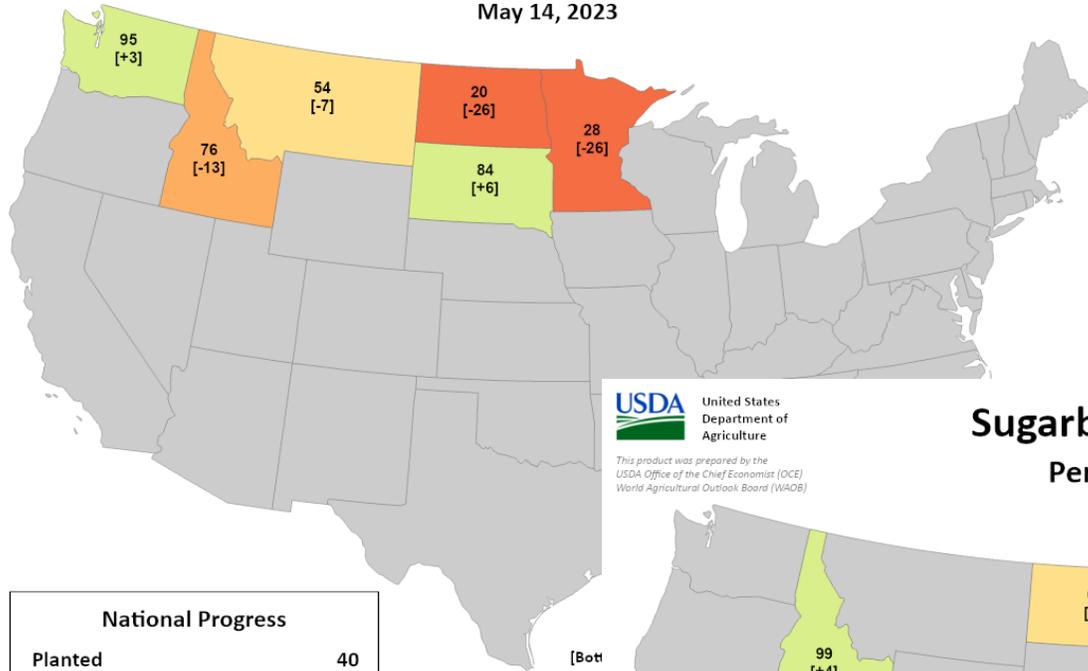
Top ## - Percent Emerged
[Bottom ##] - Change from 5-year Average

Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports.

Spring Wheat Progress

Percent Planted

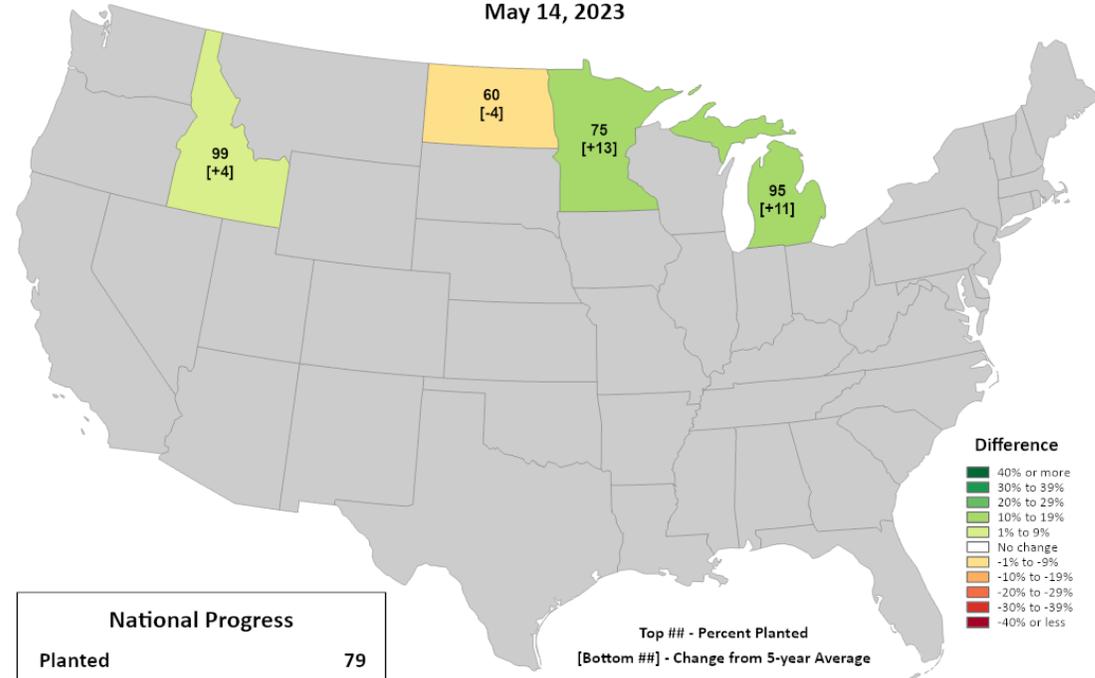
May 14, 2023



Sugarbeets Progress

Percent Planted

May 14, 2023



Difference
 40% or more
 30% to 39%
 20% to 29%
 10% to 19%
 1% to 9%
 No change
 -1% to -9%
 -10% to -19%
 -20% to -29%
 -30% to -39%
 -40% or less

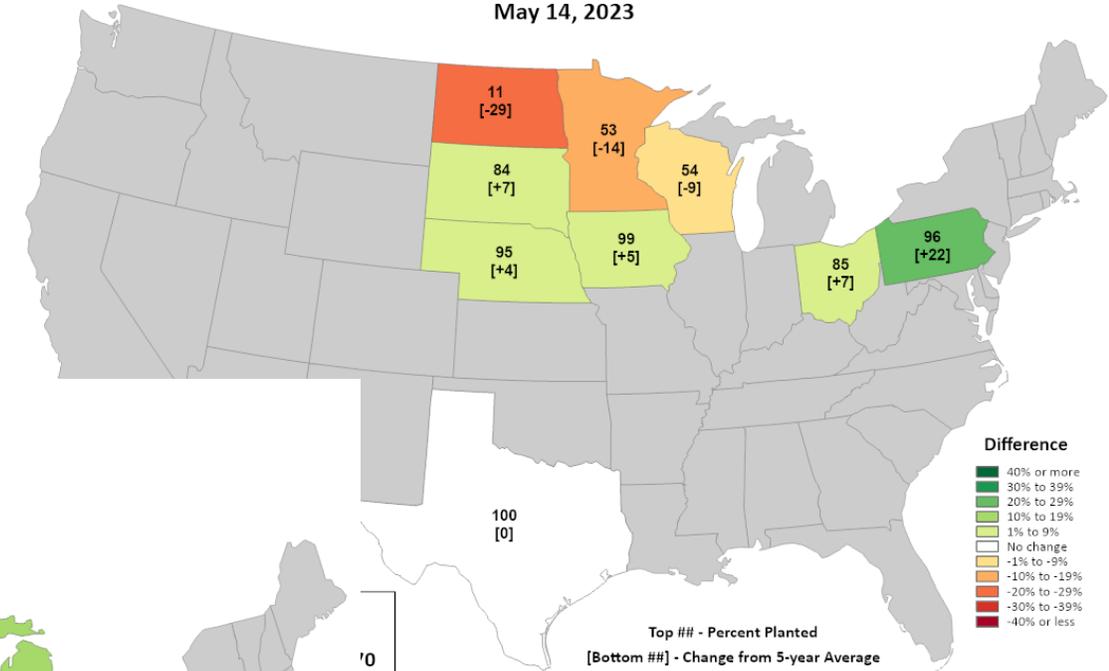
National Progress	
Planted	79
Change from 5-year Average	+7

Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports.

Oats Progress

Percent Planted

May 14, 2023

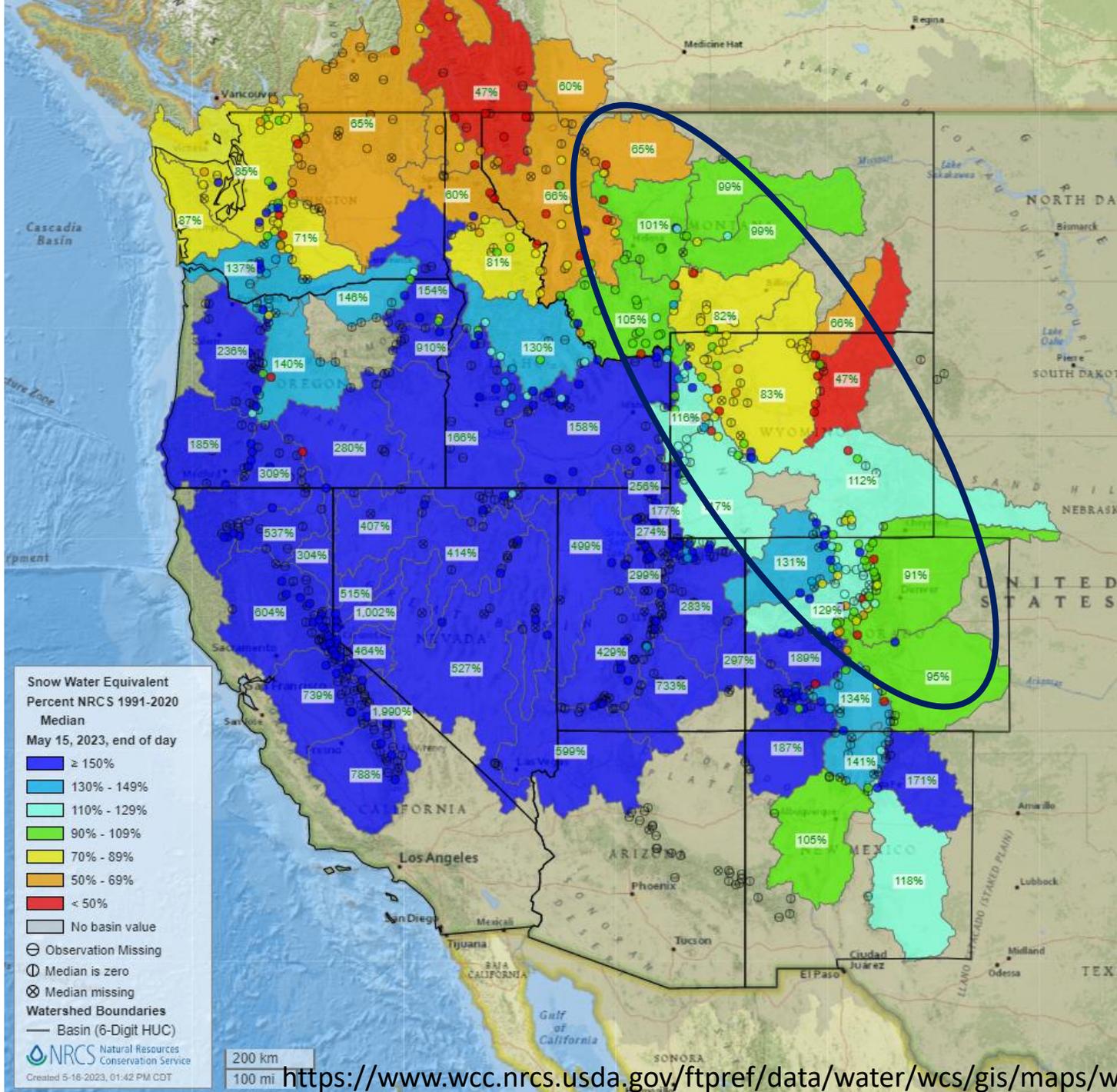


Difference
 40% or more
 30% to 39%
 20% to 29%
 10% to 19%
 1% to 9%
 No change
 -1% to -9%
 -10% to -19%
 -20% to -29%
 -30% to -39%
 -40% or less

Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports.



Snow, Fire, Rivers and Lakes

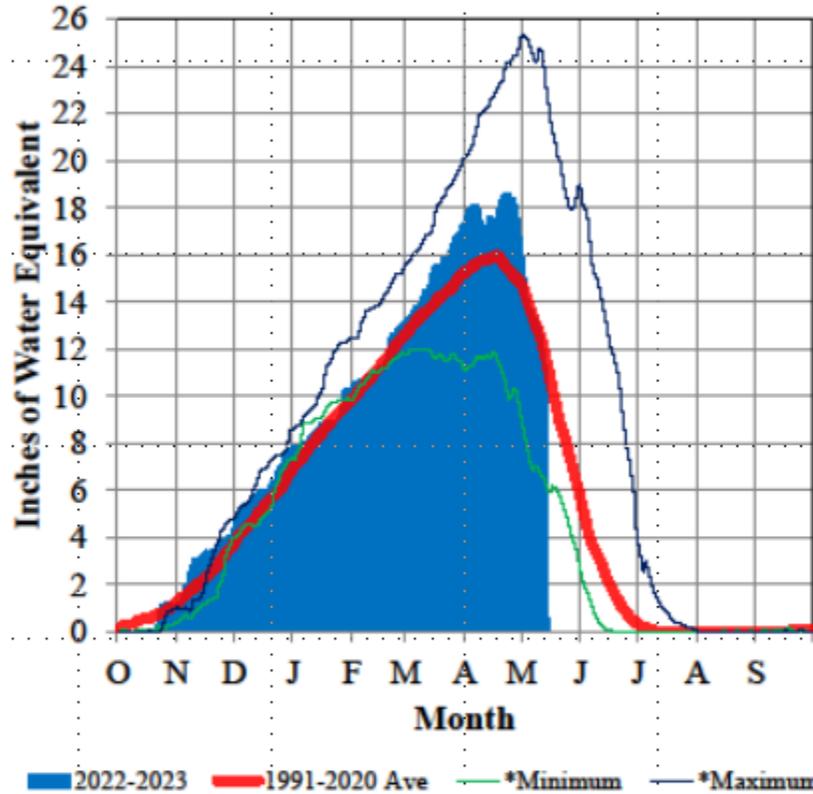


- Overall, SWE percentages range from 80% to over 100%.
- SWE percentages can be misleading this time of year.
- Higher elevations are holding on to snowpack while pack below 8500' has melted.
- Watching temperature outlooks for the potential of high elevation melting in the next few weeks.

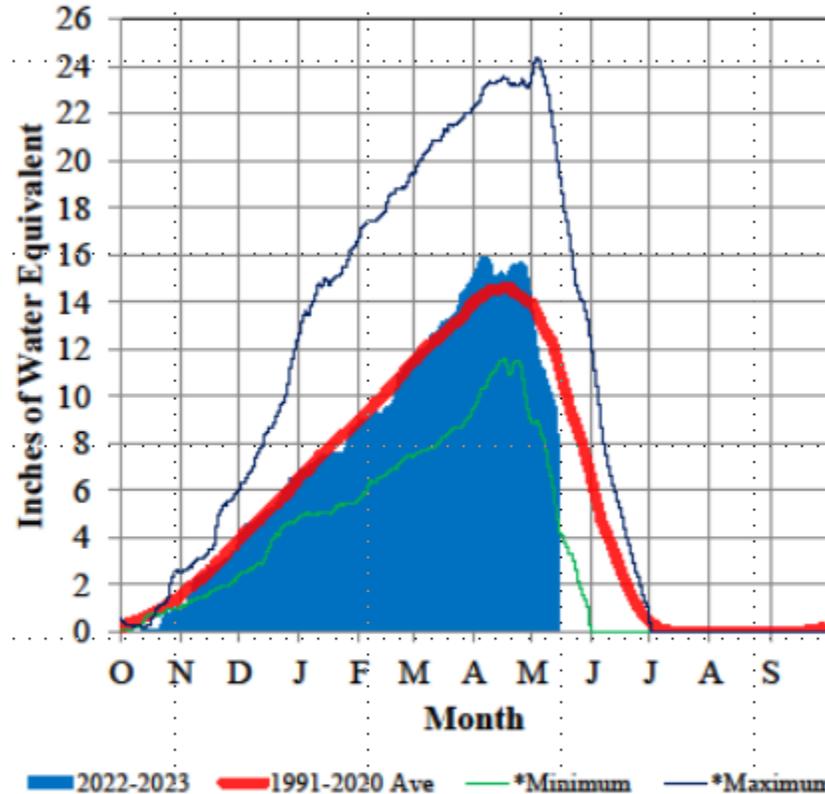
Missouri River Basin – Mountain Snowpack Water Content 2022-2023 with comparison plots from recent high and low years

14-May-2023

Total above Fort Peck



Total Fort Peck to Garrison



- Plains snowpack has melted in the basin.
- SWE is 11.2" above Fort Peck and 60% of annual peak remains. (normal peak is 17 Apr.)
- SWE is 9.2" and 58% of the annual peak remains
- Mountain SWE is at 117% of normal above Fort Peck and 109% of normal from Fort Peck to Garrison.

On May 14, 2023 the mountain Snow Water Equivalent (SWE) in the "Total above Fort Peck" reach is 11.2" and 60% of the annual peak remains. The mountain SWE in the "Fort Peck to Garrison" reach is 9.2" and 58% of the annual peak remains. The normal peak for both reaches occurs near April 17. The "Total above Fort Peck" reach peaked on April 24 at 18.6" SWE and 117% of the normal peak. The "Fort Peck to Garrison" reach peaked on April 6 at 15.9" SWE and 109% of the normal peak.

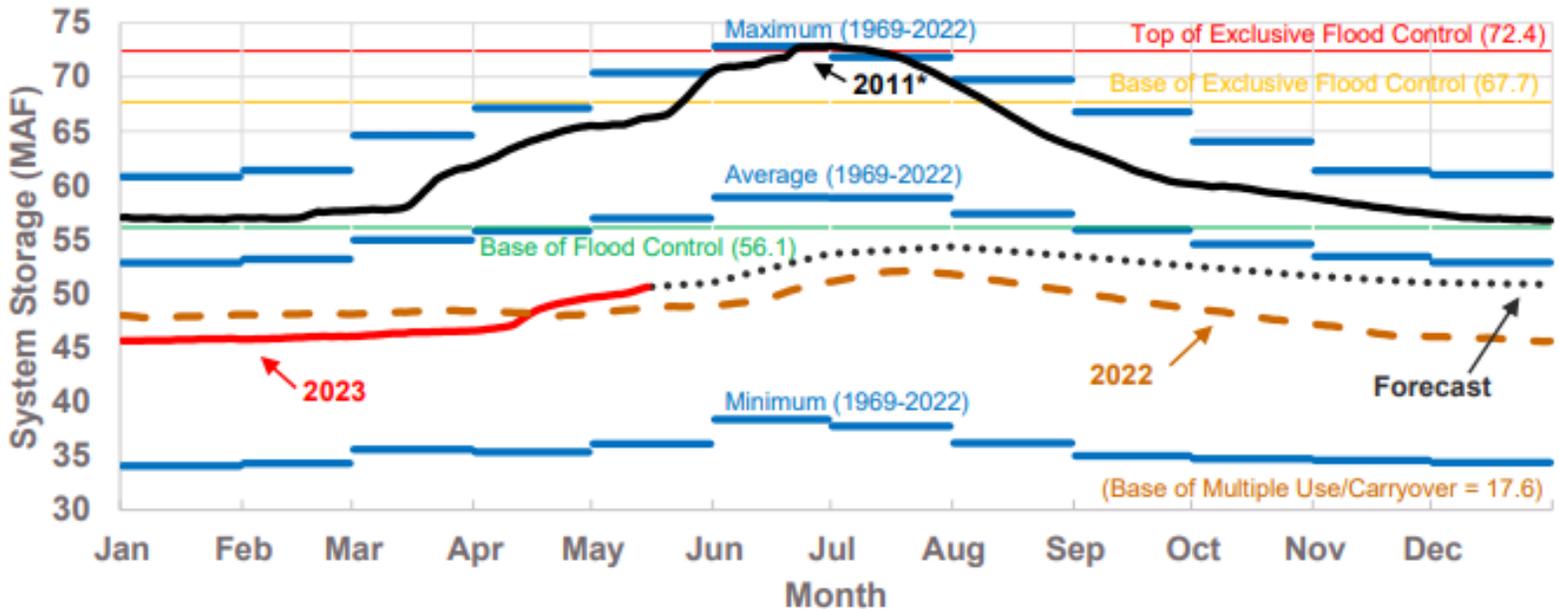
*Minimum peak SWE between 1991-2020 occurred in 2015 above Fort Peck, and in 2001 between Fort Peck and Garrison.
Maximum peak SWE between 1991-2020 occurred in 2011 above Fort Peck, and in 1997 between Fort Peck and Garrison.

Missouri River System Storage

Missouri Mainstem Reservoir Status (as of 5/16/23):

- During the month of April, the reservoir system gained approximately 3 MAF acre-feet of storage.
- System storage is 50.6 million-acre feet, still below the 1969-2022 average but 0.7 MAF more than last week.
- The Gavins Point release is currently 20,000 cfs and will be adjusted as needed to meet downstream nav. targets

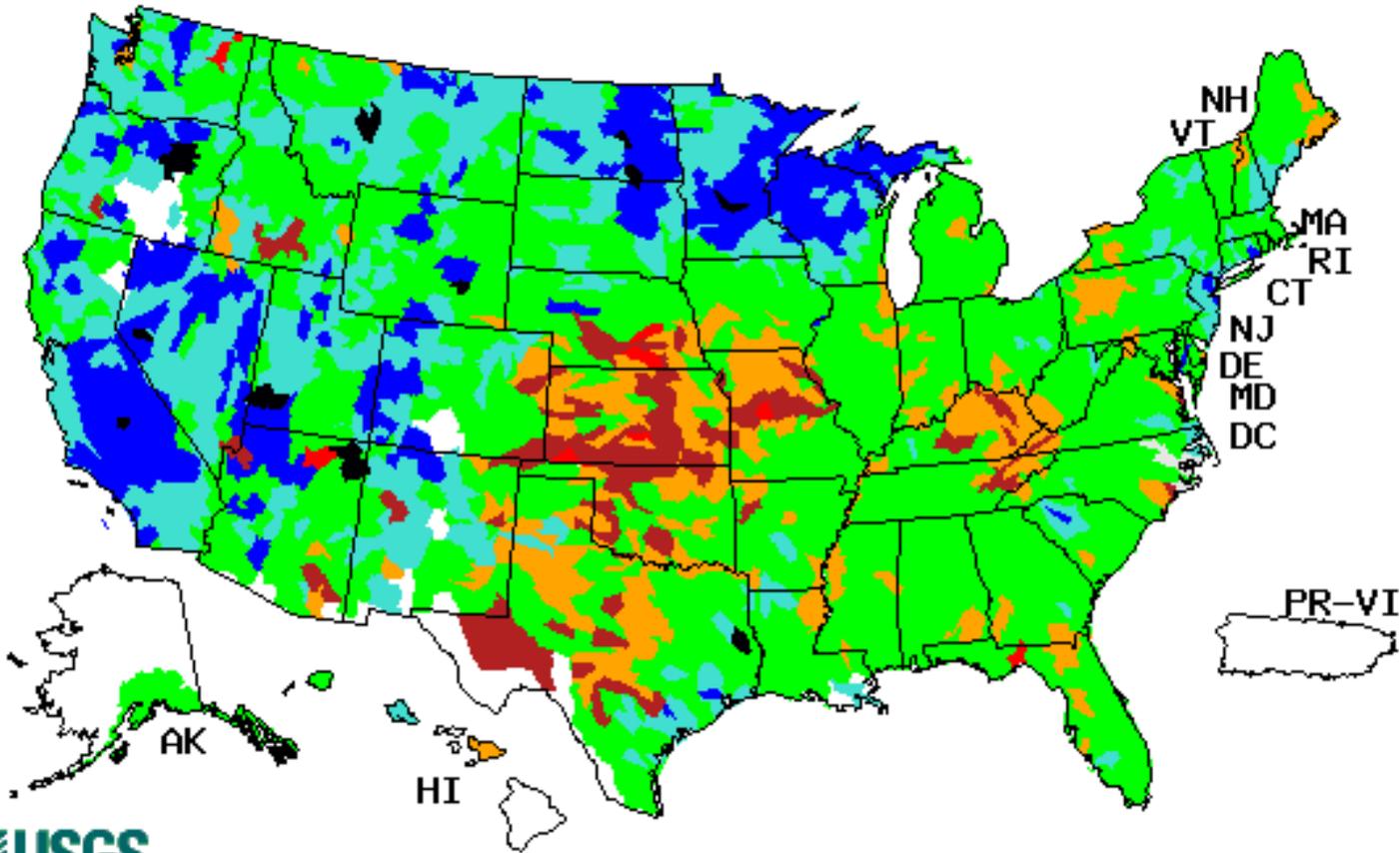
System Storage Comparison



*In January 2011, the Base of Flood Control was 56.8 MAF, and the Top of Exclusive Flood Control was 73.1 MAF

28-day Average Streamflow

Tuesday, May 16, 2023



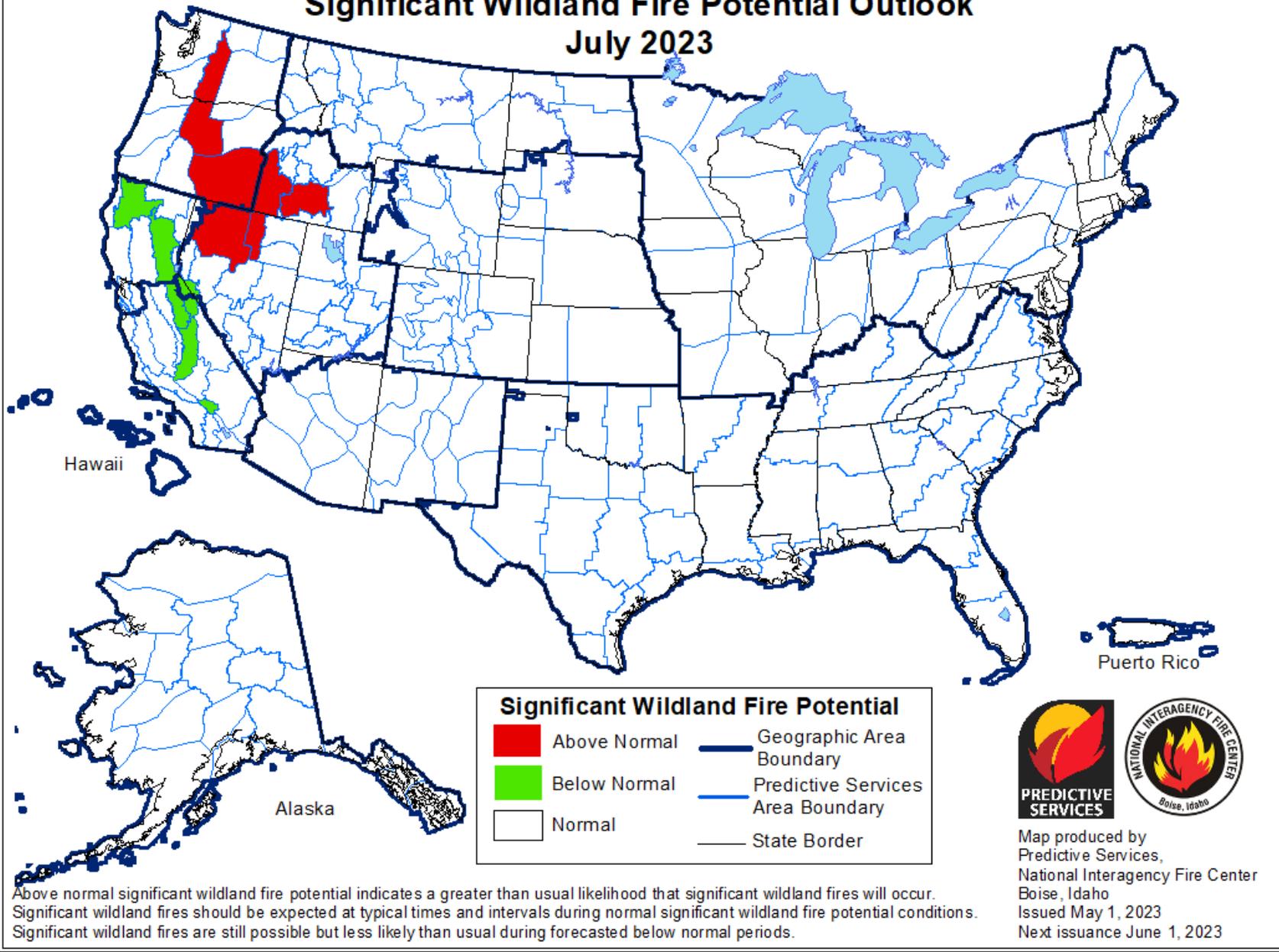
- Above-normal to much above-normal levels from the UP of MI through the Dakotas and Montana.
- Below to much-below normal northern MO, KS and southern NE.
- Eastern Corn Belt generally near-normal.



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

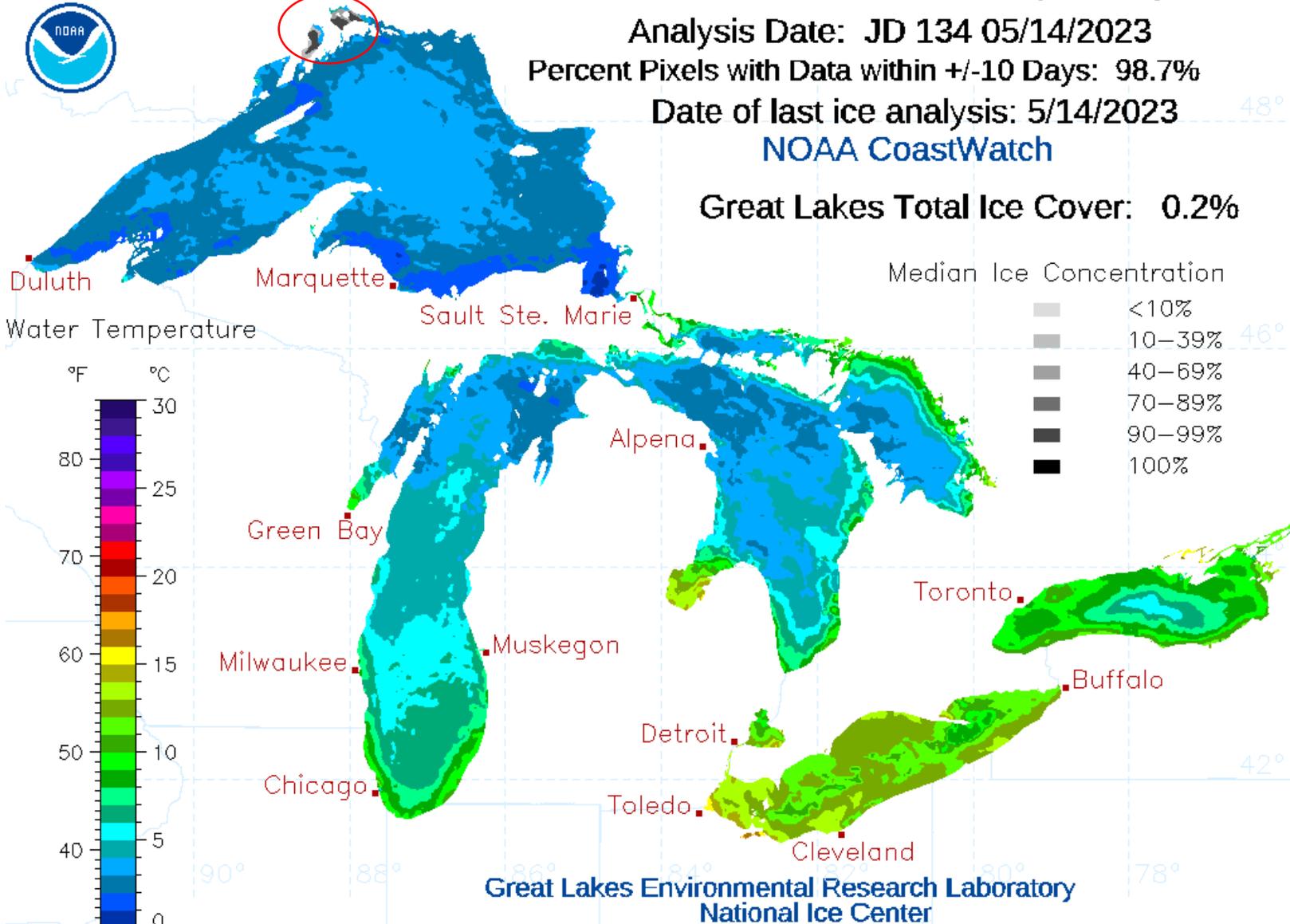
<http://waterwatch.usgs.gov/index.php?id=pa07d>

Significant Wildland Fire Potential Outlook July 2023



- No significant wildland fire potential through the end of May.
- Above-normal potential across portions of the Upper Midwest in June

GREAT LAKES SURFACE ENVIRONMENTAL ANALYSIS (GLSEA)

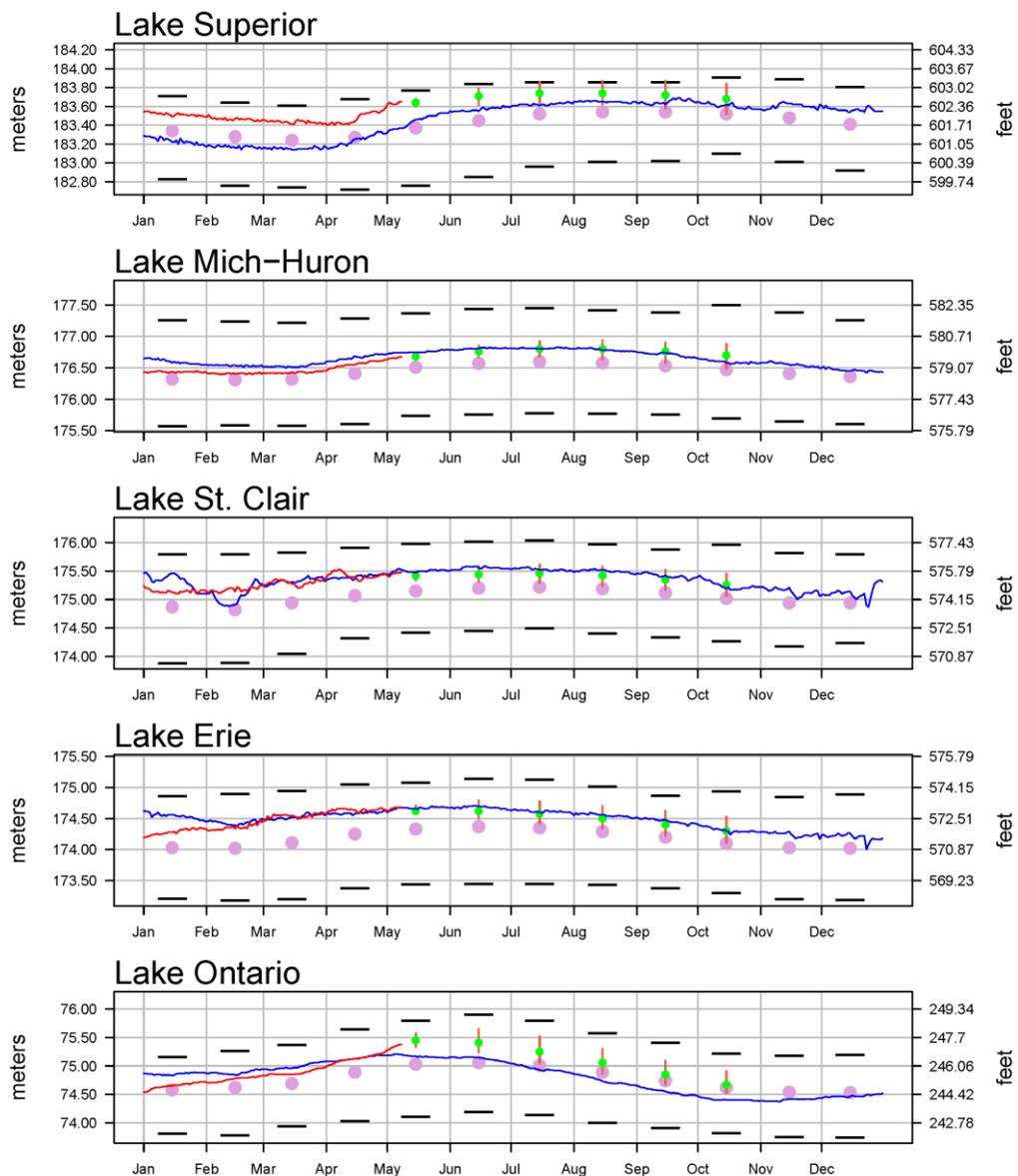


- ❑ Water temperatures are around average for all lakes for this time of year
- ❑ Ice cover on the lakes has tapered off as expected throughout April and May.
- ❑ As of May 14th, 0.2% of the lakes are still ice-covered.



Daily Great Lakes Water Levels

— 2023
— 2022
● Coordinated Forecast
● LTA Monthly Mean
— Record High/Low Monthly Mean



Lakewide average levels are based on a network of water level gages located around the lakes.
LTA and record levels are computed from a period of record of 1918 to 2022
Elevations are referenced to the International Great Lakes Datum (1985).

Updated 2023-05-10

Great Lakes Water Levels

- Water levels on the lakes are continuing their annual spring rise.
- According to [USACE Detroit](https://www.usace.army.mil/Portals/0/documents/det/detroit/detroit.html):
 - Lakes Michigan, Huron, Erie and St. Clair are close to their May 2022 levels
 - Lakes Superior and Ontario are above their May 2022 levels.
- All the lakes are above their long-term average May levels.

<https://www.glerl.noaa.gov/data/wlevels/data/superiorLevelsFeet.png>



Impacts and Notable Events

Photo Credit:
Aaron Wilson

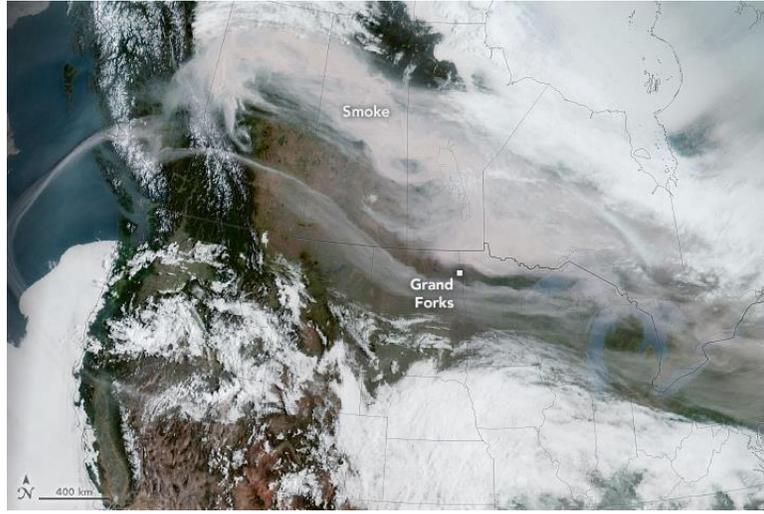
Rising Mississippi River tests Iowa, Illinois flood barriers

Officials in towns along the river have said they are optimistic they will escape severe flooding this year, thanks to improved flood walls and other prevention measures.

BY:
ASSOCIATED PRESS

Wollersheim Winery loses almost entire red grape crop due to wildly fluctuating temperatures

Ward Jolles May 16, 2023 Updated 16 hrs ago 0



Out-of-control wildfires spur evacuations in western Canada

Officials in Alberta said there were 108 active fires in the province and that the number of evacuees grew to about 29,000.

BY:
ASSOCIATED PRESS
| 05/09/2023 06:26 AM EDT

Drought parches America's breadbasket

Farmers in northern Oklahoma and western Kansas are struggling in a long-lasting dry spell that may be a harbinger for severe climate troubles ahead.



Photo Credit:
Gannon Rush

Kansas:

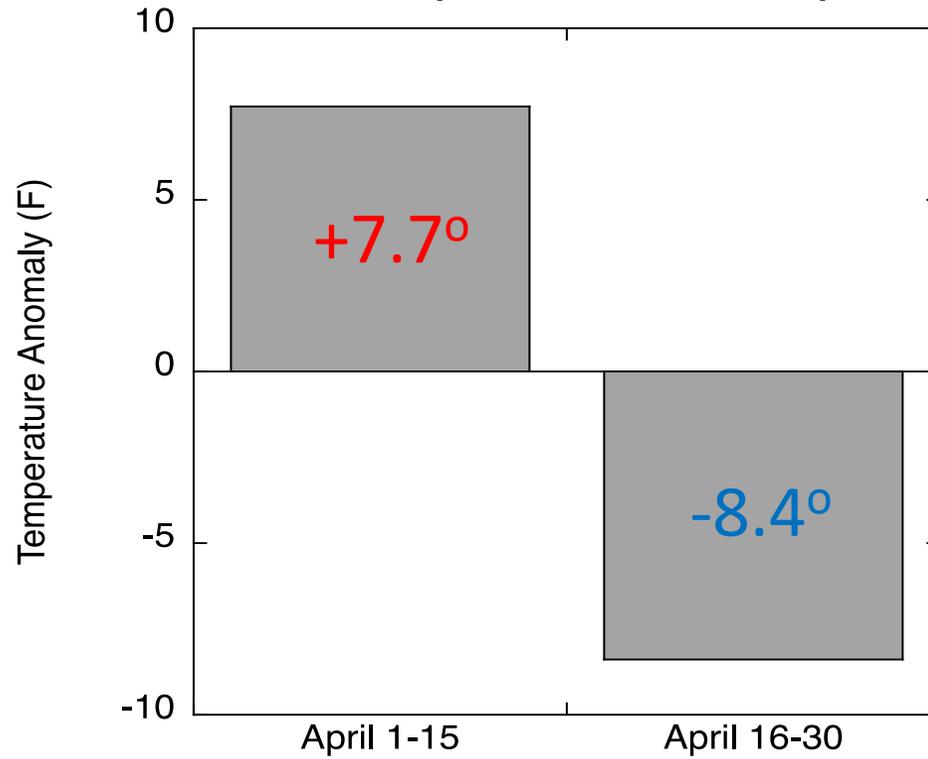
- Some locations in the northwest were on day 288 without more than 0.50” of precip.
- Pastures are in terrible shape and producers low on feed.
- This week was a complete 180, with significant precipitation and flooding.
- “It was a blessing and a curse because it sounds like some fields west of us were destroyed by both hail and wind.”



U.S. PLAINS FARMERS BRACE FOR HISTORICALLY POOR WINTER WHEAT HARVEST

5/8/2023

Wisconsin Temperature Anomalies April 2023



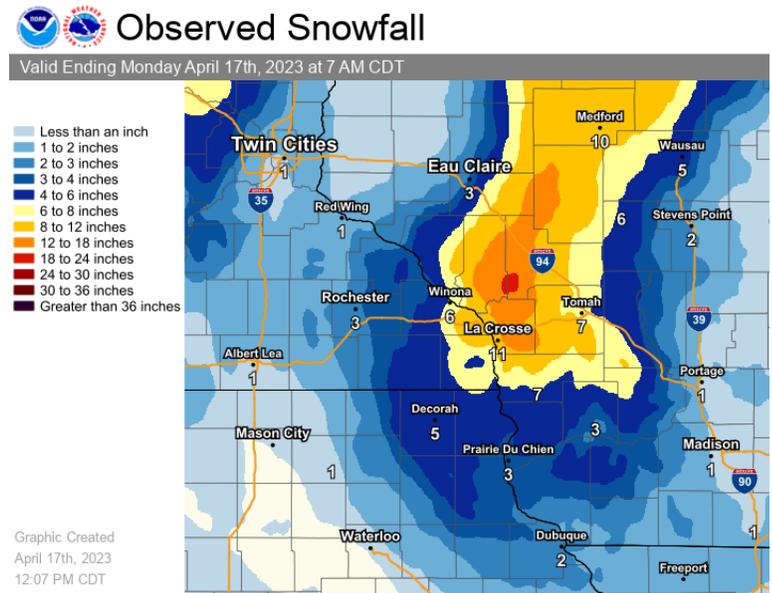
April 12 wildfires

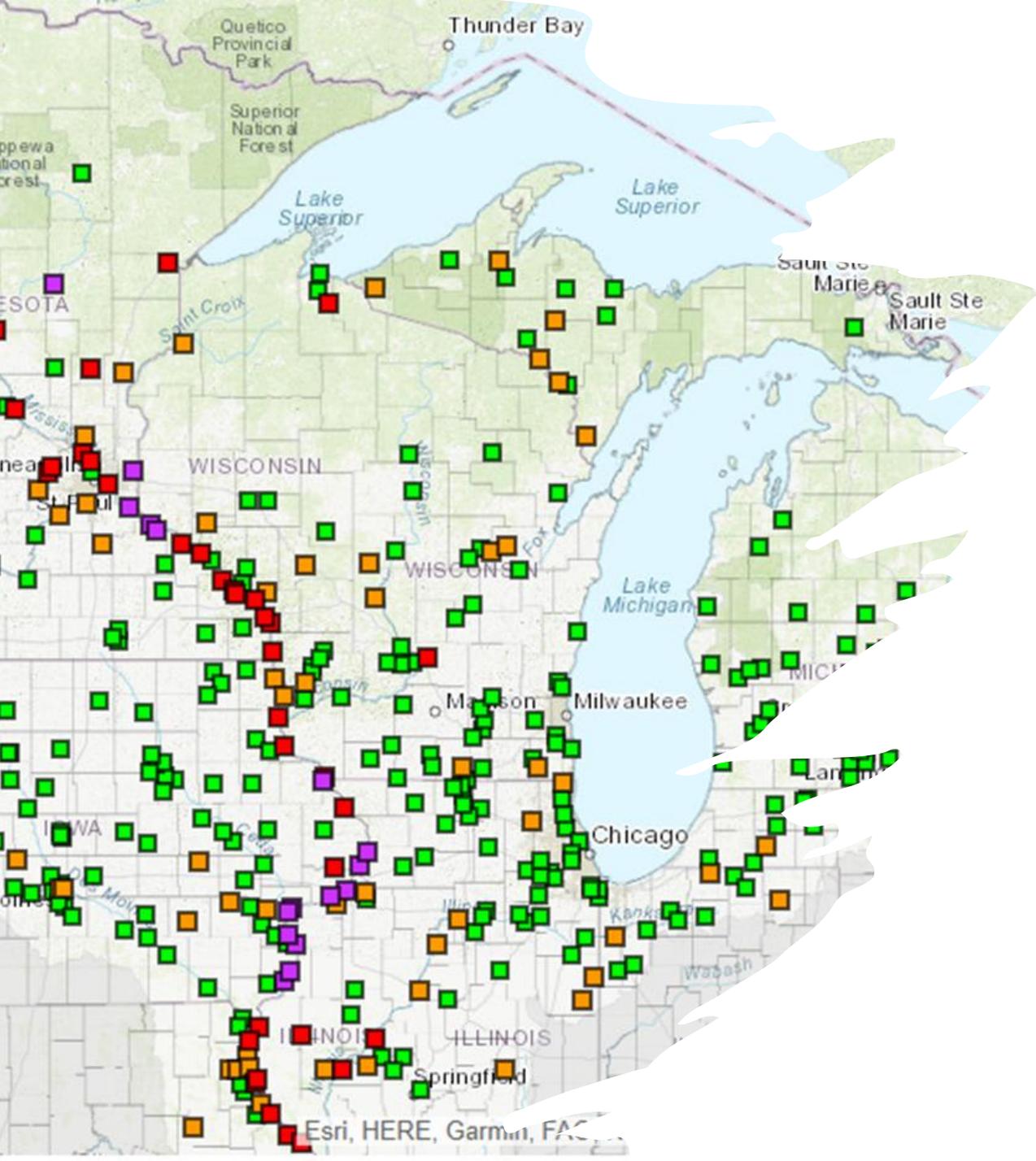


Monroe County

Courtesy of Wisconsin DNR

April 16-17 snowstorm





Mississippi River Flooding

Mississippi River Continuing to Recede

Updated: May 16, 2023 7:19 PM The river level forecasts are based on current modeled flow in the river and 24 hours of forecasted precipitation.

Location	Flood Stage	Current Category	Crest	Crest Date	Recession Forecast	Historical Crests	
DUBUQUE Lock & Dam - DLDI4	16 ft	ACTION	23.03' (P)	4/29	Action Stage 15.0' - 5/17	(2) 23.91' 04/21/2001	(3) 22.32' 07/01/1993
DUBUQUE Railroad - DBQI4	17 ft	MINOR	24.30' (P)	4/29	Flood Stage 17.0' - 5/16	(2) 25.40' 04/21/2001	(3) 23.84' 07/01/1993
BELLEVUE - BLVI4	17 ft	Below Action	21.78' (P)	4/29		(2) 22.58' 04/22/2001	(3) 21.50' 07/01/1993
FULTON - FLT12	16 ft	ACTION	22.06' (P)	4/30	Action Stage 15.0' - 5/19	(3) 22.17' 07/08/1993	(4) 21.77' 04/30/2019
CAMANCHE - CMMI4	17 ft	MINOR	22.86' (P)	4/30	Flood Stage 17.0' - 5/18	(4) 22.87' 07/07/1993	(5) 22.77' 05/01/2019
LE CLAIRE - LECI4	11 ft	ACTION	16.18' (P)	5/1	Action Stage 10.0' - 5/20	(4) 16.50' 05/02/2019	(5) 14.97' 04/22/2011
ROCK ISLAND - RCKI2	15 ft	MINOR	21.51' (P)	5/1	Flood Stage 15.0' - 5/20	(6) 21.68' 06/01/2019	(7) 21.49' 06/16/2008
ILLINOIS CITY - ILNI2	15 ft	MINOR	21.22' (P)	5/2	Flood Stage 15.0' - 5/17	(7) 22.23' 07/05/2014	(8) 20.83' 04/10/2019
MUSCATINE - MUSI4	16 ft	MINOR	22.31' (P)	5/2	Flood Stage 16.0' - 5/20	(7) 23.50' 04/25/2001	(8) 21.95' 04/10/2019
NEW BOSTON - NBOI2	15 ft	MINOR	20.85' (P)	5/3	Flood Stage 15' - 5/20	(13) 20.96' 04/24/2011	(14) 19.76' 04/26/1969
KEITHSBURG - KHBI2	14 ft	MINOR	19.12' (P)	5/3	Flood Stage 14' - 5/22	(12) 19.17' 04/10/2019 (P)	(13) 19.10' 04/25/1993
GLADSTONE - GLDI2	10 ft	MINOR	15.93' (P)	5/4	Action Stage 12.0' - Late May	(12) 16.06' 04/24/2011	(13) 14.72' 10/06/1986
BURLINGTON - BRLI4	15 ft	MODERATE	20.00' (P)	5/4	Moderate Stage 16.5' - 5/17	(14) 20.24' 04/24/2011	(15) 19.92' 07/03/2013
KEOKUK - EOKI4	16 ft	Below Action	17.71' (P)	5/5		NA	NA
GREGORY LANDING - GGYM7	15 ft	ACTION	18.79' (P)	5/5	Action Stage 14.0' - Late May	NA	NA

★ (P) = Preliminary / Uncertified Crests for all Mississippi River sites

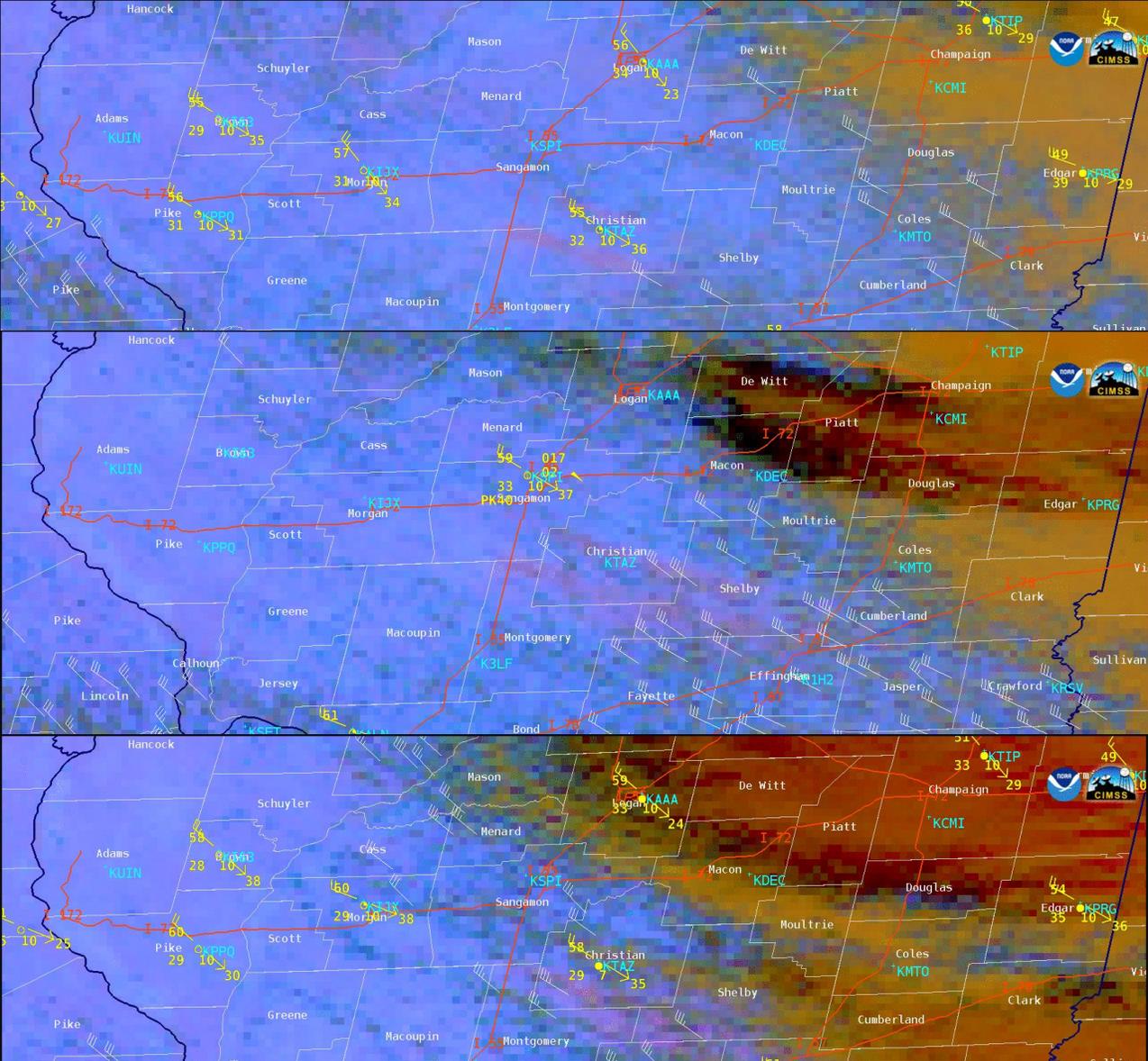
National Oceanic and Atmospheric Administration
U.S. Department of Commerce

National Weather Service
Quad Cities, IA/IL

State Impacts



- Row crop planting generally ahead of the five-year average with some states lagging.
- Dry fall and active winter impacting winter wheat quality in KS, SD.
- Wisconsin: Wettest YTD start on record.
- Six consecutive months of statewide below-normal temperatures in CO and unseasonably wet conditions in WI
- An observed 98-mph thunderstorm wind gust in Colorado on May 5th.
- Freeze damage at IL peach orchards could produce a 60-75% loss.
- Scarce fertilizer availability in SD dues to halted barge traffic from Mississippi flooding.
- Hail damage to high tunnels and alfalfa stands across southern Iowa after multiple waves of severe thunderstorms



May 1st I-55 Dust Storm in Illinois:

- Multiple crashes occurred on I-55 near the Sangamon/Montgomery County line due to blowing dust reducing visibility to near zero
- Illinois State Police reported:
 - 72 vehicles involved on both sides of the interstate between mile markers 76 and 78.
 - There were eight fatalities, and 37 people were injured.



- **Westerly to northwesterly winds (45 to 55+ mph) generated by a stalled low-pressure system over the Great Lakes were nearly perpendicular to a major highway (I-55).**
- **Those high winds crossed agricultural fields before reaching I-55, leading to a narrow streamer of blowing dust and abrupt reductions in visibility.**
- **Topsoil was primed to be lofted into the air by short-term dryness – April rainfall in the area totaled about 2 inches, roughly half of normal.**
- **Fields were tilled for planting or had just been planted, leaving topsoil exposed (until a crop canopy forms in a few weeks). By April 30, corn planting was 40% complete in Illinois; soybeans were 39% planted.**

Severe

- 2328 April
- Severe across region
- Wide
 - 4th
 - 15
 - 19



Marion, IA
(Rebecca Kopelman)



Davenport, IA
(Maureen Murray)



Muscatine, IA
(Brenda Papendorf)



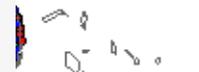
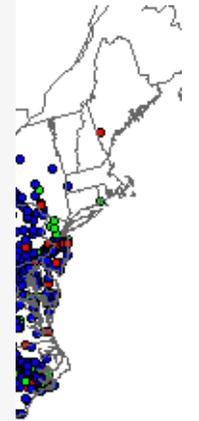
Colona, IL Tornado Damage
(NWS Survey)



Colona, IL Tornado Damage
(NWS Survey)



Colona, IL Tornado Damage
(NWS Survey)



Weather Reports
May 15, 2023

May 15, 2023 08:54 CT

May 15, 2023 08:54 CT

Nov Dec

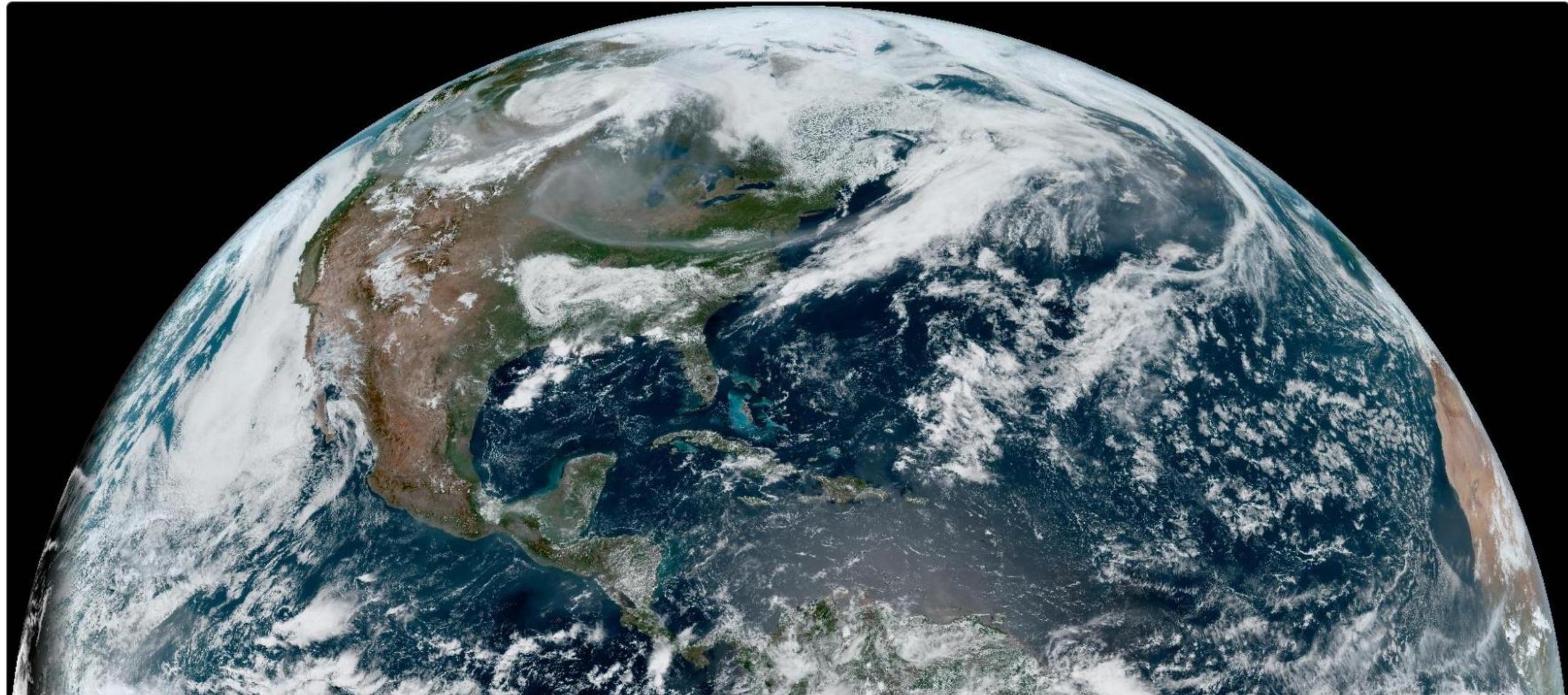
- May 15, 2023



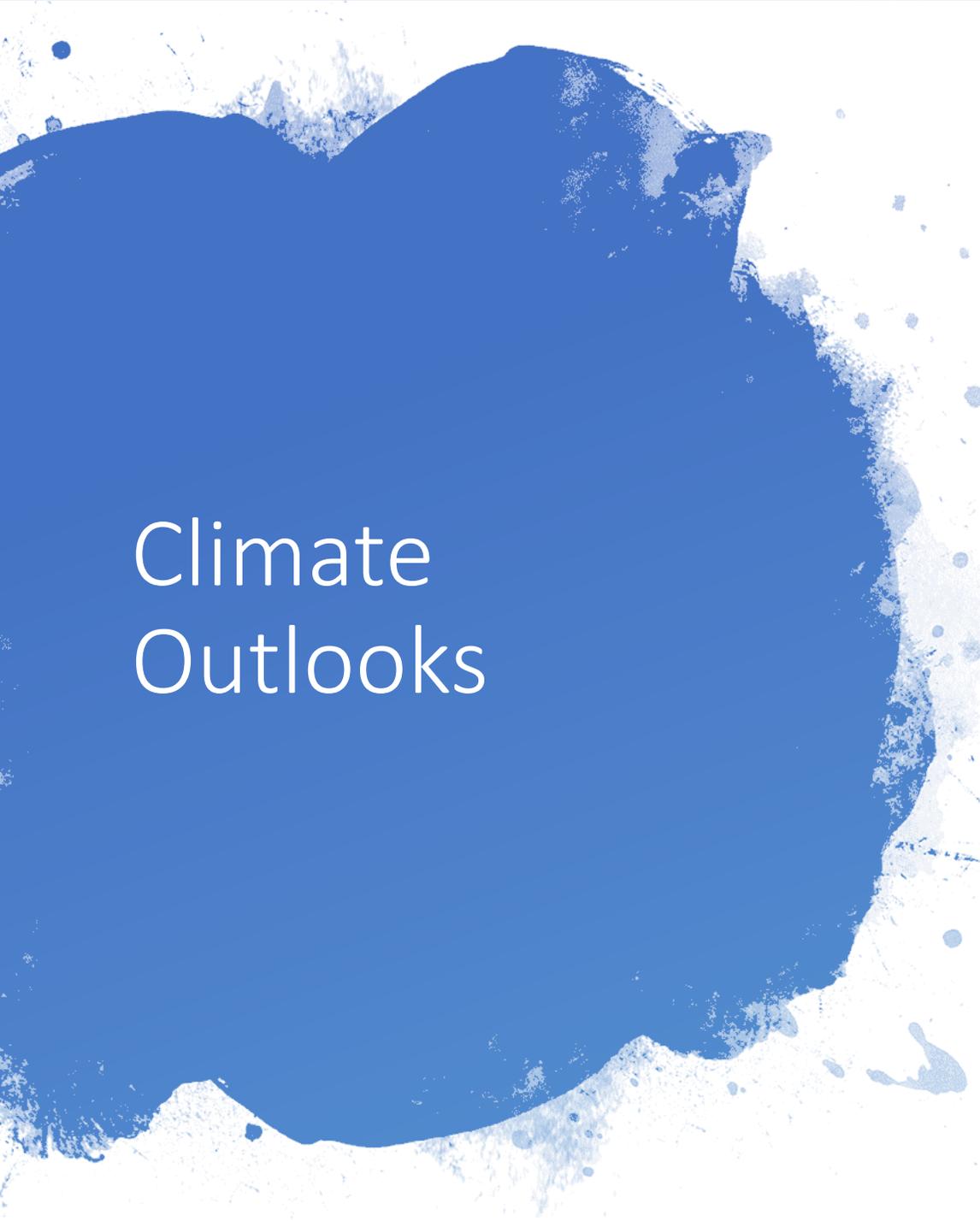
Media use of NWS Web News Stories is encouraged!
Please acknowledge the NWS as the source of any news information accessed from this site.



GeoColor - True Color daytime, multispectral IR at night - 17 May 2023 - 1550 UTC



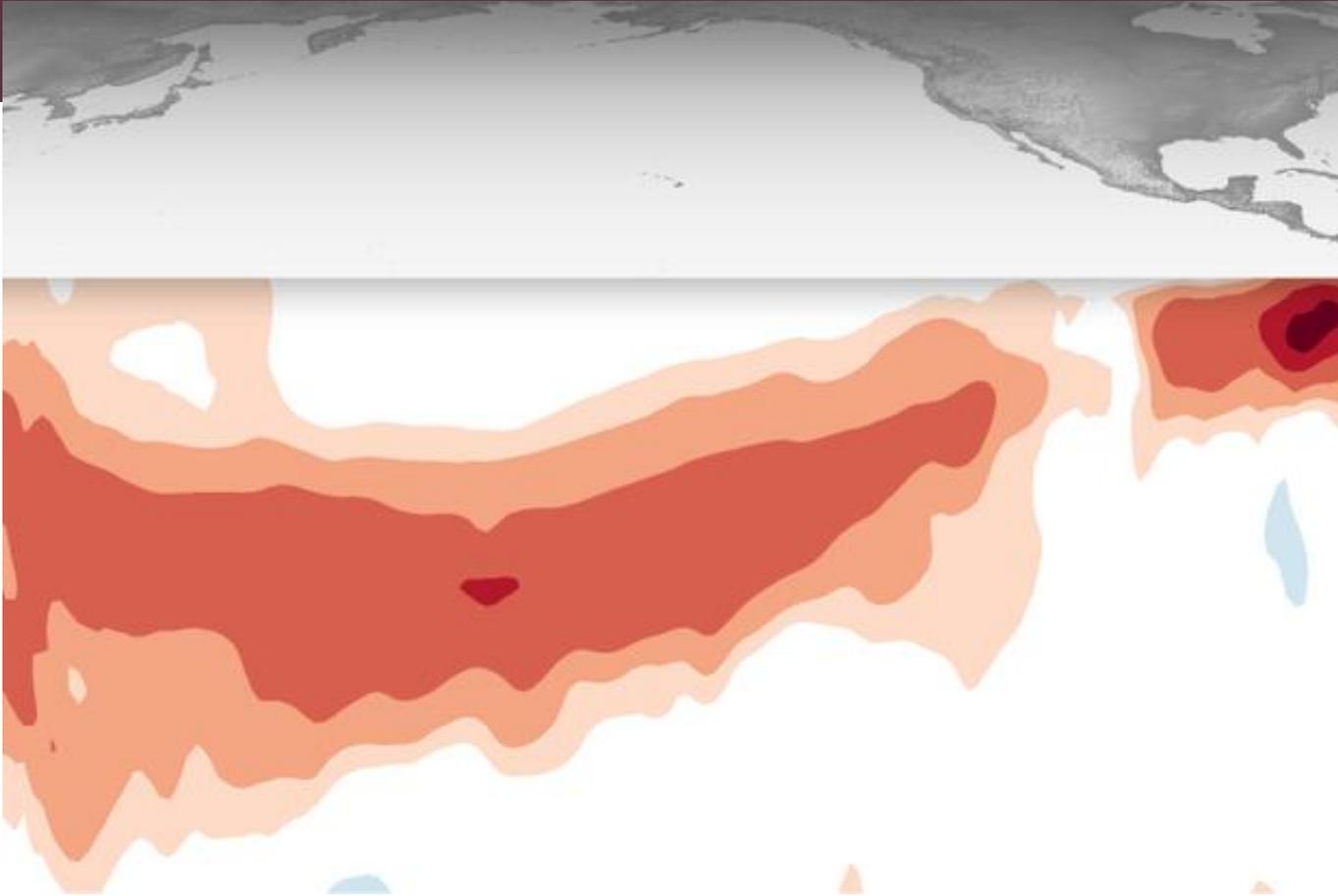
https://www.star.nesdis.noaa.gov/GOES/fulldisk_band



Climate Outlooks

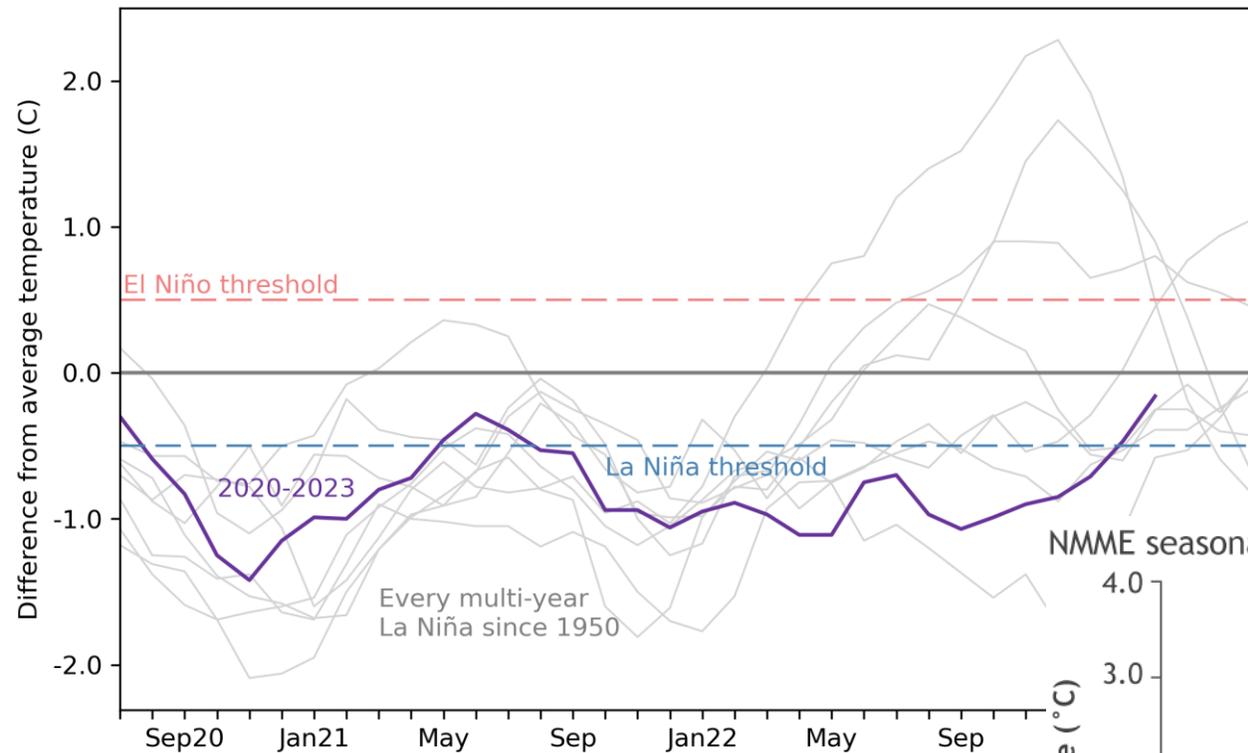
- ENSO-neutral => El Nino
- 7-day Precipitation Forecast
- 8 – 14 day Outlook
- May/Initial June Outlooks
- JJA temperature and precipitation

El Niño Watch

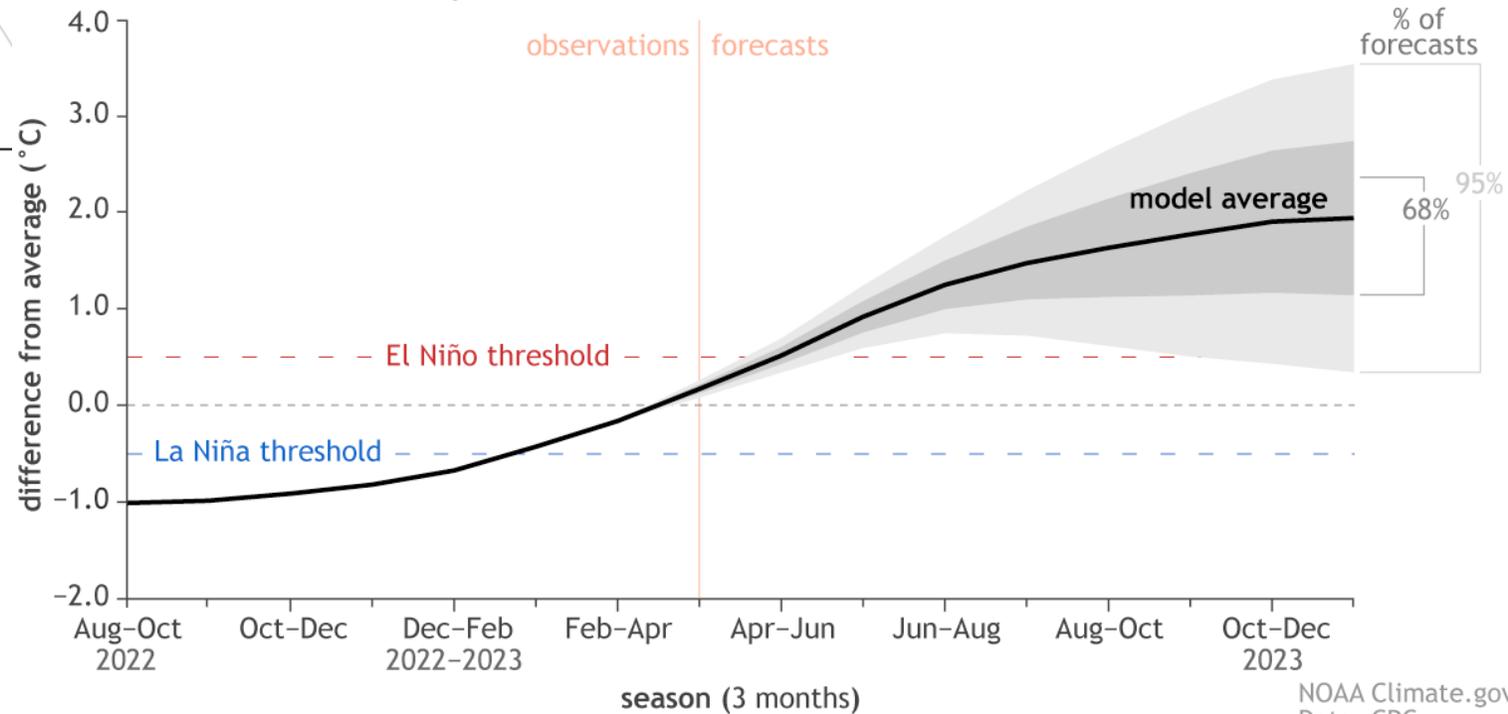


- Currently holding in ENSO-neutral after three consecutive years of La Niña.
- SSTs trending warmer though oceanic-atmospheric coupling has not occurred.
- A transition to El Niño is expected in late spring/early summer and continue across the Northern Hemisphere winter.

Monthly sea surface temperature Niño3.4 Index values



NMME seasonal forecasts, May 2023



NOAA Climate.gov
Data: CPC

ENSO Probabilities

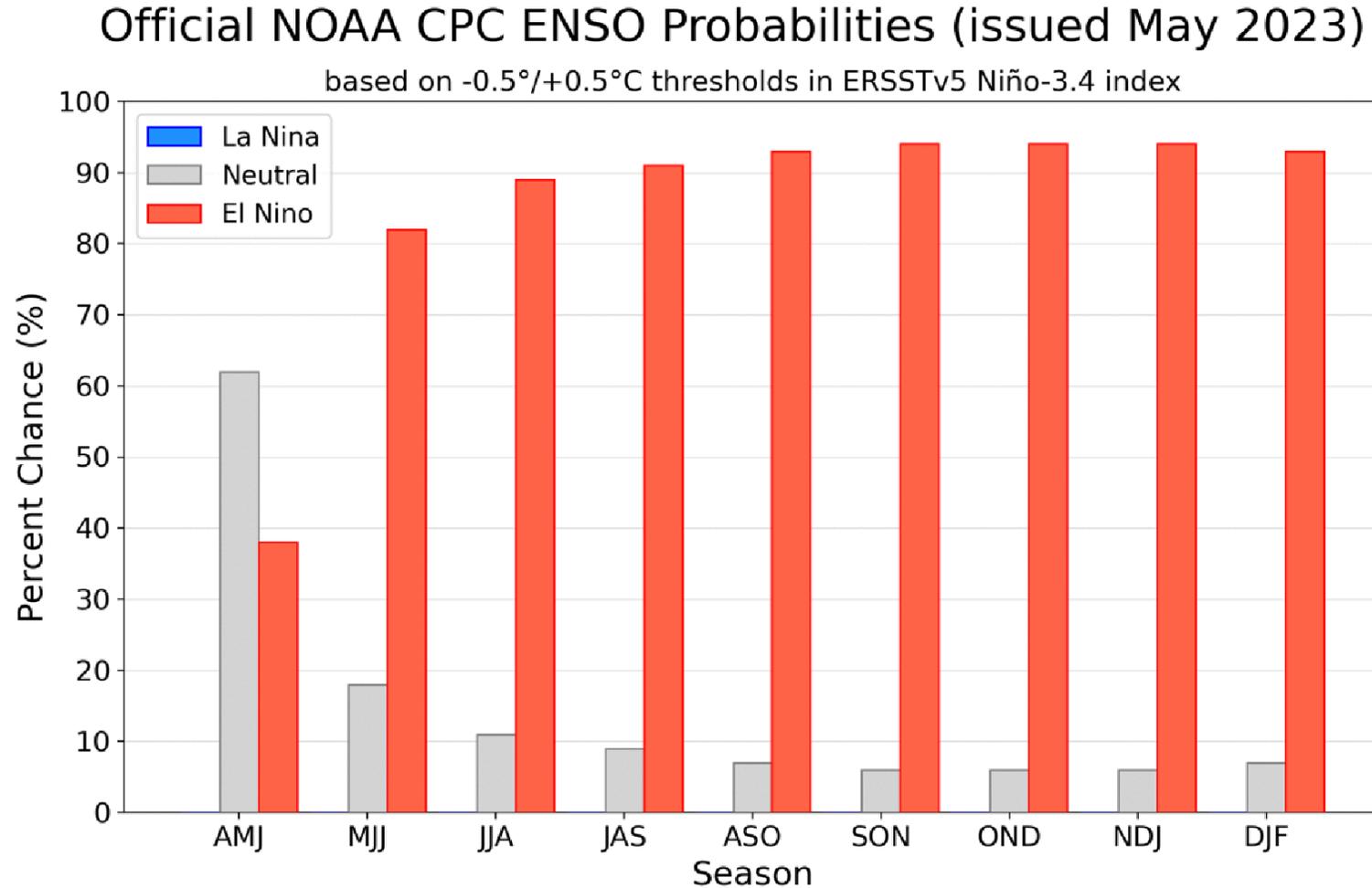
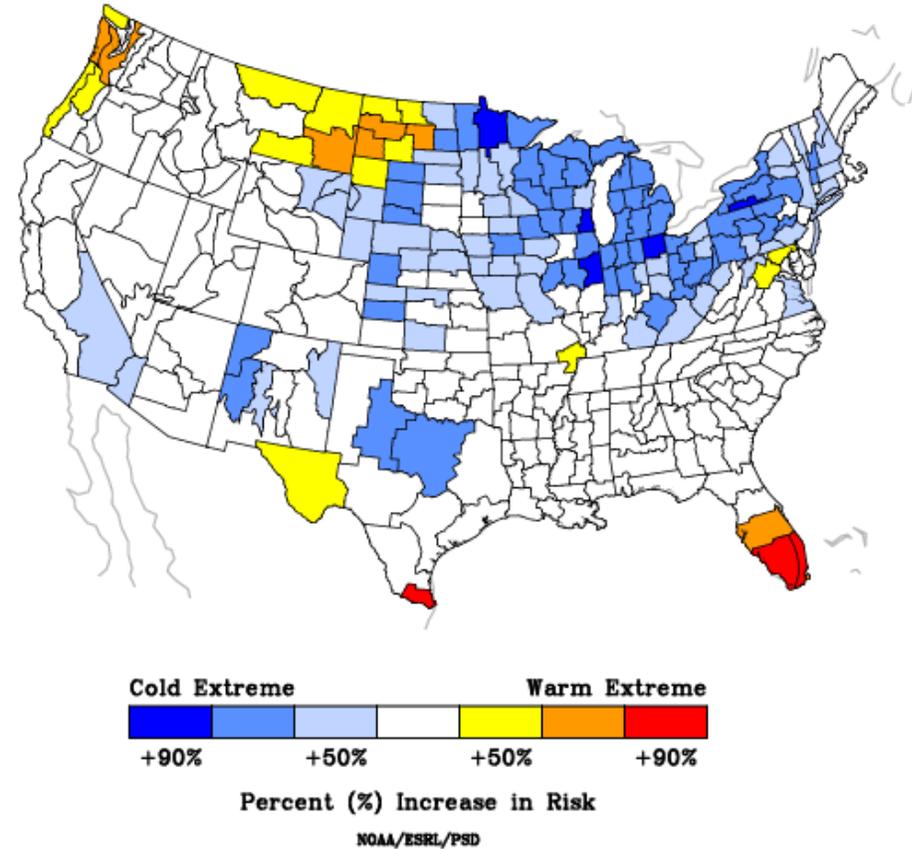


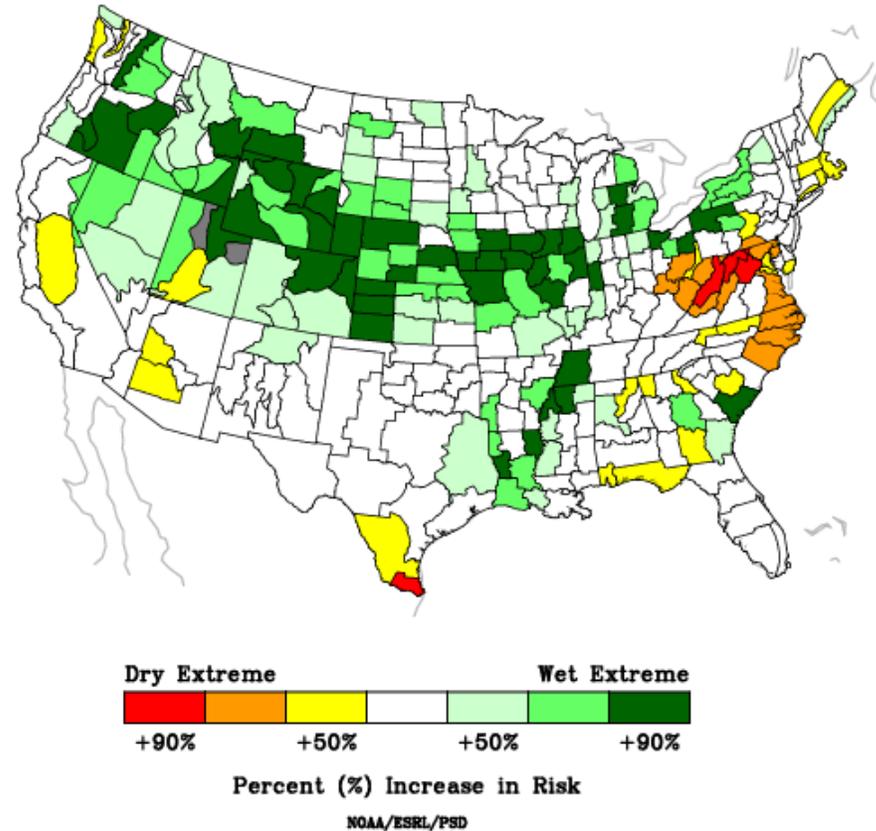
Figure 7. Official ENSO probabilities for the Niño 3.4 sea surface temperature index (5°N - 5°S , 120°W - 170°W). Figure updated 11 May 2023.

Risk of ENSO-Related Seasonal Climate Extremes

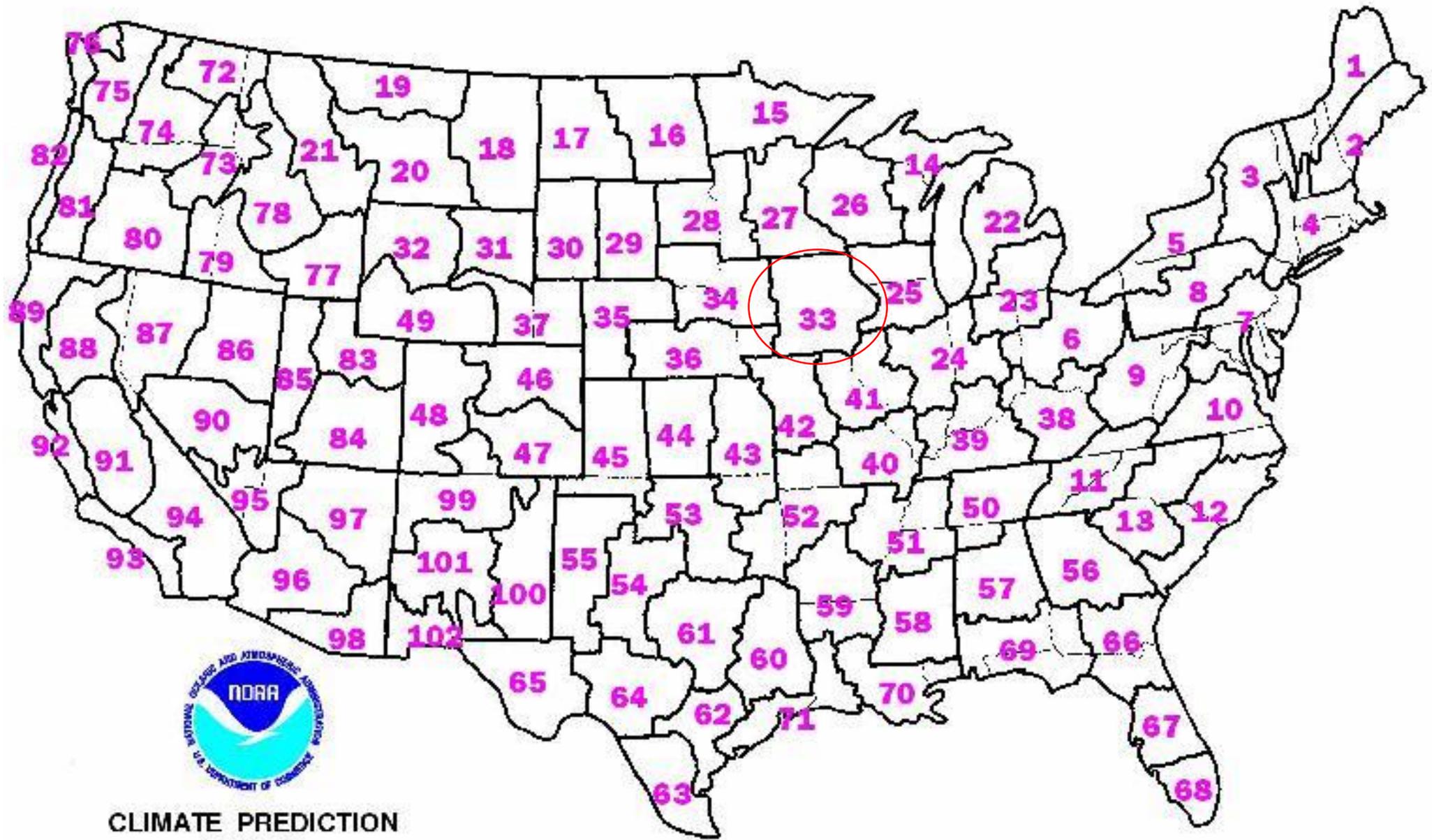
JJA Temperature During El Nino
Increased Risk of Warm or Cold Extremes



JJA Precipitation During El Nino
Increased Risk of Wet or Dry Extremes



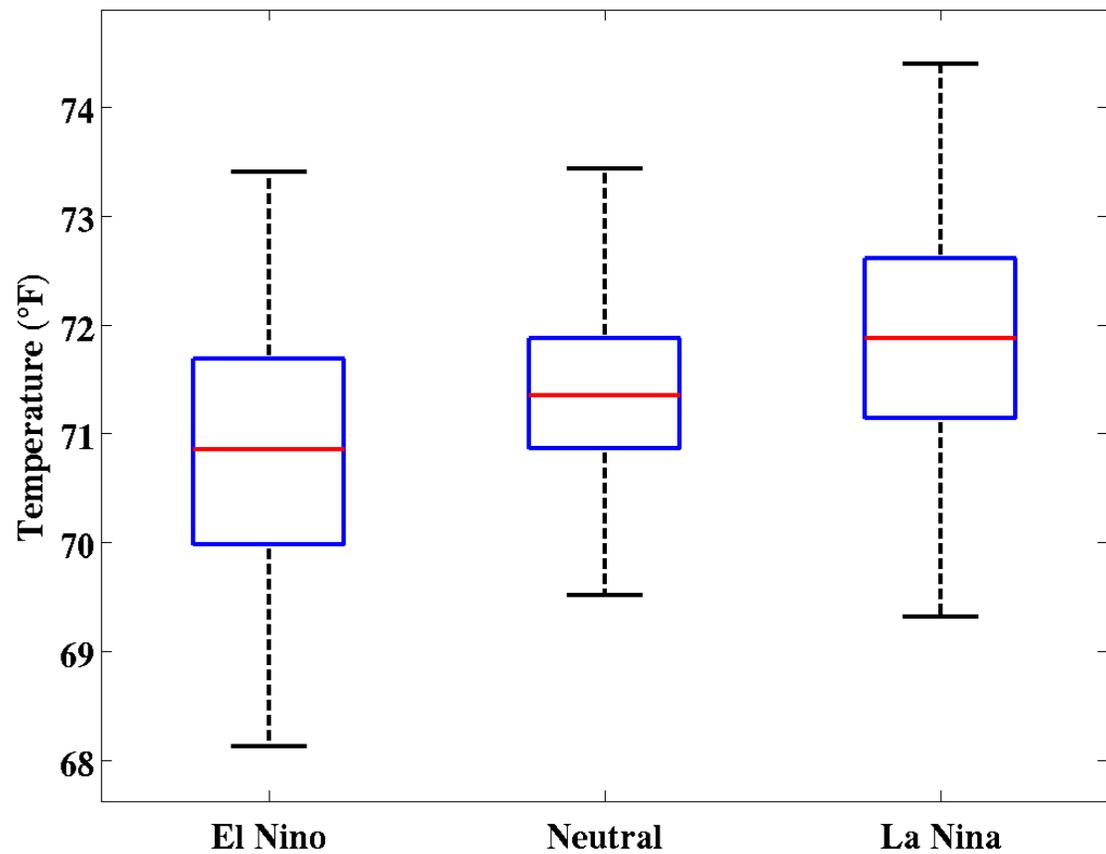
- Important to note plots these are composites of years in which EN has been present in JJA.
- These are not forecasts but rather an average of past behavior and the percent increase in risk.
- Overall, the general behavior across much of the region is cooler and not as dry as the La Nina phase.



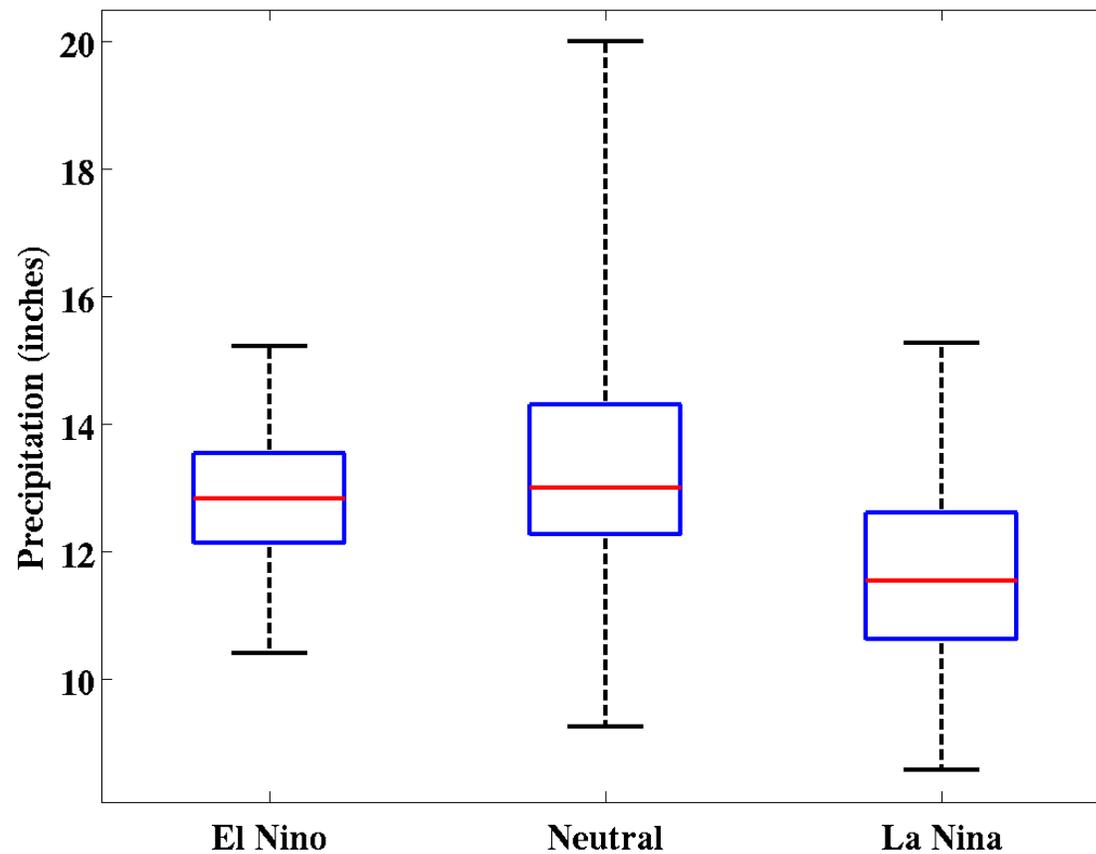
CLIMATE PREDICTION CENTER

https://www.cpc.ncep.noaa.gov/products/precip/CWlink/ENSO/box_whiskers/index.php

JJA Temperature Distribution for Climate Div. #033

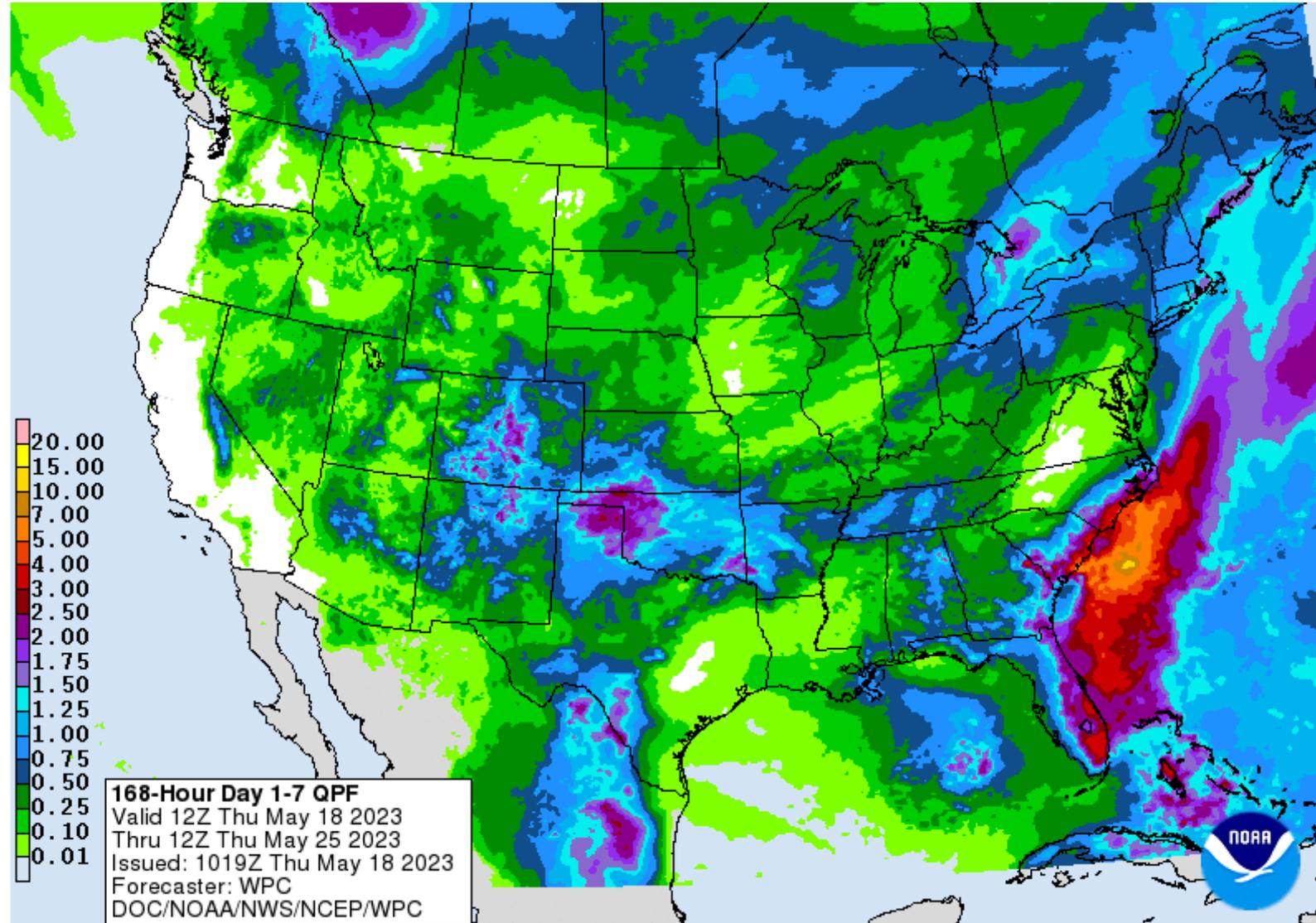


JJA Precipitation Distribution for Climate Div. #033



7-day Cumulative Precipitation Forecast

Valid: May 18 - 25



<https://www.wpc.ncep.noaa.gov/qpf/day1-7.shtml>

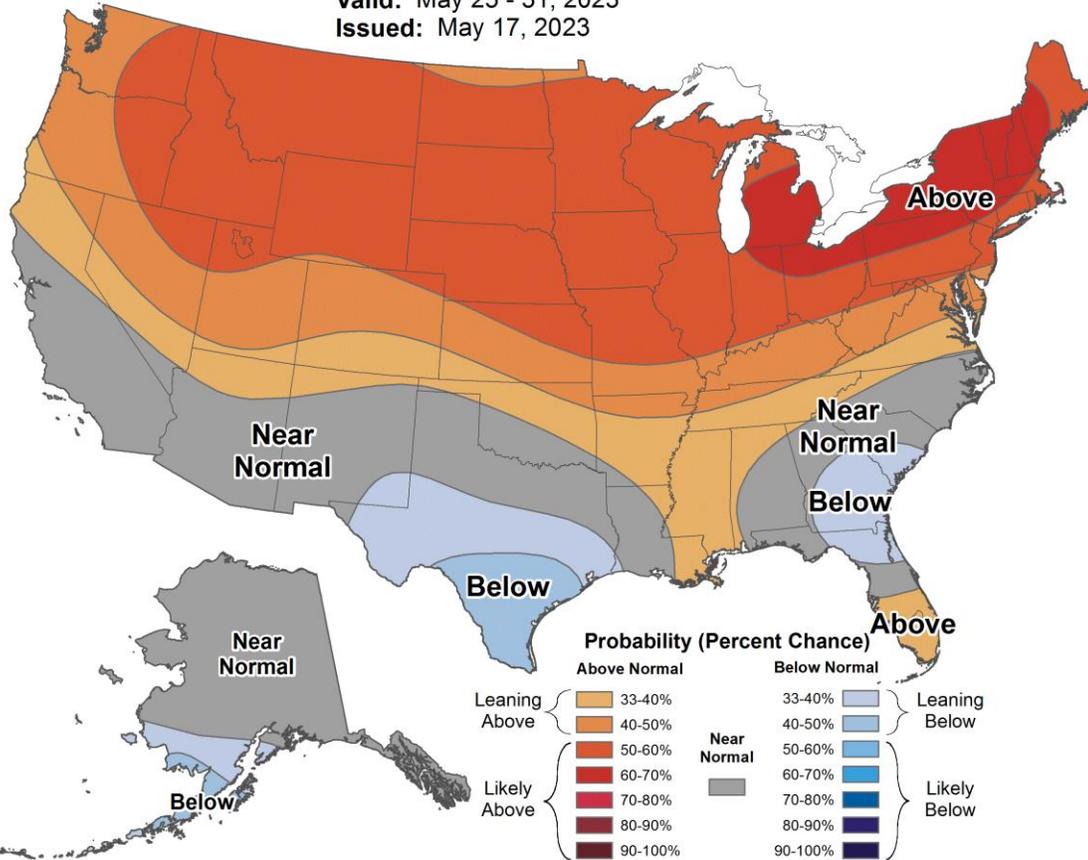
8-14 Day Outlooks (Valid May 25 - 31)



8-14 Day Temperature Outlook



Valid: May 25 - 31, 2023
Issued: May 17, 2023



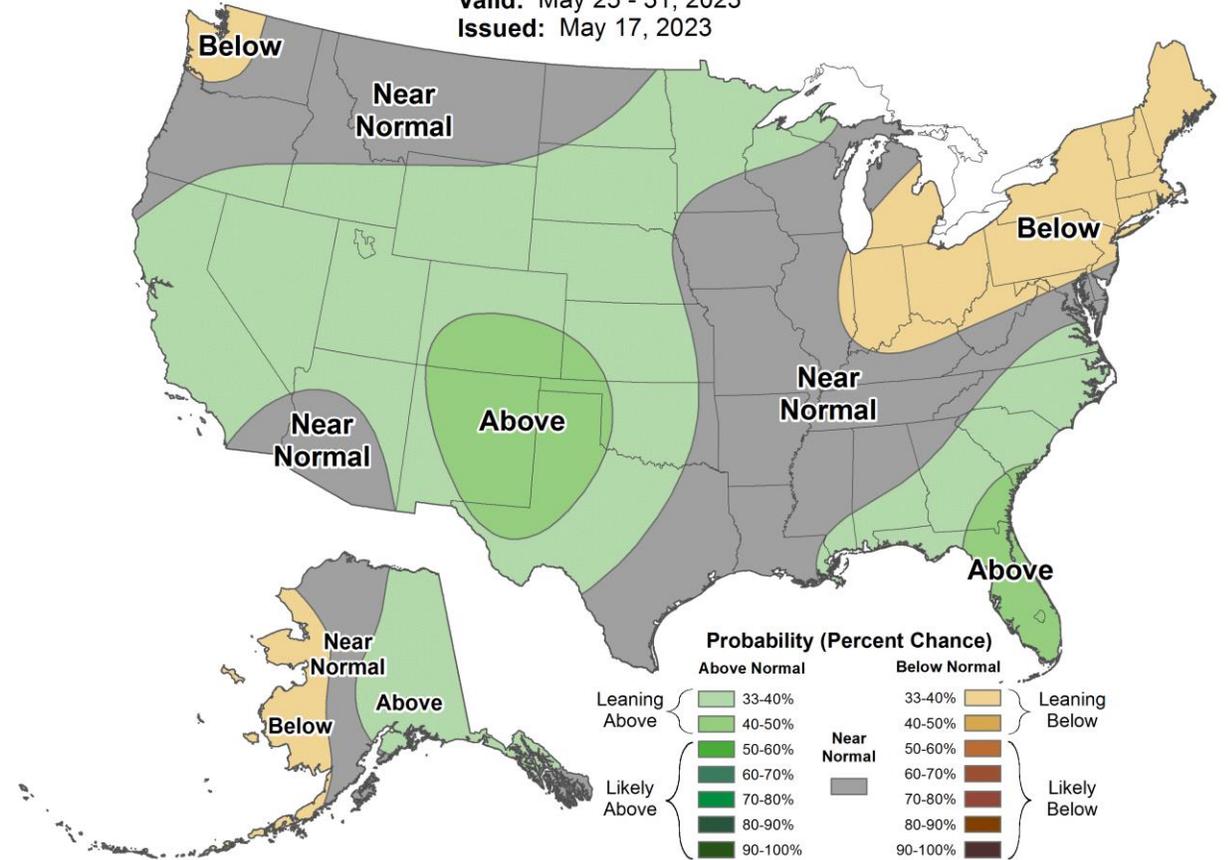
Temperature



8-14 Day Precipitation Outlook



Valid: May 25 - 31, 2023
Issued: May 17, 2023



Precipitation

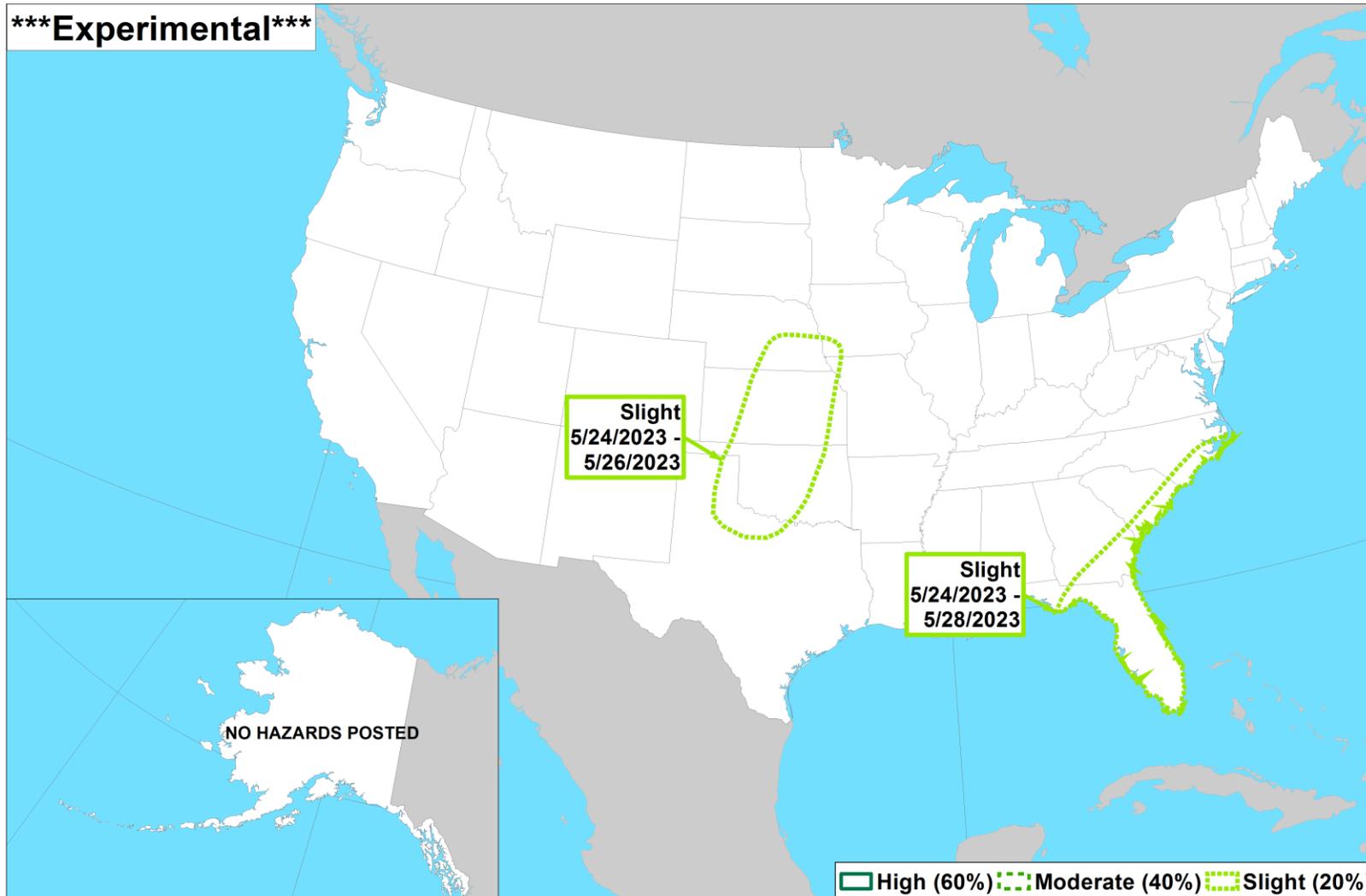


Risk of Heavy Precipitation

Valid: 05/24/2023-05/30/2023



Experimental



Climate Prediction Center

Made: 05/16/2023 3PM EDT

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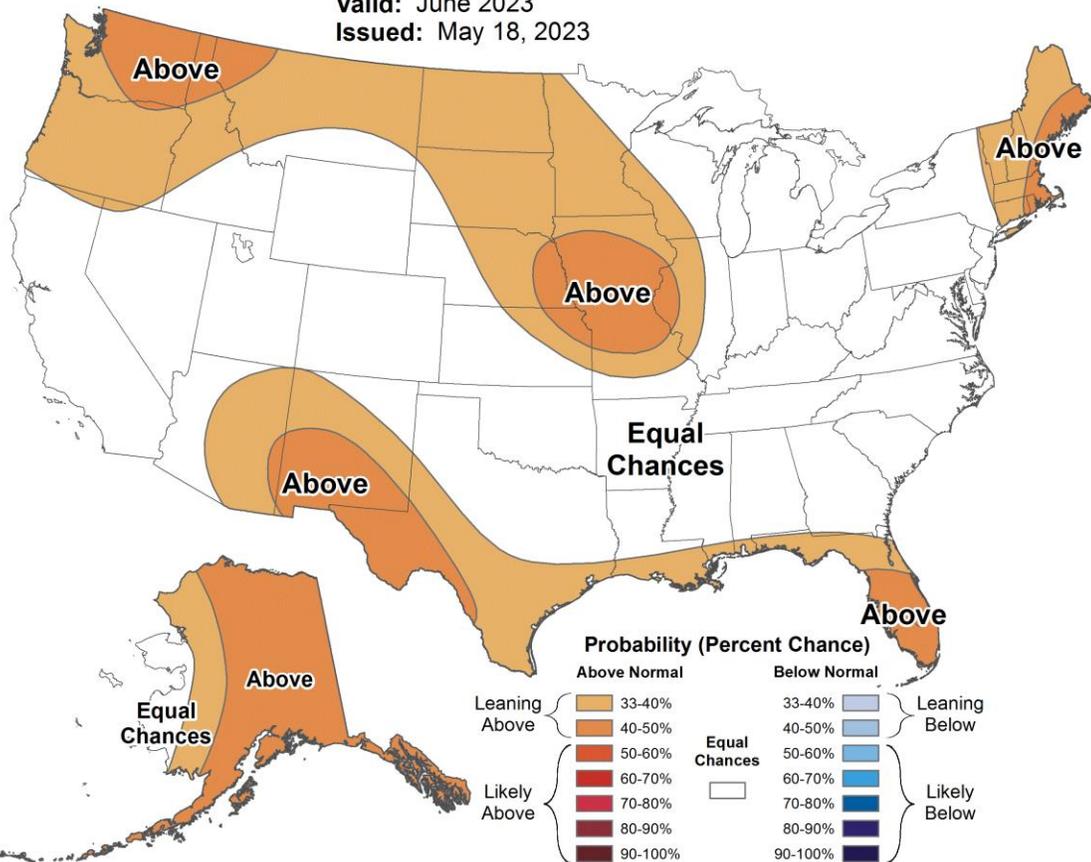
Initial June Outlooks



Monthly Temperature Outlook



Valid: June 2023
Issued: May 18, 2023



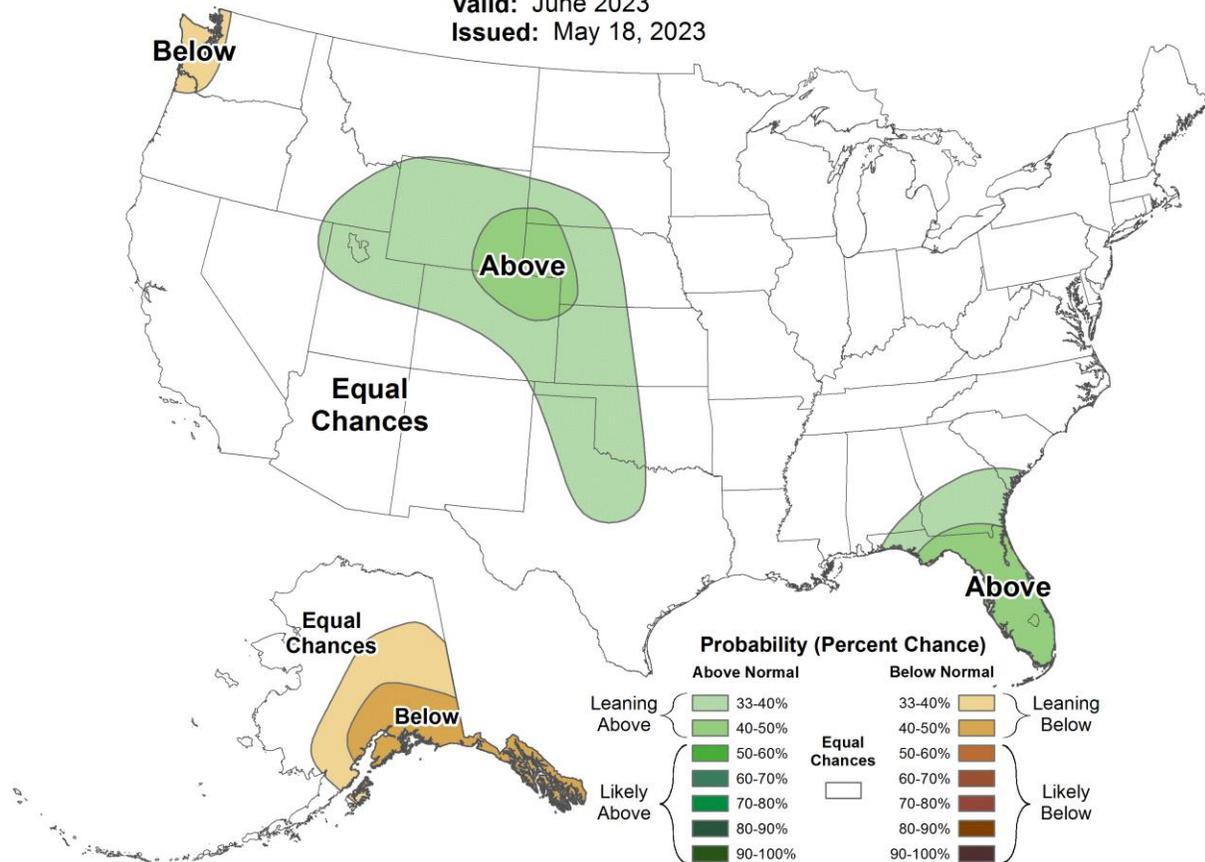
Temperature



Monthly Precipitation Outlook



Valid: June 2023
Issued: May 18, 2023



Precipitation

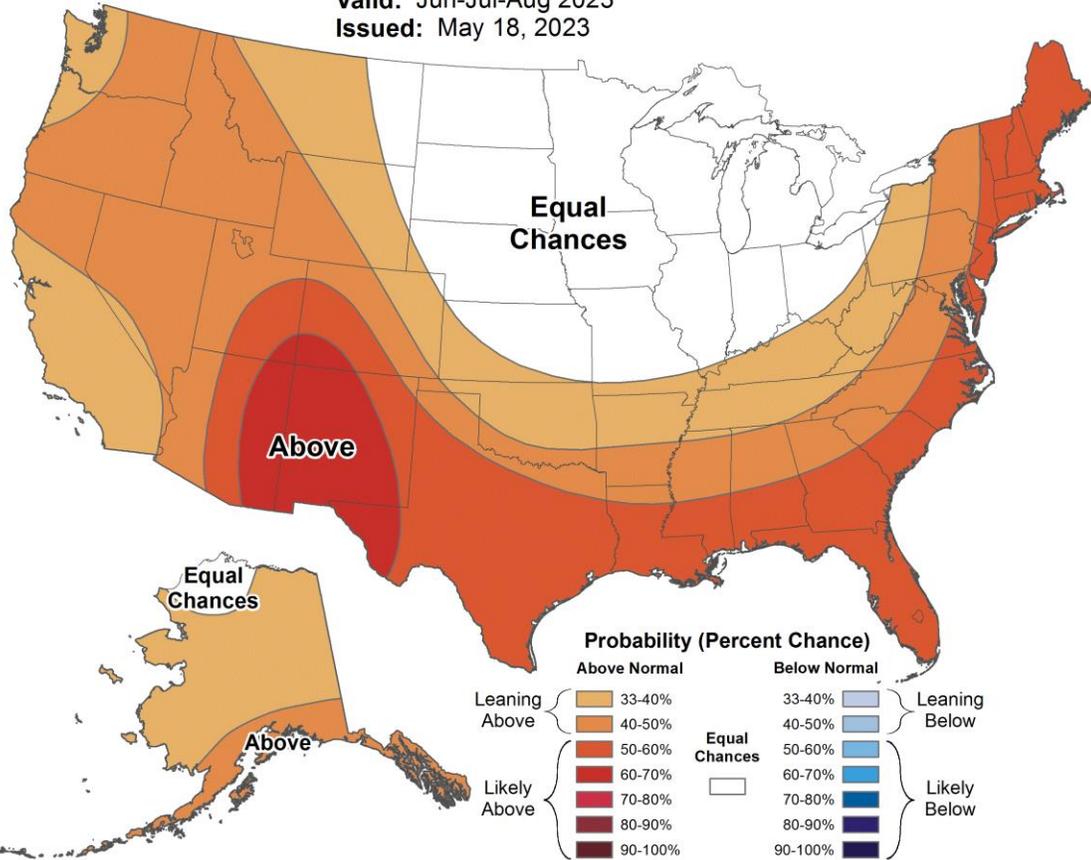
June-July-August Outlooks



Seasonal Temperature Outlook



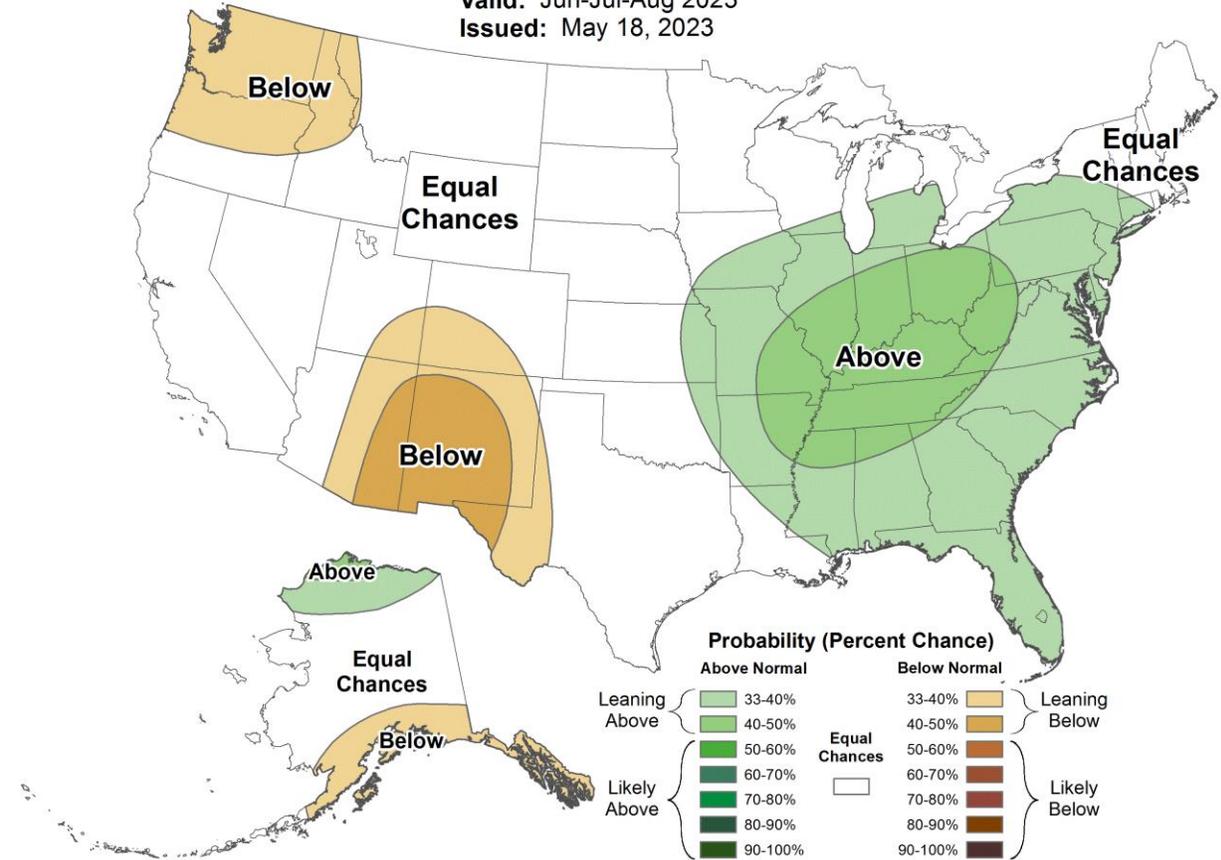
Valid: Jun-Jul-Aug 2023
Issued: May 18, 2023



Seasonal Precipitation Outlook



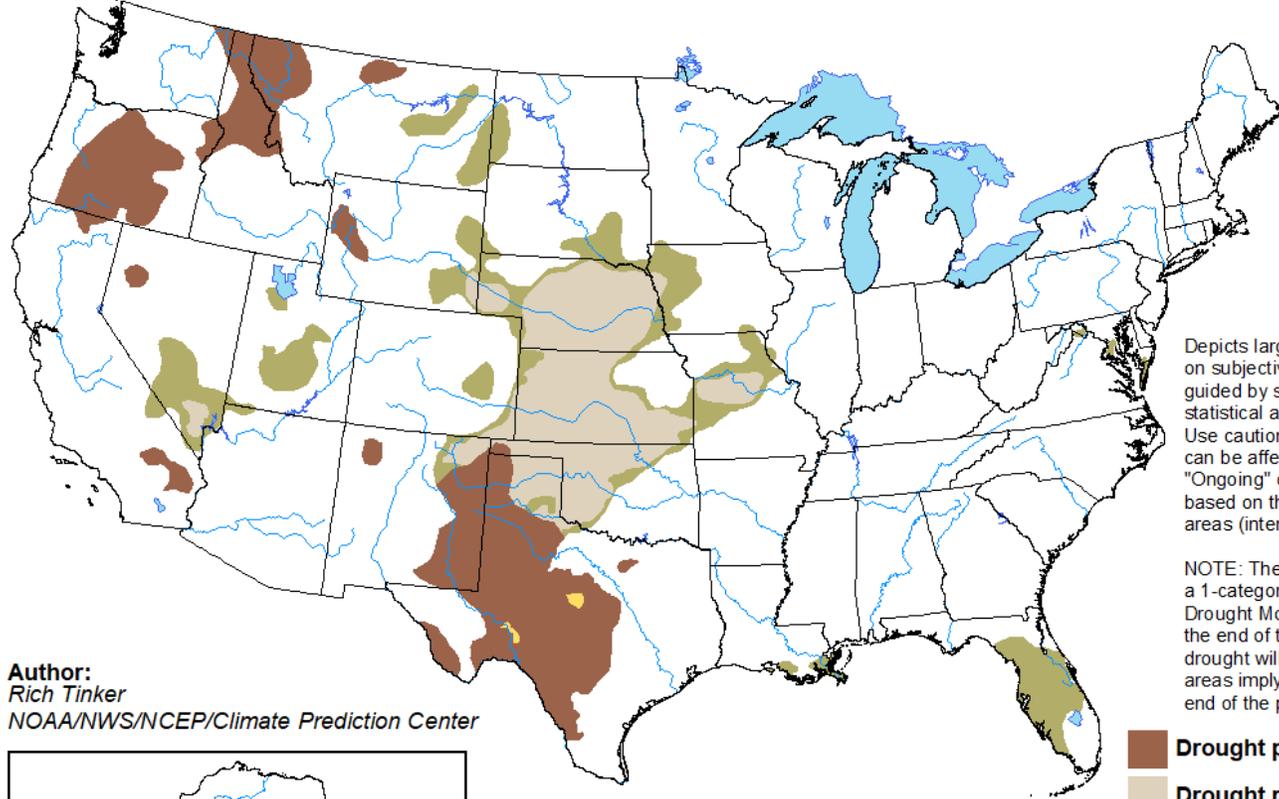
Valid: Jun-Jul-Aug 2023
Issued: May 18, 2023



Seasonal Drought Outlook

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

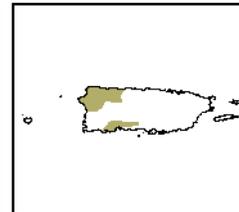
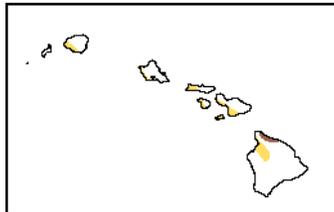
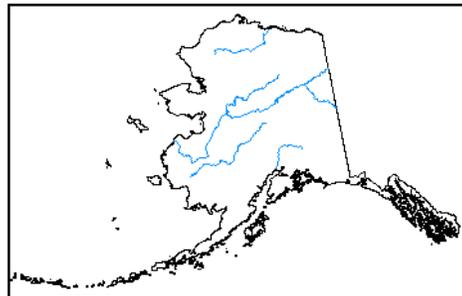
Valid for May 18 - August 31, 2023
Released May 18



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).

Author:
Rich Tinker
NOAA/NWS/NCEP/Climate Prediction Center



-  Drought persists
-  Drought remains but improves
-  Drought removal likely
-  Drought development likely



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

Outlook Summary

- Short-term outlooks showing high probabilities of warmer temperatures for most of CONUS and wetter to near-normal precip. potential.
- Seasonal temperature outlooks not a clear-cut across western portions of the region with the potential for warmer/wetter pattern east.
- Drought conditions region wide look to improve.
- ENSO-neutral conditions currently with a high probability of an El Niño transition in late spring and early summer
 - Analog years show summer conditions generally cooler and not as dry as La Niña.
 - Mesoscale or thunderstorm-driven weather patterns hard to pin down compared to El Niño impacts on CONUS weather during winter.
- Drought improvement across the Upper Midwest through central and western Corn Belt.

Further Information - Partners

- **Today's and Past Recorded Presentations and :**
 - <https://mrcc.purdue.edu/multimedia/webinars.jsp>
 - <https://hprcc.unl.edu/webinars.php>
- NOAA's National Climatic Data Center: www.ncdc.noaa.gov
 - Monthly climate reports (U.S. & Global): www.ncdc.noaa.gov/sotc/
- NOAA's Climate Prediction Center: www.cpc.ncep.noaa.gov
- Climate Portal: www.climate.gov
- U.S. Drought Portal: www.drought.gov
- National Drought Mitigation Center: <http://drought.unl.edu/>
- USDA Climate Hubs <https://www.climatehubs.usda.gov/>
- State climatologists
 - <http://www.stateclimate.org>
- Regional climate centers
 - <http://mrcc.purdue.edu>
 - <http://www.hprcc.unl.edu>

Thank You and Questions?

- Questions:
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 - Gannon Rush: grush2@unl.edu
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 - Molly Woloszyn: molly.woloszyn@noaa.gov
 - **Weather:**
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