USDA Midwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

North Central US Climate-Drought Outlook
17 April 2025

Dr. Dennis Todey
Director – USDA Midwest Climate Hub
National Laboratory for Agriculture and the Environment (ARS)
Ames, IA
dennis.todey@usda.gov
515-294-2013

NIDIS
AASC AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS
NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION U.S. DEPARTMENT OF COMMERCE
NDMC NATIONAL DROUGHT MITIGATION CENTER UNIVERSITY OF NEBRASKA
REGIONAL CLIMATE CENTERS
USDA United States Department of Agriculture Midwest Climate Hub

General Information

- **Providing climate services to the North Central US**
  - Collaboration Activity Among:
    - NOAA NCEI/NWS/OAR/NIDIS/
    - USDA Climate Hubs
    - American Association of State Climatologists
    - Midwestern and High Plains Regional Climate Centers
    - National Drought Mitigation Center
    - National Integrated Drought Information System/DEWS

- **Next Regular Climate/Drought Outlook Webinar**
  - May 15, 2025 (1 PM CDT) Justin Glisan – State Climatologist for Iowa (Iowa Department of Agriculture and Land Stewardship)

- **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).**

Agenda

- **Current Conditions**
- **Impacts**
  - **Issues/Events**
  - **Hydro**
  - **Ag (freeze, planting)**
  - **Fire**
  - **Other**
- **Outlooks**
  - **La Niña ending**
  - **Summer**

Photo:
EF-2 Damage
Tolono, IL
Illinois Public Media

Photo:
Doug Kluck
Kansas City

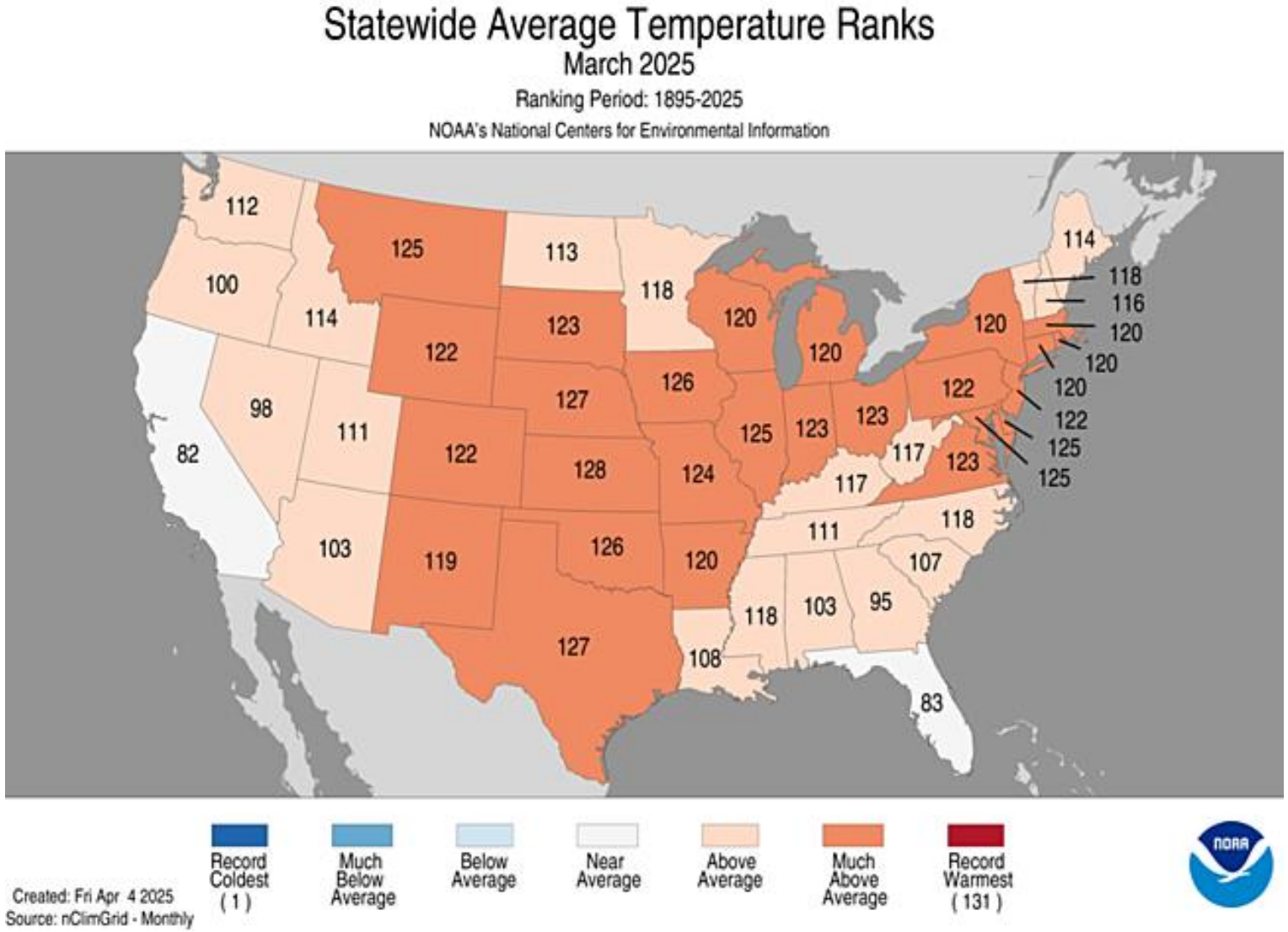
Quick look back – climate context

REVIEW OF CURRENT CONDITIONS

March Temperature Recap

Generally very warm

Top 10 warmest March for most of the North Central states (Except ND/MN/MI/KY).



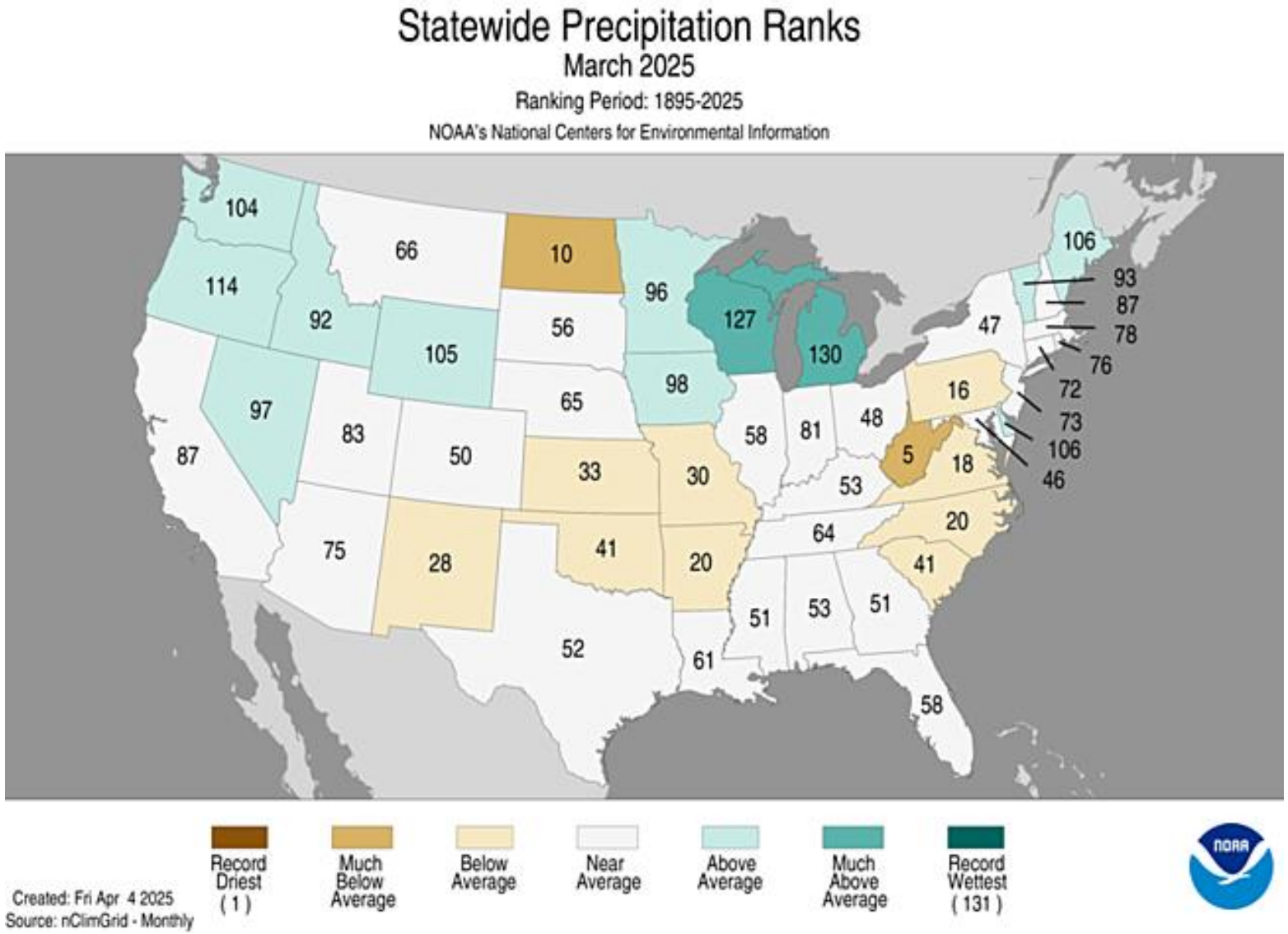
http://www.ncdc.noaa.gov/temp-and-precip/us-maps/

March Precipitation Recap

Very mixed situation.

Top 5 wettest MI/WI

10th driest ND



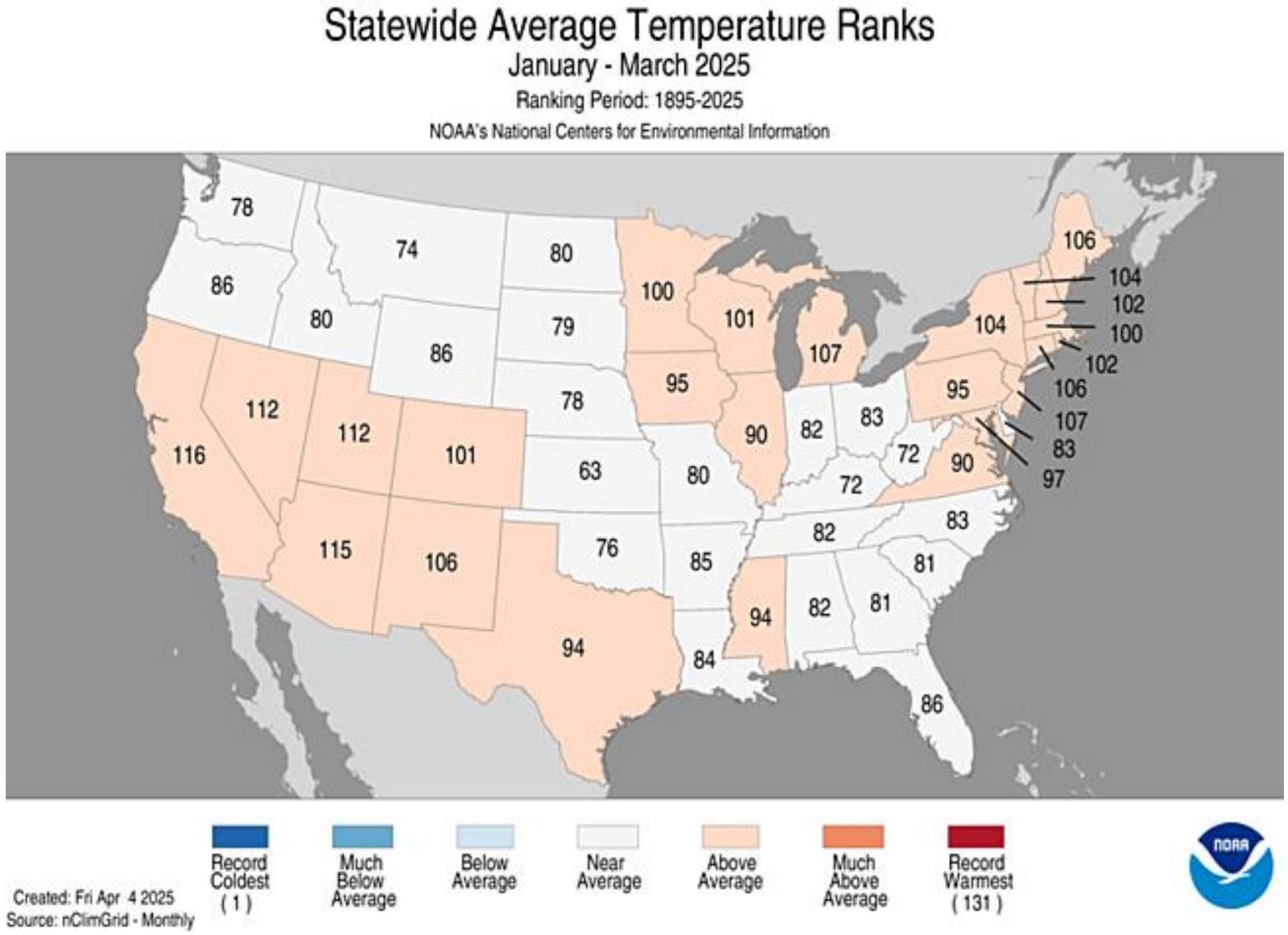
http://www.ncdc.noaa.gov/temp-and-precip/us-maps/

January - March Temperature Recap

Generally warmer with Upper Midwest on the higher side.

No specific extremes

Cold in February kept the warmth from being too extreme.

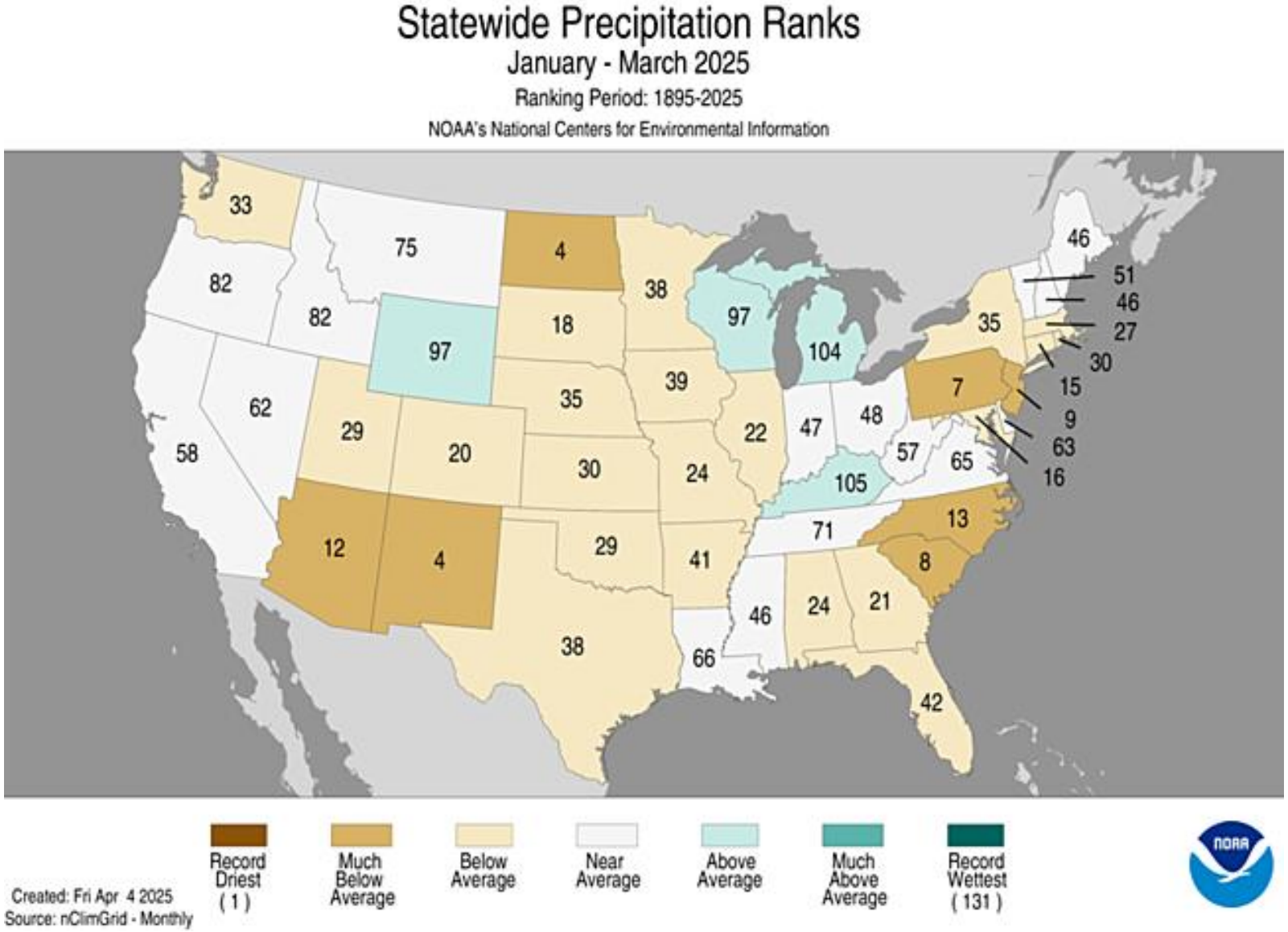


http://www.ncdc.noaa.gov/temp-and-precip/us-maps/

January-March Precipitation Recap

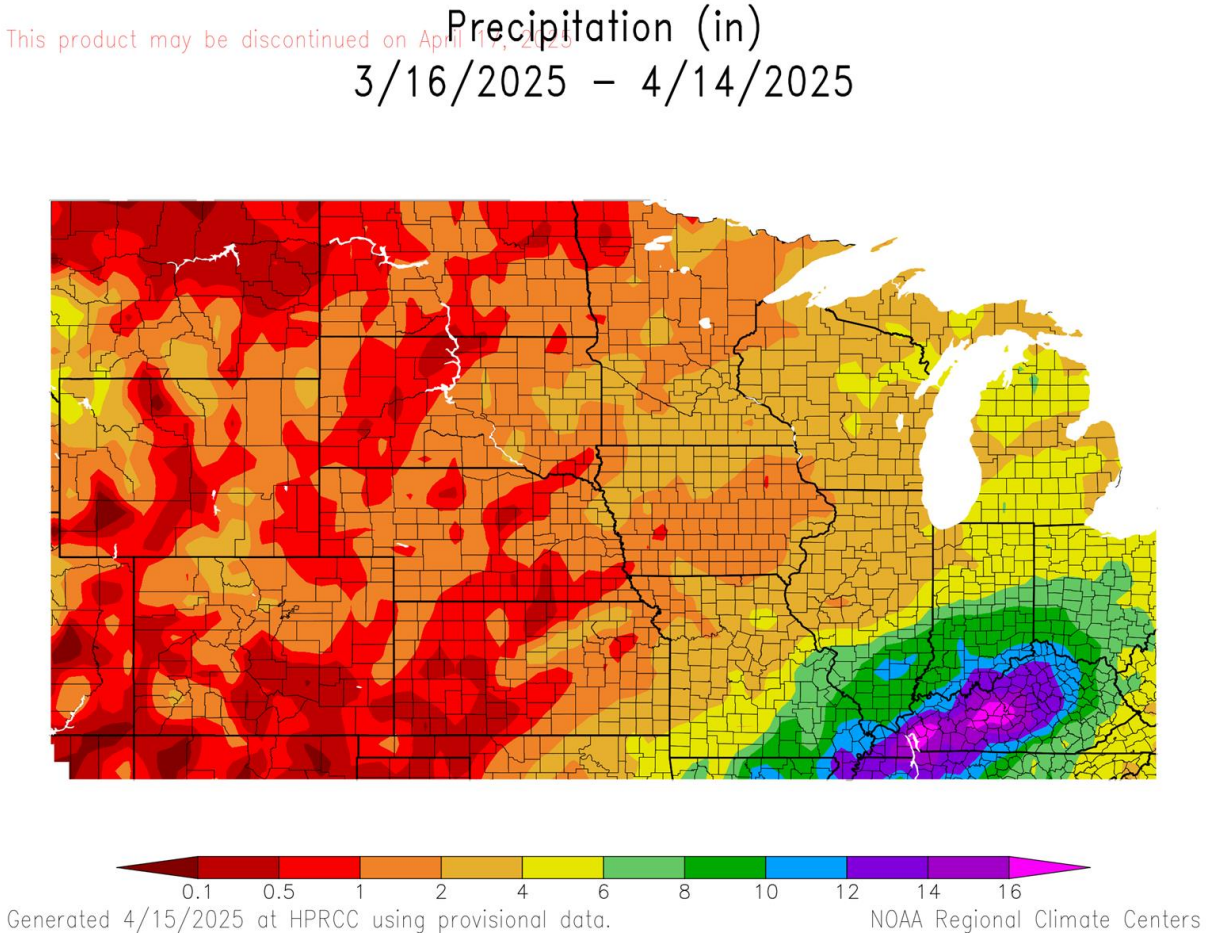
Dryness more pervasive with a large number of states in the top 30-40.
ND only top 10 (#4).

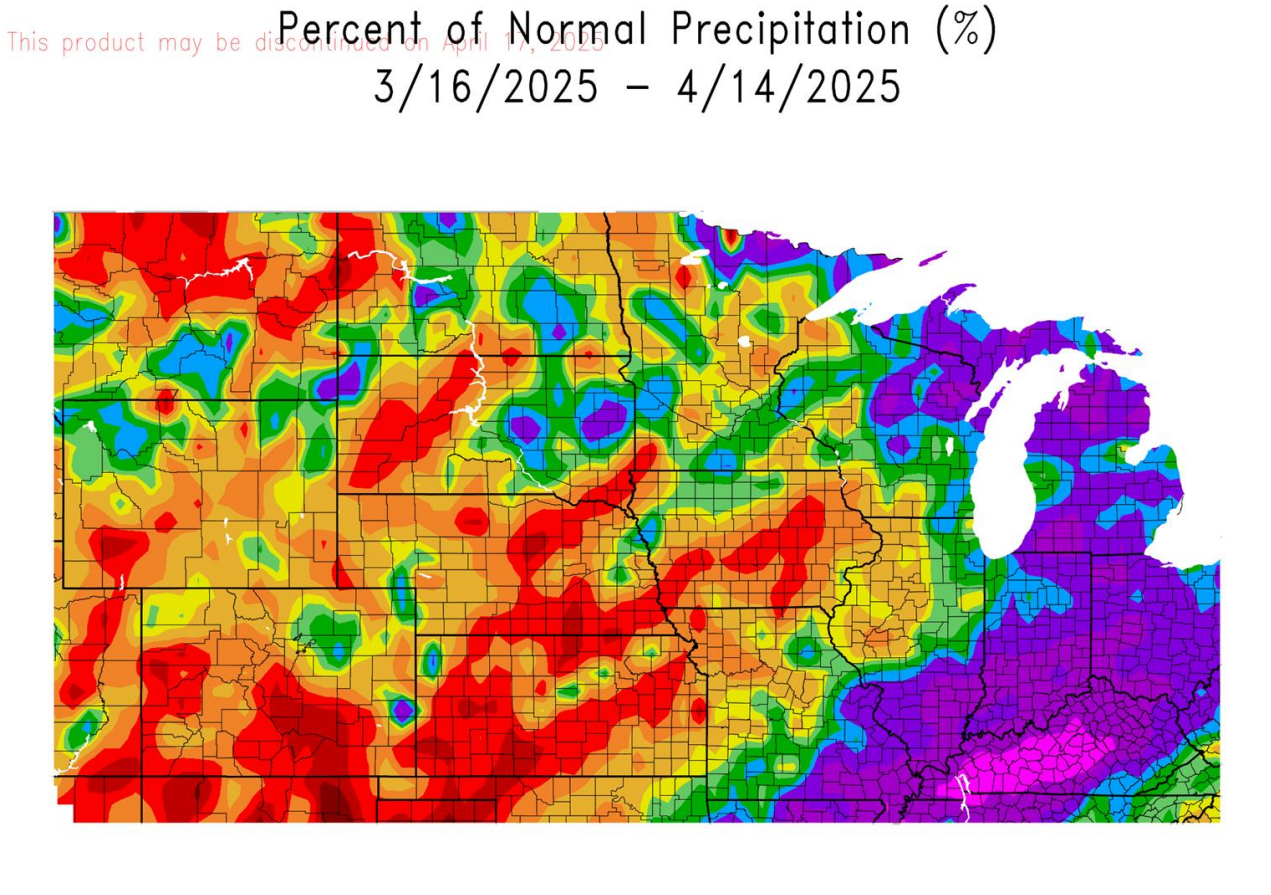
A few wetter states, (WI/MI/KY).



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

Precipitation (30 days)





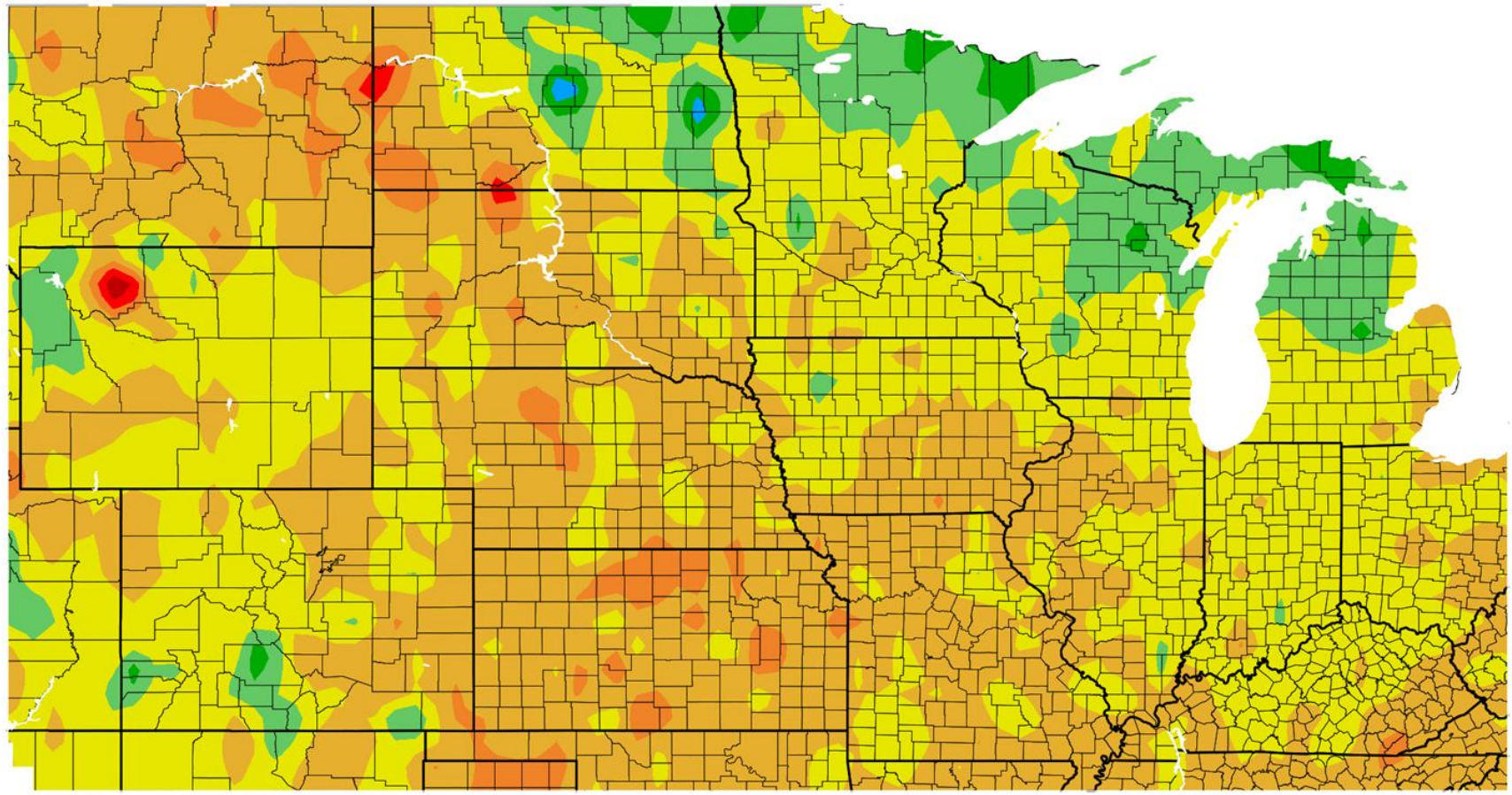
https://hprcc.unl.edu/maps.php?maps=ACISClimateMaps

USDA Midwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

This product may be discontinued on April 17, 2025

Departure from Normal Temperature (F)

3/16/2025 - 4/14/2025



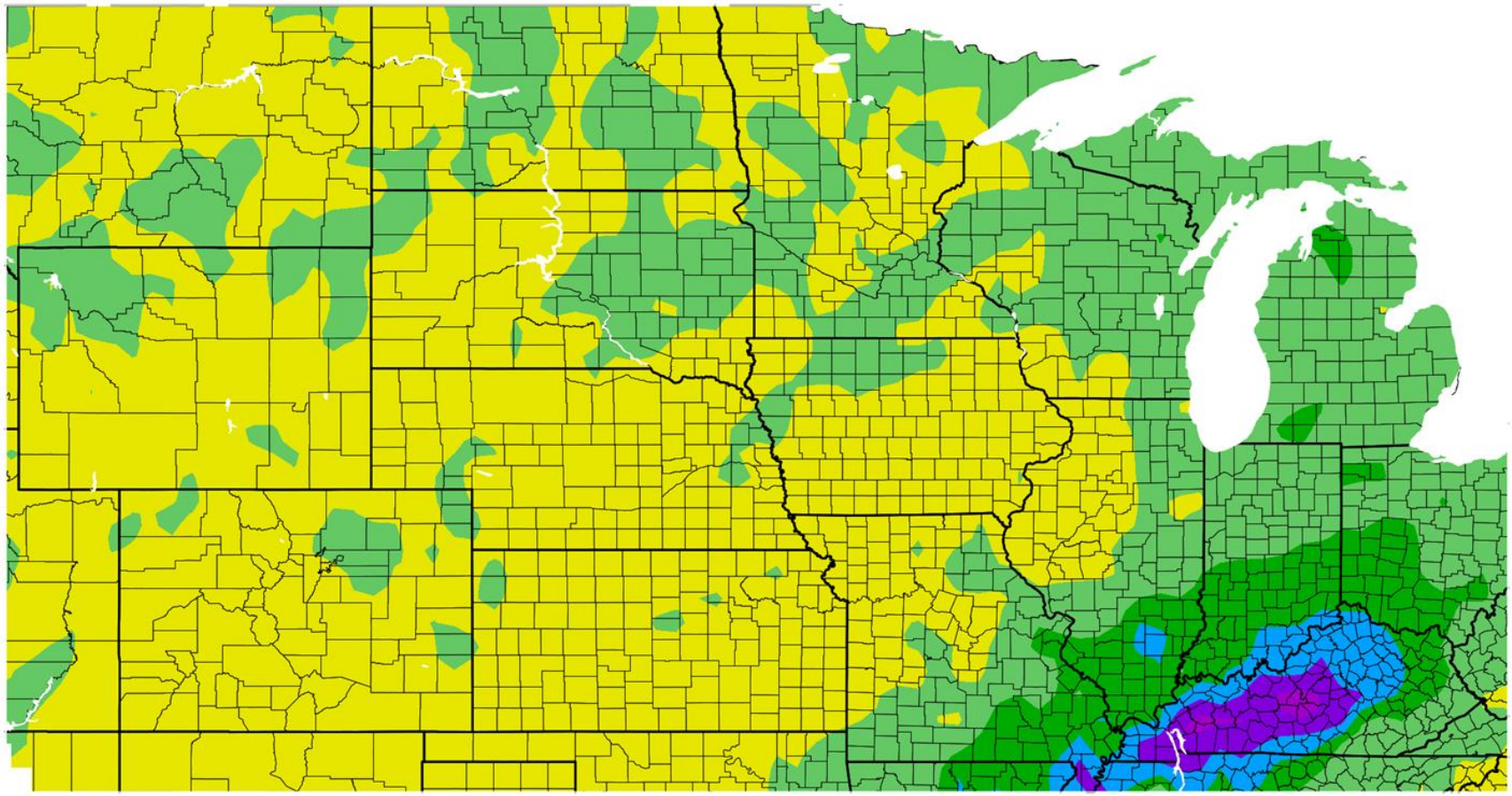
USDA Midwest Cli
U.S. DEPARTMENT

Generated 4/15/2025 at HPRCC using provisional data.

NOAA Regional Climate Centers

This product may be discontinued on April 17, 2025

Departure from Normal Precipitation (in)
3/16/2025 - 4/14/2025



USDA Midwest Cli
U.S. DEPARTMENT

Generated 4/15/2025 at HPRCC using provisional data.

NOAA Regional Climate Centers

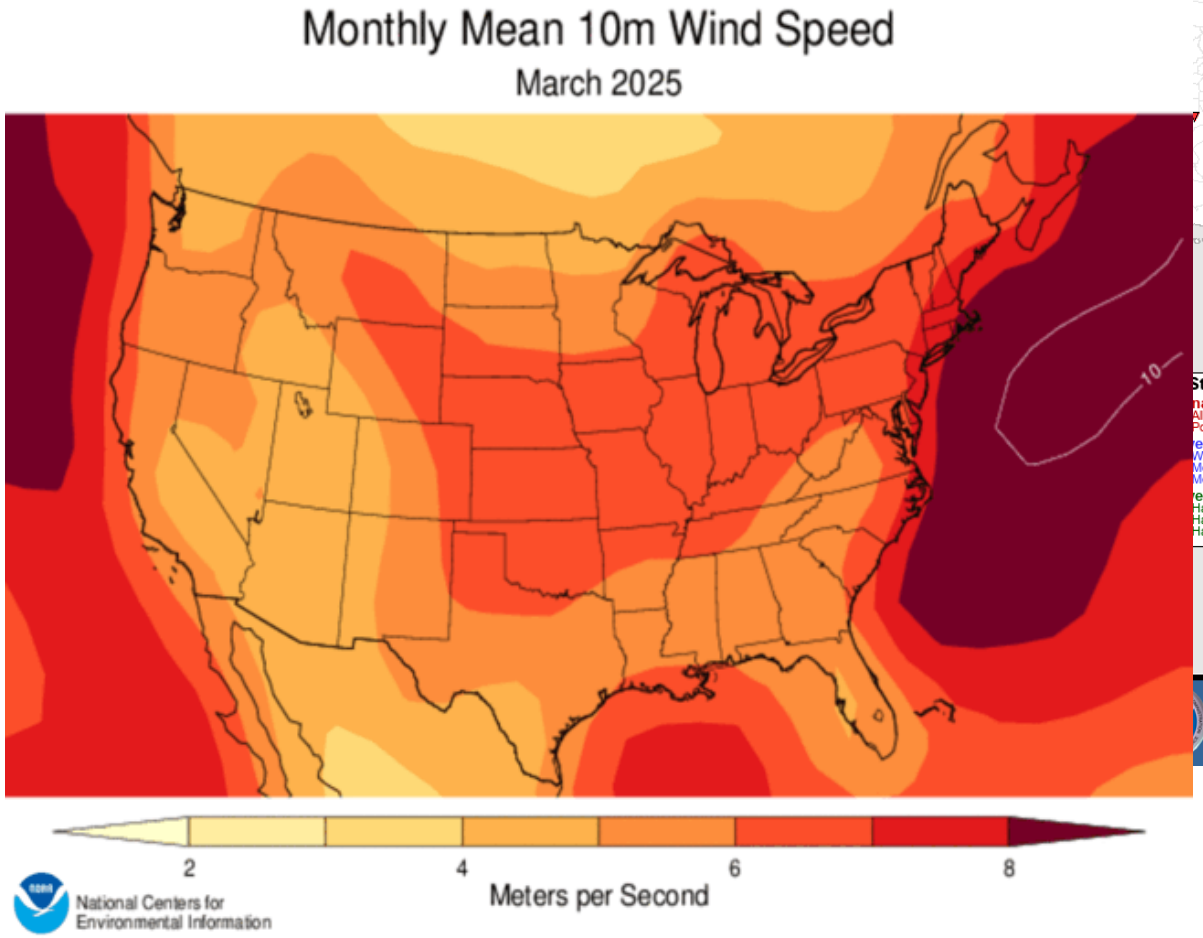
Photo:
Damaged power lines
Nebraska
Doug Kluck

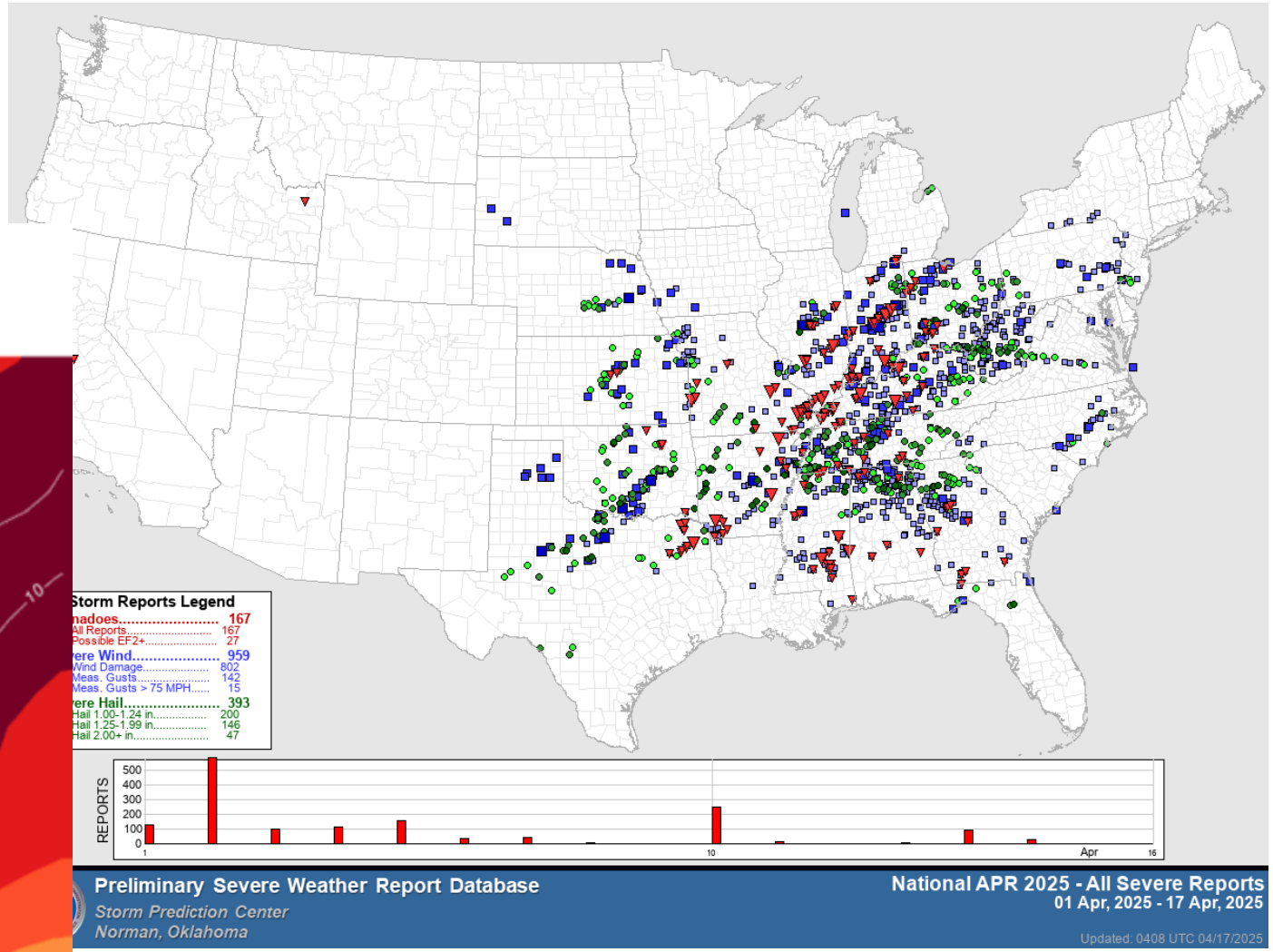
Quick look back – climate context

REVIEW OF CURRENT CONDITIONS

Various Spring Issues

- 2025 Severe Weather Reports - April
- Fairly active south and east.
- Wind issues noted
  - WI stations 1st/2nd windiest – March
- Fires – but not large impacts

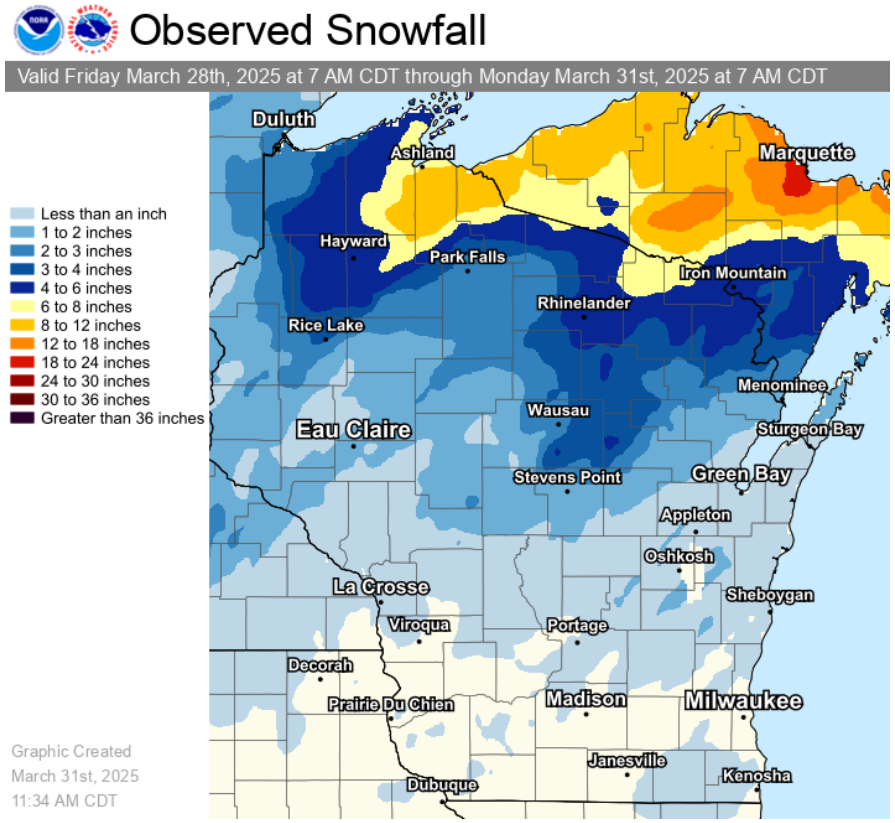




https://www.ncei.noaa.gov/access/monitoring/wind/maps/202503
https://www.spc.noaa.gov/climo/online/monthly/newm.html

Late March Winter Storm

- Ice and Snow March 28-31 (WI-MI)
  - Large ice accumulations
  - Electrical outages
  - Millions of trees damaged nrn MI – economic loss



https://www.weather.gov/grb/032925_icestorm

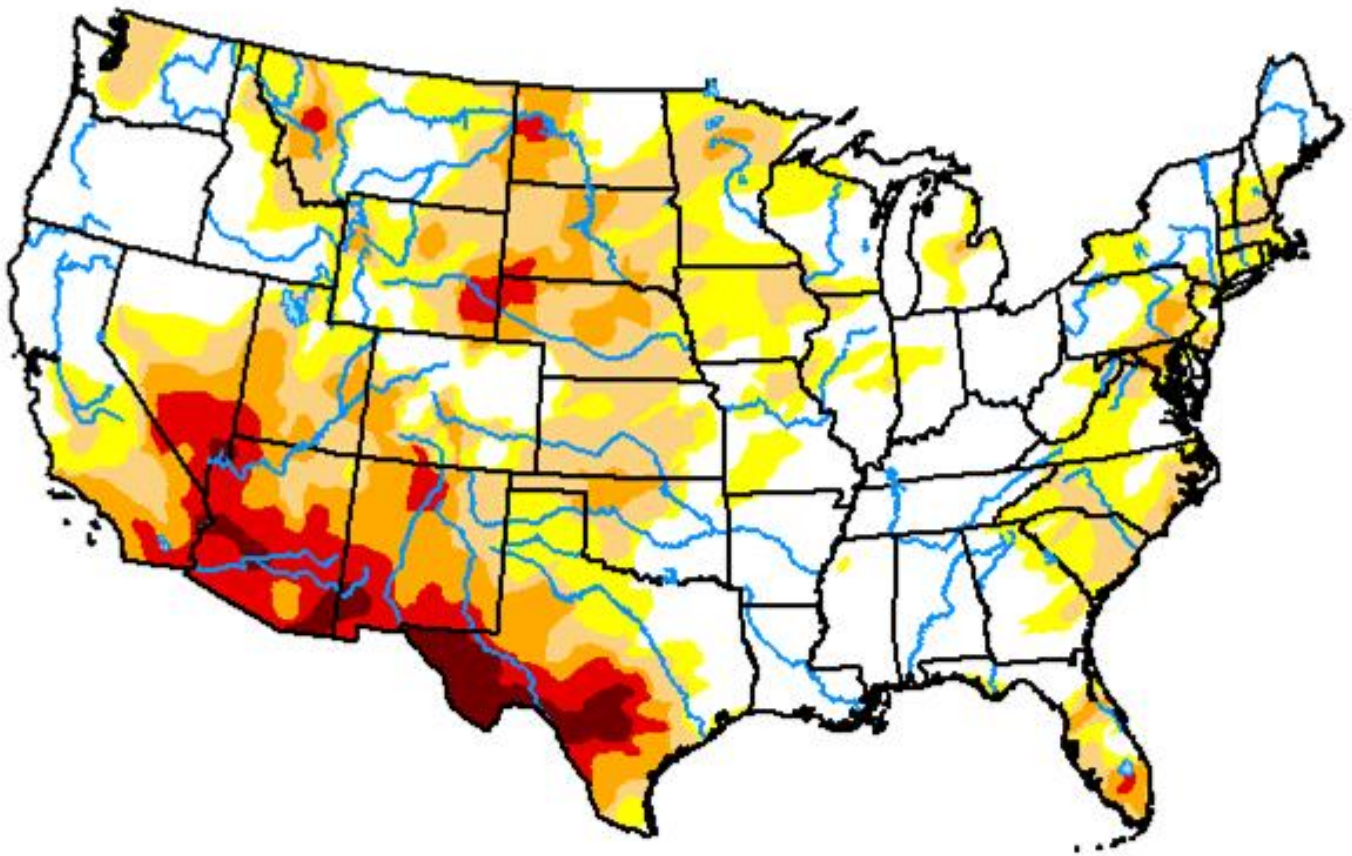
- Tree damage Bonduel, WI
- Christine Reinke – via NWS Green Bay

Photo:
Goodland, KS
NBC News

Climate context

DROUGHT

Drought Monitor



U.S. Drought Monitor

Contiguous U.S. (CONUS)

April 15, 2025

(Released Thursday, Apr. 17, 2025)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	41.70	58.30	38.81	19.88	8.51	2.22
Last Week *04-08-2025*	41.80	58.20	38.47	19.59	8.42	1.69
3 Months Ago *01-14-2025*	38.13	61.87	36.72	16.24	4.78	0.56
Start of Calendar Year *01-07-2025*	35.67	64.33	36.72	14.76	4.76	0.56
Start of Water Year *10-01-2024*	29.35	70.65	31.50	9.29	2.73	0.50
One Year Ago *04-16-2024*	61.38	38.62	17.90	5.20	1.07	0.14

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme 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

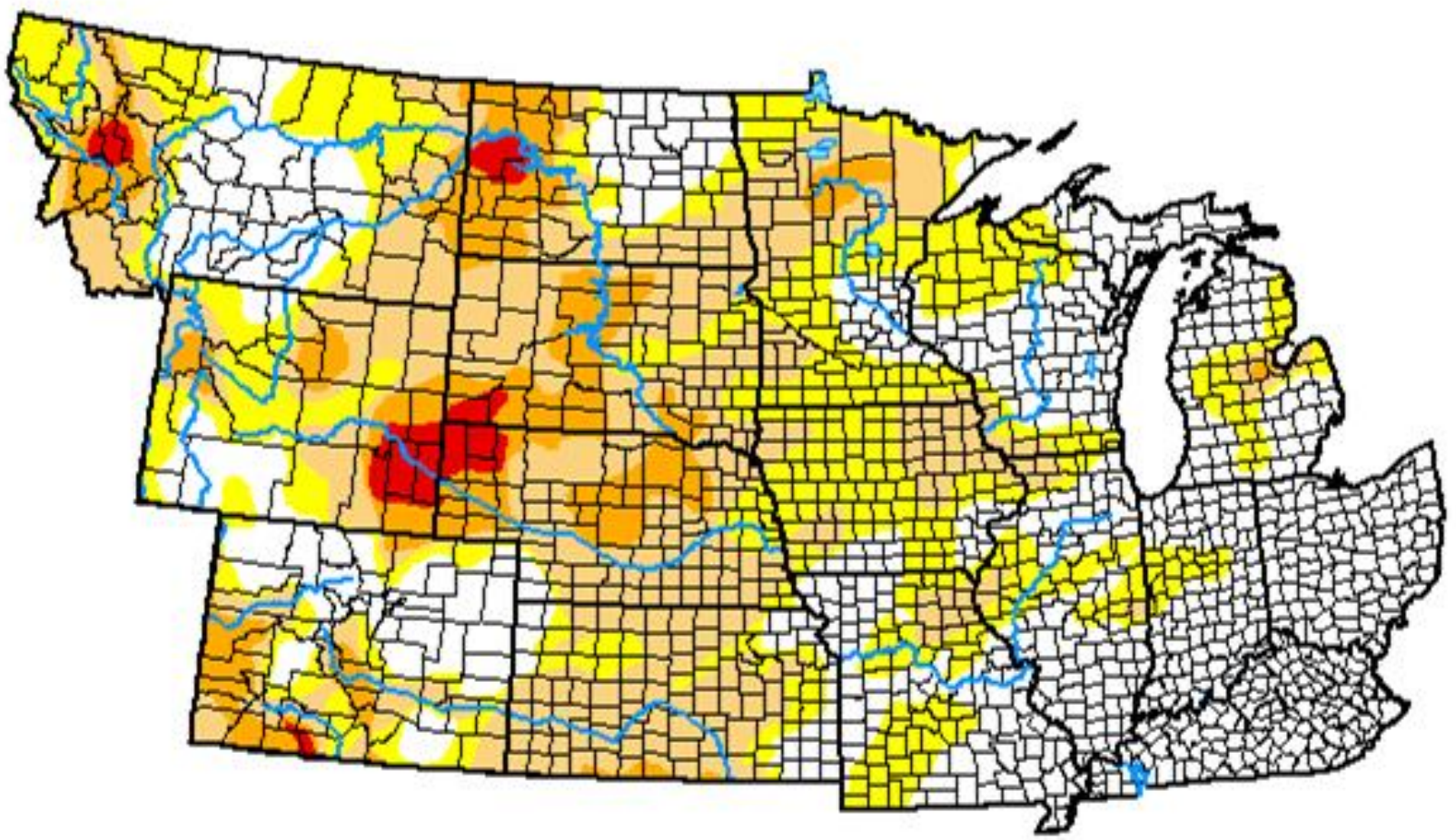
Author:

Curtis Riganti
National Drought Mitigation Center

droughtmonitor.unl.edu

https://droughtmonitor.unl.edu

Drought Monitor



April 15, 2025

(Released Thursday, Apr. 17, 2025)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	37.36	62.64	38.52	11.66	1.87	0.00
Last Week *04-08-2025*	38.03	61.97	37.16	11.21	1.87	0.00
3 Months Ago *01-14-2025*	32.20	67.80	45.72	19.43	5.80	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 *04-16-2024*	45.44	54.56	24.17	5.89	0.43	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme 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:

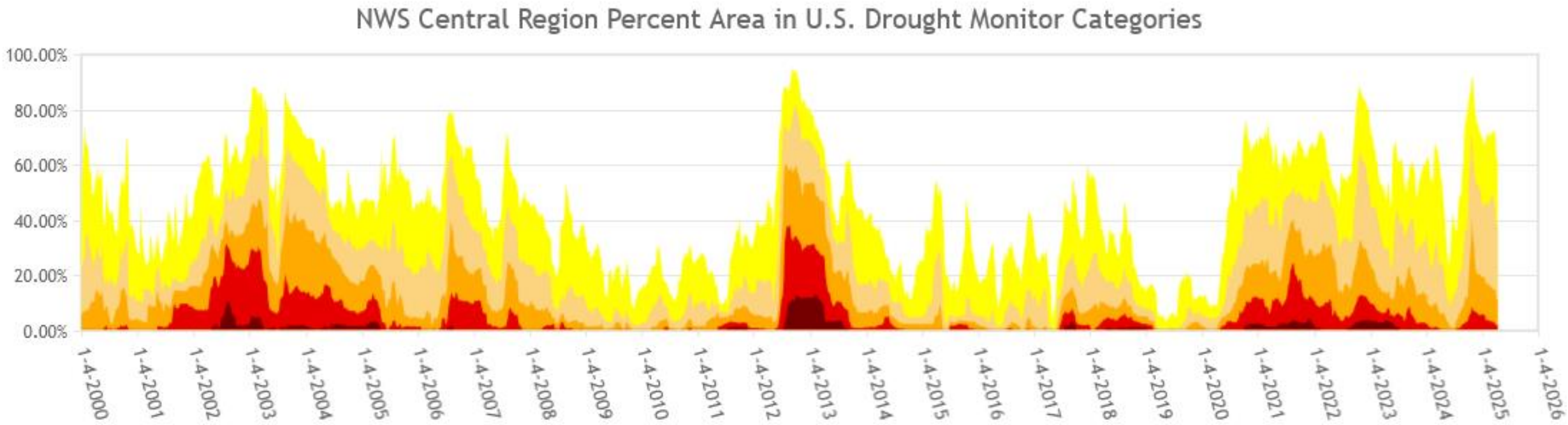
Curtis Riganti
National Drought Mitigation Center

droughtmonitor.unl.edu

USDA Midwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

https://droughtmonitor.unl.edu

Drought Monitor



From the U.S. Drought Monitor website, https://droughtmonitor.unl.edu/DmData/TimeSeries.aspx, 4-17-2025

https://droughtmonitor.unl.edu

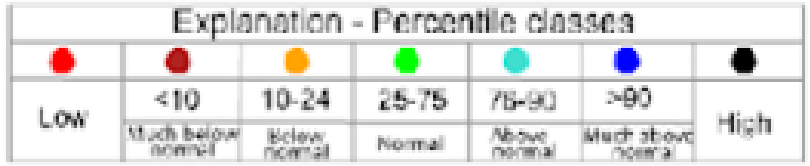
Photo:
Flooding
Salem, IL
WJBD

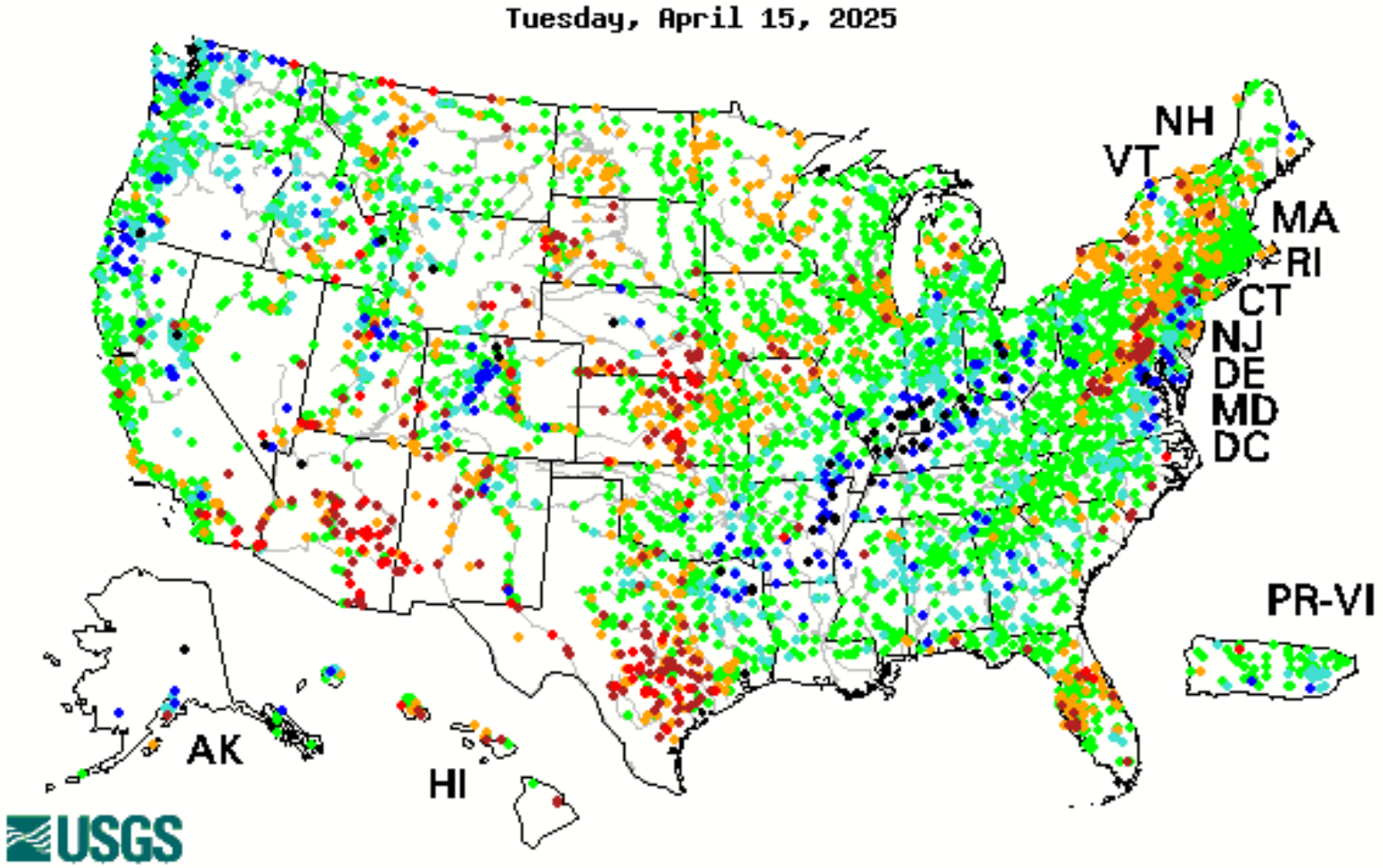
HYDROLOGIC IMPACTS

7-Day Average Streamflow

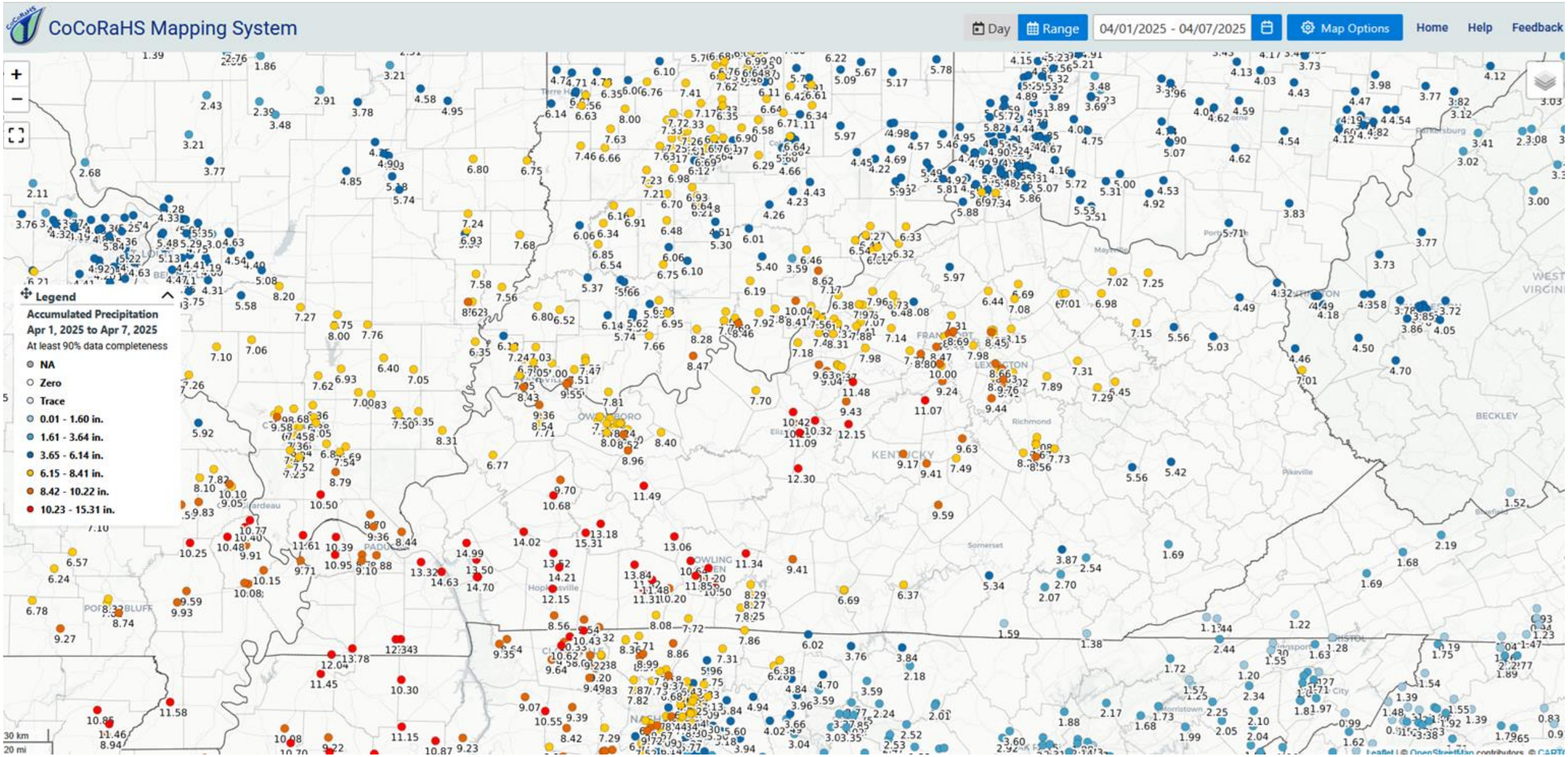
Tuesday, 16 April 2024

- Above normal streamflows east (Ohio River Valley)
- Below normal (Plains – scattered other areas)
- Lack of snow melt and additional precipitation.





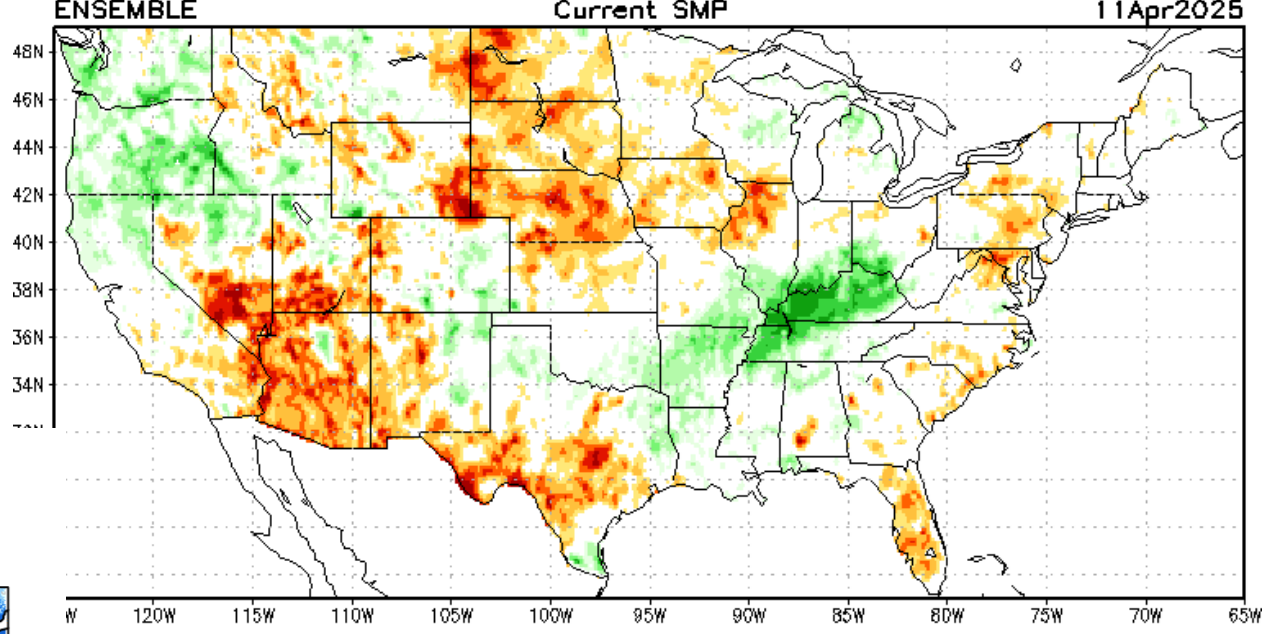
http://waterwatch.usgs.gov/index.php?id=pa07d

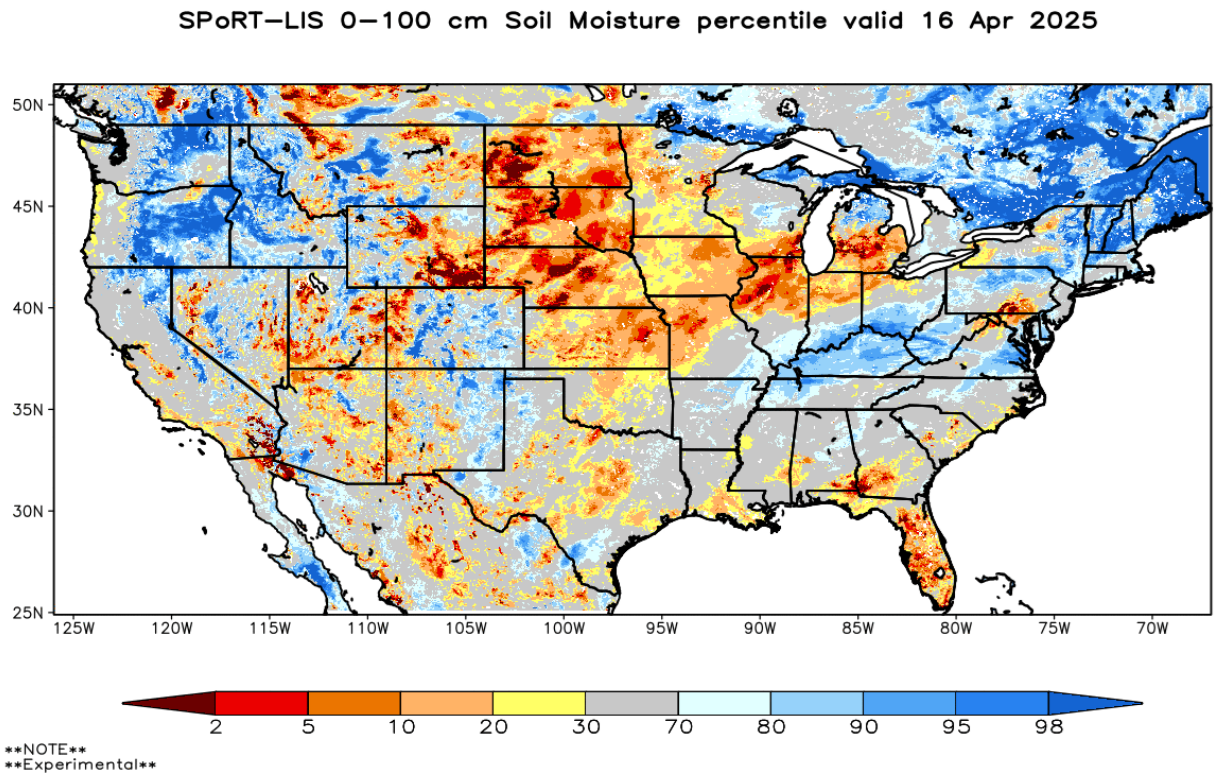


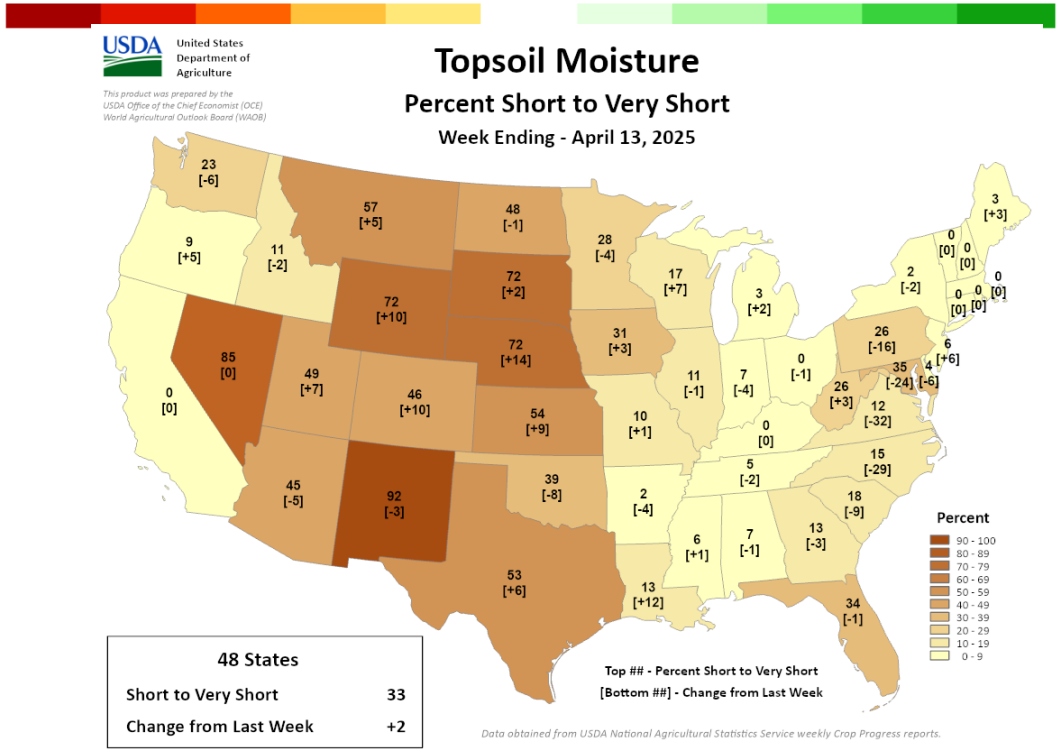
USDA Midwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

Soil Moisture

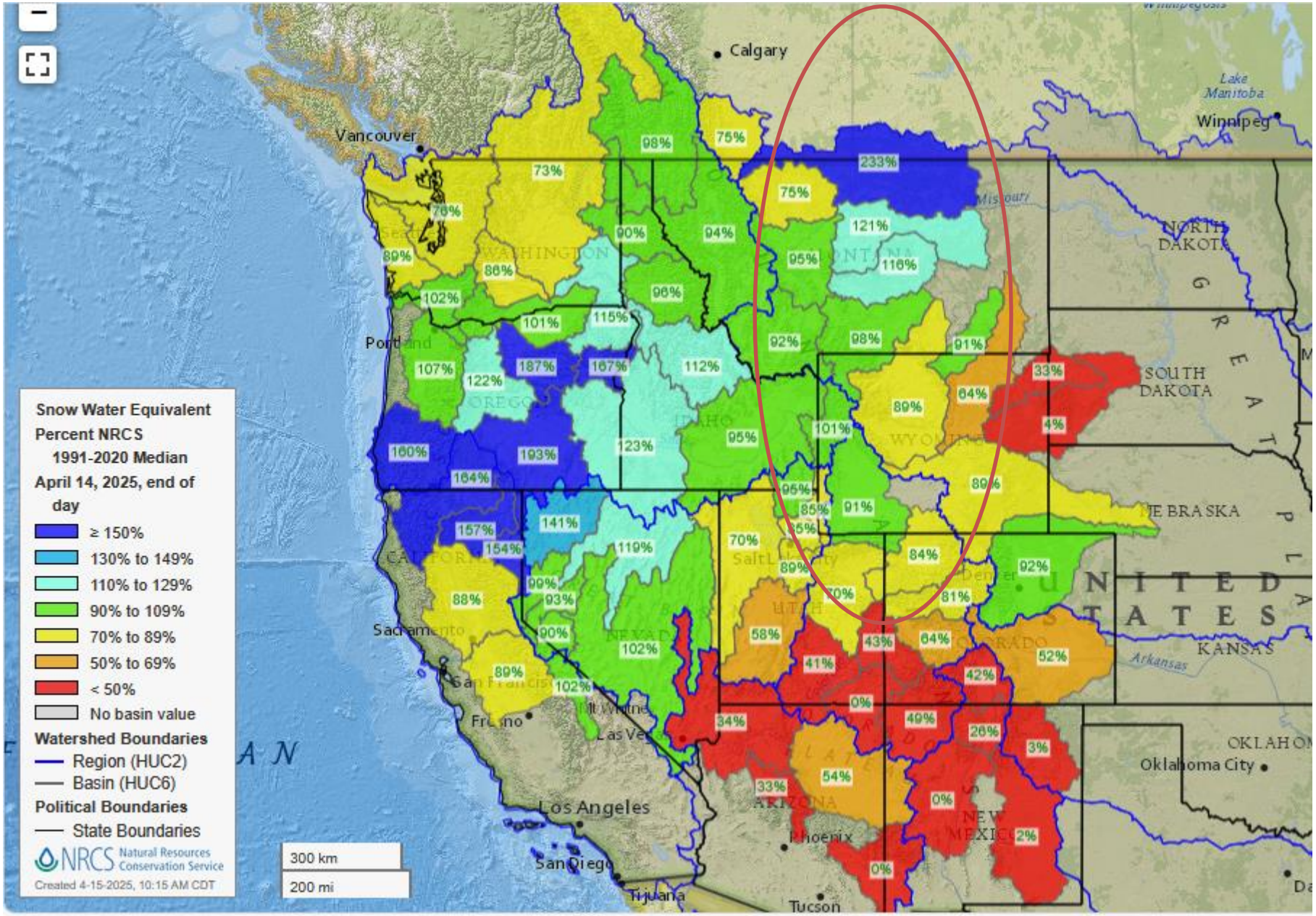
- Clear wet area Ohio Valley.
- Mixed levels of dryness other areas.







https://agindrought.unl.edu/Other.aspx
https://weather.msfc.nasa.gov/sport/case_studies/lis_CONUS.html
http://www.cpc.ncep.noaa.gov/products/Soilmst_Monitoring/US/Soilmst/Soilmst.shtml#



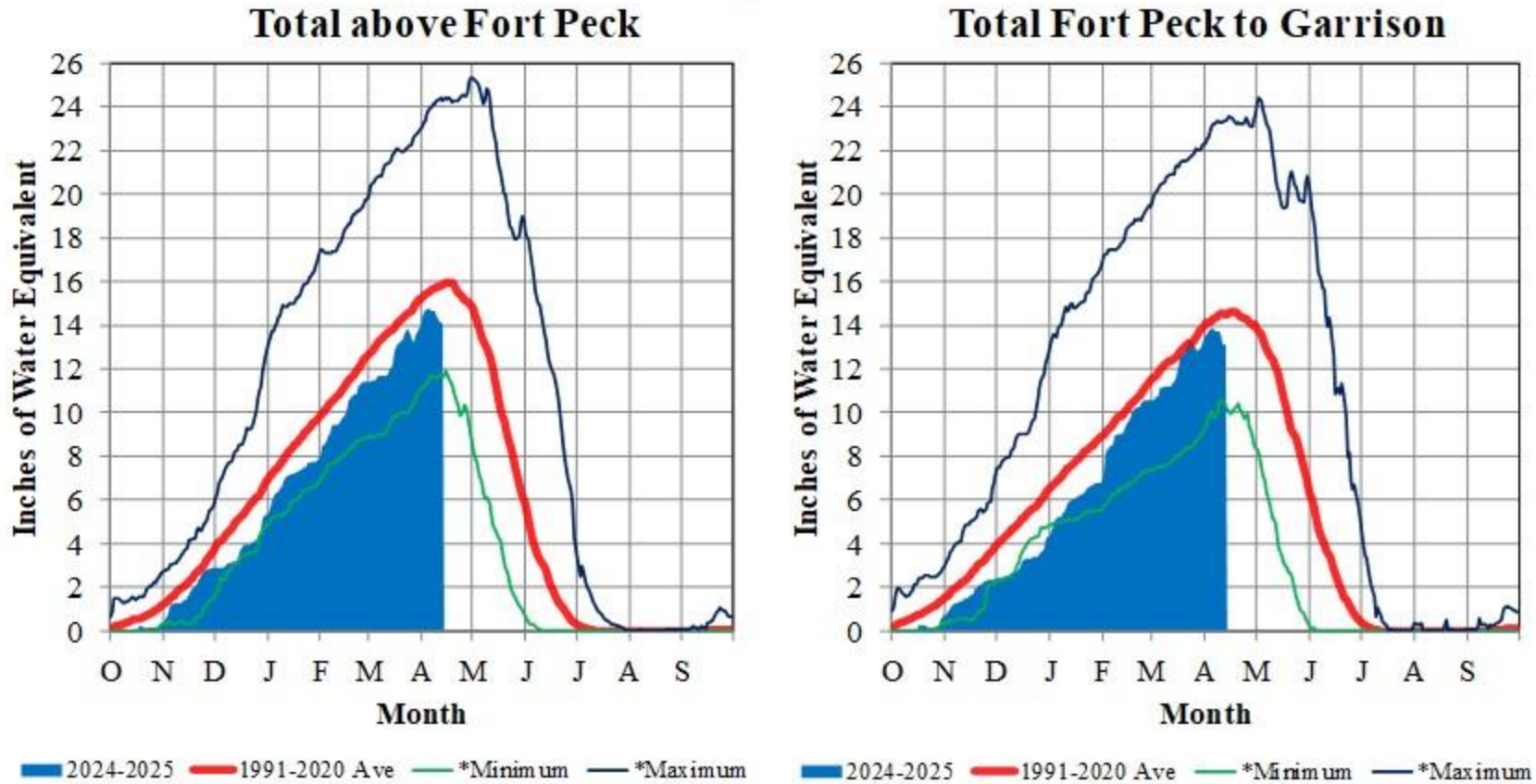
NRCS Snow Water Equivalent

- Mixed in Upper Missouri Basins
- Lower in Platte River – Lower Missouri Basins

https://www.nrcs.usda.gov/wps/portal/wcc/home/

Missouri River Basin – Mountain Snowpack Water Content
2024-2025 with comparison plots from recent high and low years

13-Apr-2025



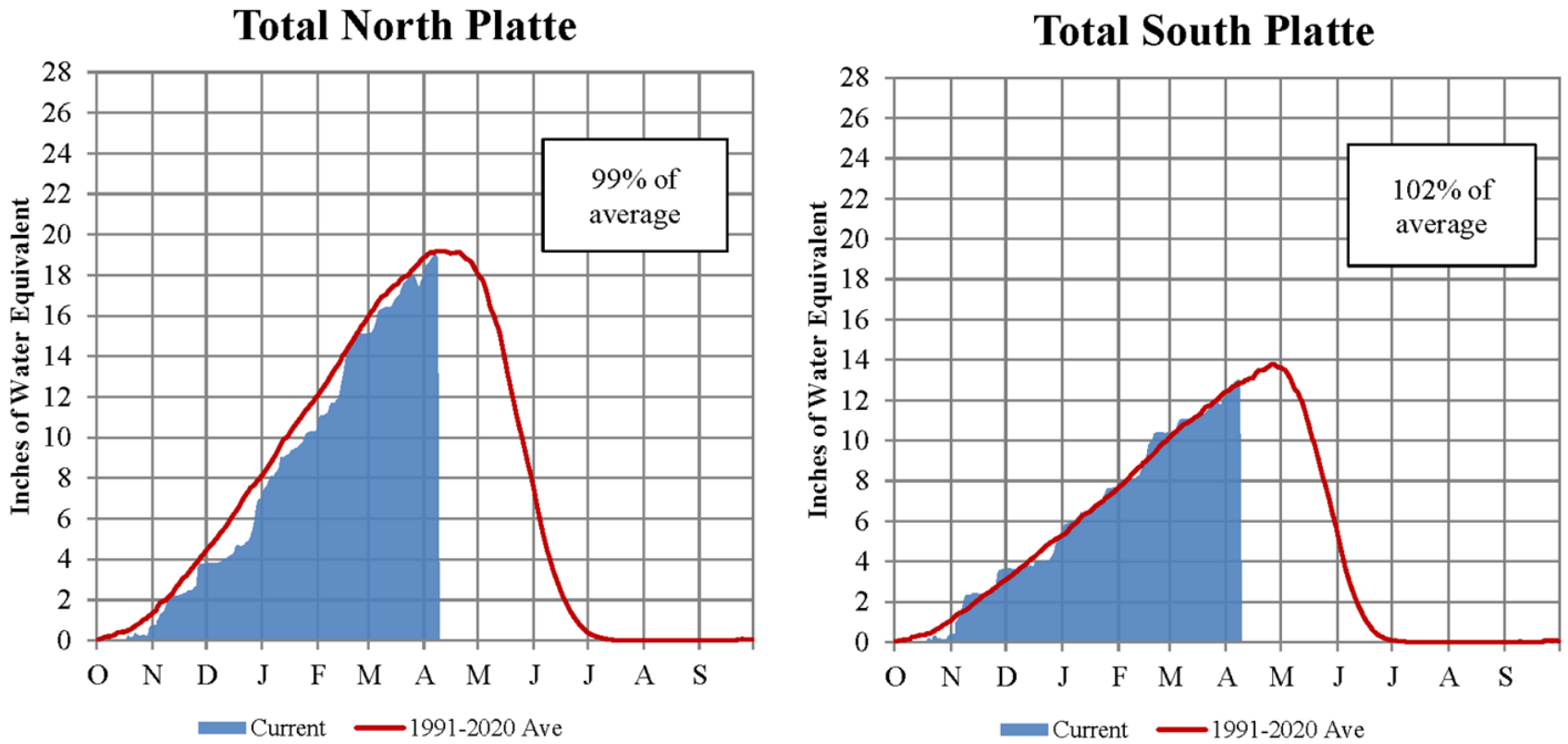
On April 13, 2025 the mountain Snow Water Equivalent (SWE) in the "Total above Fort Peck" reach is 14.0" and 95% of the annual peak remains. The mountain SWE in the "Fort Peck to Garrison" reach is 13.1" and 94% of the annual peak remains. The normal peak for both reaches occurs near April 17. The "Total above Fort Peck" reach peaked on April 5 at 14.8" SWE and 93% of the normal peak. The "Fort Peck to Garrison" reach peaked on April 5 at 13.9" SWE and 95% of the normal peak.

*Refers to the minimum or maximum SWE in the basin for that day in the historical years 1991-2020.

Provisional data. Subject to revision.

https://www.nwd-mr.usace.army.mil/rcc/reports/snow.jpg

Platte River Basin - Mountain Snowpack Water Content
Water Year 2024-2025
April 8, 2025



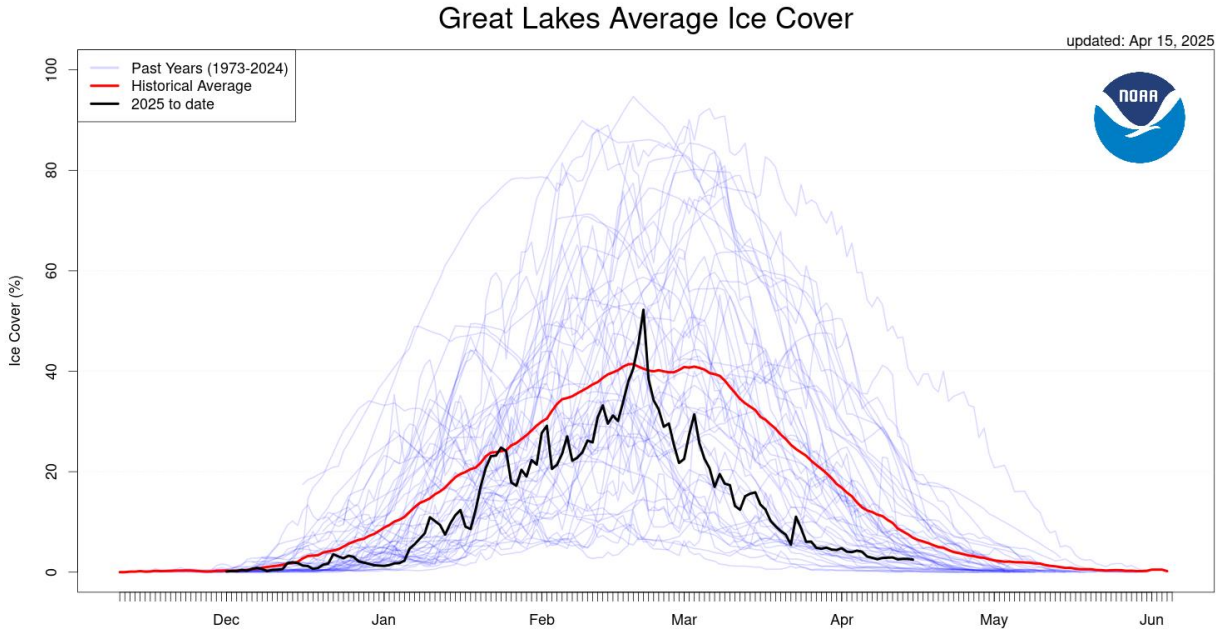
The North and South Platte River Basin mountain snowpacks normally peak near April 10 and the end of April, respectively. As of April 8, 2025, the mountain snowpack SWE in the "Total North Platte" reach is 19.0", 99% of the (1991-2020) average. The mountain snowpack SWE in the "Total South Platte" reach is 13.0", 102% of the (1991-2020) average.

USDA Midwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

Source: USDA, Natural Resource Conservation Service

Provisional Data. Subject to Revision

https://www.nwd-mr.usace.army.mil/rcc/reports/platte_snow.png



Great Lakes

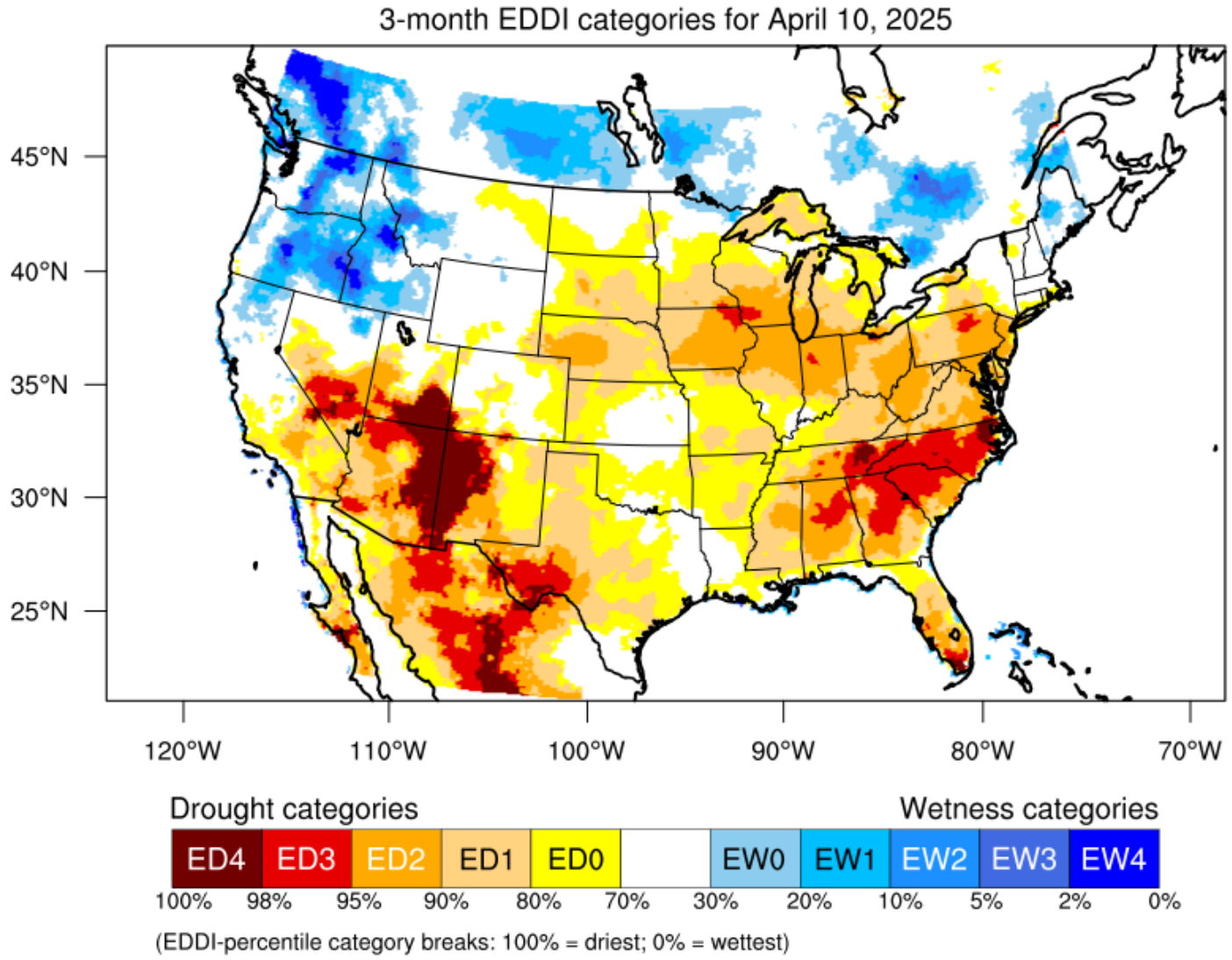
- Ice cover nearly gone (3%). Early end to ice.
- Peaked above average in February.
- Lake water levels near-below avg.

- Lake Michigan-Huron 172% average precip in March.

PRECIPITATION (INCHES)								
BASIN	March				12-Month Comparison			
	2025	Average (1900-2022)	Diff.	% of Average	Last 12 Months	Average (1900-2022)	Diff.	% of Average
Superior	1.83	1.69	0.14	108	29.29	30.67	-1.38	96
Michigan-Huron	3.74	2.17	1.57	172	34.17	32.99	1.18	104
Erie	2.73	2.76	-0.03	99	34.41	36.02	-1.61	96
Ontario	2.97	2.68	0.29	111	38.33	36.46	1.87	105
Great Lakes	2.99	2.17	0.82	138	33.34	33.11	0.23	101

Evaporative Demand

- Increased demand much of eastern Corn Belt.
- Quicker drying.
- Less over last 30 days.



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

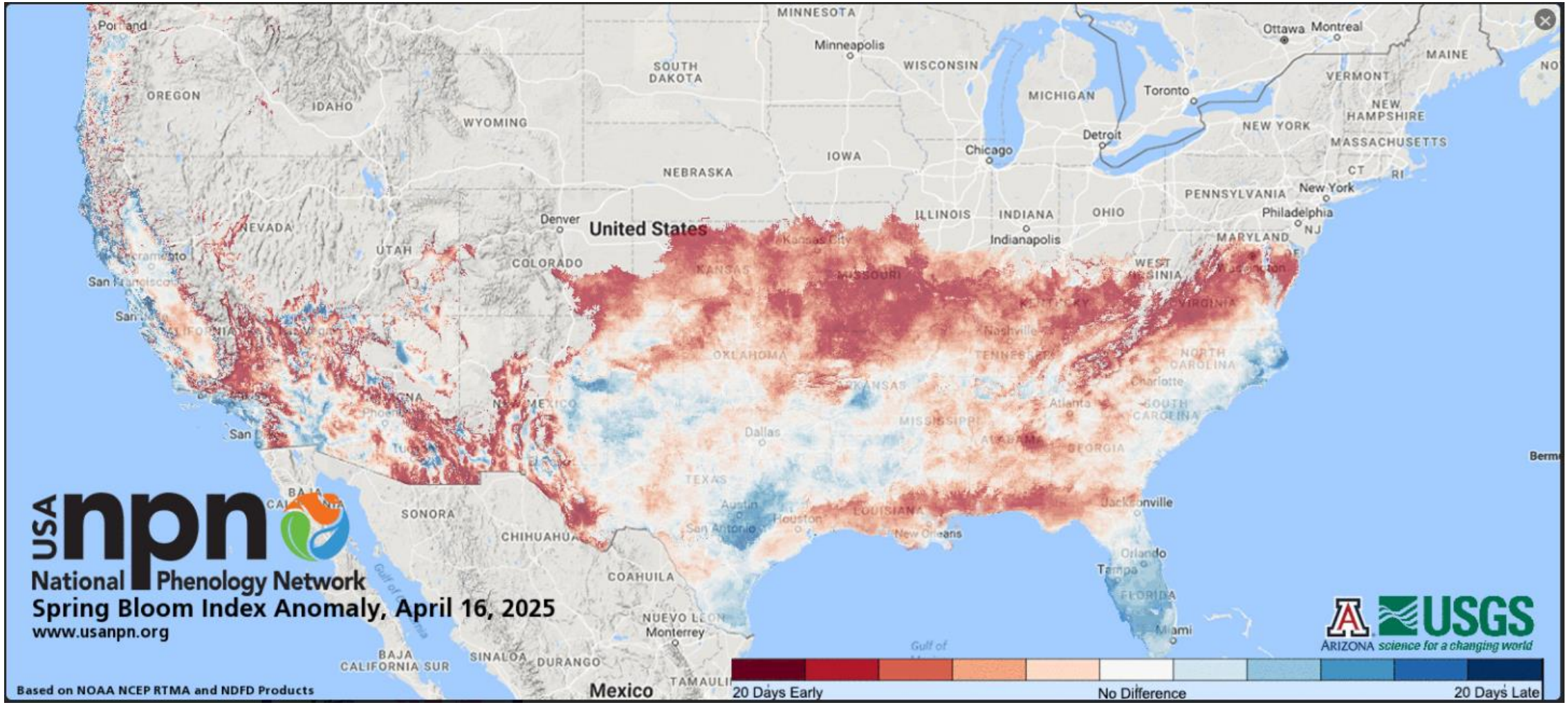
Various Water Issues

- Missouri River lower flows expected reduced navigation service due to lower runoff
- Upper Mississippi River lower than usual north of Ohio River – lack of snow melt. Flooding south from rains
- Floods receding Ohio Valley but more rains expected
  - Flooding damaging, but not record-setting flooding peaks.
  - Many areas of damage
  - Inundated fields.

Photo:
Glen Arnold – OSU Extension
(asparagus damage)

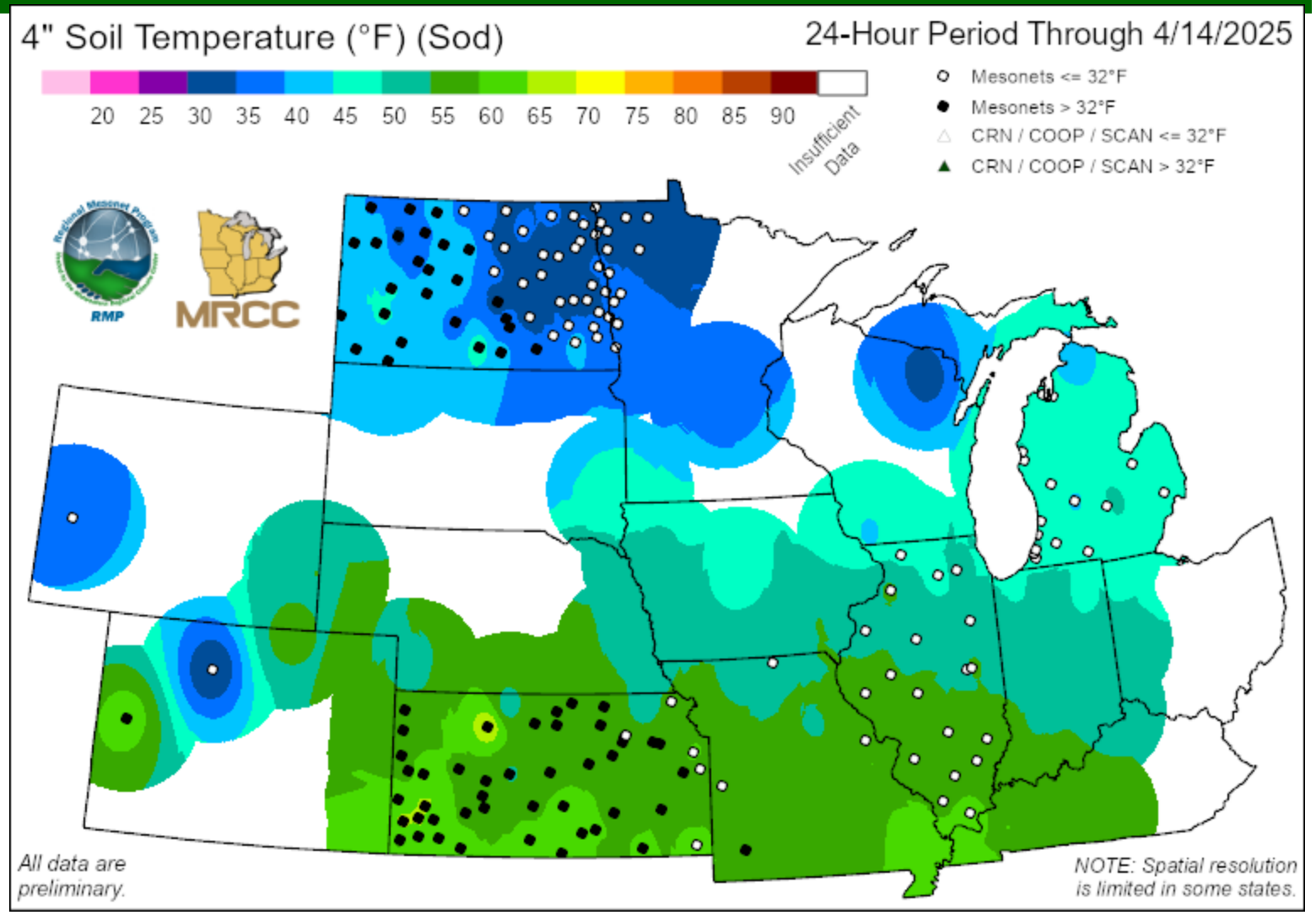
AGRICULTURAL IMPACTS

NPN – First Leaf



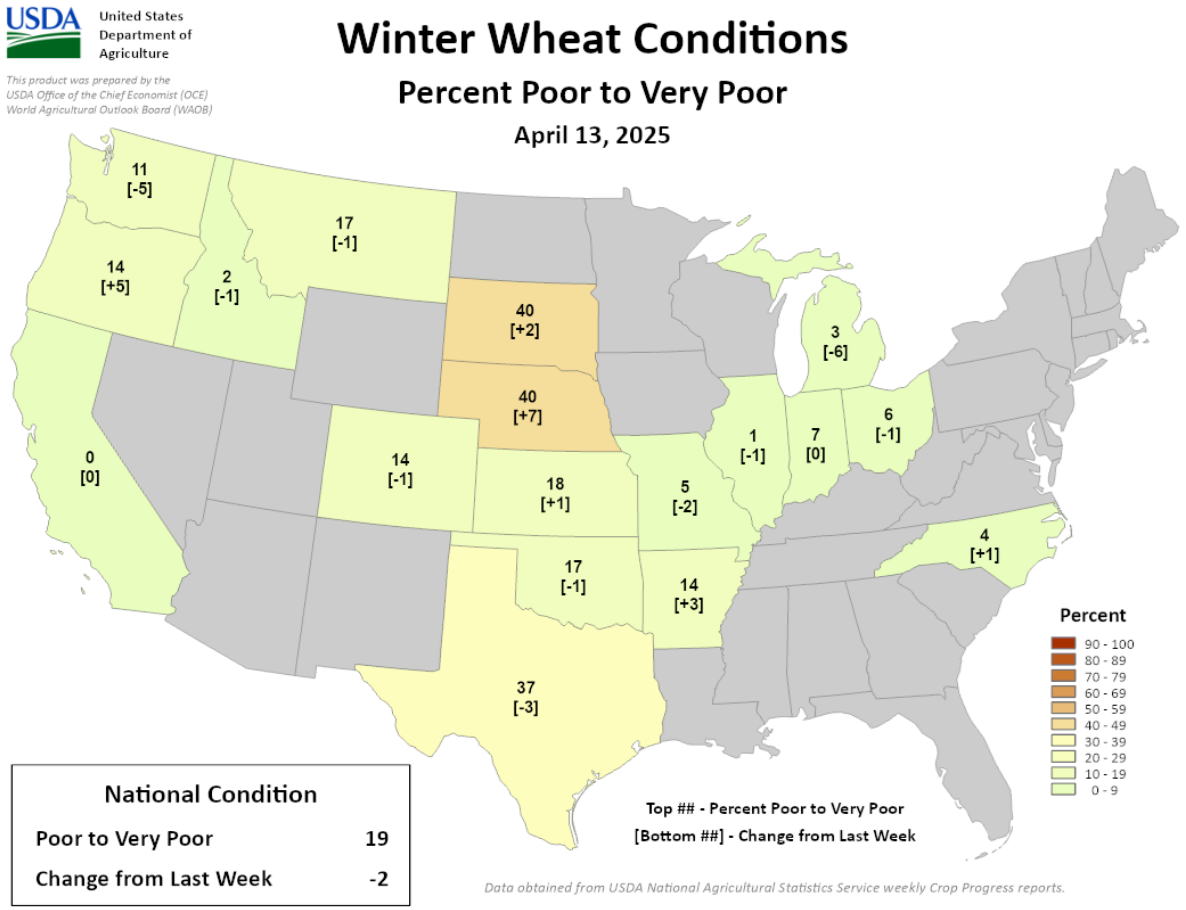
https://www.usanpn.org/data/maps/spring

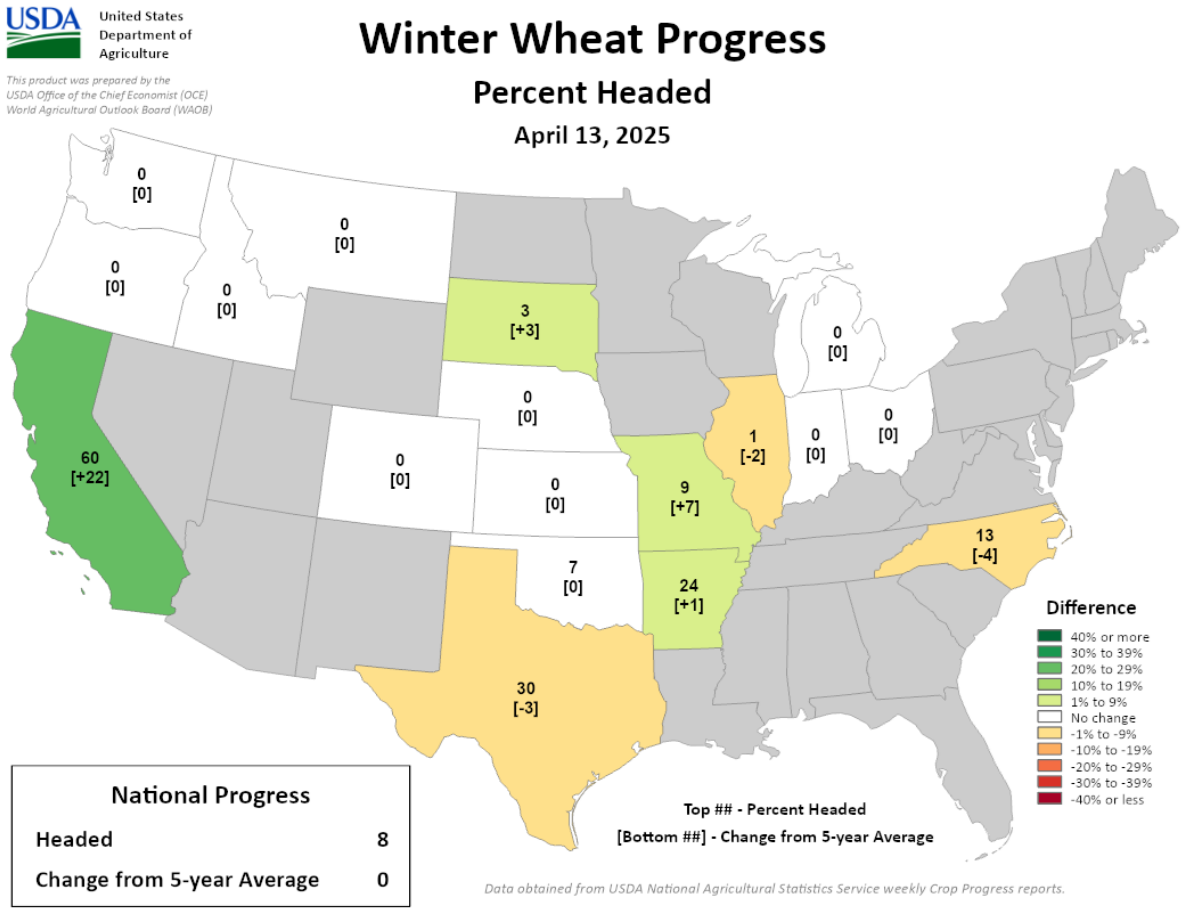
Soil Temperature



https://mrcc.purdue.edu/RMP/currentMaps

USDA NASS Crop Progress Winter Wheat





https://agindrought.unl.edu/Other.aspx

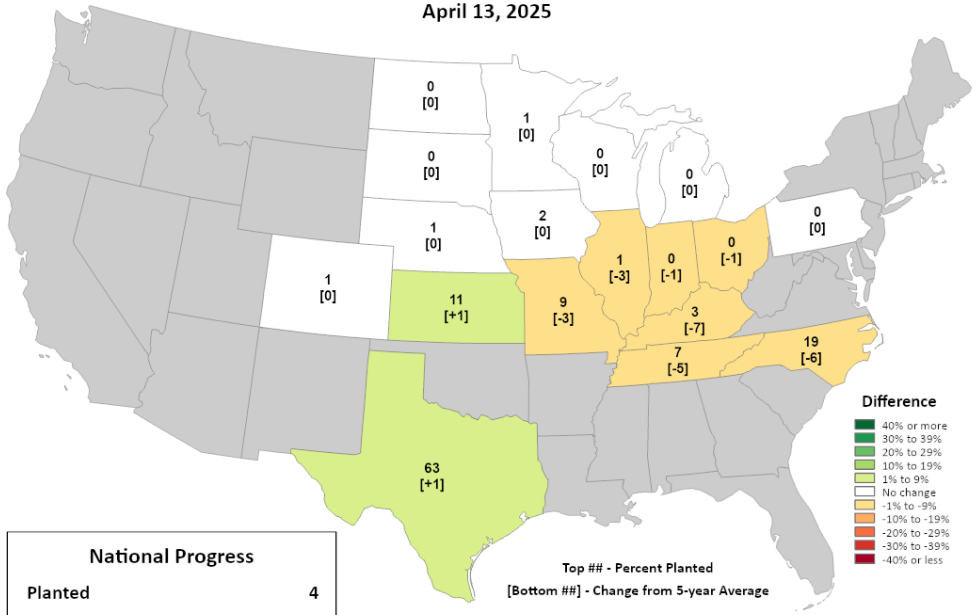
USDA Midwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

USDA NASS Crop Progress

Corn Progress

Percent Planted

April 13, 2025

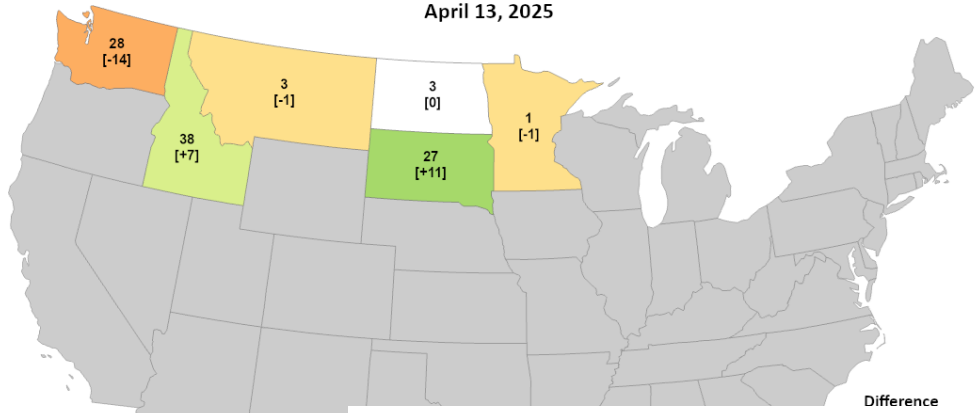


National Progress	
Planted	4
Change from 5-year Average	-1

Spring Wheat Progress

Percent Planted

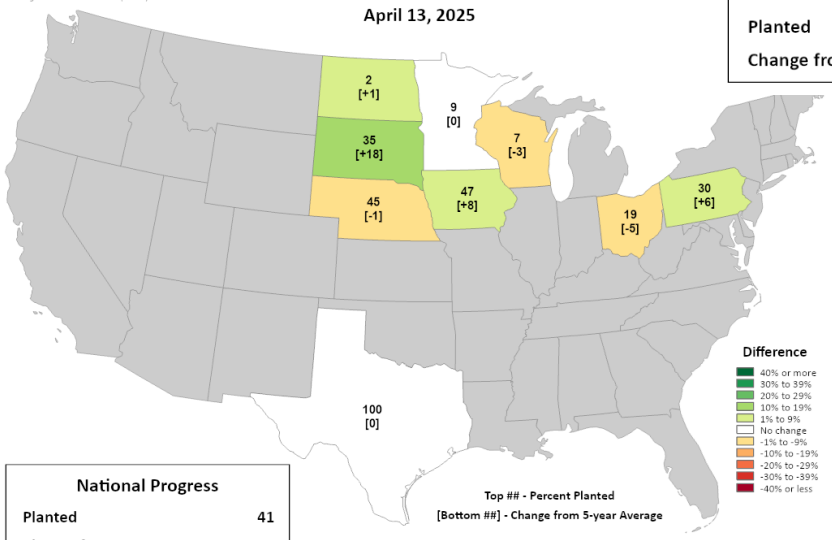
April 13, 2025



Oats Progress

Percent Planted

April 13, 2025



National Progress	
Planted	41
Change from 5-year Average	+5

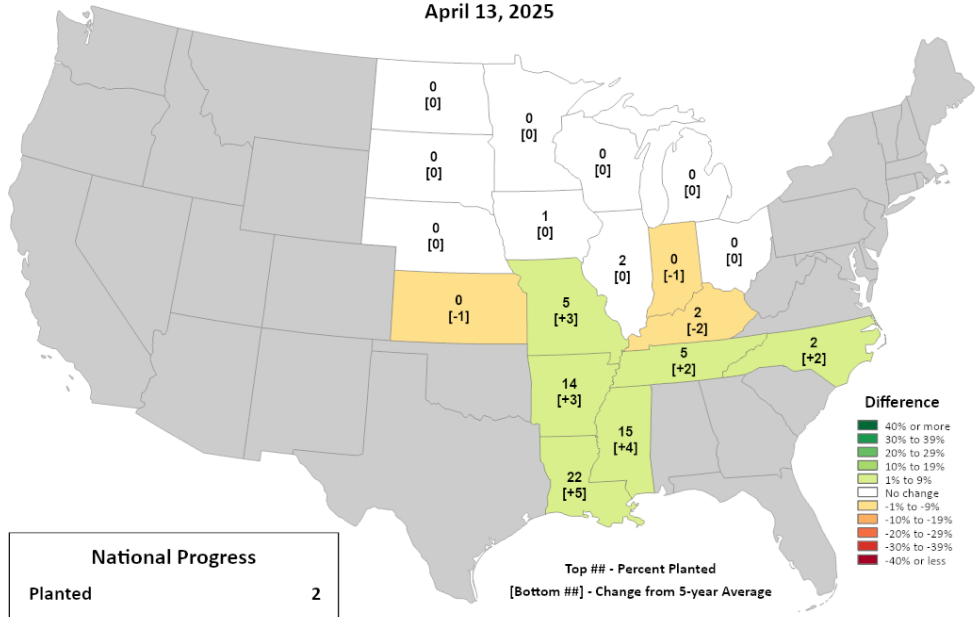
Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports.

National Progress	
Planted	7
Change from 5-year Average	0

Soybeans Progress

Percent Planted

April 13, 2025



National Progress	
Planted	2
Change from 5-year Average	0

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

USDA Midwest Climate

U.S. DEPARTMENT OF AGRICU

Various Ag/Plant Issues

- Planting progress kicking in (conditions OK) – not quite ready north.
- Delays south (wet) and drowned out winter wheat IL/IN
- Dry soils still concern Plains
- Pasture/rangeland dry – production concerns (need rain in Plains)
- No significant livestock reports – NE can't increase herd like they want.
- Specialties at risk further south – farther along. If freeze occurs.

Photo:
Aaron Wilson
Ohio State University

A look ahead

OUTLOOKS

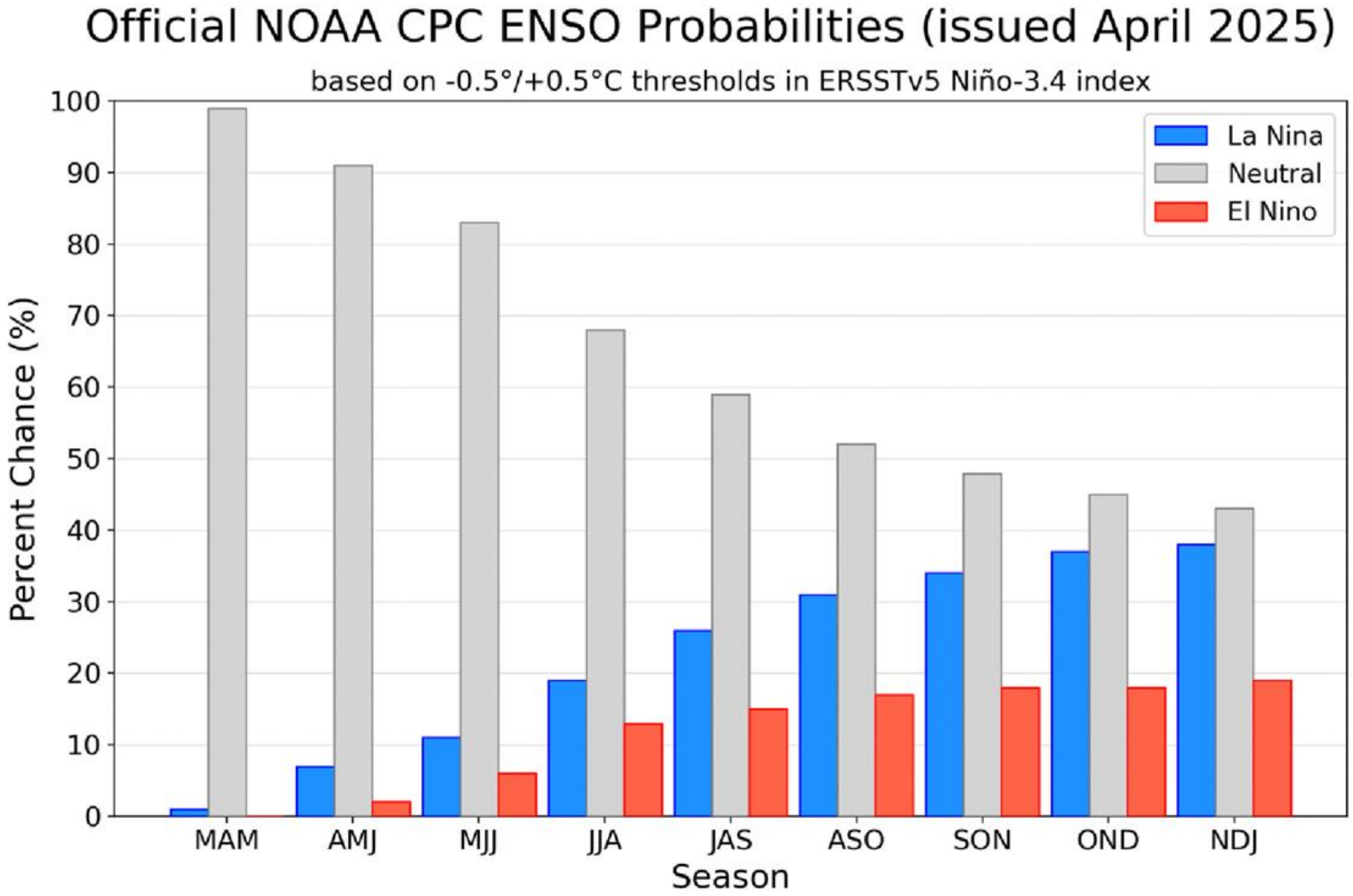
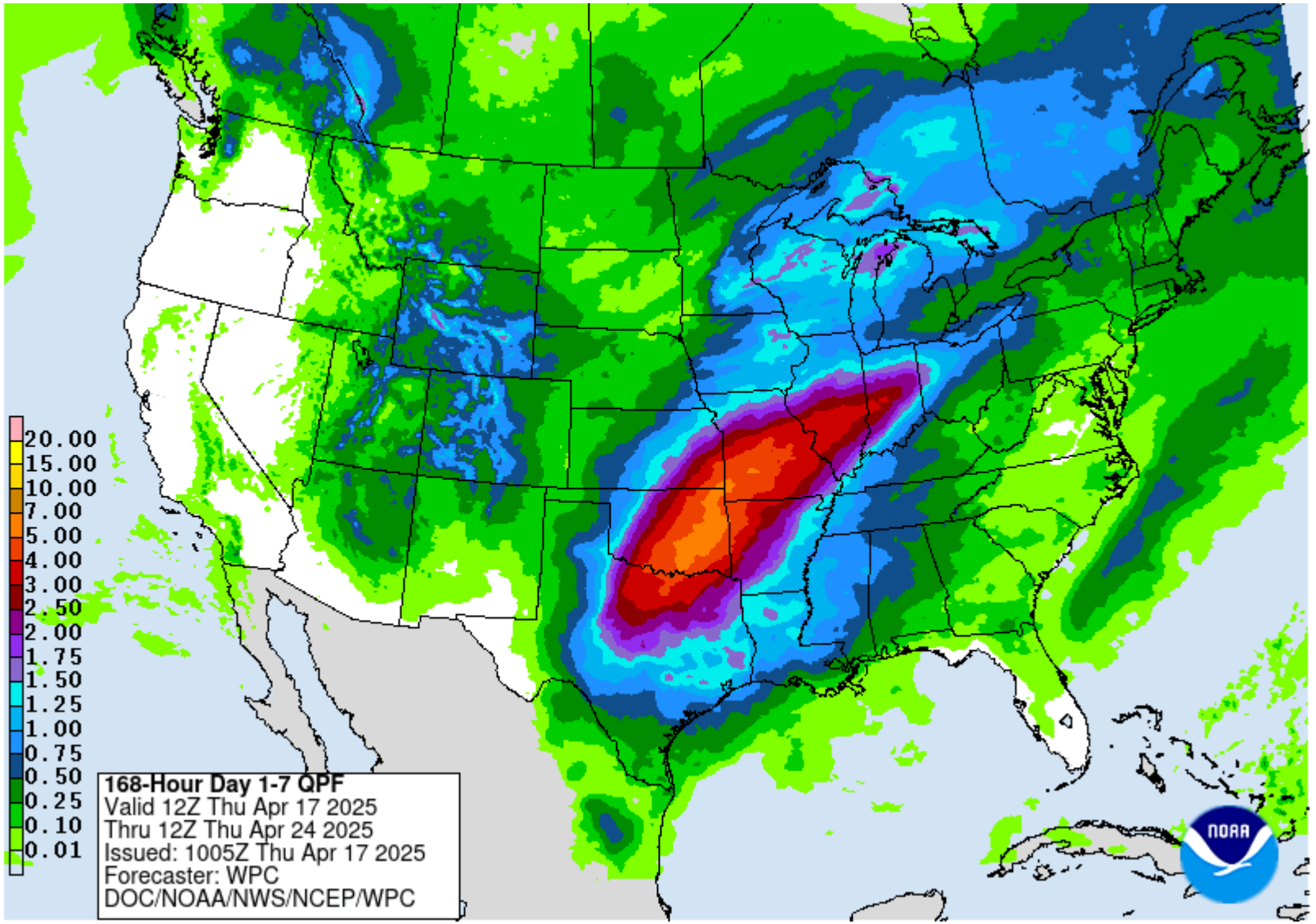


Figure 7. Official ENSO probabilities for the Niño 3.4 sea surface temperature index (5°N-5°S, 120°W-170°W). Figure updated 10 April 2025.

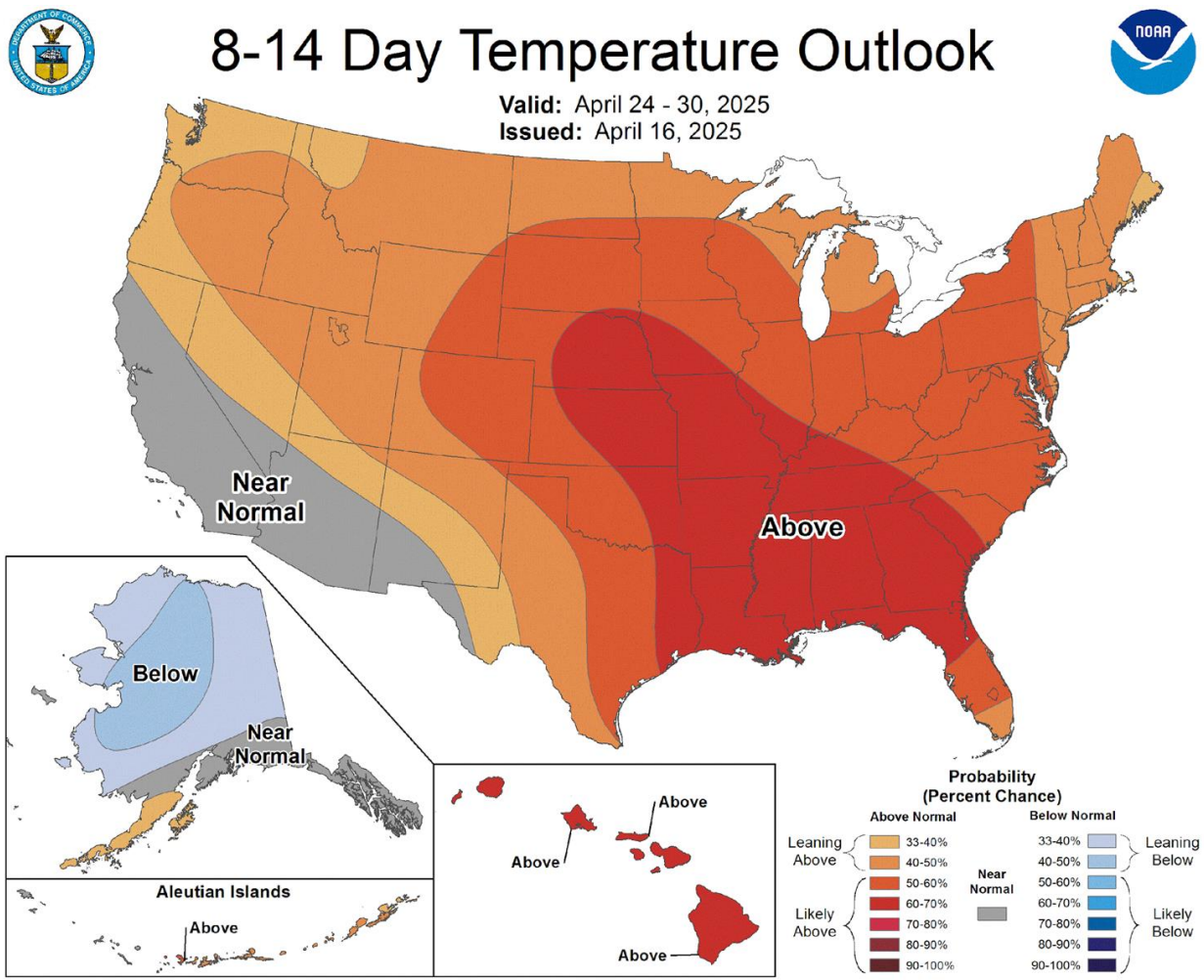
7-day (Model) Precipitation Forecast

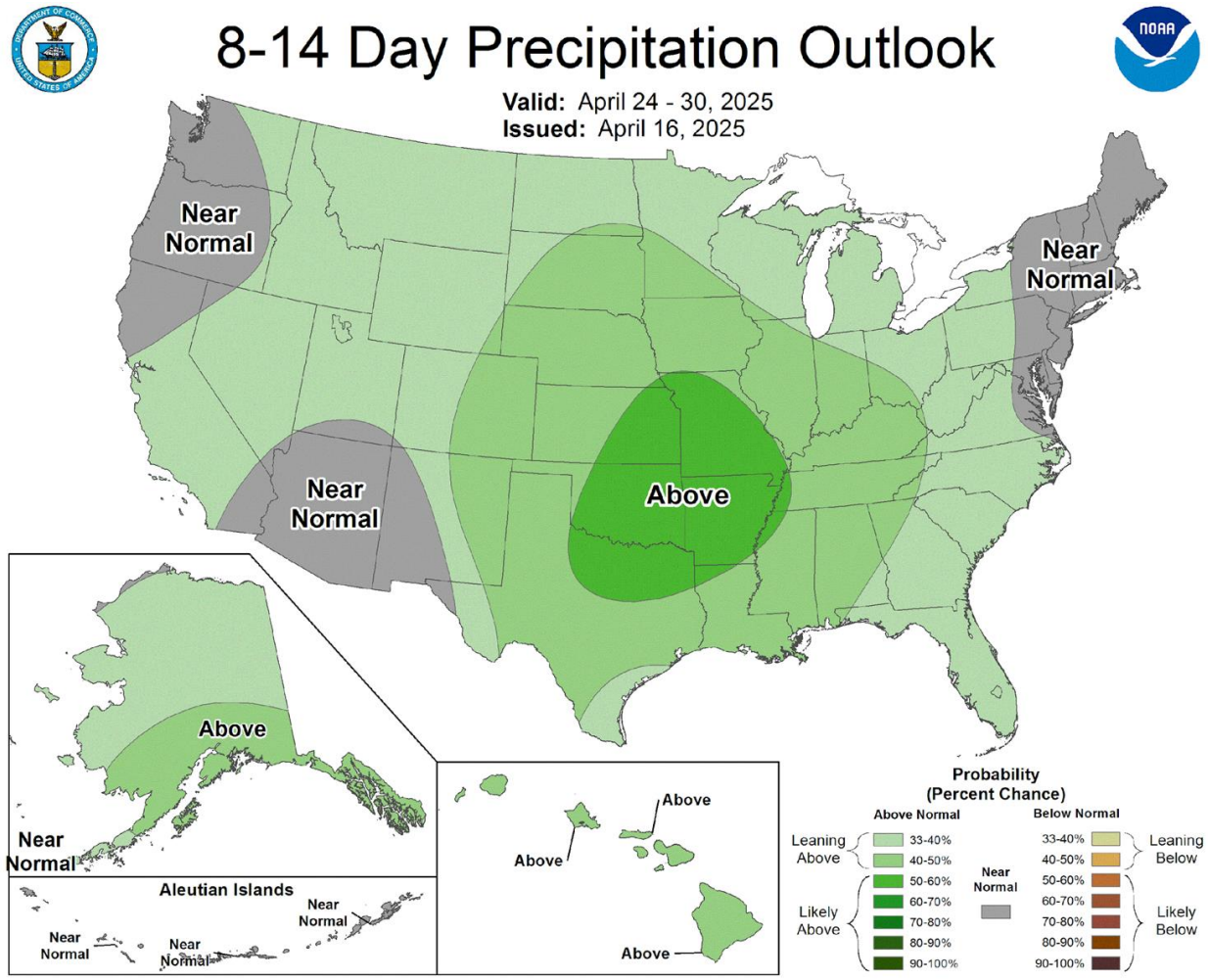
Some 3”+ amounts possible KS-MO-IL-IN. Less expected dry area of the nrn Plains.



https://www.wpc.ncep.noaa.gov/qpf/p168i.gif?1702298495

8-14 Day Temp. and Precip. Outlook

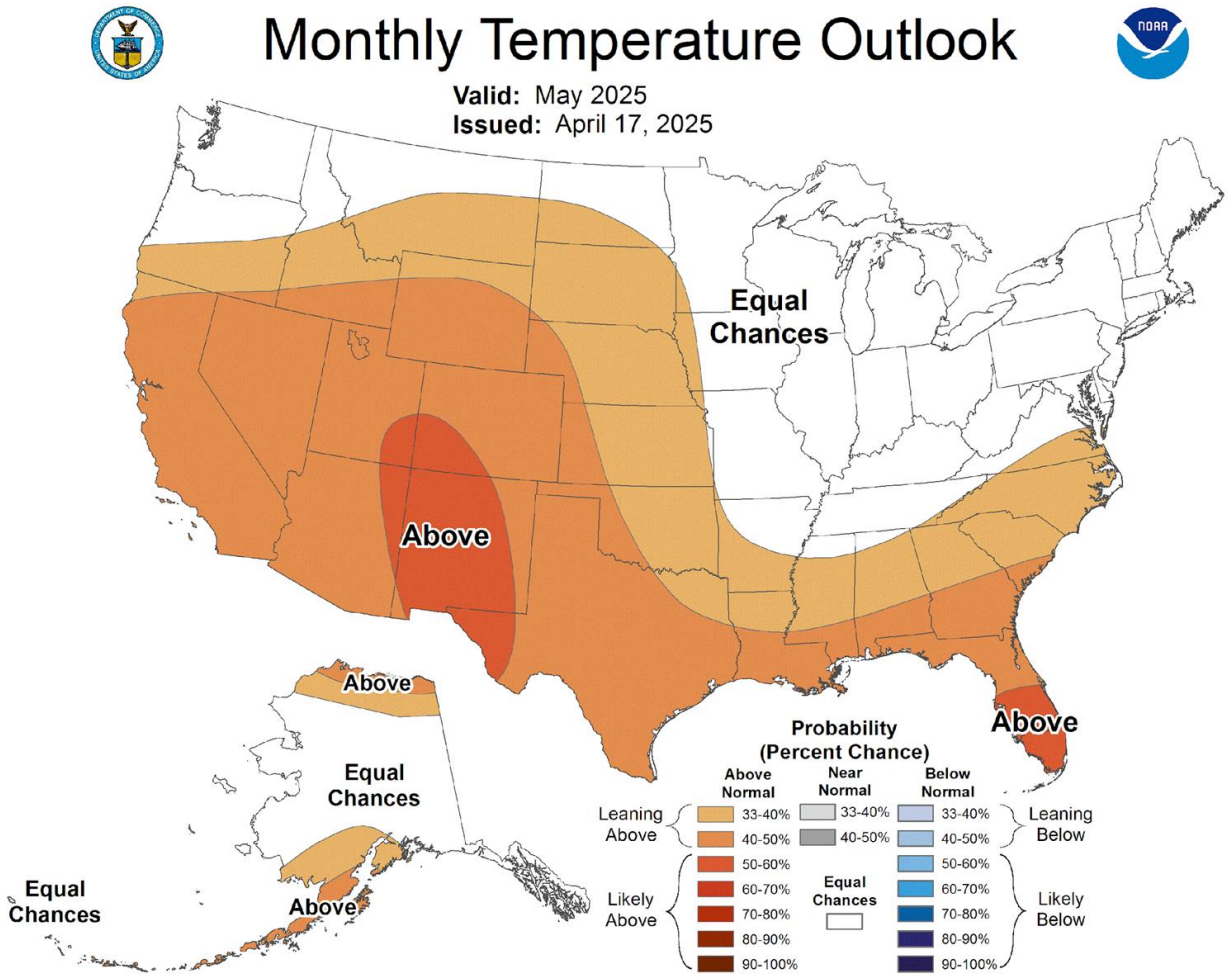


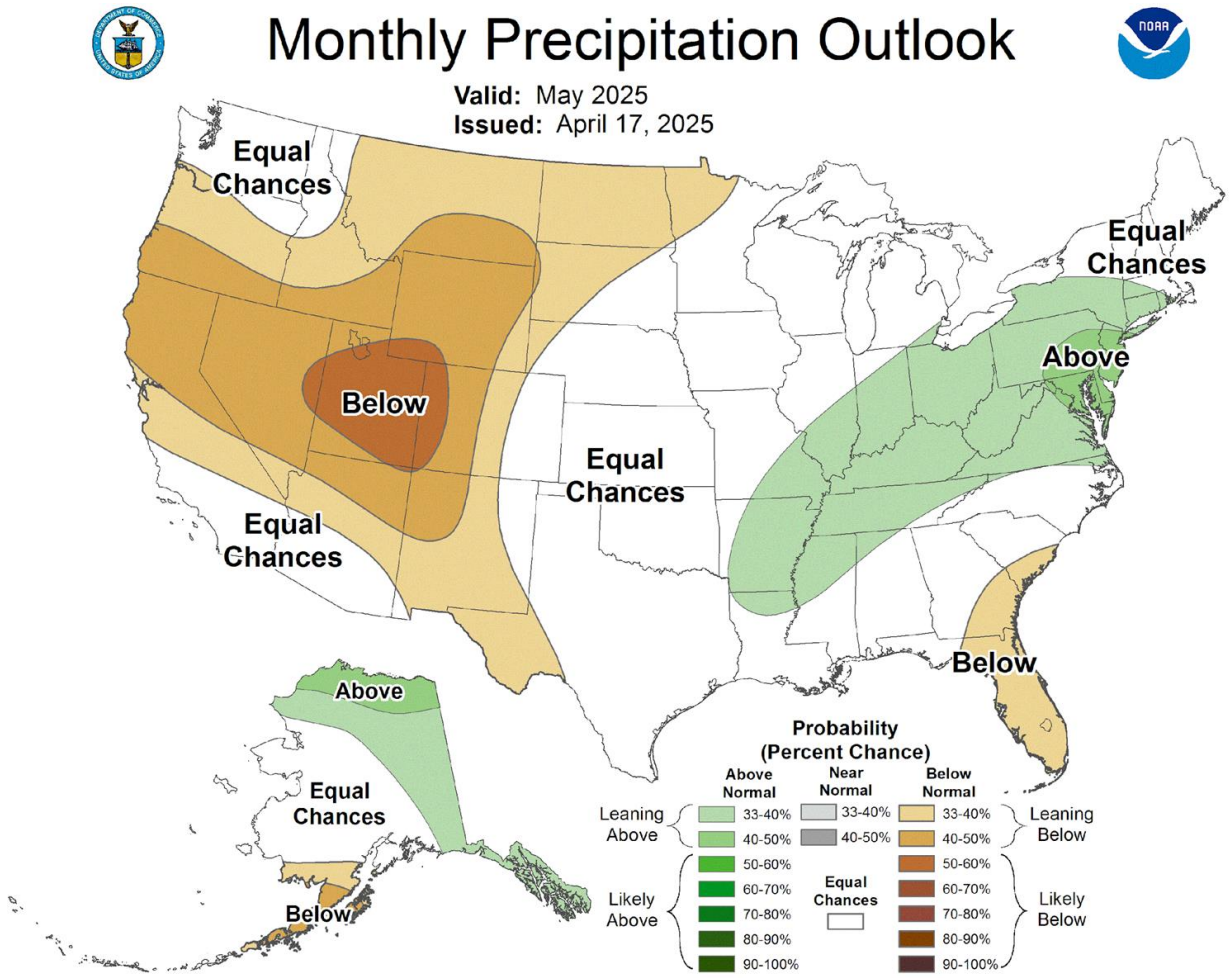


USDA Midwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

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

30 Day Temp and Precip. Outlook



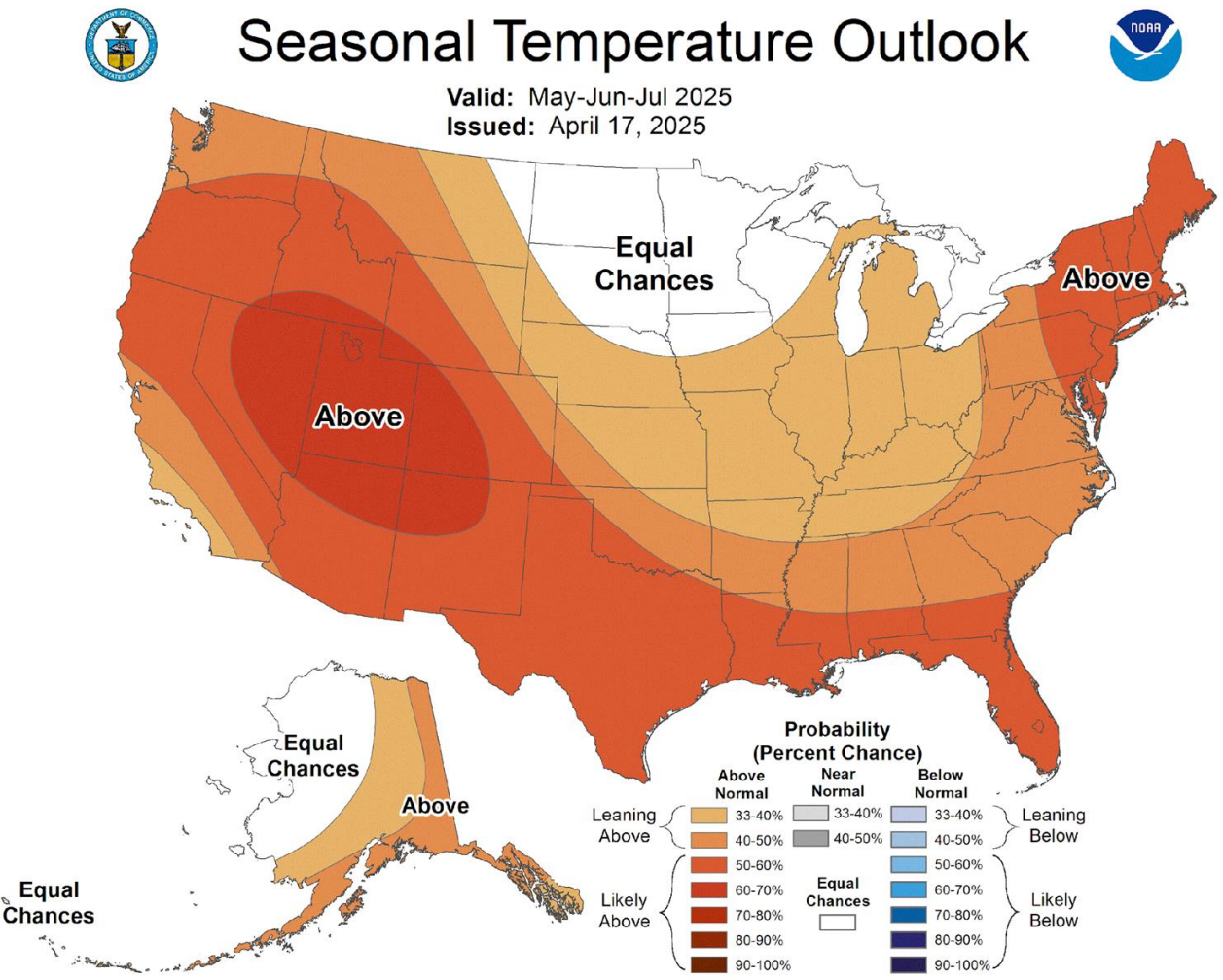


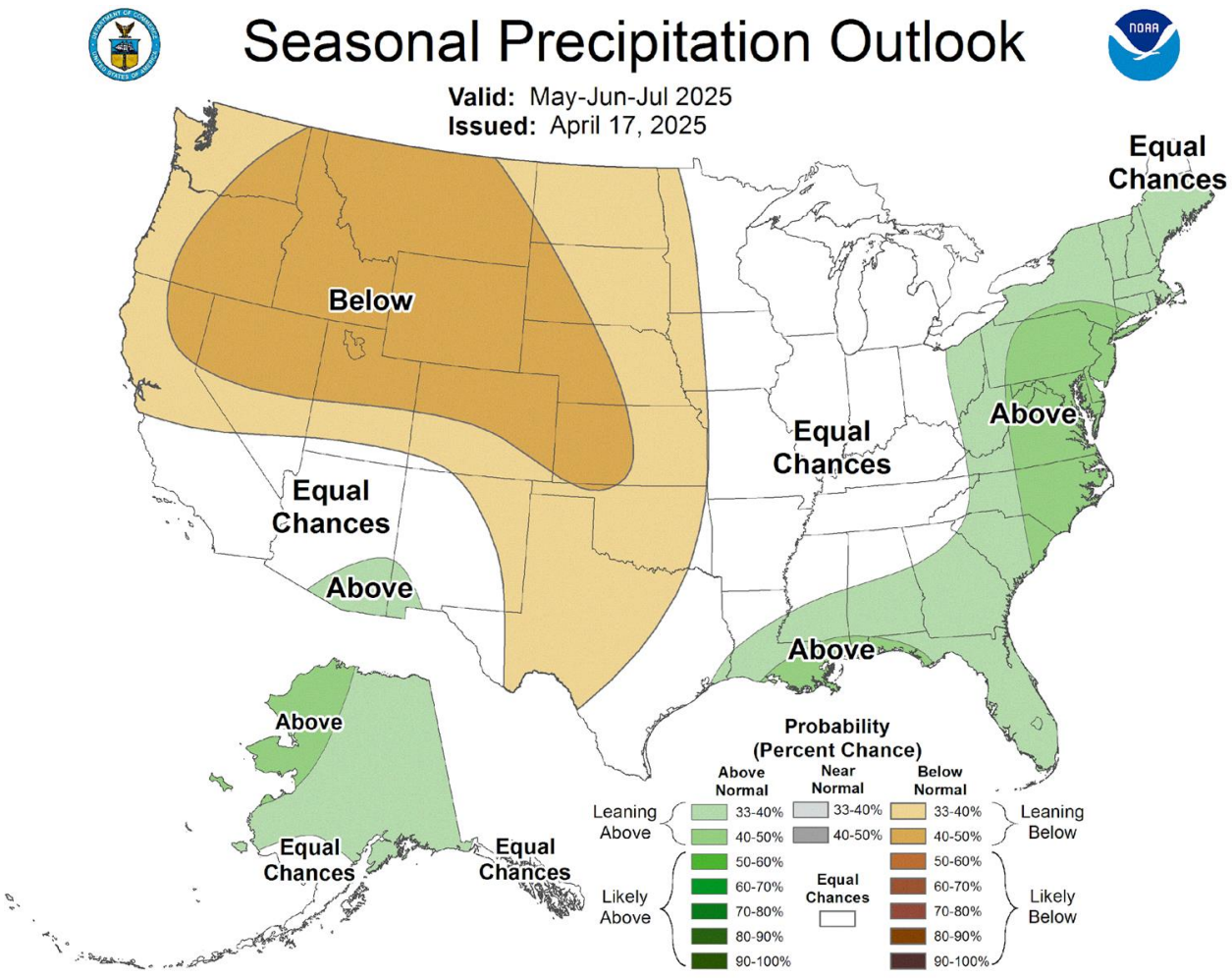
http://www.cpc.ncep.noaa.gov/

USDA Midwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

30 day outlook for May– Very weak indicators across the whole region. Warmer-drier a bit stronger signal west.

90 Day Temp and Precip. Outlook



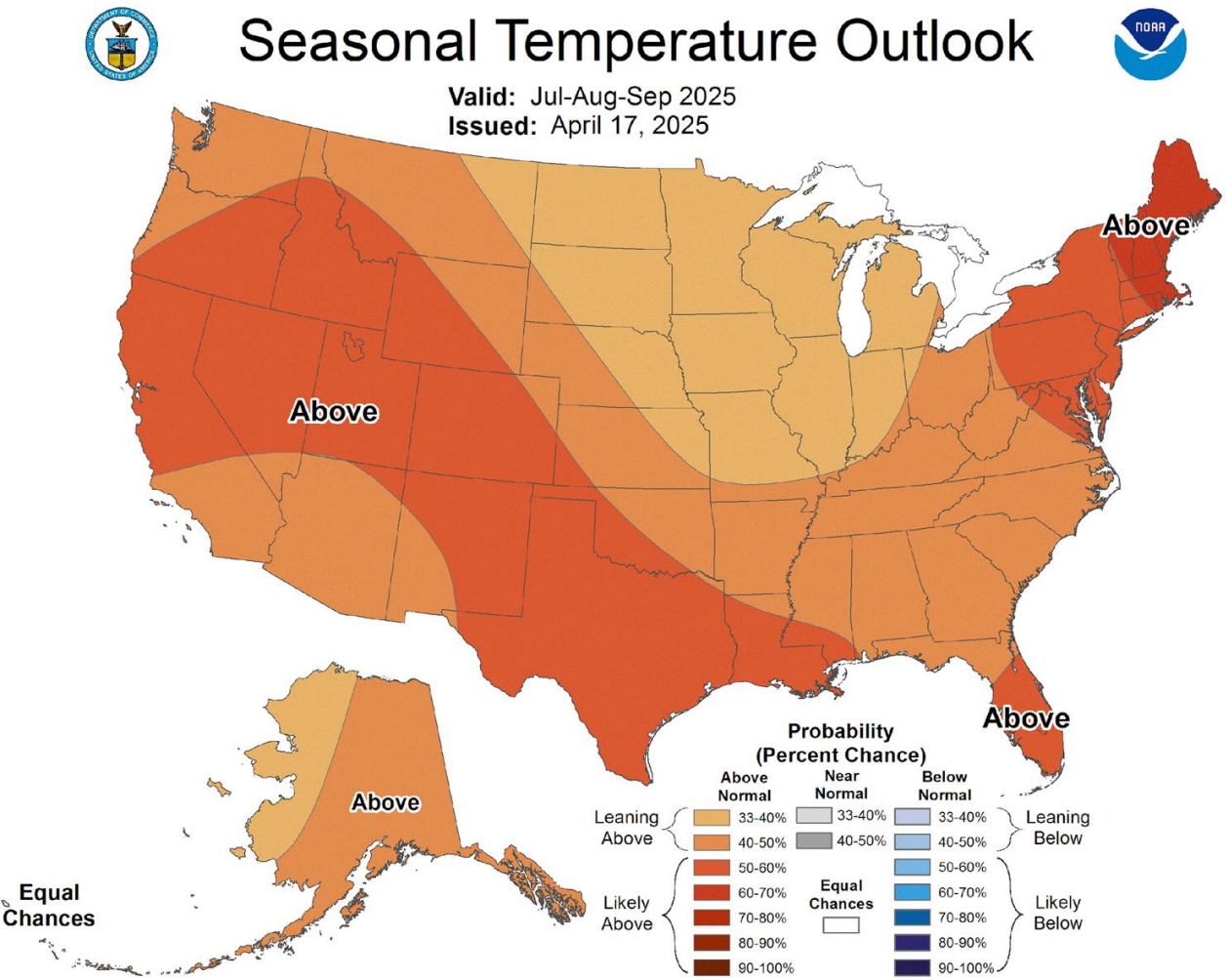


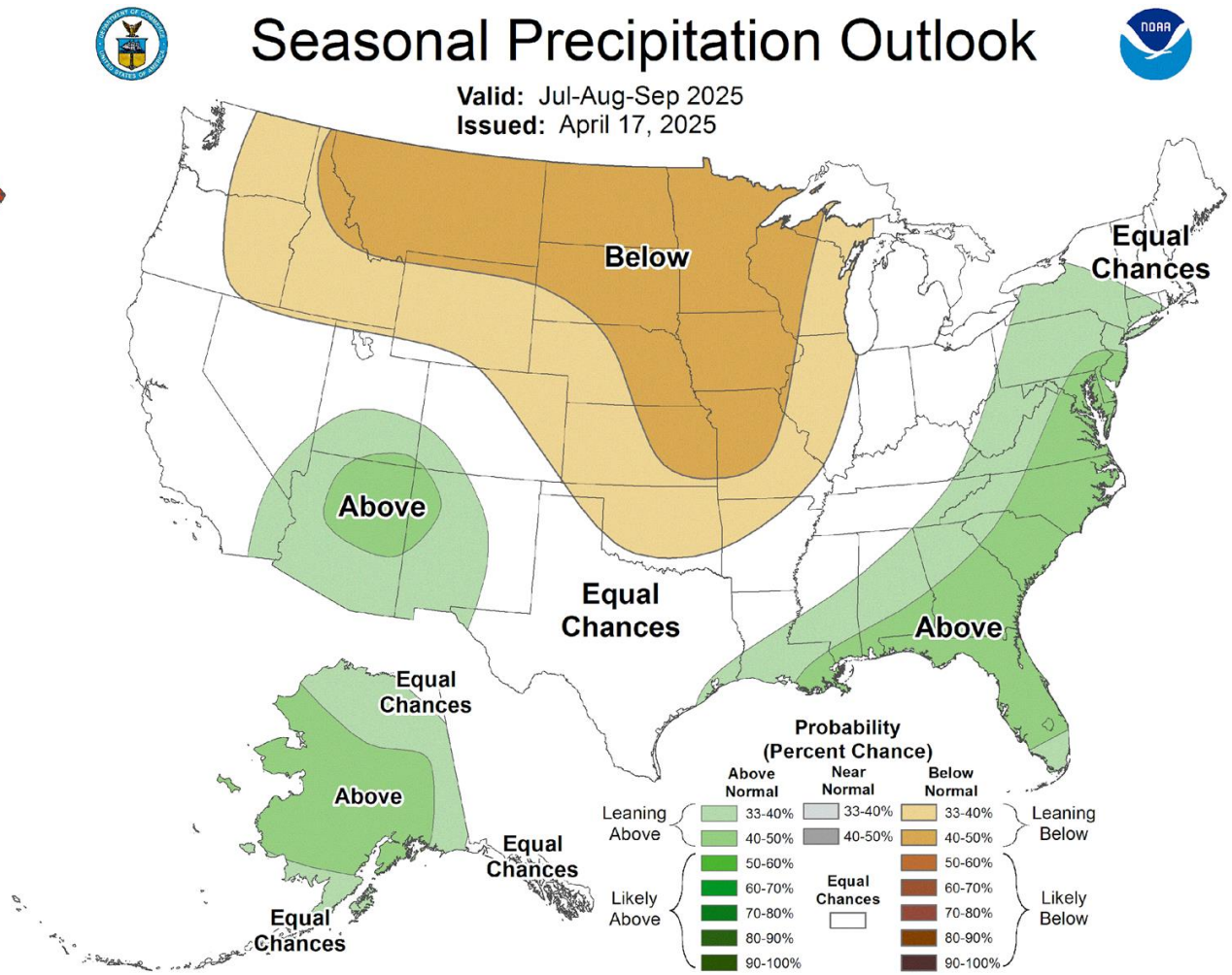
http://www.cpc.ncep.noaa.gov/

Northern/central Plains signal toward drier – consistent through summer.

USDA Midwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

Summer Outlook (July-Sept.)



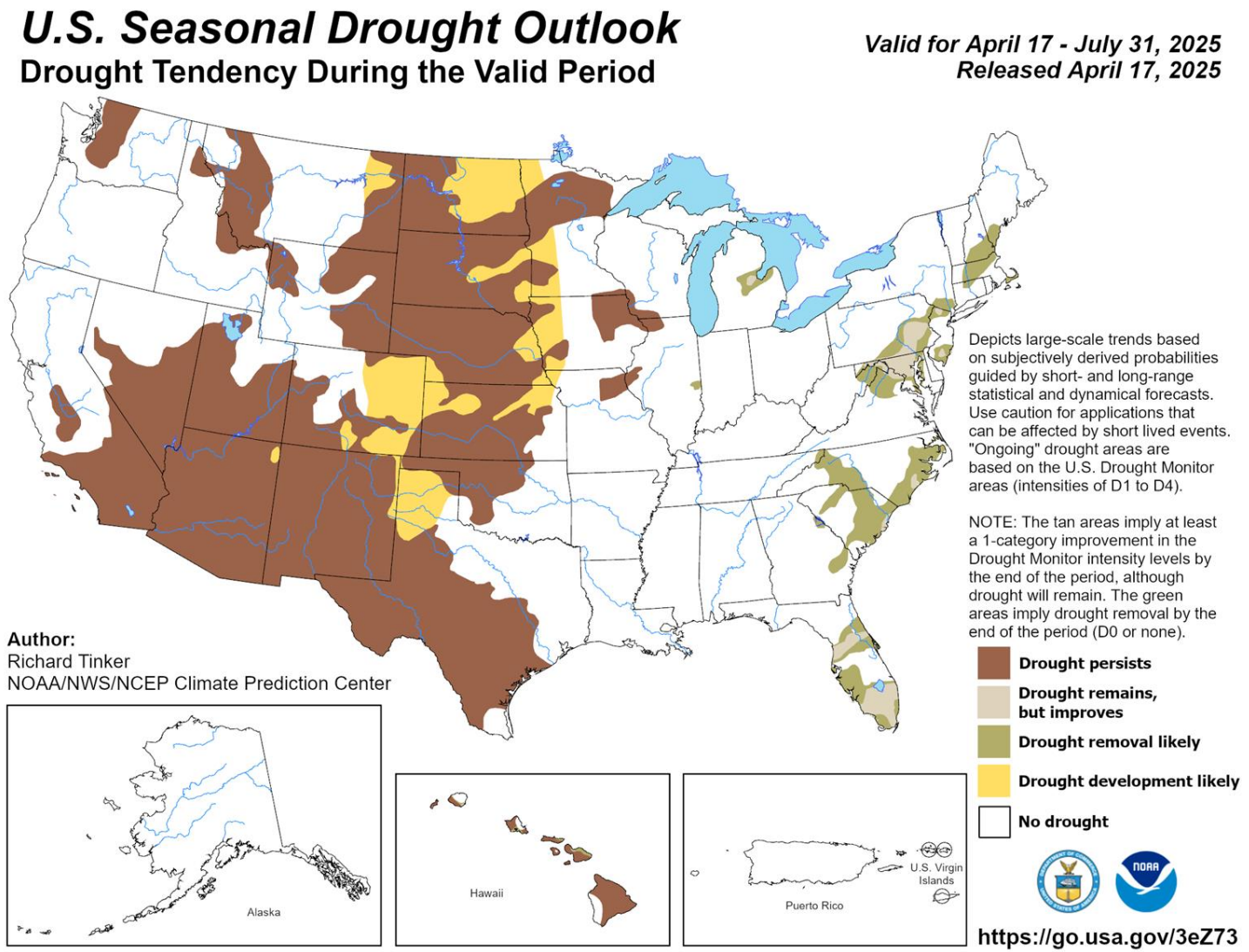


- La Niña not a factor.
- Heat and dryness increasingly likely

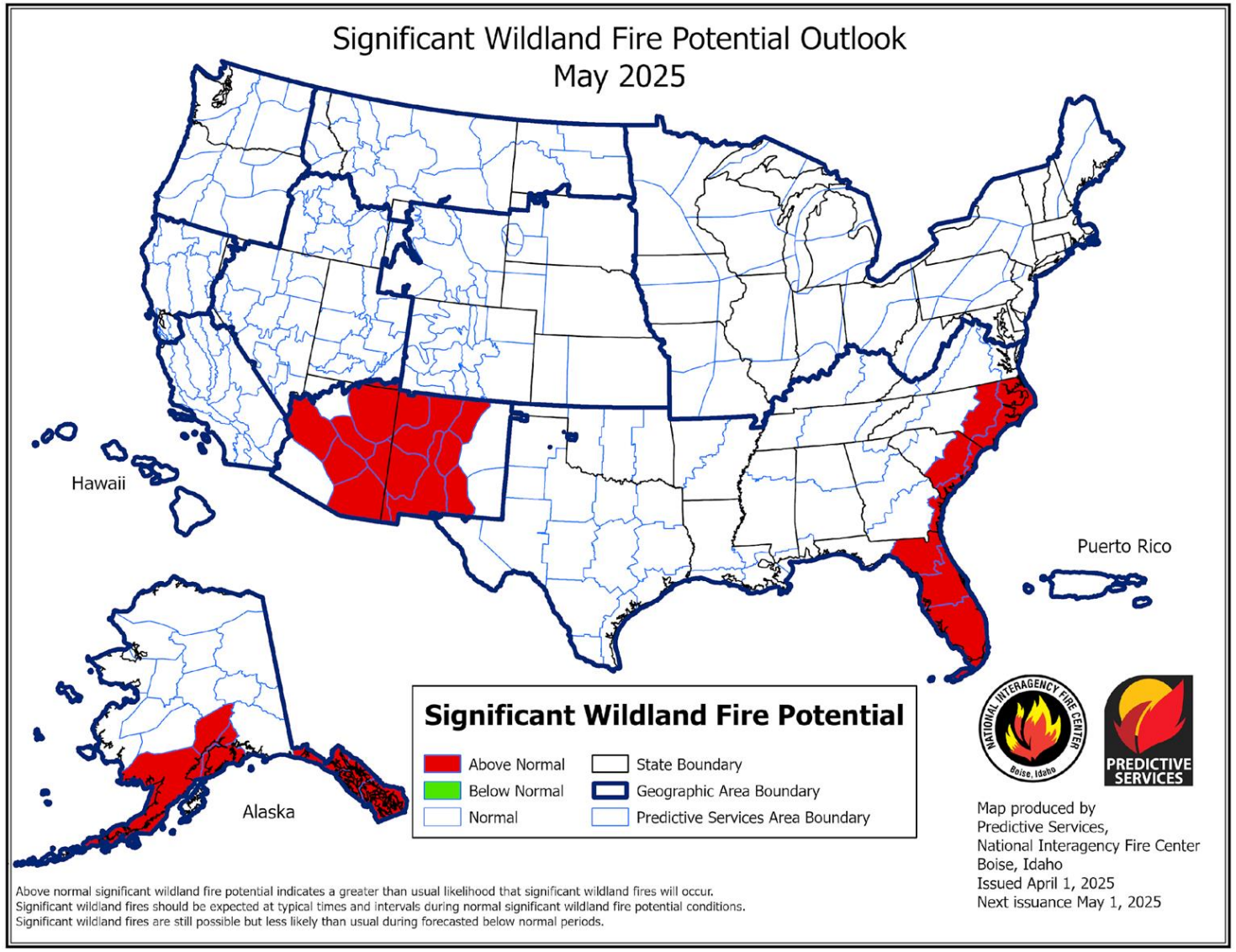
https://www.cpc.ncep.noaa.gov/products/predictions/multi_season/13_seasonal_outlooks/color/churchill.php

Drought Outlook (April-July)

- Drought persistence more likely
- Possible increases.



https://www.cpc.ncep.noaa.gov/



Wildland Fire Potential

No additional wildfire potential in the region indicated after April outlook.

https://www.nifc.gov/nicc/predictive/outlooks/outlooks.htm

Summary

- *Conditions*
- Wet south/east (flooding) – Dry largely north/west (lower flows)
- Spring planting rolling – slowed by wetness east/south.
- Several large spring events – severe weather and winter events

- *Outlooks*
- La Niña weakened to Neutral.
- Near-term more active.
- Drier conditions more possible north/west longer term.
- Drought risk apparent – maybe more north/west. Risk into mid-summer.

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:
  - **Climate:**
  - Dennis Todey: dennis.todey@usda.gov , 515-294-2013
  - Doug Kluck: doug.kluck@yahoo.com , 816-564-2417
  - Melissa Widhalm: mwidhalm@purdue.edu 765-494-8191
  - Gannon Rush: grush2@unl.edu
  - Brian Fuchs: bfuchs2@unl.edu 402 472-6775
  - Molly Woloszyn: molly.woloszyn@noaa.gov

  - **Weather:**
  - crhroc@noaa.gov
  - https://www.drought.gov/events/north-central-us-drought-and-climate-summary-and-outlook-webinar-april-2025-2025-04-17

For More Information

@USDAClimateHubs
@dennistodey

https://www.climatehubs.usda.gov/hubs/midwest

https://www.climatehubs.usda.gov/newsletter-signup

MidwestClimateHub@usda.gov

USDA Midwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

National Laboratory for Agriculture and the Environment
Attn: Midwest Climate Hub
1015 N University Blvd
Ames, Iowa 50011-3611

Dennis Todey, Director
515-294-2013
Dennis.todey@usda.gov

Laurie Nowatzke – Coordinator
515-294-0213
Laurie.Nowatzke@usda.gov

Melissa Kadolph – Admin
Melissa.Kadolph@usda.gov

Adam Reed – NRCS Co-Lead
Adam.Reed@usda.gov