North Central U.S. Climate and Drought Summary and Outlook

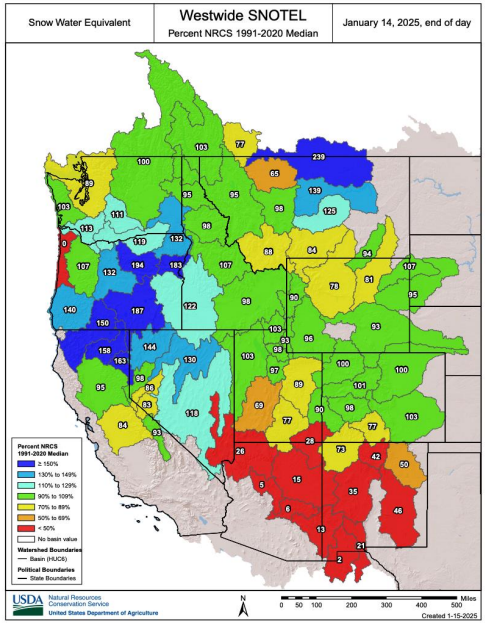
January 16, 2025

Dr. Zachary Hoylman

Assistant State Climatologist (MT)
Research Asst. Professor (University of Montana)

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**
  - February 20, 2025 - 1pm CT/12pm MT, Peter Goble
- **Access to Future Climate Webinars and Information**
  - https://www.drought.gov/events
- **Recordings of Past Webinars**
  - https://mrcc.purdue.edu/multimedia/webinars.jsp
  - https://hprcc.unl.edu/webinars.php



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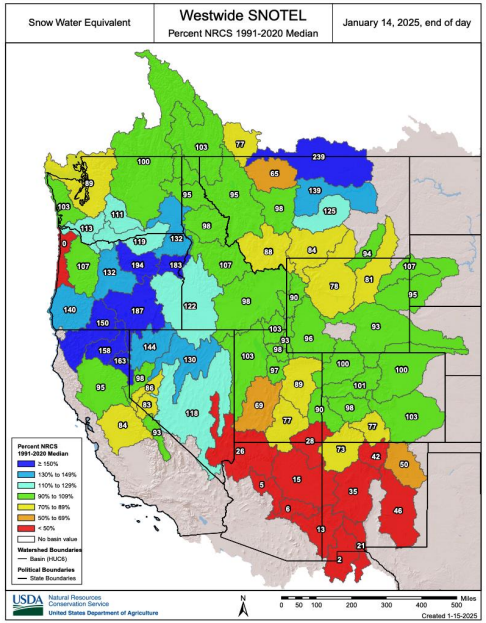
SUMMARY AND OUTLINE

- **Recent Conditions**
  - 2024 Climate Recap
  - 1-3 month & month-to-date precipitation / temperature
  - Snow anomalies
  - Soil Moisture
  - Streamflow (current and forecast)
  - Reservoirs
  - Drought
- **Impacts**
  - Snow Drought
  - Ice Storm
- **Outlooks**
  - 8 day - 3 month precipitation and temperature
  - ENSO Forecast
  - Drought



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2024 Climate Recap

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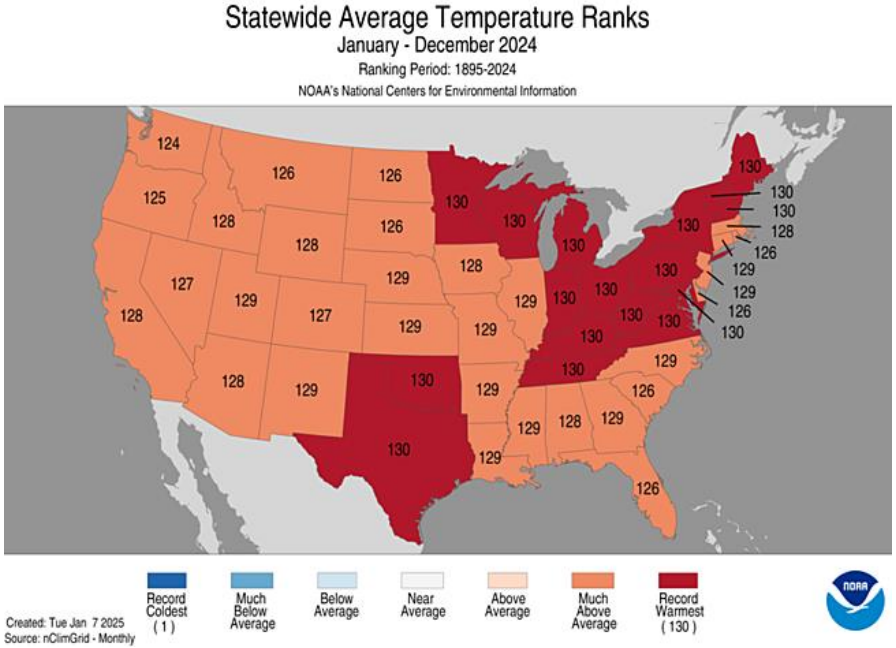
2024 TEMPERATURE AND PRECIPITATION

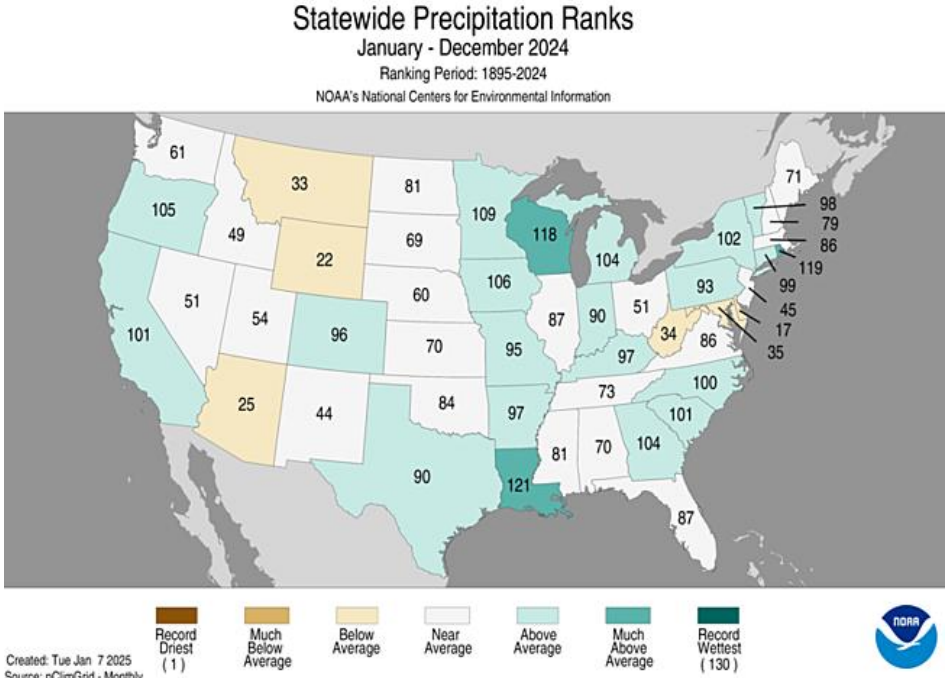


Warmest or near warmest year on record for all states.

Warmest on record for U.S. overall

Above average or near average precipitation for majority of US

Above average for U.S. overall



https://www.ncei.noaa.gov/access/monitoring/us-maps/

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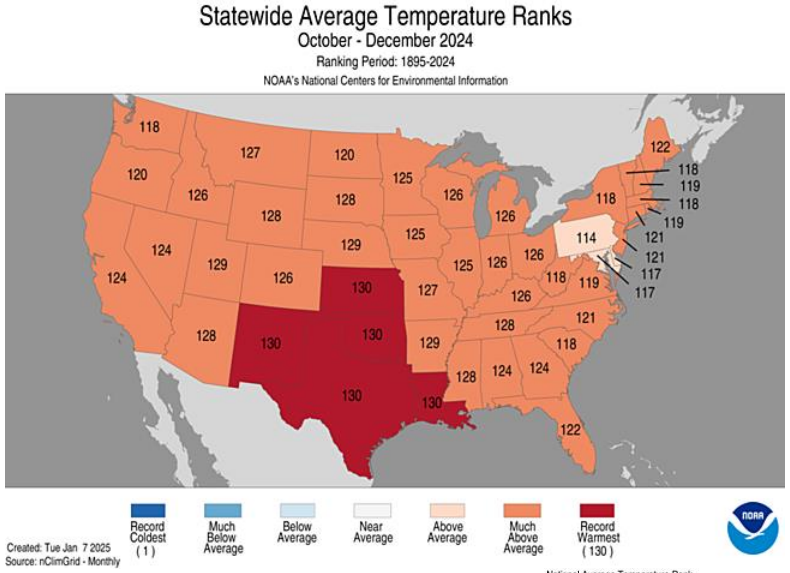
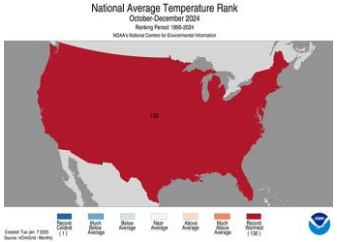
Recent Conditions

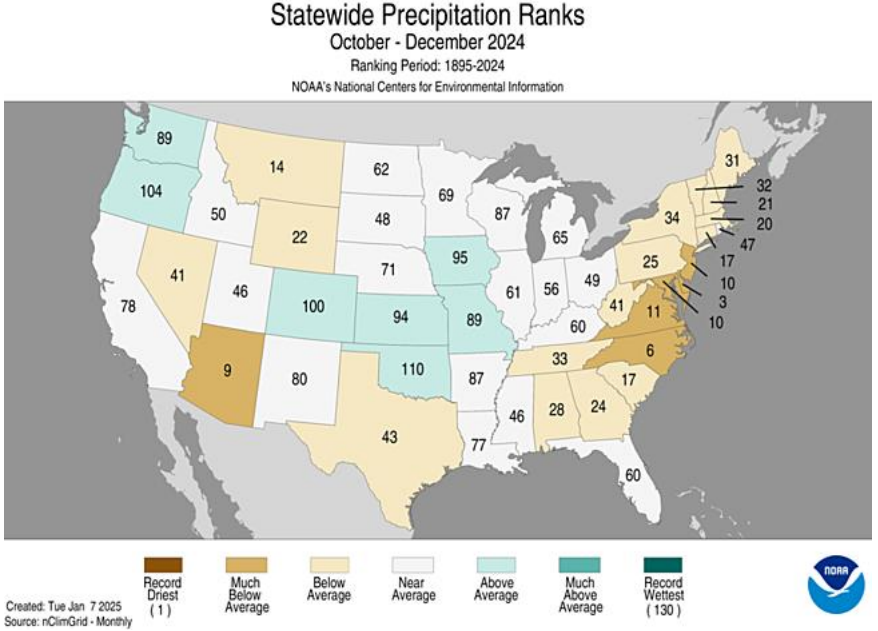
3 MONTH TEMPERATURE AND PRECIPITATION



Record Warmest
Oct - Dec for CONUS



43rd Driest Oct - Dec for CONUS
slightly drier than normal
(Normal - Wetter than Normal for N. Central)



https://www.ncei.noaa.gov/access/monitoring/us-maps/

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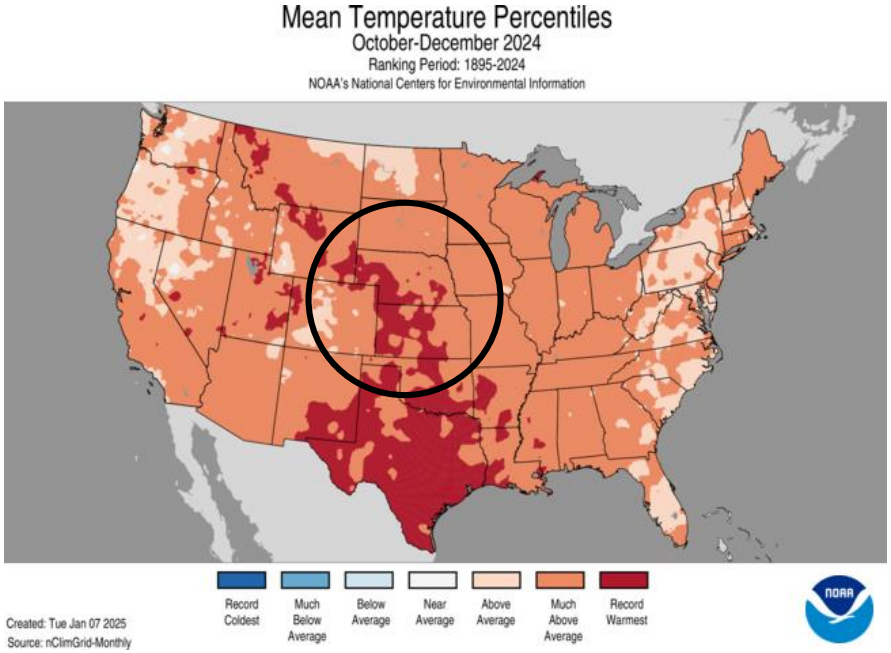
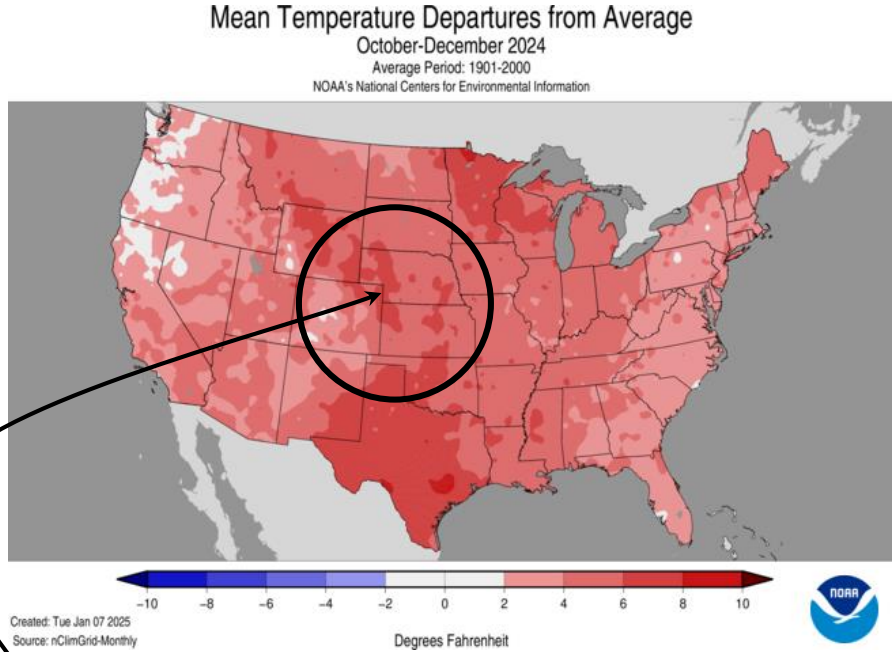
3 MONTH TEMPERATURE PERCENTILE & ANOMALY





+4-8°F above normal on average!

https://www.ncei.noaa.gov/access/monitoring/us-maps/

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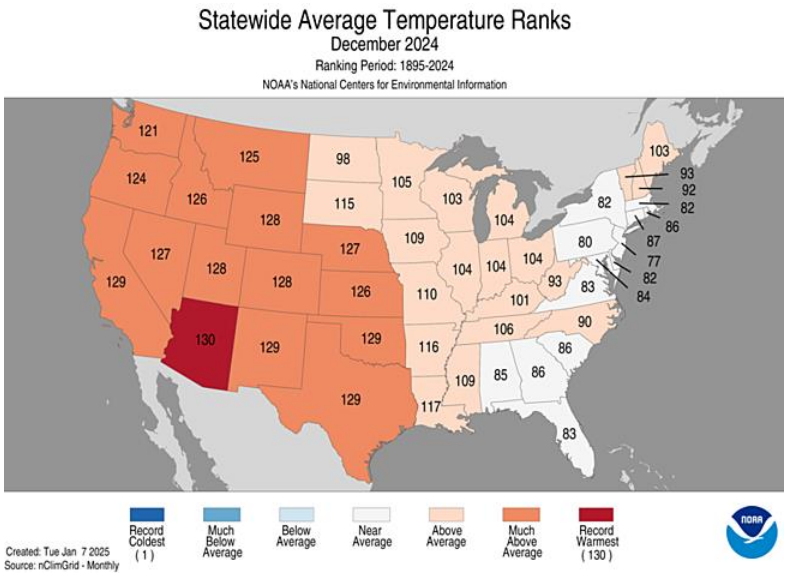
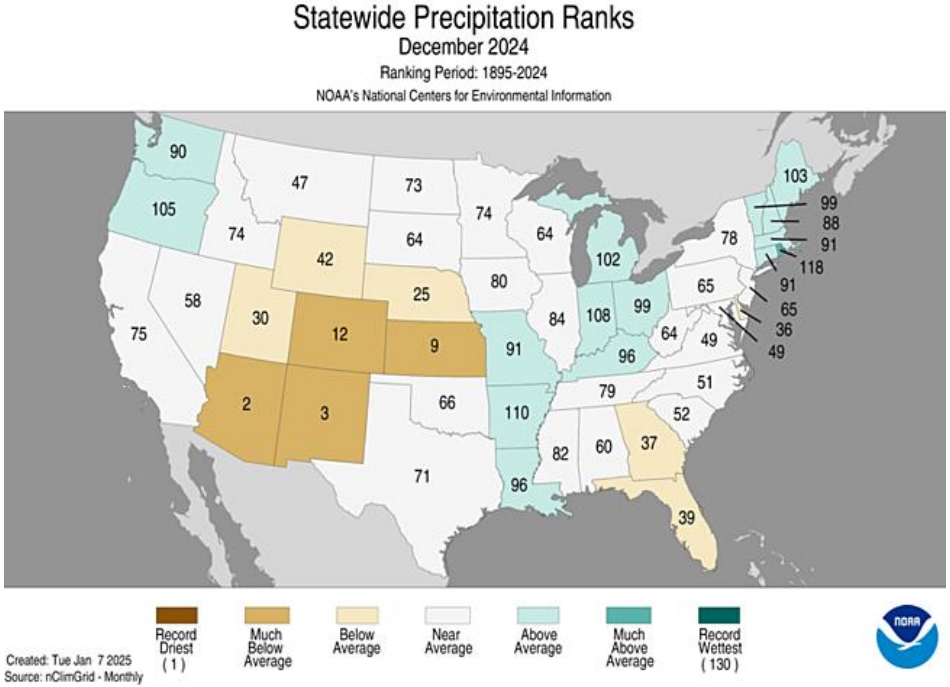
1 MONTH TEMPERATURE AND PRECIPITATION



4th Warmest December for CONUS
(127th of 130 Years)

https://www.ncei.noaa.gov/access/monitoring/us-maps/

Average CONUS December Precipitation
(60th of 130 Years)



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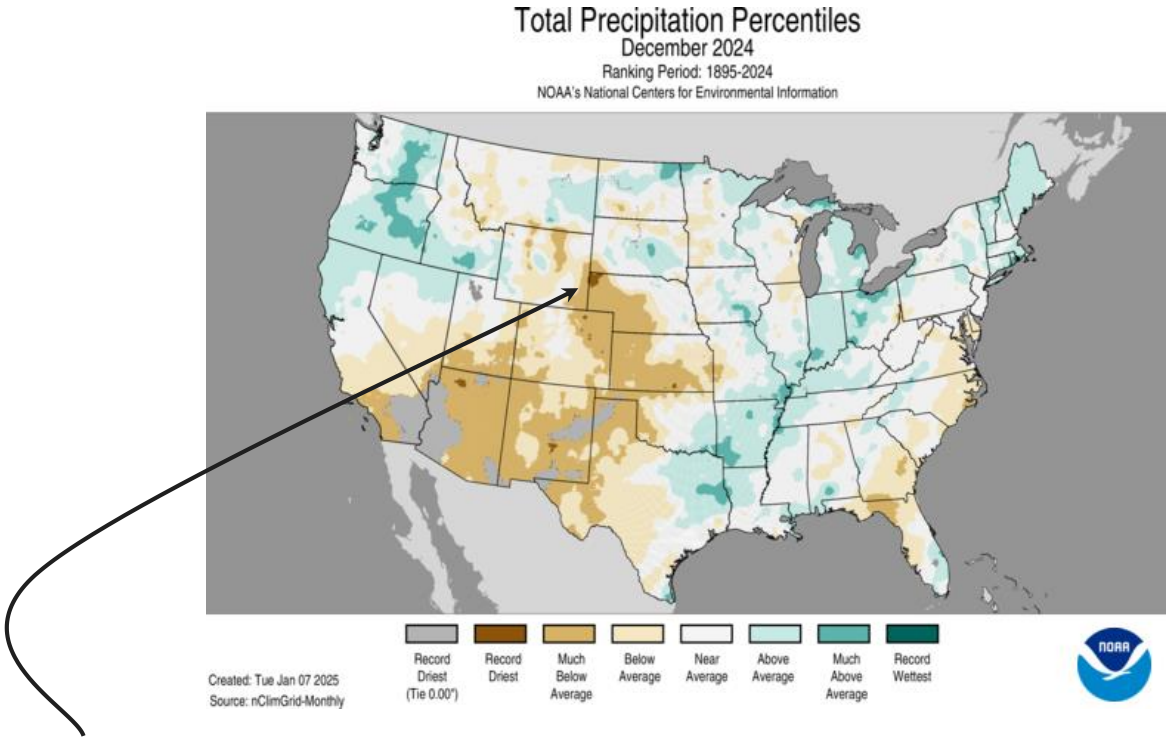
3 MONTH PRECIPITATION PERCENTILE



Record low precipitation in NW Nebraska in December

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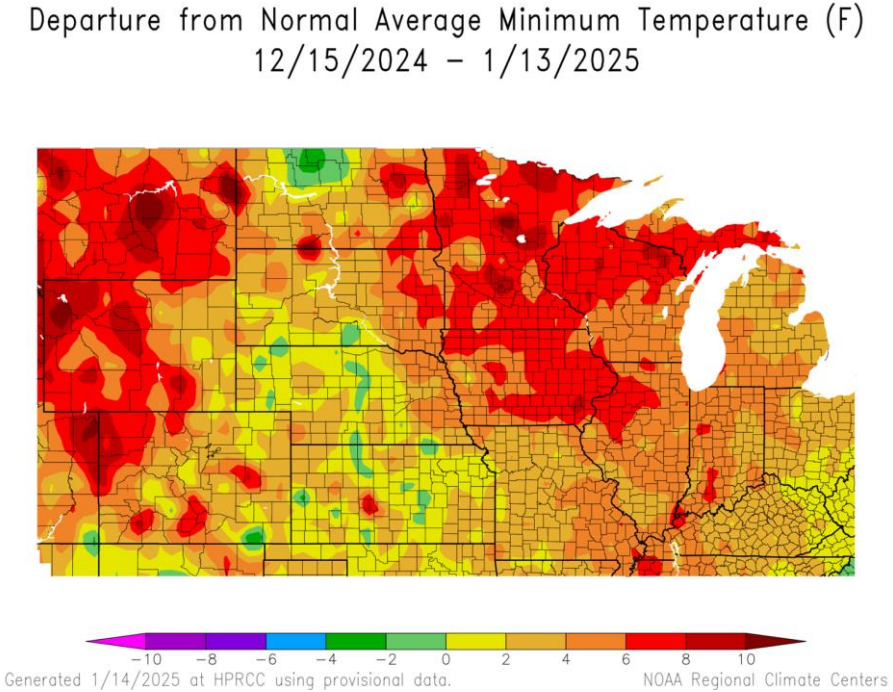
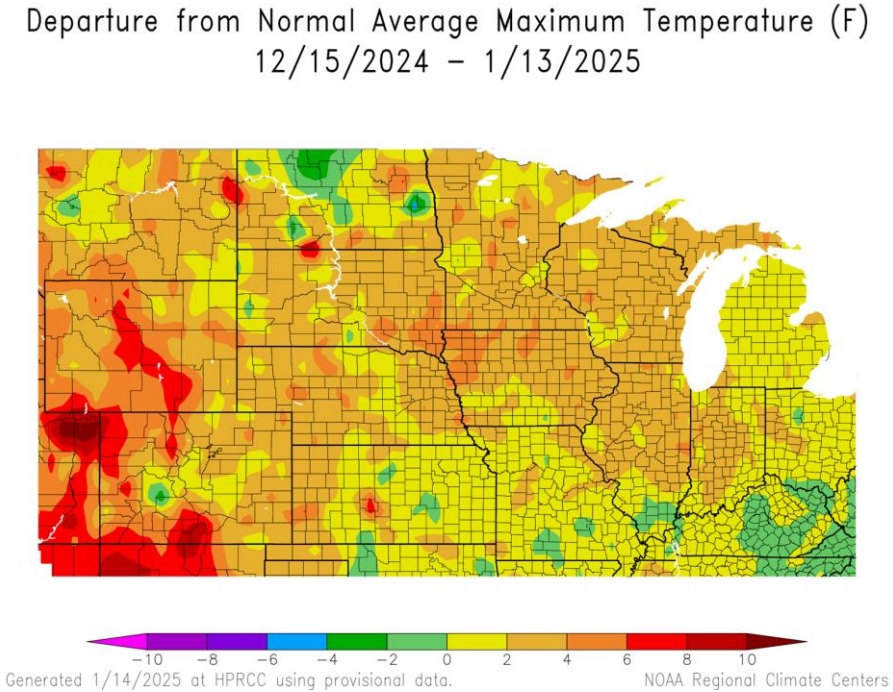
Last 30 Days: Temperature departure from mean





https://hprcc.unl.edu/

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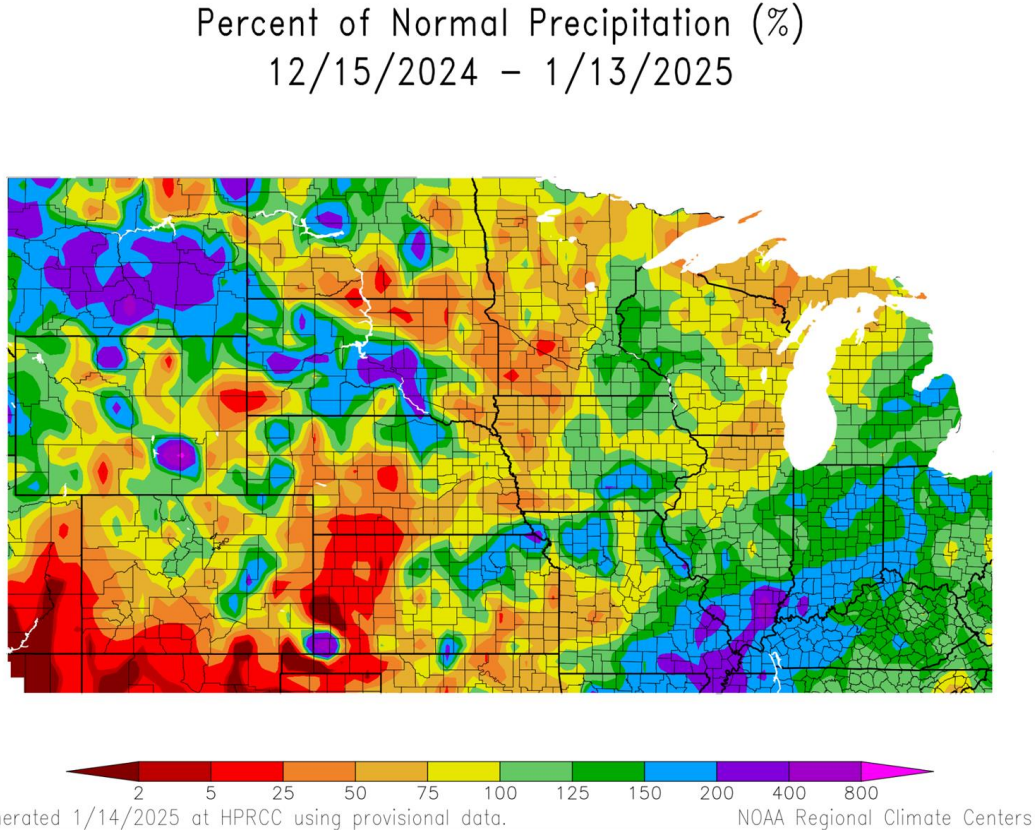
Last 30 Days: Precipitation Percent of Mean



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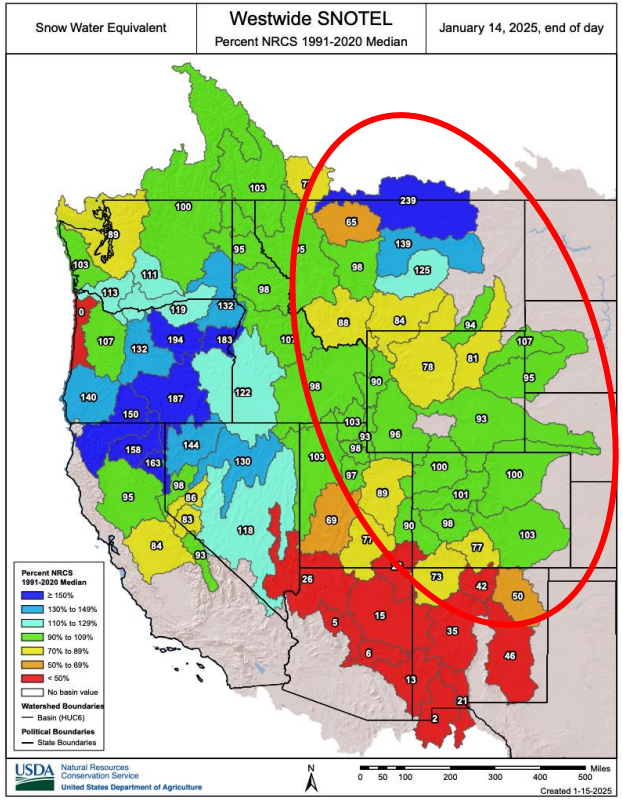
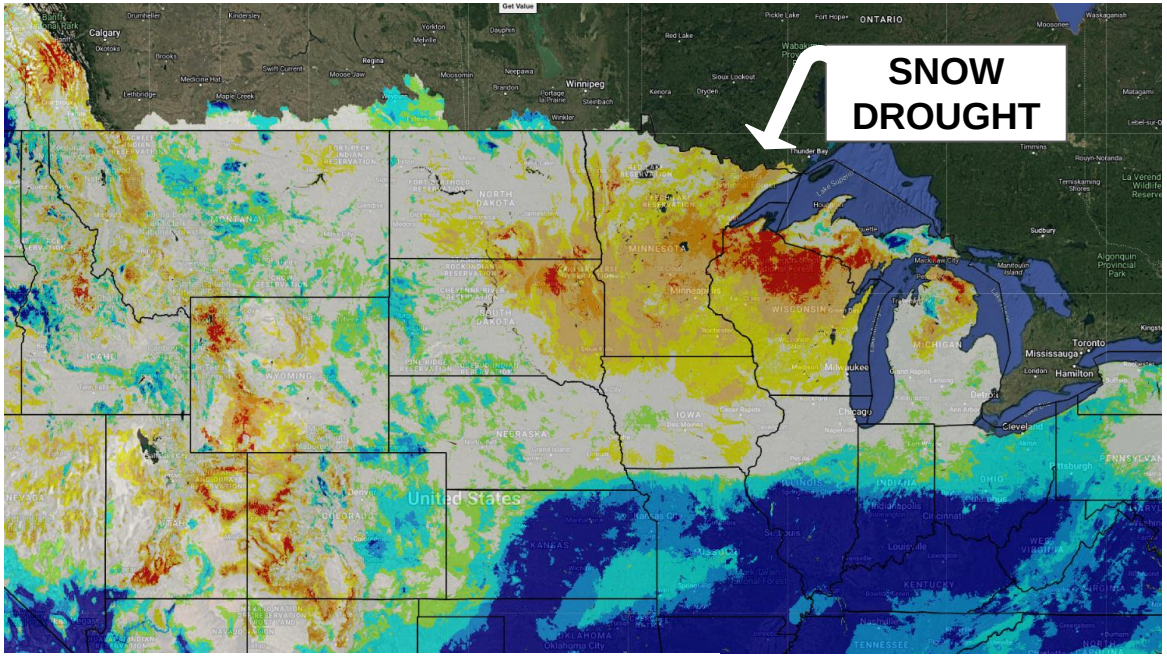
SEASONAL SNOW WATER EQUIVALENT





note period of record is 2004 - present

https://app.climateengine.com/climateEngine

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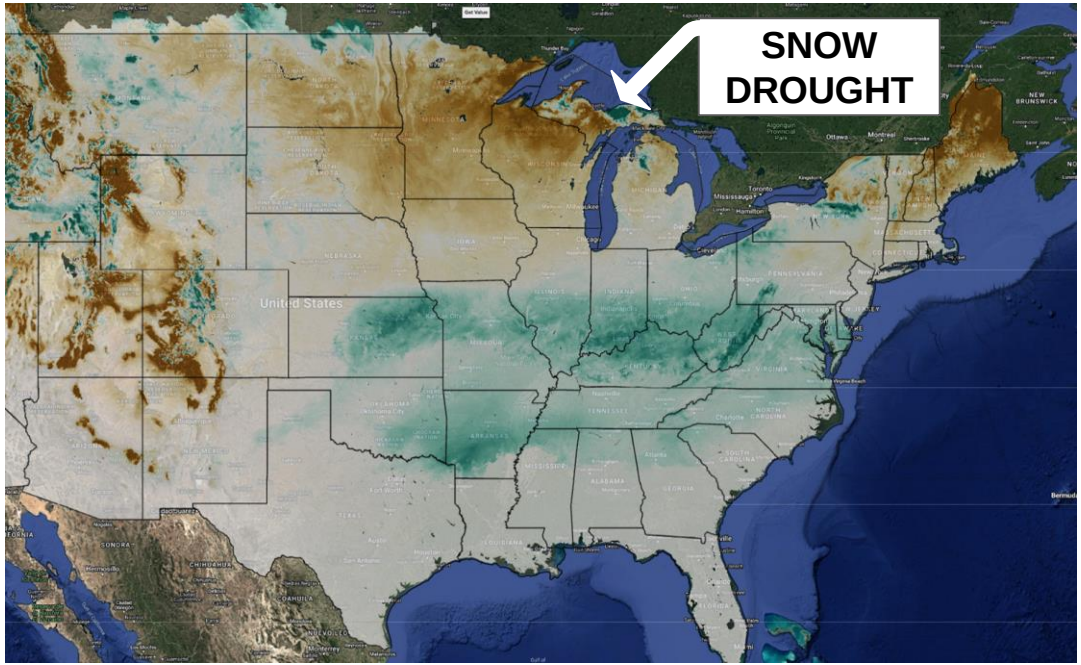
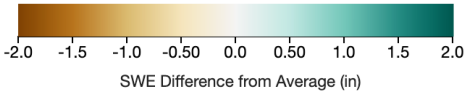
SEASONAL SNOW WATER EQUIVALENT (Difference from Average)



Generally **Above Average** in KS, MO, KY, etc, **Well Below Average** in MN, WI, ND, SD
note period of record is 2004 - present

https://app.climateengine.com/climateEngine



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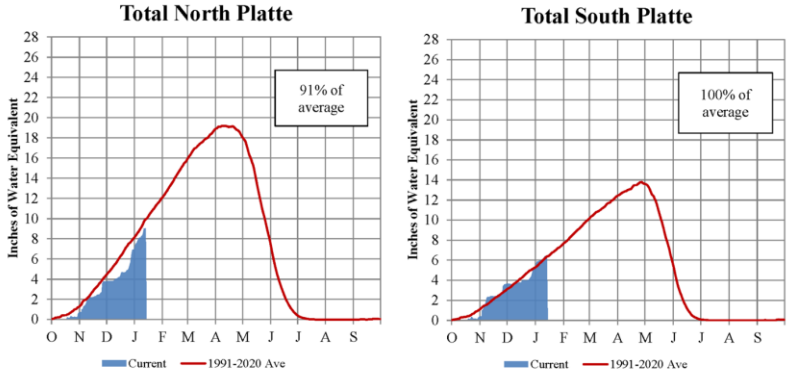
SEASONAL SNOW WATER EQUIVALENT (SWE Accumulation)

PLATTE RIVER BASIN

Platte River Basin - Mountain Snowpack Water Content
Water Year 2024-2025
January 14, 2025



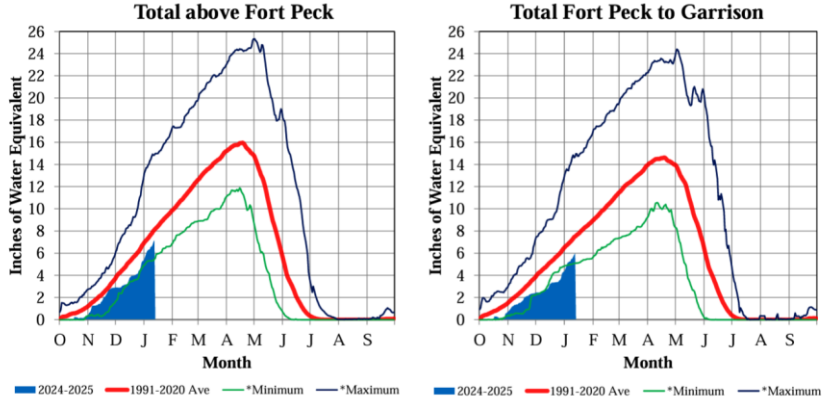
The North and South Platte River Basin mountain snowpacks normally peak near April 10 and the end of April, respectively. As of January 14, 2025, the mountain snowpack SWE in the "Total North Platte" reach is 9.1", 91% of the (1991-2020) average. The mountain snowpack SWE in the "Total South Platte" reach is 6.4", 100% of the (1991-2020) average.

Source: USDA, Natural Resource Conservation Service

Provisional Data. Subject to Revision

MISSOURI RIVER BASIN

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



On January 12, 2025 the mountain Snow Water Equivalent (SWE) in the "Total above Fort Peck" reach is 7.1" and 88% of the (1991-2020) average. The mountain SWE in the "Fort Peck to Garrison" reach is 6.0" and 80% of the (1991-2020) average. The normal peak for both reaches occurs near April 17.

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

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

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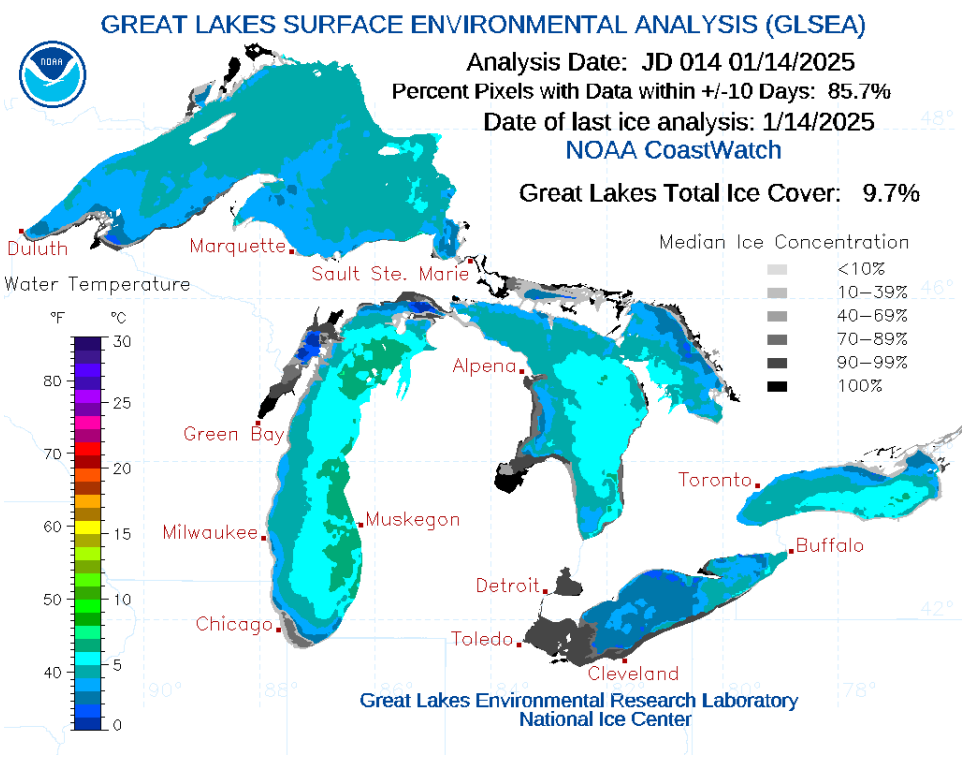
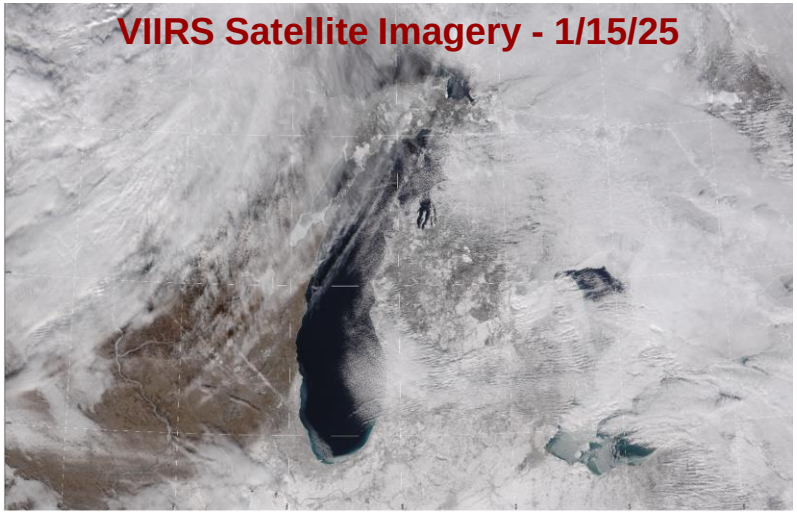
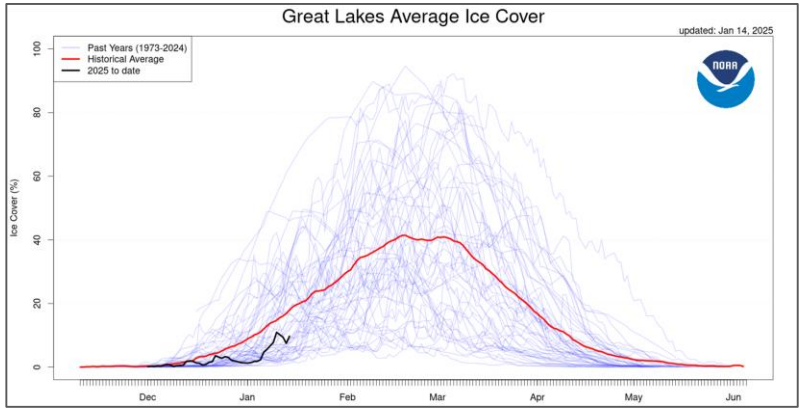
GREAT LAKES ICE COVER







Roughly 50% of Average Ice Cover

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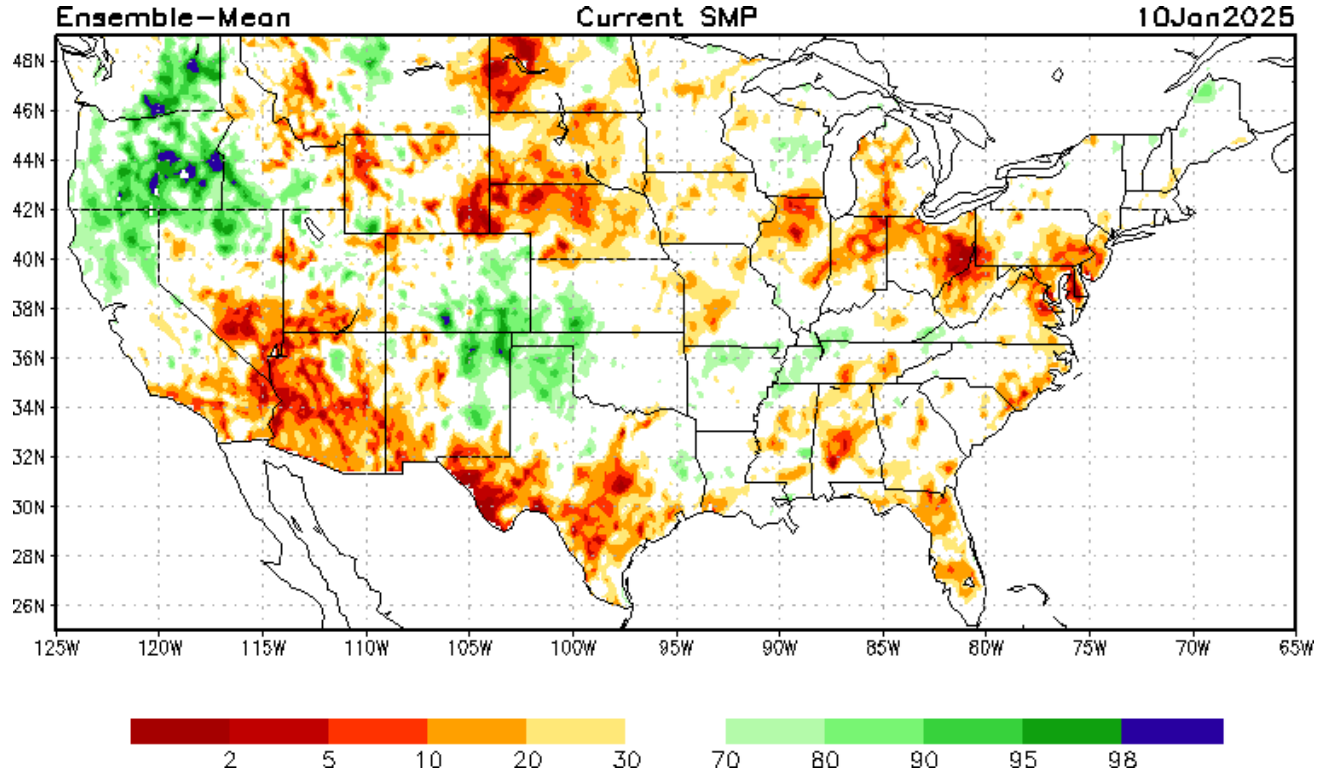
SOIL MOISTURE PERCENTILES



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

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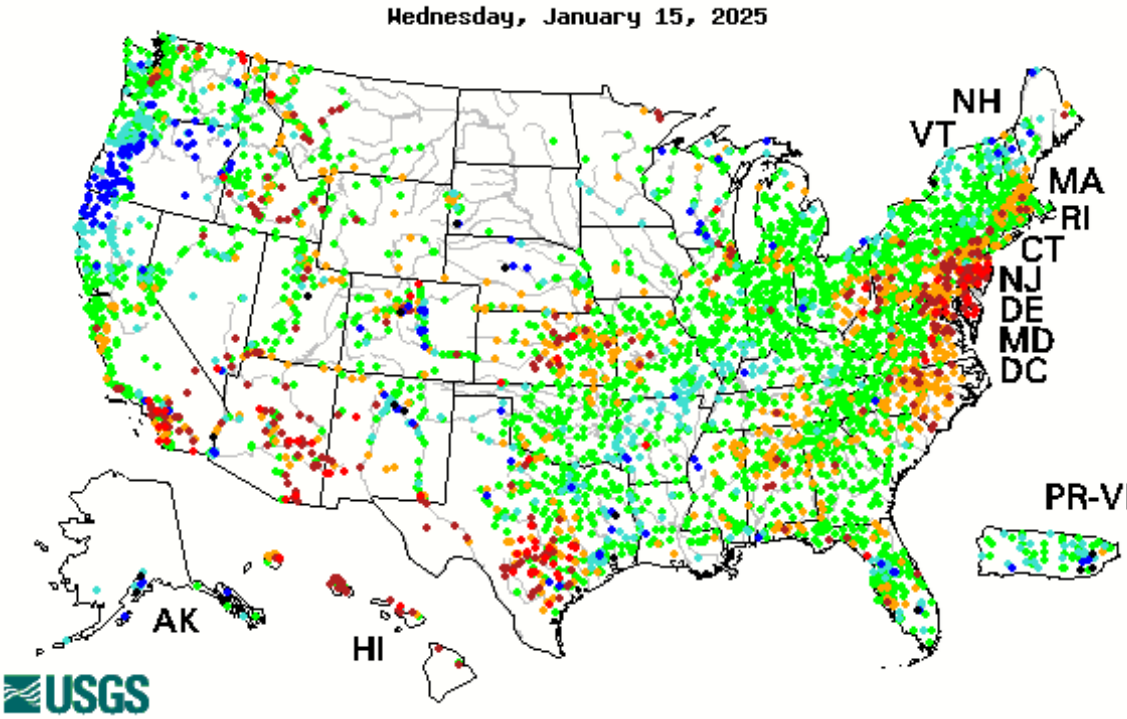
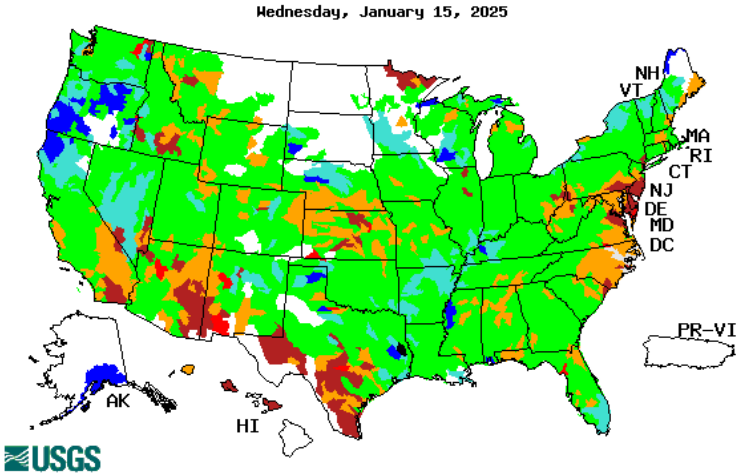
STREAMFLOW PERCENTILES (28-day)





Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	No Data
	Much below normal	Below normal	Normal	Above normal	Much above normal		

https://waterwatch.usgs.gov/

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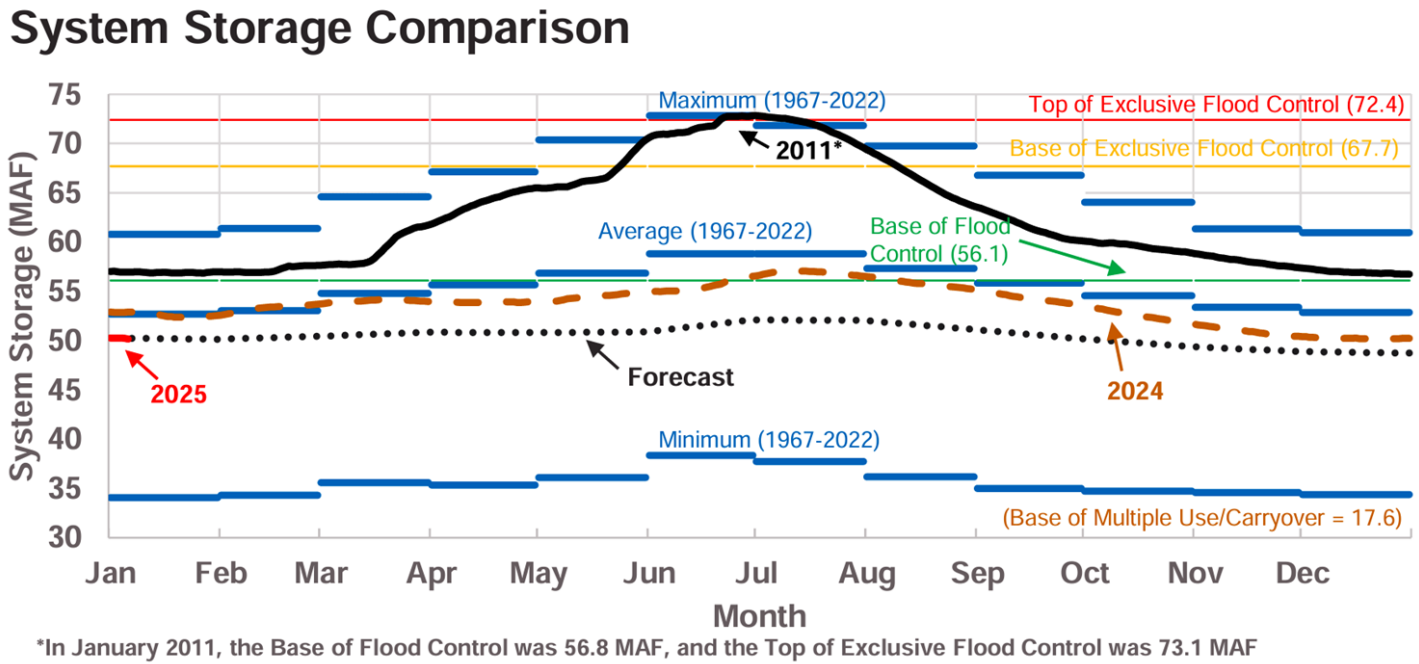
MISSOURI RIVER RESERVOIR STORAGE



"The January 1 runoff forecast for the Missouri River Basin above Sioux City, IA is 20.2 MAF, 79% of average."

"Mountain snowpack is currently below average in both reaches."

https://www.nwd-mr.usace.army.mil/rcc/reports/pdfs/weeklyupdate.pdf

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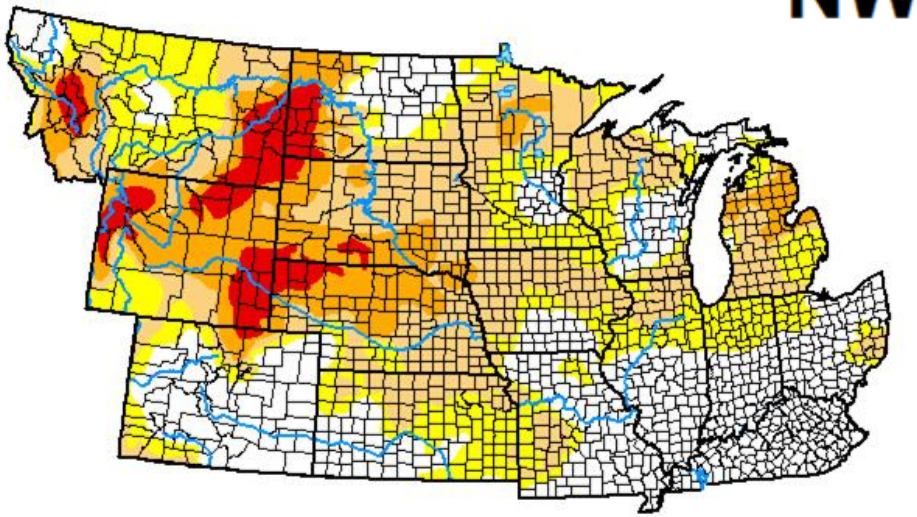
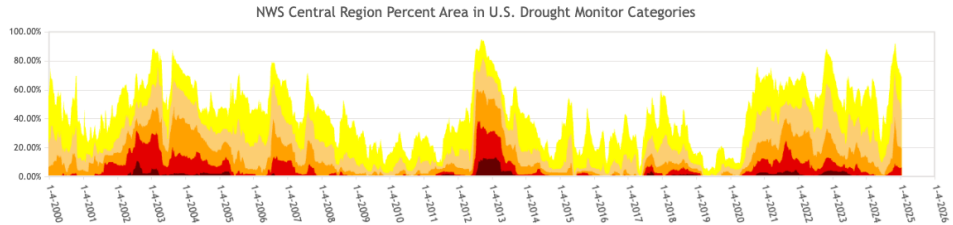
U.S. DROUGHT MONITOR

U.S. Drought Monitor
NWS Central





January 14, 2025
(Released Thursday, Jan. 16, 2025)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	32.20	67.80	45.72	19.43	5.80	0.00
Last Week 01-07-2025	31.02	68.98	45.49	19.38	5.80	0.00
3 Months Ago 10-15-2024	14.88	85.12	59.86	25.92	5.83	0.47
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 01-16-2024	38.54	61.46	29.20	9.33	2.07	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:
Brad Pugh
CPC/NOAA

droughtmonitor.unl.edu

https://droughtmonitor.unl.edu/

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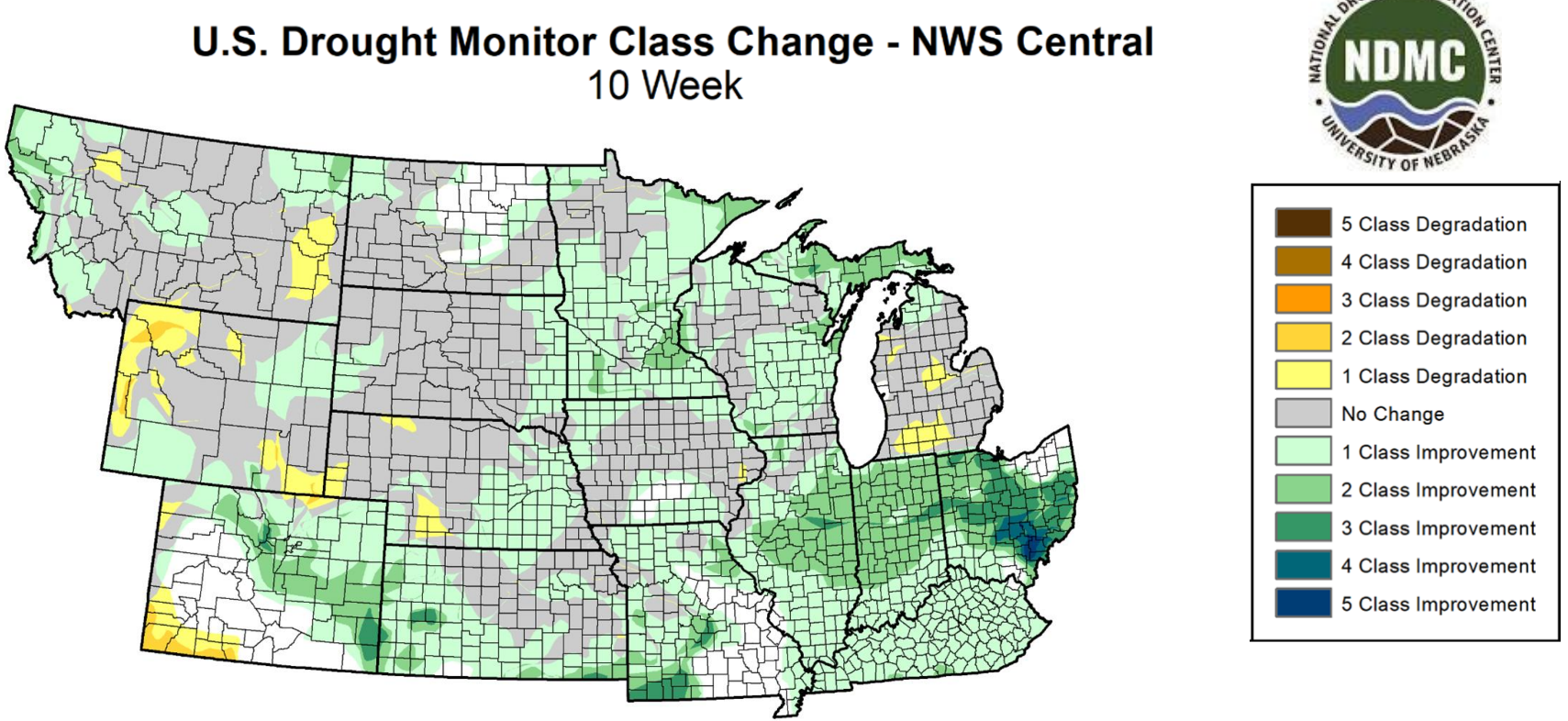
U.S. DROUGHT MONITOR (10 week change)



https://droughtmonitor.unl.edu/

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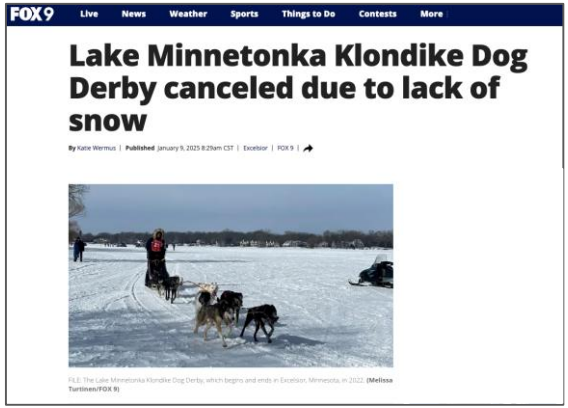
Impacts

SNOW DROUGHT IN THE UPPER MIDWEST

Recreation Impacts

- **Klondike Dog Derby canceled** for second consecutive year due to **lack of snow** - 40-mile sled dog race on Lake Minnetonka
- **Beargrease sled dog race postponed** until March because of **lack of snow** - North Shore of Lake Superior
- **The Gunflint Mail Run**, a 65-mile race originally scheduled for Jan. 11, has also been **postponed**, likely until February. - far northeast Minnesota
- However, **ice fishing has been good**, an unexpected positive impact of snow drought for some activities


FOX 9 Live News Weather Sports Things to Do Contests More

Lake Minnetonka Klondike Dog Derby canceled due to lack of snow

By Katie Wermus | Published January 9, 2025 8:29am CST | Excelsior | FOX 9

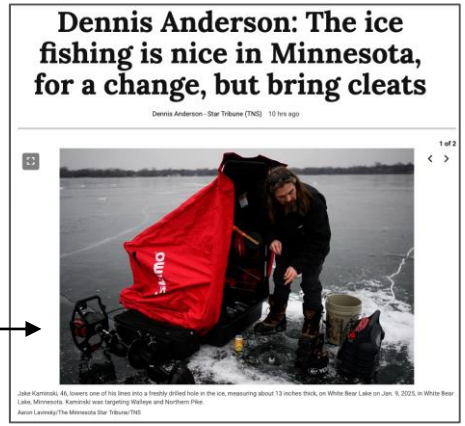
FILE: The Lake Minnetonka Klondike Dog Derby, which begins and ends in Excelsior, Minnesota, in 2022. (Melissa Turtinen/FOX 9)


Duluth News

Dan Kraker · Duluth · January 2, 2025 11:20 AM

Beargrease sled dog race postponed until March because of lack of snow

Ero Wallin crosses the finish line at the 2022 John Beargrease Sled Dog Marathon in Grand Portage, Minn., coming in fourth. Courtesy of Root River Photography


Dennis Anderson: The ice fishing is nice in Minnesota, for a change, but bring cleats

Dennis Anderson - Star Tribune (TNS) 10 hrs ago

1 of 2

Jake Kaminski, 46, lowers one of his lines into a freshly drilled hole in the ice, measuring about 13 inches thick, on White Bear Lake on Jan. 9, 2025, in White Bear Lake, Minnesota. Kaminski was targeting Walleye and Northern Pike.

Aaron Lavinsky/The Minnesota Star Tribune/TNS


Duluth News

Dan Kraker · Duluth · January 2, 2025 4:00 AM

Rain and warmth forces postponement of the first sled dog race of the season

A musher and their sled dog team traverse Poplar Lake at sunrise during the Gunflint Mail Run in Cook County, Minn. Nace Hagemann | 2018

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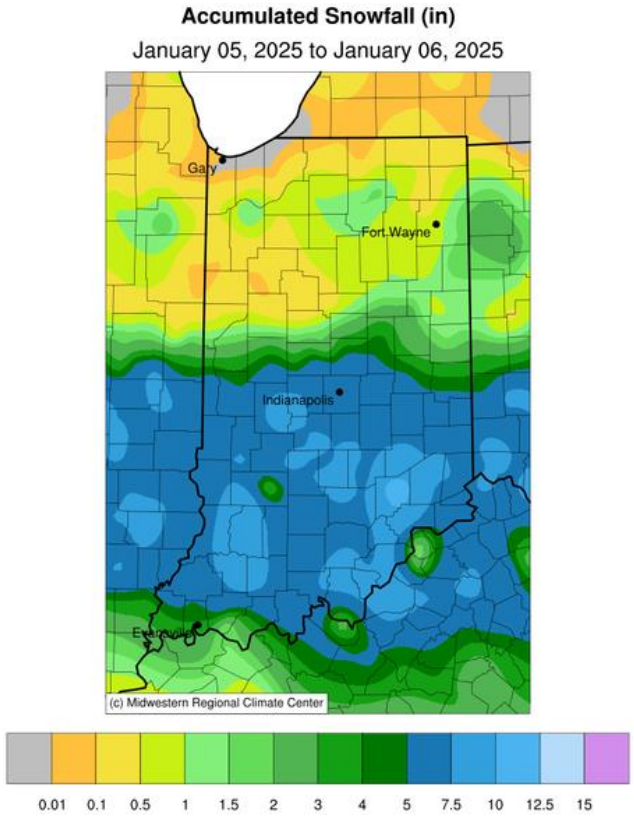
MAJOR ICE AND WINTER STORM OF JANUARY 5, 2025

- **A major winter storm** on January 5, 2025, brought heavy snow (4-15+ inches from Central Kansas to D.C.) and **significant ice** (0.25-0.75 inch) to S. IL, SW IN, SE MO, NW KY.
- The storm caused **widespread power outages** due to snow, ice, and strong winds.
- **Over 100,000 people lost power** during the night of January 5 and the morning of January 6.

Ice Damage to Trees and Power Lines in Cape Girardeau County, Missouri (Charlie Herbst)

Ice in New Columbia, IL. (Beau Dodson)



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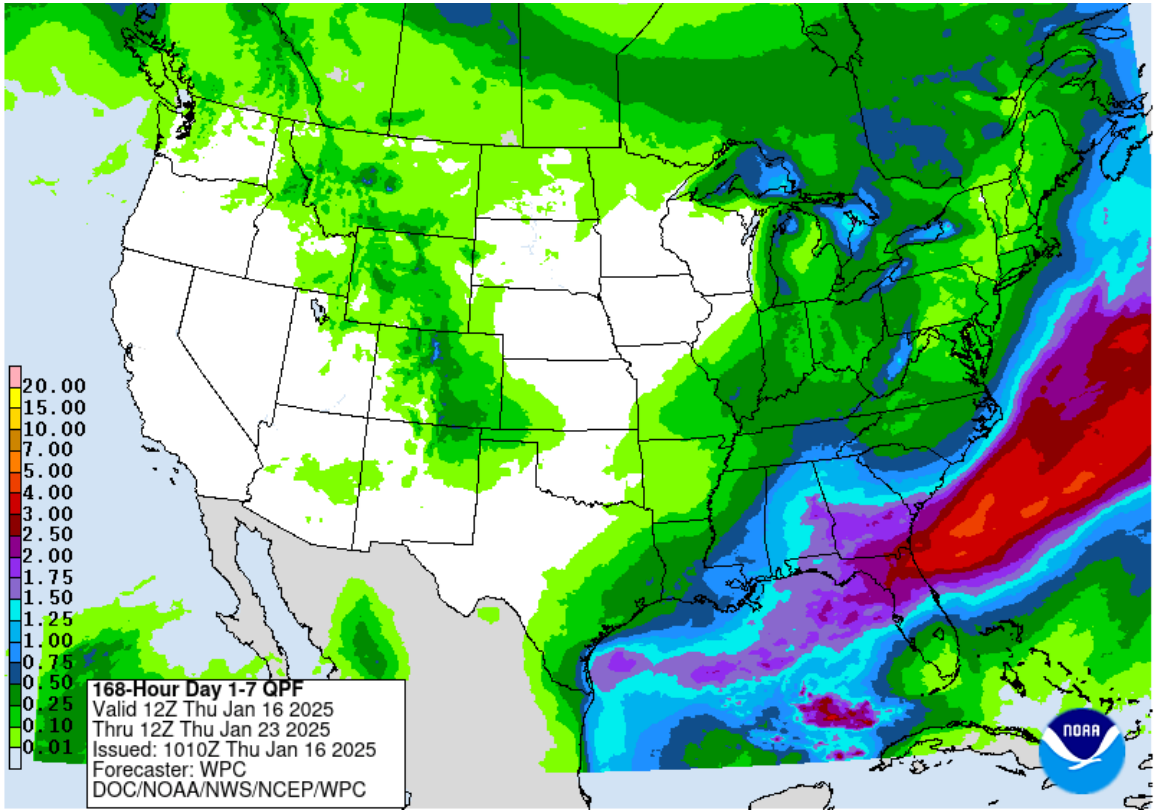
Outlook

7 DAY PRECIPITATION FORECAST (January 16 - 23)



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

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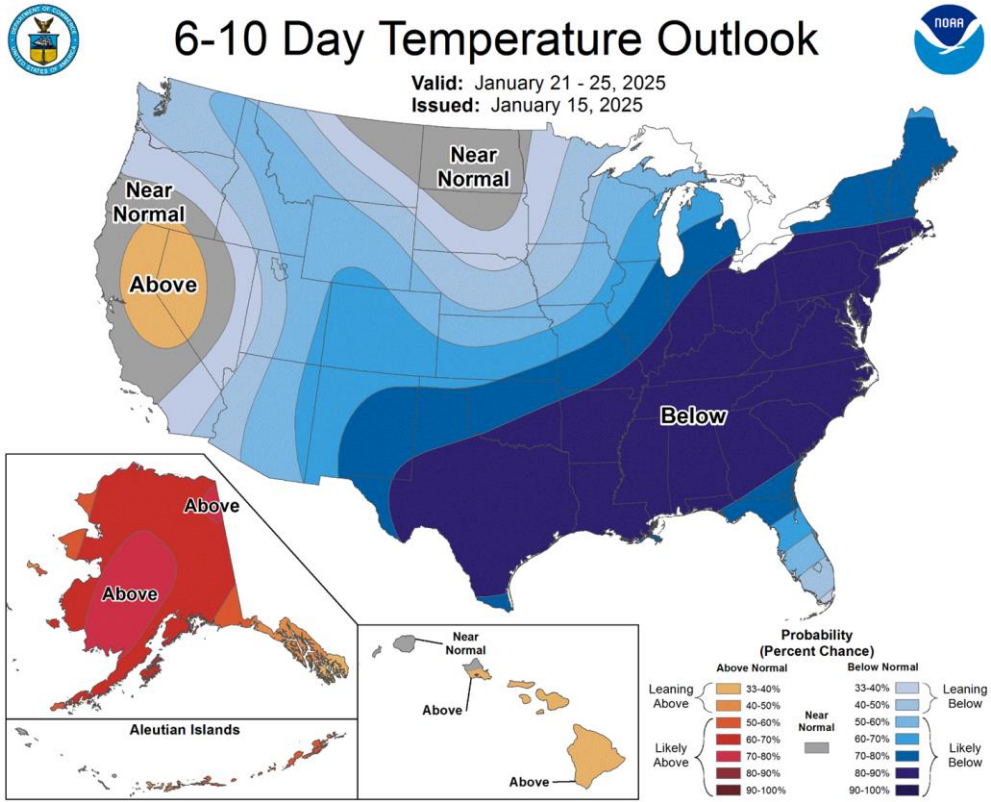
6-10 DAY TEMPERATURE OUTLOOK



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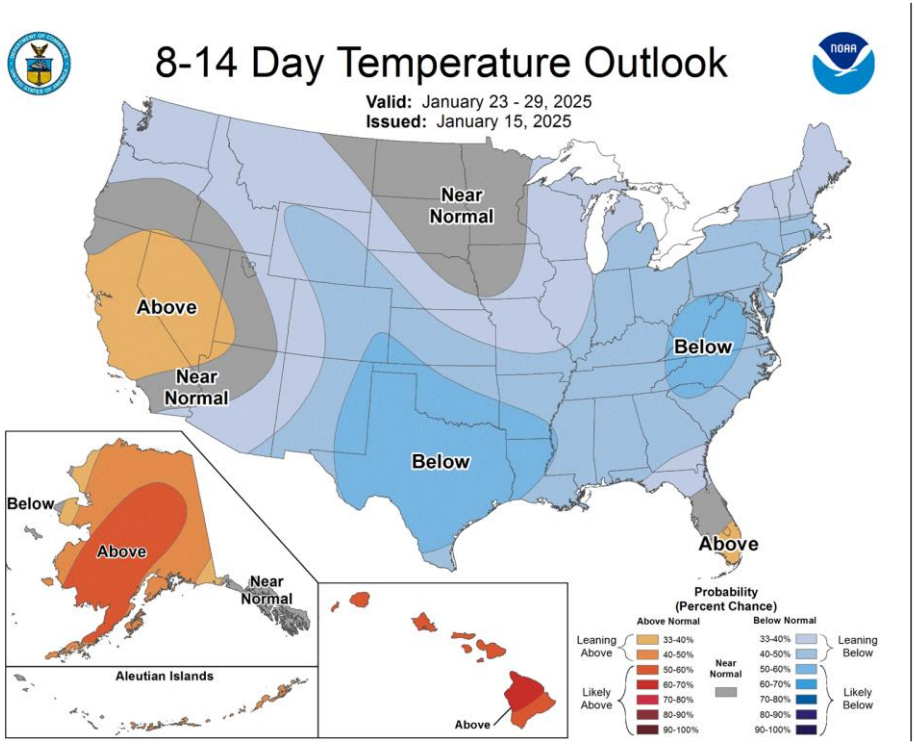
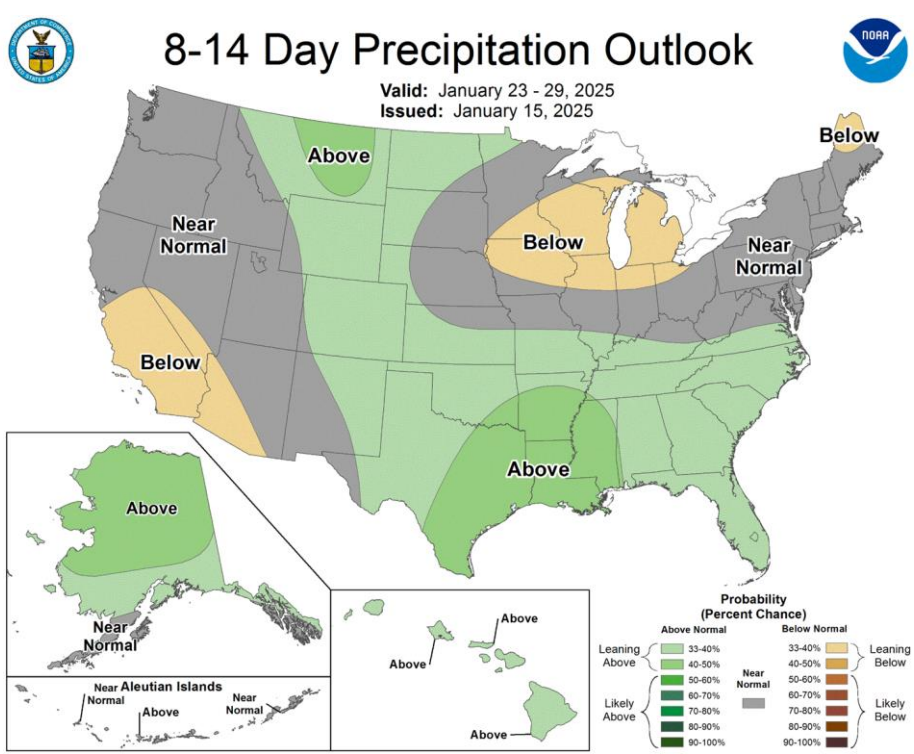
8-14 DAY OUTLOOK





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

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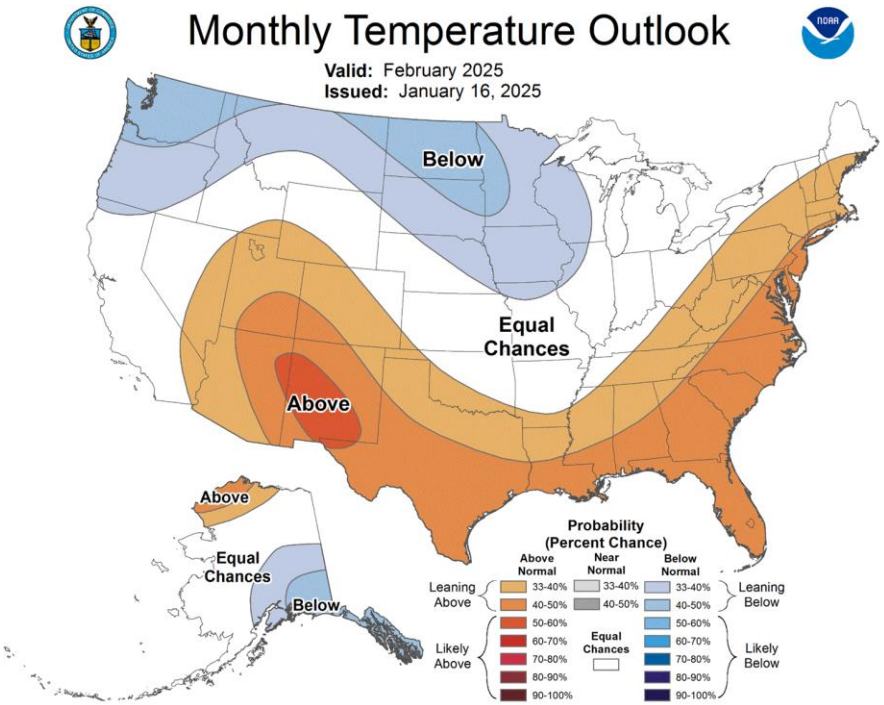
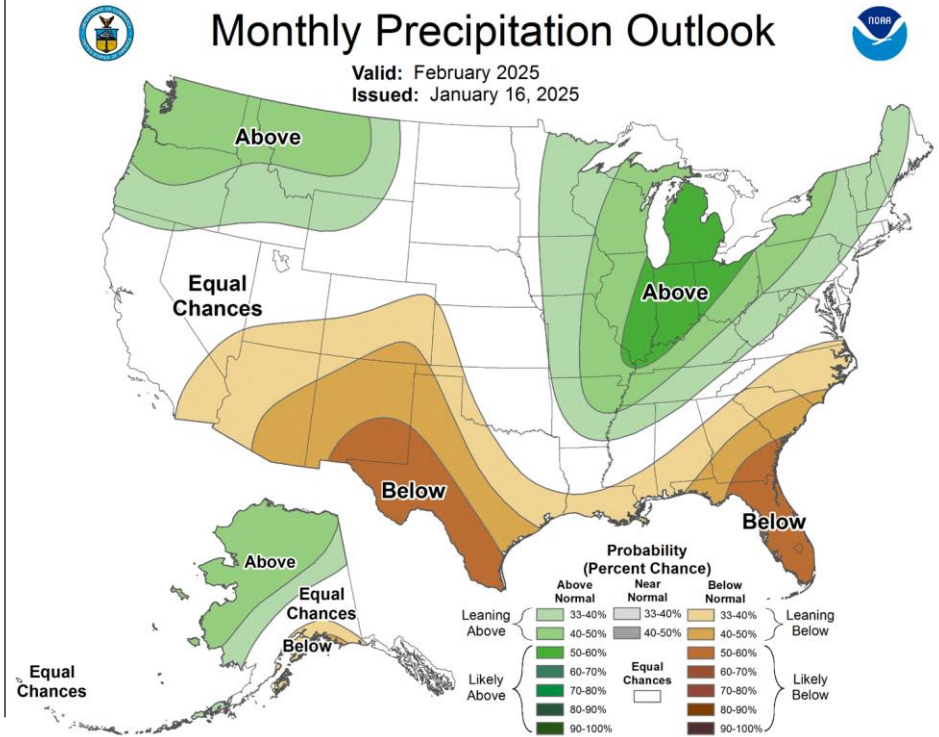
1 MONTH OUTLOOK





https://www.cpc.ncep.noaa.gov/products/predictions/30day/

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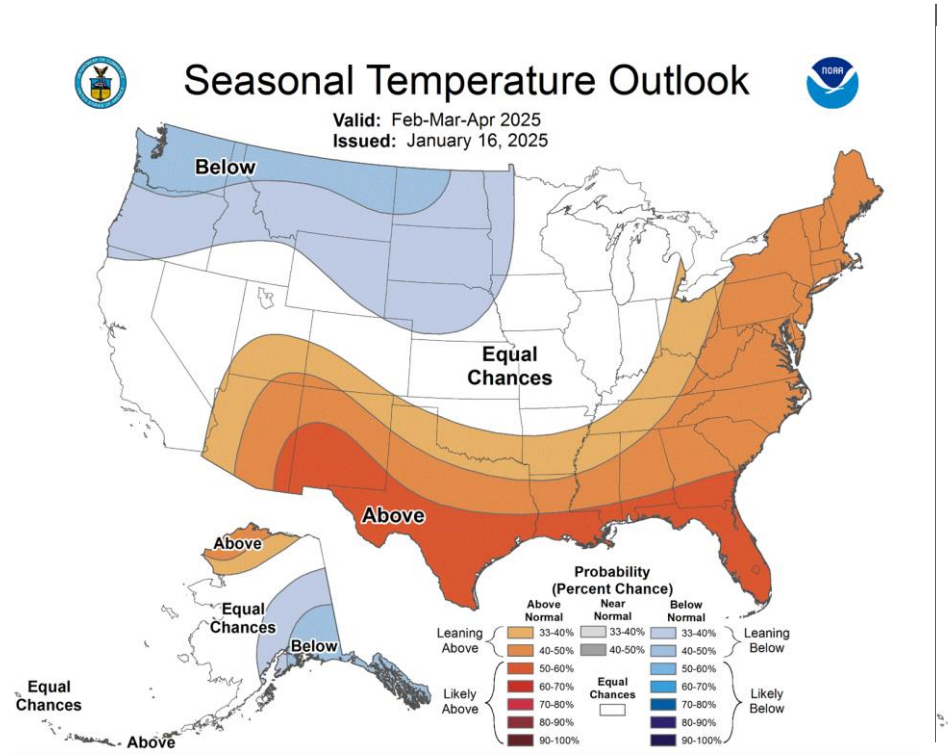
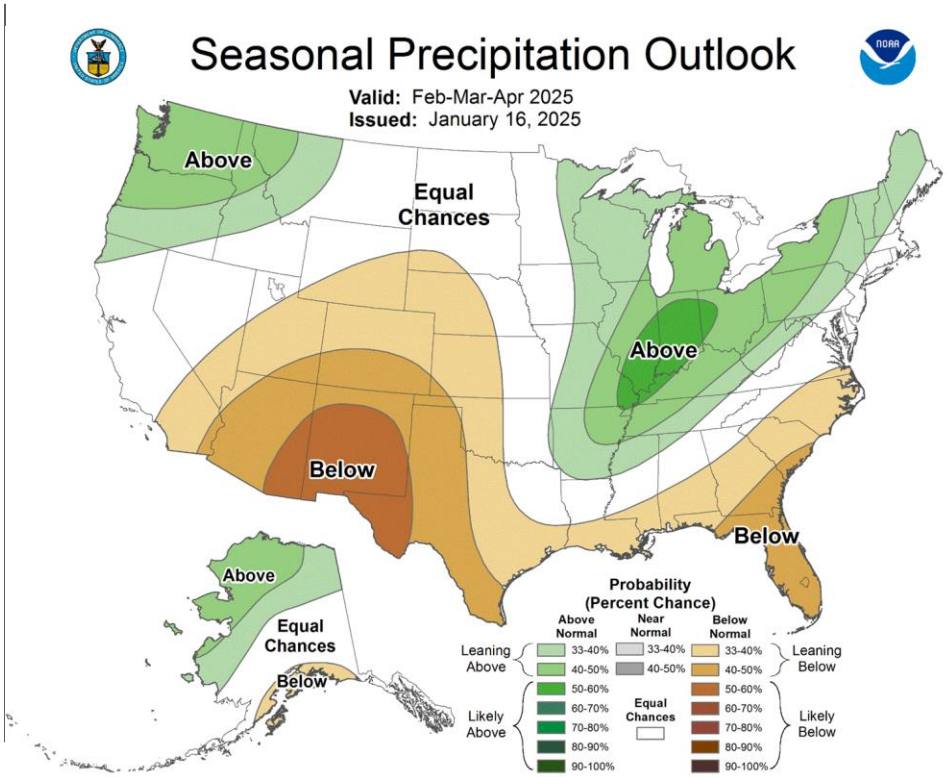
3 MONTH OUTLOOK





https://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1

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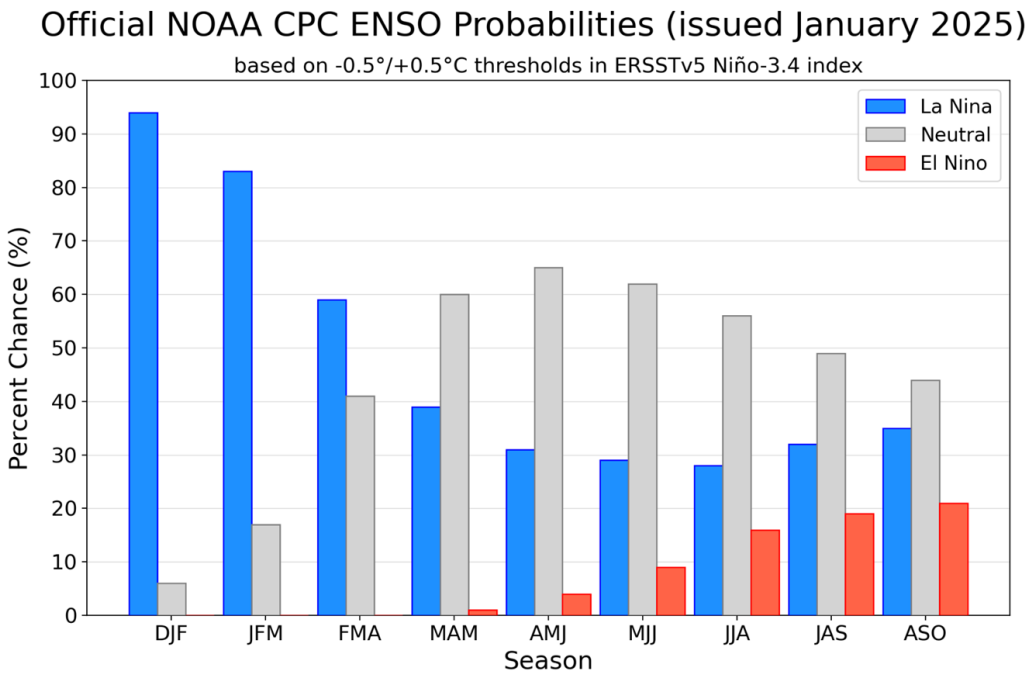
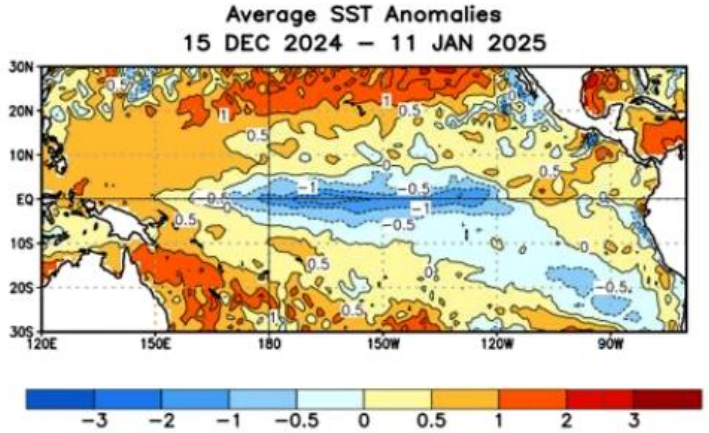
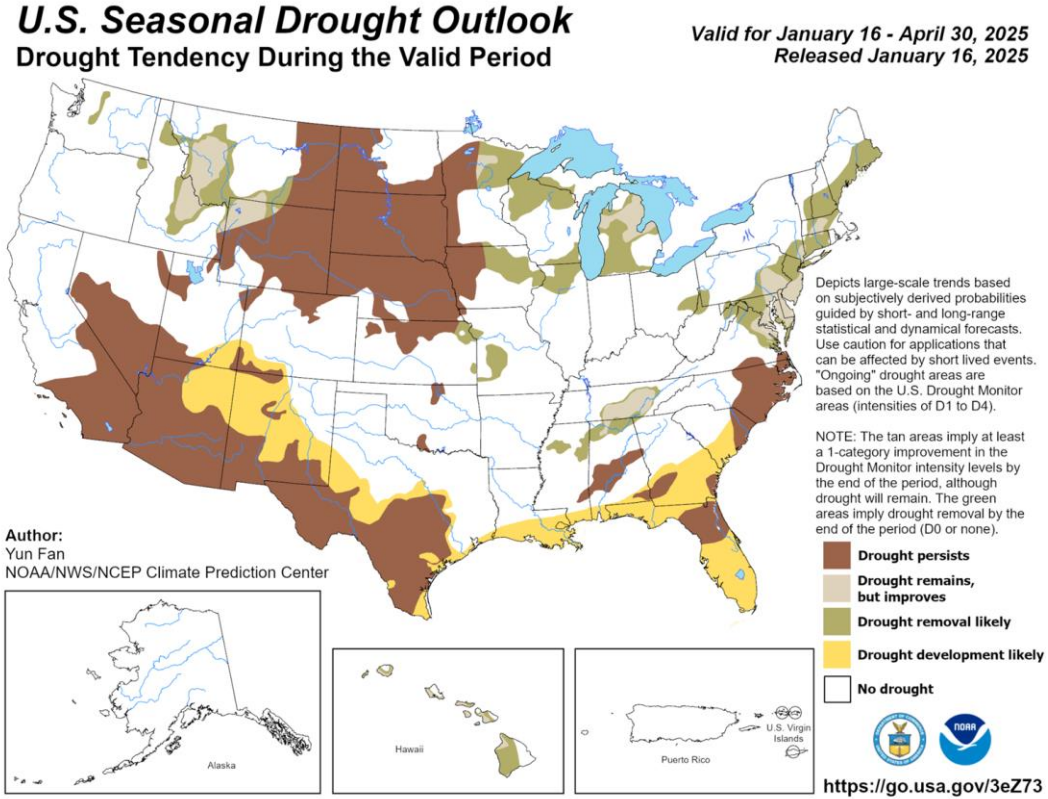
El Niño/La Niña (ENSO) PROBABILITY





https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/

OUTLOOK: DROUGHT



https://www.cpc.ncep.noaa.gov/products/expert_assessment/sdo_summary.php

SUMMARY

- **Recent Conditions**
  - **Temperature**: Record setting 2024 (warmest), record setting Oct-Dec (warmest), but now starting to get cooler
  - **Precipitation: Variable.** Some wetness in the southern portions of the central region, with some record setting dryness in NW Nebraska.
  - **Snow:** Snow drought in the upper midwest, record winter storm in Kansas and farther Eastward
  - **Streamflow**: Generally OK, but lots of missing data as gages begin to freeze. Low flow in Kansas and Missouri
  - **Drought:** Trend of improvement over the last 10 weeks, but an emerging snow drought in the upper midwest may buck trend. Drought is worsening in WY and CO

- **Outlooks**
  - **Short term**: Leaning wet and cool for majority of domain, leaning dry in WI/MN/IA
  - **Long term:** Leaning towards equal chances of above, near normal or below normal temperatures and precipitation
  - **ENSO Forecast:** La Niña is officially here, expected to stay through winter
  - **Drought:** Despite recent improvements, a mix of degradations and improvements are expected

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Thank You!

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