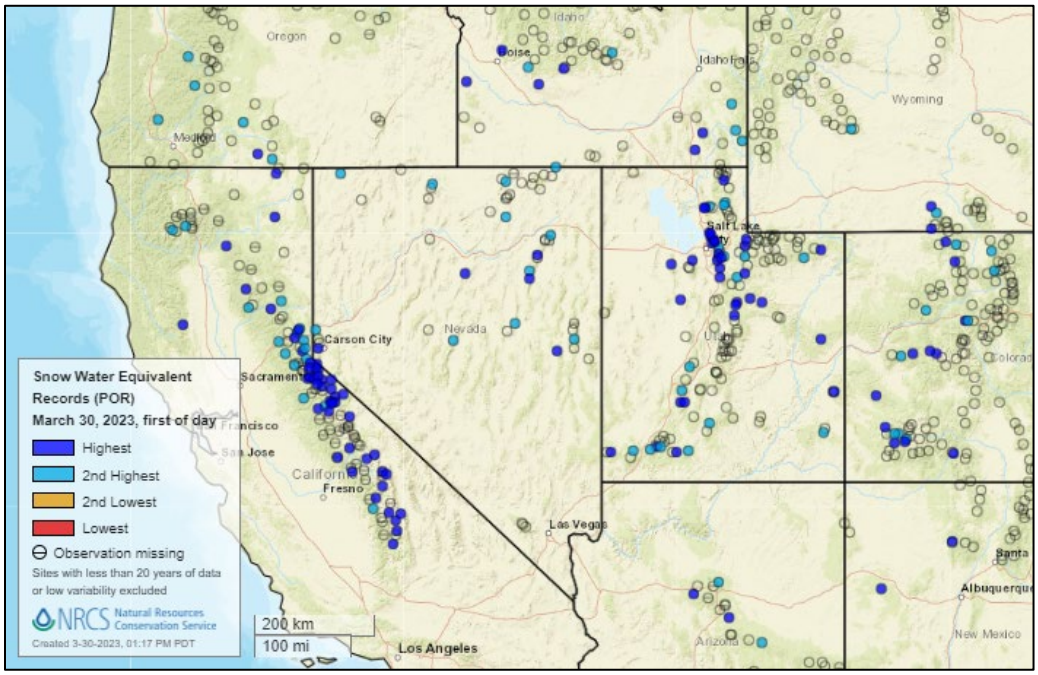
United States Department of Agriculture

Water and Climate Update

March 30, 2023

The Natural Resources Conservation Service produces this weekly report using data and products from the National Water and Climate Center and other agencies. The report focuses on seasonal snowpack, precipitation, temperature, and drought conditions in the U.S.

Snowpack hits record highs in the southwestern U.S.

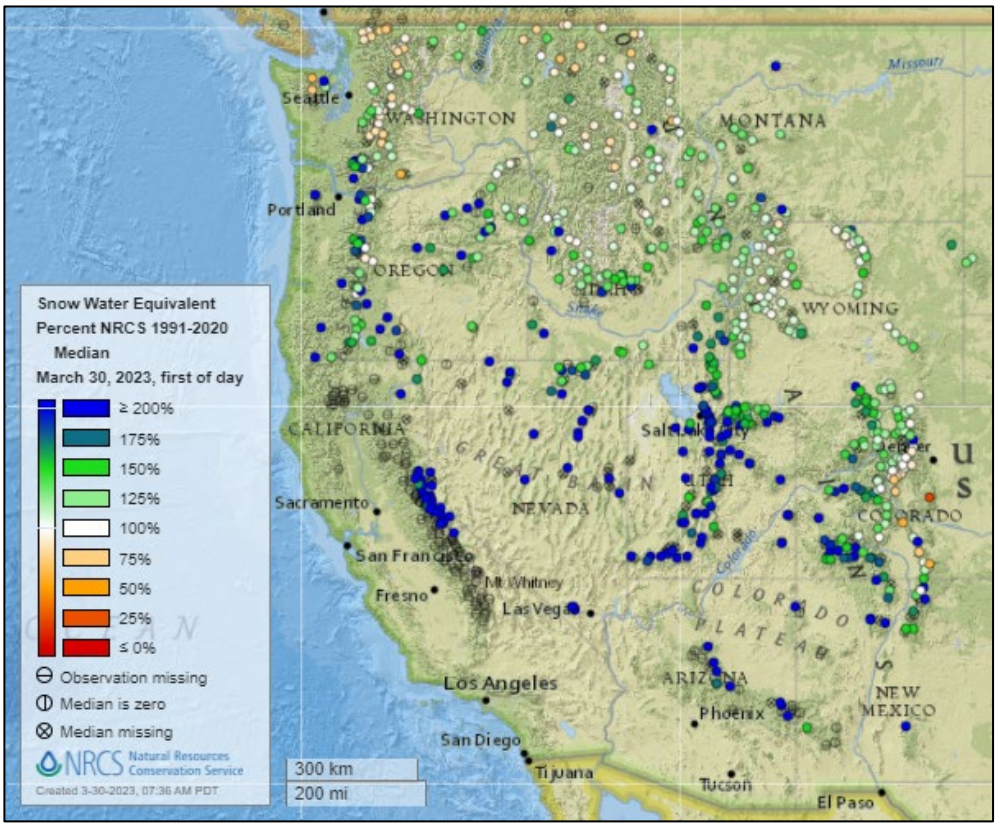


Many states in the western U.S. are now measuring new record-high mountain snowpacks as well as new record amounts of snow accumulation for the month of March. The snowpack records depicted in the map above refer to snow water equivalent (SWE), or the amount of liquid water stored in the snowpack, measured at NRCS SNOTEL sites. The SWE can be described as a frozen reservoir of water that will melt in the spring and summer, shaping water supplies and sustaining streamflow. This time of year is particularly important for water supply forecasting in the West, as it marks the general peak of the snow accumulation season and planning for the spring and summer water supplies gets into full swing. NRCS Snow Survey state offices will produce Water Supply Outlook Reports during the first week of April, which summarize snowpack conditions and provide streamflow forecasts and water supply outlooks for the state using SNOTEL and manual snow course measurement data.

Related:

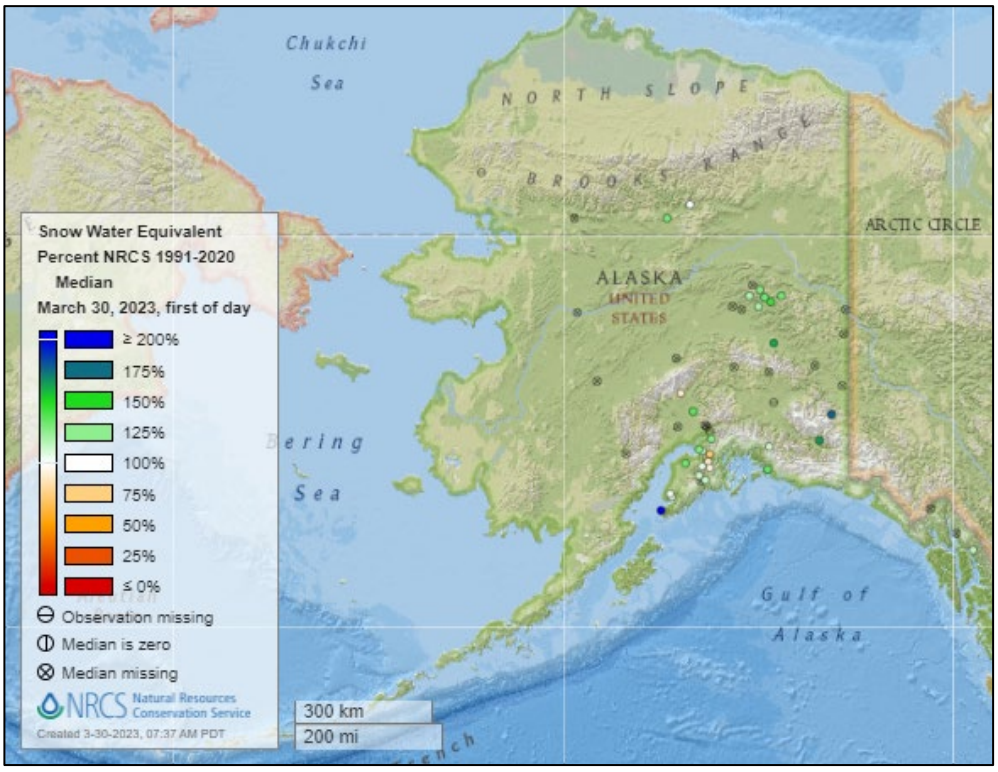
Snow Survey State Office Information – USDA-NRCS Snow Survey and Water Supply Forecasting Program
NRCS SNOTEL snowpack records on March 30, 2023 – Interactive Map, USDA-NRCS Snow Survey and Water Supply Forecasting Program
Utah's statewide snowpack breaks record set 40 years ago – KSL (UT)
Snowpack in southern Sierra hits all-time record levels. How deep is that? – Los Angeles Times (CA)
Snowfall totals from Arizona's winter storm on Tuesday – 12 News (AZ)
This part of Colorado just set a new snowpack record – 9 News (CO)

Snow



[Snow water equivalent percent of median map]

See also:
[Snow water equivalent values (inches) map]

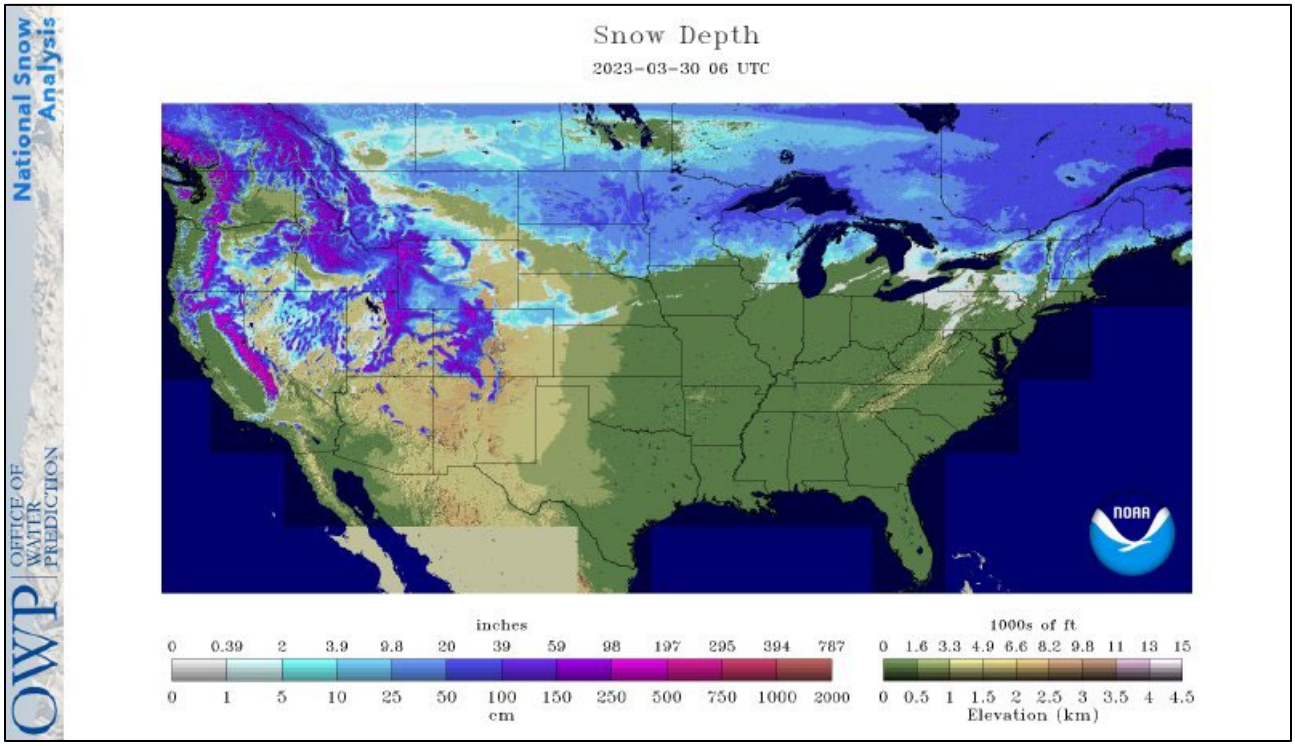


[Alaska snow water equivalent percent of median map]

See also:
[Alaska snow water equivalent values (inches) map]

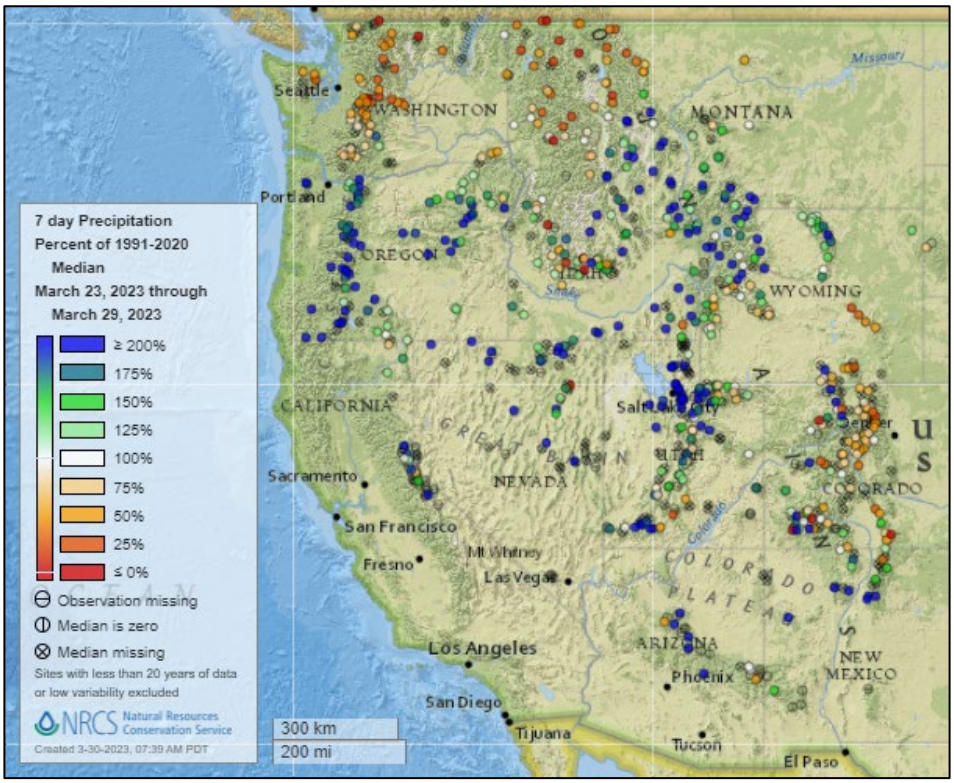
Current Snow Depth, National Weather Service Snow Analysis

Source: NOAA NWS National Operational Hydrologic Remote Sensing Center



Precipitation

Last 7 Days, NRCS SNOTEL Network

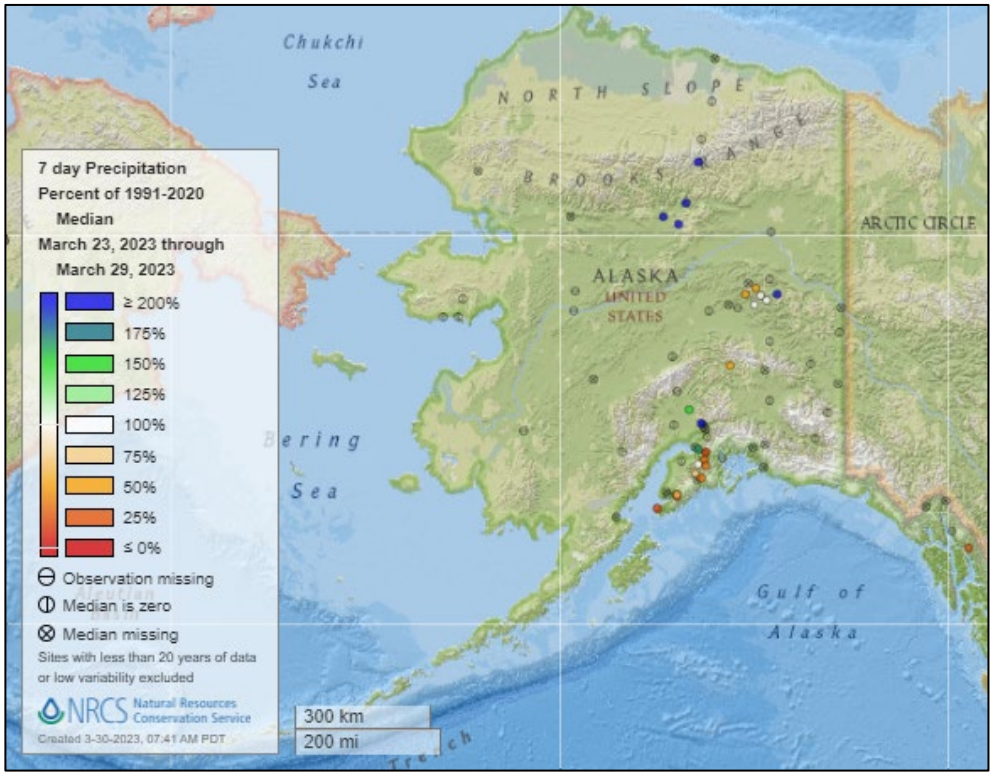


[7-day precipitation percent of median map]

See also:
[7-day total precipitation values (inches) map]

[Alaska 7-day precipitation percent of median map]

See also:
[Alaska 7-day total precipitation values (inches) map]

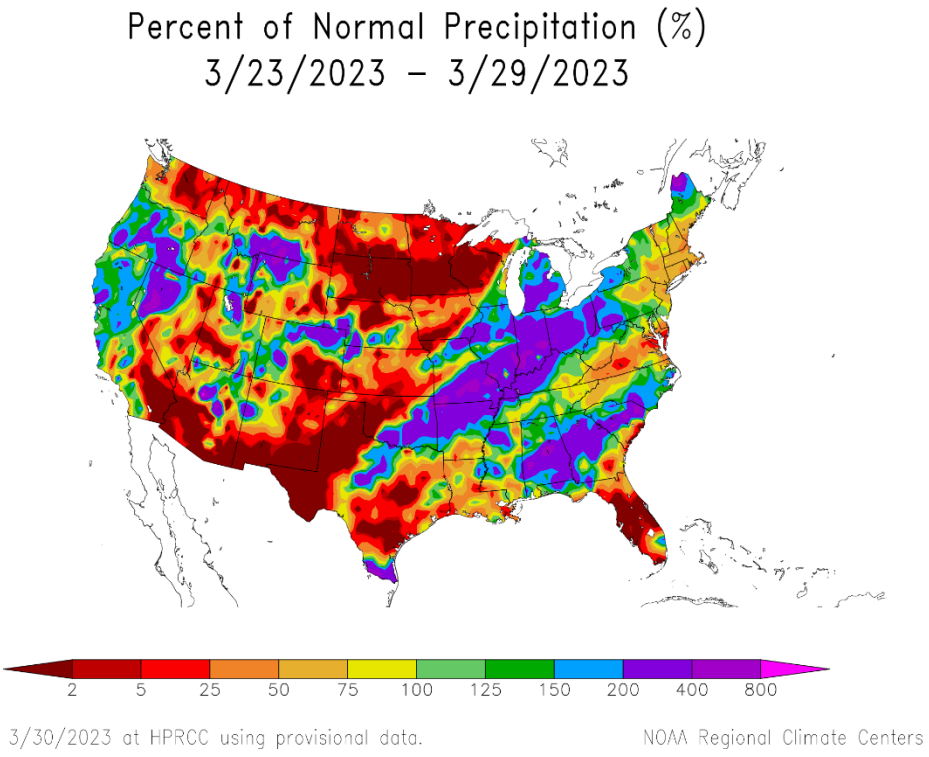


Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

7-day precipitation percent of normal map for the continental U.S.

See also: 7-day total precipitation values (inches) map

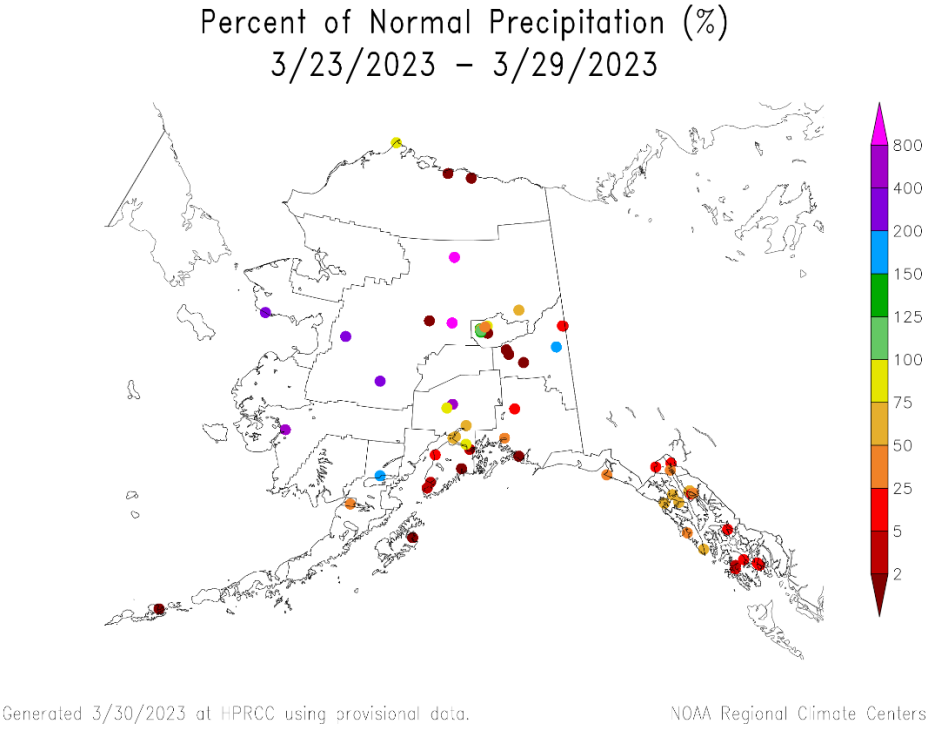


Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

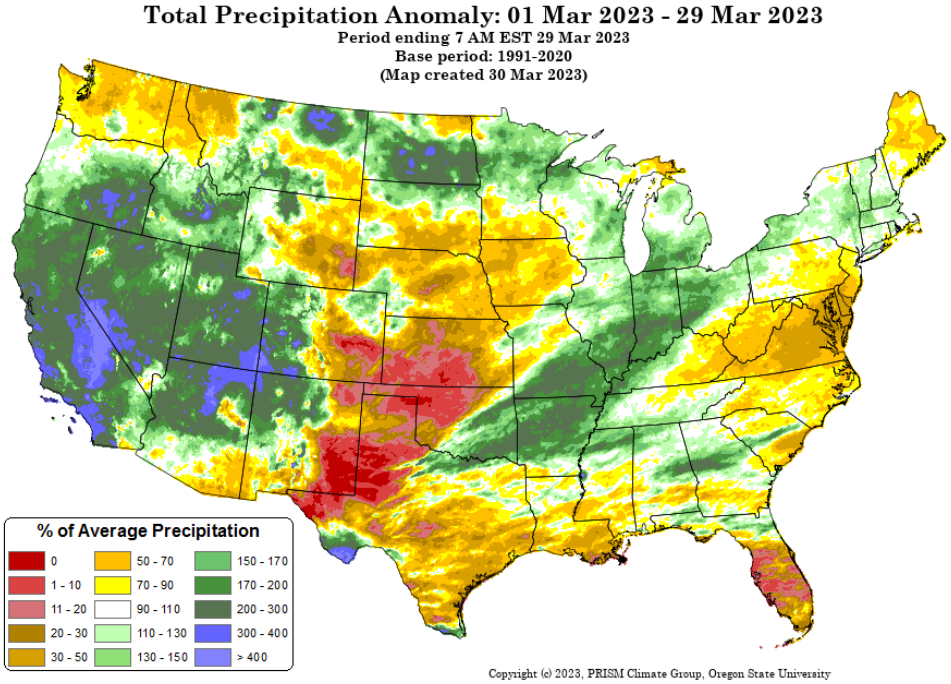
7-day precipitation percent of normal map for Alaska.

See also:
7-day total precipitation values (inches) map



Month-to-Date, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

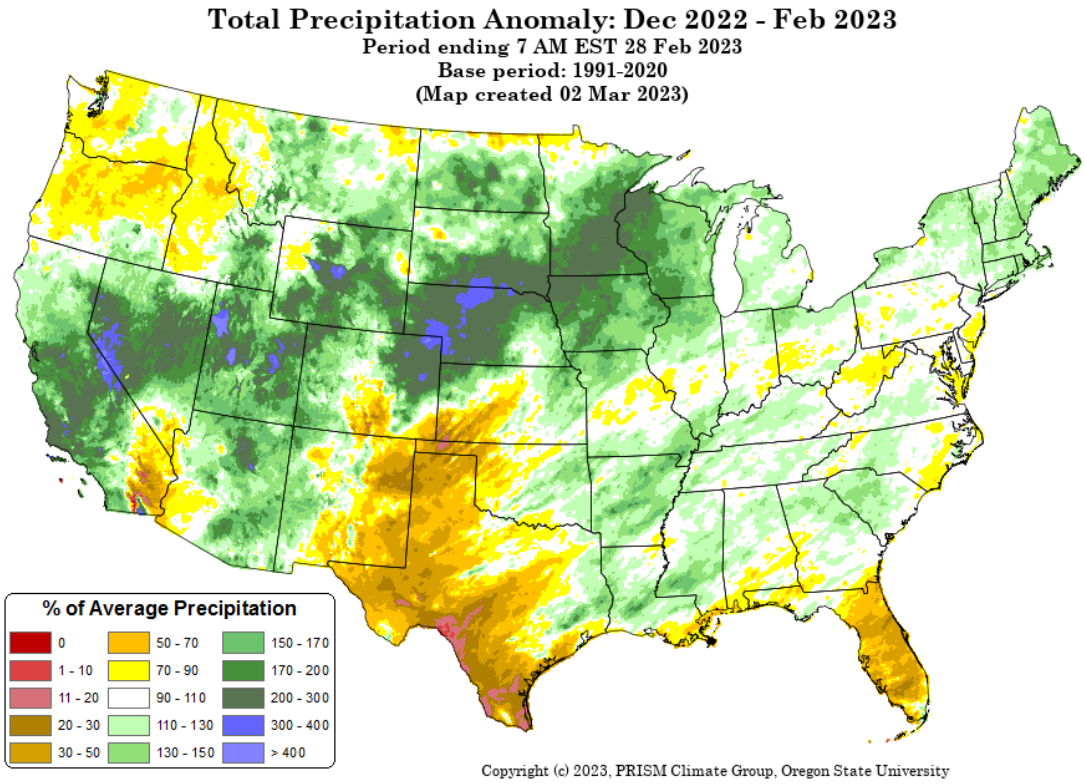


Month-to-date national total precipitation anomaly map

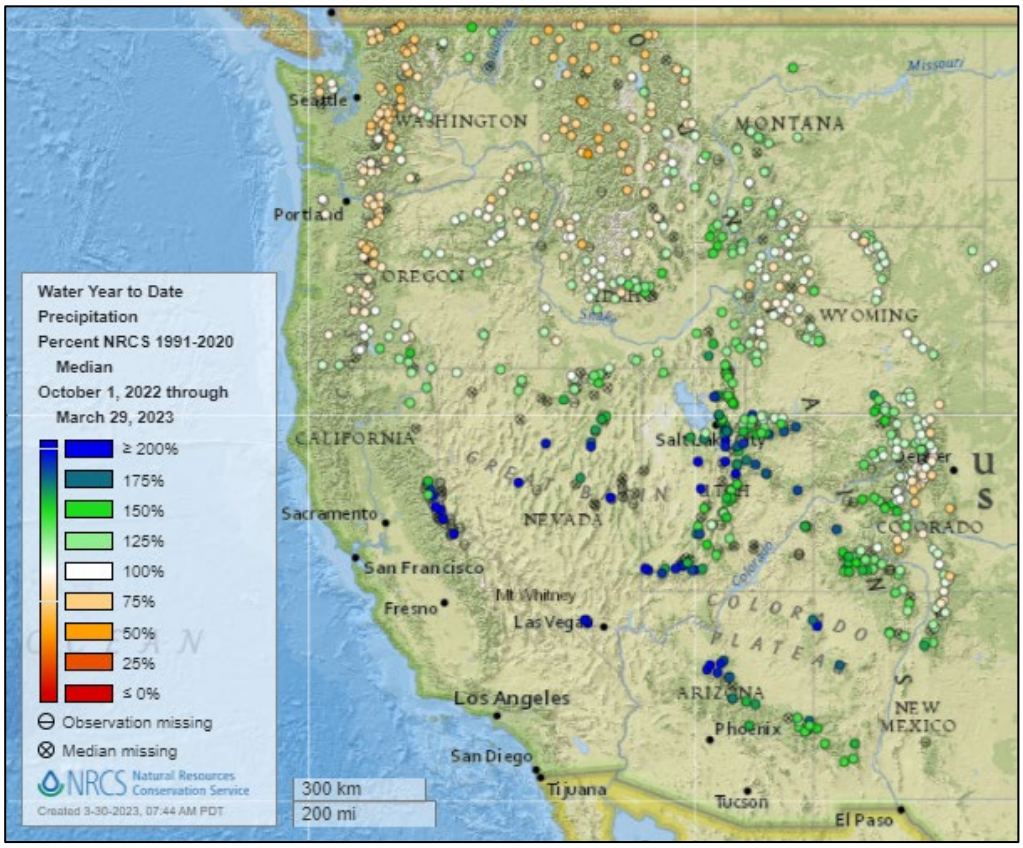
Last 3 Months, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

December 2022 through February 2023 precipitation anomaly map



Water Year-to-Date, NRCS SNOTEL Network

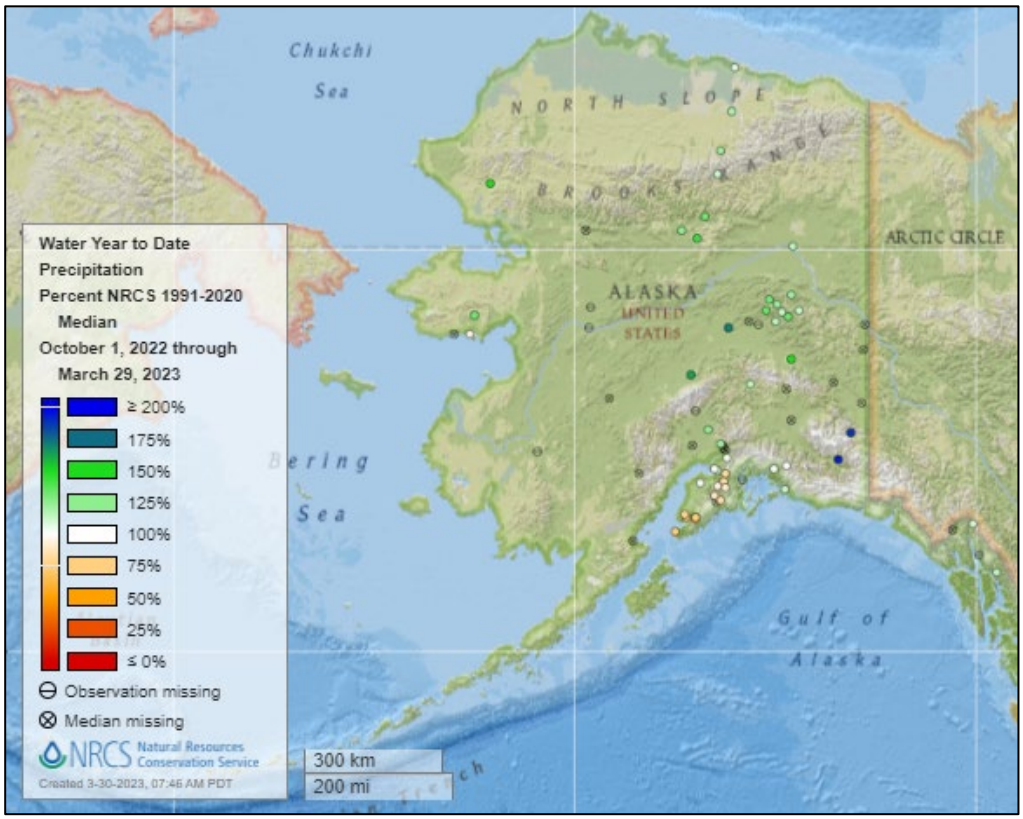


[2023 water year-to-date precipitation percent of median map]

See also:

[2023 water year-to-date precipitation percent of average map]

[2023 water year-to-date precipitation values (inches) map]



[Alaska 2023 water year-to-date precipitation percent of median map]

See also:

[Alaska 2023 water year-to-date precipitation percent of average map]

[Alaska 2023 water year-to-date precipitation values (inches) map]

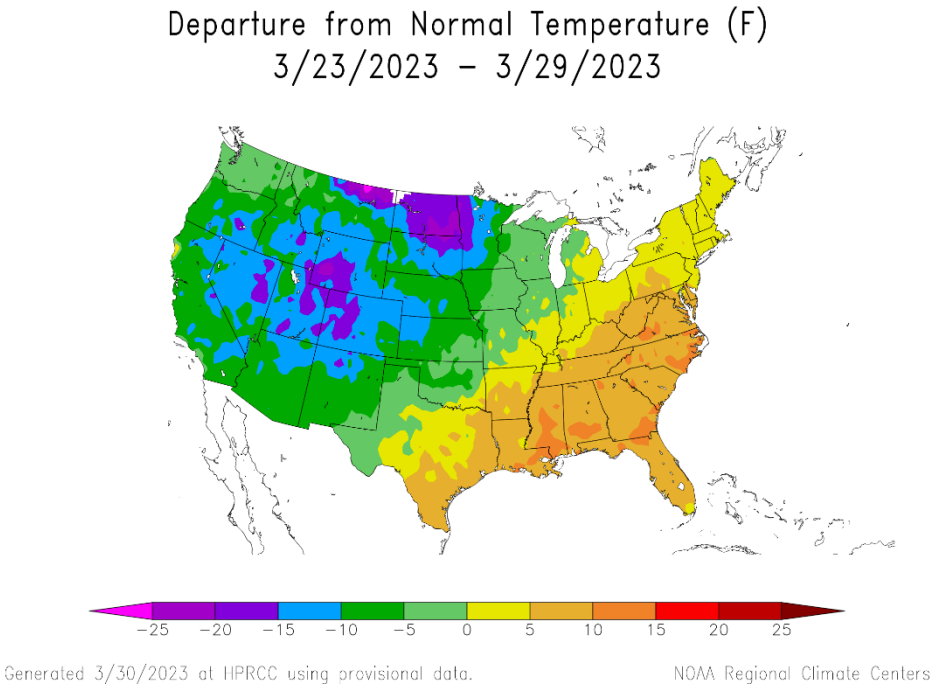
Temperature

Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

7-day temperature anomaly map for the contiguous U.S.

See also: 7-day temperature (° F) map

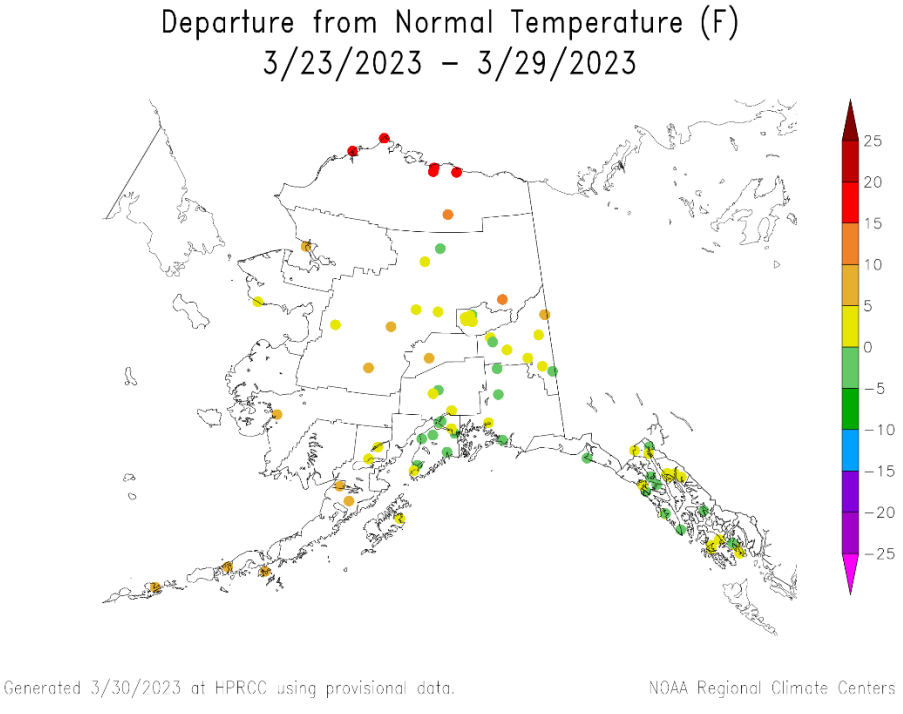


Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

7-day temperature anomaly map for Alaska.

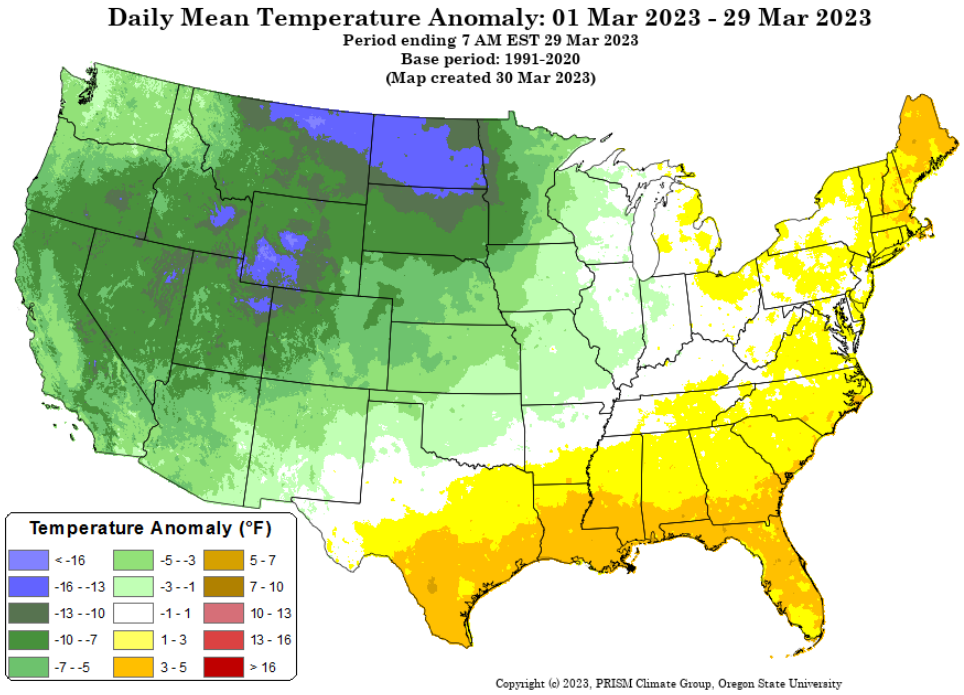
See also: 7-day temperature (° F) map



Month-to-Date, All Available Data Including SNOTEL and NWS Networks

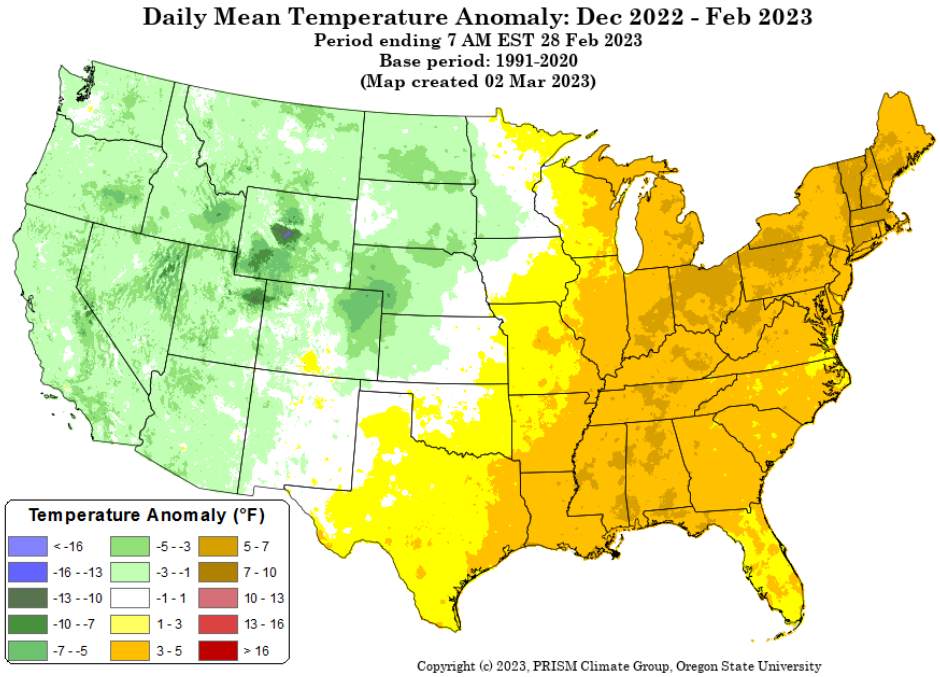
Source: PRISM

[Month-to-date national daily mean temperature anomaly map]



Last 3 Months, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

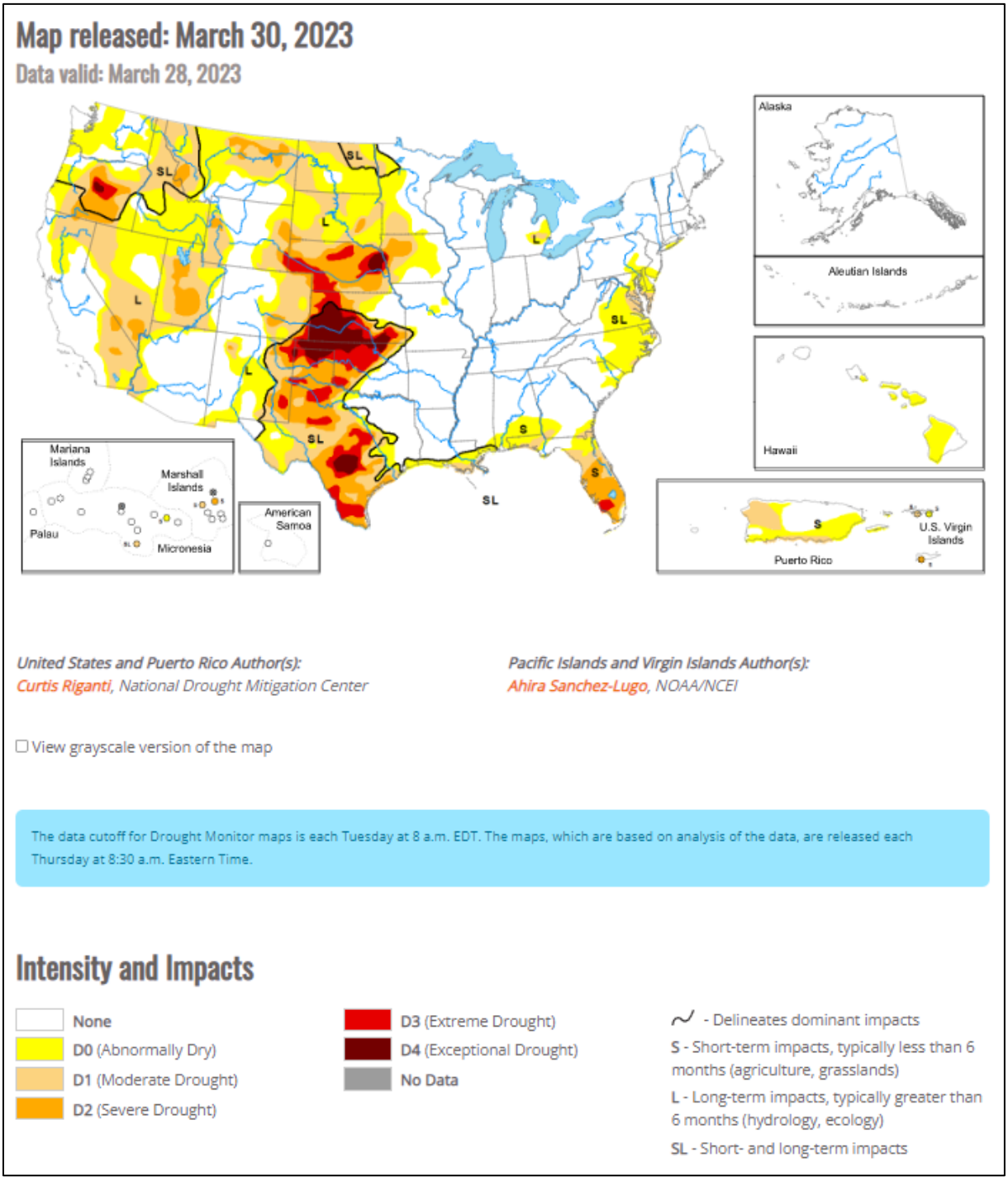


[December 2022 through February 2023 daily mean temperature anomaly map]

Drought

U.S. Drought Monitor
Source: National Drought Mitigation Center

U.S. Drought Portal
Source: NOAA



Current National Drought Summary, March 28, 2023

Source: National Drought Mitigation Center

“After the wet pattern continued in parts of the West this week, building off of widespread wet and snowy weather this winter, widespread improvements were made to the drought depiction, especially in northern California, northern Nevada, southern Idaho and Utah, with scattered changes, mostly improvements, also taking place in other western states. East of the Rockies, drought and abnormally dry conditions mostly stayed the same or worsened in the Texas and Oklahoma panhandles, northwest Oklahoma, and central and southeast Texas. The western edge of heavy rains this week fell mostly along and southeast of the Interstate 44 corridor in Oklahoma and western north Texas, leading to further tightening of an already tight drought condition gradient in these areas. Farther west in northwest Oklahoma and western Kansas, extreme and exceptional drought persisted or intensified. Very dry recent weather continued in the Florida Peninsula, where severe drought expanded in coverage and extreme drought developed in response to quickly increasing fire danger. In the Mid-Atlantic, short- and long-term drought and abnormal dryness grew a bit in coverage this week. Conditions also worsened in northwest Puerto Rico and the southern Puerto Rico coast, the latter of which reported nearby forest fires. For more specific details, please refer to the regional paragraphs below.”

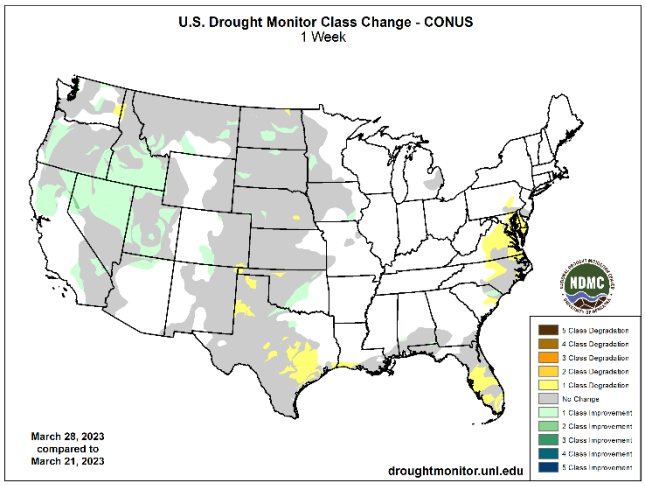
National Drought Summary – West

“A wet pattern continued in parts of the West this week, especially western Oregon and Washington and coastal California and parts of the Sierra Nevada. Locally heavy precipitation amounts also fell in parts of Utah and central Arizona. Colder-than-normal temperatures also occurred over most of the West region this week. Temperatures generally ranged from 5 to 10 degrees below normal in the northern, western and southern parts of the region, while Nevada, Utah and southern Idaho experienced temperatures ranging from 10 to 20 degrees colder than normal. The recent snowfall in southern Colorado in the Sangre de Cristo Mountains also allowed for improvements to conditions across the border in New Mexico. Large areas of the Intermountain West saw improvements to drought conditions this week, as long-term precipitation deficits lessened, snowpack remained high or grew, soil moisture and streamflow increased or remained high and groundwater conditions improved. Extreme drought was removed from central Utah, while moderate and severe drought lessened in coverage there. Much of southern Idaho and northern Nevada saw improvements this week after hefty precipitation amounts this winter. Conditions also improved west of Las Vegas, where long-term precipitation deficits lessened and groundwater and soil moisture locally improved. Moderate drought was removed in parts of northern California as well, where long-term precipitation deficits continued to lessen. For similar reasoning, drought coverage lessened in a few parts of Montana as well. Due to recent precipitation and large snowpack and lessening long-term precipitation deficits, moderate drought and abnormal dryness lessened in coverage in western Oregon.”

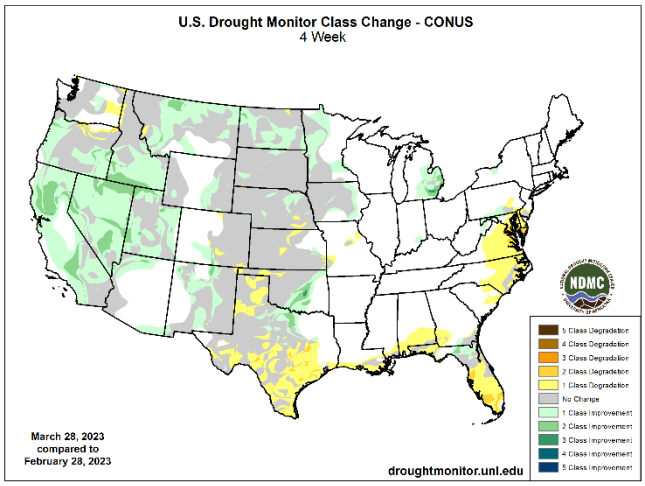
Changes in Drought Monitor Categories over Time

Source: National Drought Mitigation Center

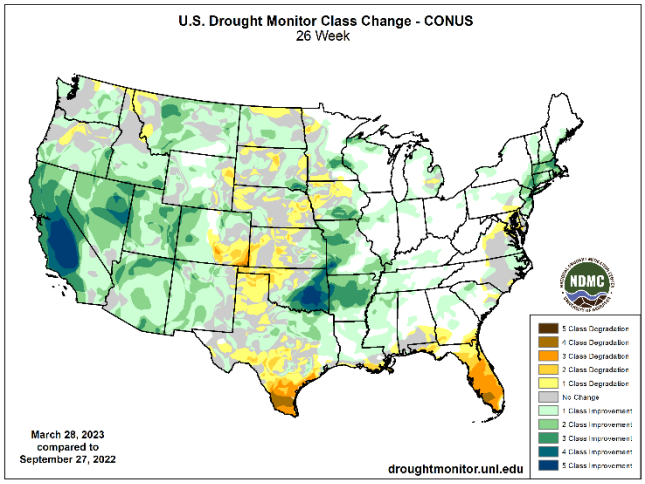
1 Week



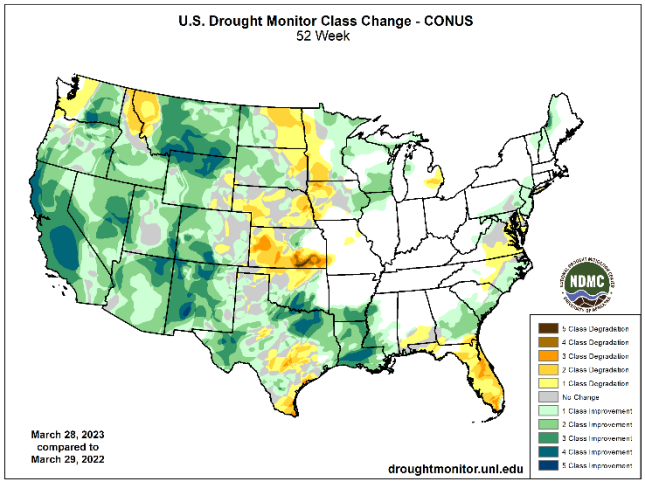
1 Month



6 Months



1 Year



Changes in drought conditions over the last 12 months for the contiguous U.S.

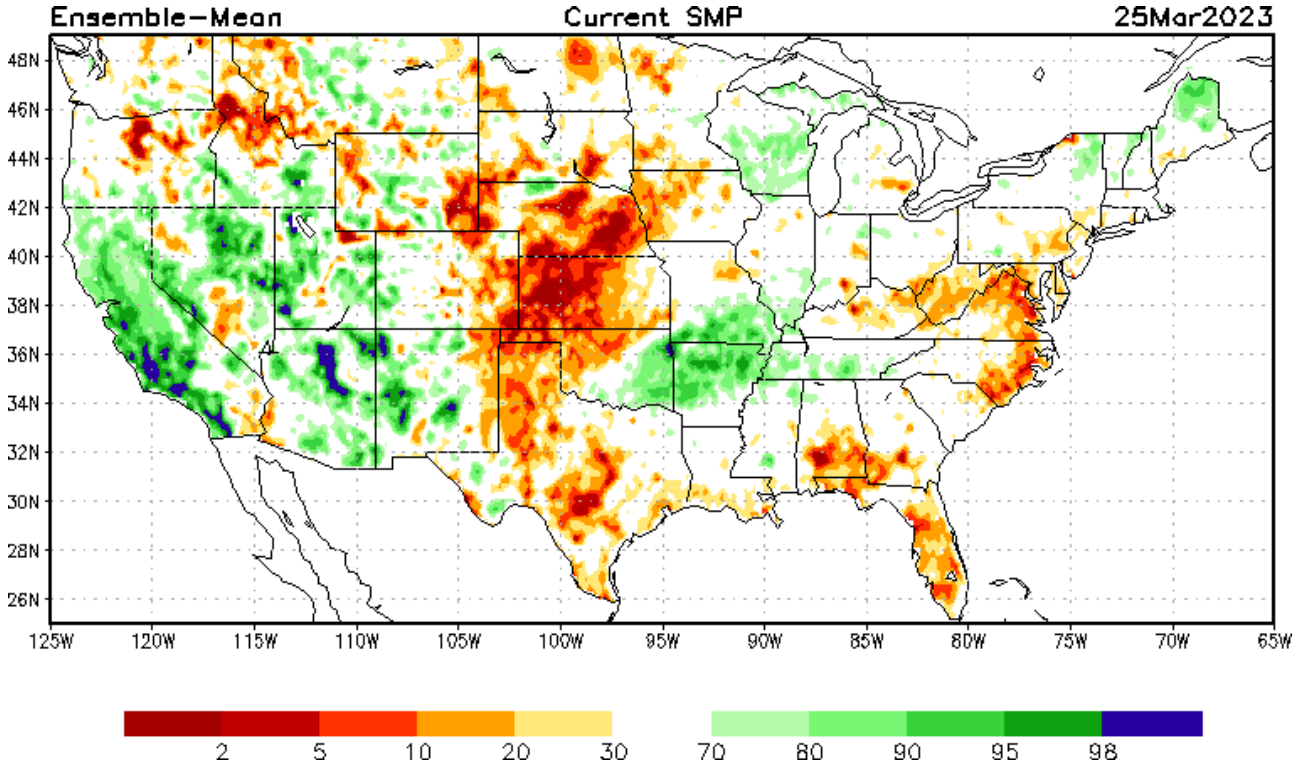
Highlighted Drought Resources

- Drought Impact Reporter
- Quarterly Regional Climate Impacts and Outlook
- U.S. Drought Portal Indicators and Monitoring
- U.S. Population in Drought, Weekly Comparison
- USDA Disaster and Drought Information

Other Climatic and Water Supply Indicators

Soil Moisture

Source: NOAA National Centers for Environmental Prediction

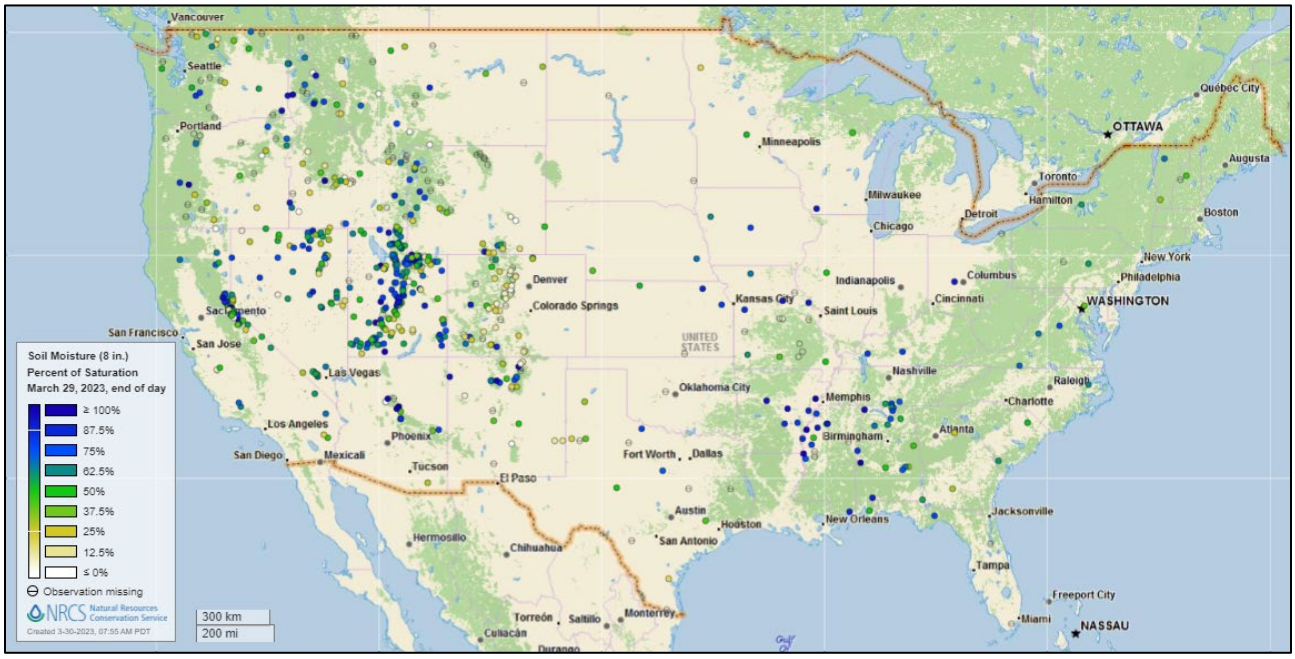


Modeled soil moisture percentiles as of March 25, 2023

Soil Moisture Percent of Saturation

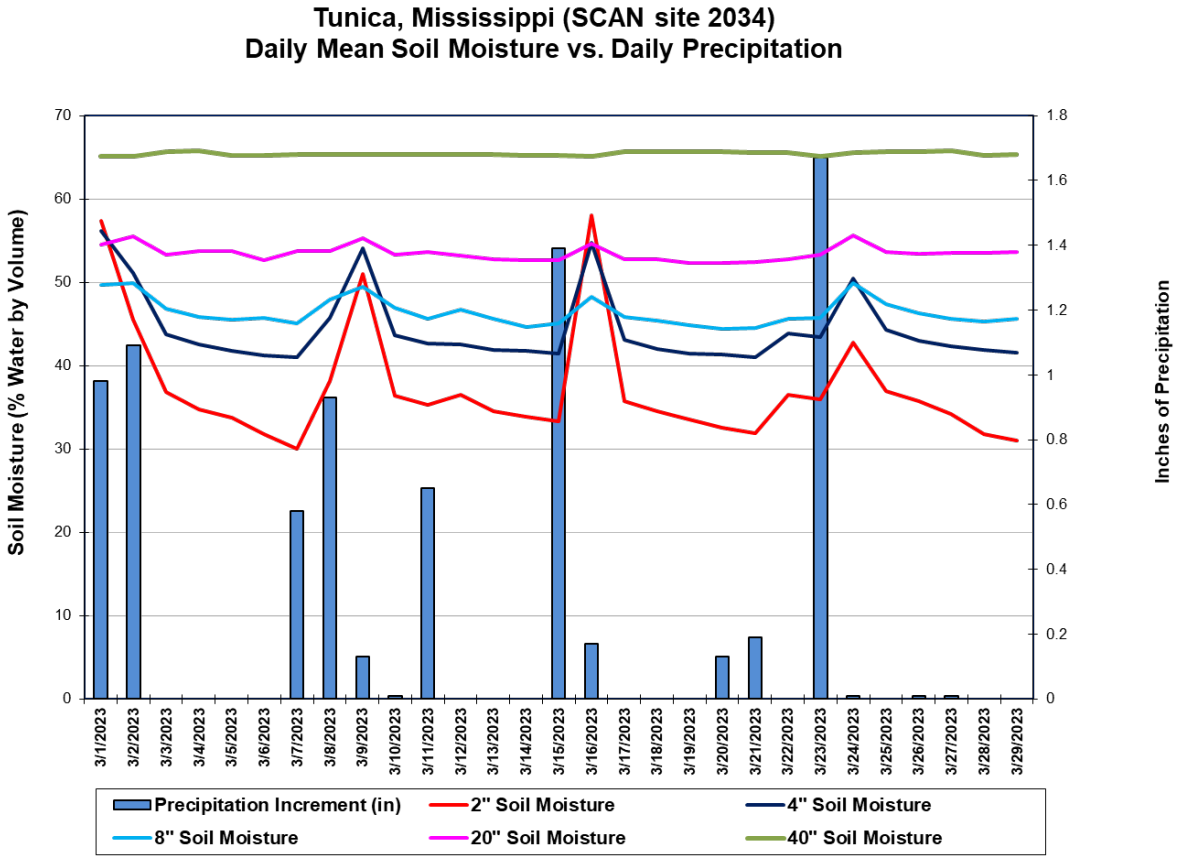
Source: NRCS SNOTEL and Soil Climate Analysis Network (SCAN)

U.S. soil moisture map at 8-inch depth:



Soil Moisture

Source: NRCS Soil Climate Analysis Network (SCAN)



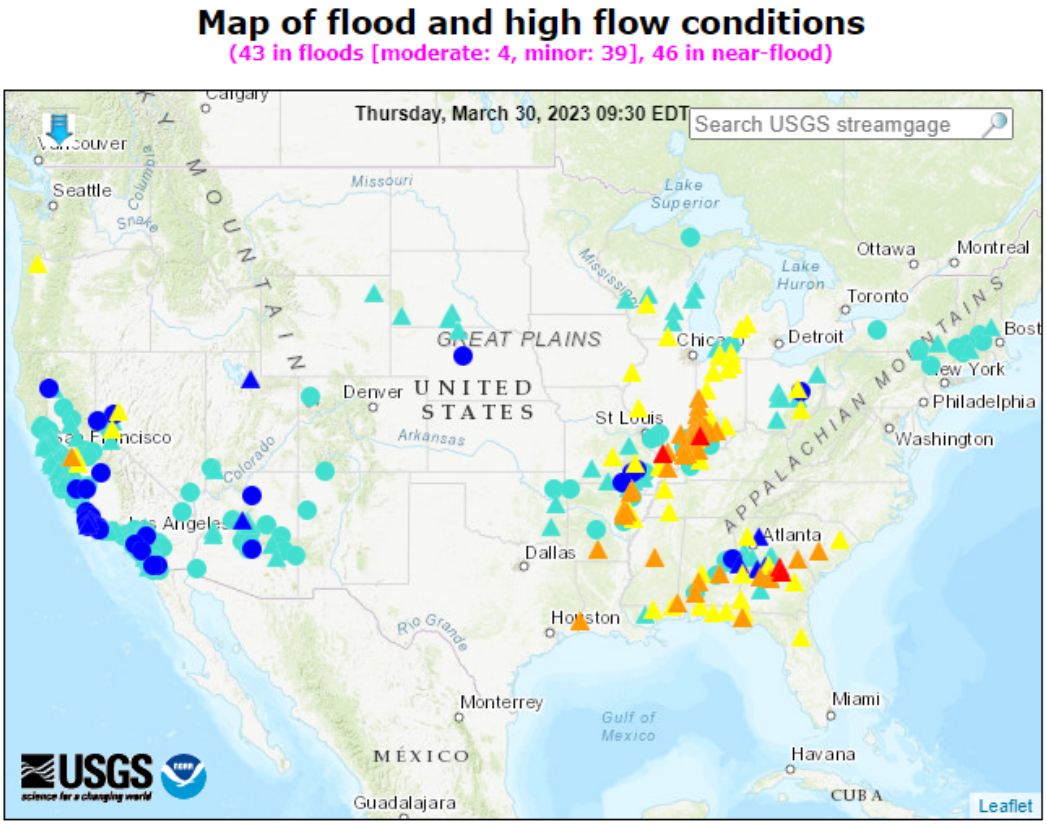
This chart shows the precipitation and soil moisture for the last 30 days at the Tunica SCAN site in Mississippi. Increases in soil moisture can be seen for all sensor depths except the -40-inch sensor following precipitation events throughout the period. Total precipitation for the 30-day period was 7.95 inches.

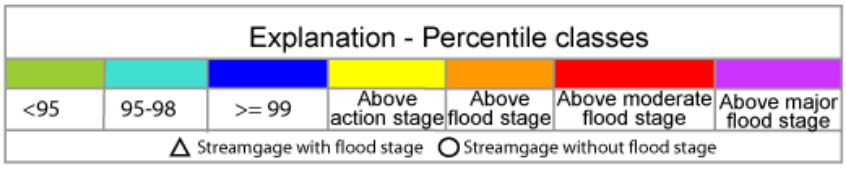
Soil Moisture Data Portals

- USCRN Soil Moisture
- National Soil Moisture Network
- NOAA Climate Prediction Center Soil Moisture
- NASA Grace

Streamflow, Drought, Flood, and Runoff

Source: U.S. Geological Survey [WaterWatch Streamflow Map]





[WaterWatch: Streamflow, drought, flood, and runoff conditions]

Reservoir Storage

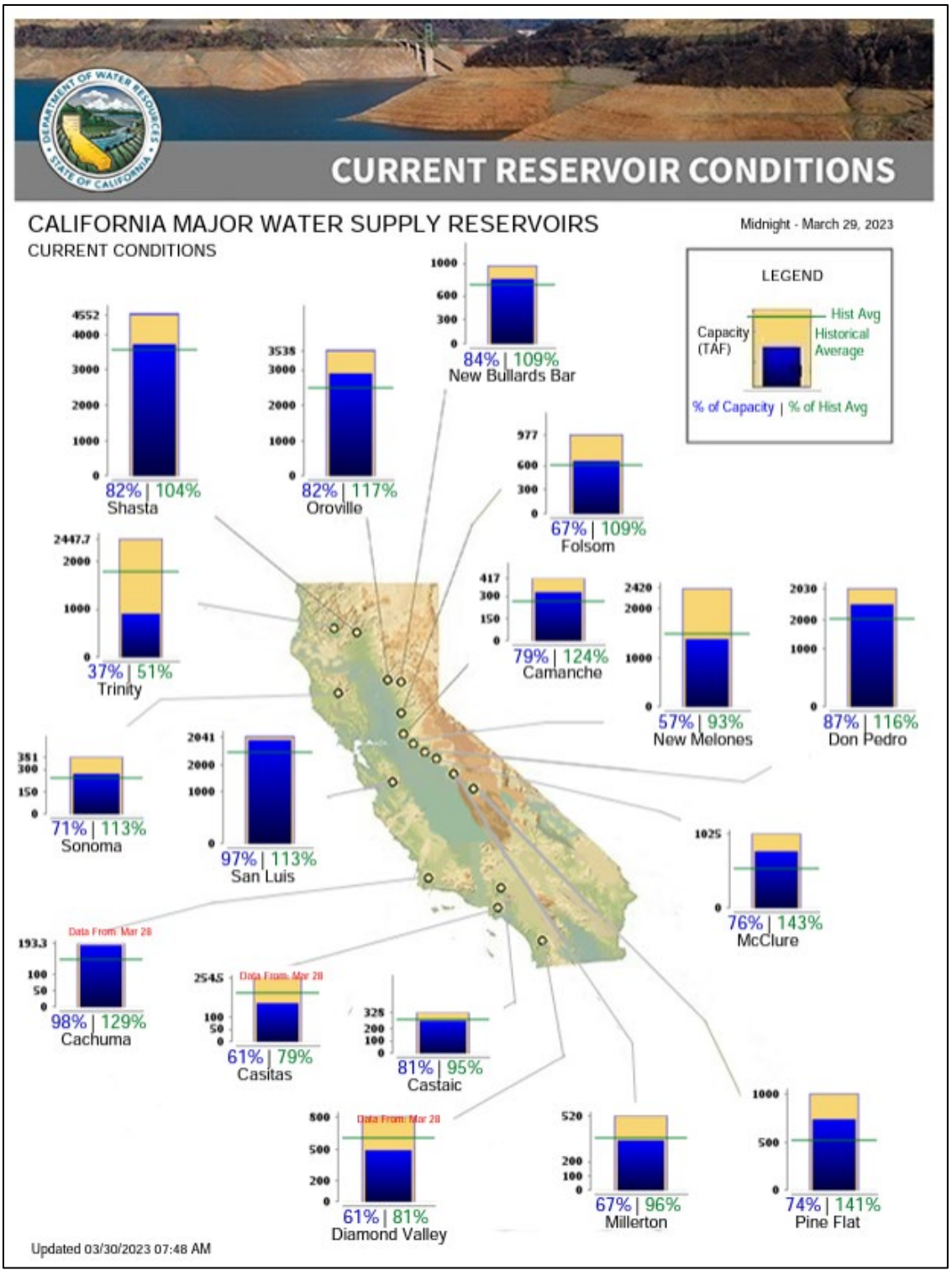
Hydromet Teacup Reservoir Depictions

Source: U.S. Bureau of Reclamation

- [Upper Colorado]
- [Pacific Northwest/Snake/Columbia]
- [Sevier River Water, Utah]
- [Upper Missouri, Kansas, Oklahoma, Texas]

Current California Reservoir Conditions

Source: California Department of Water Resources



Current California Reservoir Conditions

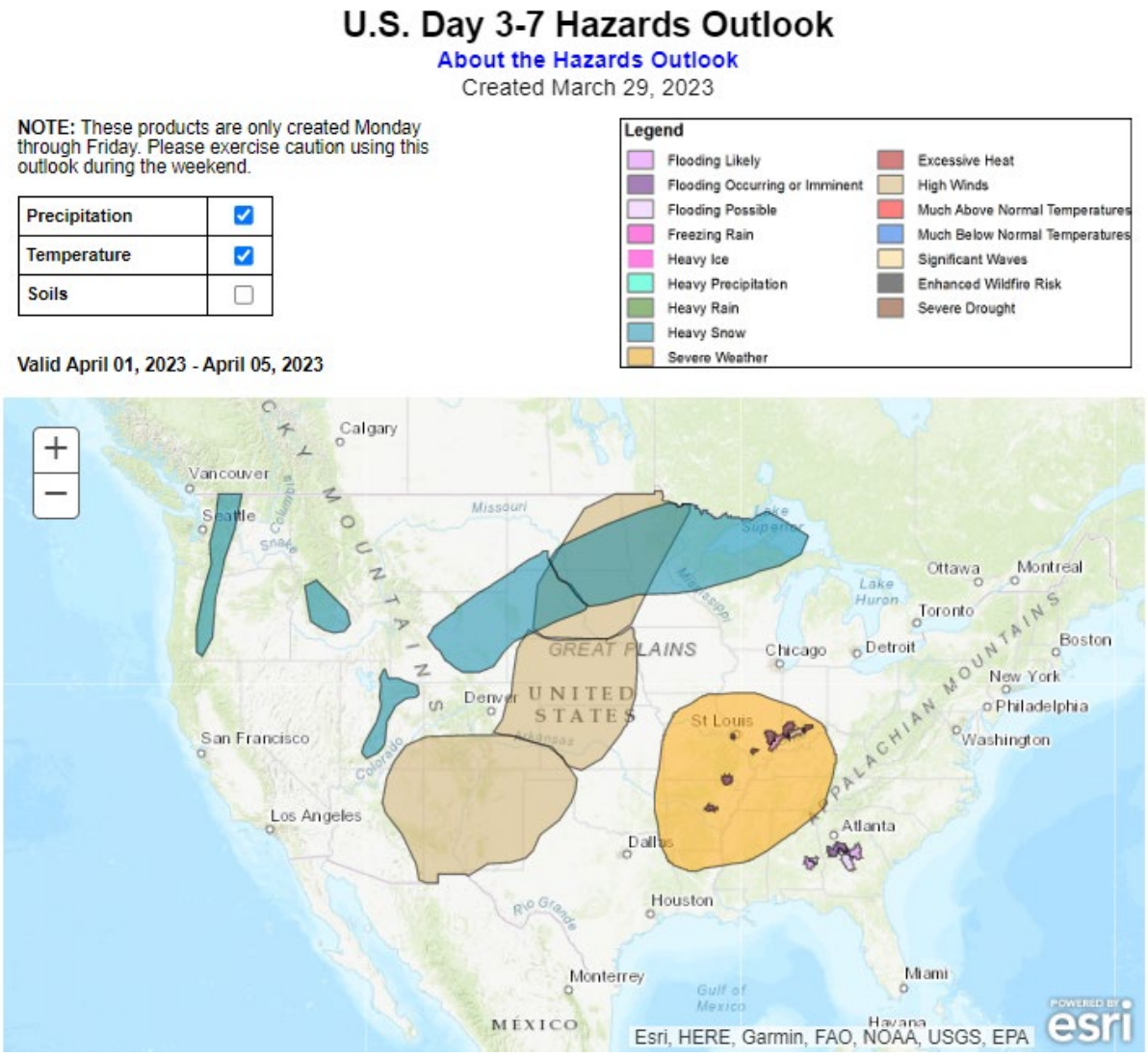
Agricultural Weather Highlights

Author: Brad Rippey, Agricultural Meteorologist, USDA/OCE/WAOB

National Outlook, Thursday March 30, 2023: "Later today, an intensifying storm system will emerge from the Rockies and cross the central Plains. The storm should reach peak intensity Friday night while traversing the Great Lakes region. A band of wind-driven snow will occur north of the storm's track, from South Dakota to Michigan's upper peninsula. Agricultural implications may include rural travel disruptions and severe livestock stress, especially in areas where lambing and calving operations are underway. Farther south, a threat of severe weather—including damaging winds, large hail, and isolated tornadoes—along the storm's trailing cold front will peak Friday evening in the Mississippi Valley, possibly as far north as eastern Iowa. On the southern High Plains, an elevated threat of grassfires will persist at least through Friday. During the weekend, a new storm system will arrive in the Pacific Northwest, with impacts eventually spreading across California, the Great Basin, and the northern Rockies. The NWS 6- to 10-day outlook for April 4 – 8 calls for colder-than-normal weather along and northwest of a line from New Mexico to Wisconsin, while warmer-than-normal weather will prevail across the South, East, and lower Midwest. Meanwhile, near- or above-normal precipitation should occur nationwide, with the upper Midwest having the greatest likelihood of experiencing wetter-than-normal conditions."

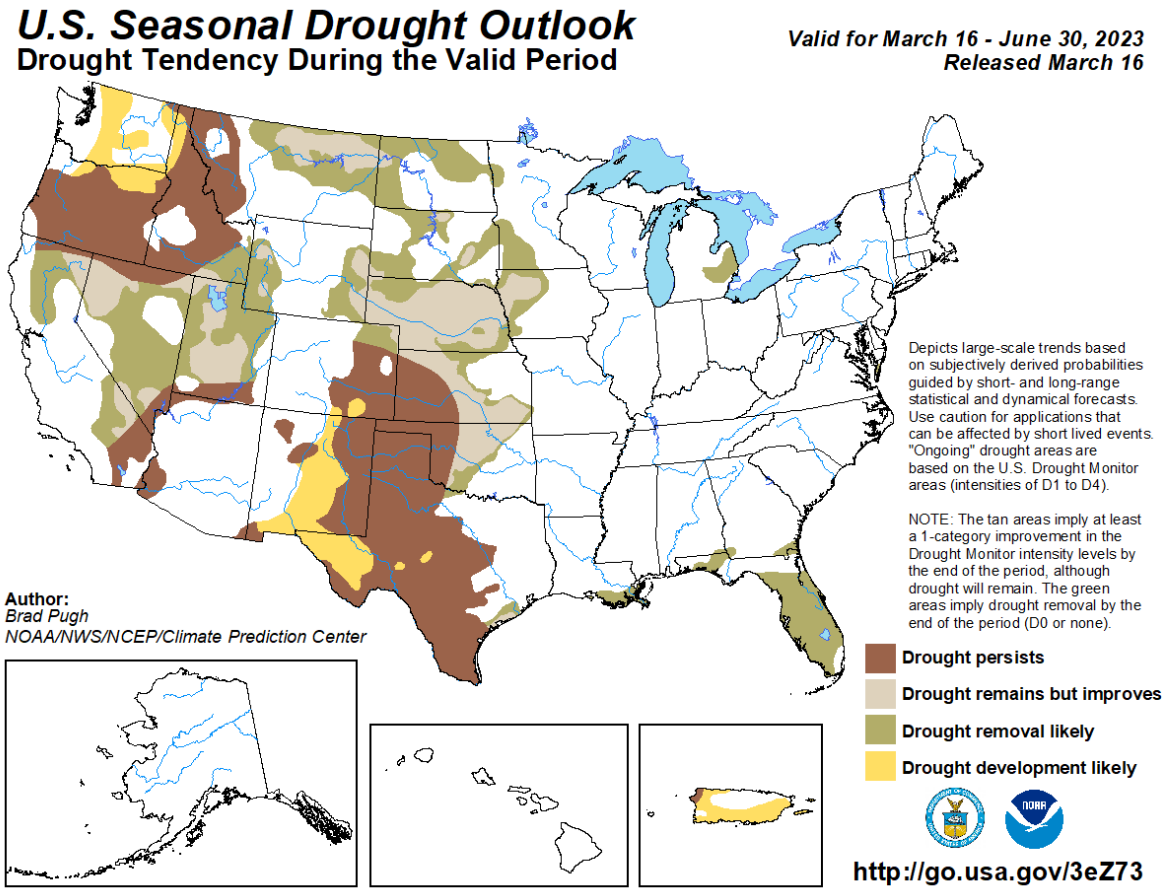
Weather Hazards Outlook: April 01 – 05, 2023

Source: NOAA Weather Prediction Center



Seasonal Drought Outlook: March 16 – June 30, 2023

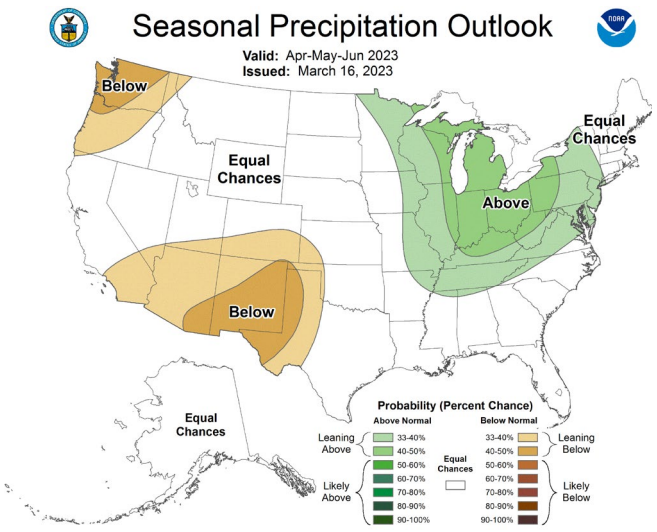
Source: National Weather Service



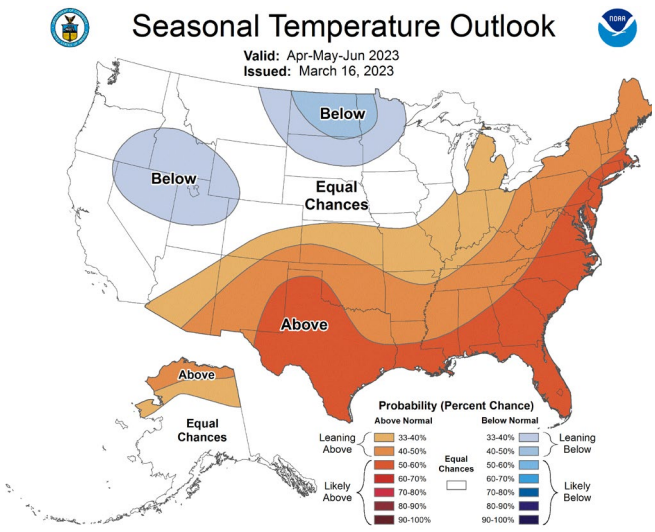
Climate Prediction Center Three-month Outlook

Source: National Weather Service

Precipitation



Temperature



April-May-June 2023 precipitation and temperature outlook summaries

More Information

The NRCS National Water and Climate Center publishes this weekly report. We welcome your feedback. If you have questions or comments, please contact us.