United States Department of Agriculture

Water and Climate Update

April 06, 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.

Utah shatters historic state snowpack records

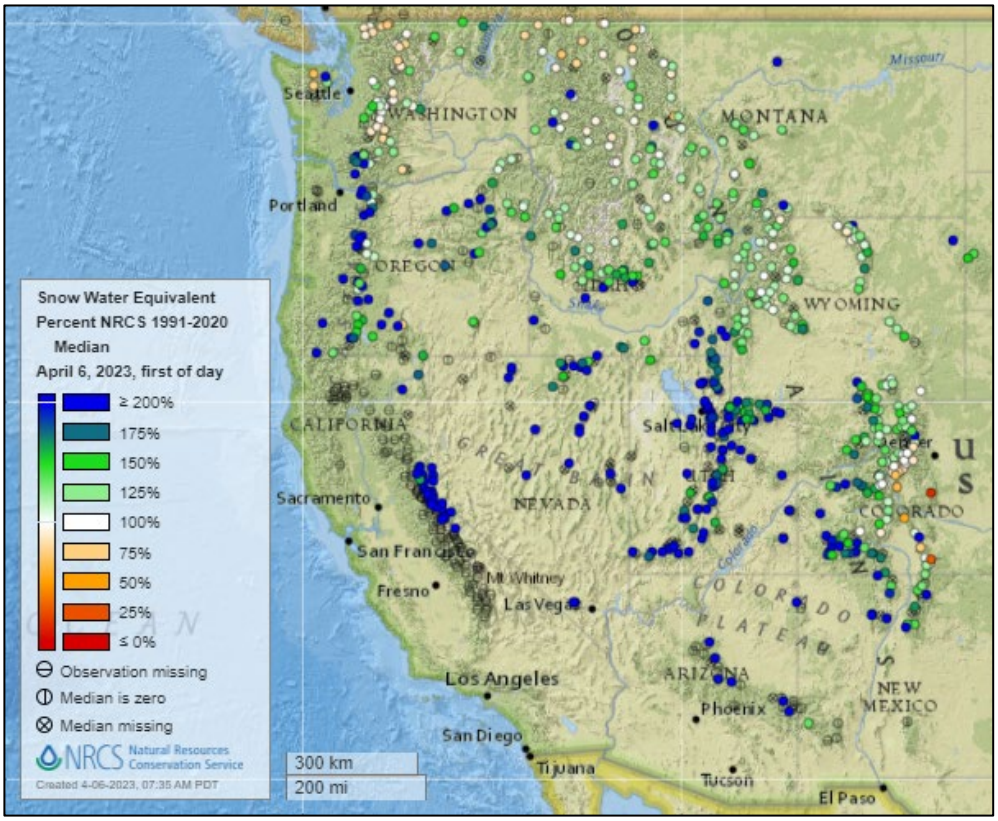
NRCS Hydrologist Troy Brosten working in record Utah snowpack conditions.
Photo by Douglas Neff, NRCS Utah Snow Survey

Many states throughout the West are measuring record snowpack conditions at NRCS SNOTEL stations and snow courses. Utah especially has seen a benchmark year for snowfall levels throughout the state. Per the April 01, 2023 Water Supply Outlook Report from the NRCS Utah Snow Survey office:

> "As of March 24th, Utah's statewide snow water equivalent (SWE) measured at our SNOTEL weather stations broke the 1983 record, making this the snowiest winter since the SNOTEL network was installed in 1980. Prior to 1980, Utah NRCS evaluated SWE based on manual, monthly measurements called "snow courses", starting around 1930. Using these historical data, the winter of 1952 was the record holder for the most SWE for April 1st (when Utah's snowpack typically peaks) until the winter of 2022-2023 came along. No more! As of April 4th, this winter has officially broken the 1952 record as well, making this year's snowpack the deepest ever measured in Utah!"

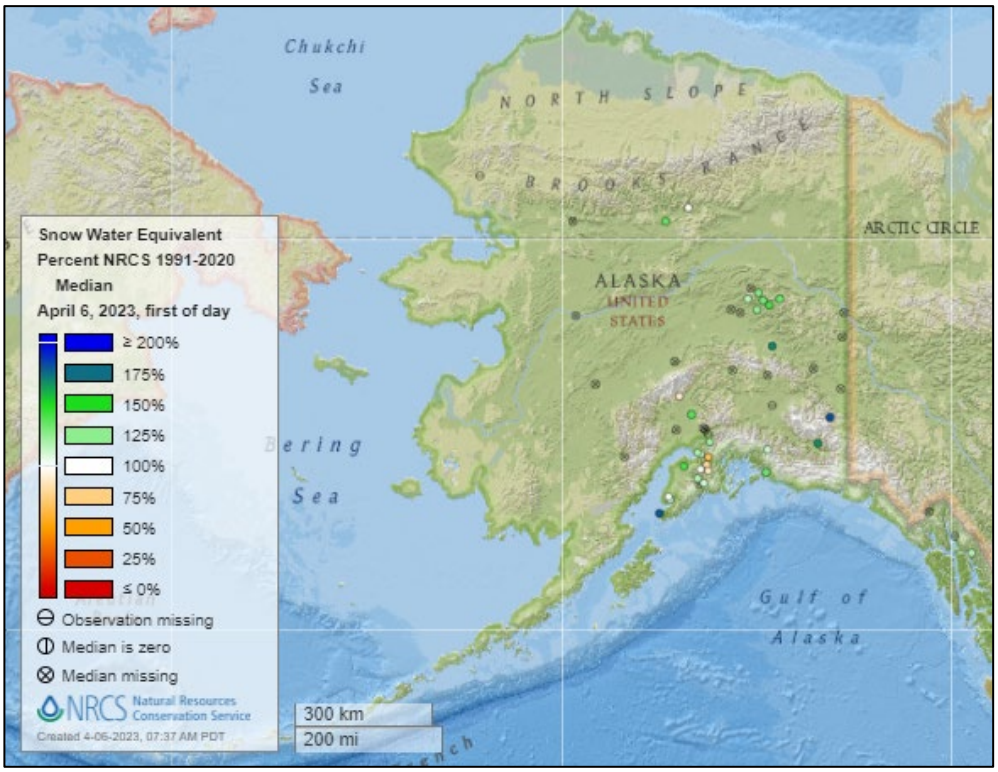
Related:
Utah Snow Survey – USDA-NRCS Snow Survey and Water Supply Forecasting Program
Utah's snowpack breaks all records – KUTV (UT)
'Extraordinary moment': Sierra snowpack among largest on record - SF Gate (CA)

Snow



[Snow water equivalent percent of median map]

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

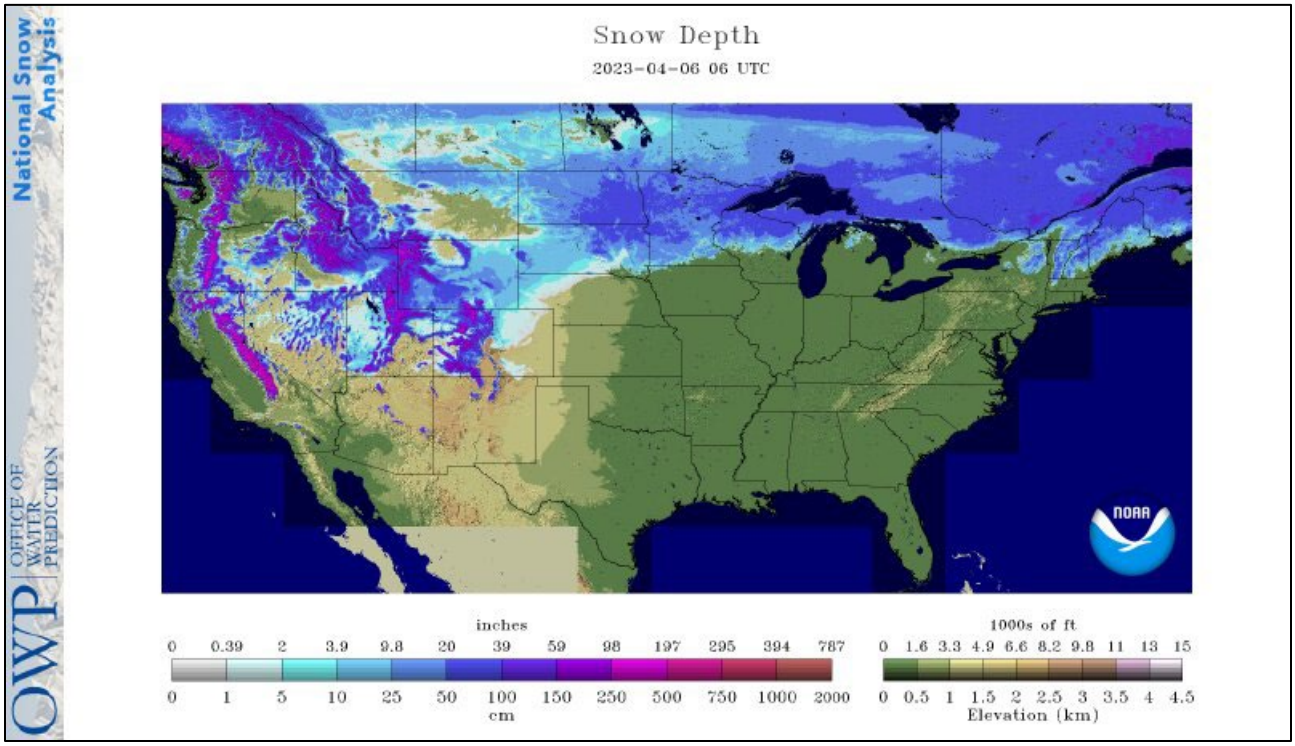


[Alaska snow water equivalent percent of median map]

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

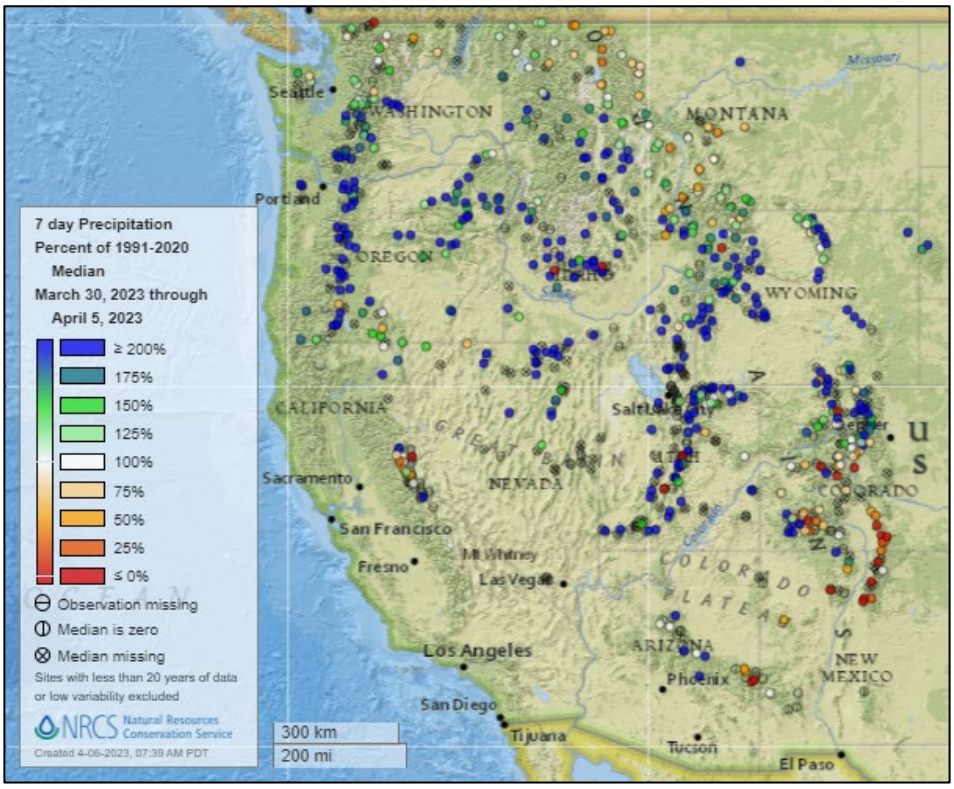
Current Snow Depth, National Weather Service Snow Analysis

Source: NOAA NWS National Operational Hydrologic Remote Sensing Center



Precipitation

Last 7 Days, NRCS SNOTEL Network

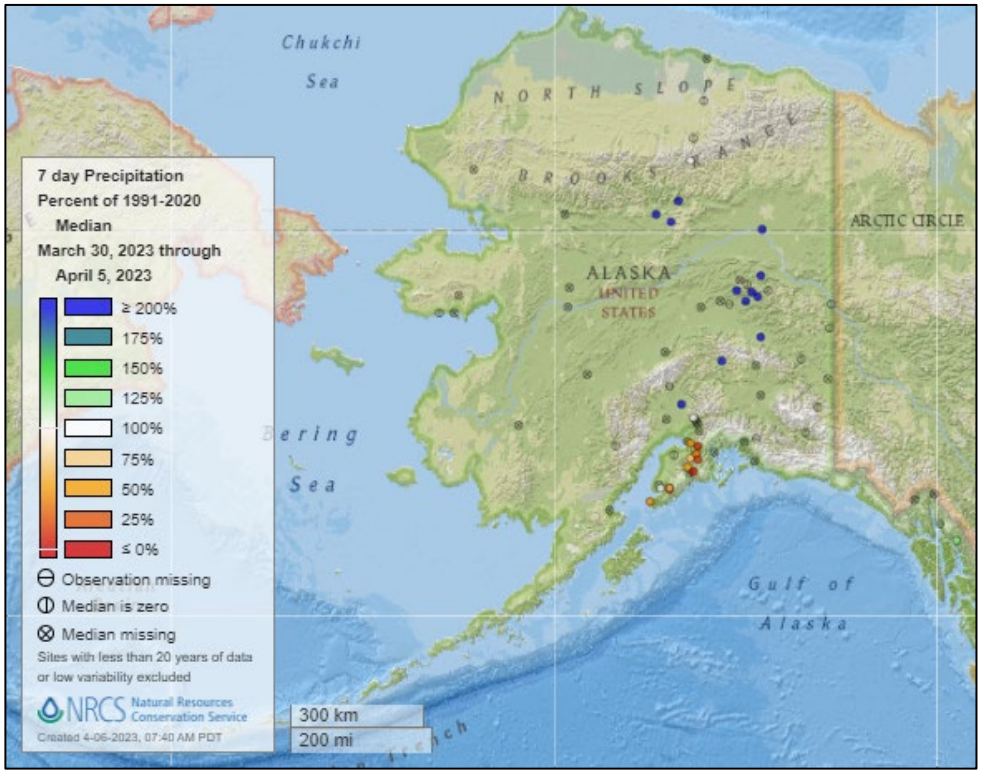


[7-day precipitation percent of median map]

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]

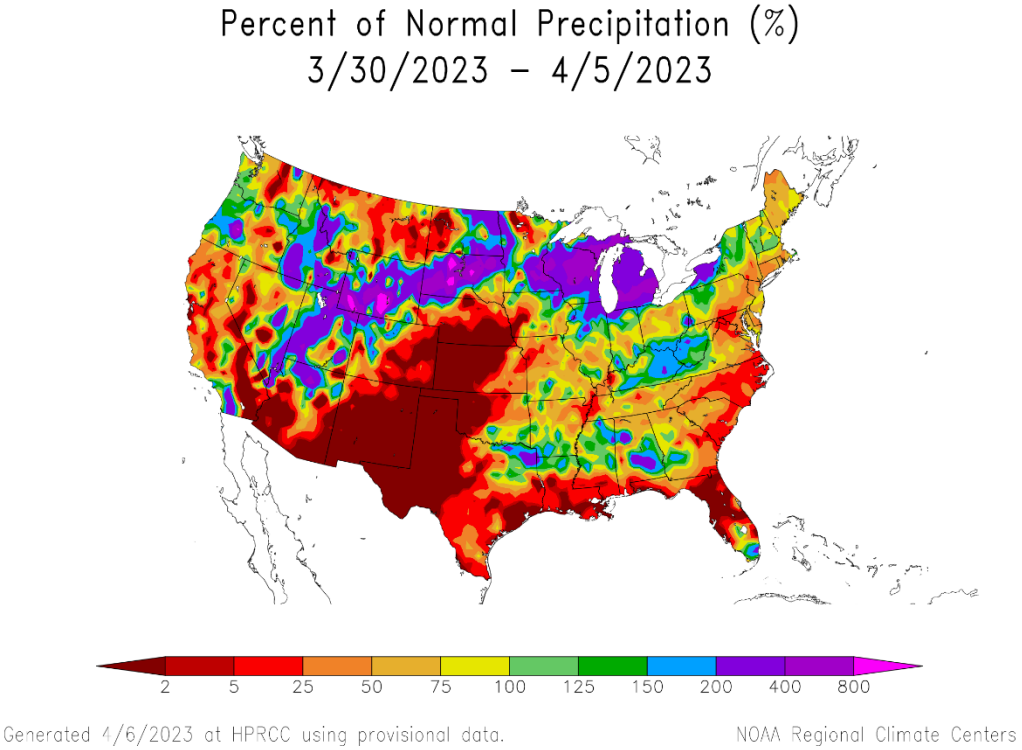


Last 7 Days, National Weather Service (NWS) Networks

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

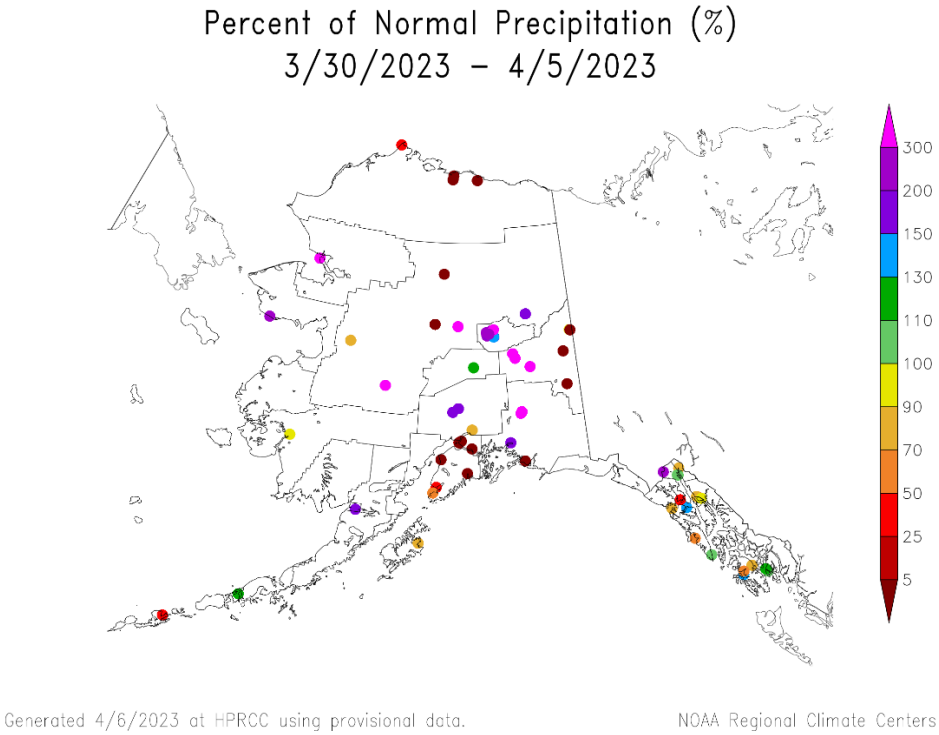


Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

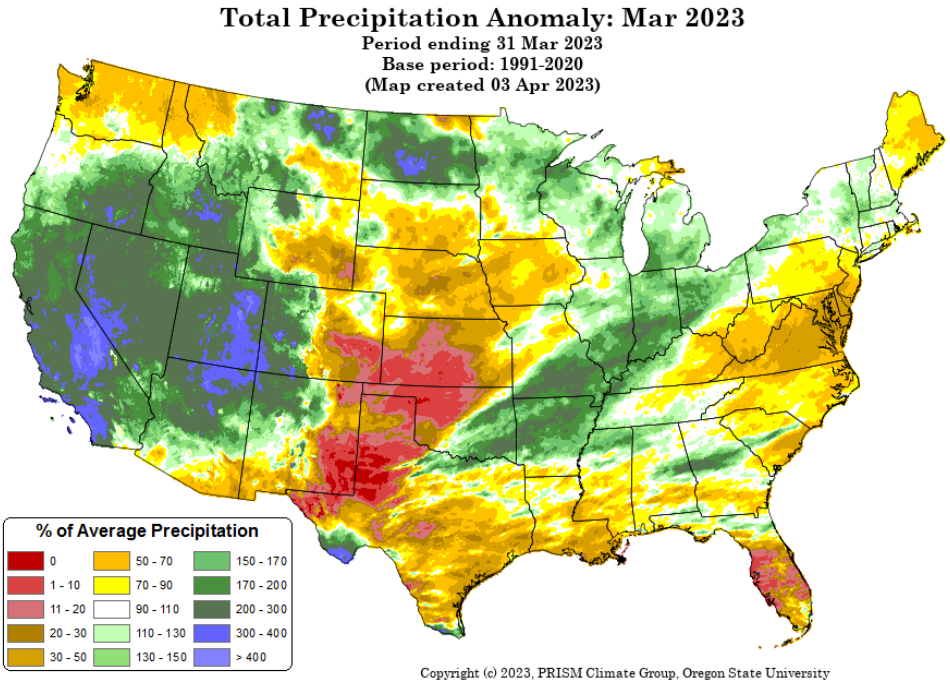
7-day precipitation percent of normal map for Alaska.

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



Monthly, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

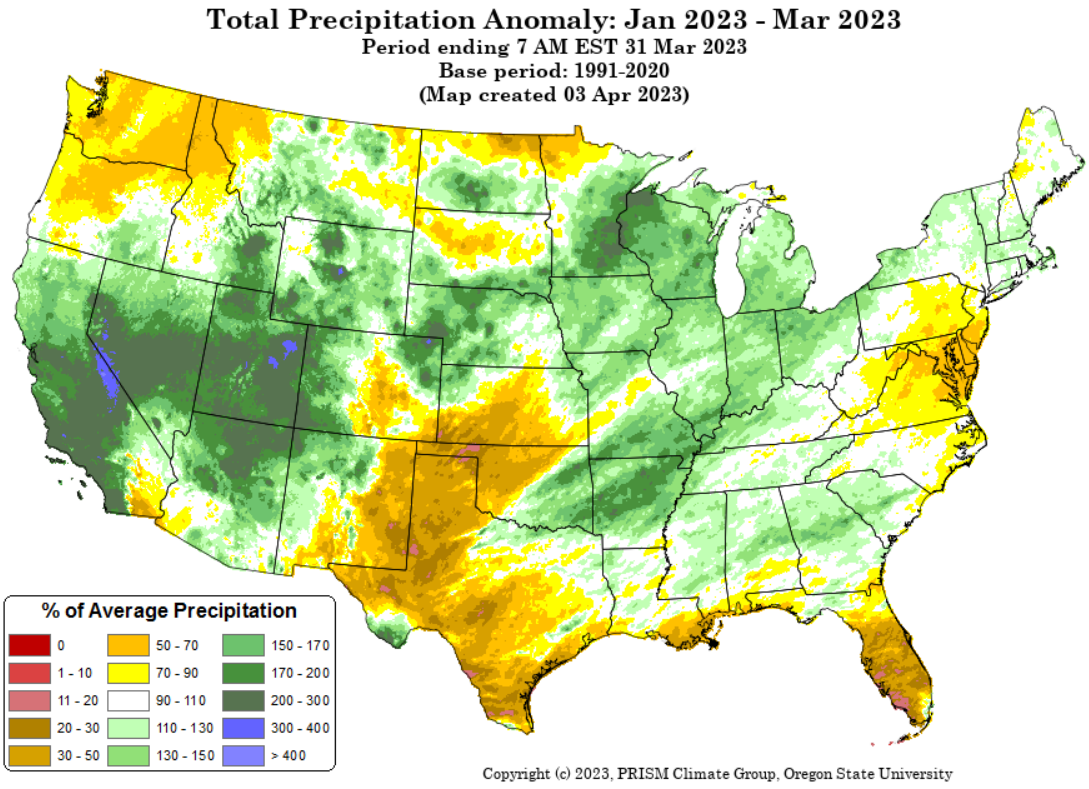


[Monthly national total precipitation anomaly map]

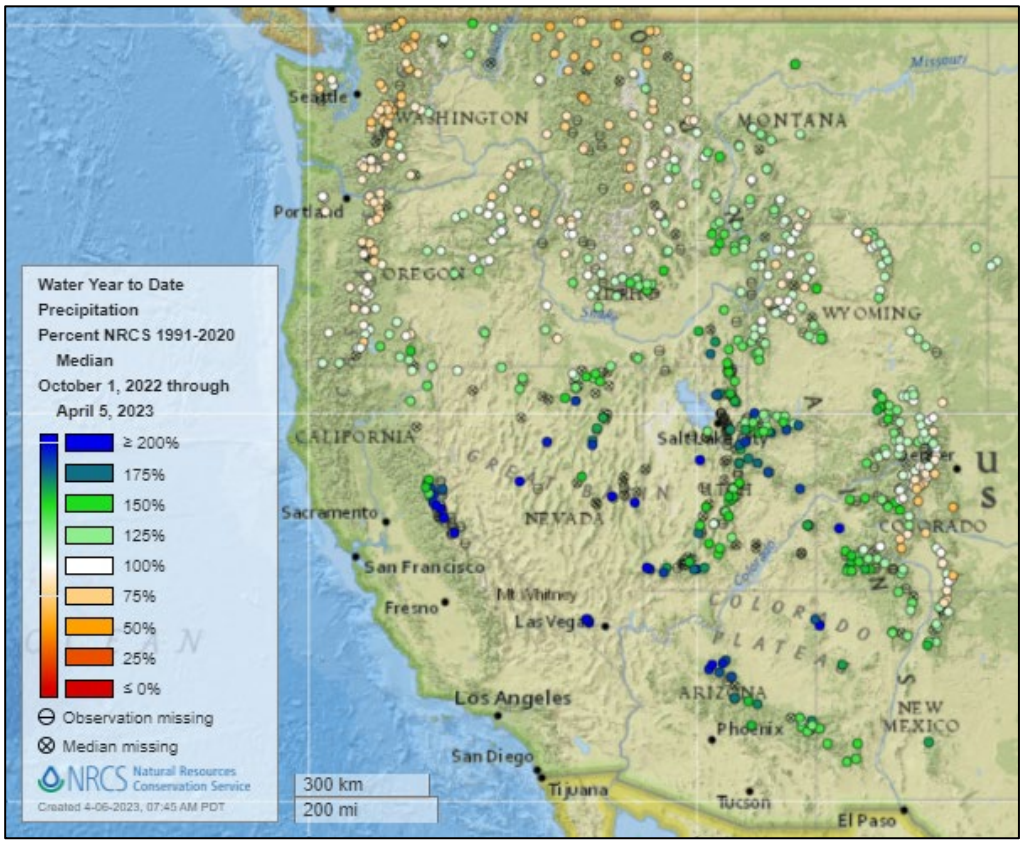
Last 3 Months, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

[January through March 2023 precipitation anomaly map]



Water Year-to-Date, NRCS SNOTEL Network

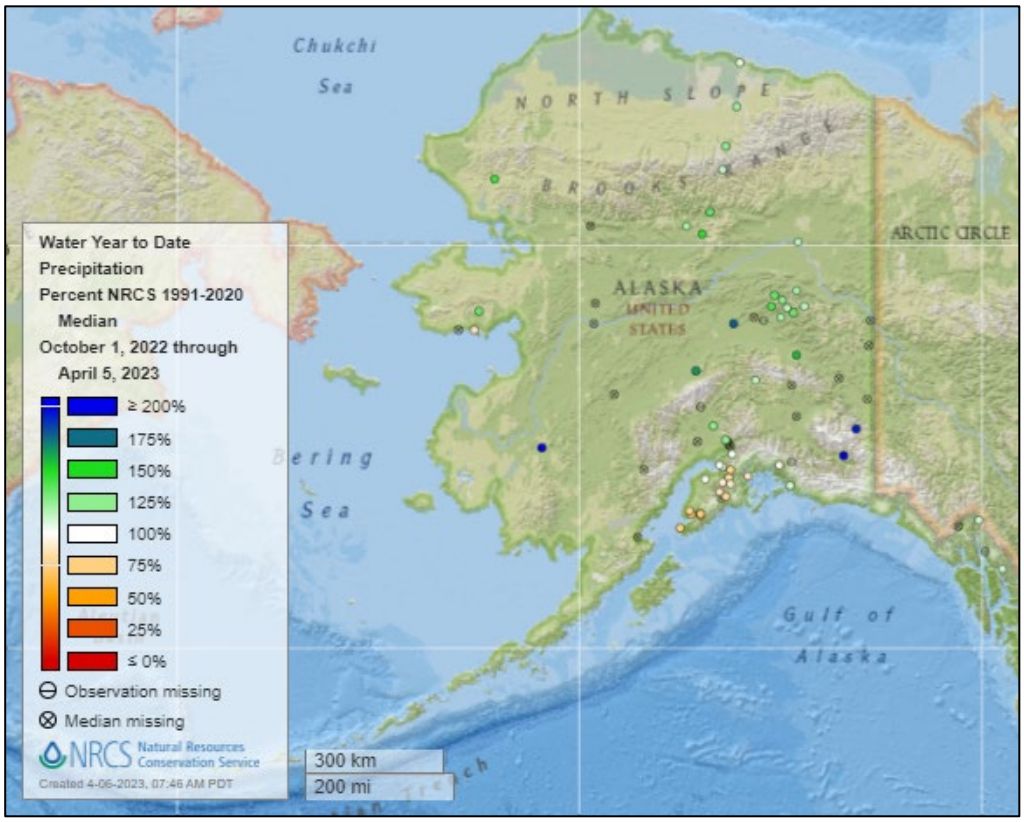


[2023 water year-to-date precipitation percent of median map]

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]

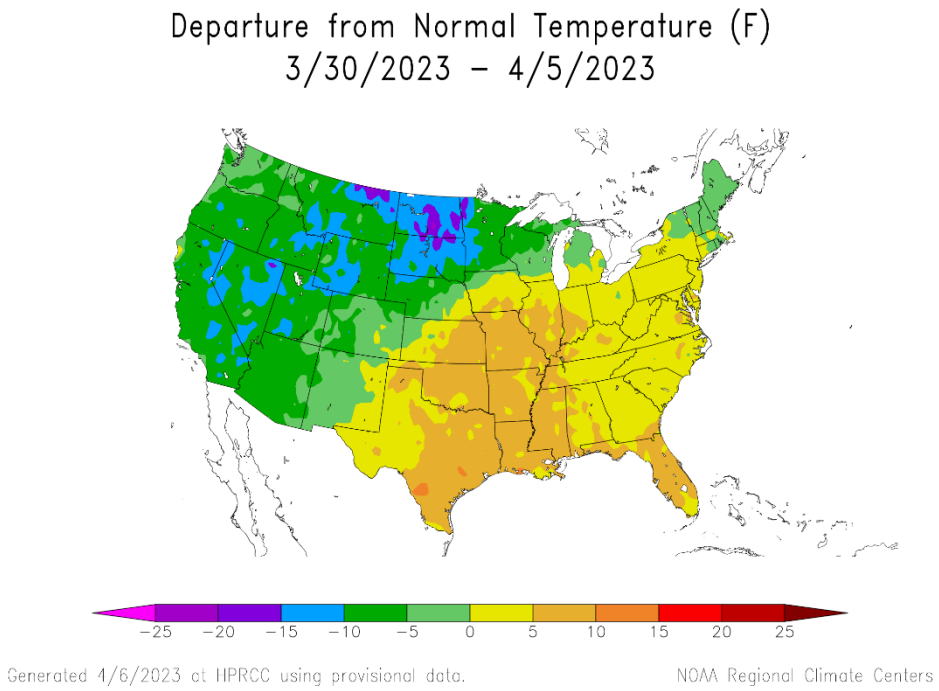
Temperature

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

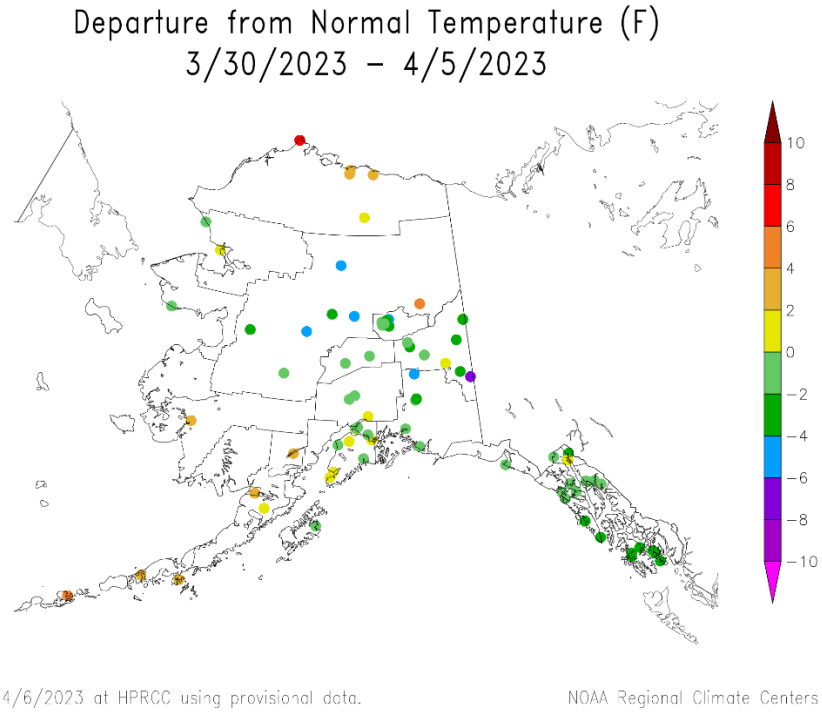


Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

7-day temperature anomaly map for Alaska.

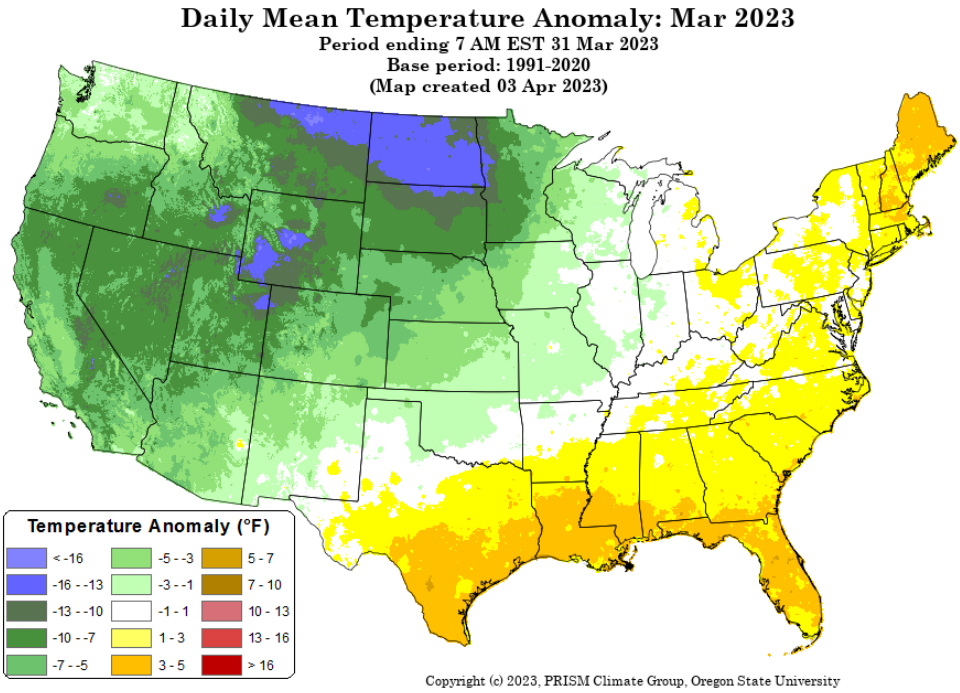
See also: 7-day temperature (° F) map



Monthly, All Available Data Including SNOTEL and NWS Networks

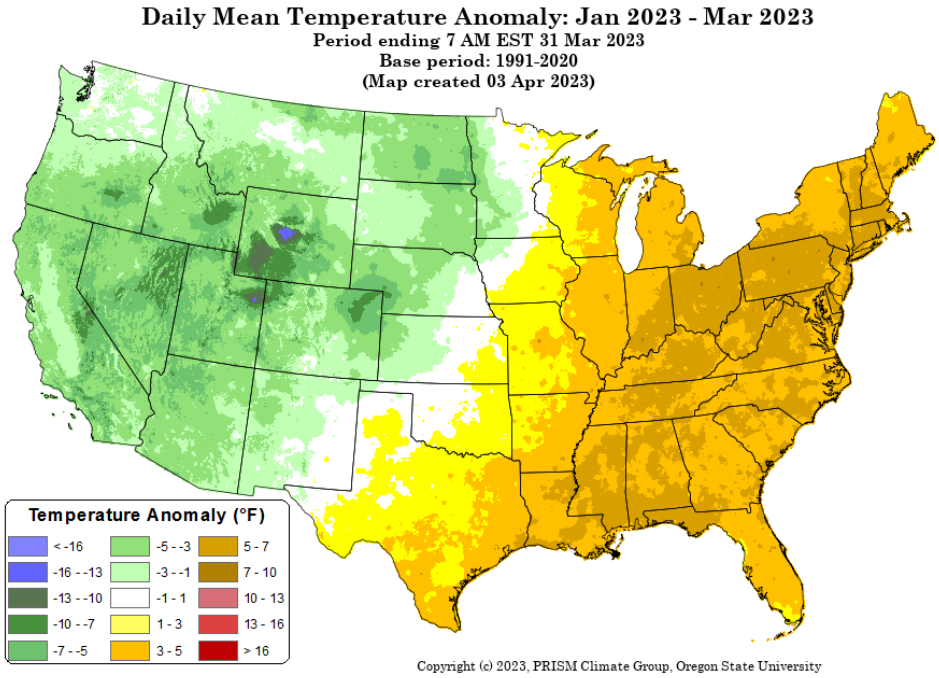
Source: PRISM

[Monthly national daily mean temperature anomaly map]



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

Source: PRISM



[January through March 2023 daily mean temperature anomaly map]

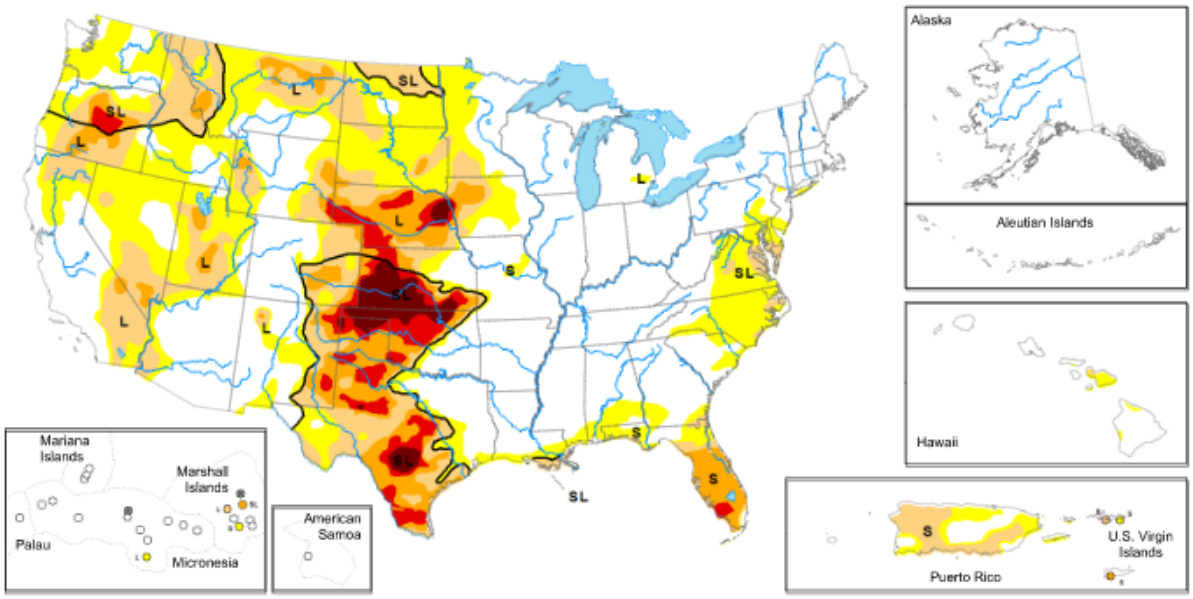
Drought

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

U.S. Drought Portal
Source: NOAA

Map released: April 6, 2023

Data valid: April 4, 2023



United States and Puerto Rico Author(s):
David Simeral, Western Regional Climate Center

Pacific Islands and Virgin Islands Author(s):
Tsegaye Tadesse, National Drought Mitigation Center

☐ View grayscale version of the map

The data cutoff for Drought Monitor maps is each Tuesday at 8 a.m. EDT. The maps, which are based on analysis of the data, are released each Thursday at 8:30 a.m. Eastern Time.

Intensity and Impacts

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data

~ - Delineates dominant impacts

S - Short-term impacts, typically less than 6 months (agriculture, grasslands)

L - Long-term impacts, typically greater than 6 months (hydrology, ecology)

SL - Short- and long-term impacts

Current National Drought Summary, April 04, 2023

Source: National Drought Mitigation Center

"This U.S. Drought Monitor (USDM) week saw continued widespread improvements on the map across areas of the western U.S. including in California, Nevada, Oregon, Idaho, and Utah. Overall, the areal extent of drought in the West dipped to 31% this week as compared to 73% at the beginning of the Water Year in early October. This week's improvements reflected the impact of the recent storm events which continued to boost mountain snowpack levels to record, or near-record levels as observed at numerous Natural Resources Conservation Service (NRCS) SNOTEL monitoring stations across the Sierra Nevada, southern Cascades, eastern Great Basin, Wasatch, Uintas, and the southern and central Rockies. In California, the statewide snowpack was 243% of normal (April 5), with the Northern Sierra at 198%, Central Sierra at 242%, and Southern Sierra at 302%. Elsewhere in the region, the state of Utah is observing historic snowpack levels with the statewide snow water equivalent (SWE) at its highest level on record (April 5) at 211% of median, according to NRCS SNOTEL. In other regions, areas of the South (Texas) and the Southern Plains (Kansas, Oklahoma) saw further degradations on the map in response to a combination of short and long-term dry conditions, very low streamflow and reservoir levels, and reported impacts in the agricultural sector. In the High Plains, blizzard-like conditions and moderate to heavy snowfall accumulations were observed in the Dakotas during the past week as well as in areas of the Upper Midwest including northwestern Minnesota. In the Southeast, dry conditions and reports of deteriorating pasture conditions led to the expansion of severe drought areas in central Florida. Likewise, short-term precipitation deficits and increasing fire danger in areas of the Coastal Plain of North Carolina led to the expansion of areas of drought."

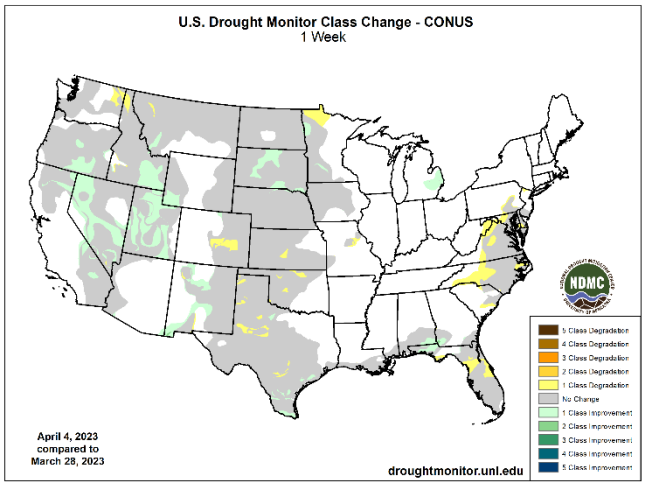
National Drought Summary – West

"Out West, widespread improvements were made on the map including areas of California, Nevada, Oregon, Idaho, Utah, Montana, Wyoming, and New Mexico in response to excellent snowpack conditions across many of the drainage basins in the region. In California, the statewide snowpack (April 5) was 243% of normal, with the Northern Sierra at 198%, Central Sierra at 242%, and Southern Sierra at 302%. The California Department of Water Resources reported that the 2022-23 season will go down as one of the largest snowpacks on record in California. In Nevada and Utah, current SWE percentages of median for select basins are as follows: Central Lahontan 273%, Central Nevada Desert Basins 267%, Great Salt Lake 224%, Lower Green 202%, Upper Colorado-Dolores 207%, and Upper Colorado-Dirty Devil 219%, according to the NRCS SNOTEL network. In Arizona and New Mexico, snowpack levels are above normal, especially in the ranges of northern and central Arizona. In Arizona, the total reservoir system (Salt and Verde River system) is currently 100% full as compared to 72% full at the same time last year, according to the Salt River Project. For the Colorado River system, the U.S. Bureau of Reclamation is reporting (April 4) Lake Mead at 28% full and Lake Powell at 23% full."

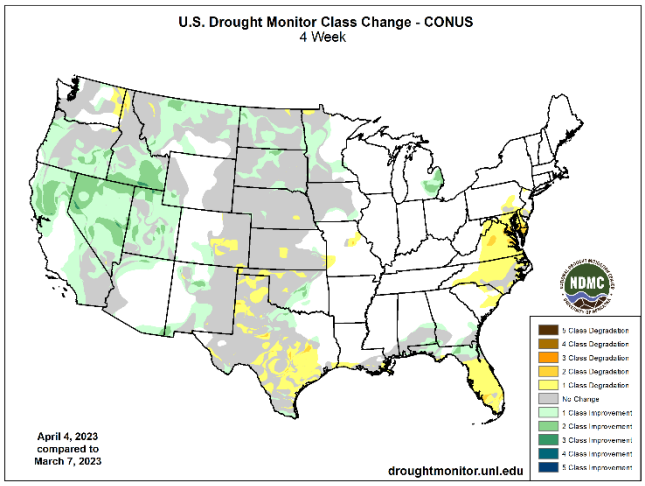
Changes in Drought Monitor Categories over Time

Source: National Drought Mitigation Center

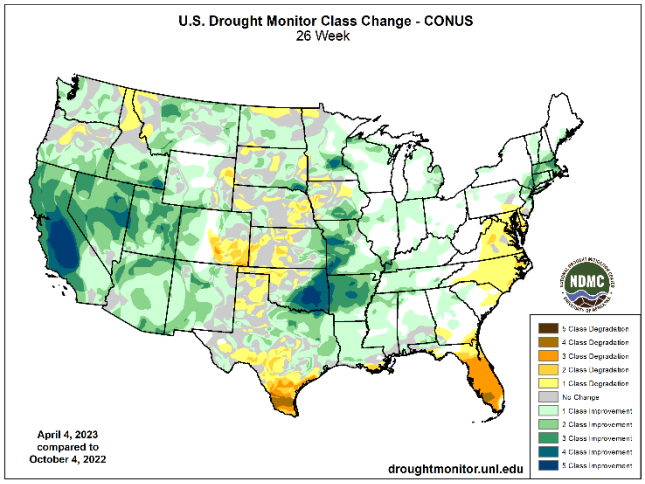
1 Week



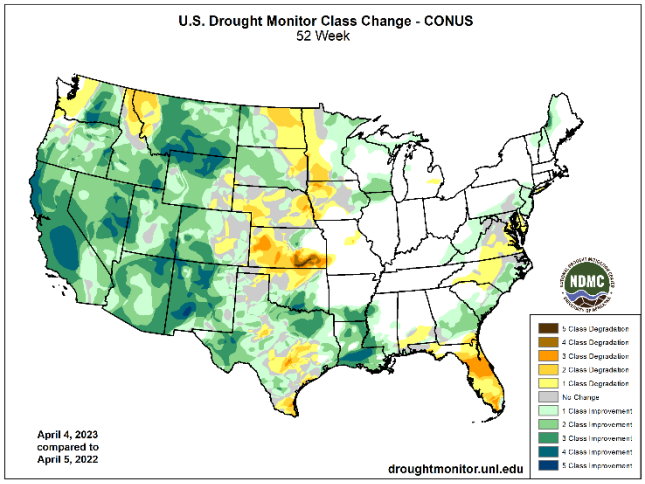
1 Month



6 Months



1 Year



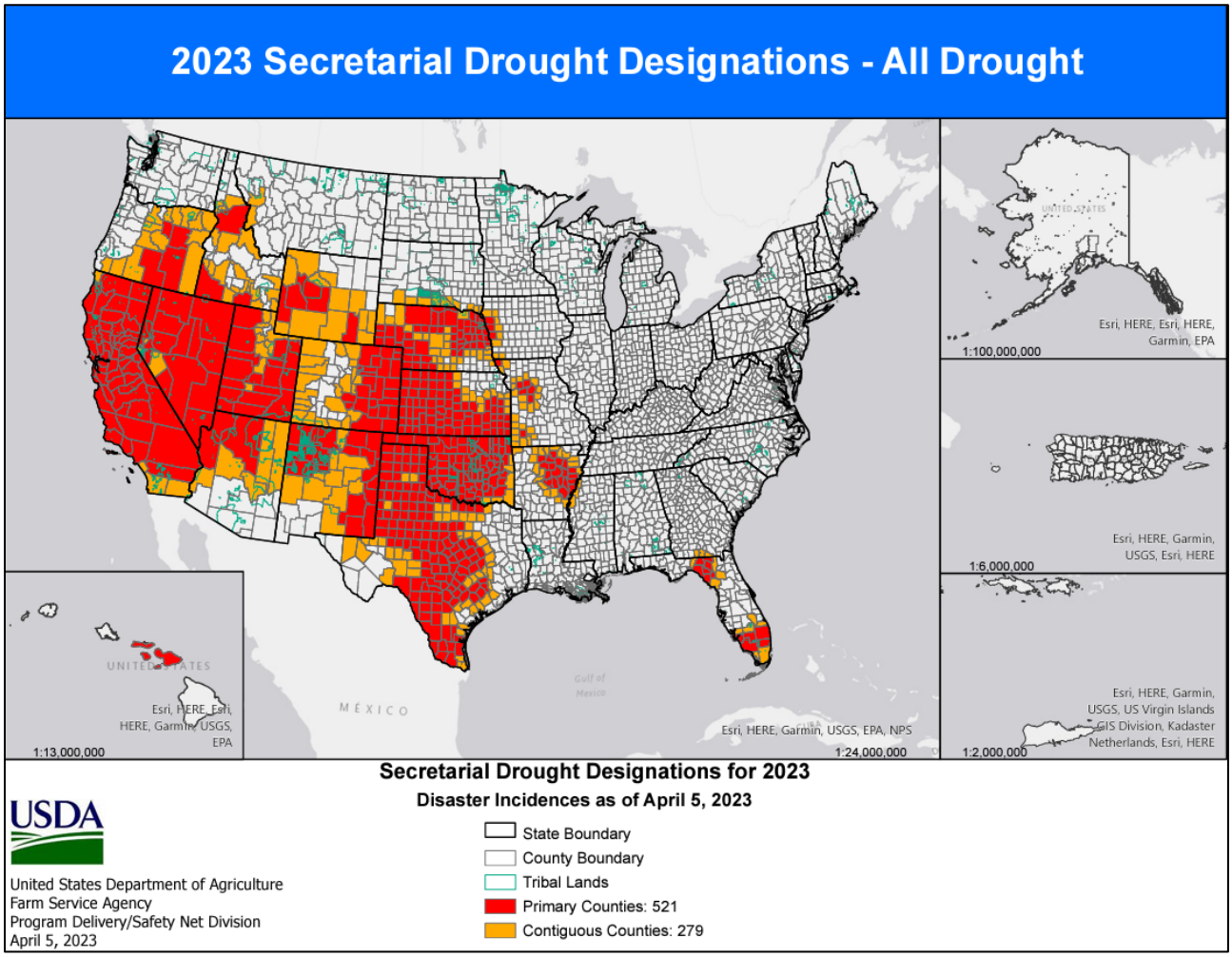
Changes in drought conditions over the last 12 months for the contiguous U.S.

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

USDA Secretarial Drought Designations

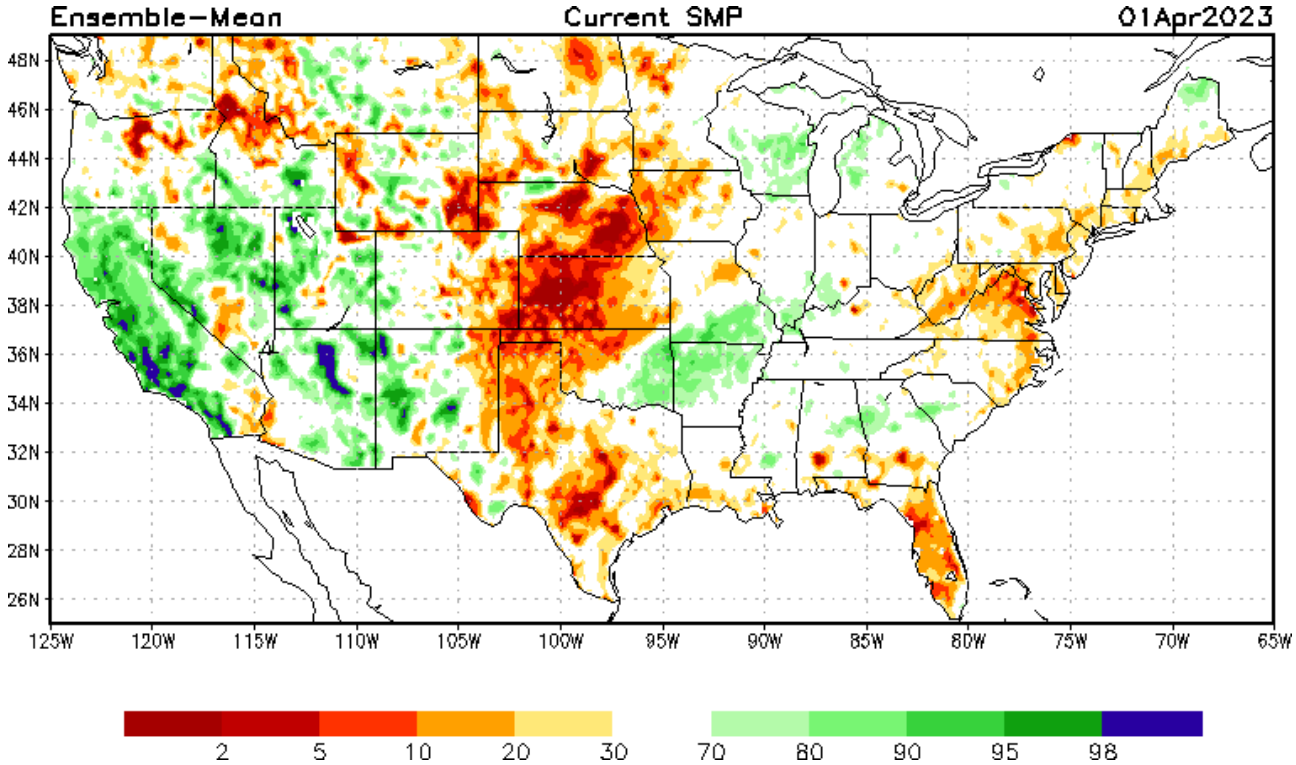
Source: USDA Farm Service Agency



Other Climatic and Water Supply Indicators

Soil Moisture

Source: NOAA National Centers for Environmental Prediction

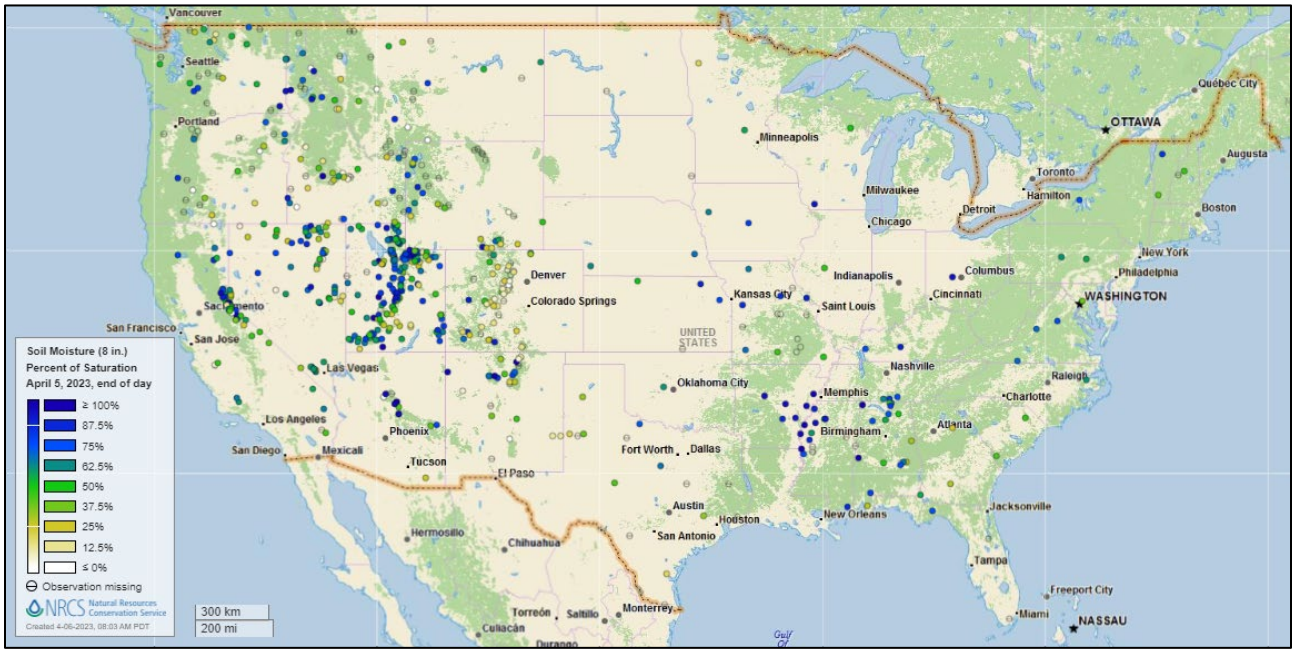


Modeled soil moisture percentiles as of April 01, 2023

Soil Moisture Percent of Saturation

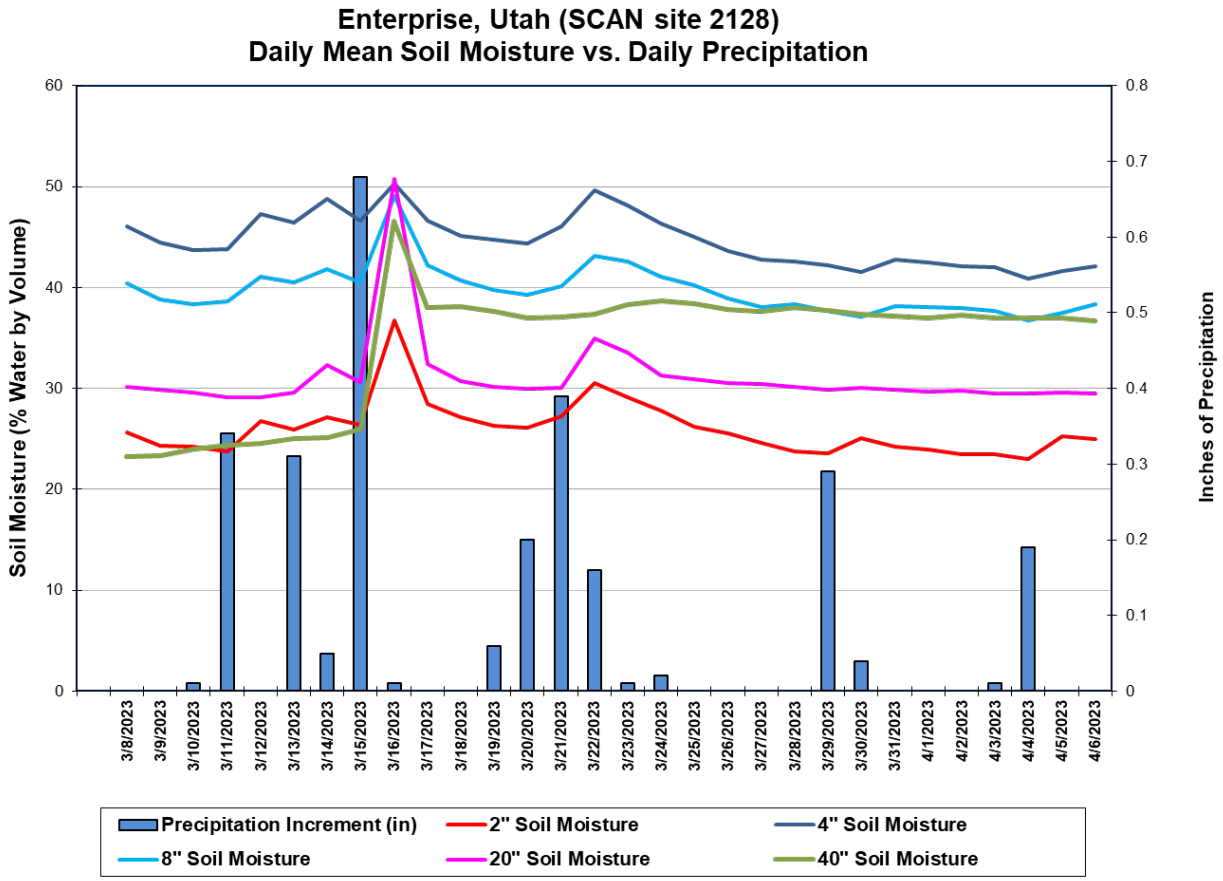
Source: NRCS SNOTEL and Soil Climate Analysis Network (SCAN)

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



Soil Moisture

Source: NRCS Soil Climate Analysis Network (SCAN)



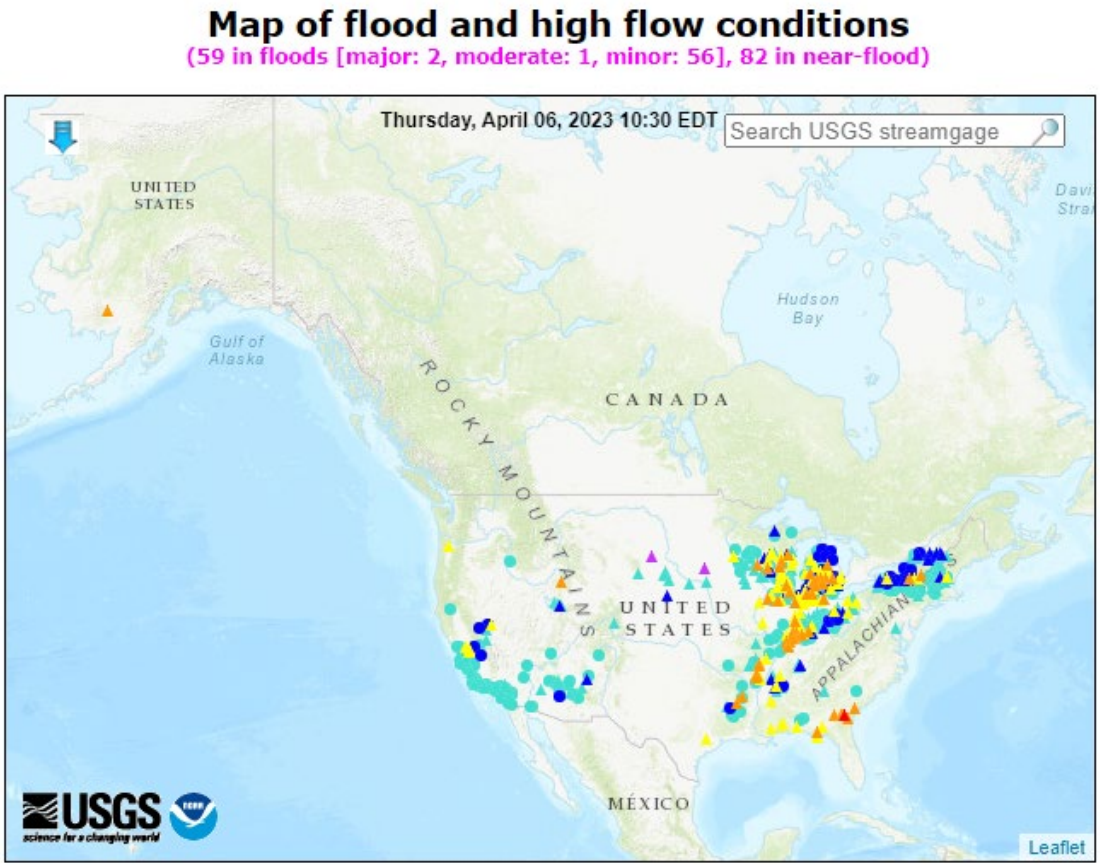
This chart shows the precipitation and soil moisture for the last 30 days at the Enterprise SCAN site in Utah. Soil sensors at all depths, from two to 40 inches beneath the ground, indicate an increase in soil moisture after a series of precipitation events between March 10 - 15 . Total precipitation for the 30-day period was 2.77 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]



Explanation - Percentile classes						
<95	95-98	>= 99	Above action stage	Above flood stage	Above moderate flood stage	Above major flood stage
△ Streamgage with flood stage ○ Streamgage without flood stage						

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

Reservoir Storage

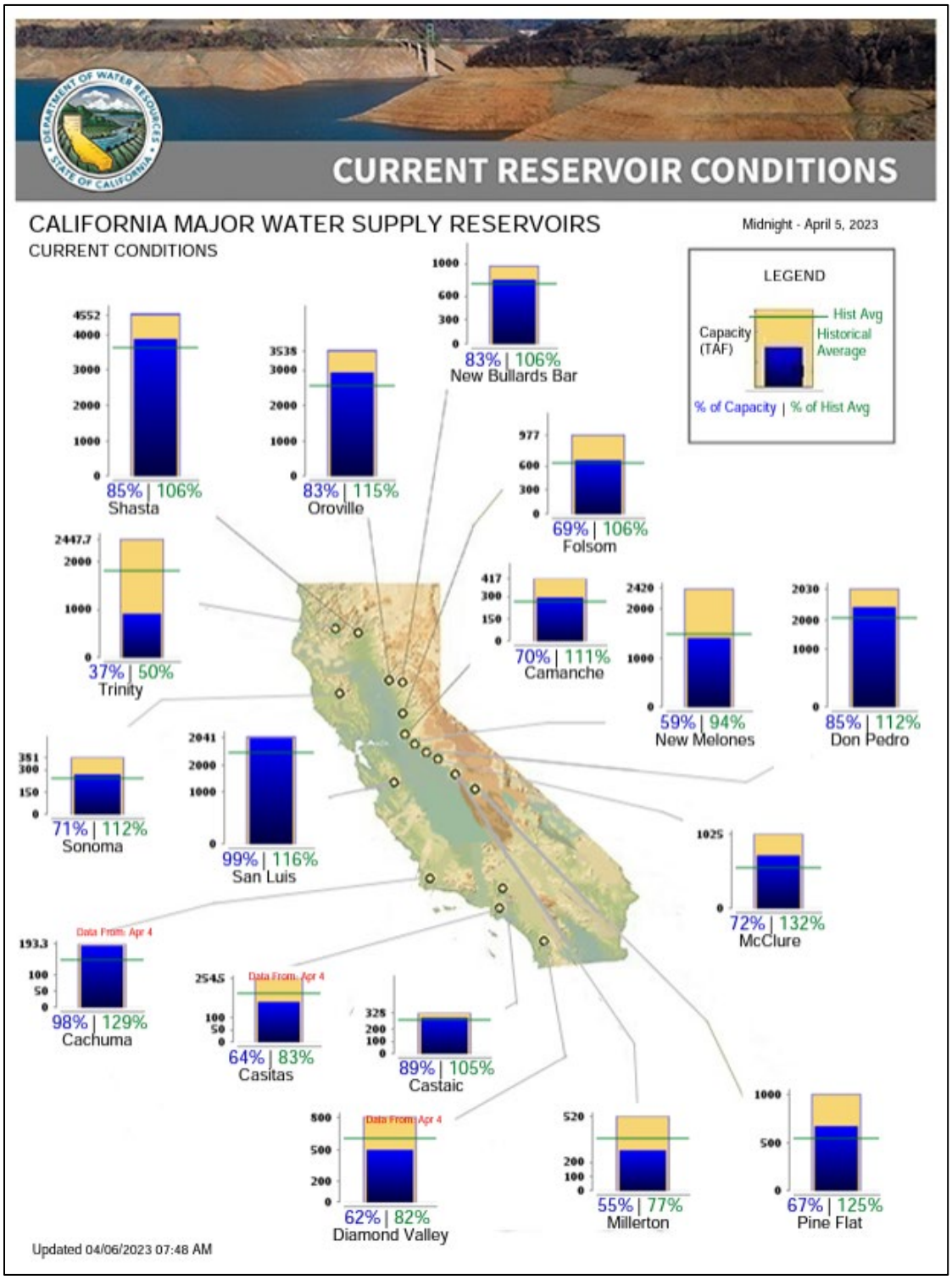
Hydromet Teacup Reservoir Depictions

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

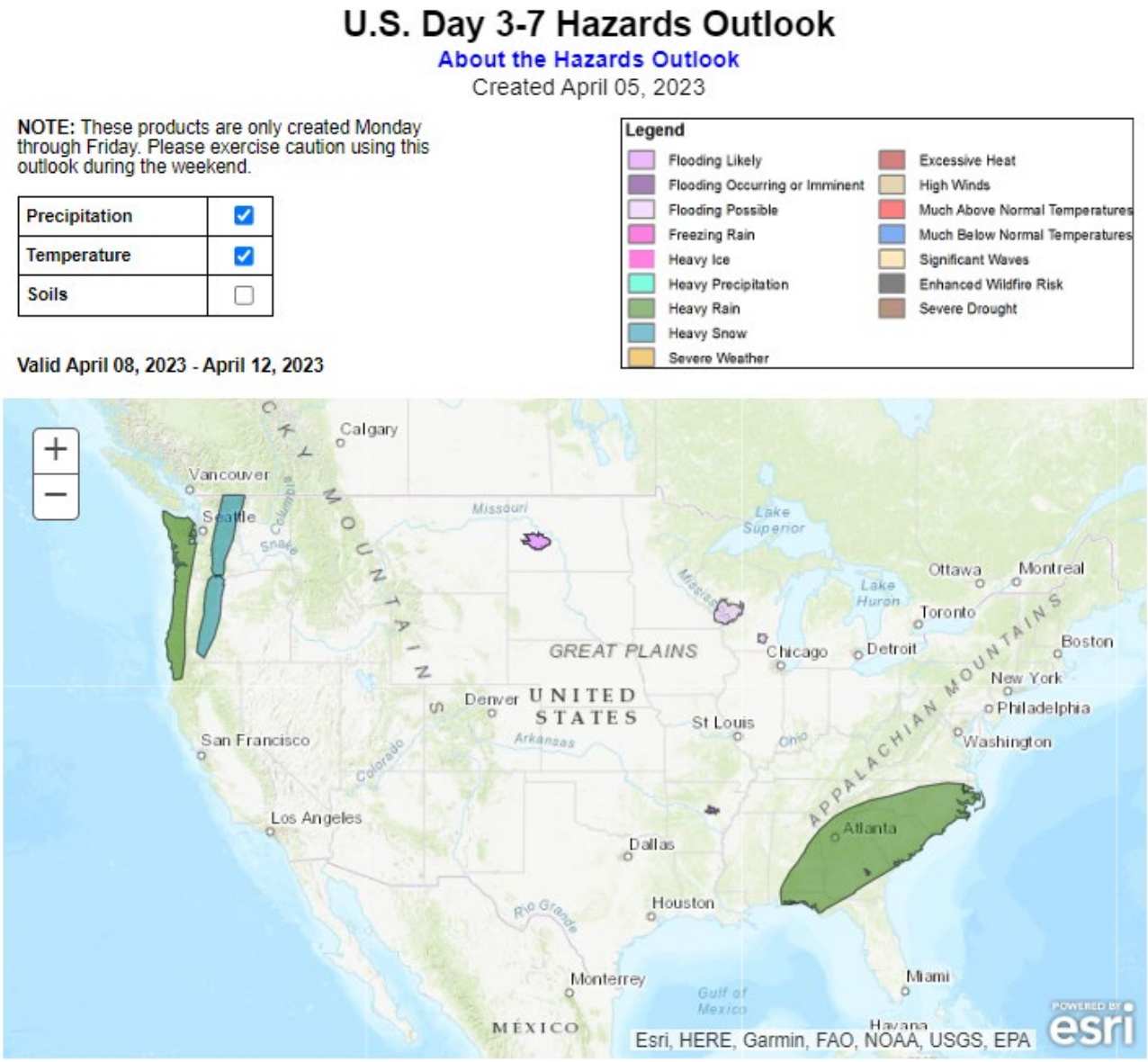
Agricultural Weather Highlights

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

National Outlook, Thursday April 06, 2023: "A significant Western warming trend during the weekend and early next week will increase streamflow due to melting snow. On April 10-11, temperatures should briefly top 95°F in lower elevations of the Desert Southwest. Periods of Northwestern precipitation will add to the runoff potential in that region. Meanwhile, little or no precipitation will fall during the next 5 days across a vast swath of the country, including southern California and the Plains, Southwest, Midwest, and Northeast. Farther south, however, 5-day rainfall could total 1 to 3 inches or more from eastern Texas to the Carolinas, with the bulk of the rain falling by Saturday. The NWS 6- to 10-day outlook for April 11 – 15 calls for the likelihood of below-normal temperatures in California, the Great Basin, and the Northwest, while warmer-than-normal weather will dominate the central and eastern U.S. Meanwhile, above-normal precipitation from the Rockies into the Plains and upper Midwest should contrast with drier-than-normal conditions in the East (excluding Florida's peninsula) and much of California."

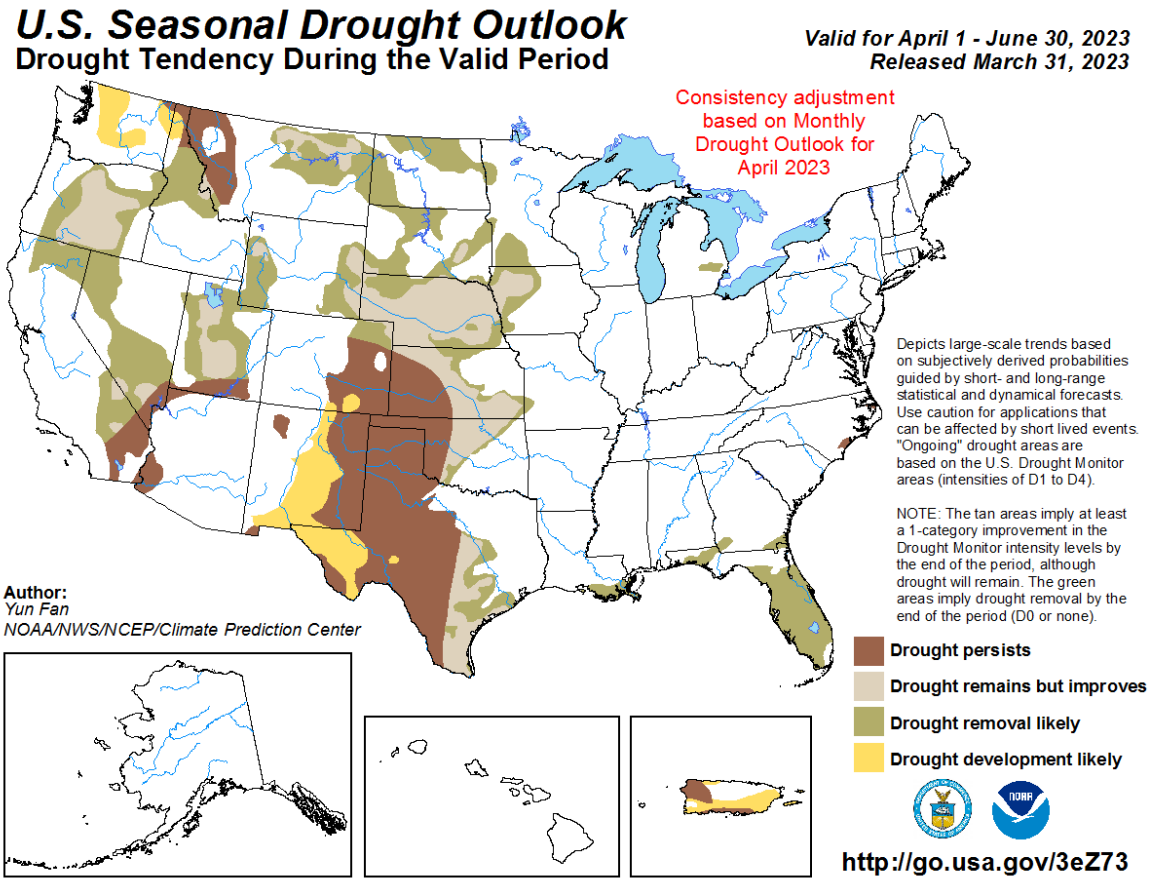
Weather Hazards Outlook: April 08 – 12, 2023

Source: NOAA Weather Prediction Center



Seasonal Drought Outlook: April 01 – June 30, 2023

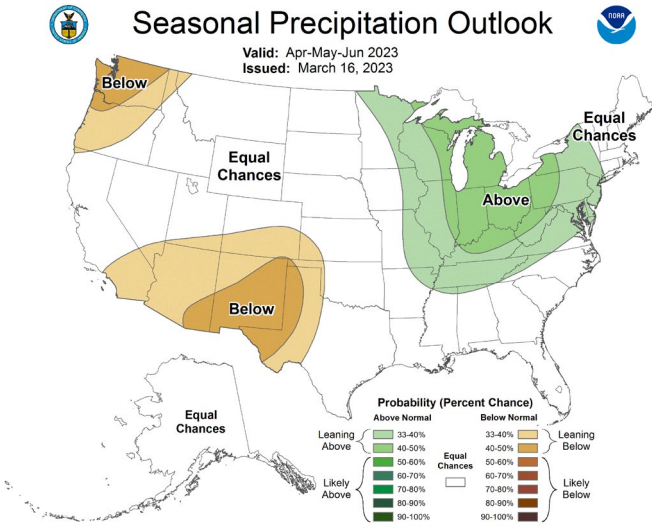
Source: National Weather Service



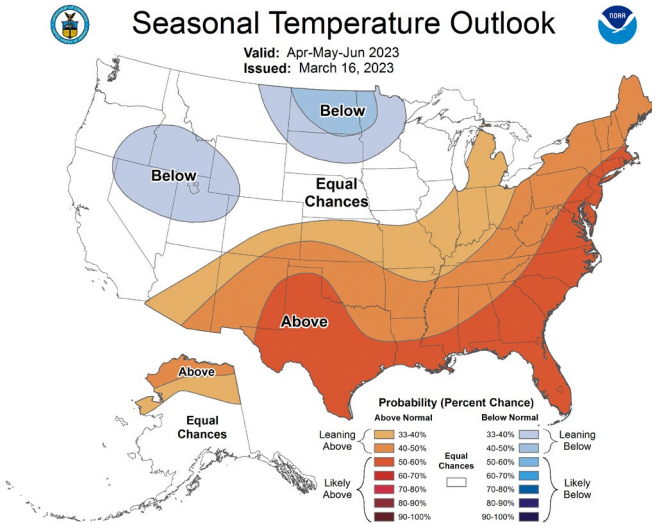
Climate Prediction Center Three-month Outlook

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.