



Water and Climate Update

May 11, 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.

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Snowmelt and rainfall swell Mississippi River above floodstage



Photo courtesy of the National Weather Service, La Crosse, WI

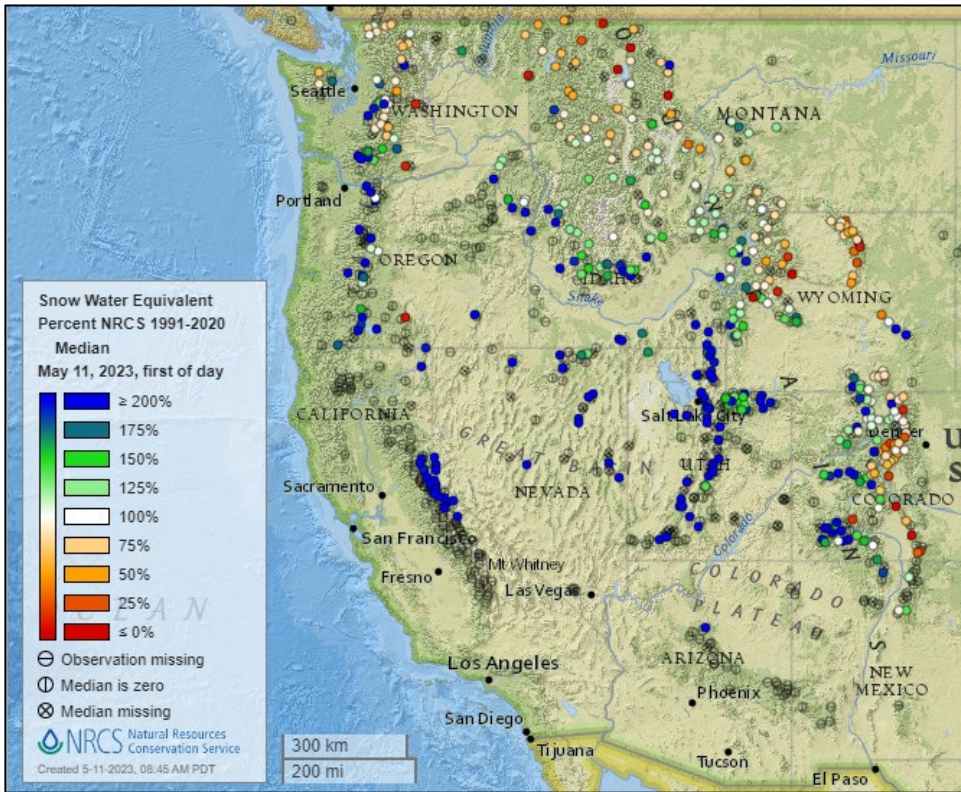
The National Weather Service provides the following overview of the recent flooding on the Mississippi River:

“Major to moderate flooding impacted much of the Upper Mississippi River valley from late April through the early part of May 2023. Locations from Wabasha, MN down through Guttenberg, IA set Top 5 records for flooding, cresting about 1 to 1 1/2 feet under levels reached during the flood of 2001. Why so much water? There were several factors, highlighted by an abnormally deep snowpack across the headwaters of the Mississippi River and its northern tributaries (that feed it). A colder than normal March followed by a rapid warmup in April quickly melted the snow, dropping locations from over 20" of snow pack on April 1st to just a trace by mid month... In addition, April was an abnormally wet month, with rainfall aiding the snow melt and adding additional runoff in the river systems. Lastly, late season winter storms dropped more snow across northern parts of the region - providing another water resource to push river crests higher.”

Related:

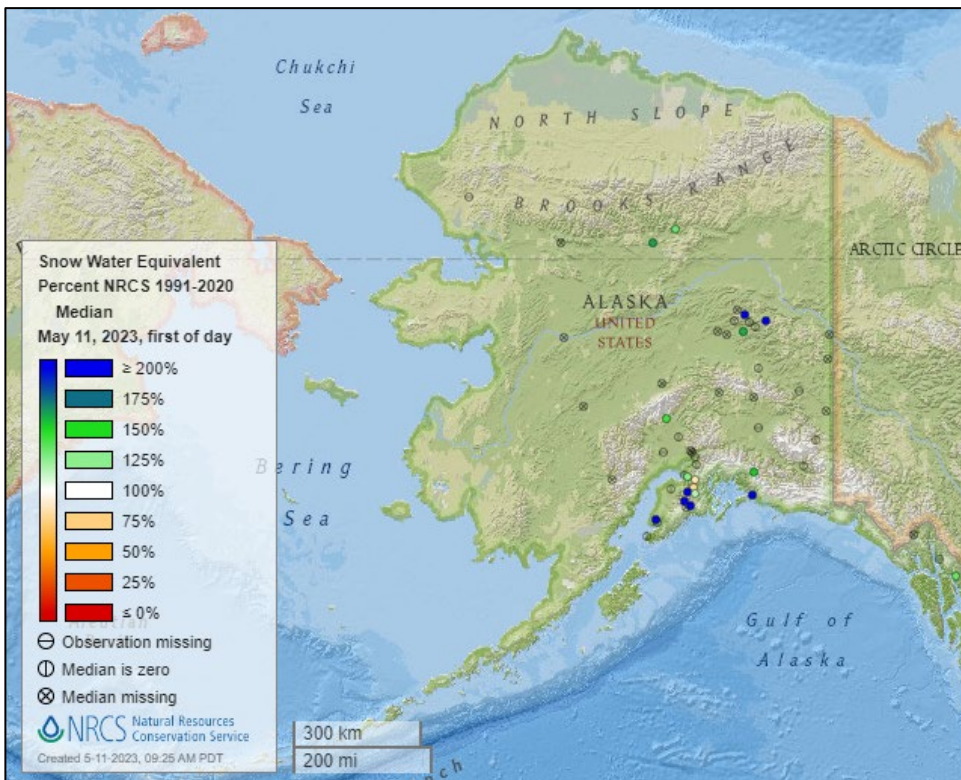
- [Mississippi River crests at Davenport, testing barriers](#) – Associated Press
- [Glisan provides update on Mississippi River flooding](#) – KMA Land (Iowa)
- [Mississippi River Flood of 2023](#) – National Weather Service
- [“Ready for it to be over”: Residents react to Mississippi River flooding in Midwest](#) – USA Today
- [Heavy snow, extreme heat causes Mississippi River to overflow in the Upper Midwest](#) – USA Today

Snow



[Snow water equivalent percent of median map](#)

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

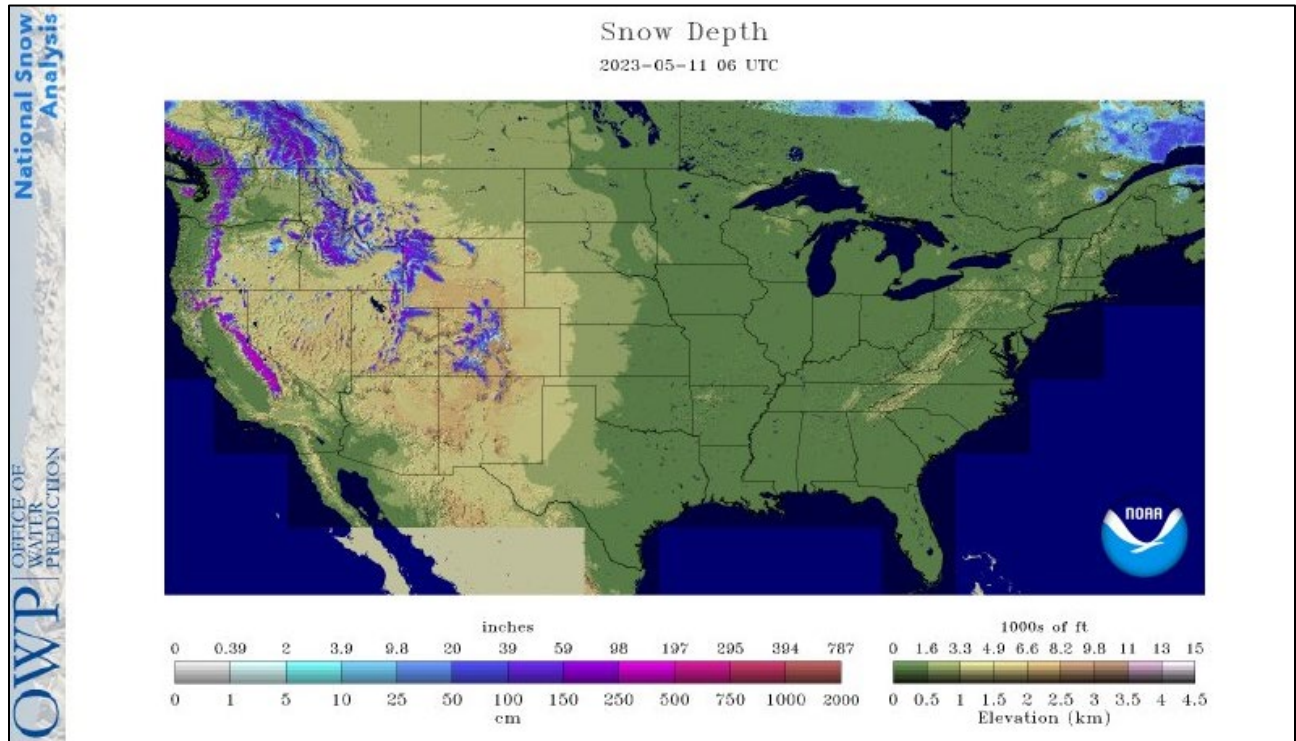


[Alaska snow water equivalent percent of median map](#)

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

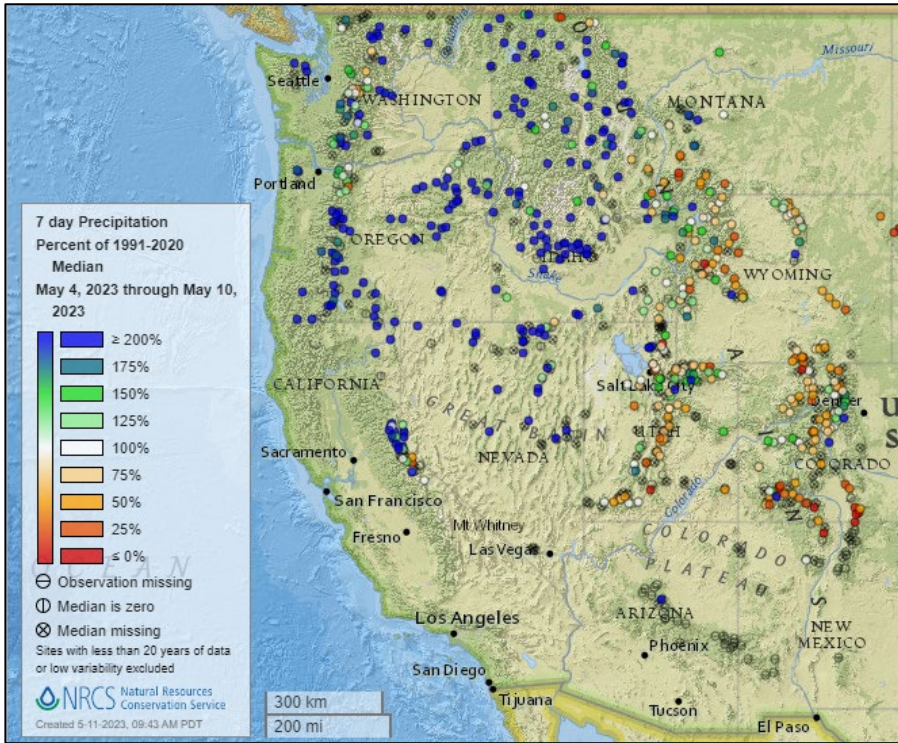
Current Snow Depth, National Weather Service Snow Analysis

Source: NOAA NWS National Operational Hydrologic Remote Sensing Center



Precipitation

Last 7 Days, NRCS SNOTEL Network

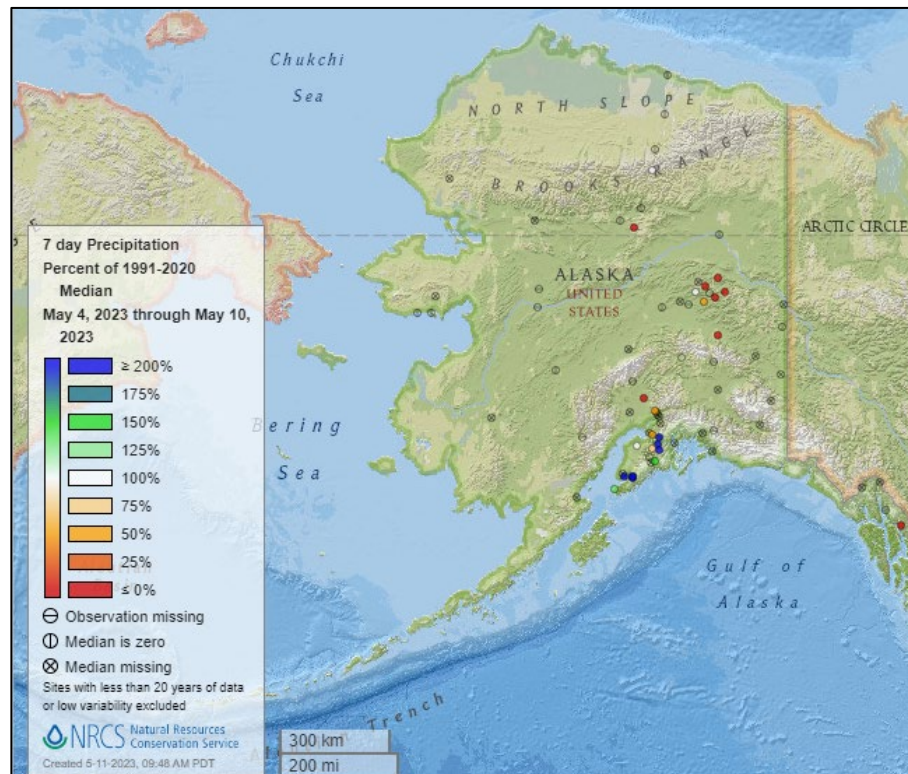


[7-day precipitation percent of median map](#)

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](#)



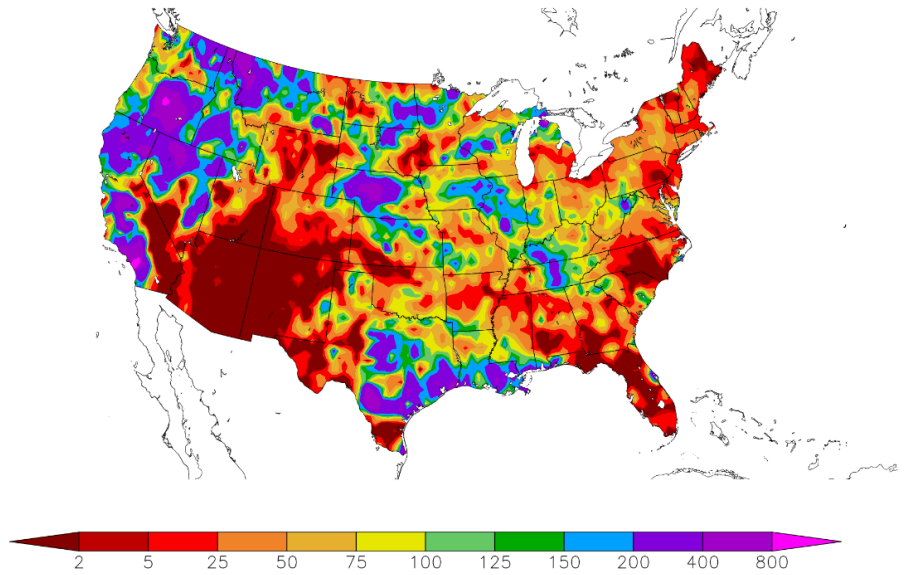
Last 7 Days, National Weather Service (NWS) Networks

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](#)

Percent of Normal Precipitation (%)
5/4/2023 – 5/10/2023



Generated 5/11/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

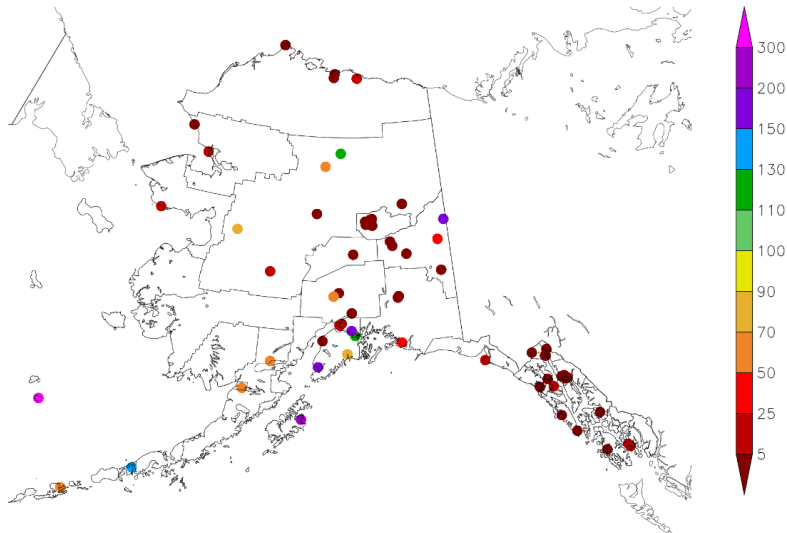
Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

[7-day precipitation percent of normal map](#) for Alaska.

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

Percent of Normal Precipitation (%)
5/4/2023 – 5/10/2023



Generated 5/11/2023 at HPRCC using provisional data.

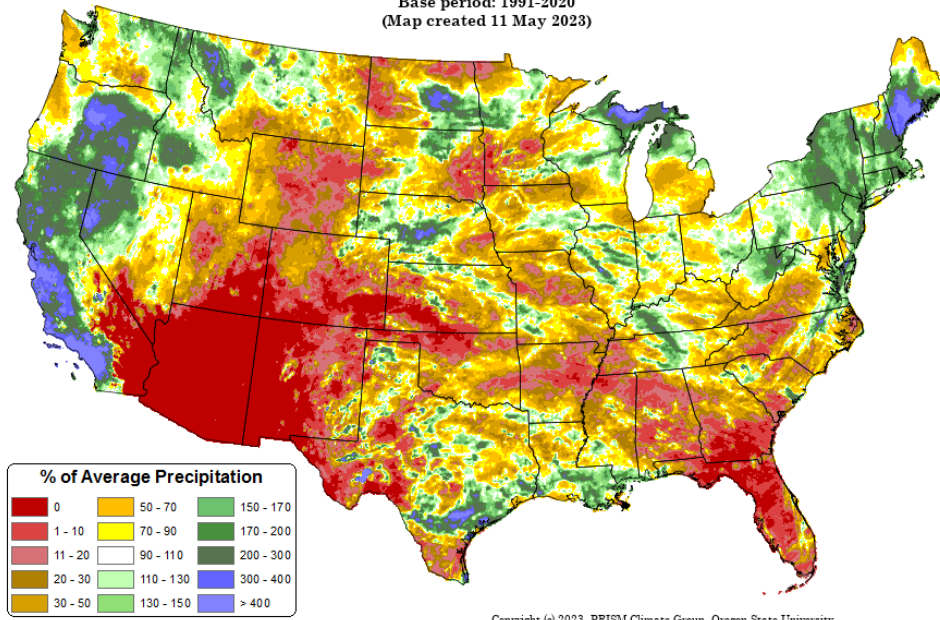
NOAA Regional Climate Centers

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

Source: PRISM

Total Precipitation Anomaly: 01 May 2023 - 10 May 2023
Period ending 7 AM EST 10 May 2023
Base period: 1991-2020
(Map created 11 May 2023)

[Month-to-date national total precipitation anomaly map](#)



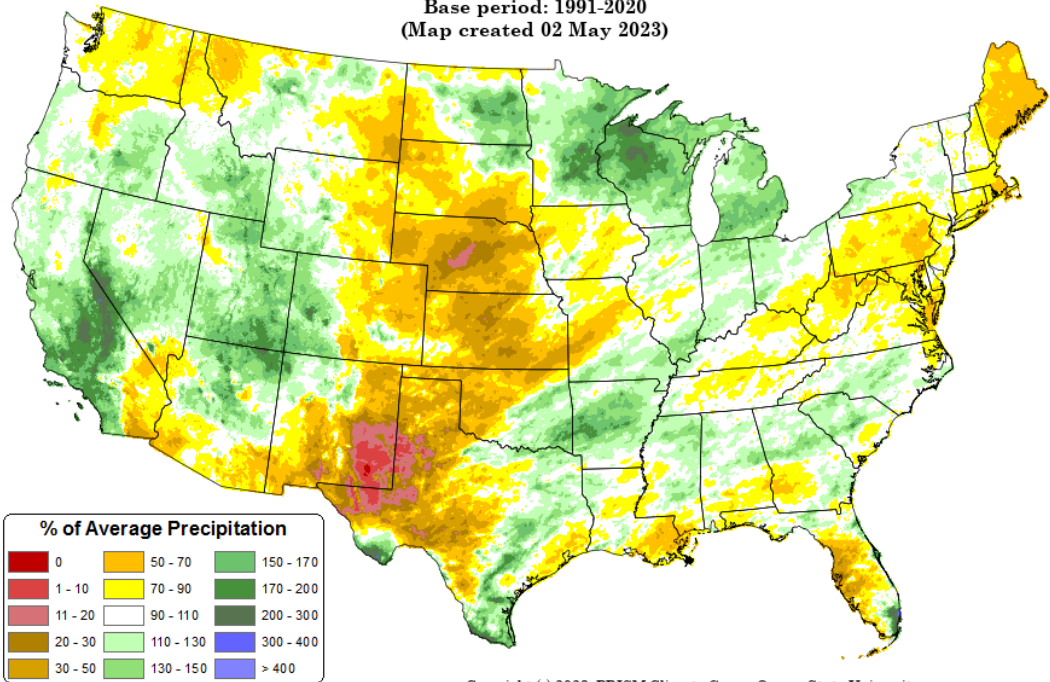
Copyright (c) 2023, PRISM Climate Group, Oregon State University

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

Source: PRISM

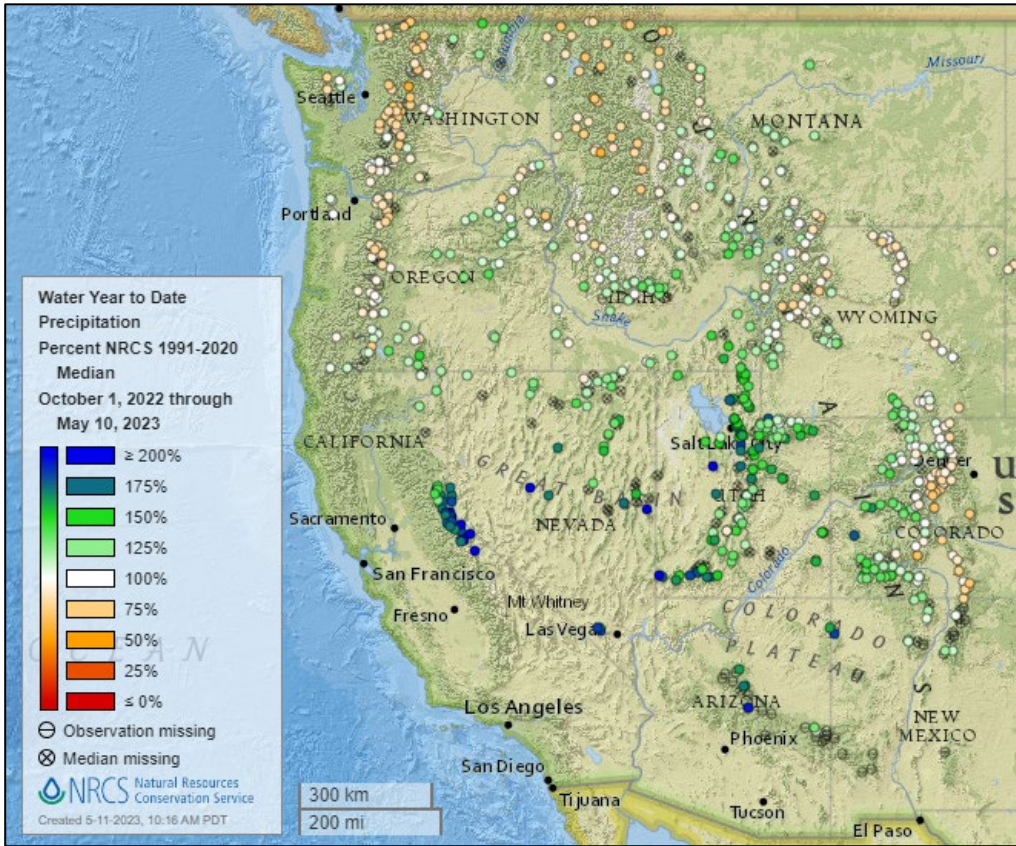
[February through April 2023 precipitation anomaly map](#)

Total Precipitation Anomaly: Feb 2023 - Apr 2023
Period ending 7 AM EST 30 Apr 2023
Base period: 1991-2020
(Map created 02 May 2023)



Copyright (c) 2023, PRISM Climate Group, Oregon State University

Water Year-to-Date, NRCS SNOTEL Network

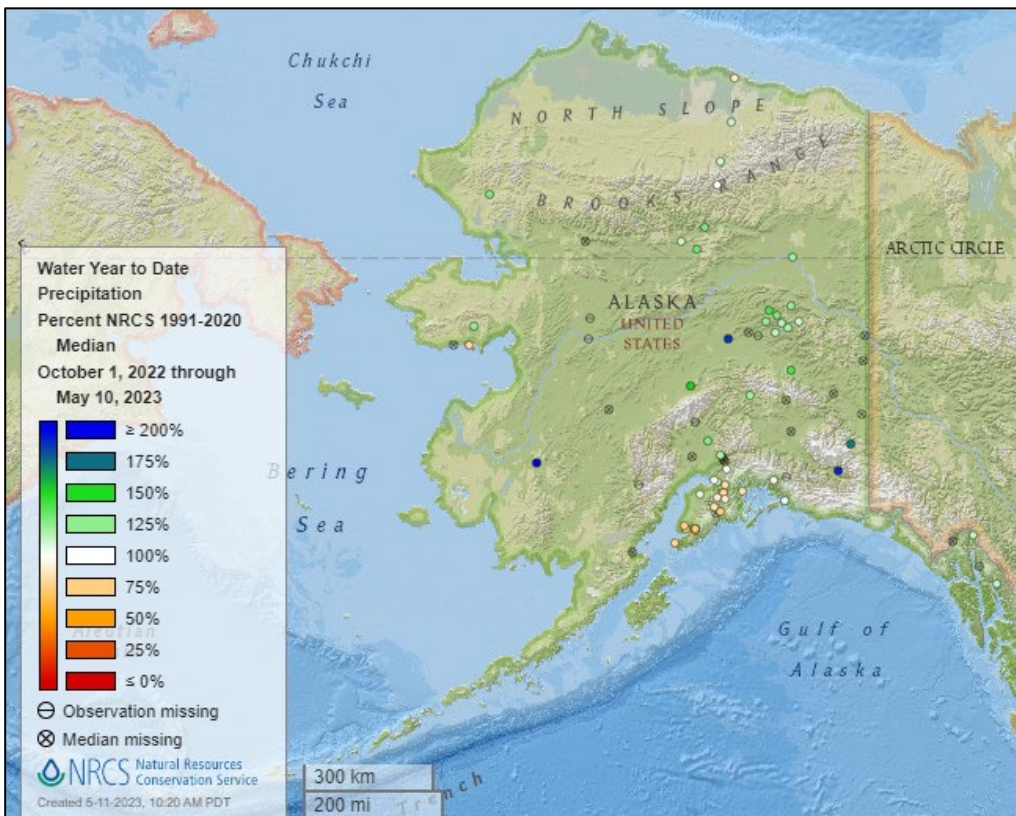


[2023 water year-to-date precipitation percent of median map](#)

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

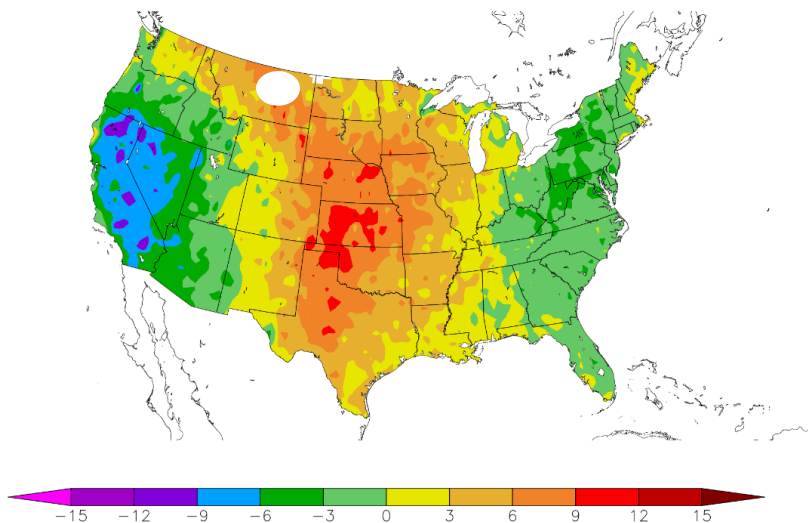
Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

[7-day temperature anomaly map](#) for the contiguous U.S.

See also: [7-day temperature \(° F\) map](#)

Departure from Normal Temperature (F)
5/4/2023 – 5/10/2023



Generated 5/11/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

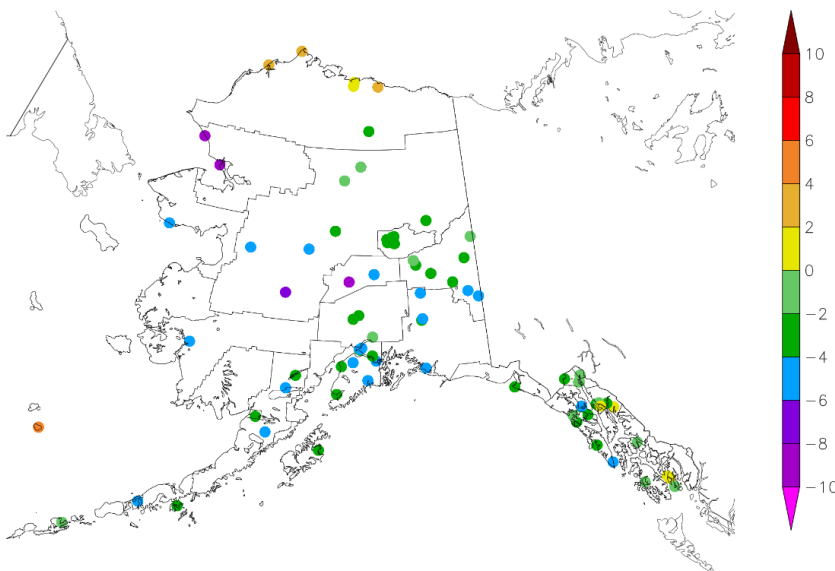
Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

[7-day temperature anomaly map](#) for Alaska.

See also: [7-day temperature \(° F\) map](#)

Departure from Normal Temperature (F)
5/4/2023 – 5/10/2023



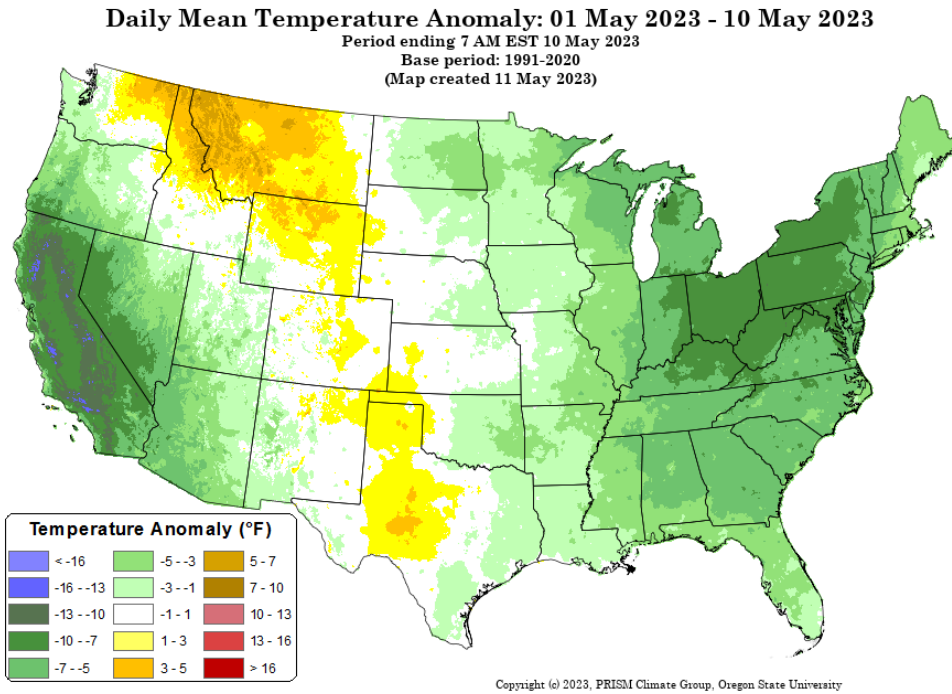
Generated 5/11/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

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

Source: PRISM

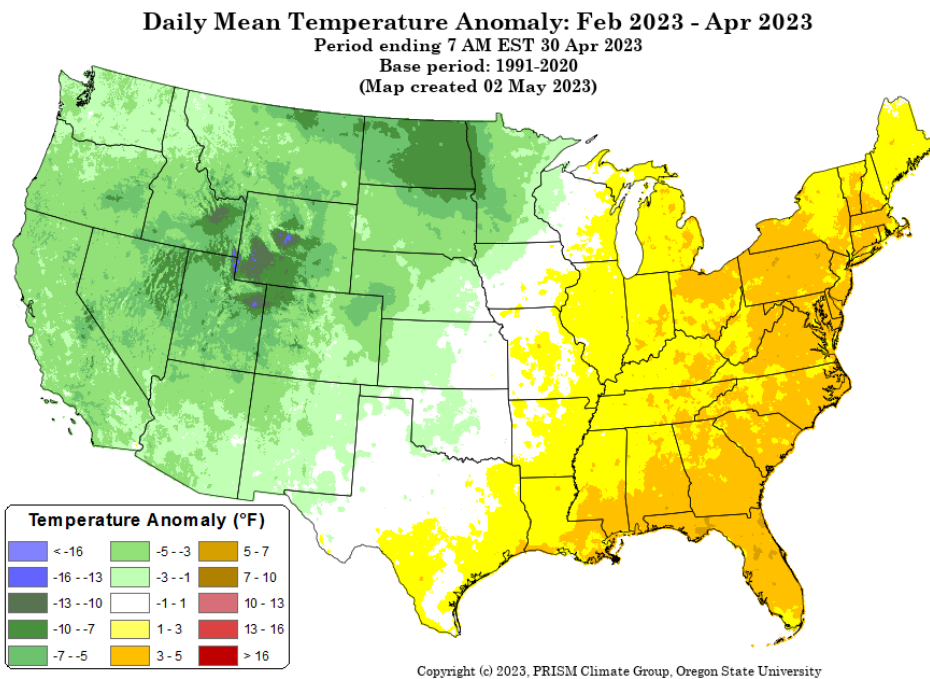
[Month-to-date national daily mean temperature anomaly map](#)



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

Source: PRISM

[February through April 2023 daily mean temperature anomaly map](#)



Drought

[U.S. Drought Monitor](#)

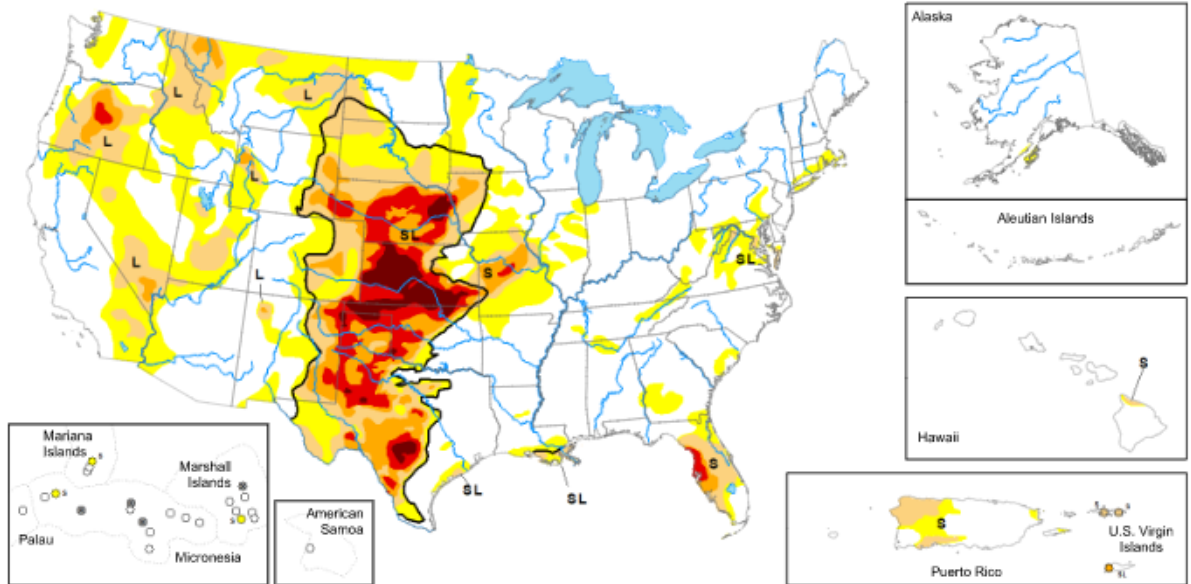
Source: National Drought Mitigation Center

[U.S. Drought Portal](#)

Source: NOAA

Map released: May 11, 2023

Data valid: May 9, 2023



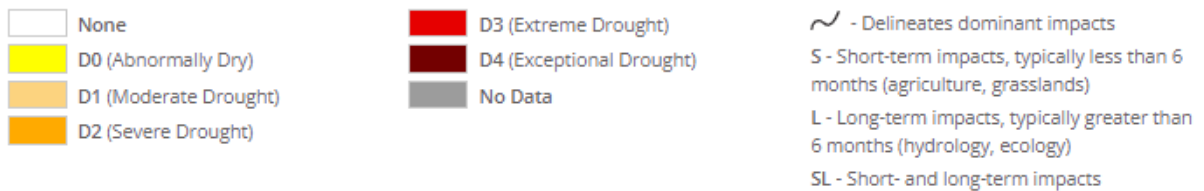
United States and Puerto Rico Author(s):
Brad Pugh, NOAA/CPC

Pacific Islands and Virgin Islands Author(s):
Curtis Riganti, 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



Current [National Drought Summary](#), May 09, 2023

Source: National Drought Mitigation Center

“A strong area of mid-level low pressure, near the West Coast, resulted in anomalously wet weather during the first week of May throughout the Pacific Northwest, Northern Rockies, Great Basin, and California. Scattered thunderstorms brought pockets of heavy rainfall (more than 2 inches), from May 2 to 8, to parts of Texas, central Nebraska, and the Midwest. However, much of Kansas, Missouri, and southern Nebraska missed out on this beneficial rainfall. Following a wet end to April across the East, drier weather prevailed this past week from the Mid-Atlantic south to Florida. 7-day temperatures, ending on May 8, averaged below-normal across most of the East along with California, the Great Basin, and Desert Southwest. Weekly temperatures averaged above-normal across the Great Plains.”

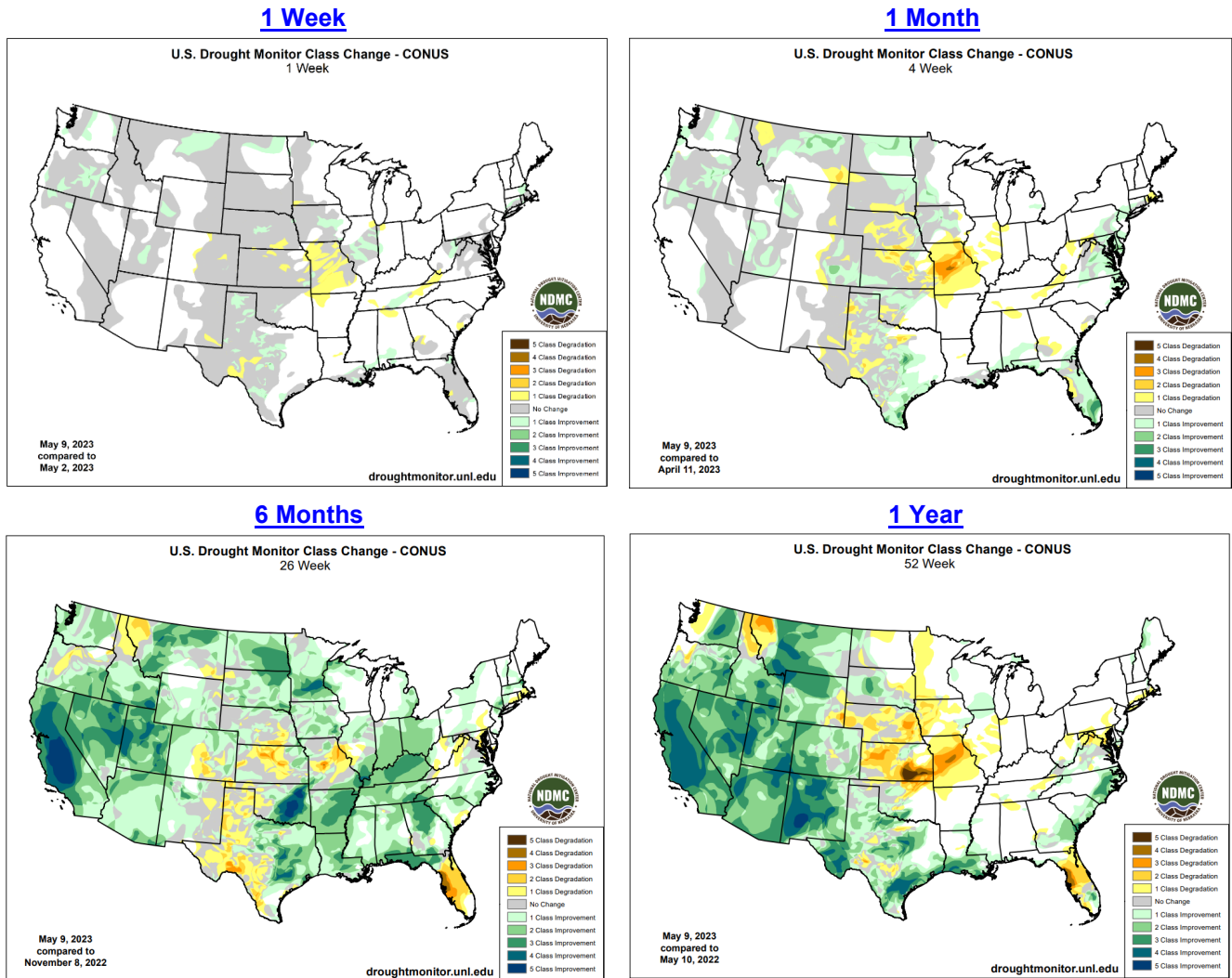
National Drought Summary – Looking Ahead

“During the next five days (May 11 - 15, 2023), widespread moderate to heavy rainfall (1 to 5 inches, locally more) is forecast across the Great Plains with the heaviest amounts expected to occur from southwestern Oklahoma south to the Middle Rio Grande Valley. Lighter amounts are predicted for southeastern Nebraska, northeastern Kansas, and the Middle Mississippi Valley. Rainfall amounts are expected to vary throughout the Midwest and Southeast, while the Northeast remains mostly dry. Compared to the start of May, much drier weather is forecast for the West.

The Climate Prediction Center’s 6-10 day outlook (valid May 16-20) depicts a highly amplified pattern with anomalous mid-level high pressure over the Northwest. Therefore, large probabilities for above-normal temperatures are forecast throughout the West. Associated with a wetter pattern likely for the south-central U.S. during mid-May, below-normal temperatures are favored for the Southern Great Plains and Lower Mississippi Valley. Below-normal temperatures are also favored across the Great Lakes, Eastern Corn Belt, and Northeast, while above-normal temperatures are more likely across the Southeast. Above-normal precipitation is favored across the southern tier of the U.S. with the largest probabilities forecast for the Southwest which is typically dry during this time of year. Elevated probabilities for below-normal precipitation are forecast across the Northern to Central Great Plains, Upper to Middle Mississippi Valley, and Corn Belt.”

Changes in Drought Monitor Categories over Time

Source: National Drought Mitigation Center



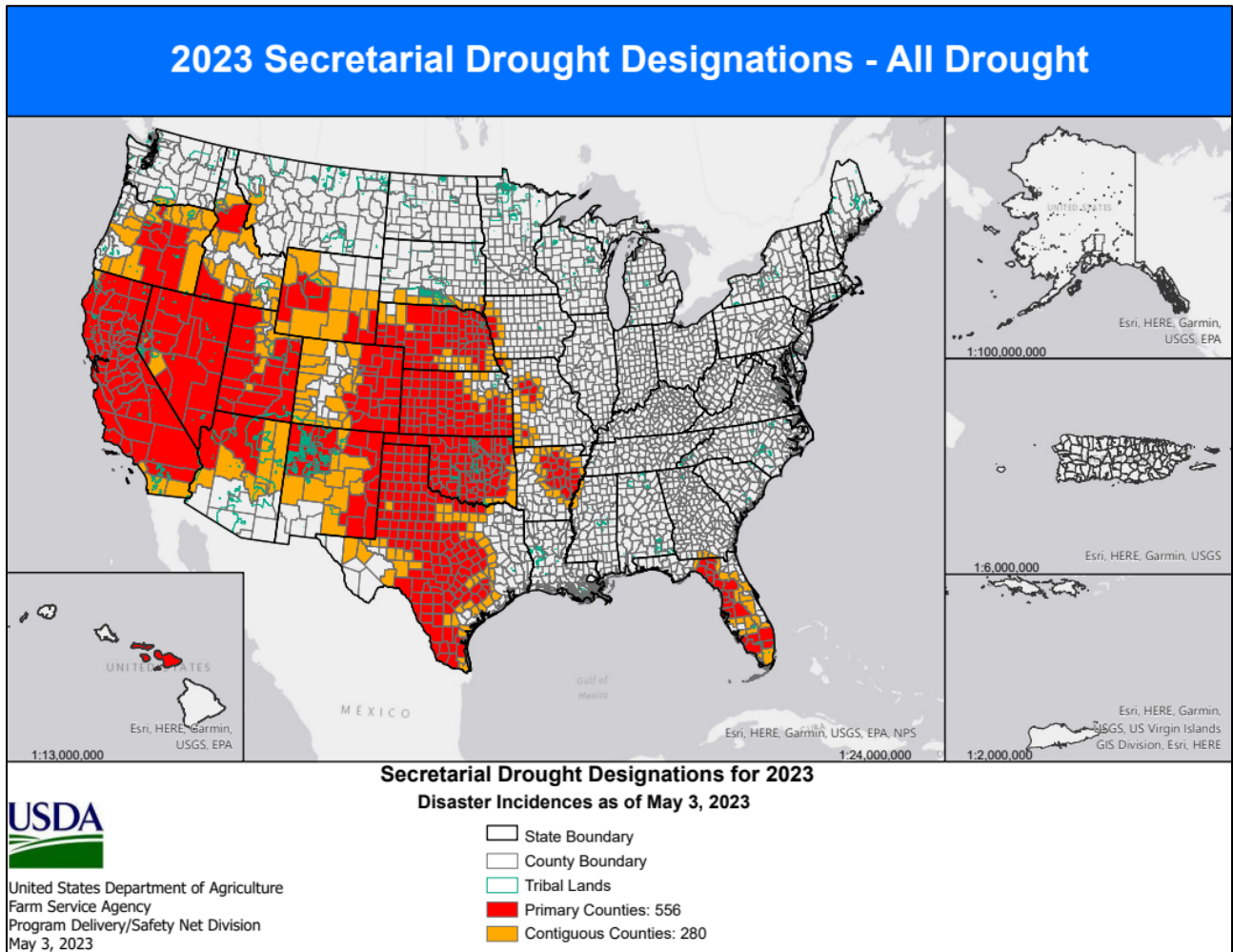
[Changes in drought conditions over the last 12 months for the contiguous U.S.](#)

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](#)

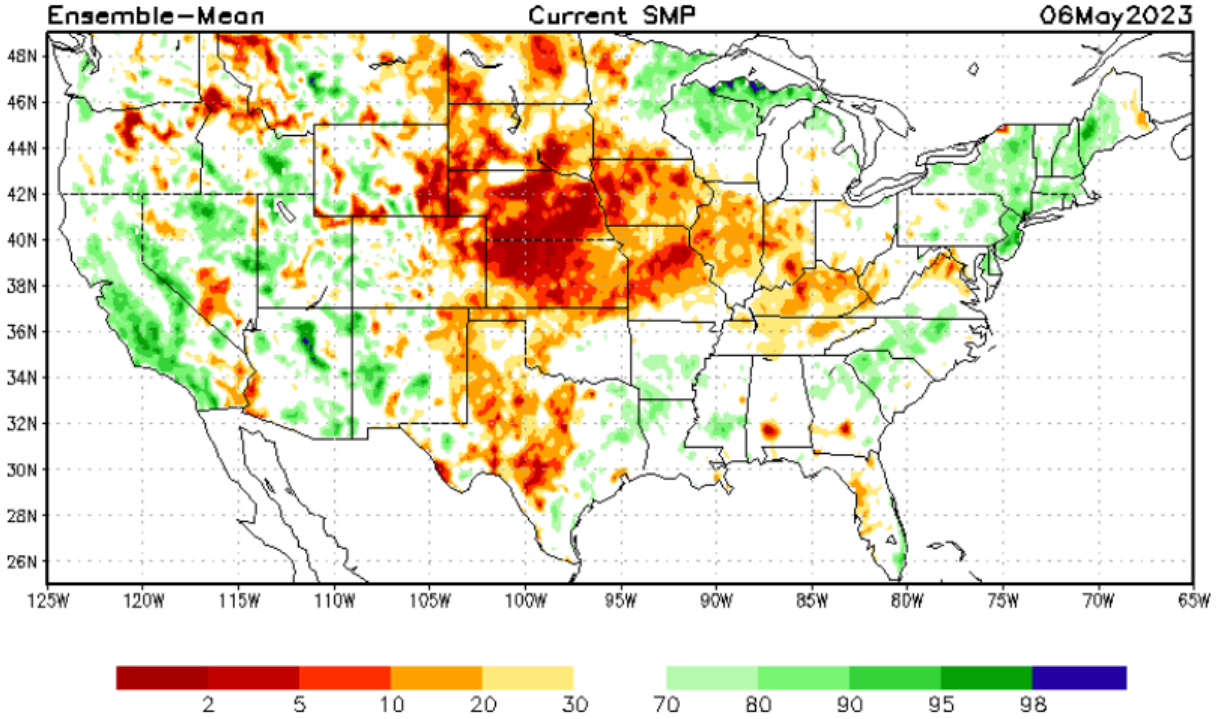
Source: USDA Farm Service Agency



Other Climatic and Water Supply Indicators

Soil Moisture

Source: NOAA National Centers for Environmental Prediction

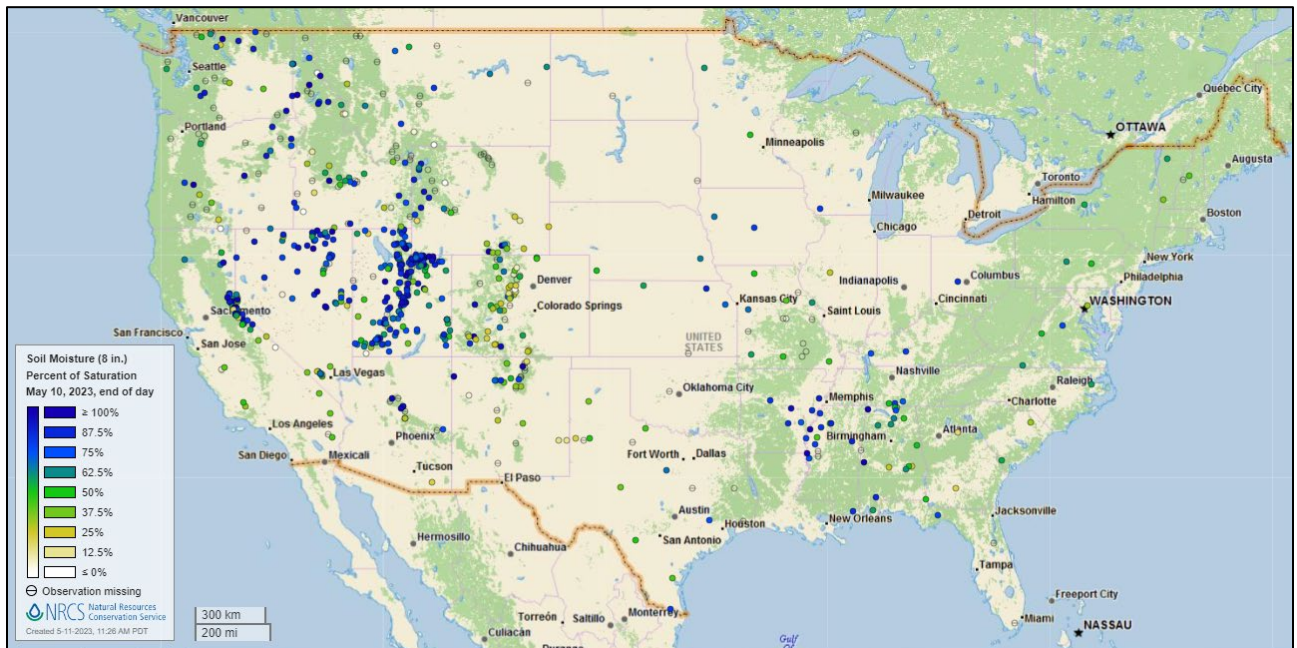


[Modeled soil moisture percentiles](#) as of May 06, 2023

Soil Moisture Percent of Saturation

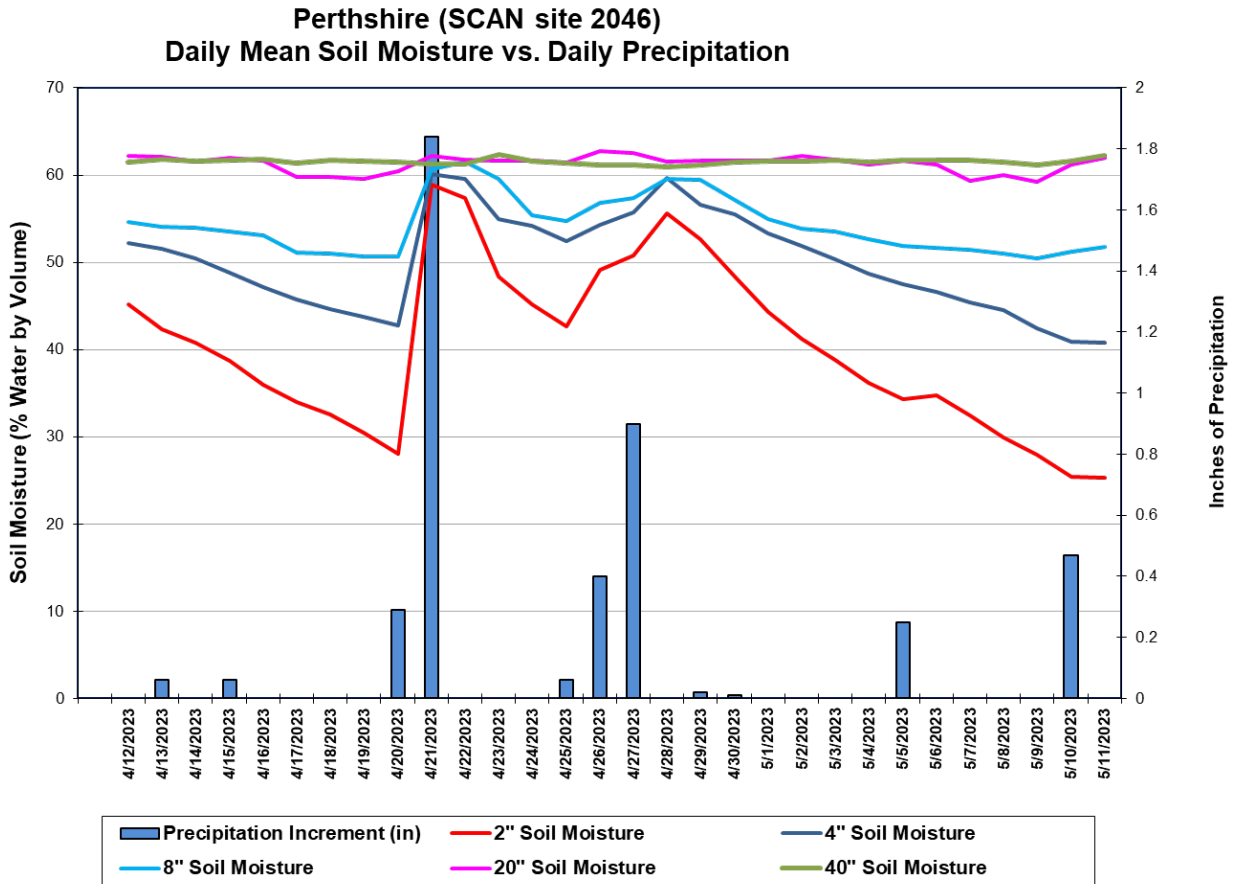
Source: NRCS SNOTEL and [Soil Climate Analysis Network \(SCAN\)](#)

[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 [Perthshire](#) SCAN site in Mississippi. After receiving over 2 inches of precipitation on April 20-21, most soil sensors responded with an increase in soil moisture levels. Total precipitation for the 30-day period was 4.36 inches.

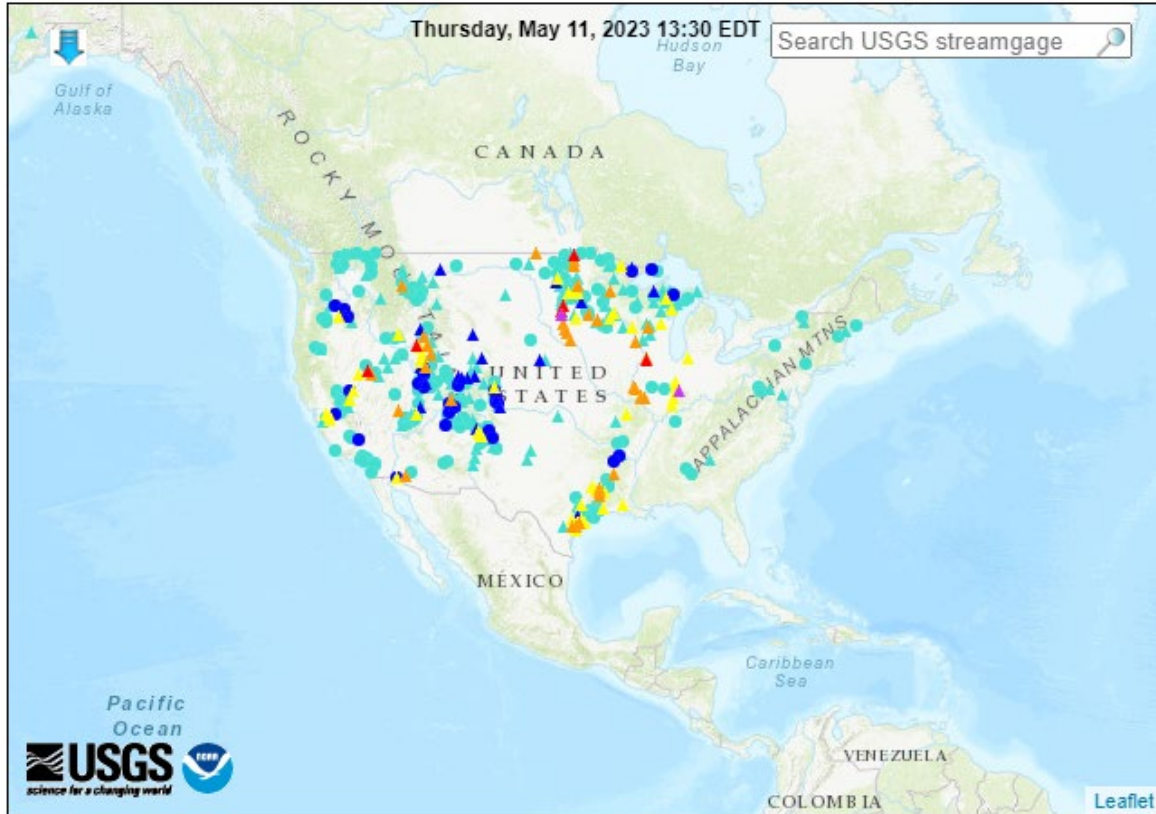
Soil Moisture Data Portals

- [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](#)

Map of flood and high flow conditions (46 in floods [major: 2, moderate: 6, minor: 38], 50 in near-flood)



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

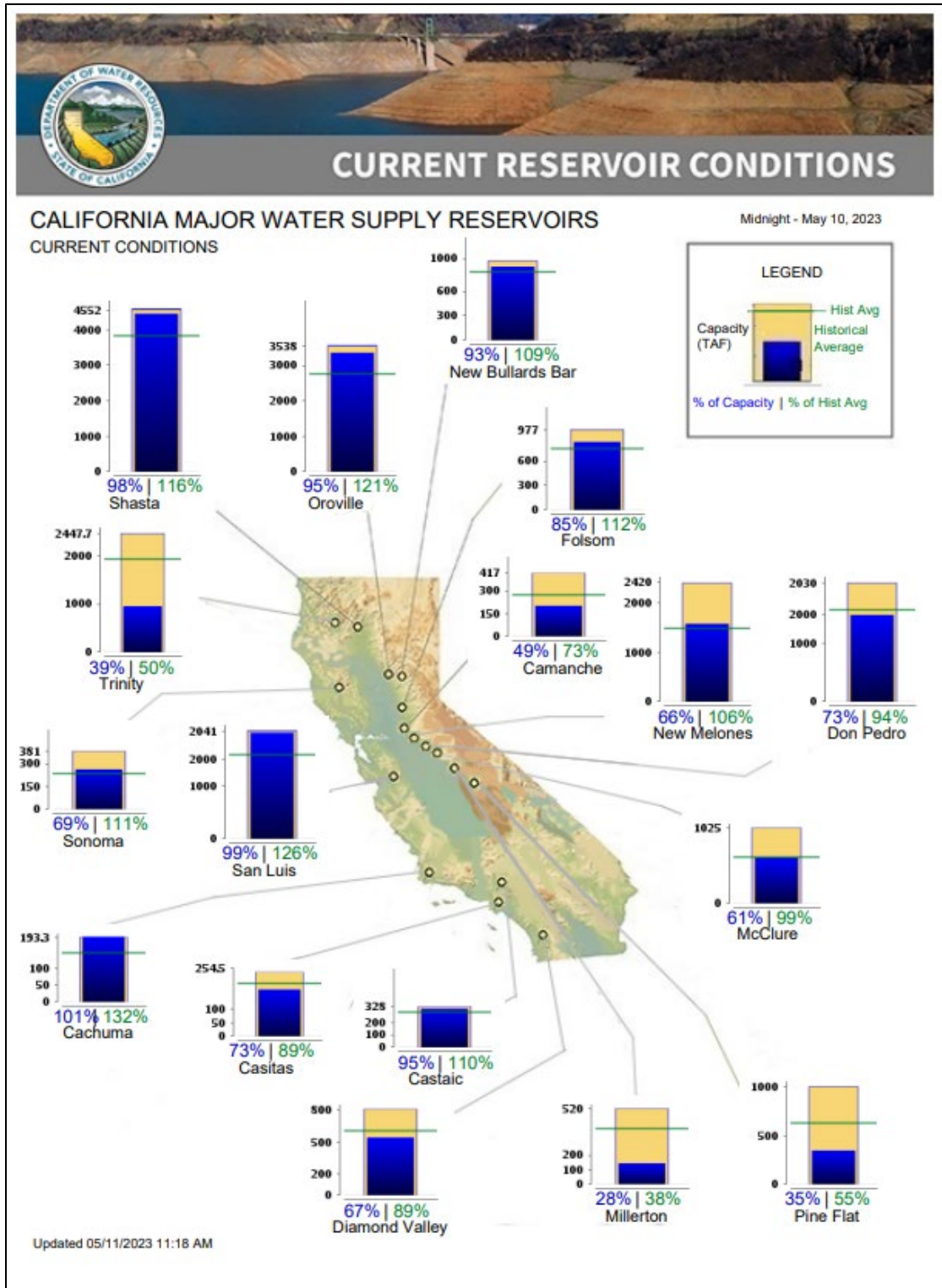
Hydromet Teacup Reservoir Depictions

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 May 11, 2023: “A powerful spring storm, currently approaching the central High Plains, will drift across the western Corn Belt by week’s end. Additional rainfall across the northern half of the Plains should total 1 to 3 inches, with some of the precipitation accompanied by large hail and high winds. Farther south, a secondary low-pressure system—forming along the initial storm’s trailing cold front—will intensify on Friday across Texas. Impacts from the secondary system may include torrential rain, flash flooding, and severe thunderstorms. Event-total rainfall in parts of central and southern Texas could reach 4 to 8 inches or more. Meanwhile, totals of 1 to 2 inches should occur in the Mississippi, Ohio, and Tennessee Valleys. In contrast, little or no precipitation will fall during the next 5 days west of the Rockies and from the upper Great Lakes region to southern New England. In the Far West, early-season heat will accompany the dry weather. The NWS 6- to 10-day outlook for May 16 – 20 calls for the likelihood of broadly below-normal temperatures from the south-central U.S. to the Great Lakes region, while warmer-than-normal weather will cover the lower Southeast and areas northwest of a line from Arizona to the western Corn Belt. Meanwhile, near- or below-normal precipitation in the northern U.S., including the Midwest, should contrast with wetter-than-normal conditions across the South.”

Weather Hazards Outlook: [May 13 – 17, 2023](#)

Source: NOAA Weather Prediction Center

U.S. Day 3-7 Hazards Outlook

[About the Hazards Outlook](#)

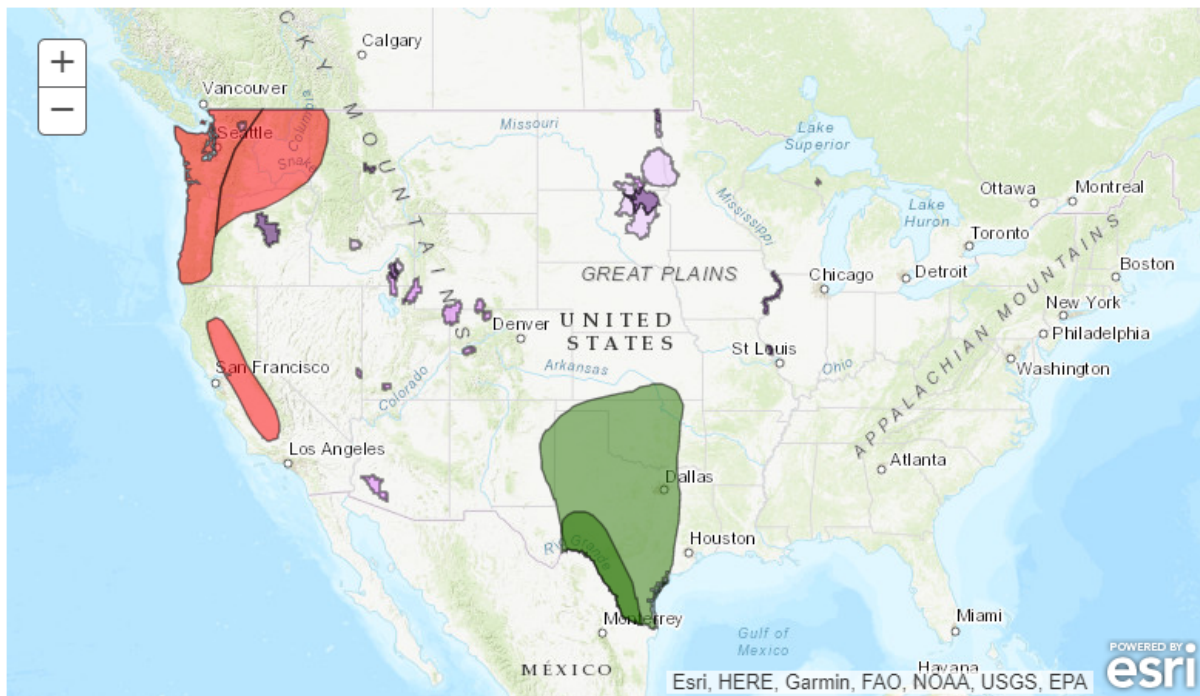
Created May 10, 2023

NOTE: These products are only created Monday through Friday. Please exercise caution using this outlook during the weekend.

Precipitation	<input checked="" type="checkbox"/>
Temperature	<input checked="" type="checkbox"/>
Soils	<input type="checkbox"/>

Legend			
	Flooding Likely		Excessive Heat
	Flooding Occurring or Imminent		High Winds
	Flooding Possible		Much Above Normal Temperatures
	Freezing Rain		Much Below Normal Temperatures
	Heavy Ice		Significant Waves
	Heavy Precipitation		Enhanced Wildfire Risk
	Heavy Rain		Severe Drought
	Heavy Snow		
	Severe Weather		

Valid May 13, 2023 - May 17, 2023

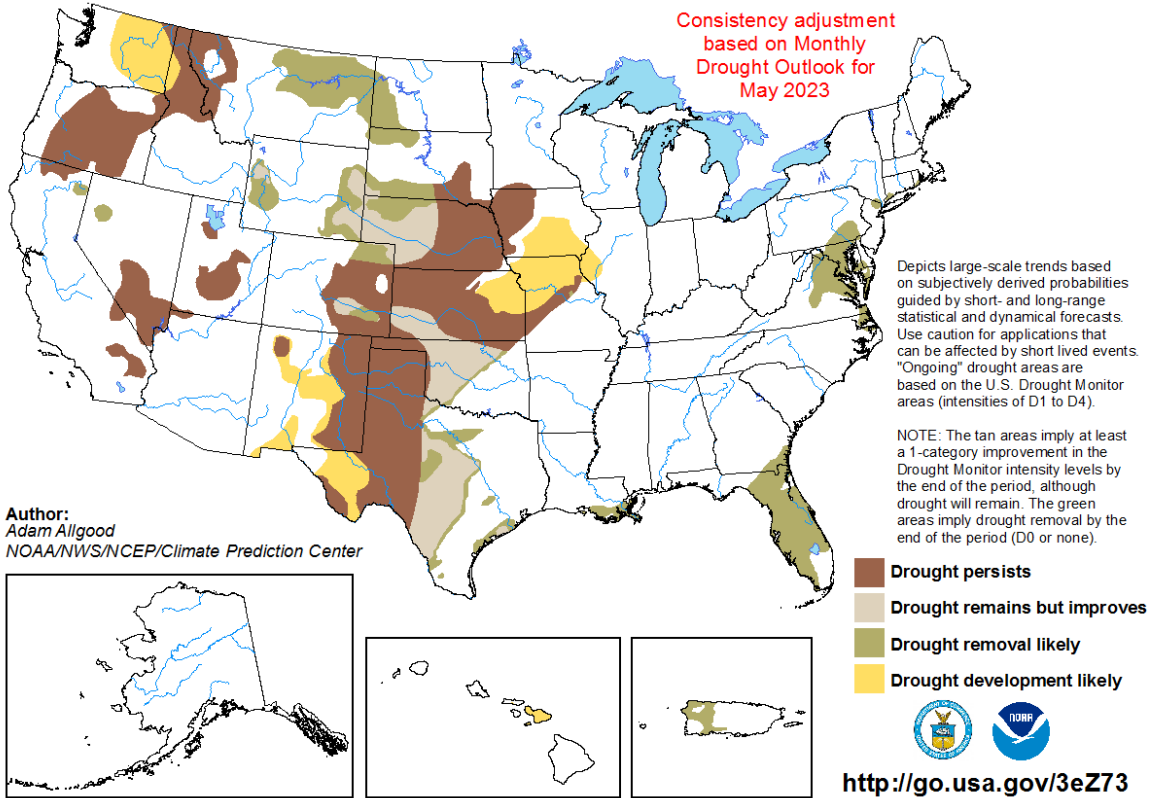


Seasonal Drought Outlook: [May 1 – July 31, 2023](#)

Source: National Weather Service

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

Valid for May 1 - July 31, 2023
Released April 30, 2023

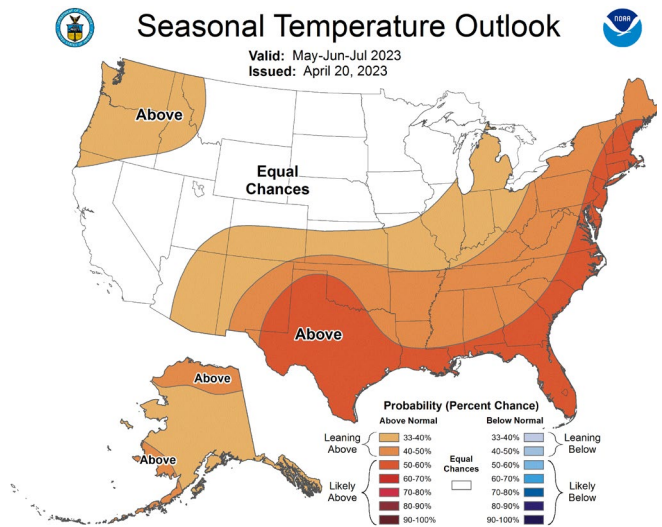
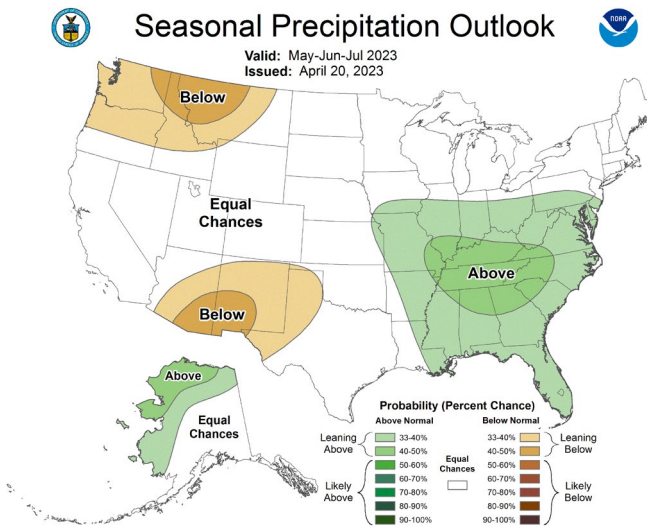


Climate Prediction Center Three-month Outlook

Source: National Weather Service

[Precipitation](#)

[Temperature](#)



[May-June-July 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](#).