



United States Department of Agriculture

Water and Climate Update

May 18, 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.

Snow	2	Drought	10
Precipitation	4	Other Climatic and Water Supply Indicators	14
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Record-breaking heat wave hits the Pacific Northwest



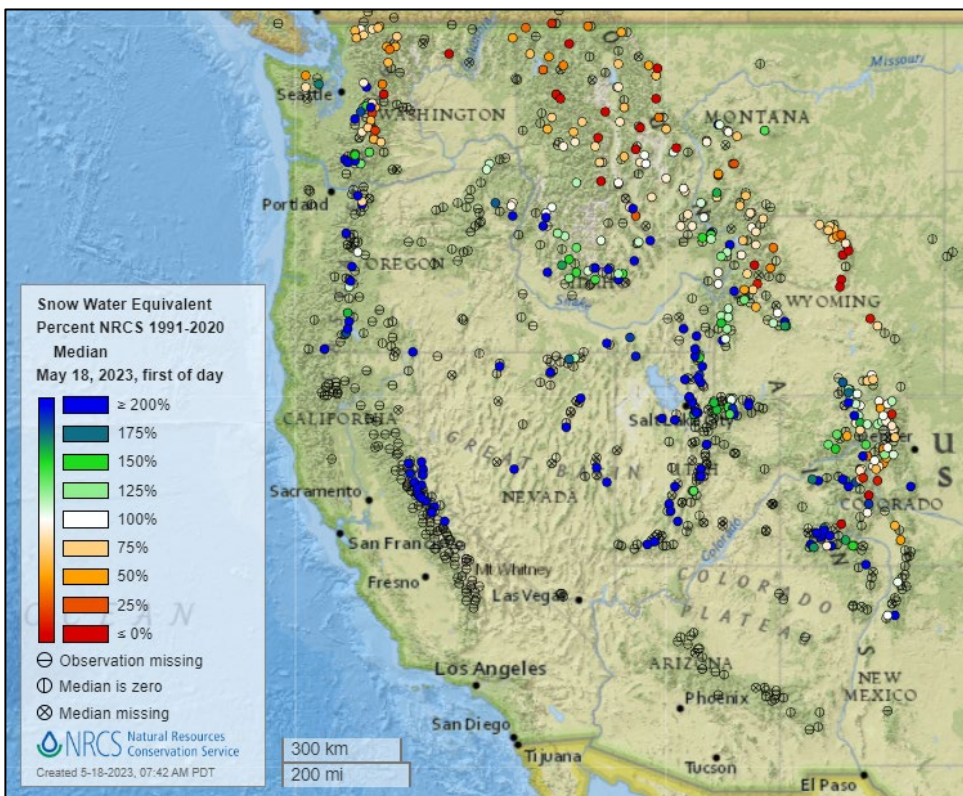
Smoky sunrise photo courtesy of National Weather Service, Seattle, WA

Unseasonably-warm temperatures engulfed the Pacific Northwest in mid-May and broke previous records. Portland International Airport set a new record high temperature of 93°F on May 12, beating the previous record of 92°F set in 1973. Seattle experienced its warmest Mother’s Day to date, as other areas in the Pacific Northwest saw record or near-record temperatures. In addition to the heat, smoke from wildfires in Alberta, Canada descended into the U.S., causing hazy conditions and unique sunrises and sunsets.

Related:

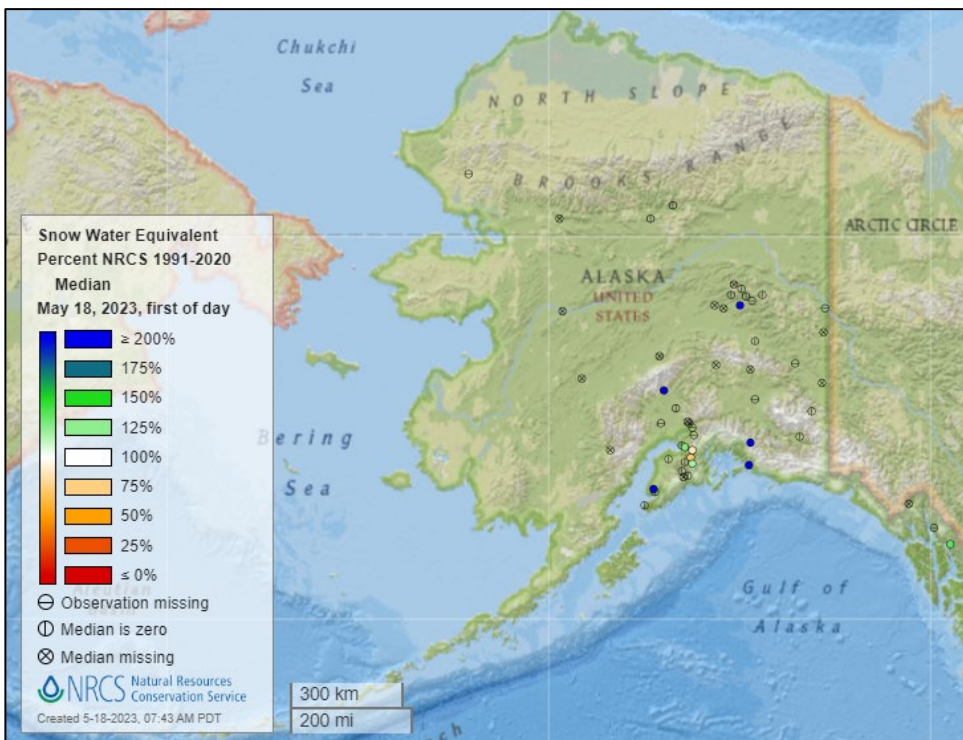
- [Pacific Northwest heat wave continues after historic weekend](#) – NBC News
- [An unusually early heat wave in the Pacific Northwest is testing records](#) – NPR
- [Seattle breaks another record Sunday as early heat pressed on](#) – The Seattle Times (WA)
- [Record-breaking heat scorches the western US and Canada as wildfires continue to rage](#) – CNN

Snow



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

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

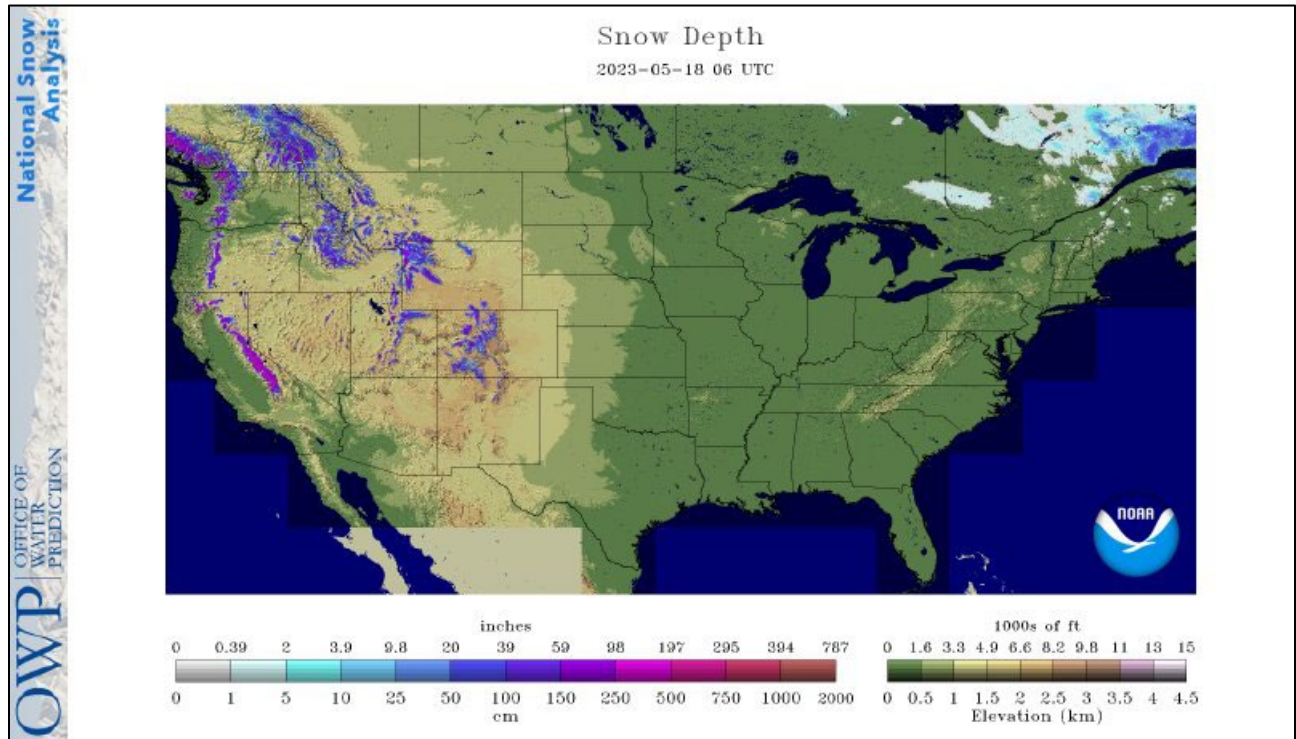


[Alaska snow water equivalent percent of median map](#)

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

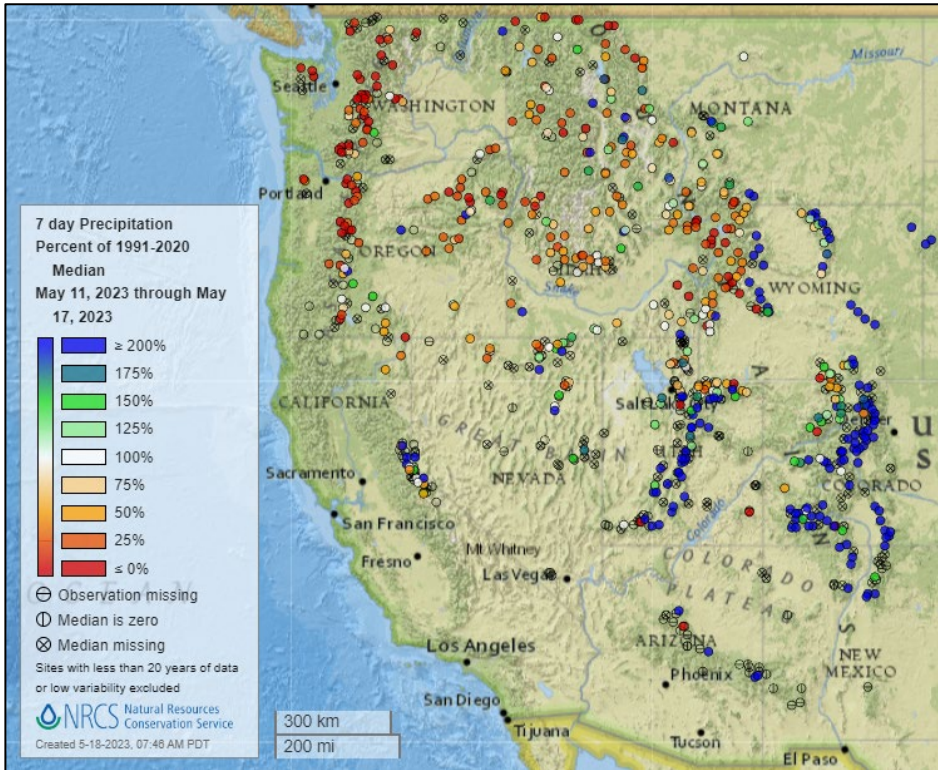
Current Snow Depth, National Weather Service Snow Analysis

Source: NOAA NWS National Operational Hydrologic Remote Sensing Center



Precipitation

Last 7 Days, NRCS SNOTEL Network

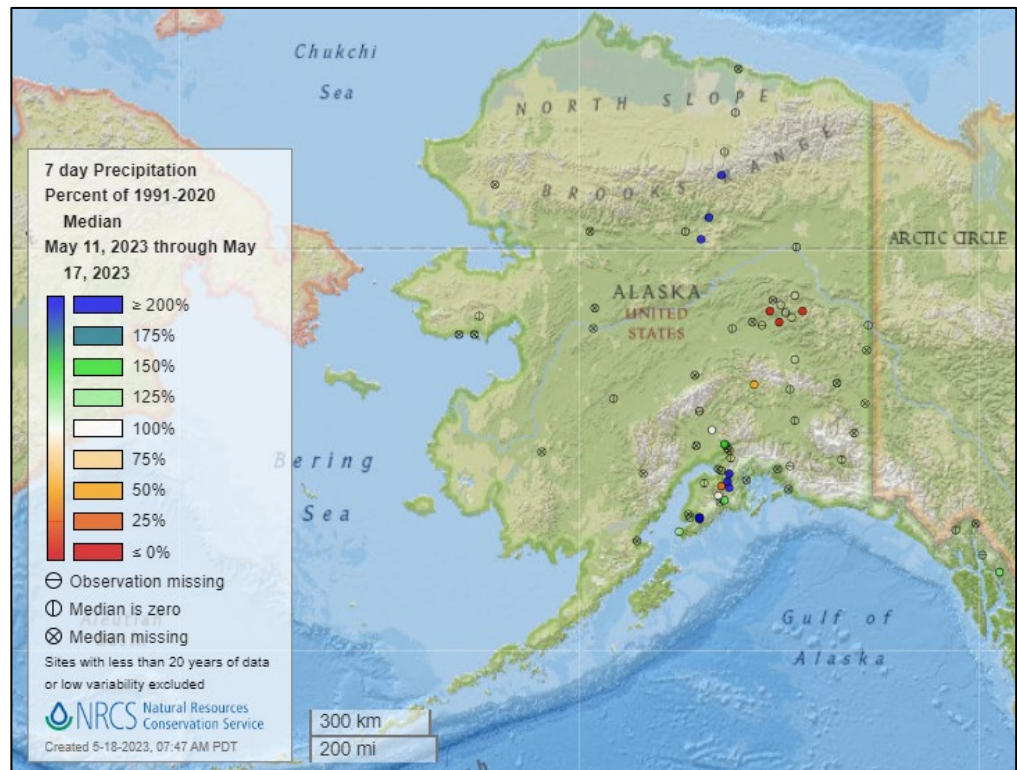


[7-day precipitation percent of median map](#)

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](#)



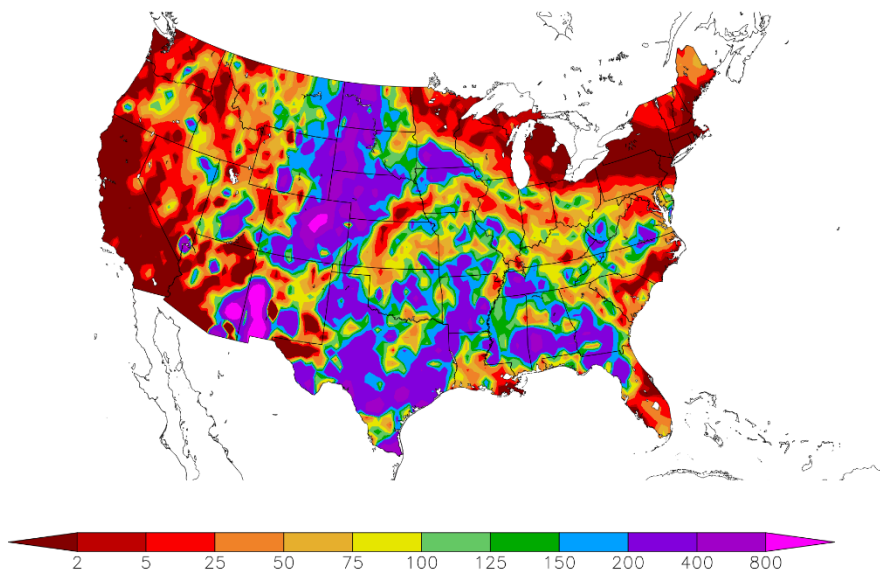
Last 7 Days, National Weather Service (NWS) Networks

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 (%)
5/11/2023 – 5/17/2023



Generated 5/18/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

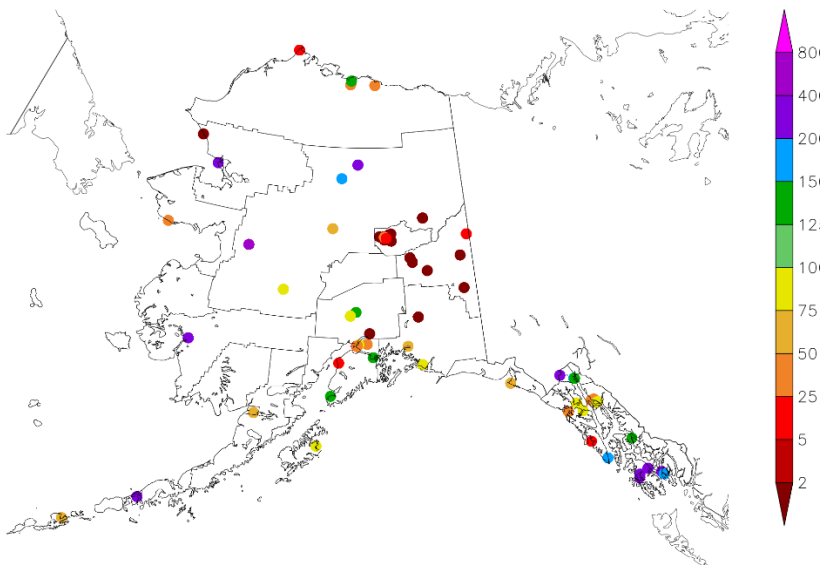
Last 7 Days, National Weather Service (NWS) Networks

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 (%)
5/11/2023 – 5/17/2023



Generated 5/18/2023 at HPRCC using provisional data.

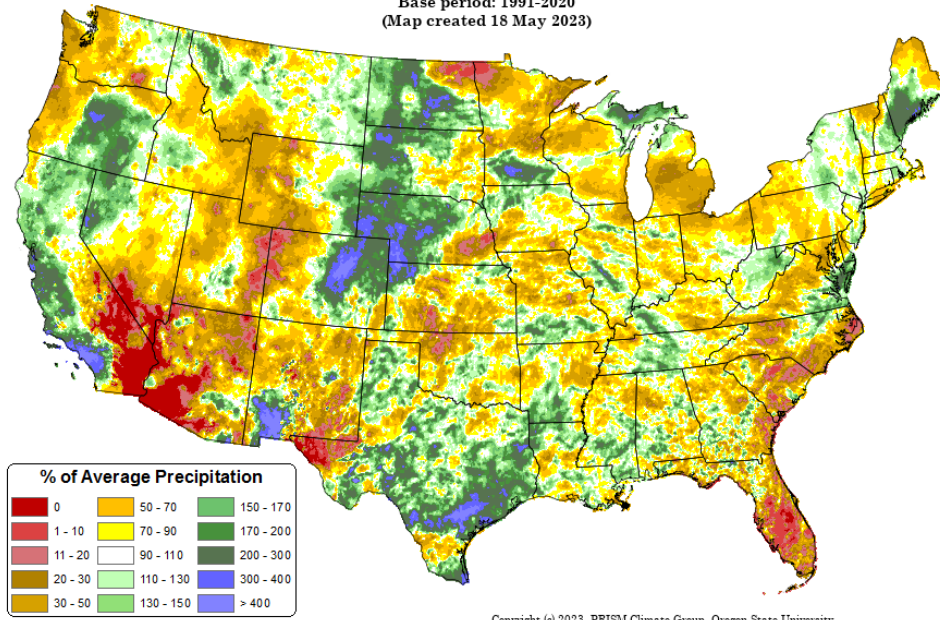
NOAA Regional Climate Centers

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

Source: PRISM

Total Precipitation Anomaly: 01 May 2023 - 17 May 2023
Period ending 7 AM EST 17 May 2023
Base period: 1991-2020
(Map created 18 May 2023)

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



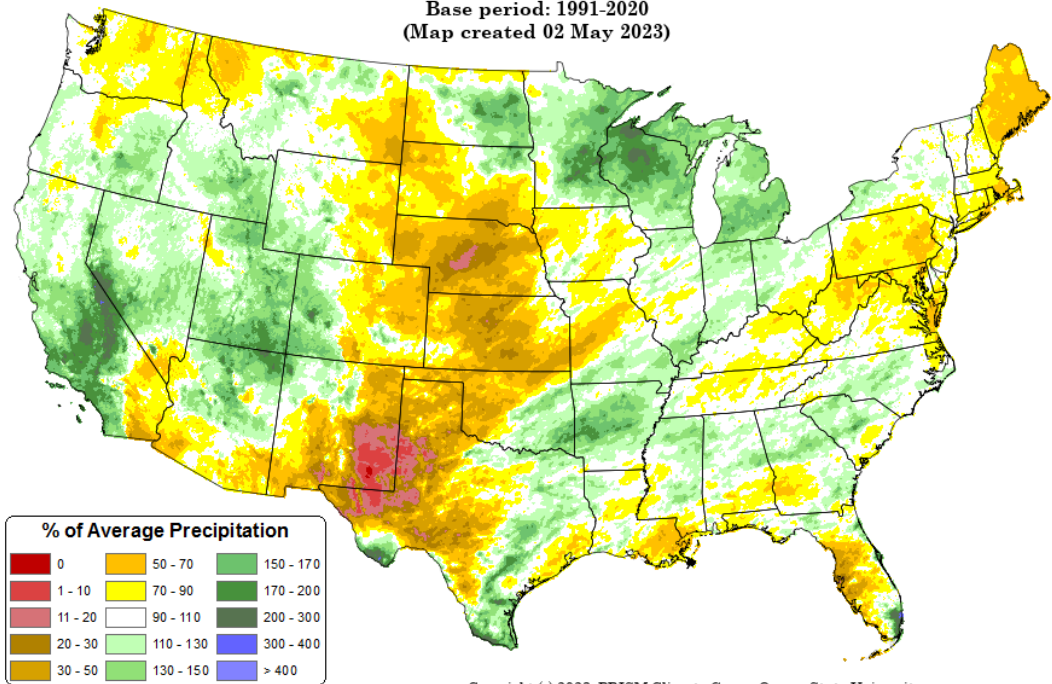
Copyright (c) 2023, PRISM Climate Group, Oregon State University

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

Source: PRISM

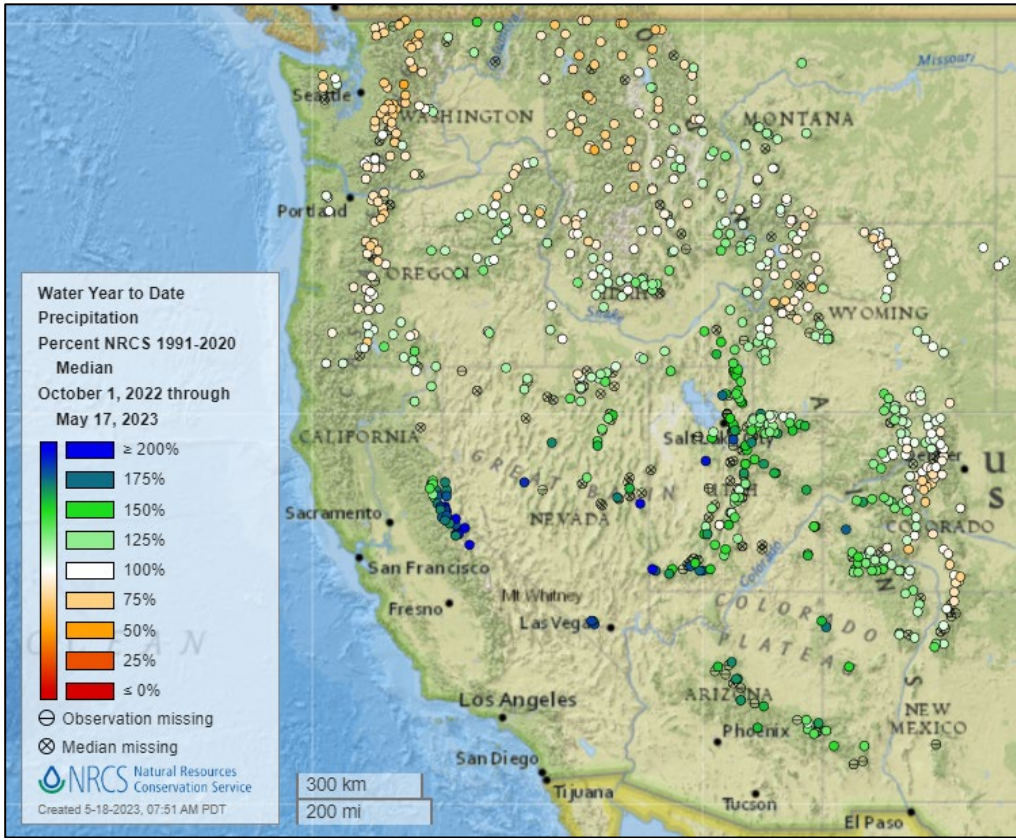
[February through April 2023 precipitation anomaly map](#)

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

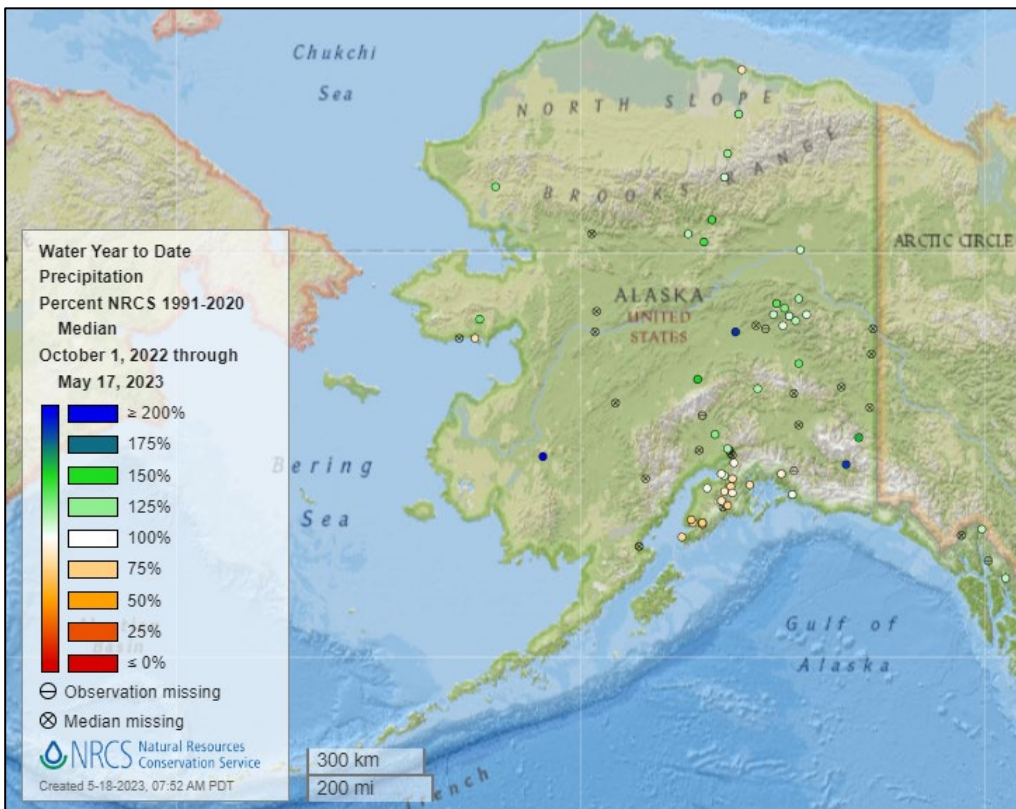


[2023 water year-to-date precipitation percent of median map](#)

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

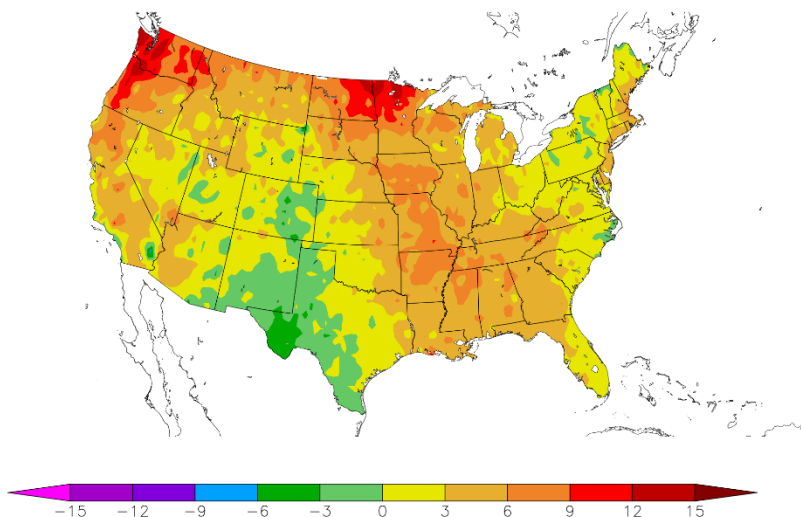
Last 7 Days, National Weather Service (NWS) Networks

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)
5/11/2023 – 5/17/2023



Generated 5/18/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

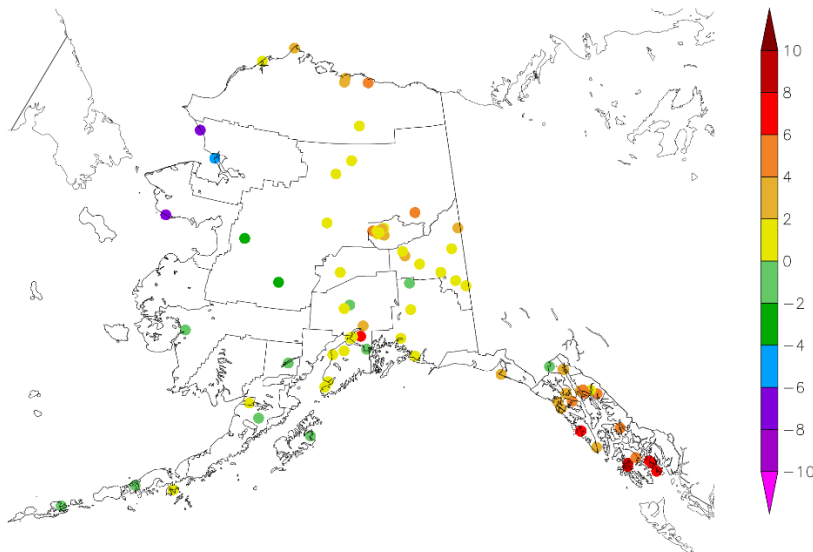
Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

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

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

Departure from Normal Temperature (F)
5/11/2023 – 5/17/2023



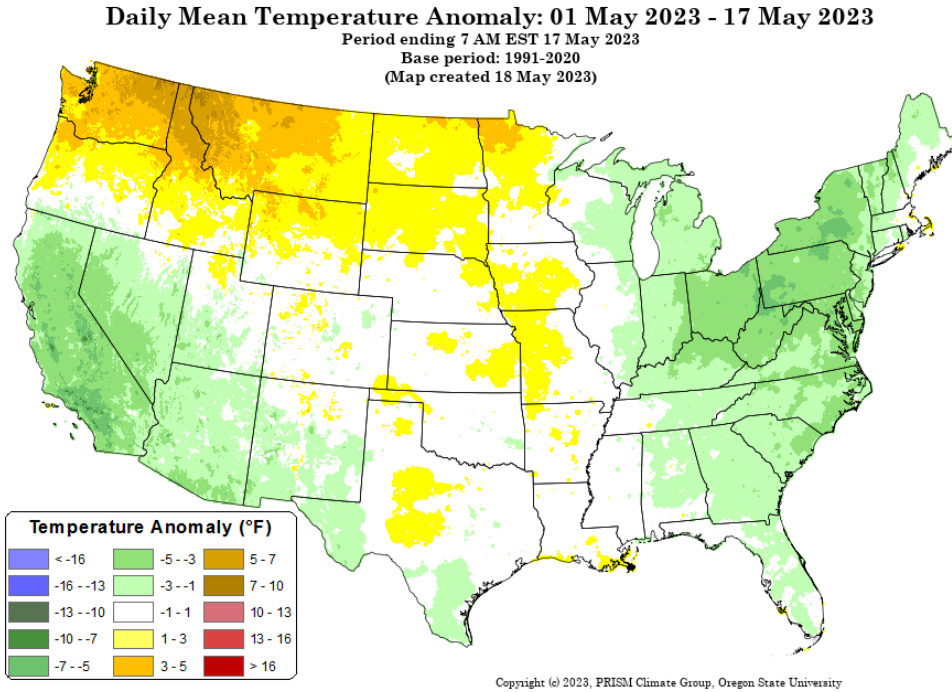
Generated 5/18/2023 at HPRCC using provisional data.

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

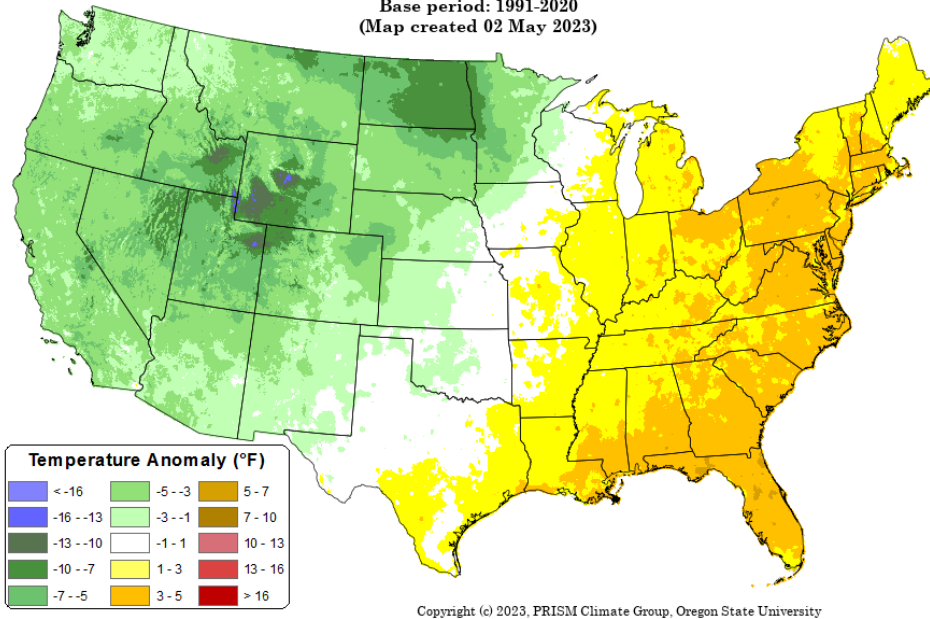
Daily Mean Temperature Anomaly: Feb 2023 - Apr 2023

Period ending 7 AM EST 30 Apr 2023

Base period: 1991-2020

(Map created 02 May 2023)

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



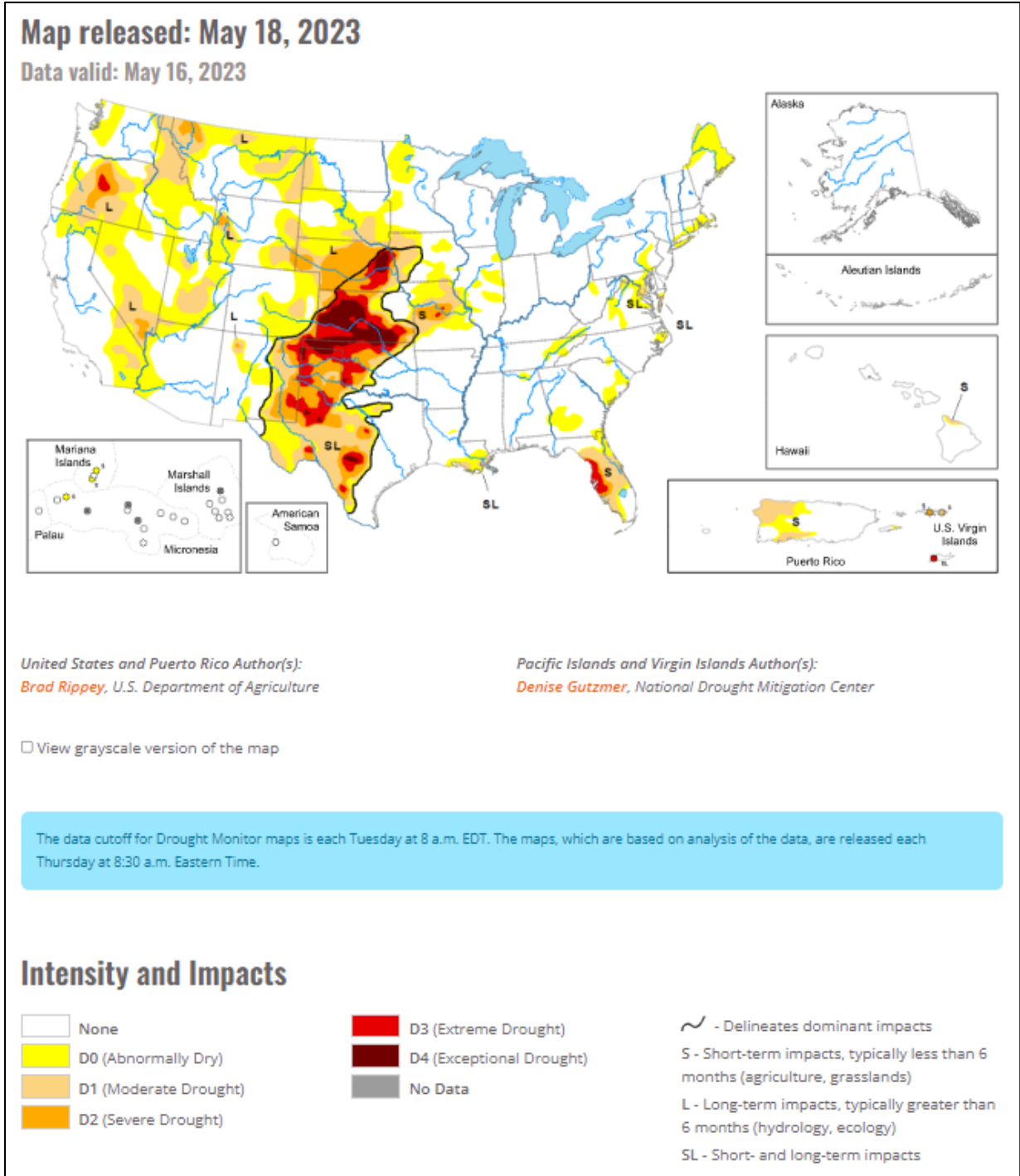
Drought

[U.S. Drought Monitor](#)

Source: National Drought Mitigation Center

[U.S. Drought Portal](#)

Source: NOAA



Current [National Drought Summary](#), May 16, 2023

Source: National Drought Mitigation Center

“A complex, slow-moving storm system delivered heavy rain across much of the nation’s mid-section, but largely bypassed some of the country’s driest areas in southwestern Kansas and western Oklahoma, as well as neighboring areas. Still, the rain broadly provided much-needed moisture for rangeland and pastures, immature winter grains, and emerging summer crops. Significant rain spread into other areas, including the southern and western Corn Belt and the mid-South, generally benefiting crops but slowing fieldwork and leaving pockets of standing water. Excessive rainfall (locally 4 to 8 inches or more) sparked flooding in a few areas, including portions of the western Gulf Coast region. Little or no rain fell across much of the remainder of the country, including southern Florida, the Northeast, the Great Lakes region, and an area stretching from California to the southern Rockies. Warmth in advance of the storm system temporarily boosted temperatures considerably above normal across parts of east-central Plains, western Corn Belt, and upper Great Lakes region. Meanwhile, record-setting heat developed in the Pacific Northwest, setting several May temperature records.”

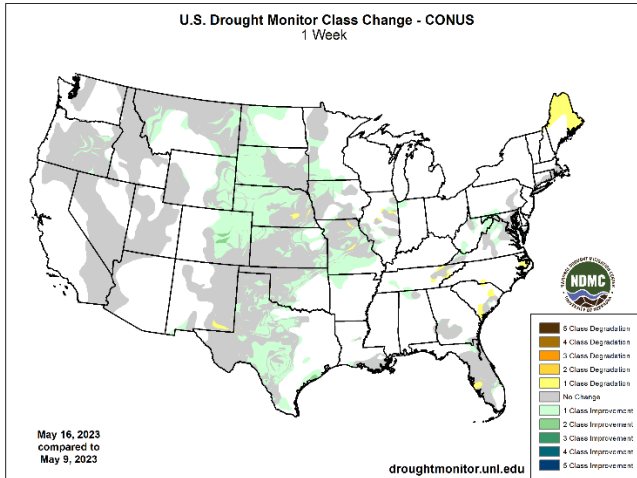
National Drought Summary – West

“Aside from some heavy precipitation in the central Rockies and environs, much of the West experienced warm, mostly dry weather. As a result, there were only minor Western changes to the drought-depiction, some due to further assessment of the impact of cold-season precipitation as the snow-melt pace accelerated. Indeed, a Northwestern heat wave—rare for this time of year—resulted in multiple monthly record highs, starting on May 14. On that date in Oregon, both Astoria and Seaside attained 93°F. Astoria tied a monthly record, originally set on May 16, 2008, while Seaside toppled its monthly mark of 86°F, attained most recently on May 19, 1978. Notably, Portland, Oregon, achieved highs of 90°F or greater on 4 consecutive days, from May 12-15. Prior to this year, Portland’s May record of three 90-degree readings occurred in 1947 and 1987, with only the latter being observed on 3 consecutive days (May 6-8, 1987). Meanwhile in Washington, Hoquiam (91°F on the 14th) posted a monthly record high, shattering the standard of 87°F originally set on May 29, 2007. With a high of 92°F on the 14th, Quillayute, Washington, tied a monthly record first achieved on May 7, 1987. Elsewhere, Western reservoir storage as a percent of average for the date reflected varying degrees of drought recovery. As May began, California’s 154 primary intrastate reservoirs held 28.6 million acre-feet of water, 104 percent of average. However, storage on that date in the Colorado River basin was 15.5 million acre-feet, just 48 percent of average. Still, the surface elevation of Lake Mead has risen nearly 9 feet since setting an end-of month record low of 1,040.92 feet in July 2022.”

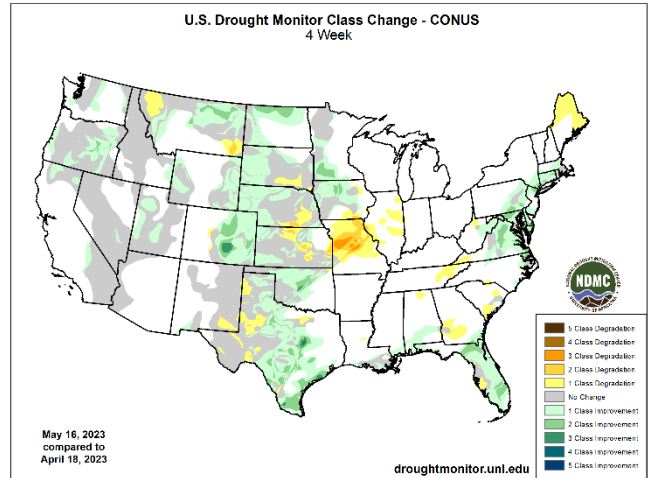
Changes in Drought Monitor Categories over Time

Source: National Drought Mitigation Center

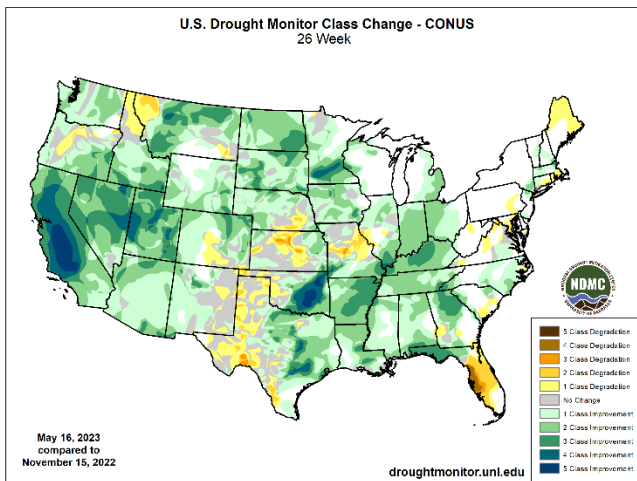
1 Week



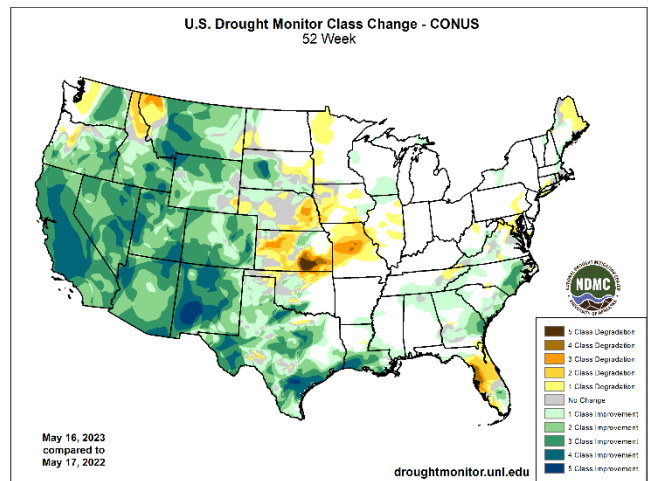
1 Month



6 Months



1 Year



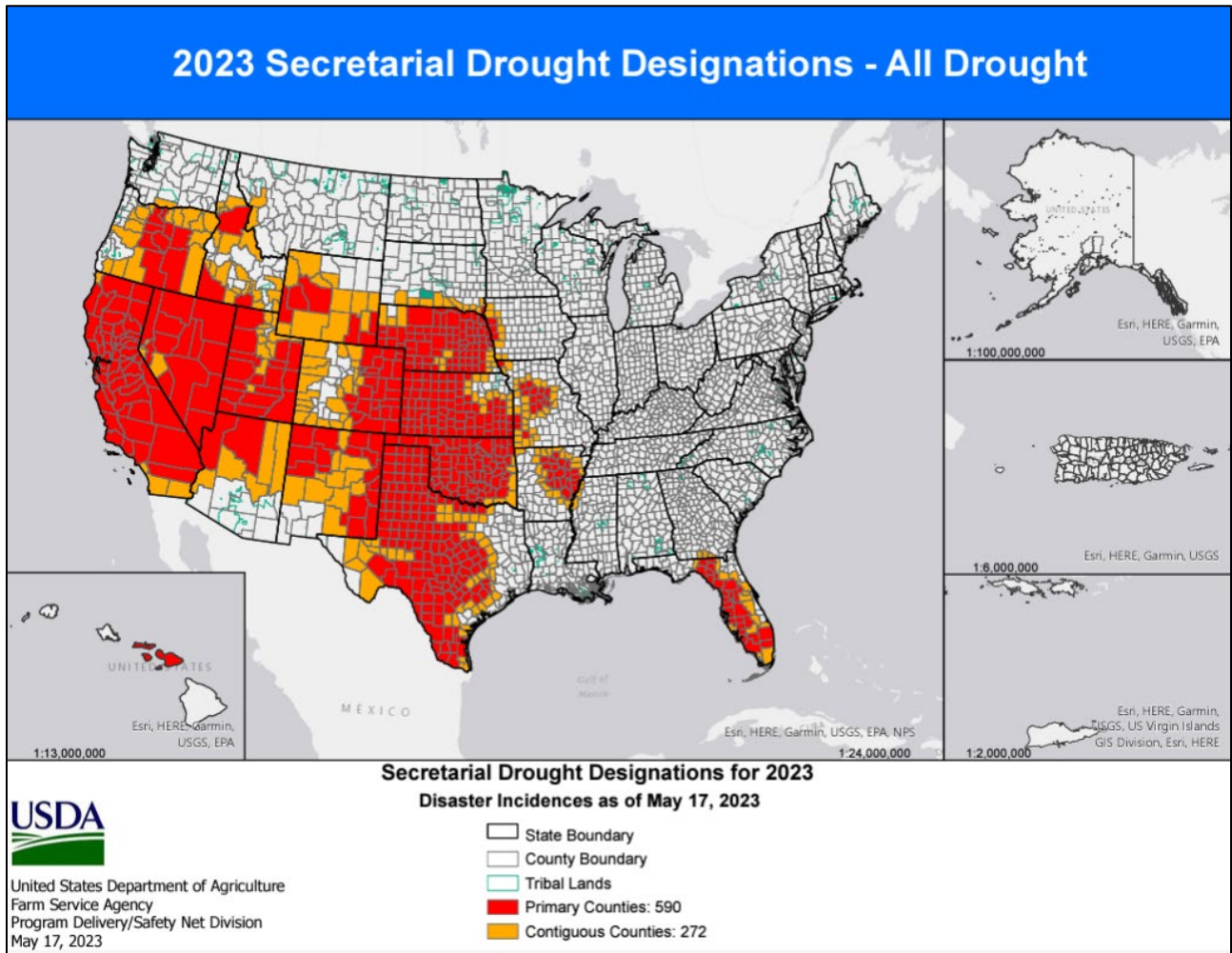
[Changes in drought conditions over the last 12 months for the contiguous U.S.](#)

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](#)

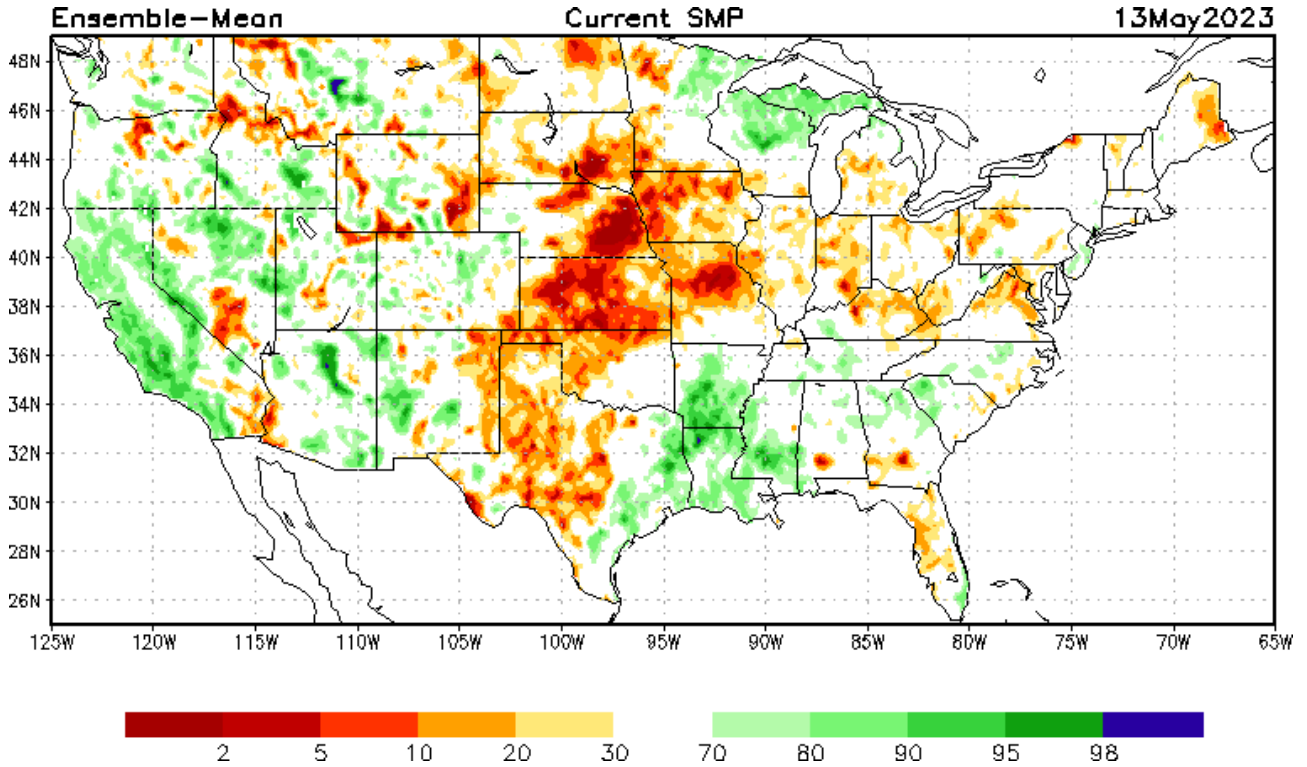
Source: USDA Farm Service Agency



Other Climatic and Water Supply Indicators

Soil Moisture

Source: NOAA National Centers for Environmental Prediction

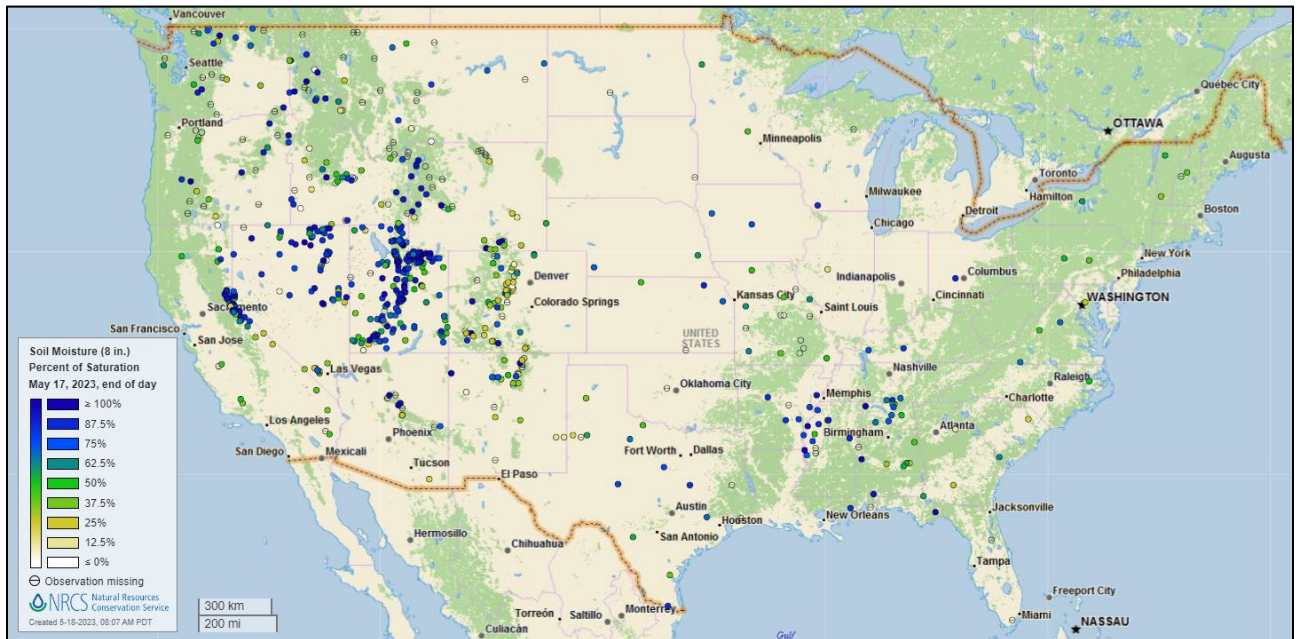


[Modeled soil moisture percentiles](#) as of May 13, 2023

Soil Moisture Percent of Saturation

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

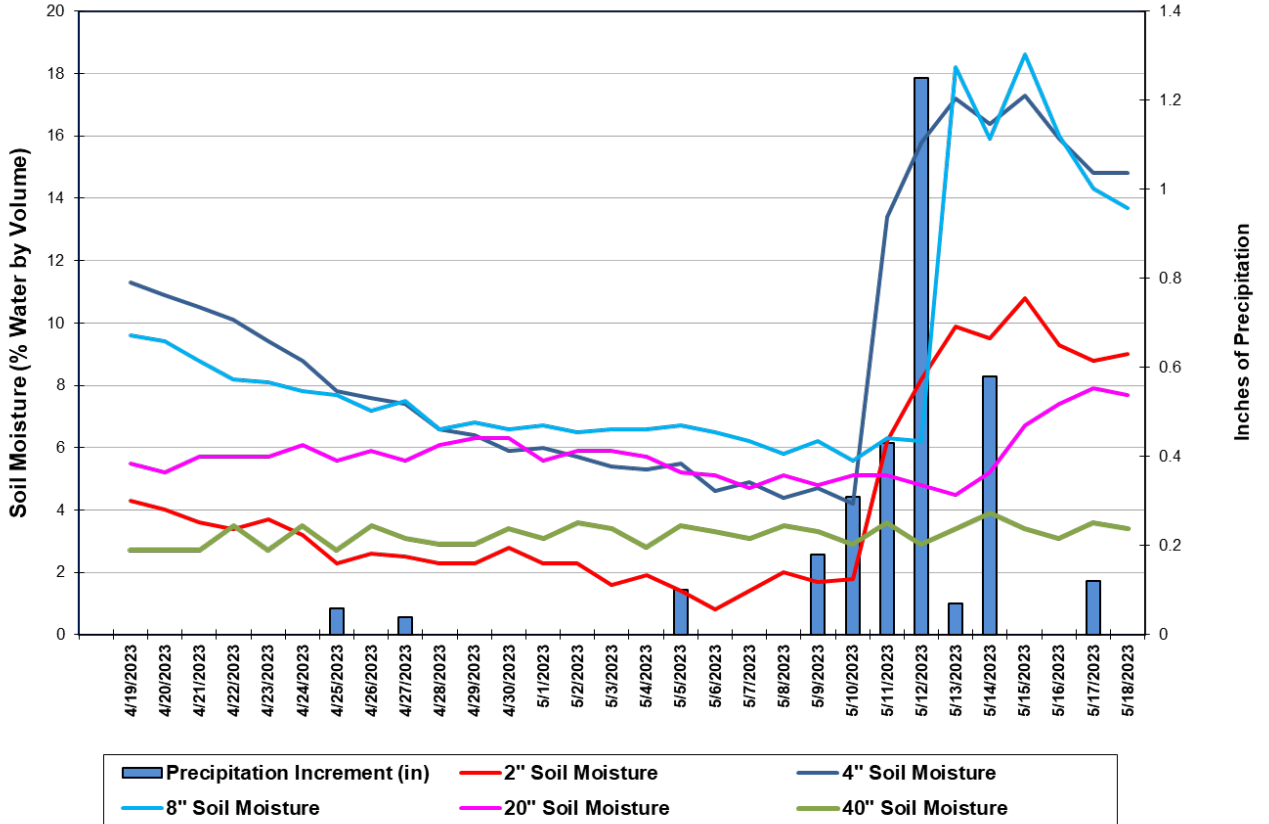
[U.S. soil moisture map at 8-inch depth:](#)



Soil Moisture

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

**Torrington #1, Wyoming (SCAN site 2018)
Daily Mean Soil Moisture vs. Daily Precipitation**



This chart shows the precipitation and soil moisture for the last 30 days at the [Torrington #1](#) SCAN site in Wyoming. Between May 9 – 14, the site received 2.82 inches of precipitation, with soil moisture levels increasing at all sensor depths except the -40-inch sensor after the event. Total precipitation for the 30-day period was 3.14 inches.

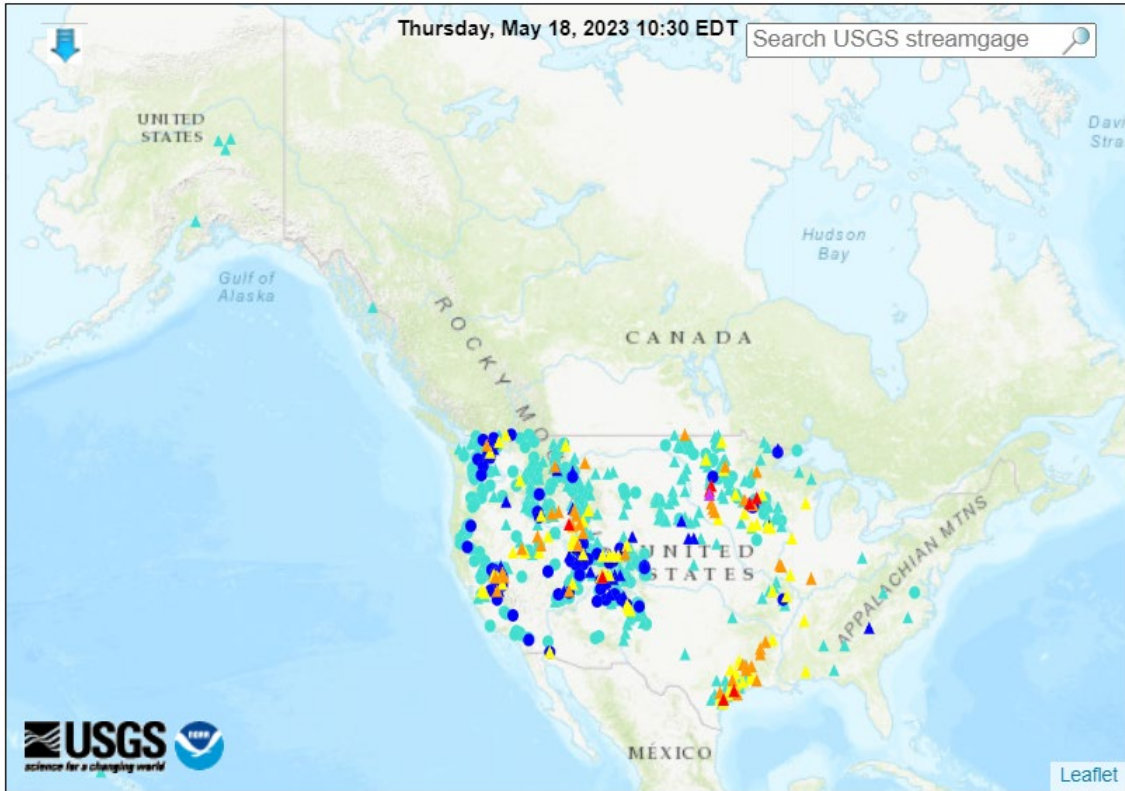
Soil Moisture Data Portals

- [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 (53 in floods [major: 1, moderate: 8, minor: 44], 67 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

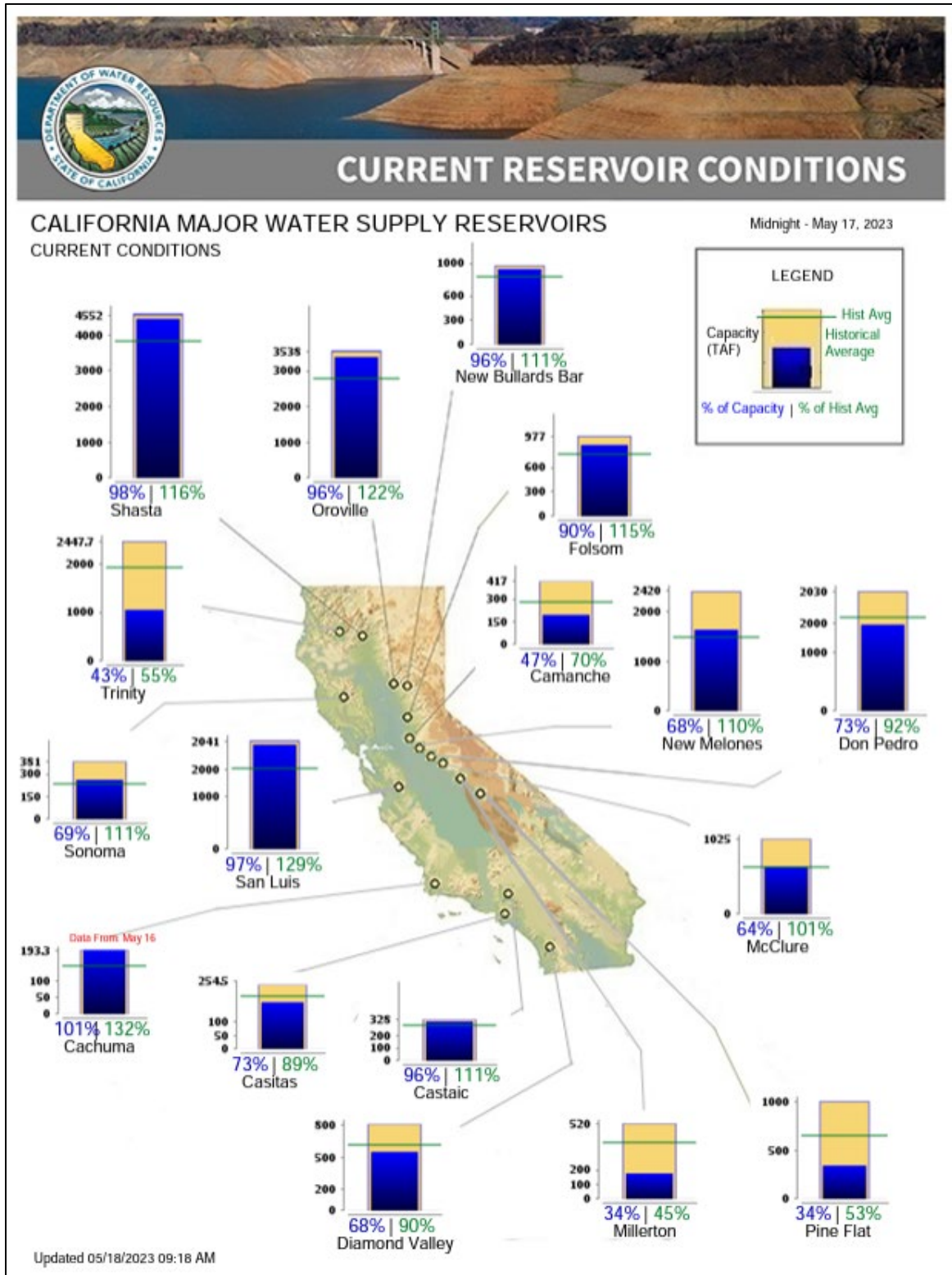
Hydromet Teacup Reservoir Depictions

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 18, 2023: “A cold front currently crossing the nation’s mid-section will reach the Atlantic Seaboard during the weekend. Rainfall associated with the front could reach 1 to 2 inches, with locally higher amounts, across parts of the South, East, and Midwest, as well as the southern sections of the Plains and Rockies. Higher rainfall totals, 2 to 4 inches or more, may occur in the southern Atlantic States, especially in the coastal Carolinas. In the front’s wake, scattered, late-week frost and freezes may occur across the northern Plains and upper Midwest. By early next week, cool, dry weather will again settle across the Great Lakes and Northeastern States, while rain may linger across the lower Southeast. Warm weather in the West will be accompanied by spotty showers and thunderstorms. NWS 6- to 10-day outlook for May 23 – 27 calls for the likelihood of near- or above-normal temperatures and precipitation across most of the country. Cooler-than-normal conditions will be confined to parts of the South, while drier-than-normal weather should be limited to the Pacific Northwest and an area stretching from the mid-South and lower Midwest into the Northeast.”

Weather Hazards Outlook: [May 20 – 24, 2023](#)

Source: NOAA Weather Prediction Center

















U.S. Day 3-7 Hazards Outlook

About the Hazards Outlook

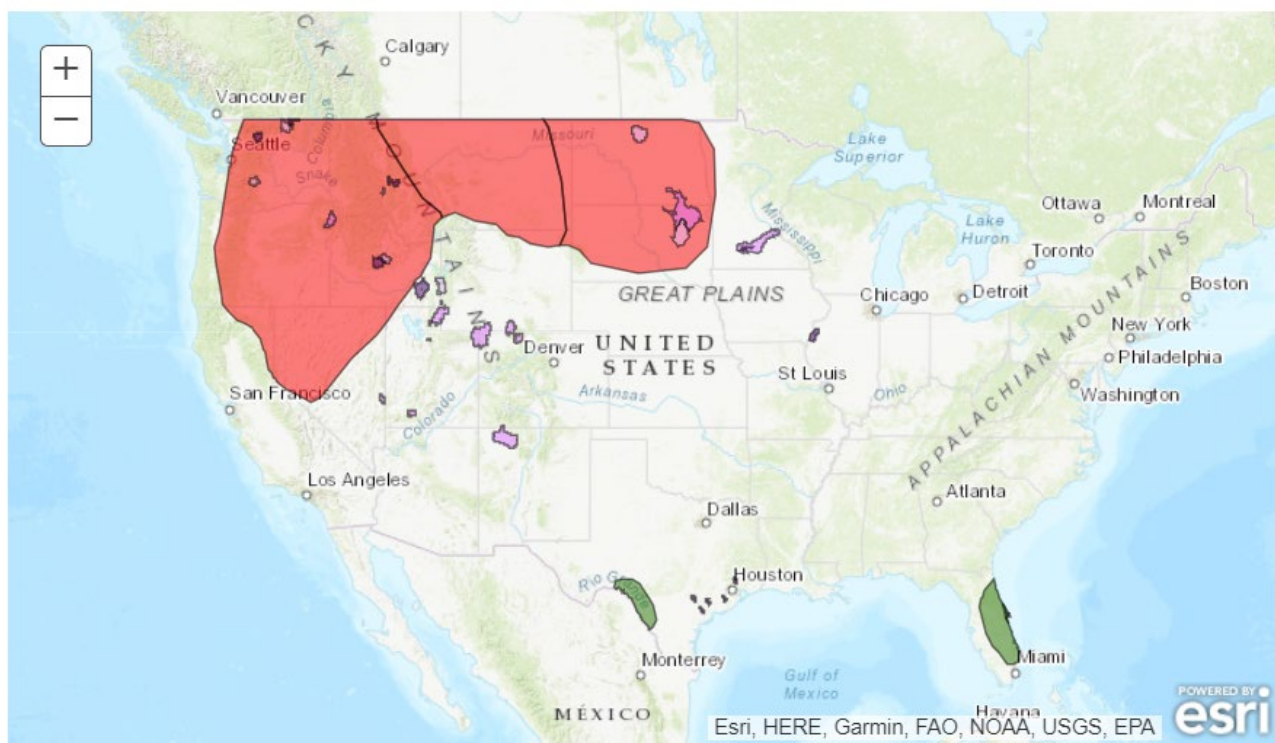
Created May 17, 2023

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 20, 2023 - May 24, 2023

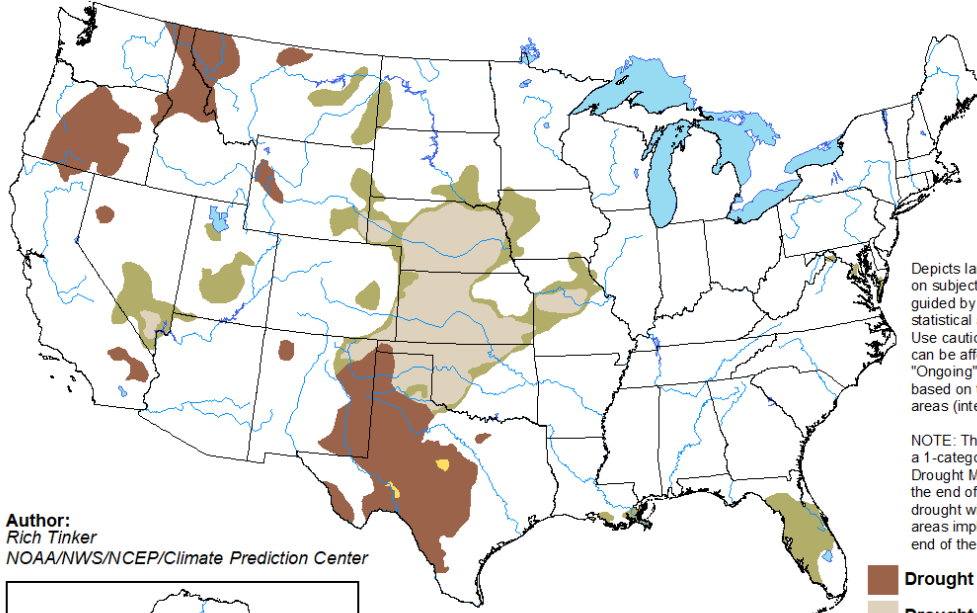


Seasonal Drought Outlook: [May 18 – August 31, 2023](#)

Source: National Weather Service

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

Valid for May 18 - August 31, 2023
Released May 18

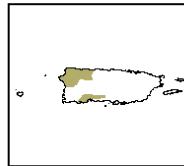
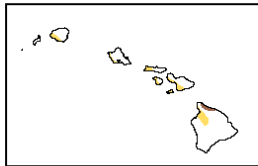
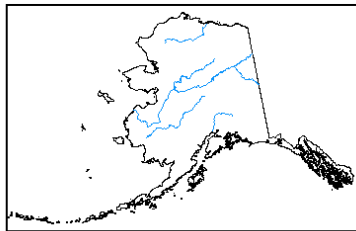


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author:
Rich Tinker
NOAA/NWS/NCEP/Climate Prediction Center

- Drought persists
- Drought remains but improves
- Drought removal likely
- Drought development likely



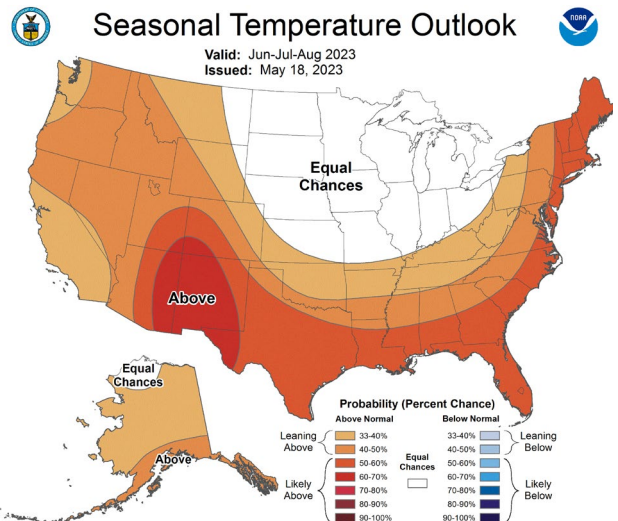
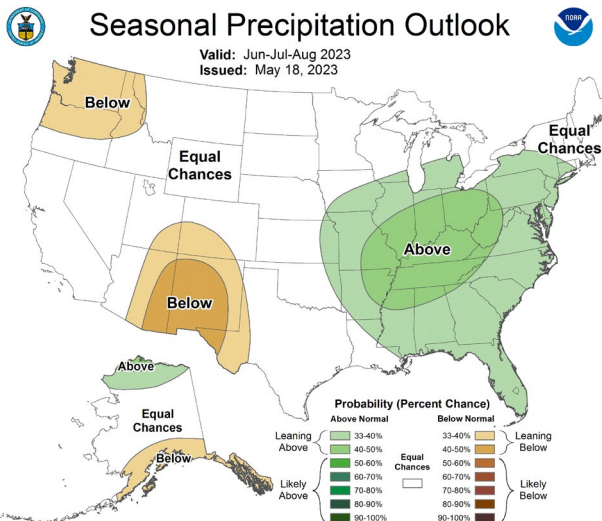
<http://go.usa.gov/3eZ73>

Climate Prediction Center Three-month Outlook

Source: National Weather Service

[Precipitation](#)

[Temperature](#)



[June-July-August 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](#).