



United States Department of Agriculture

# Water and Climate Update

## September 28, 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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### Sunset date set for SNOTEL meteorburst technology



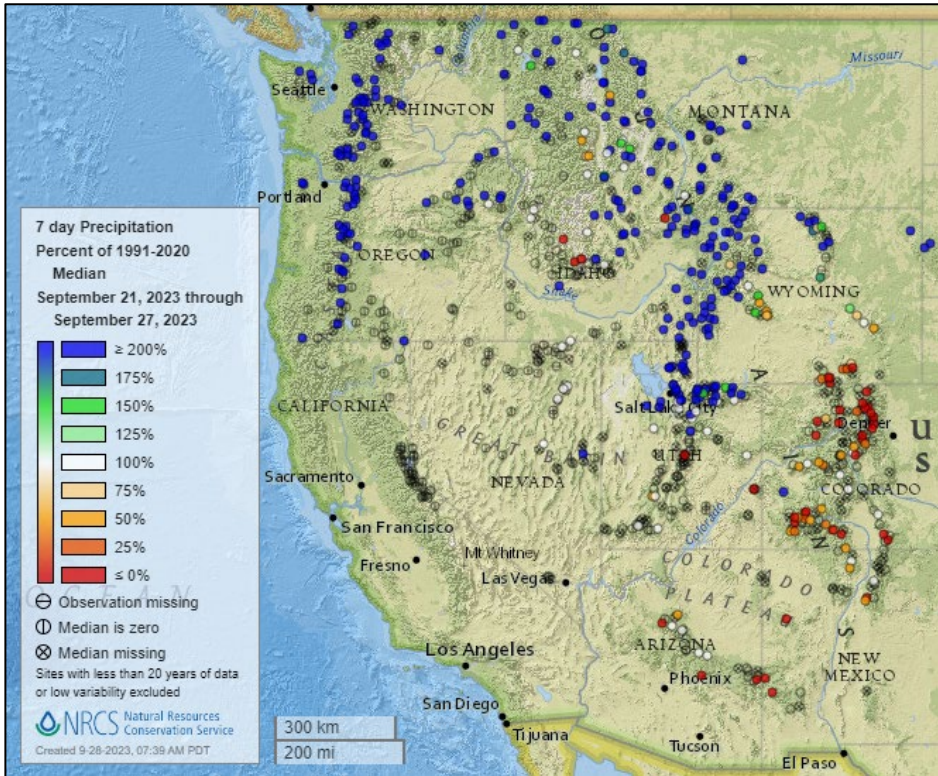
*Meteorburst antenna atop a SNOTEL transmission tower*

Meteorburst telemetry, a once cutting-edge technology which initially made the NRCS SNOTEL network a reality, will be sunsetting at the end of September 2023. Beginning in the late 1970s, the first operational SNOTEL stations used meteorburst radio technology to remotely transmit snowpack and other climatic data on an hourly basis. Remote SNOTEL stations across the West were able to transmit data using meteorburst antennas, bouncing their radio signals off cosmic debris in the Earth’s atmosphere to be received centrally by master station antennas hundreds of miles away.

Thanks to the vast efforts of the NRCS Snow Survey and Water Supply Forecasting Program staff across the western U.S., meteorburst has been replaced by satellite and cellular telemetry for the SNOTEL network of nearly 900 stations.

# Precipitation

## Last 7 Days, NRCS SNOTEL Network

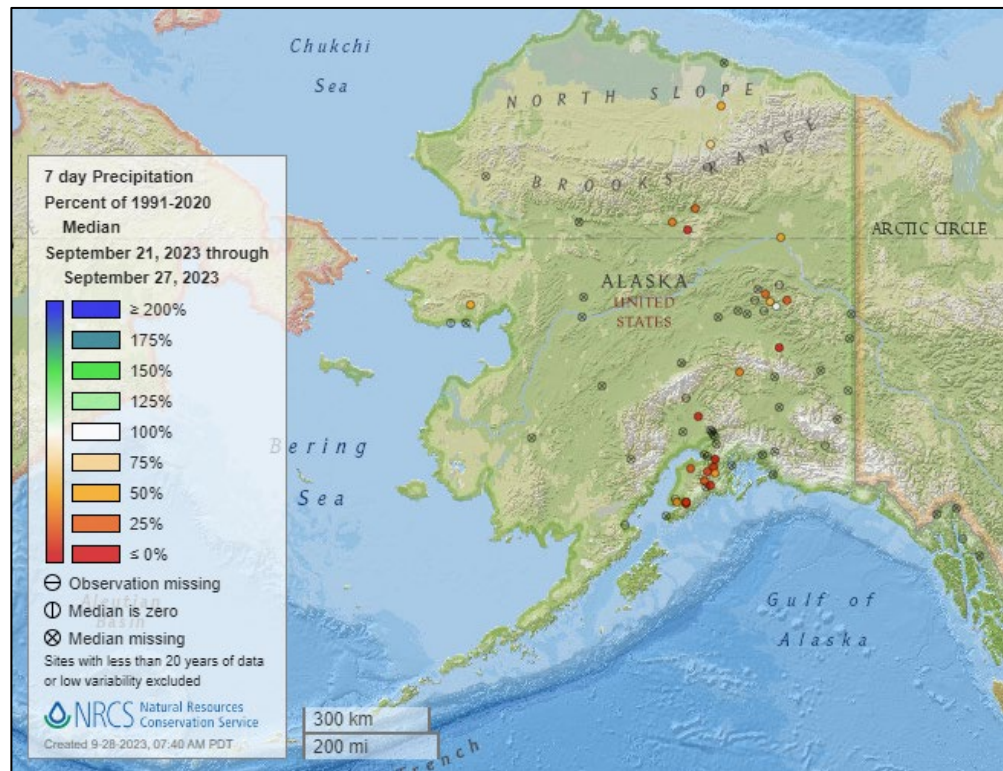


[7-day precipitation percent of median map](#)

**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](#)



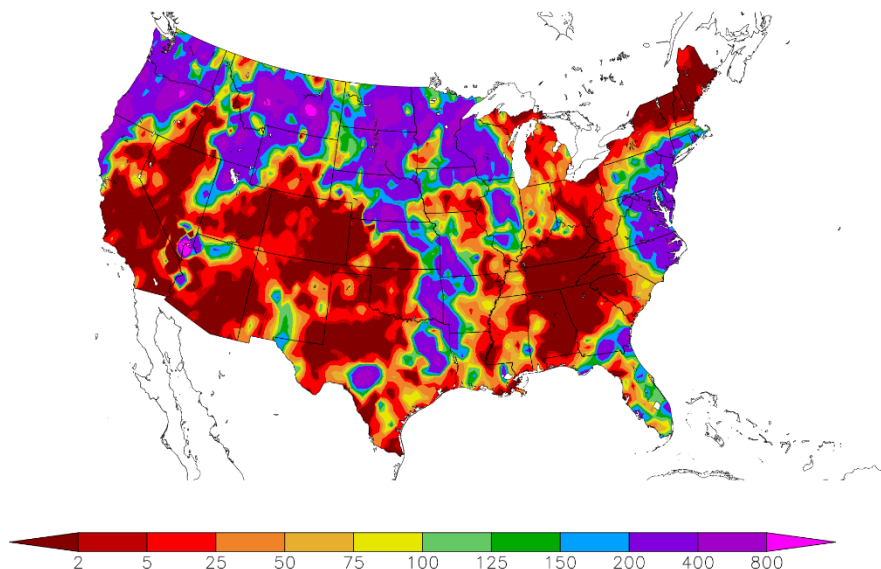
### Last 7 Days, National Weather Service (NWS) Networks

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 (%)  
9/21/2023 – 9/27/2023



Generated 9/28/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

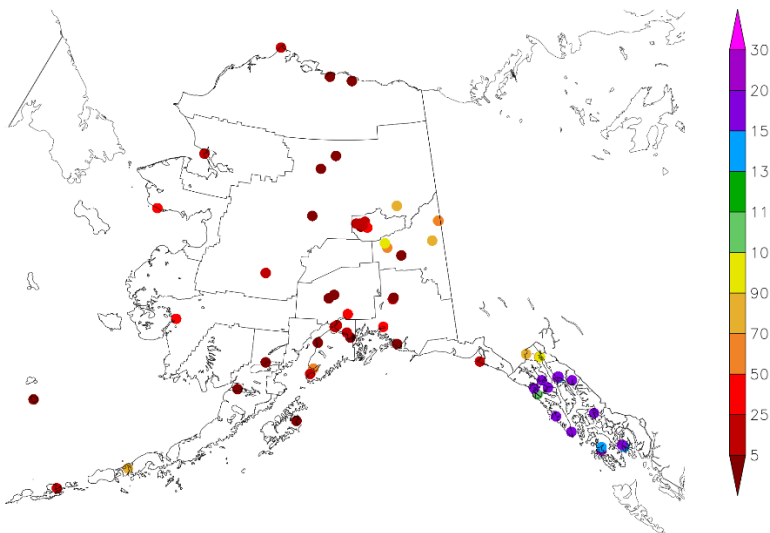
### Last 7 Days, National Weather Service (NWS) Networks

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 (%)  
9/21/2023 – 9/27/2023



Generated 9/28/2023 at HPRCC using provisional data.

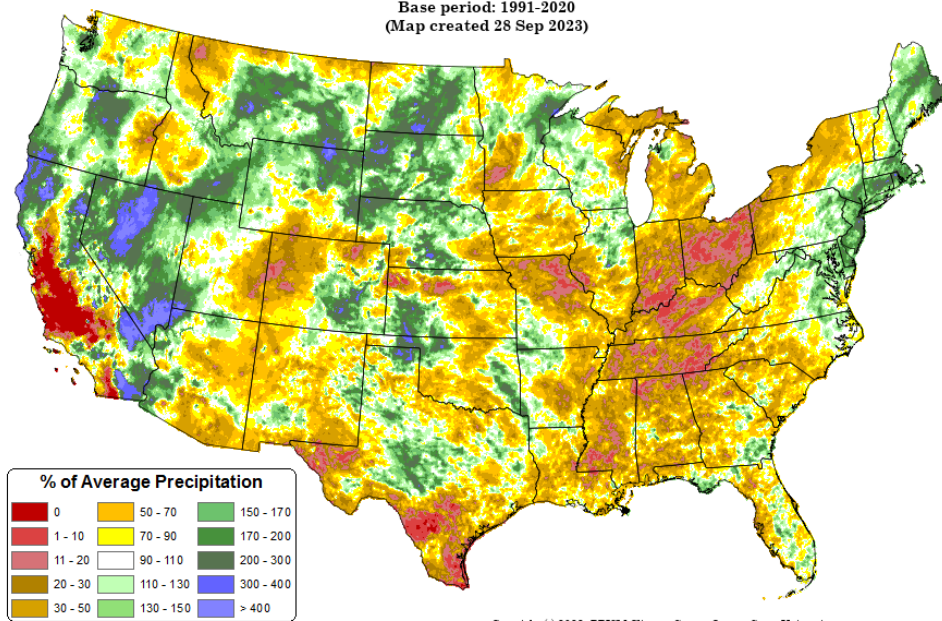
NOAA Regional Climate Centers

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

Source: PRISM

**Total Precipitation Anomaly: 01 Sep 2023 - 27 Sep 2023**  
Period ending 7 AM EST 27 Sep 2023  
Base period: 1991-2020  
(Map created 28 Sep 2023)

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



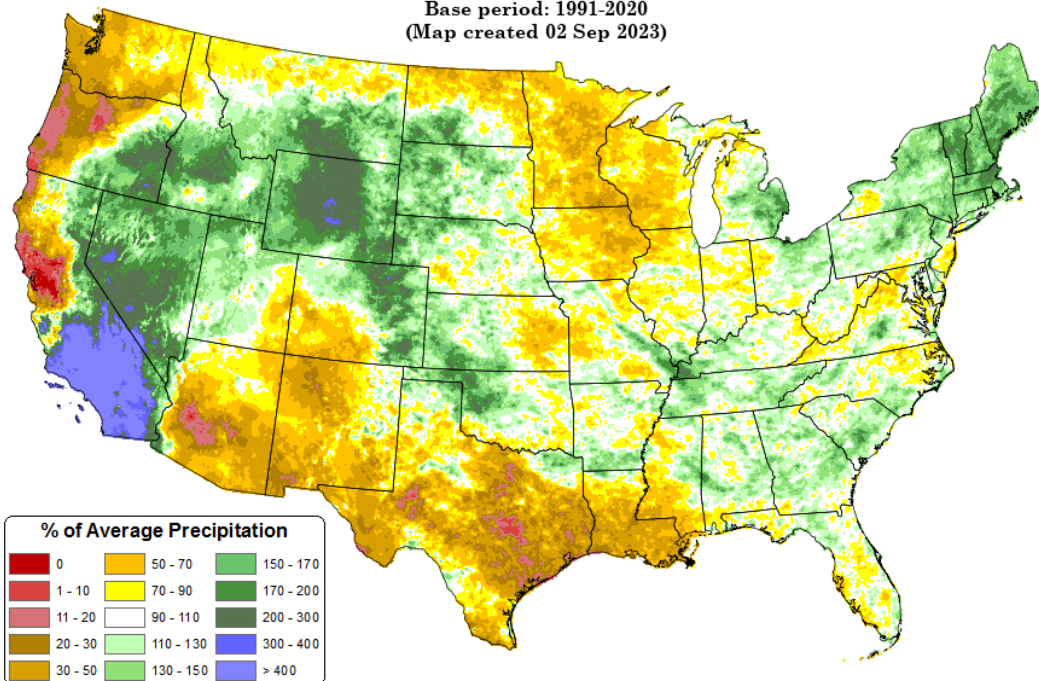
Copyright (c) 2023, PRISM Climate Group, Oregon State University

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

Source: PRISM

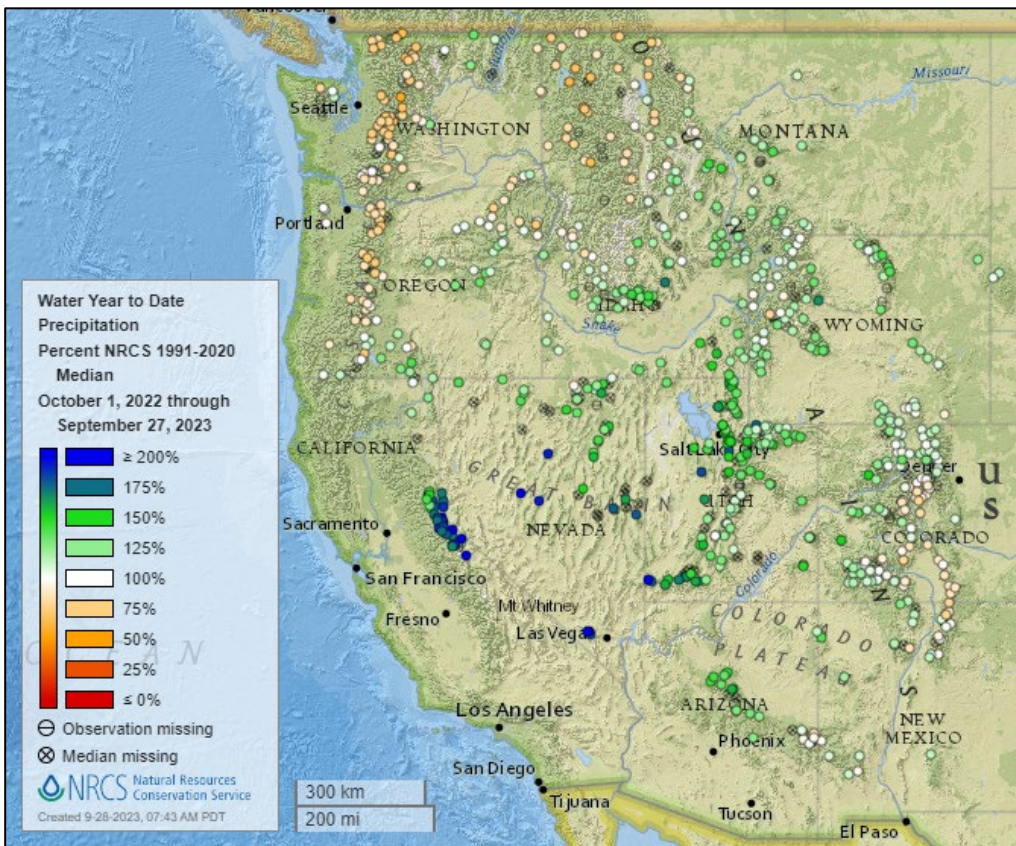
[June through August 2023 precipitation anomaly map](#)

**Total Precipitation Anomaly: Jun 2023 - Aug 2023**  
Period ending 7 AM EST 31 Aug 2023  
Base period: 1991-2020  
(Map created 02 Sep 2023)



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

Water Year-to-Date, NRCS SNOTEL Network

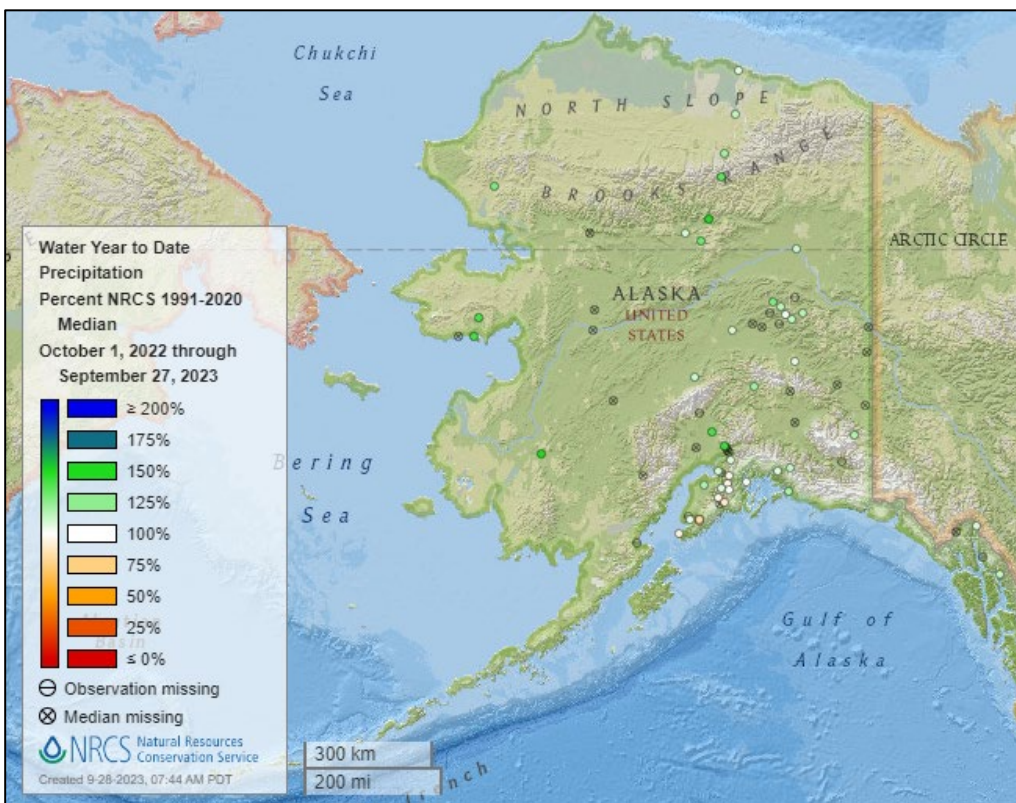


[2023 water year-to-date precipitation percent of median map](#)

**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

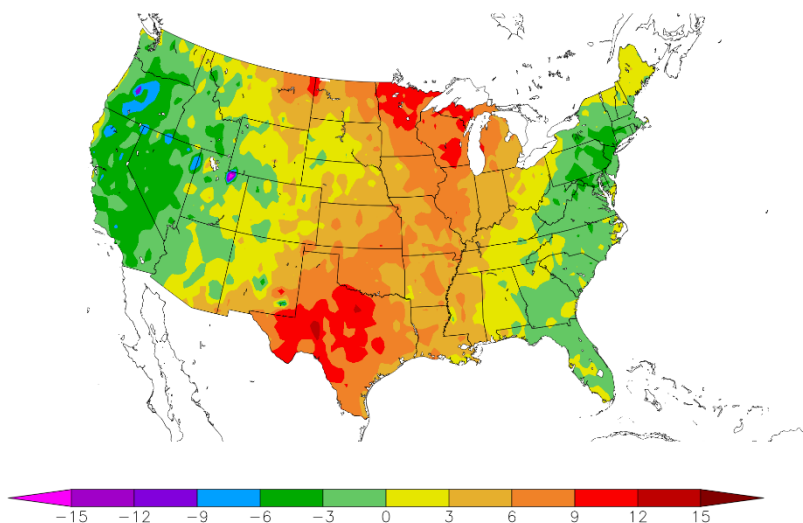
### Last 7 Days, National Weather Service (NWS) Networks

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)  
9/21/2023 – 9/27/2023



Generated 9/28/2023 at IPRCC using provisional data.

NOAA Regional Climate Centers

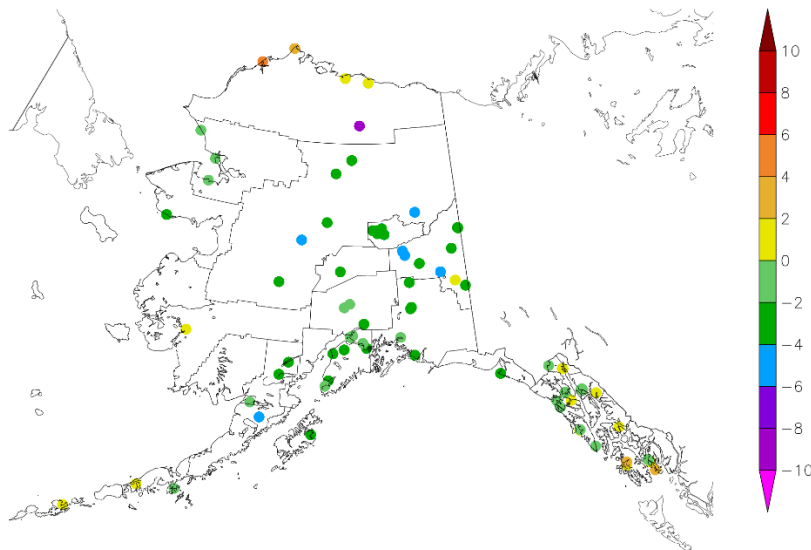
### Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

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

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

Departure from Normal Temperature (F)  
9/21/2023 – 9/27/2023



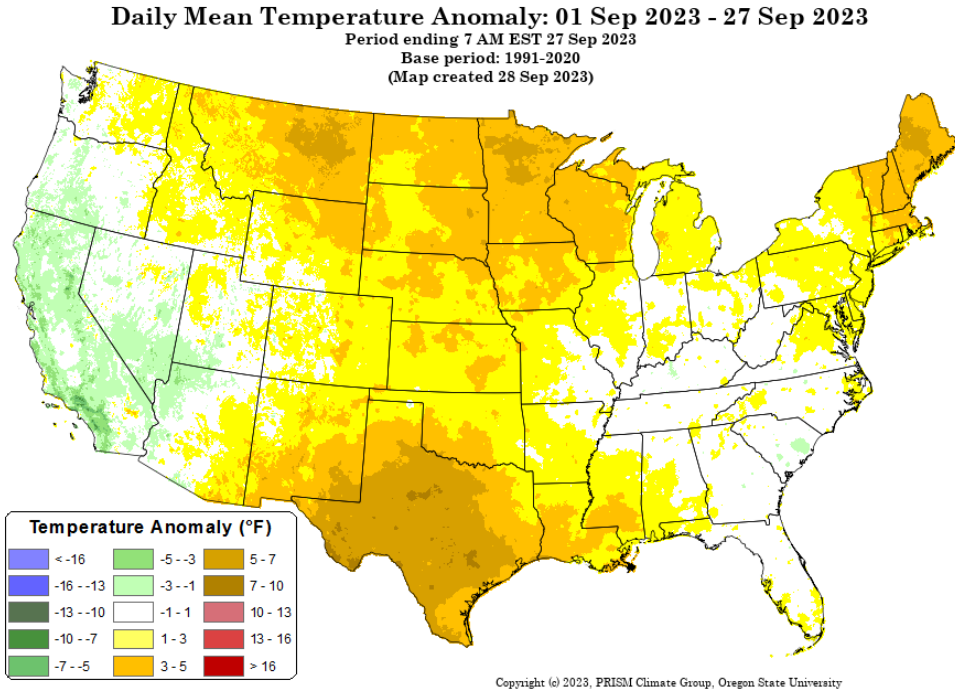
Generated 9/28/2023 at HPRCC using provisional data.

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

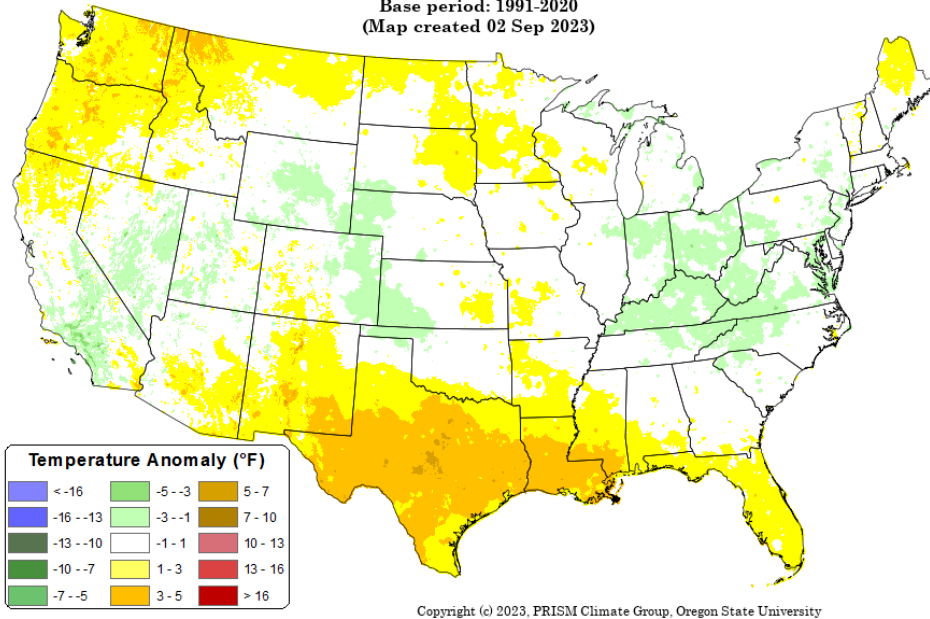
Daily Mean Temperature Anomaly: Jun 2023 - Aug 2023

Period ending 7 AM EST 31 Aug 2023

Base period: 1991-2020

(Map created 02 Sep 2023)

[June through August 2023 daily mean temperature anomaly map](#)



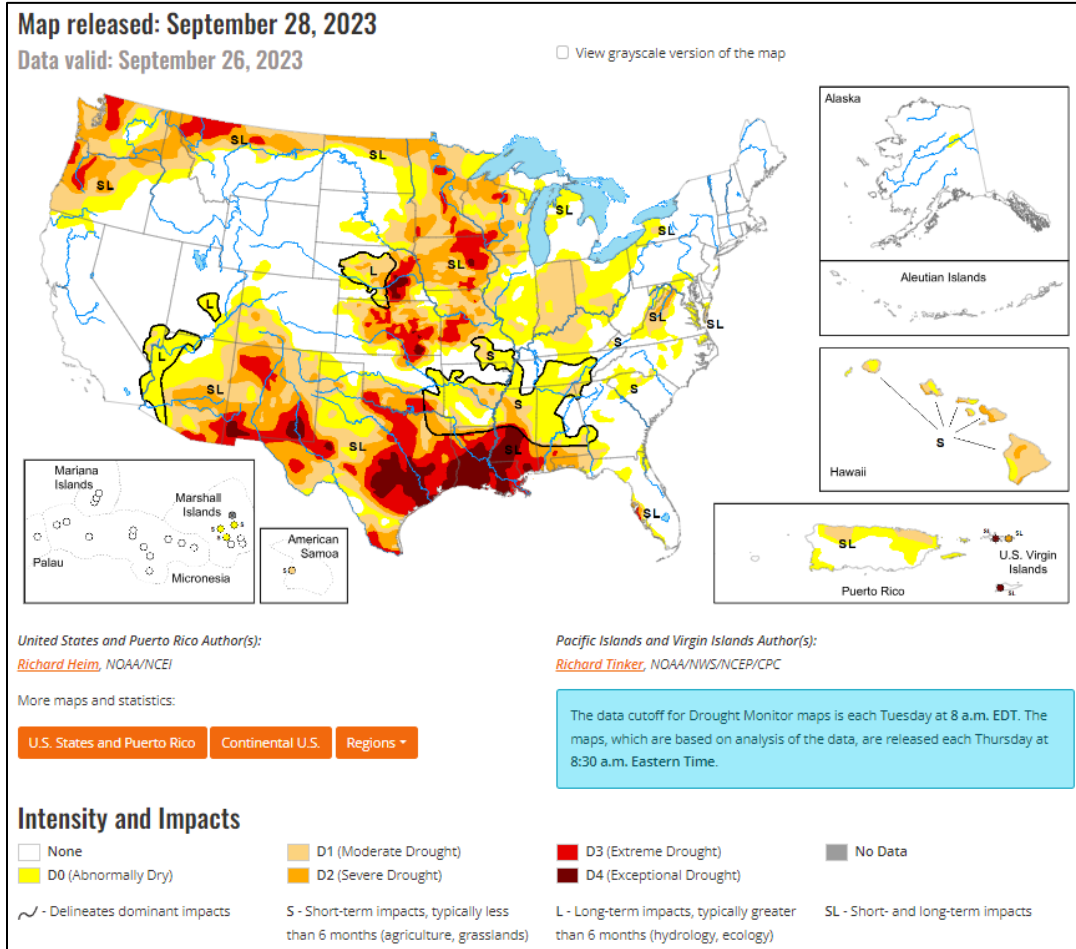
# Drought

## [U.S. Drought Monitor](#)

Source: National Drought Mitigation Center

## [U.S. Drought Portal](#)

Source: NOAA



## Current [National Drought Summary](#), September 26, 2023

Source: National Drought Mitigation Center

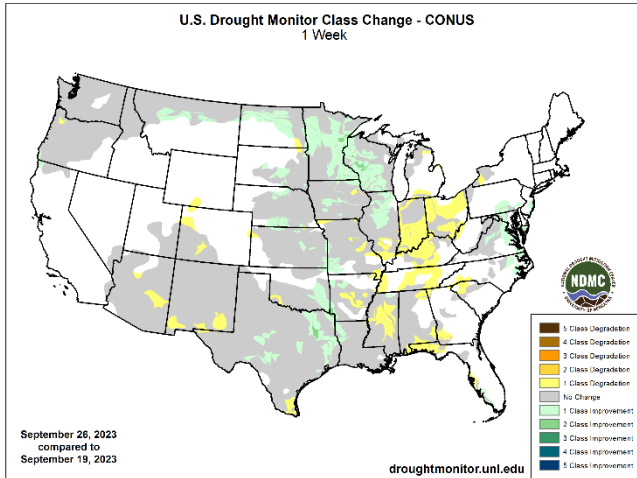
“The upper-level circulation over the contiguous U.S. (CONUS) during this U.S. Drought Monitor (USDM) week (September 20-26) consisted of an upper-level ridge of high pressure, that extended from the southern Plains to Hudson Bay, and a low-pressure trough over the eastern Pacific. The trough sent weather systems spinning across the CONUS, with their fronts and surface low pressure systems generating areas of rain across the Pacific Northwest, northern Rockies, and Great Plains to the Mississippi Valley. Meanwhile, Tropical Storm Ophelia moved up the East Coast, spreading rain from North Carolina to southern New England. These areas were wetter than normal for the week. Some of the rain was locally heavy, with over 5 inches reported in places. Much of the rain fell over severely dry areas, which resulted in contraction or reduction in the intensity of drought in parts of the Great Plains, Upper Mississippi Valley, and Mid-Atlantic states. It was drier than normal across the rest of the West, large parts of the central to southern Plains, and most of the country between the Mississippi Valley and Appalachians. The continued dry conditions from the Ohio Valley to central Gulf of Mexico Coast resulted in expansion or intensification of drought and abnormal dryness in these areas. Temperatures averaged warmer than normal beneath the ridge across the Plains, Mississippi Valley, and Great Lakes. The week was cooler than normal in the West and across the East Coast states.”



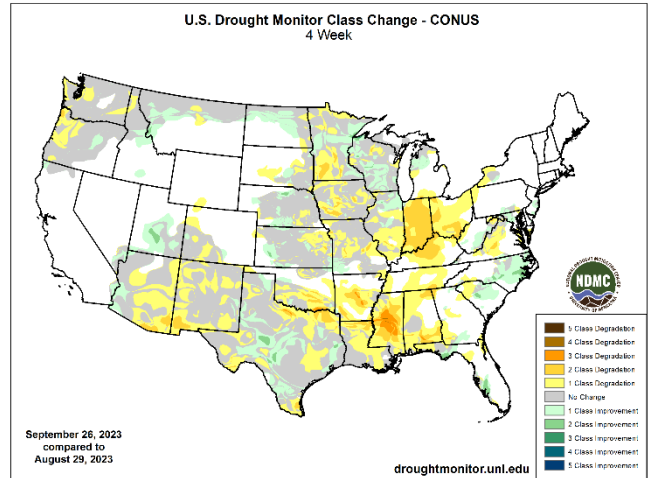
## Changes in Drought Monitor Categories over Time

Source: National Drought Mitigation Center

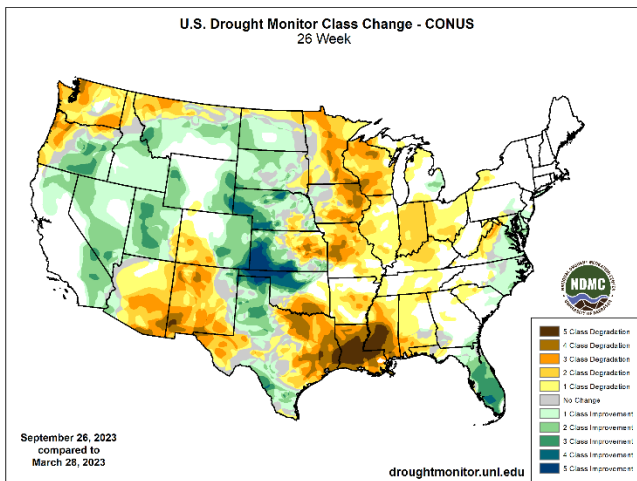
### 1 Week



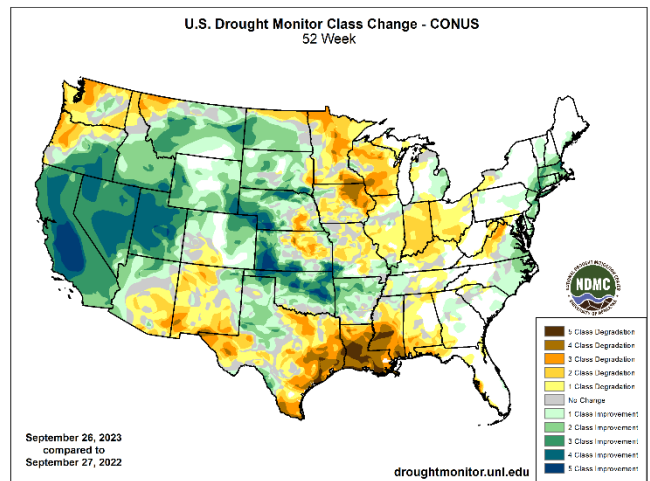
### 1 Month



### 6 Months



### 1 Year



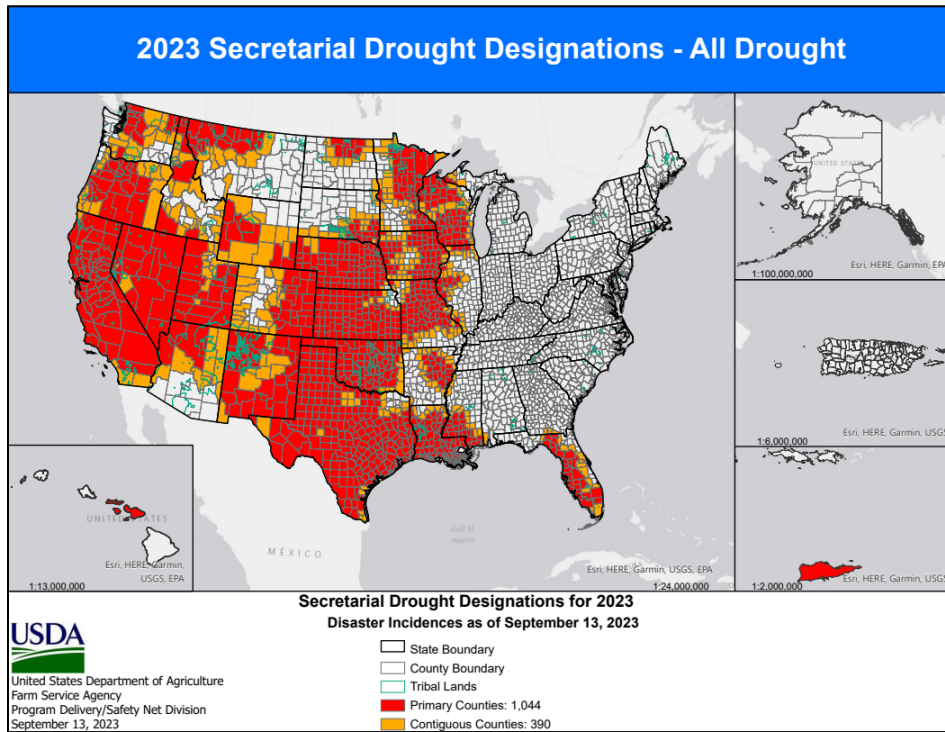
[Changes in drought conditions over the last 12 months for the contiguous U.S.](#)

## 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](#)

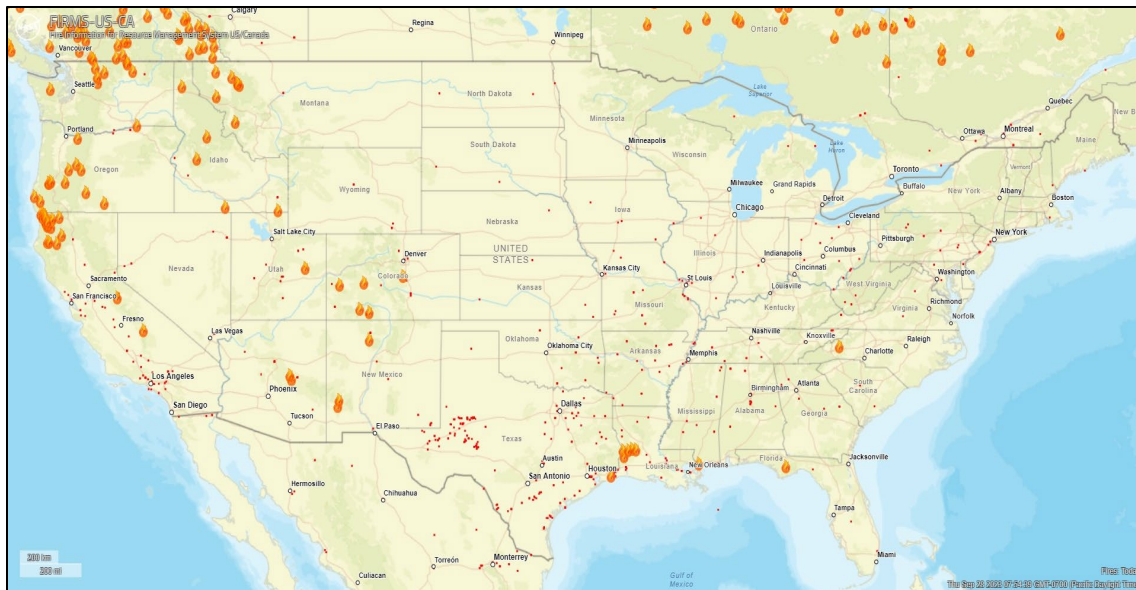
## USDA Secretarial [Drought Designations](#)

Source: USDA Farm Service Agency



## Wildfires: [Fire Information for Resource Management System US/Canada](#)

Source: NASA/USDA Forest Service



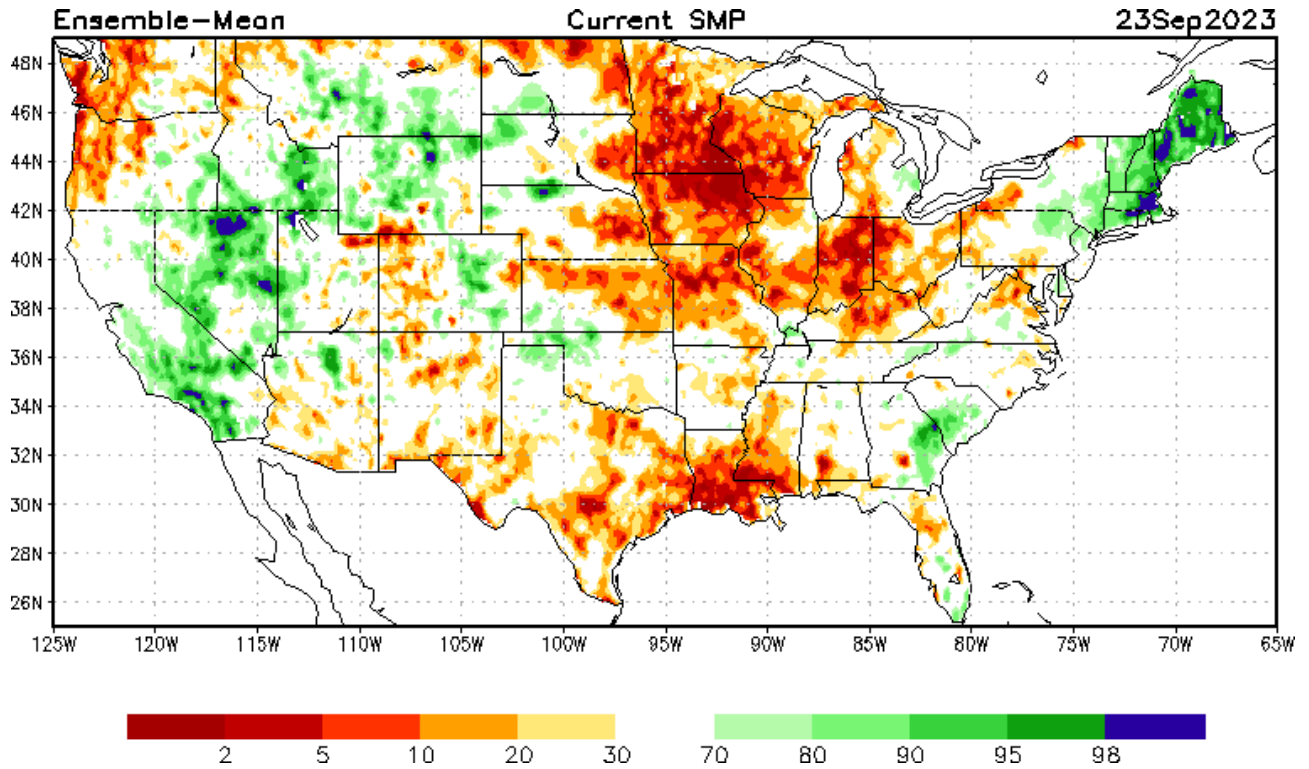
### Highlighted Wildfire Resources

- [National Interagency Fire Center](#)
- [InciWeb Incident Information System](#)
- [Significant Wildland Fire Potential Outlook](#)

## Other Climatic and Water Supply Indicators

### Soil Moisture

Source: NOAA National Centers for Environmental Prediction

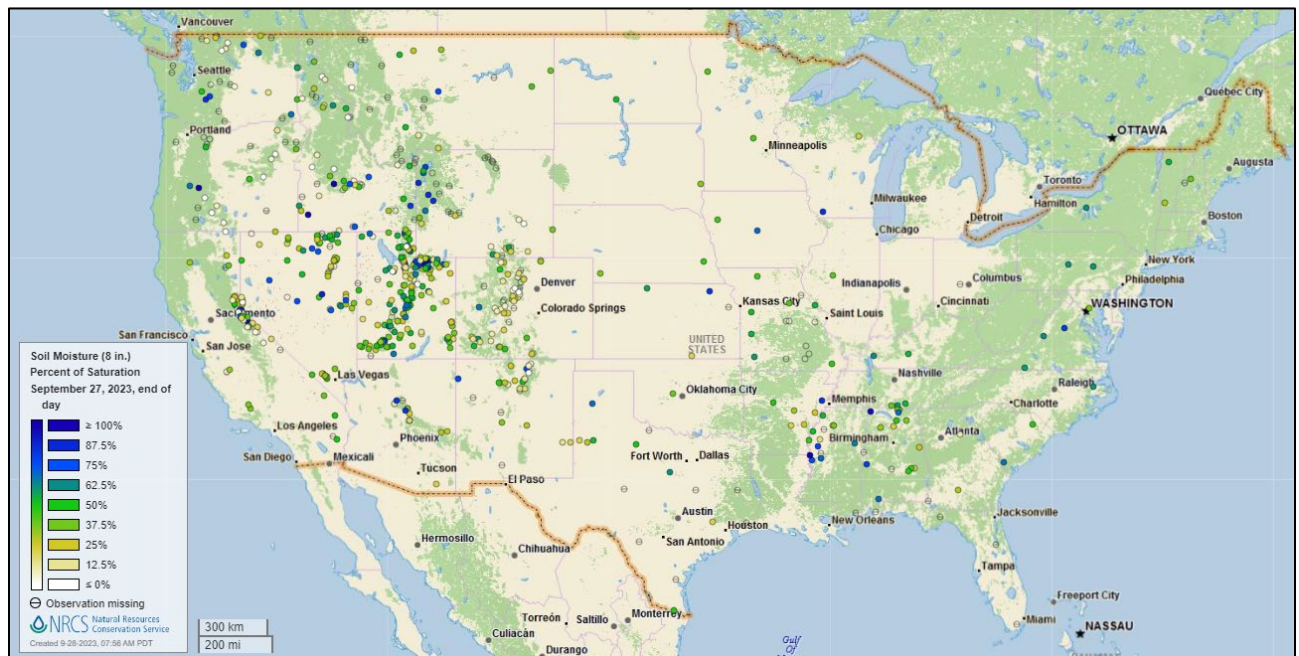


[Modeled soil moisture percentiles](#) as of September 23, 2023

### Soil Moisture Percent of Saturation

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

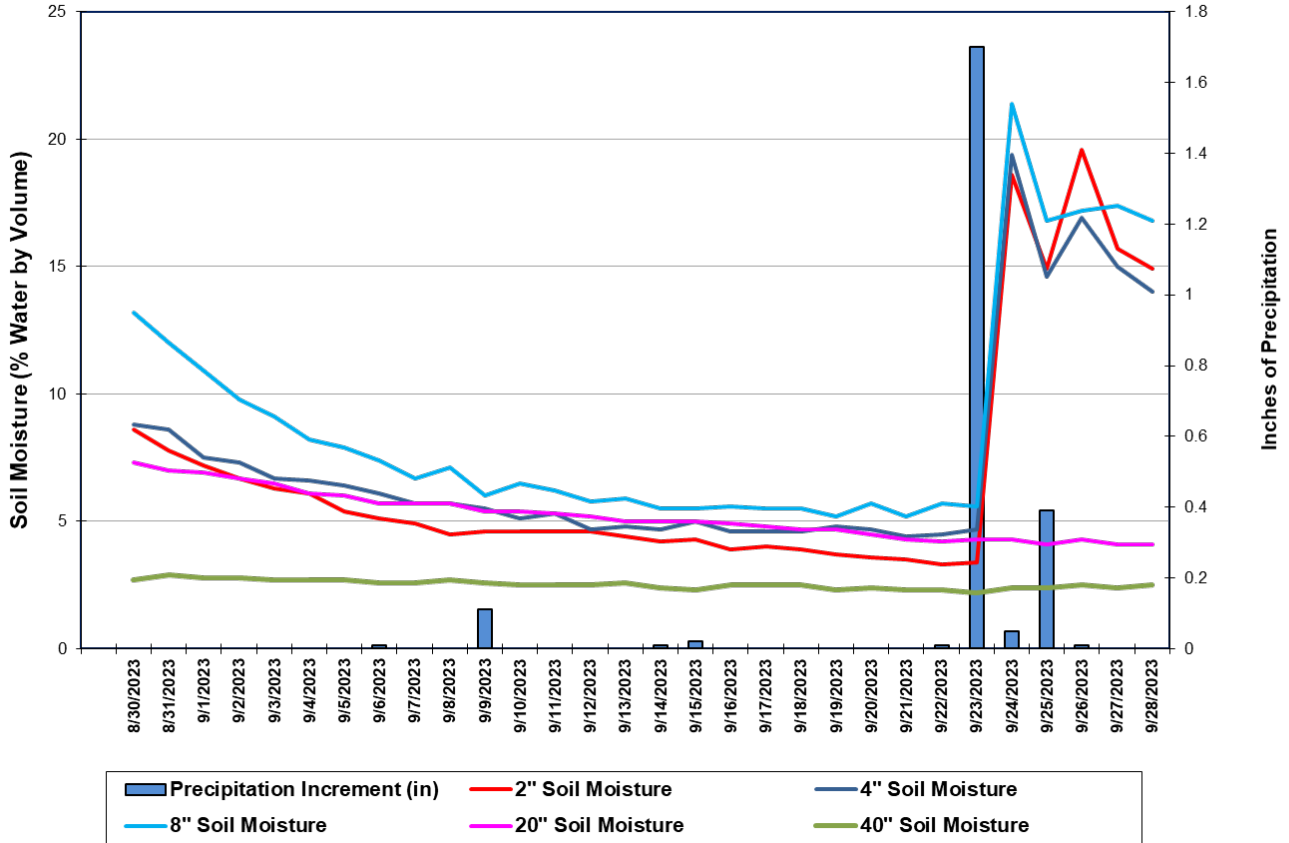
[U.S. soil moisture map at 8-inch depth:](#)



**Soil Moisture**

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

**Crescent Lake #1, Minnesota (SCAN site 2002)  
Daily Mean Soil Moisture vs. Daily Precipitation**



This chart shows the precipitation and soil moisture for the last 30 days at the [Crescent Lake #1](#) SCAN site in Minnesota. Soil sensors at all depths except the -40-inch sensor reported a gradual decrease in soil moisture at the site for most of the period, until a storm brought 1.7 inches of precipitation to the area on September 23 and caused an immediate increase in soil moisture at the -2, -4, and -8-inch sensors. Total precipitation for the 30-day period was 2.31 inches.

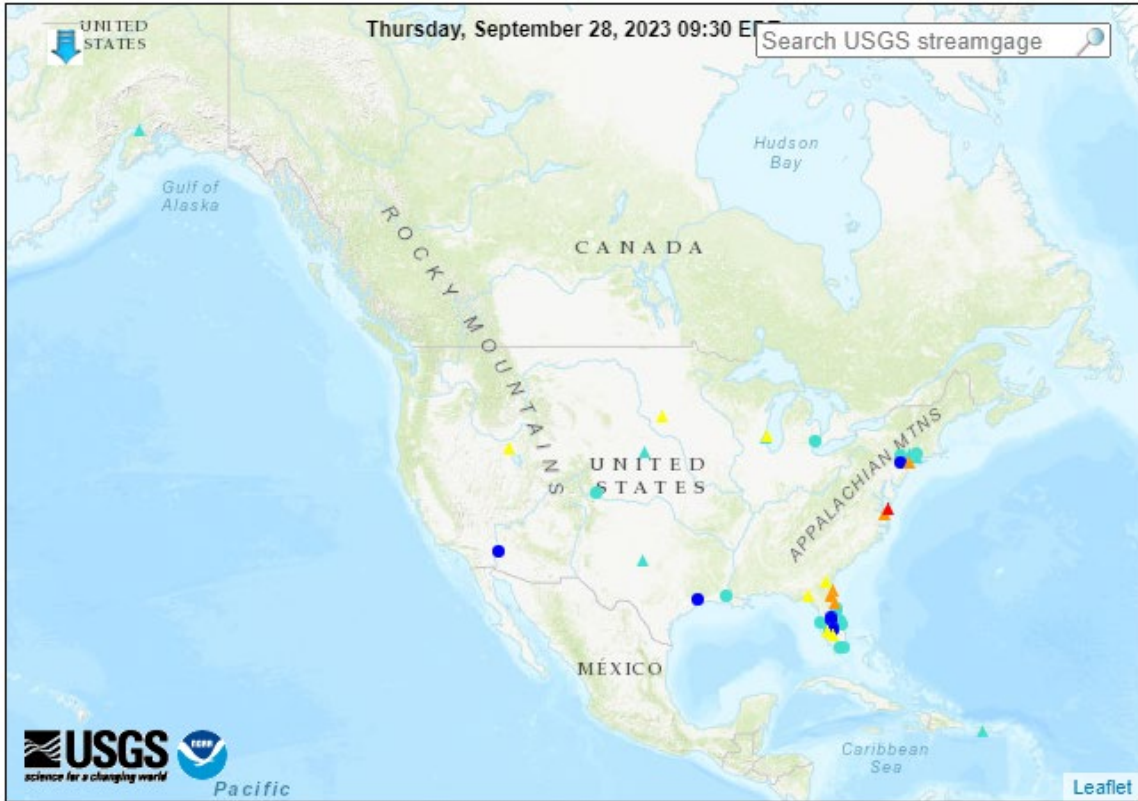
**Soil Moisture Data Portals**

- [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 (8 in floods [moderate: 1, minor: 7], 7 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

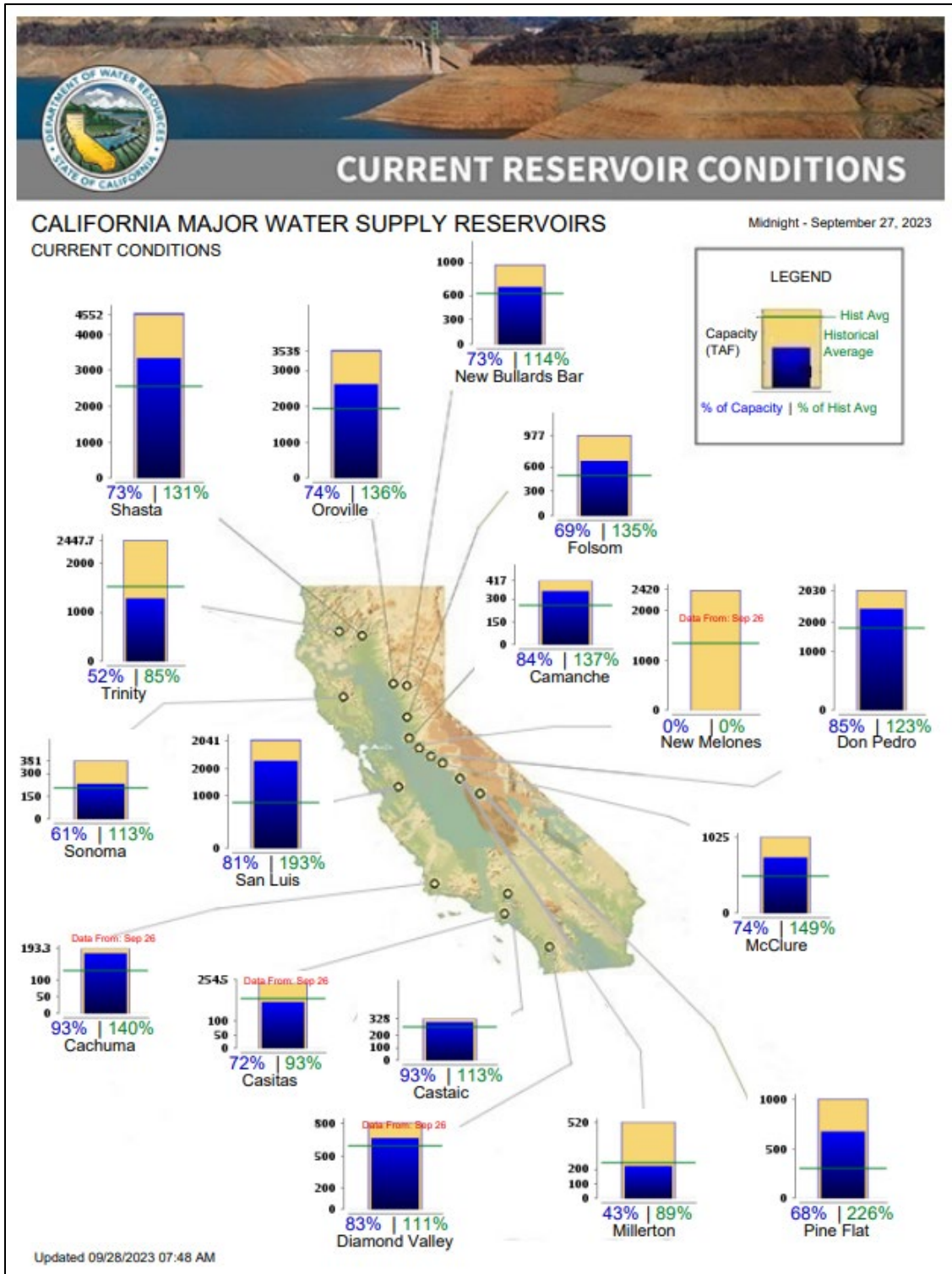
#### Hydromet Teacup Reservoir Depictions

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 September 28, 2023:** “Locally heavy showers in the Ohio Valley and environs will end later today. However, rain may linger through the weekend or beyond across Florida’s peninsula, where 5-day totals could reach 1 to 4 inches. Farther north, rainfall associated with a cold front will graze the upper Midwest on Friday; otherwise, dry weather during the next 5 days across the Corn Belt will allow summer crops to continue drying down. Elsewhere, stormy weather currently affecting the Pacific Northwest will gradually shift southward and eastward. By early next week, scattered showers may reach as far east as the Plains. In advance of the approaching showers, record-setting warmth will continue, with temperatures consistently reaching 90°F or higher as far north as the western Corn Belt. The NWS 6- to 10-day outlook for October 3 – 7 calls for the likelihood of warmer- and drier-than-normal conditions across much of the eastern one-third of the U.S., along with cooler- and wetter-than-normal weather in the Northwest. Meanwhile, warmer- and wetter-than-normal weather can be expected across the central one-third of the country.”

## Weather Hazards Outlook: [September 30 – October 04, 2023](#)

Source: NOAA Weather Prediction Center















### U.S. Day 3-7 Hazards Outlook

[About the Hazards Outlook](#)

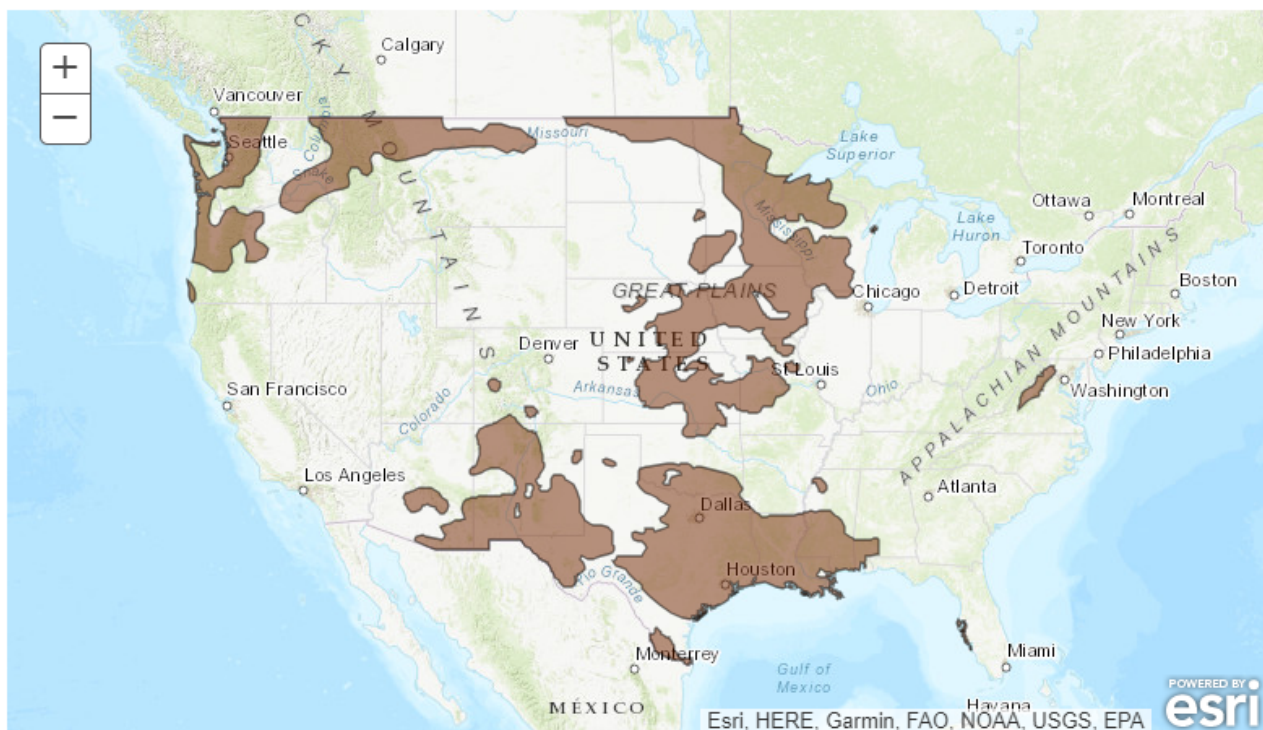
Created September 27, 2023

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"/>
Wildfires	<input checked="" type="checkbox"/>
Soils	<input checked="" type="checkbox"/>

Legend			
	Flooding Likely		Hazardous Heat
	Flooding Occurring or Imminent		Hazardous Cold
	Flooding Possible		Frost/Freeze
	Freezing Rain		High Winds
	Heavy Precipitation		Significant Waves
	Heavy Rain		Critical Wildfire Risk
	Heavy Snow		Severe Weather

Valid September 30, 2023 - October 04, 2023

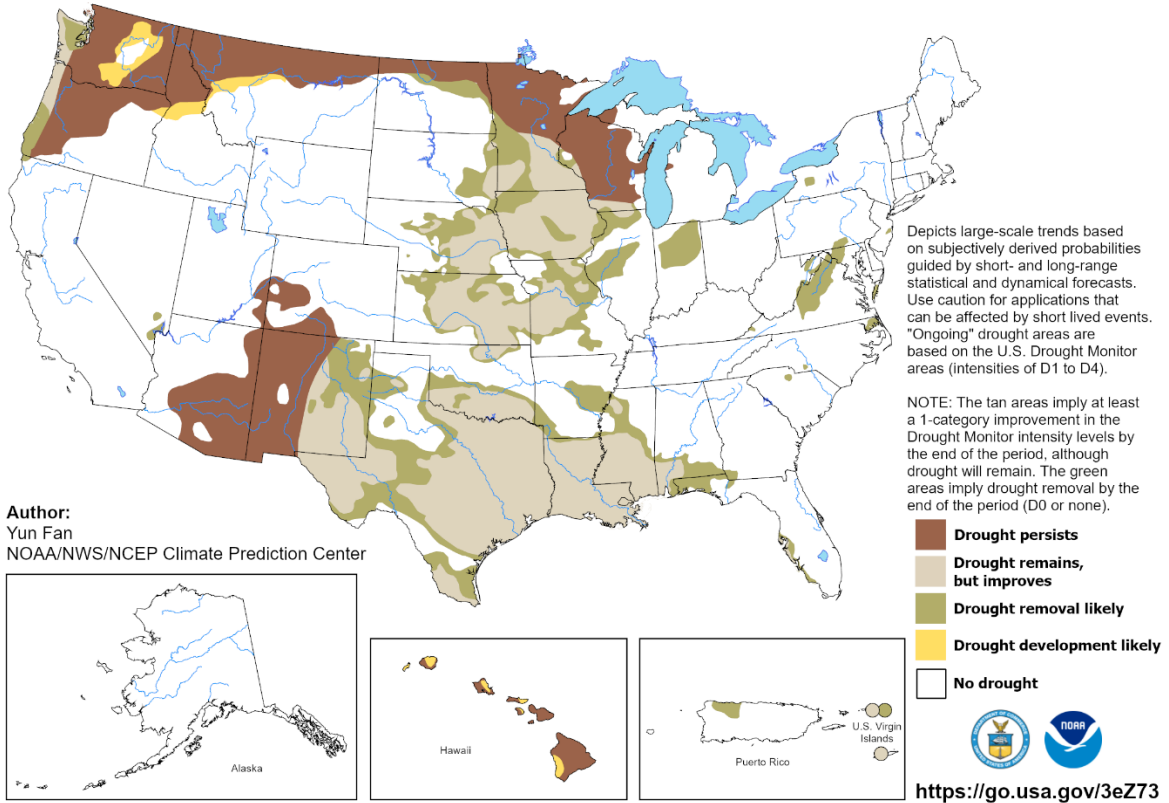


**Seasonal Drought Outlook: [September 21 – December 31, 2023](#)**

Source: National Weather Service

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

Valid for September 21 - December 31, 2023  
Released September 21, 2023

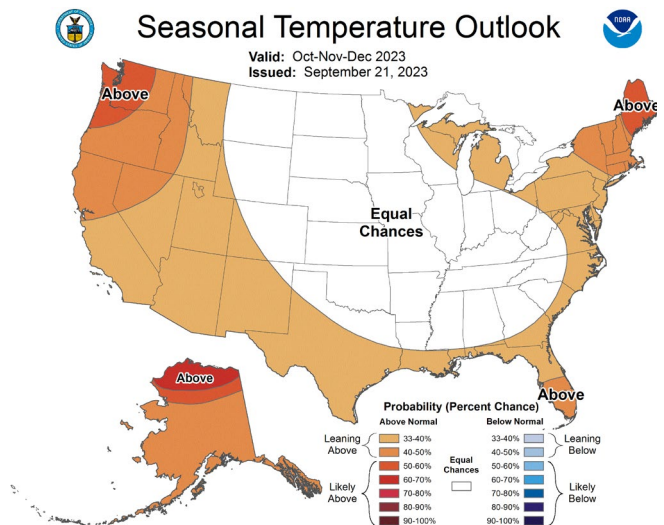
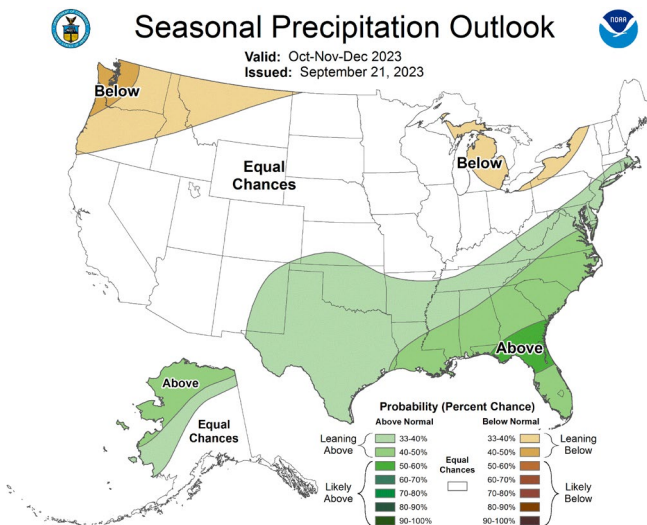


**Climate Prediction Center Three-month Outlook**

Source: National Weather Service

Precipitation

Temperature



[October-November-December 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](#).