



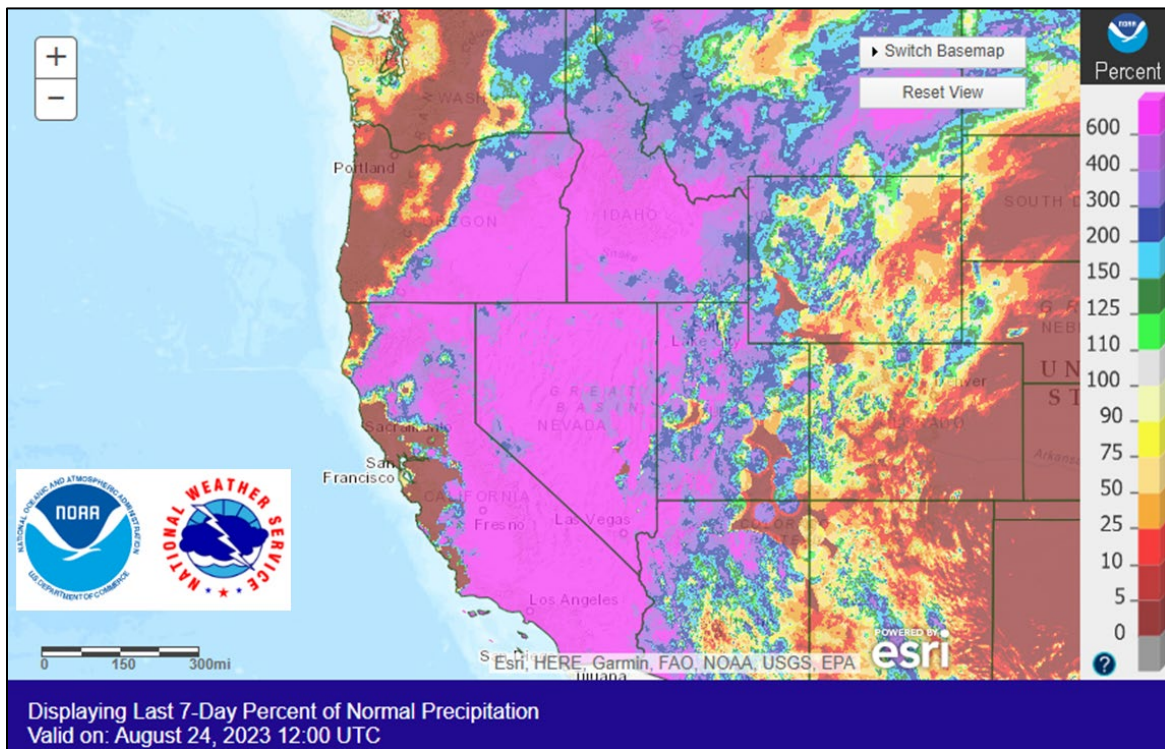
Water and Climate Update

August 24, 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.

| | | | |
|---------------------|---|--------------------------------------------------|----|
| Precipitation | 2 | Other Climatic and Water Supply Indicators | 12 |
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| Drought | 8 | | |

Tropical Storm Hilary dumps record rainfall across the West



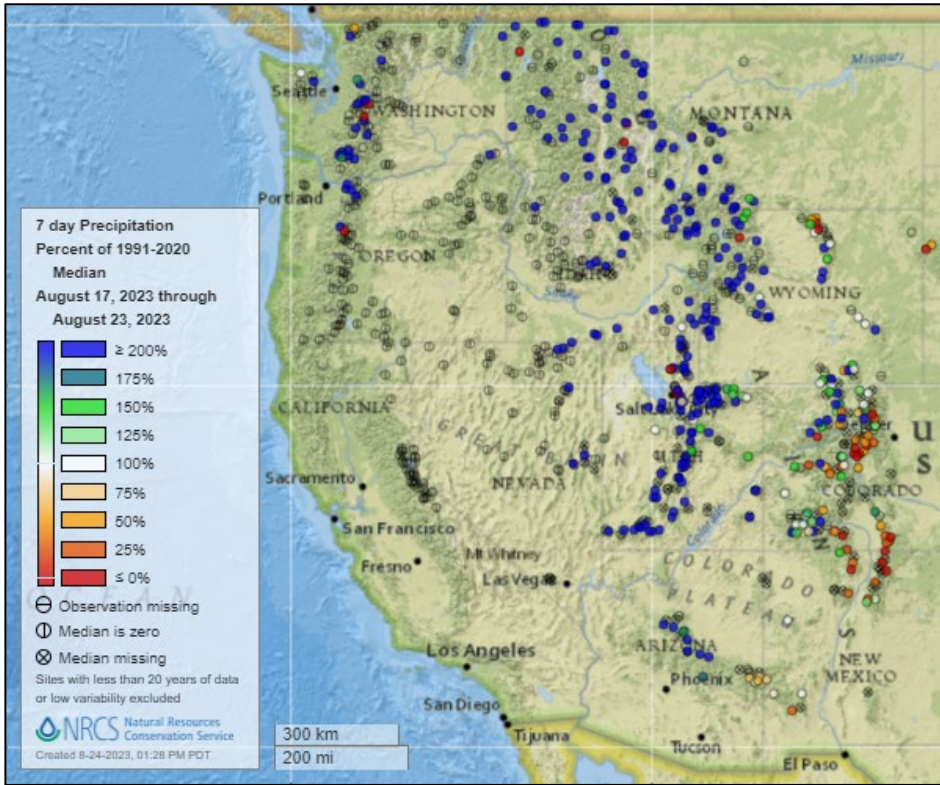
Hurricane Hilary downgraded to a tropical storm as it made landfall in Mexico’s Baja California Peninsula on August 20 before carving its way north through several western states. The storm brought record amounts of rainfall to several areas throughout the region, causing floods, mudslides, and power outages. Death Valley National Park experienced its rainiest day ever recorded and left hundreds of visitors and residents trapped as roads closed due to flooding. The Bristlecone Trail SNOTEL site in Mt. Charleston, NV recorded a staggering 9.7 inches of precipitation between August 20-21, where residents were left to shelter in place due to road damage caused by powerful floods.

Related:

- [California mountain and desert towns dig out of the mud from 1st tropical storm in 84 years](#) – AP
- [Four states broke rainfall records because of Tropical Storm Hilary](#) – NBC News
- [Trapped in Death Valley, hundreds wait for roads to be cleared](#) – Los Angeles Times (CA)
- [Residents shelter in place after Tropical Storm Hilary brings 'substantial flooding' to Mt. Charleston](#) – KTNV (Las Vegas, NV)
- ['Unlike anything our community has faced': Hilary triggers floods, rescues: Live updates](#) – USA Today

Precipitation

Last 7 Days, NRCS SNOTEL Network

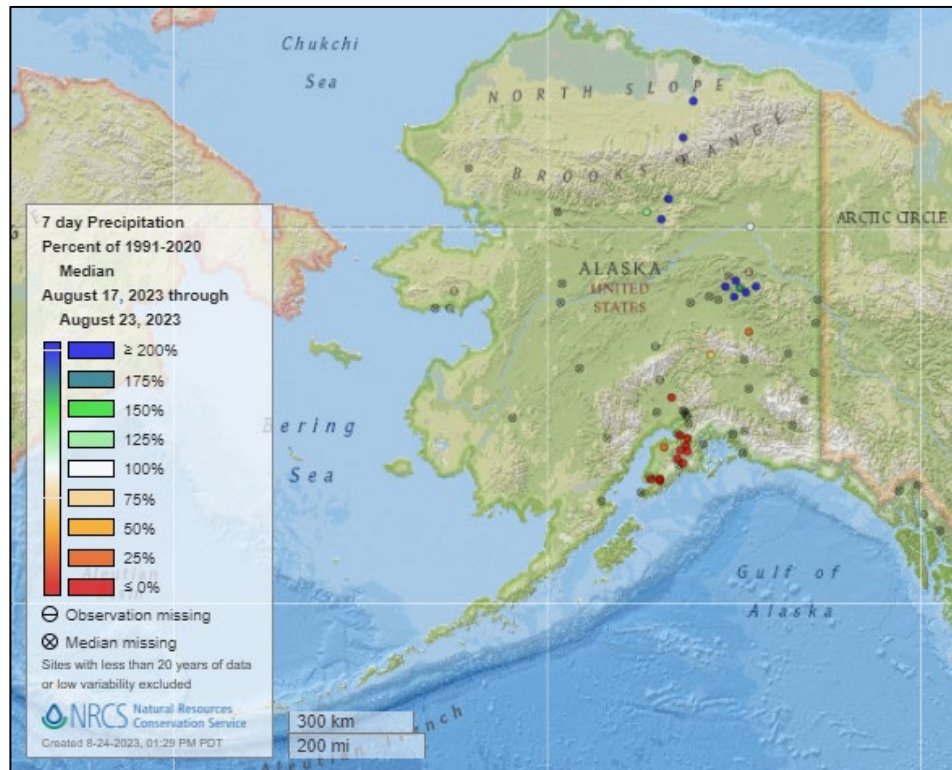


[7-day precipitation percent of median map](#)

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](#)



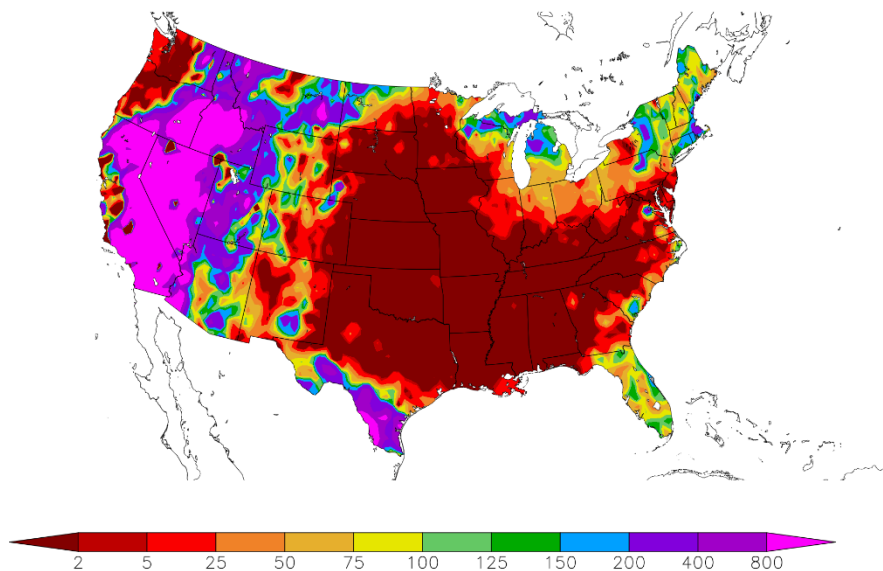
Last 7 Days, National Weather Service (NWS) Networks

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 (%)
8/17/2023 – 8/23/2023



Generated 8/24/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

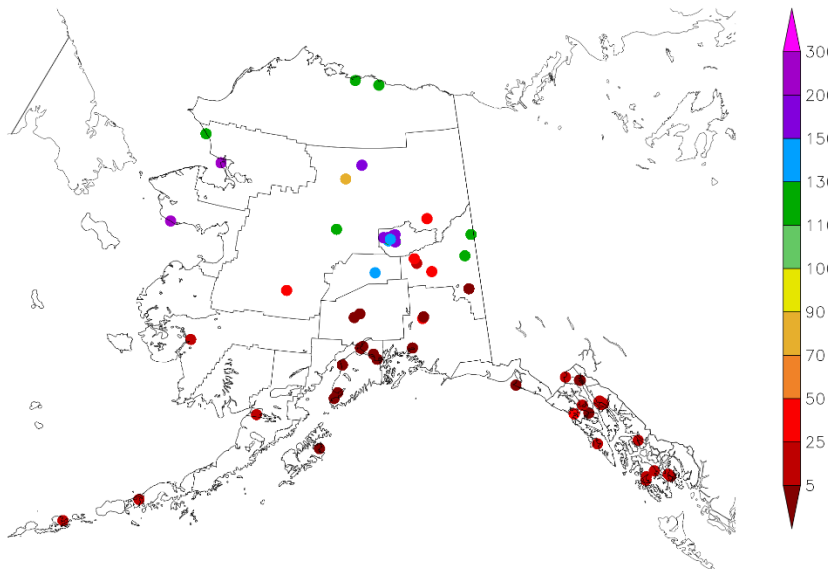
Last 7 Days, National Weather Service (NWS) Networks

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 (%)
8/17/2023 – 8/23/2023



Generated 8/24/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

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

Source: PRISM

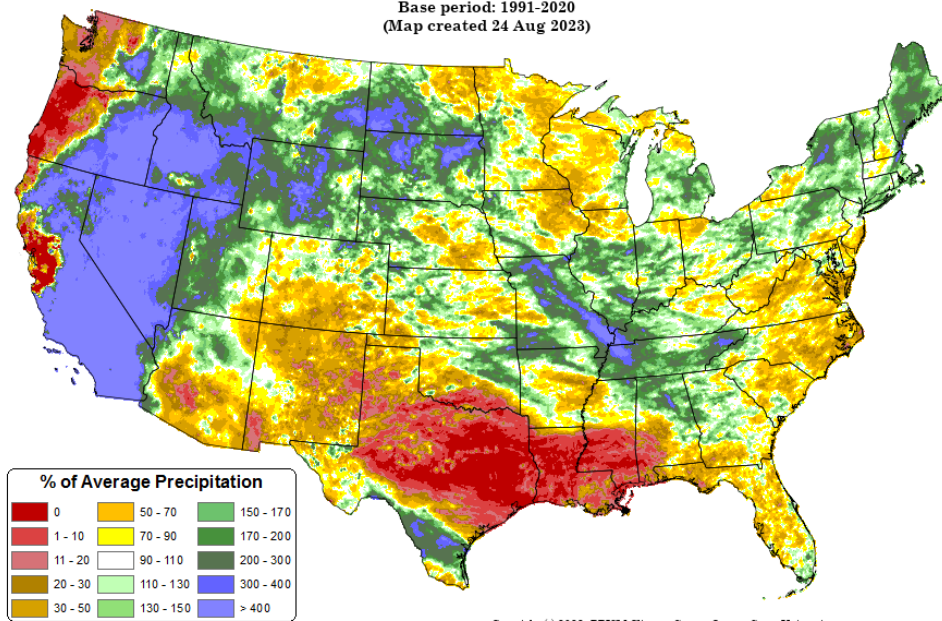
Total Precipitation Anomaly: 01 Aug 2023 - 23 Aug 2023

Period ending 7 AM EST 23 Aug 2023

Base period: 1991-2020

(Map created 24 Aug 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

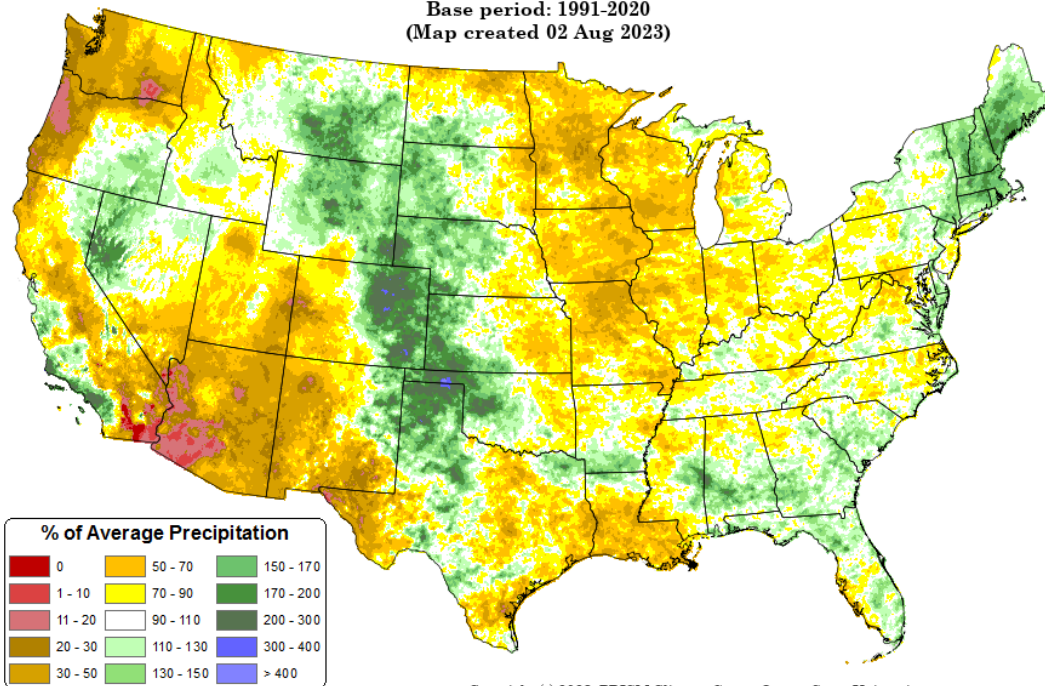
[May through July 2023 precipitation anomaly map](#)

Total Precipitation Anomaly: May 2023 - Jul 2023

Period ending 7 AM EST 31 Jul 2023

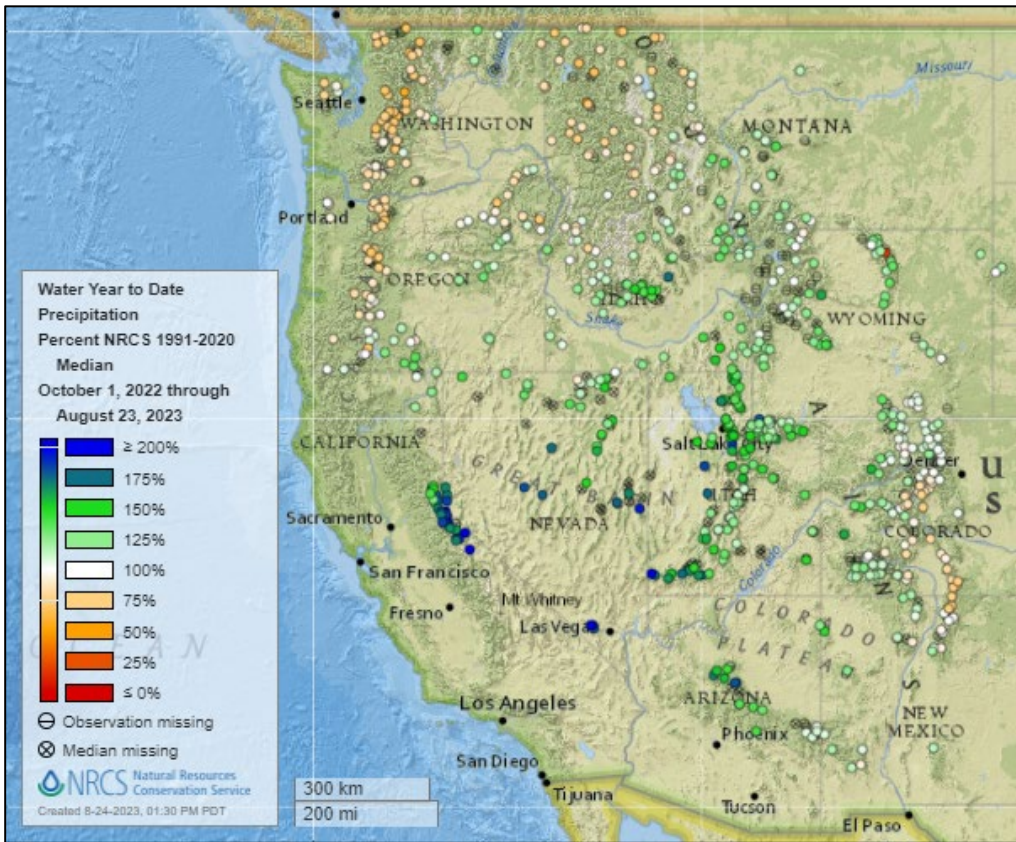
Base period: 1991-2020

(Map created 02 Aug 2023)



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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

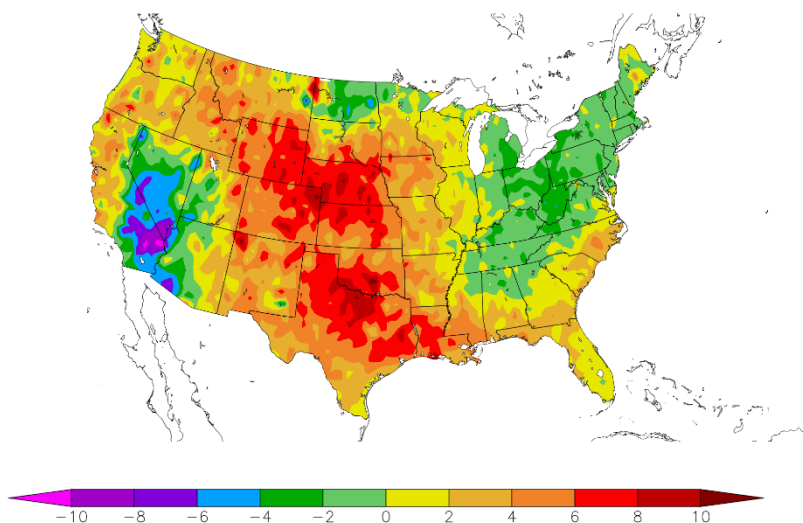
Last 7 Days, National Weather Service (NWS) Networks

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)
8/17/2023 – 8/23/2023



Generated 8/24/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

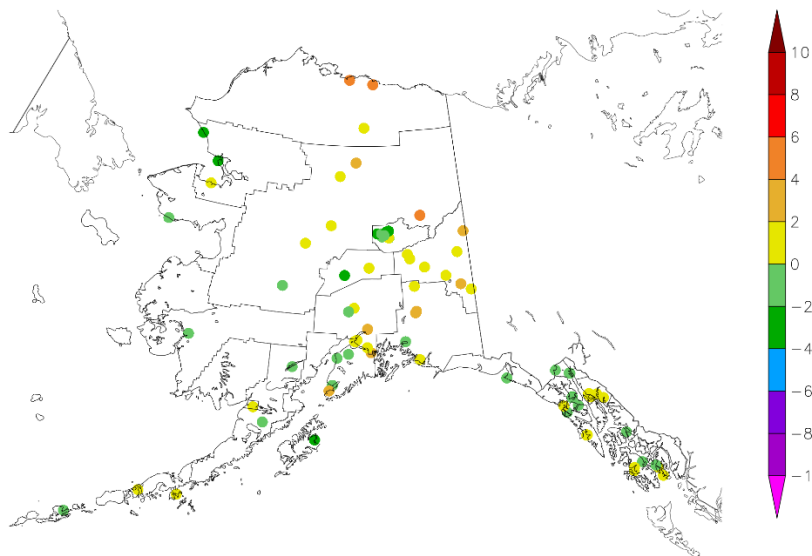
Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

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

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

Departure from Normal Temperature (F)
8/17/2023 – 8/23/2023



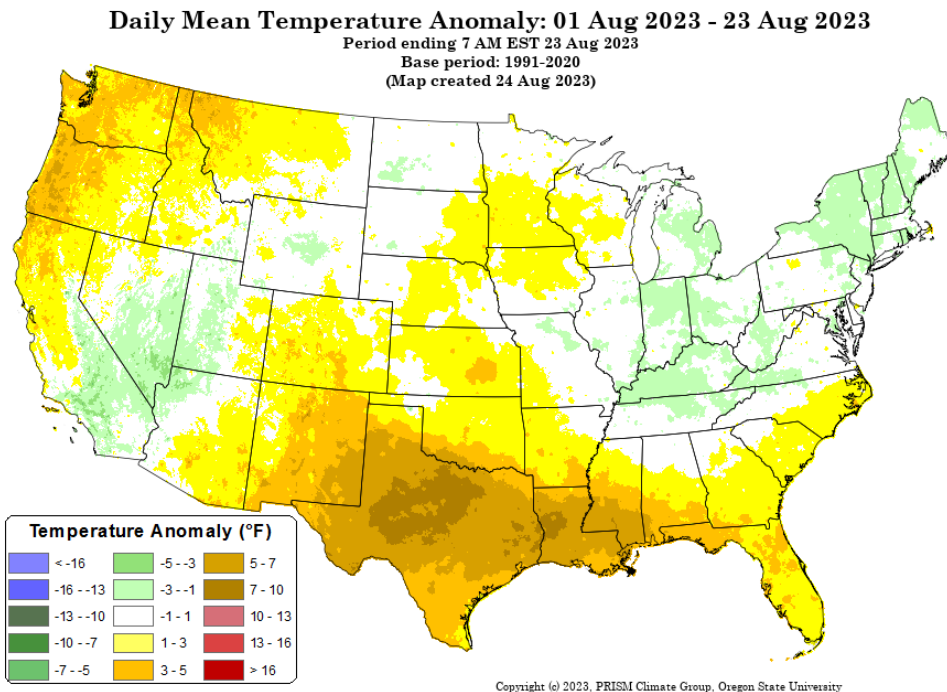
Generated 8/24/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

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

Source: PRISM

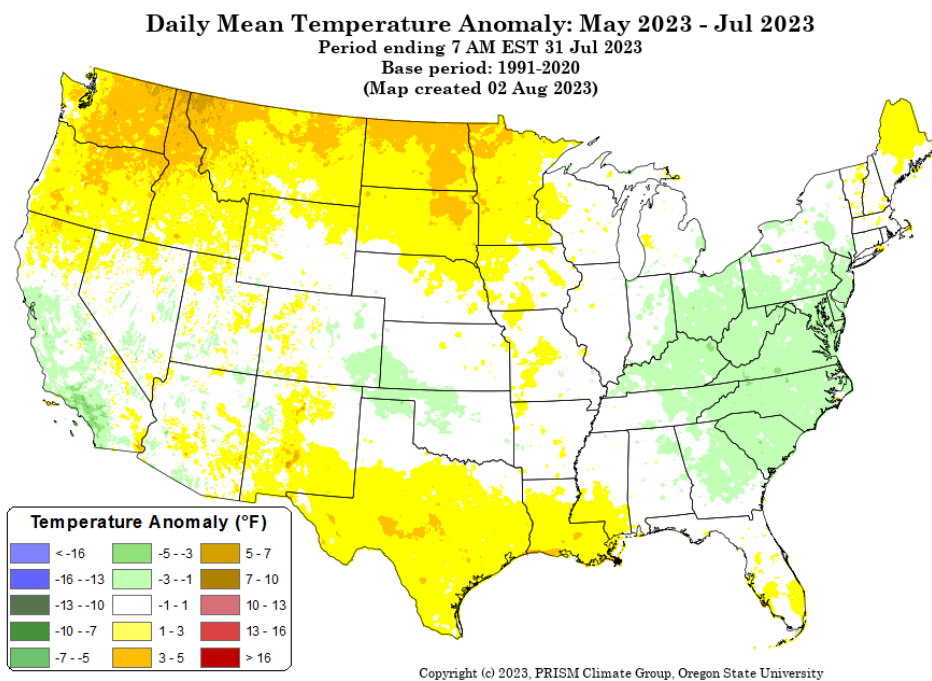
[Month-to-date national daily mean temperature anomaly map](#)



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

Source: PRISM

[May through July 2023 daily mean temperature anomaly map](#)



Drought

[U.S. Drought Monitor](#)

Source: National Drought Mitigation Center

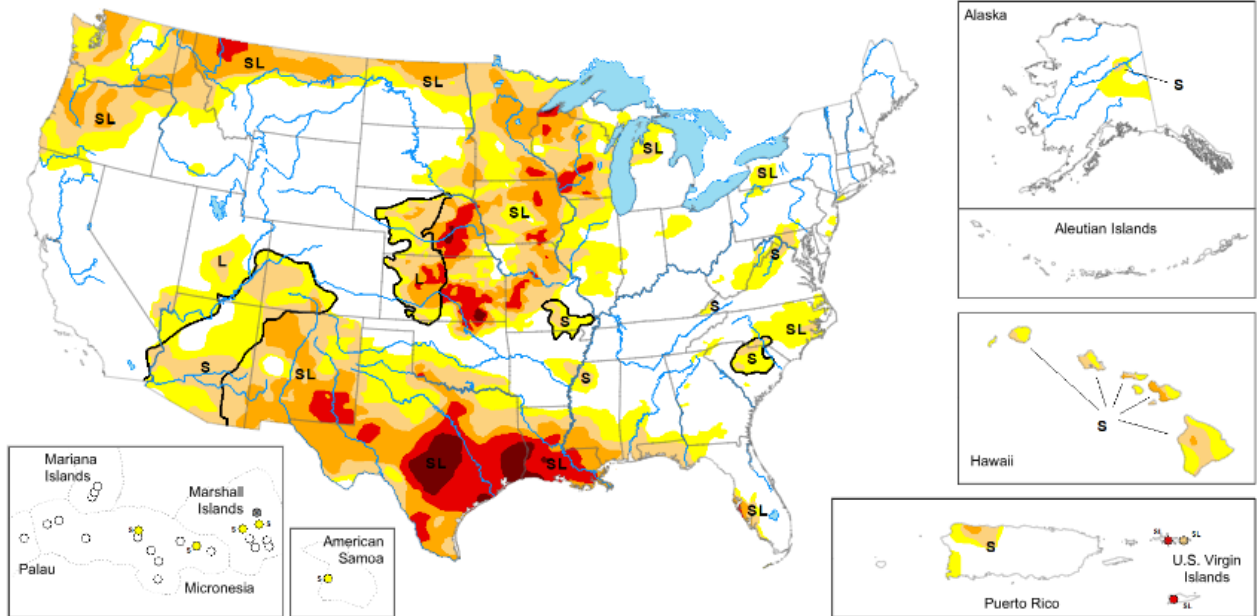
[U.S. Drought Portal](#)

Source: NOAA

Map released: August 24, 2023

Data valid: August 22, 2023

View grayscale version of the map



United States and Puerto Rico Author(s):

[David Simeral](#), Western Regional Climate Center

Pacific Islands and Virgin Islands Author(s):

[Rocky Bilotta](#), NOAA/NCEI

More maps and statistics:

- [U.S. States and Puerto Rico](#)
- [Continental U.S.](#)
- [Regions ▾](#)

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

| | | | |
|----------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------|
| <input type="checkbox"/> None | <input type="checkbox"/> D1 (Moderate Drought) | <input type="checkbox"/> D3 (Extreme Drought) | <input type="checkbox"/> No Data |
| <input type="checkbox"/> D0 (Abnormally Dry) | <input type="checkbox"/> D2 (Severe Drought) | <input type="checkbox"/> D4 (Exceptional Drought) | |
| - 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](#), August 22, 2023

Source: National Drought Mitigation Center

“This U.S. Drought Monitor (USDM) week saw drought-related improvements on the map across southern portions of California and Nevada in association with the impacts of Tropical Storm Hilary, which made landfall in Southern California over the weekend and into Monday. The tropical storm, the first to make landfall in Southern California since 1939, brought record-breaking rainfall accumulations leading to widespread life-threatening flash flooding, mud and rockslides, and debris flows to parts of the region. Rainfall totals for the event ranged from 2 to 12 inches with the heaviest accumulations observed in higher elevations including the San Gabriel and San Bernardino Ranges, southern Sierra Nevada, Panamint Range in Death Valley National Park, and in the Spring Mountains near Las Vegas. In terms of the urban areas, the Los Angeles Basin received totals ranging from 2 to 5 inches, while the greater San Diego area received 1 to 3 inches and Palm Springs 2 to 4 inches. The rainfall led to removal of lingering areas of drought across the Mojave Desert and southern Nevada. In the Southwest, conditions in New Mexico saw statewide degradation on the map in response to a combination of both short- and long-term dryness across the state, including a weak monsoon season with 60-day rainfall deficits ranging from 2 to 6-inches. In the South, drought-related conditions have deteriorated rapidly during the past month across areas of Texas and Louisiana where persistent heat and rainfall shortfalls have led to drought expansion and intensification on the map this week. During the past two weeks, average maximum temperatures were 6 to 10+ degrees F above normal across Texas, southern Oklahoma, Louisiana, and southern Mississippi with reports of impacts related to human health as well as severe impacts to agriculture, vegetation health, and surface water conditions. Looking at the latest climatological data released by NOAA NCEI (through July 2023), Louisiana Climate Division 7 (Southwest Louisiana) observed its warmest May-July period on record, while Texas Climate Division 8 (Upper Coast) experienced its warmest June-July period on record. In the Midwest, continued areas of dryness led to degradations in portions of Minnesota, Iowa, and Wisconsin. In the Eastern Tier, some minor deterioration in drought-related conditions occurred in areas of the Carolinas as well as in the Panhandle of Florida.”

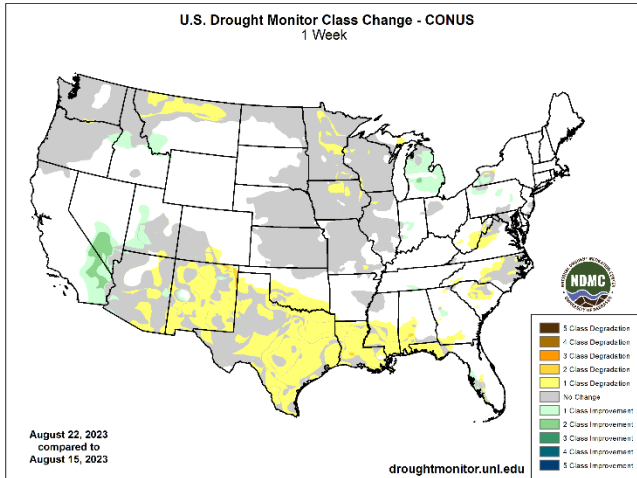
National Drought Summary – West

“On the map, widespread improvements were made in drought-affected areas of southern California and Nevada in response to heavy rainfall accumulations associated with Tropical Storm Hilary and its remnant moisture that pushed northward across the Mojave Desert, Great Basin, and into the Pacific Northwest. The severe weather event helped to eliminate areas of lingering drought on the map across the Mojave Desert and in areas of southern Nevada. Likewise, conditions improved on the map in west-central Idaho and northeastern Oregon in response to this week’s rainfall. Conversely, continued dryness and below-normal streamflow activity led to an introduction of Extreme Drought (D3) in the Northern Rockies around Glacier National Park where streamflows on the North Fork of the Flathead River at Columbia Falls, Montana were in the 4th percentile. In north-central Montana, areas of Severe Drought (D2) expanded on the map due to a combination of factors including dry soils and below-normal precipitation during the past 60-day period. In the Four Corners states, the poor monsoon season and related precipitation shortfalls led to introduction of areas of Moderate Drought (D1) in southern and central Arizona as well as in south-central Colorado in the San Luis Valley. In New Mexico, the combination of short- and long-term precipitation deficits, poor soil moisture, and rangeland conditions led to widespread deterioration on the map across much of the state.”

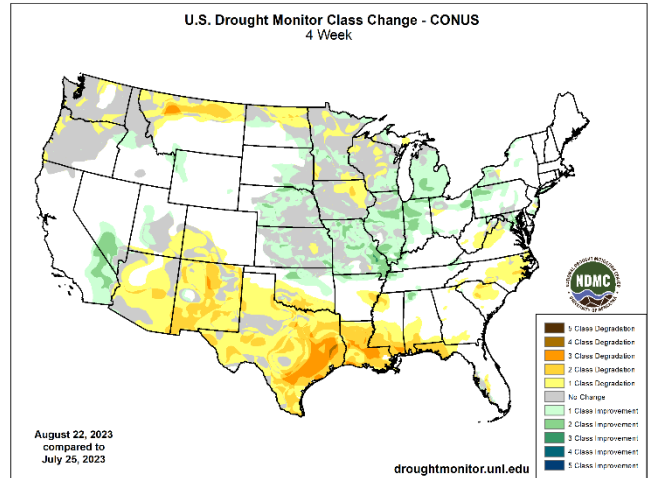
Changes in Drought Monitor Categories over Time

Source: National Drought Mitigation Center

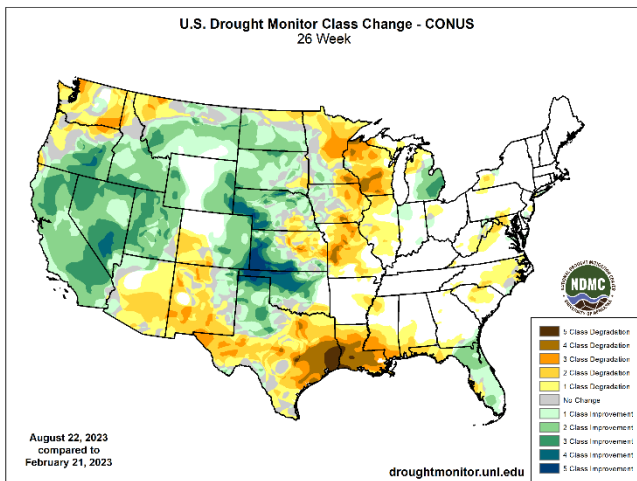
1 Week



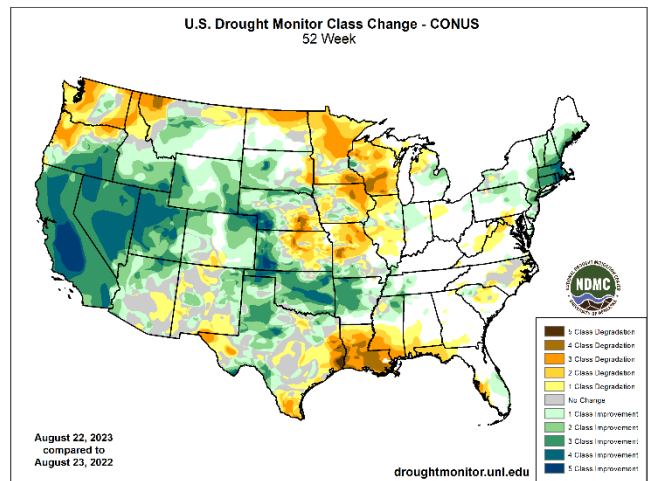
1 Month



6 Months



1 Year



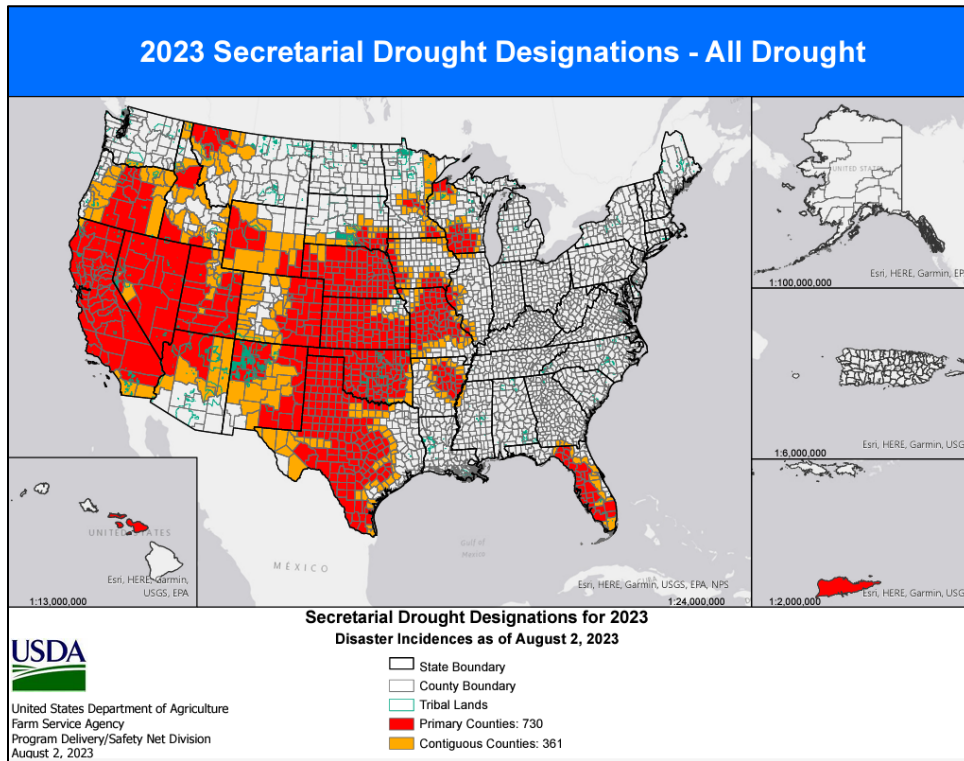
[Changes in drought conditions over the last 12 months for the contiguous U.S.](#)

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](#)

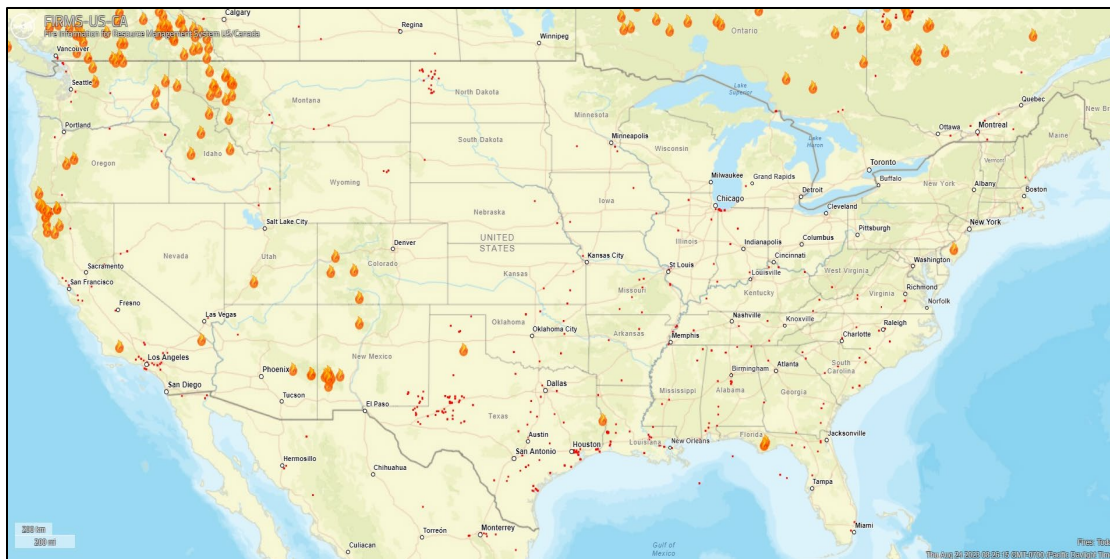
USDA Secretarial [Drought Designations](#)

Source: USDA Farm Service Agency



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

Source: NASA/USDA Forest Service



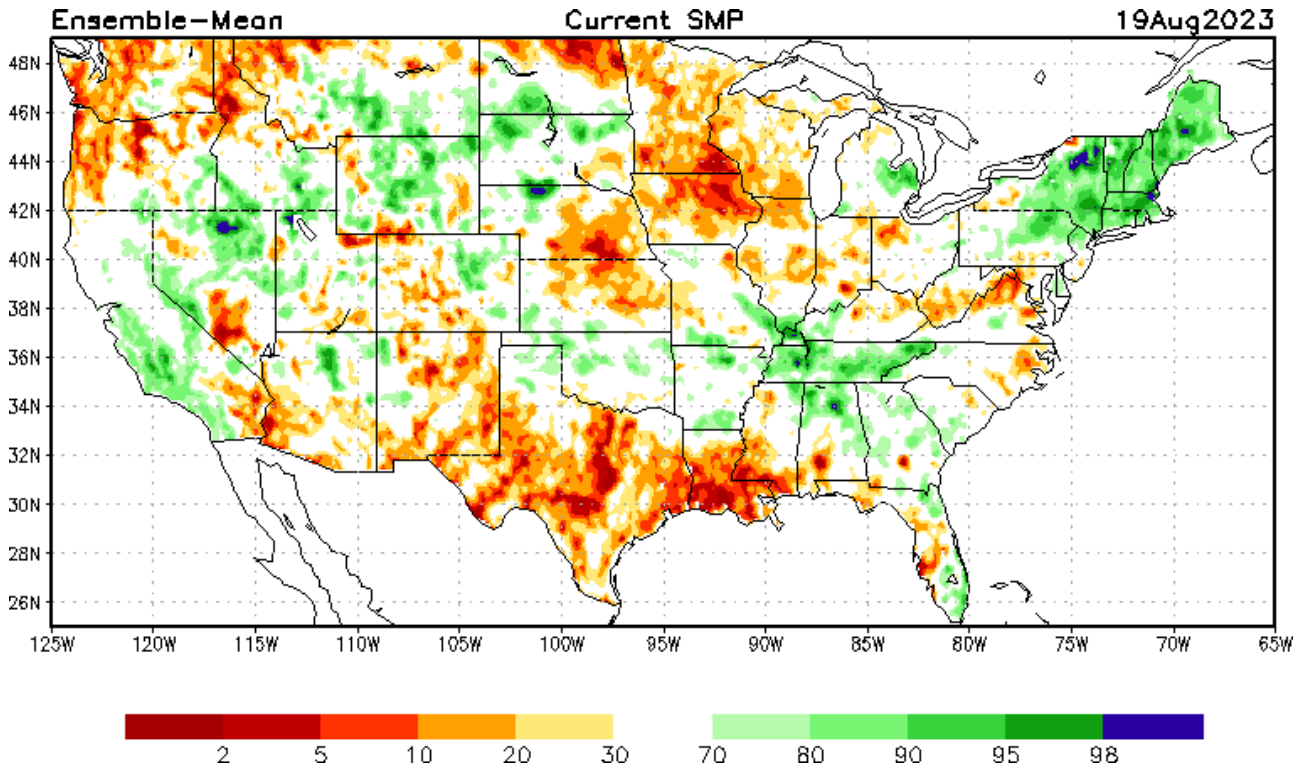
Highlighted Wildfire Resources

- [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

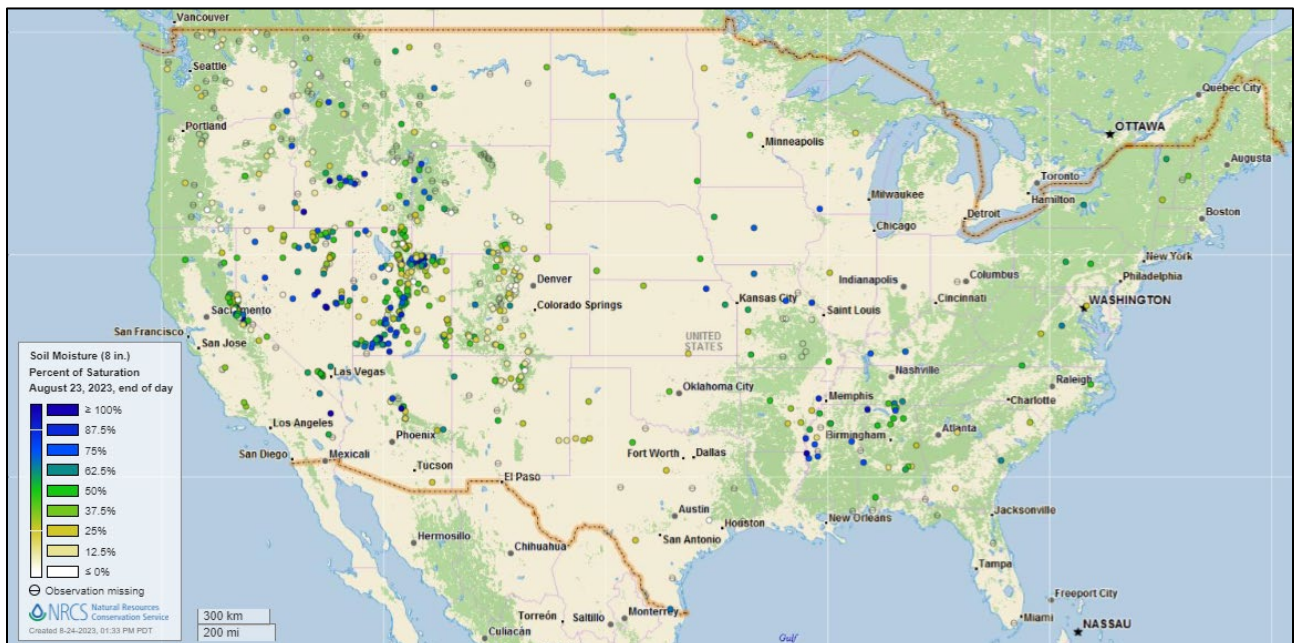


[Modeled soil moisture percentiles](#) as of August 19, 2023

Soil Moisture Percent of Saturation

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

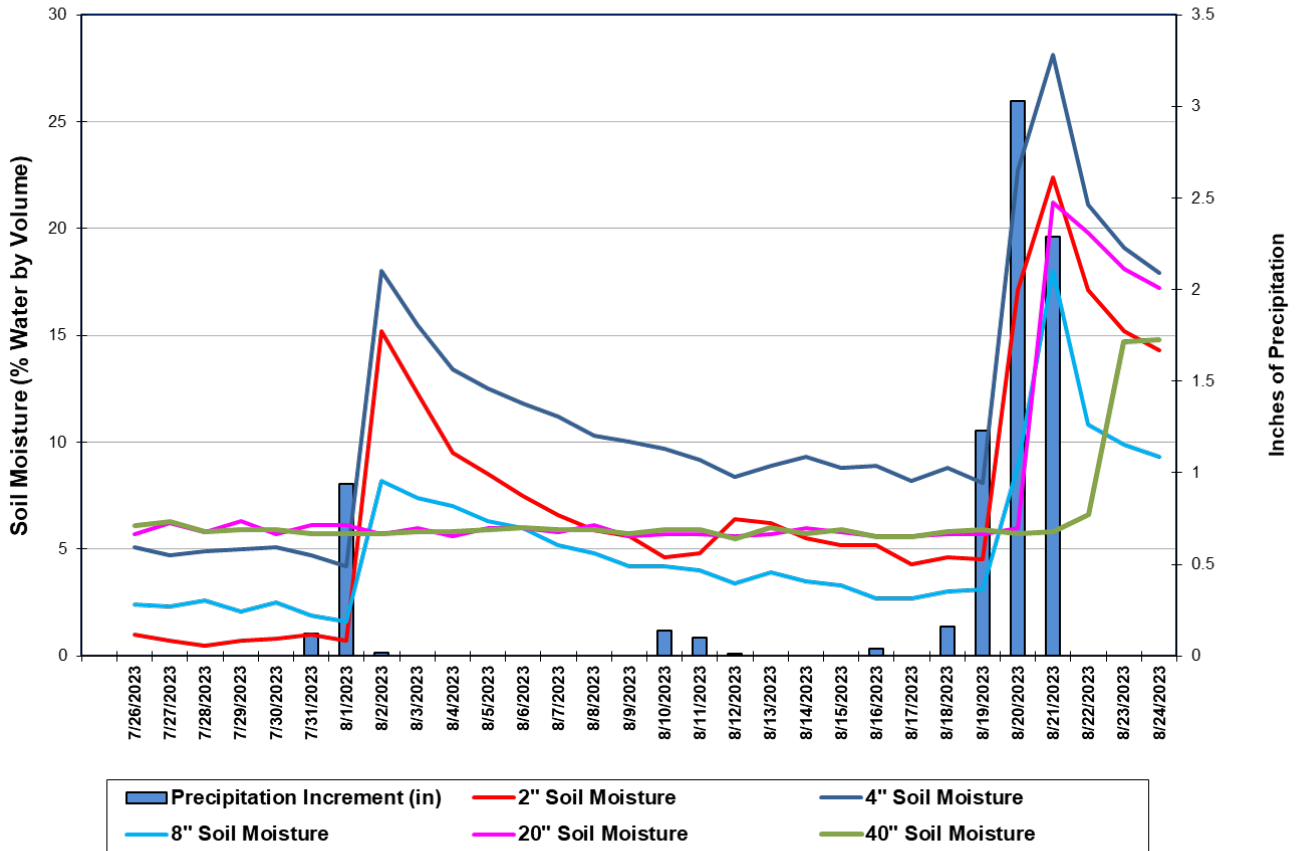
[U.S. soil moisture map at 8-inch depth:](#)



Soil Moisture

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

**Kyle Canyon, Nevada (SCAN site 2141)
Daily Mean Soil Moisture vs. Daily Precipitation**



This chart shows the precipitation and soil moisture for the last 30 days at the [Kyle Canyon](#) SCAN site in Nevada. As Tropical Storm Hilary moved through the region, it brought a total of 6.71 inches of precipitation to the site toward the end of the period. A dramatic increase in soil moisture levels can be seen at all sensor depths during and after the storm event. Total precipitation for the 30-day period was 8.08 inches.

Soil Moisture Data Portals

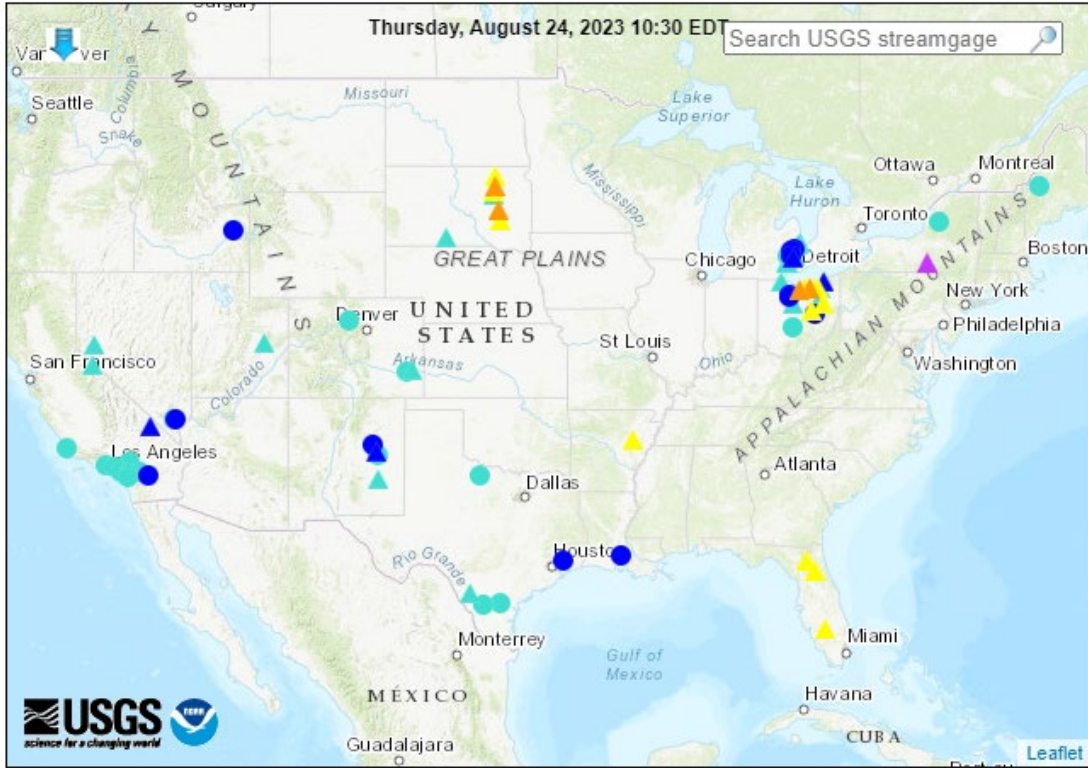
- [USCRN Soil Moisture](#)
- [National Soil Moisture Network](#)
- [NOAA Climate Prediction Center Soil Moisture](#)
- [NASA Grace](#)

Streamflow, Drought, Flood, and Runoff

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

Map of flood and high flow conditions

(4 in floods [minor: 4], 10 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 without flood stage | | | △ Streamgage with flood stage | | | |

[WaterWatch: Streamflow, drought, flood, and runoff conditions](#)

Reservoir Storage

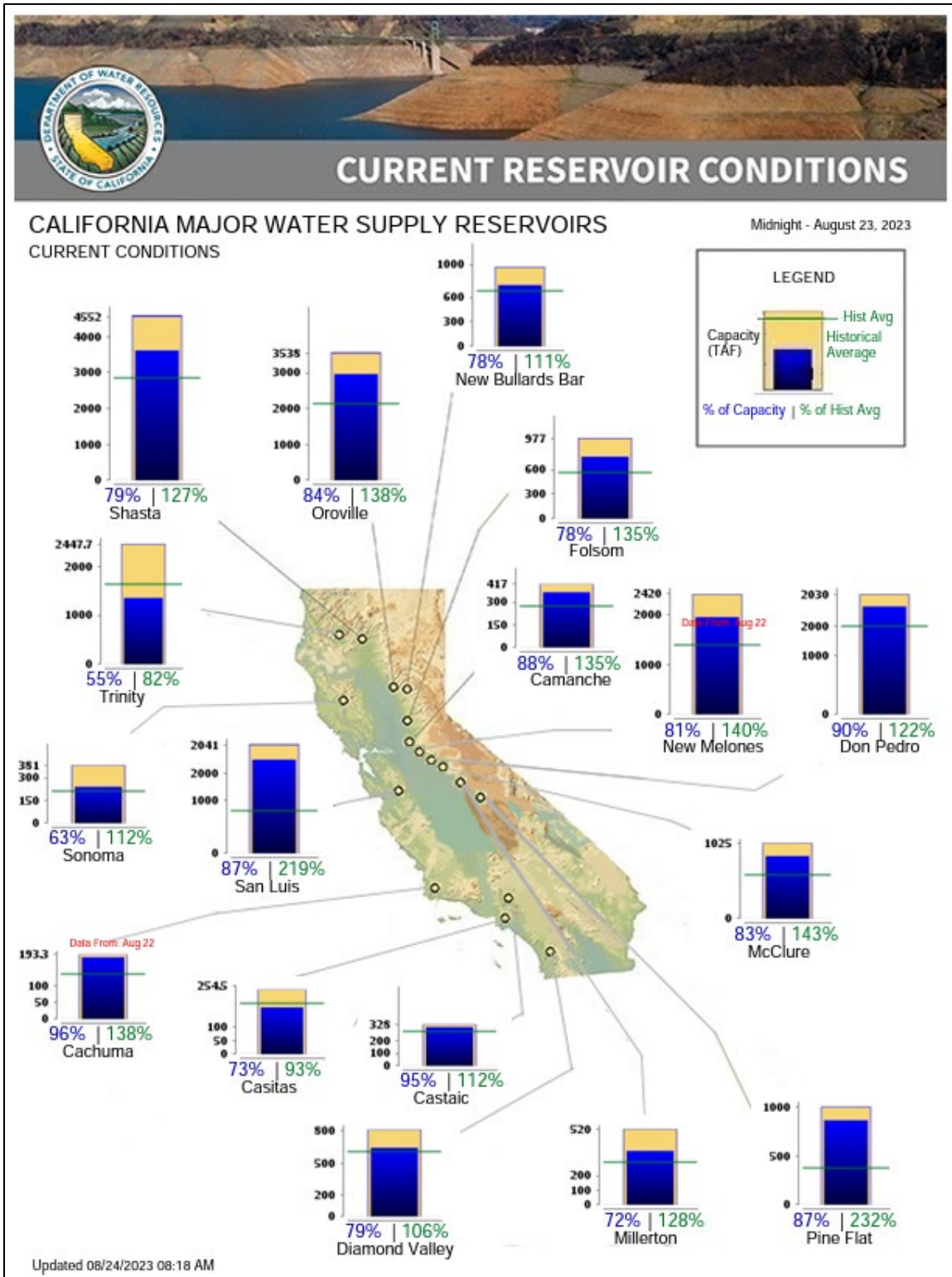
Hydromet Teacup Reservoir Depictions

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 August 24, 2023: “Harold’s remnants will continue to spark showers today across the Four Corners States, with rain eventually shifting eastward over the central Plains. The residual tropical moisture will become entangled with a cold front, helping to trigger weekend showers across the South. The cold front will also end a heat wave across the Plains and Midwest, although significantly elevated temperatures will linger into next week across the Deep South, from the western Gulf Coast region to the southern Atlantic Coast. Meanwhile, a warming trend will affect the West, with mostly above-normal temperatures expected during the weekend and early next week. Aside from the Southwest, central Plains, and South, meaningful, late-week precipitation should be limited to the Northeast. The NWS 6- to 10-day outlook for August 29 – September 2 calls for the likelihood of near- or above-normal temperatures nationwide, except for cooler-than-normal conditions from the lower Great Lakes region and Ohio Valley into the Northeast. Meanwhile, near- or- below-normal rainfall in most areas between the Rockies and Appalachians should contrast with wetter-than-normal weather in the Atlantic Coast States and the West.”

Weather Hazards Outlook: [August 26 – 30, 2023](#)

Source: NOAA Weather Prediction Center















U.S. Day 3-7 Hazards Outlook

About the Hazards Outlook

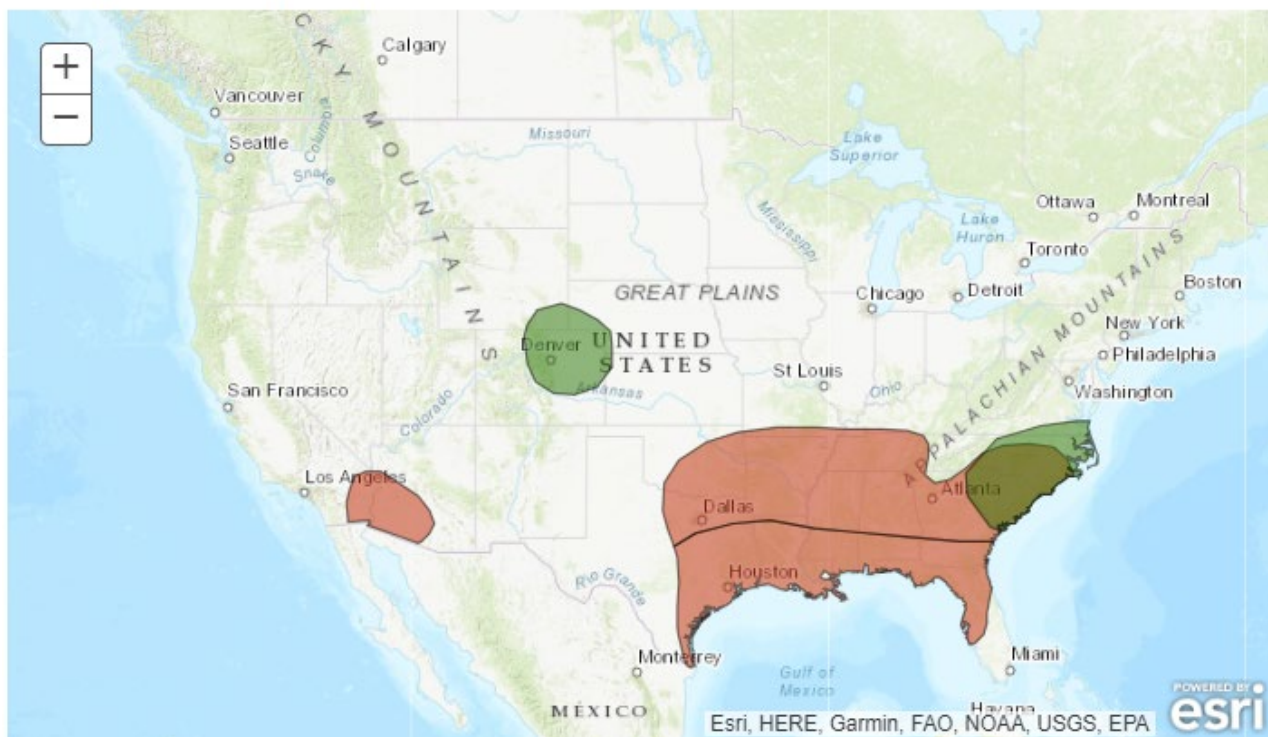
Created August 23, 2023

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 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 August 26, 2023 - August 30, 2023

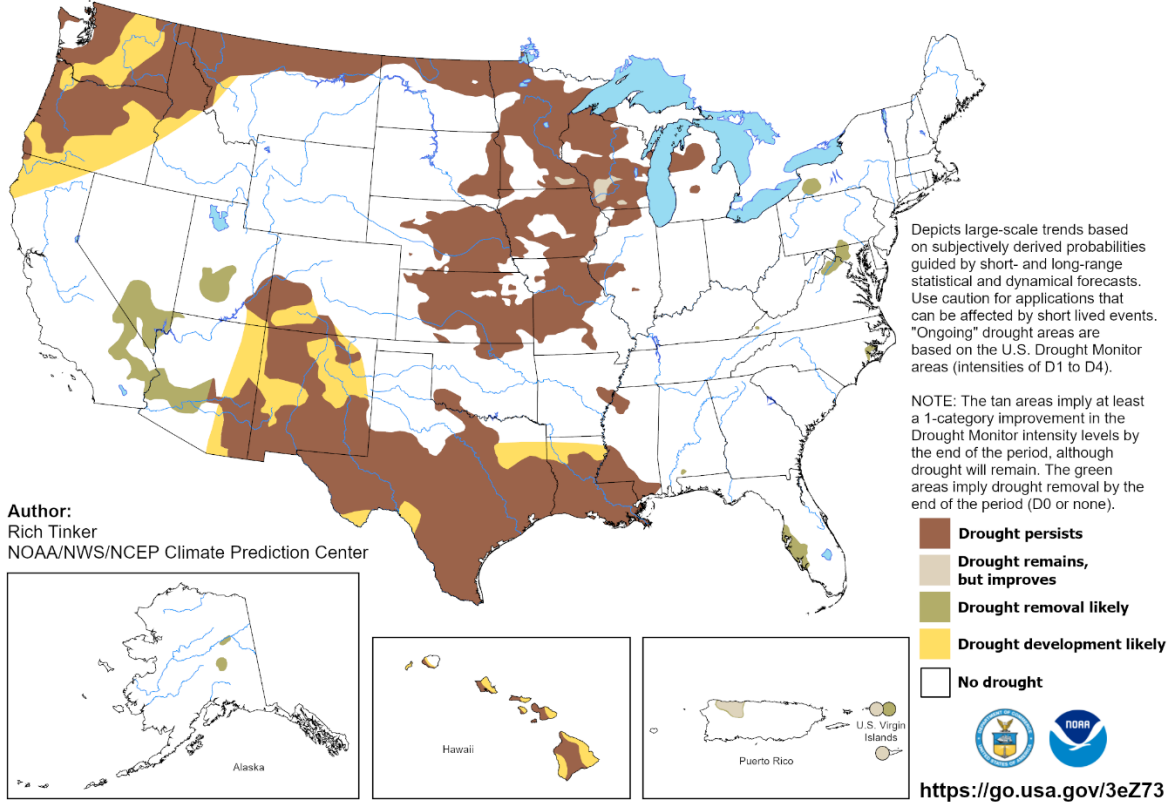


Seasonal Drought Outlook: [August 17 – November 30, 2023](#)

Source: National Weather Service

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

Valid for August 17 - November 30, 2023
Released August 17, 2023

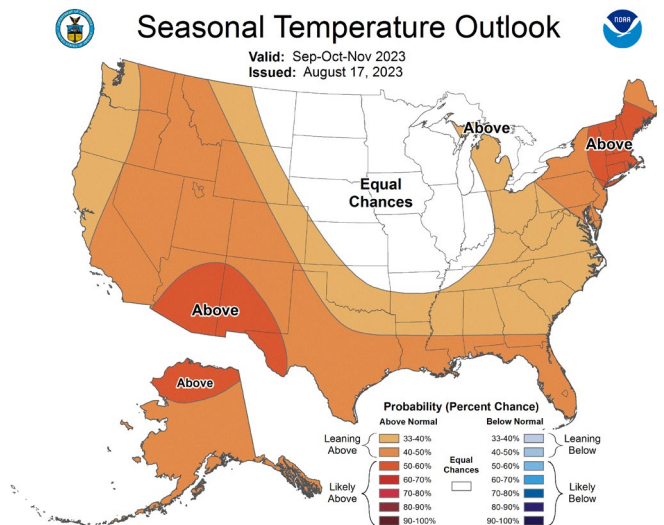
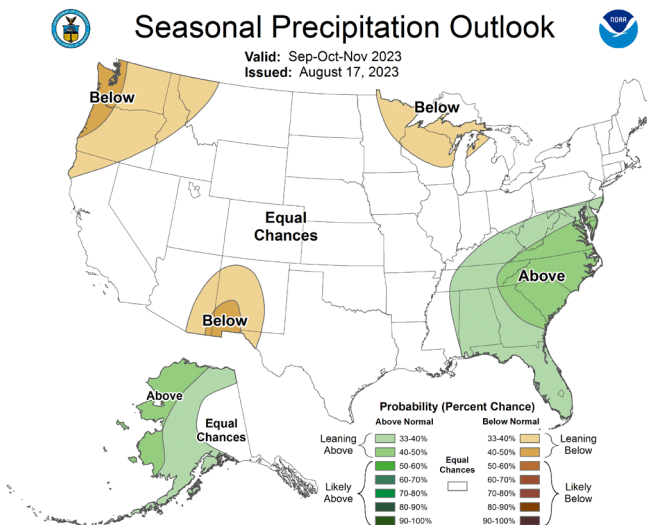


Climate Prediction Center Three-month Outlook

Source: National Weather Service

[Precipitation](#)

[Temperature](#)



[September-October-November 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](#).