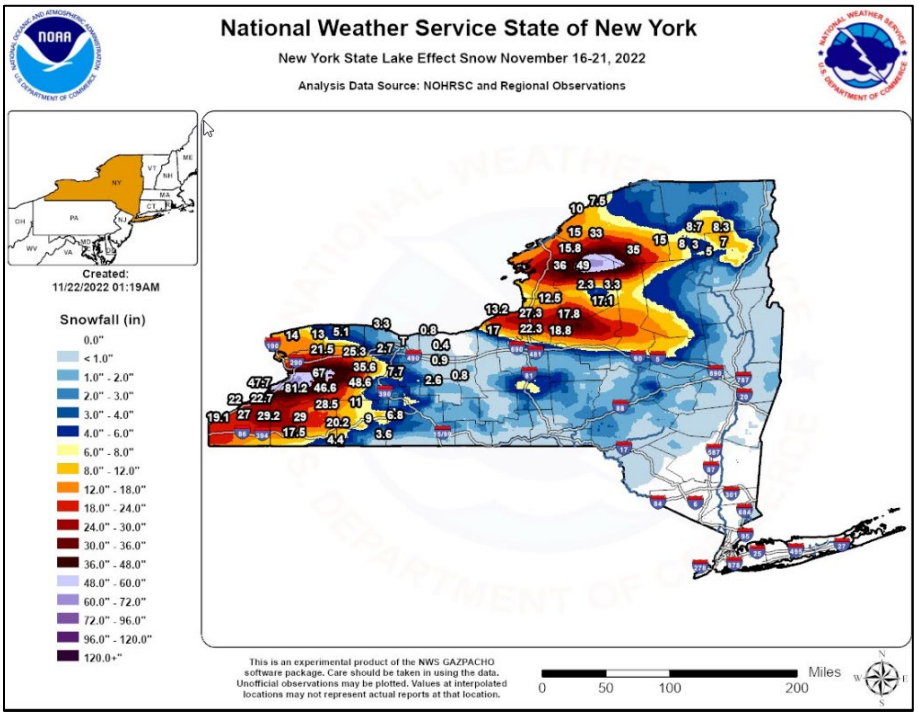
United States Department of Agriculture

Water and Climate Update

November 23, 2022

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.

Historic lake effect snow buries western New York

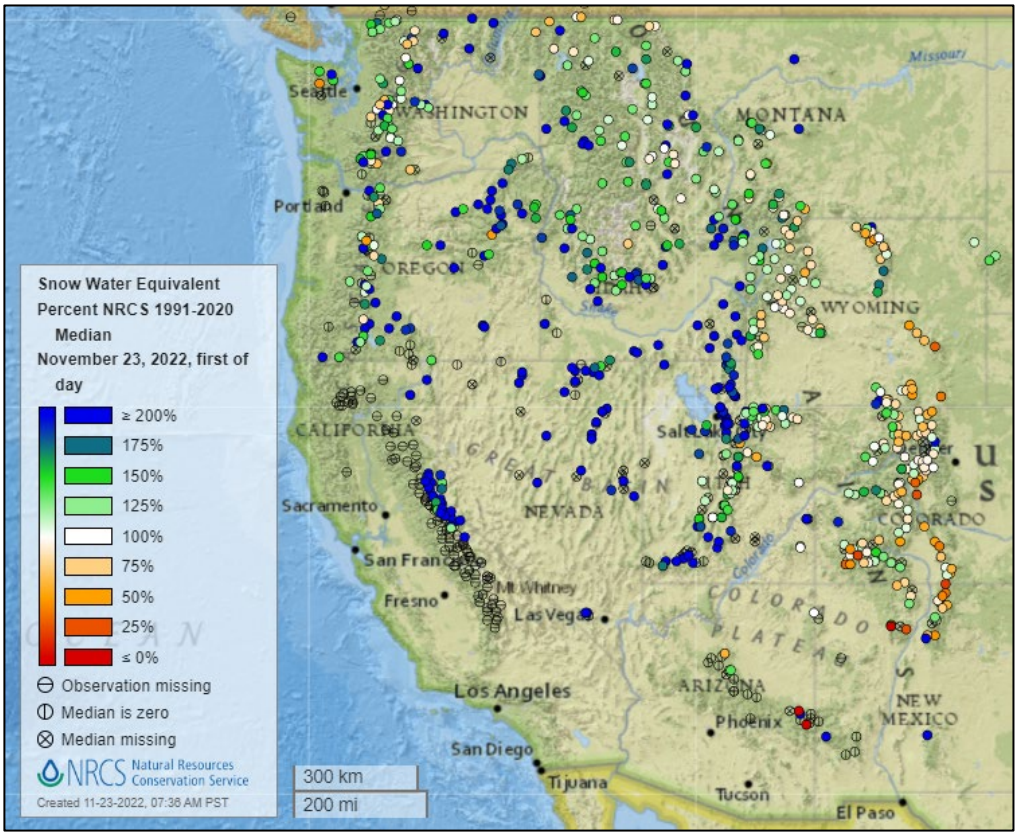


A historic lake effect storm dumped record snow in western New York from November 16 to 21. Conditions were perfect for extreme snowfall, as unusually high Lake Erie temperatures allowed the storm to increase its moisture content and drop record amounts of snowfall. The five-day storm totals in the area include reports of 81.2 inches received in Hamburg, 80.0 inches in Orchard Park, and 36.5 inches at the Buffalo Airport. Farther west, the storm also dumped lake effect snow in western Michigan, with the highest total reported in East Grand Rapids of 30.8 inches.

Related:

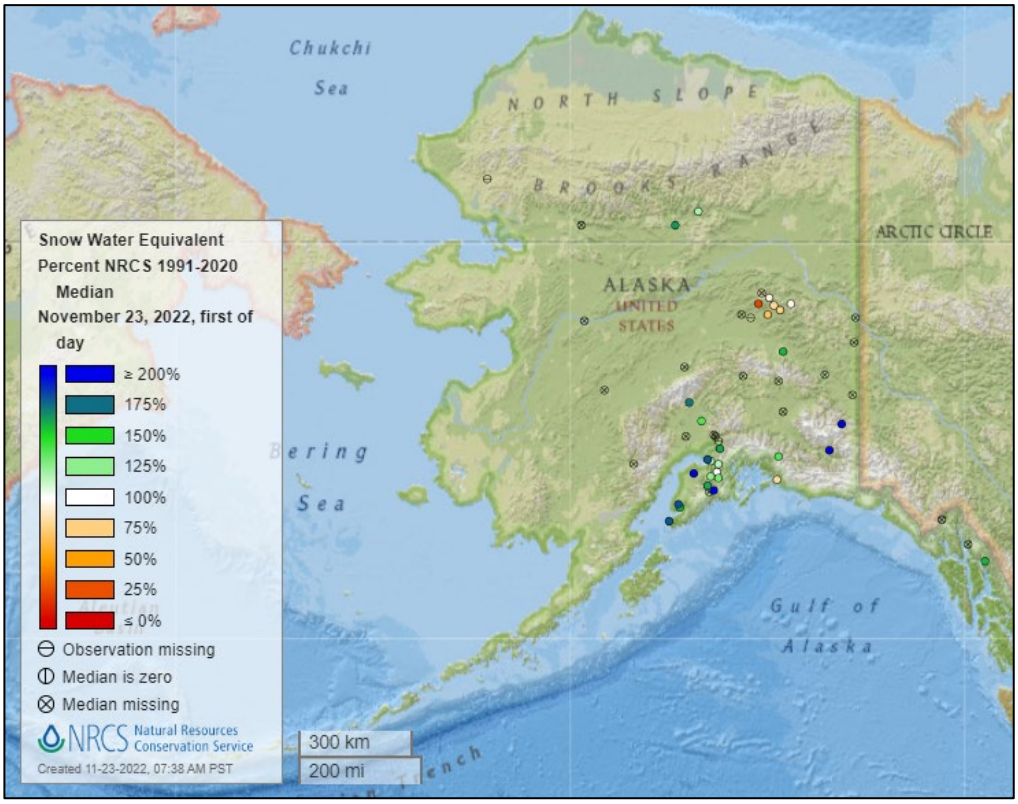
Massive snowfall buries cars, keeps falling in western NY – AP
New York continues to be battered by snow as 'heavy lake effect' winds down - UPI
Parts of NY dig out after potentially 'historic' snowfall – ABC (NY)
Supercharged lake effect snow event was truly incredible and historic – WGRZ (NY)
Snowfall eases in western New York after historic storm – CNN
Worst Snow Storm in 8 Years Dumps 80 Inches Upstate; NY Emergency Declared – 4 CBS NY
Buffalo buried under 6 feet of snow in record-breaking November blizzard - CNBC
Snowfall totals in the Buffalo area and what causes lake-effect snow – USA Today
4-day lake-effect snowstorm totals topping 30 inches; Map shows who got how much snow – MLive (MI)

Snow



[Snow water equivalent percent of median map]

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

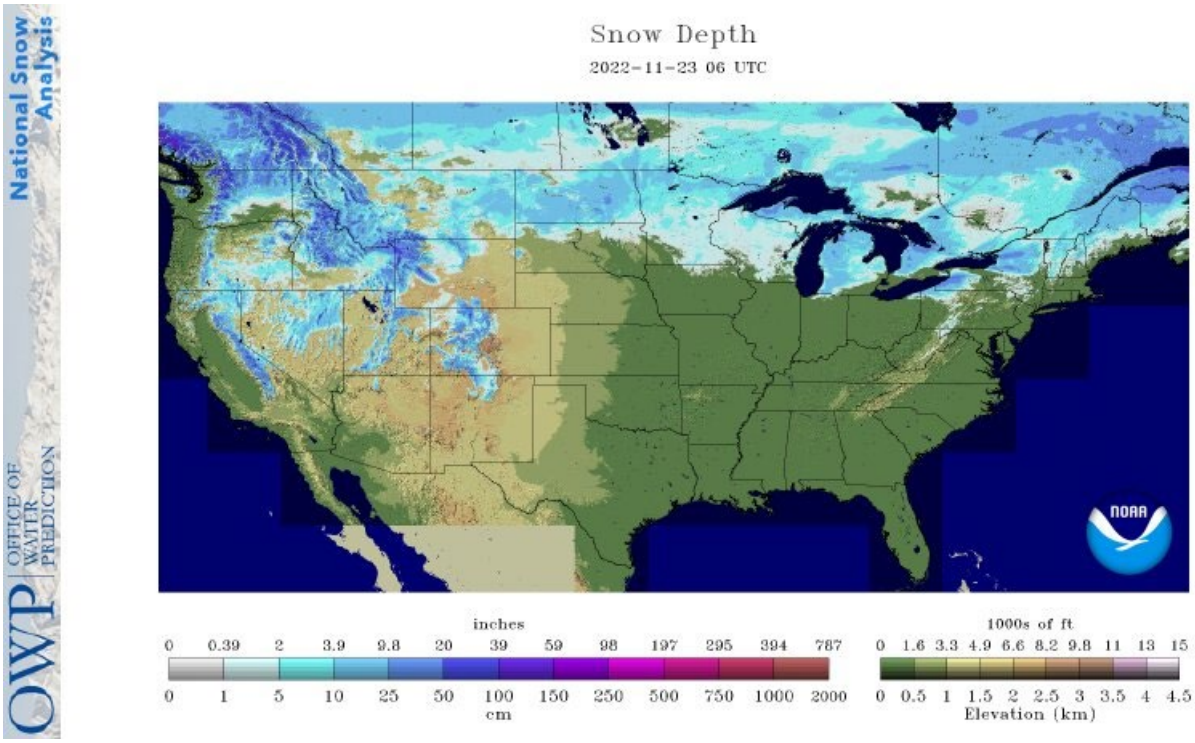


[Alaska snow water equivalent percent of median map]

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

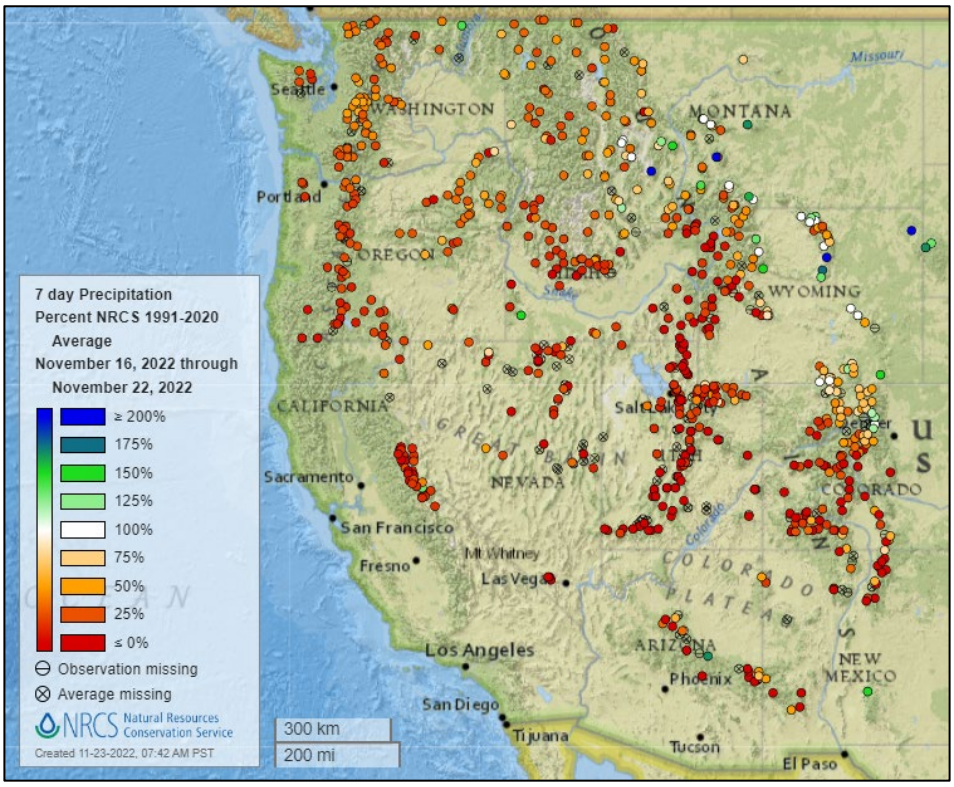
Current Snow Depth, National Weather Service Snow Analysis

Source: NOAA NWS National Operational Hydrologic Remote Sensing Center



Precipitation

Last 7 Days, NRCS SNOTEL Network

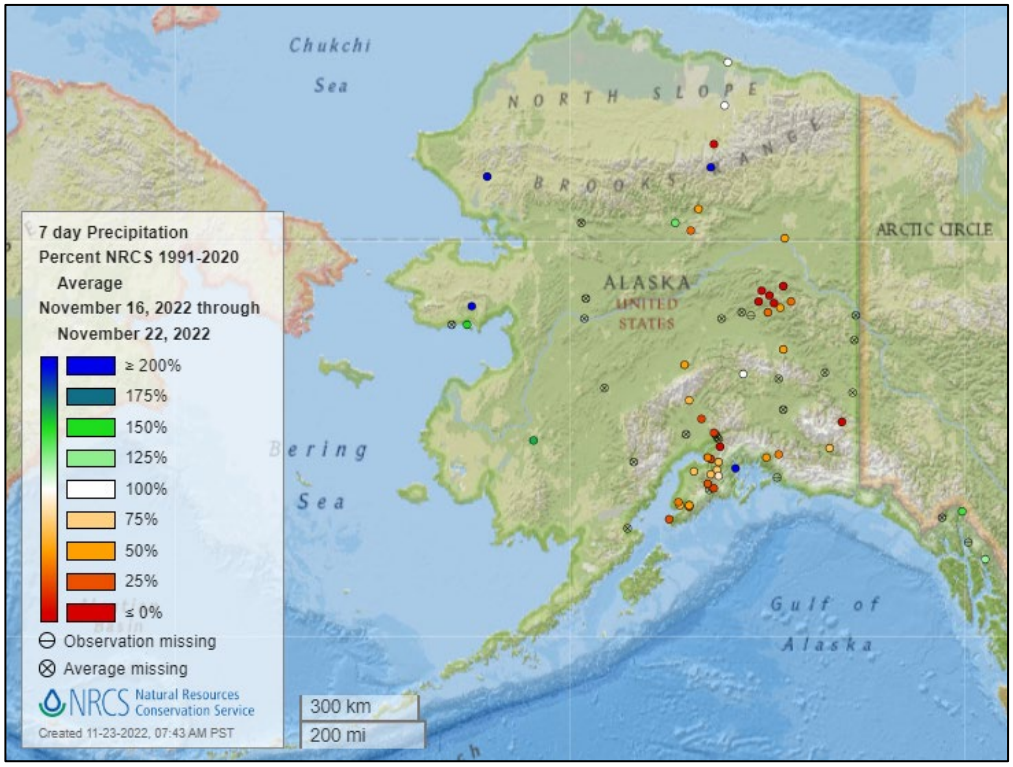


[7-day precipitation percent of average map]

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

[Alaska 7-day precipitation percent of average map]

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

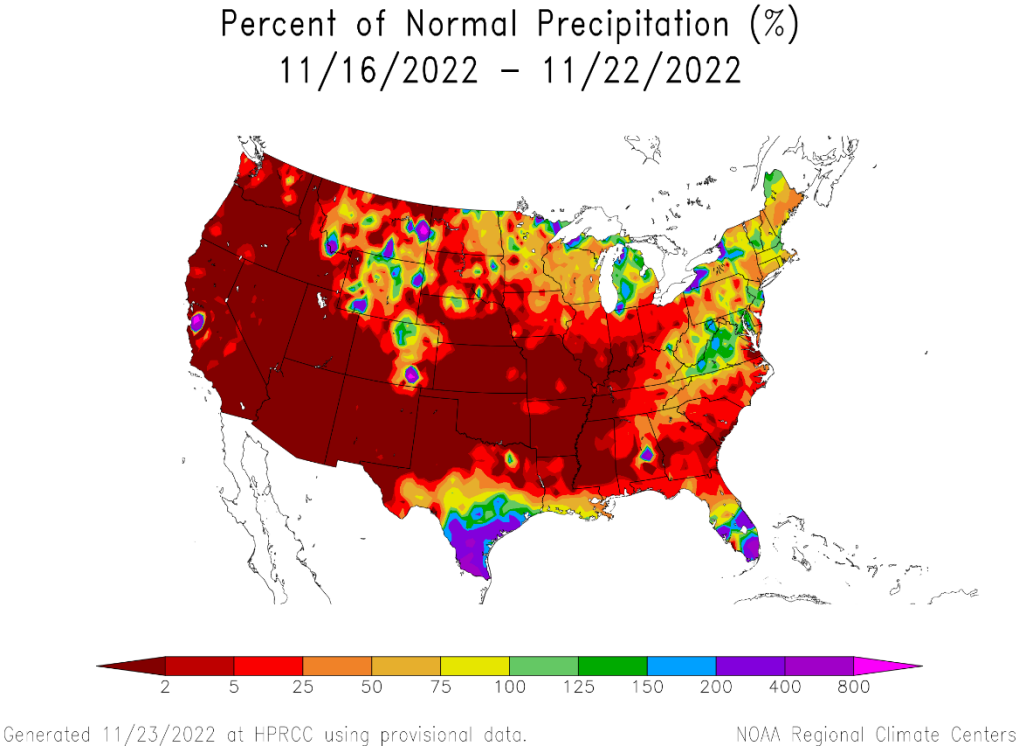


Last 7 Days, National Weather Service (NWS) Networks

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](#)

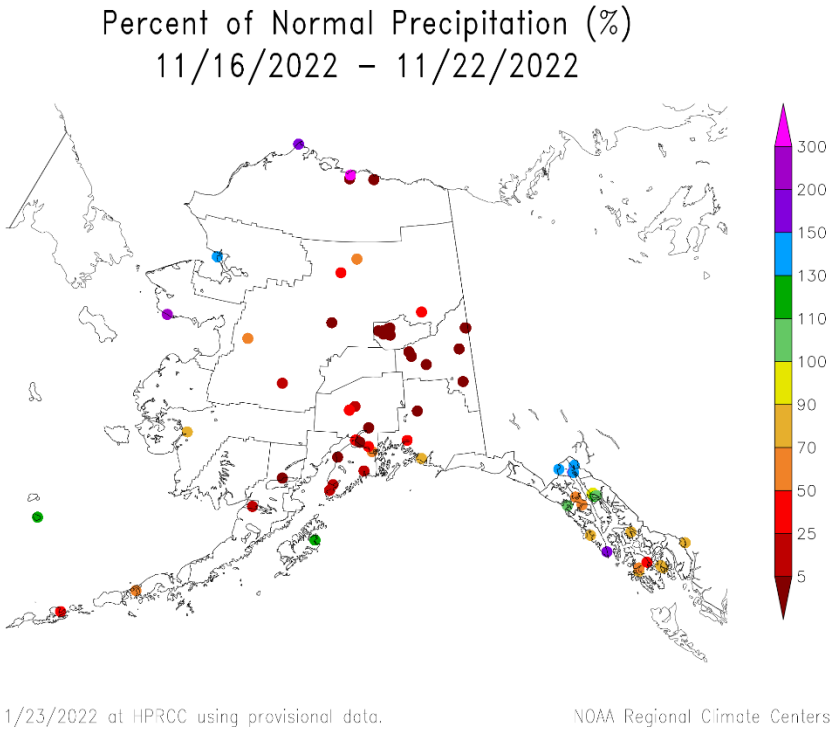


Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

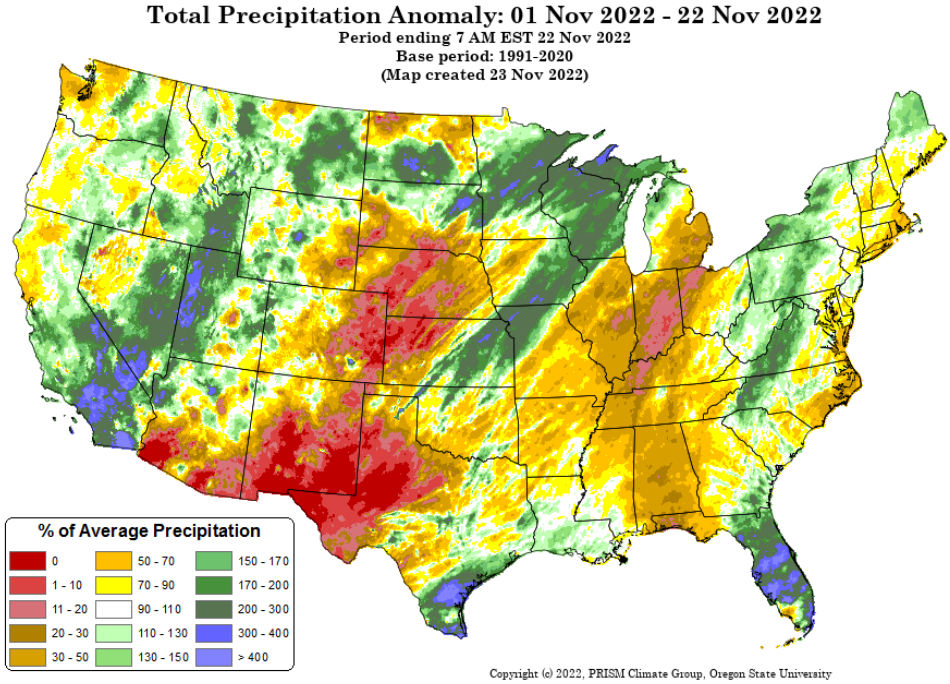
[7-day precipitation percent of normal map](#) for Alaska.

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



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

Source: PRISM

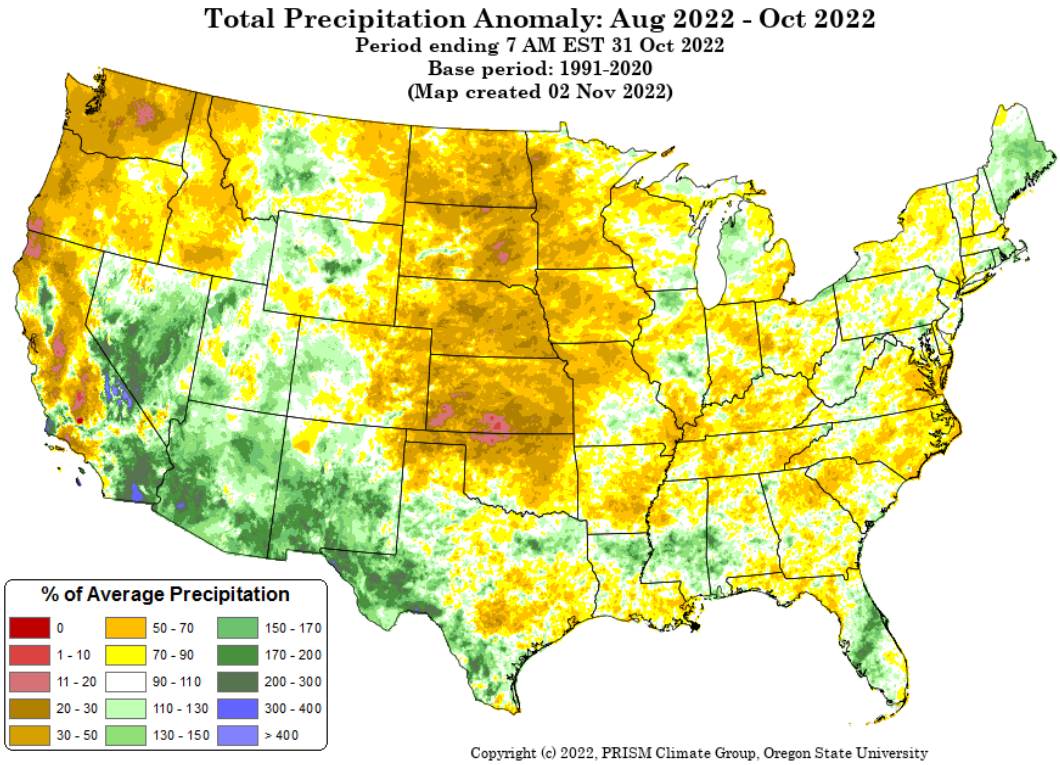


[Month-to-date national total precipitation anomaly map]

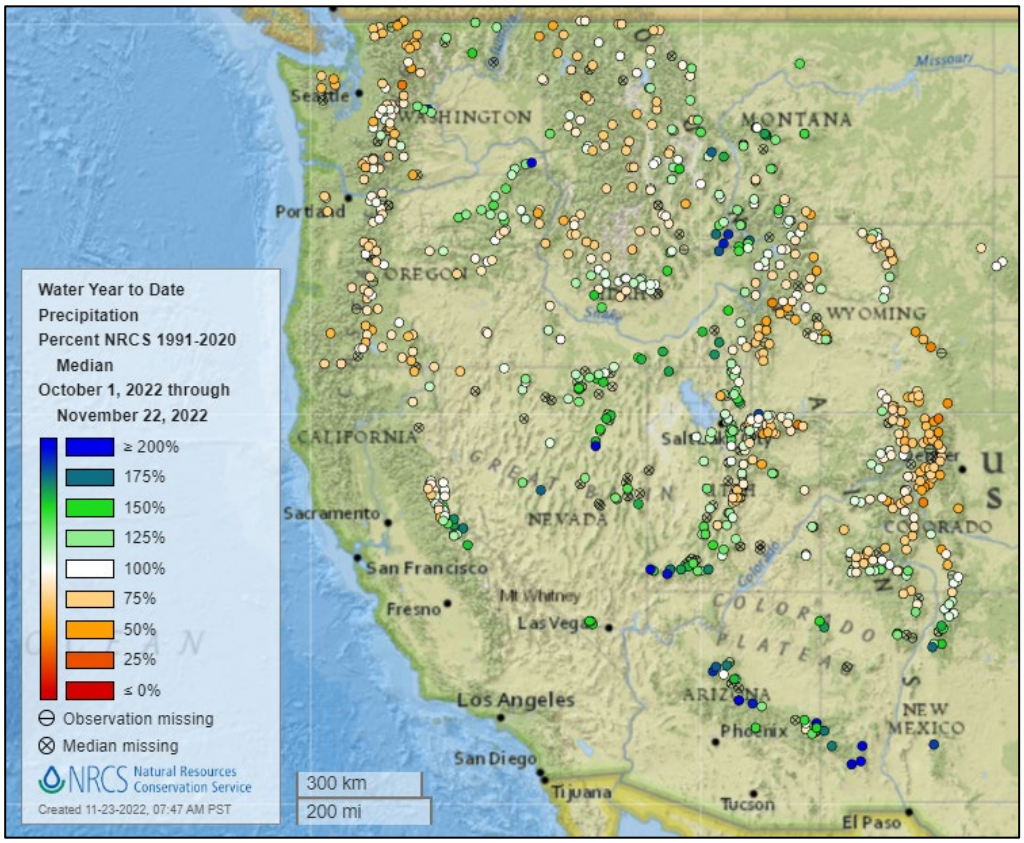
Last 3 Months, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

[August through October 2022 precipitation anomaly map]



Water Year-to-Date, NRCS SNOTEL Network

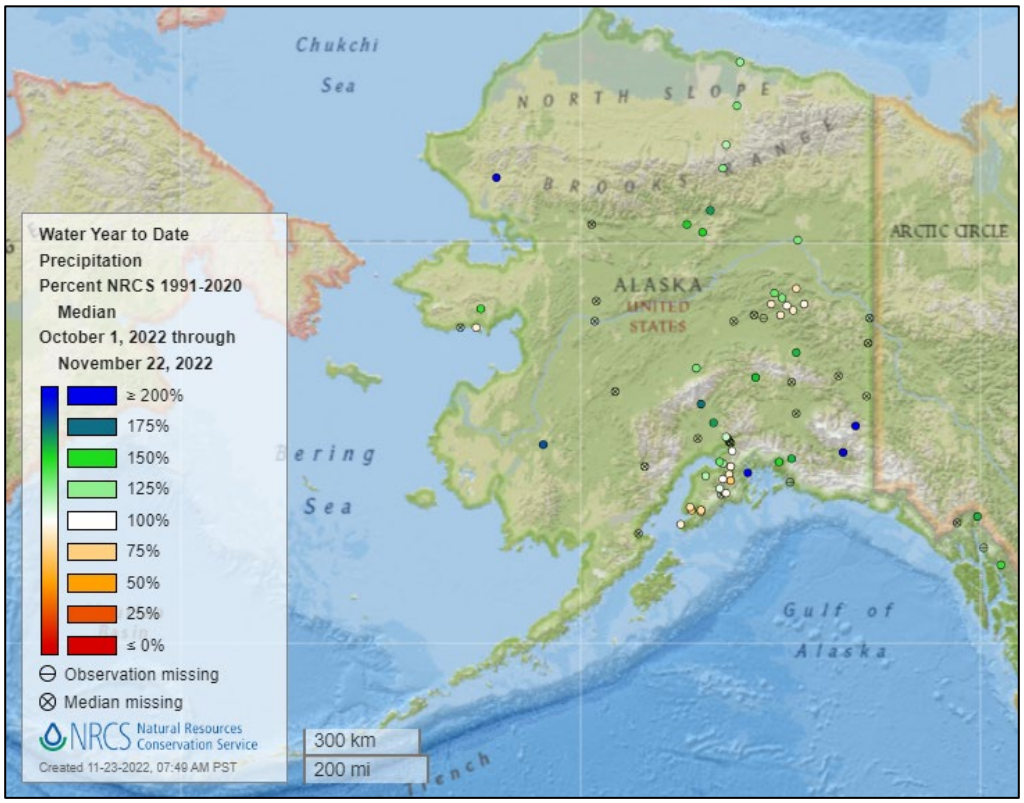


[2023 water year-to-date precipitation percent of median map]

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]

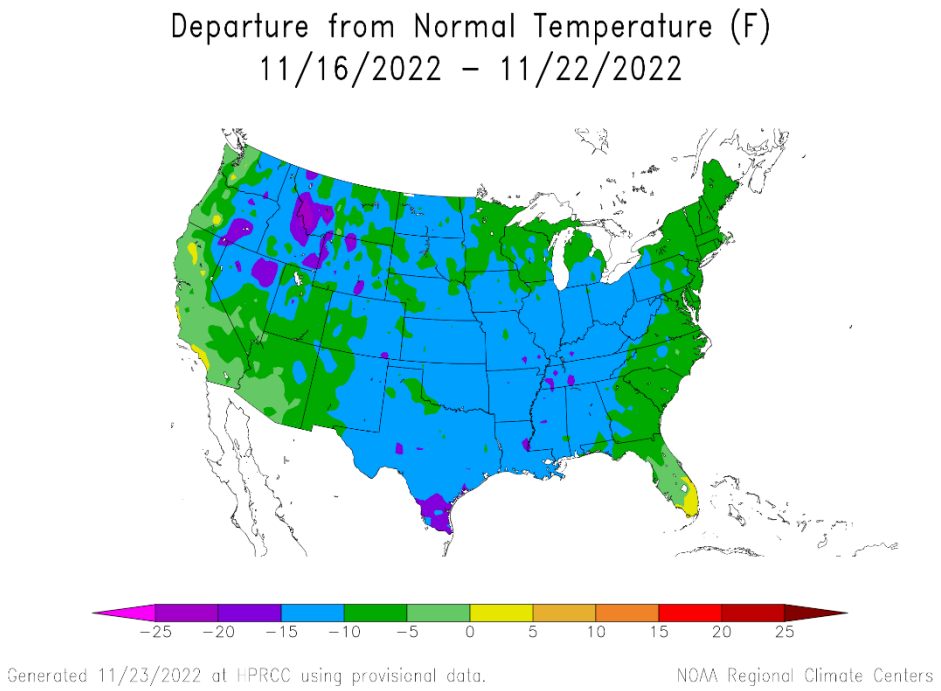
Temperature

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

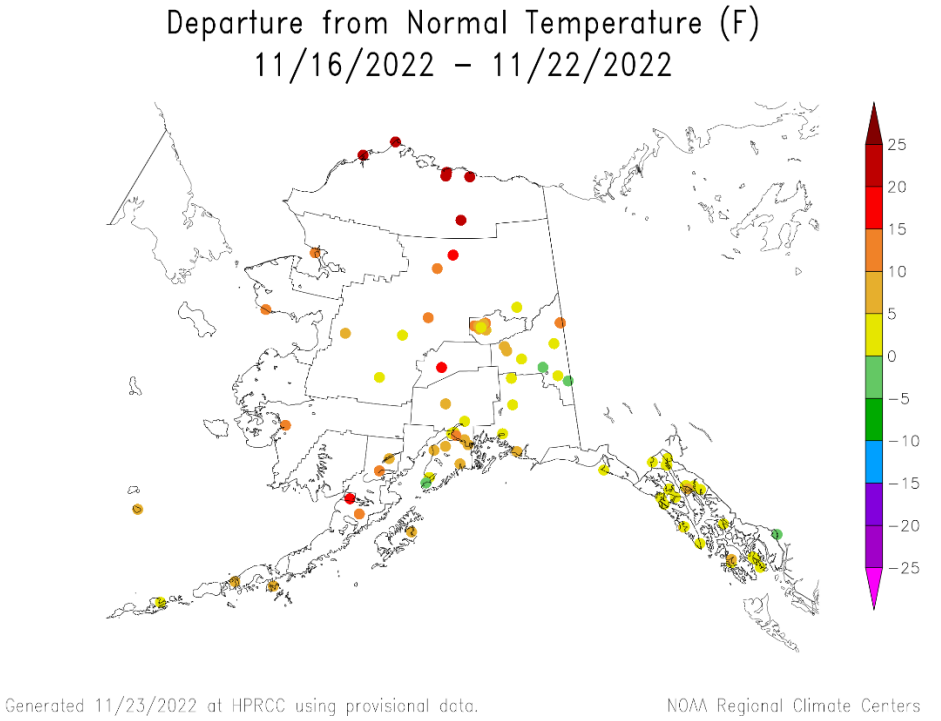


Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

7-day temperature anomaly map for Alaska.

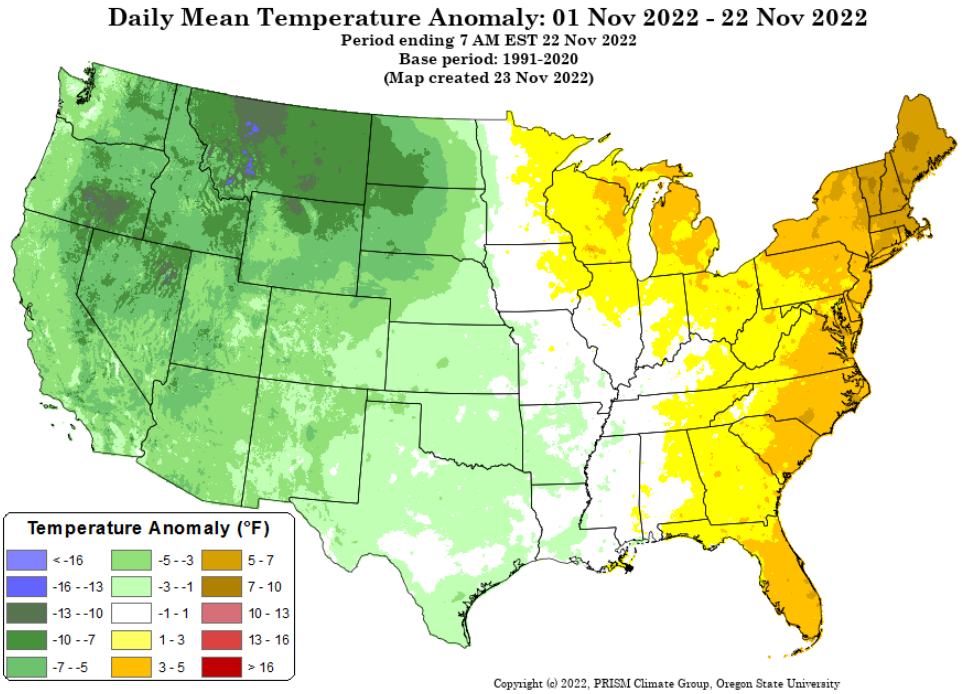
See also: 7-day temperature (° F) map



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

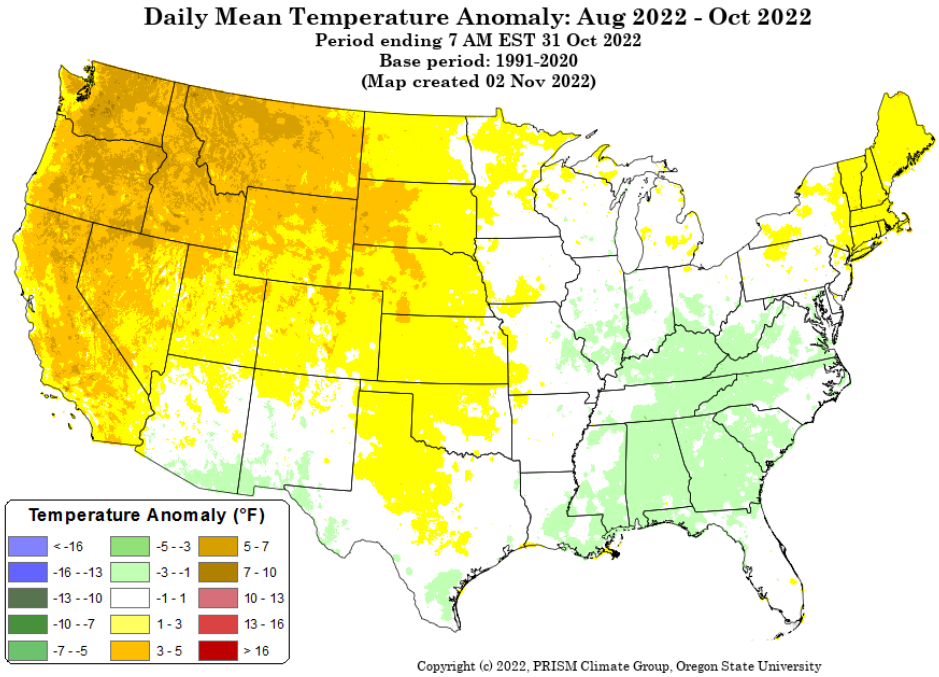
Source: PRISM

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



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

Source: PRISM



[August through October 2022 daily mean temperature anomaly map]

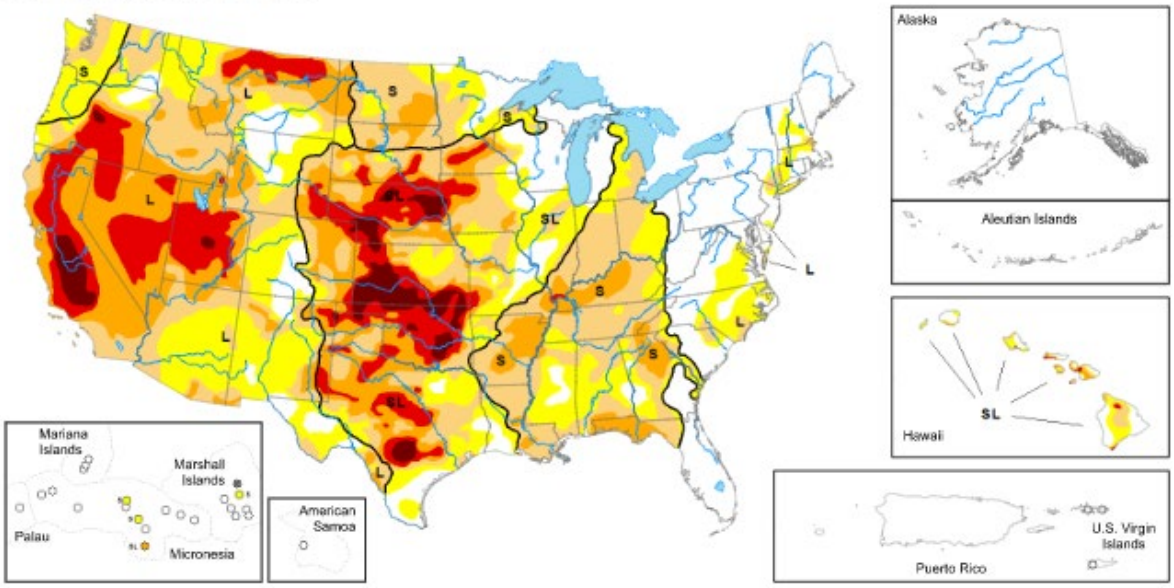
Drought

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

U.S. Drought Portal
Source: NOAA

Map released: November 23, 2022

Data valid: November 22, 2022



United States and Puerto Rico Author(s):
Brad Rippey, U.S. Department of Agriculture

Pacific Islands and Virgin Islands Author(s):
Richard Heim, NOAA/NCEI

☐ View grayscale version of the map

The data cutoff for Drought Monitor maps is each Tuesday at 7 a.m. EST. 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, November 22, 2022

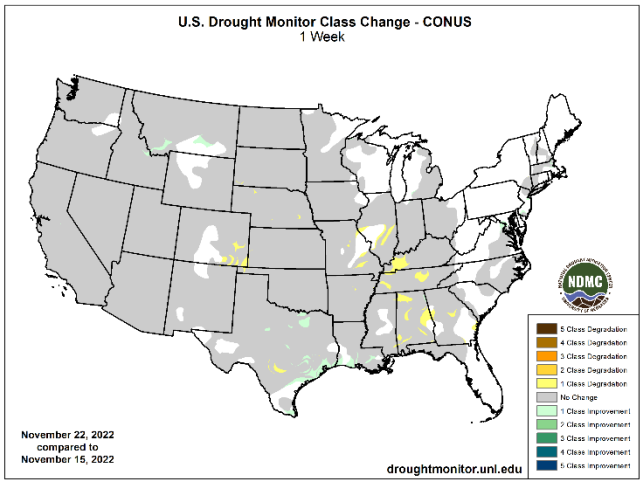
Source: National Drought Mitigation Center

"Cold, dry weather prevailed nearly nationwide, with a few exceptions. Notably, mid-November snow squalls developed downwind of the Great Lakes, resulting in localized totals of 2 to 6 feet or more. In addition, precipitation fell in parts of the South, East, and Midwest, primarily early in the drought-monitoring period, although most liquid-equivalent totals were under 2 inches. Snow broadly blanketed the Midwest and interior Northeast, especially on November 15-16, although amounts were mostly light to moderately heavy. Meanwhile, deep snow from a previous storm remained on the ground in much of Montana and North Dakota. As the period progressed, rain lingered in the western Gulf Coast region. Elsewhere, negligible precipitation fell across the western half of the country. On the Plains, the combination of cold weather and soil moisture shortages maintained significant stress on rangeland, pastures, and winter wheat. Weekly temperatures averaged at least 10°F below normal nationwide, except in the Desert Southwest and along the Atlantic and Pacific Coasts."

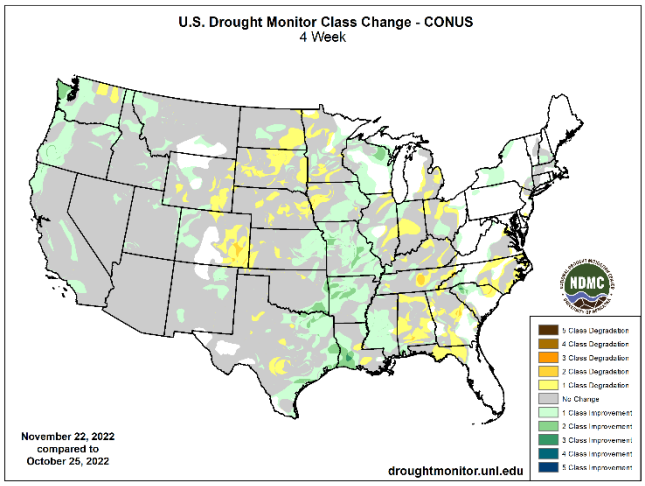
Changes in Drought Monitor Categories over Time

Source: National Drought Mitigation Center

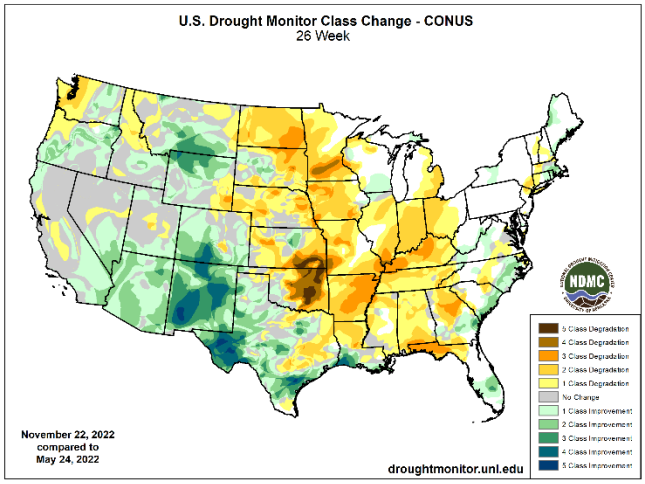
1 Week



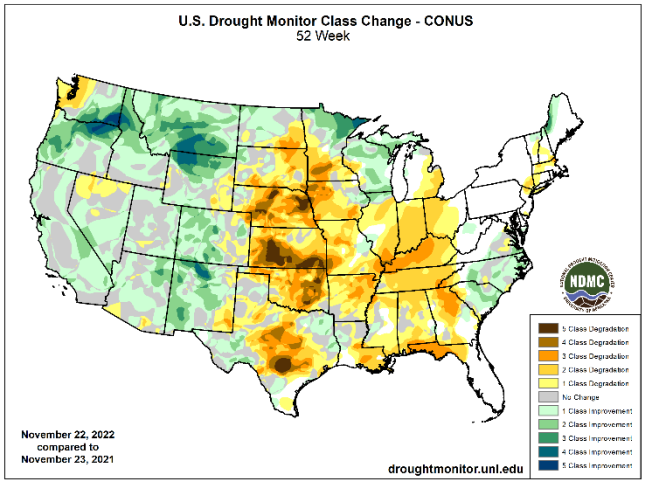
1 Month



6 Months



1 Year



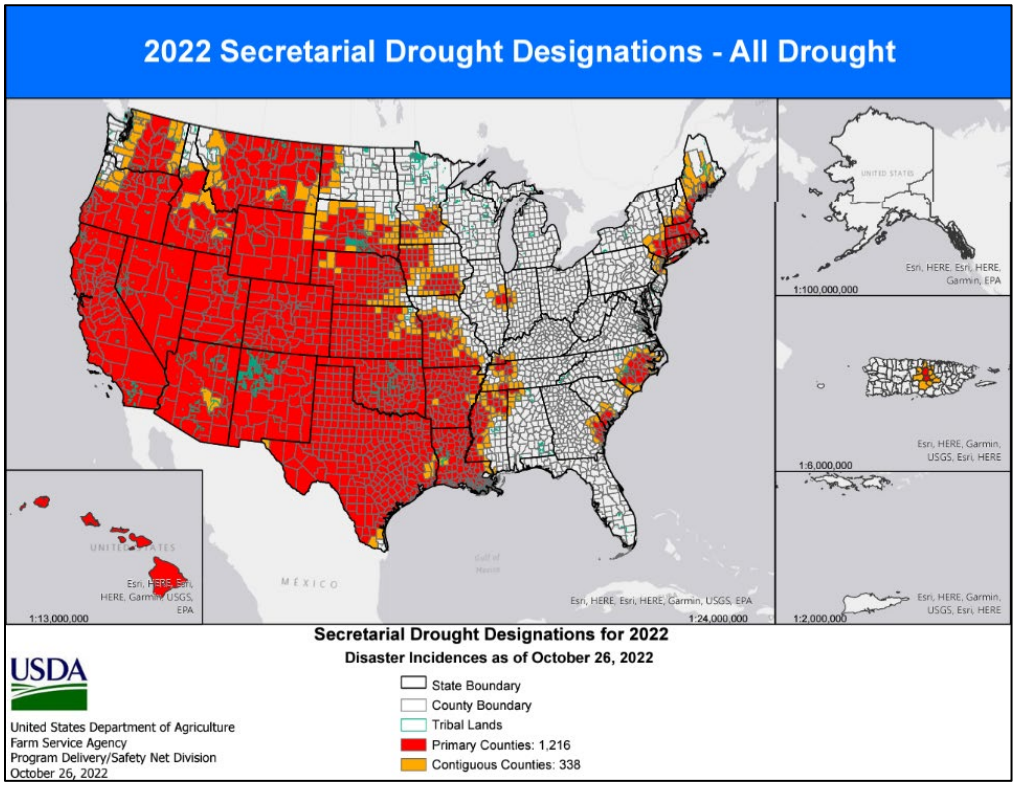
Changes in drought conditions over the last 12 months for the contiguous U.S.

Highlighted Drought Resources

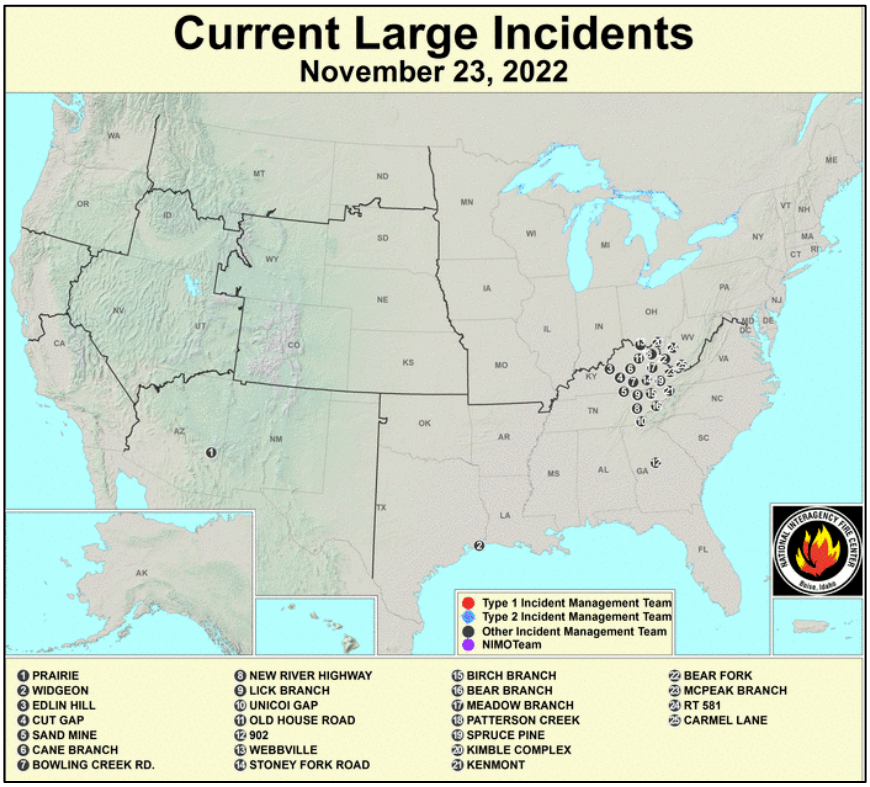
- Drought Impact Reporter
- Quarterly Regional Climate Impacts and Outlook
- U.S. Drought Portal Indicators and Monitoring
- U.S. Population in Drought, Weekly Comparison
- USDA Disaster and Drought Information

USDA Secretarial Drought Designations

Source: USDA Farm Service Agency



Wildfires: USDA Forest Service Active Fire Mapping



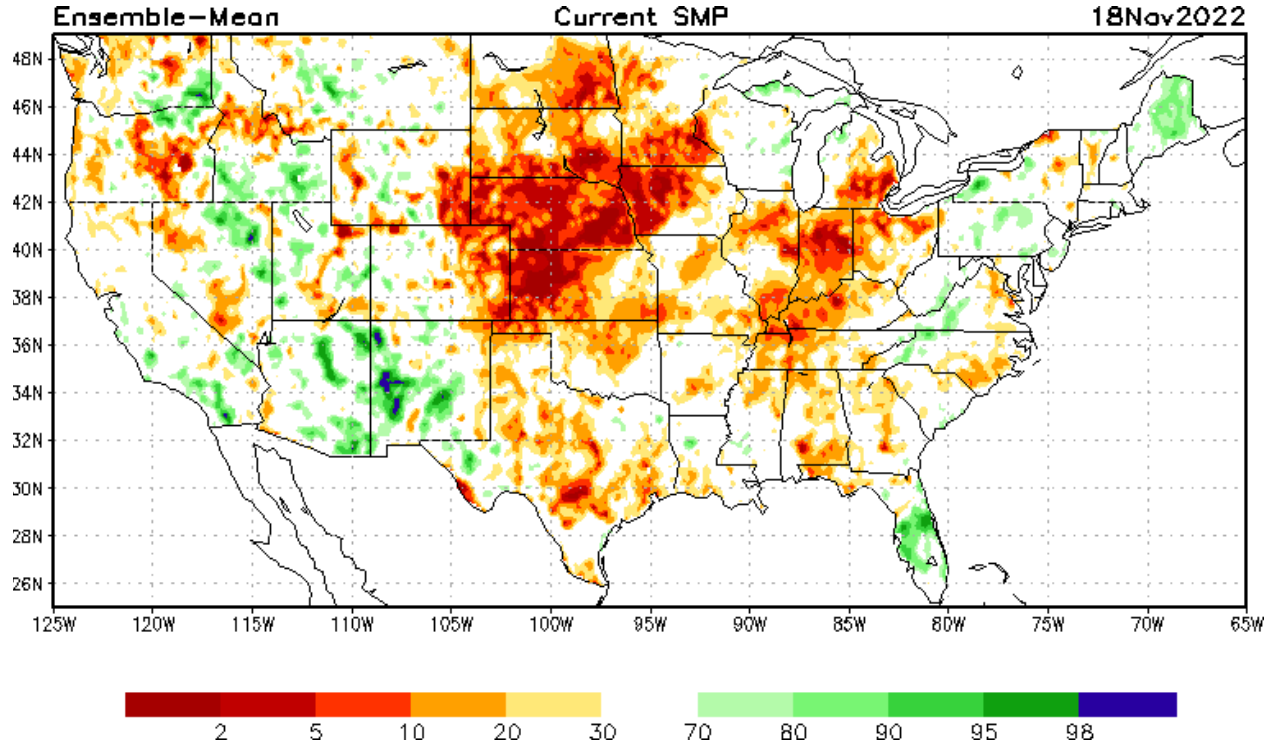
Highlighted Wildfire Resources

- 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

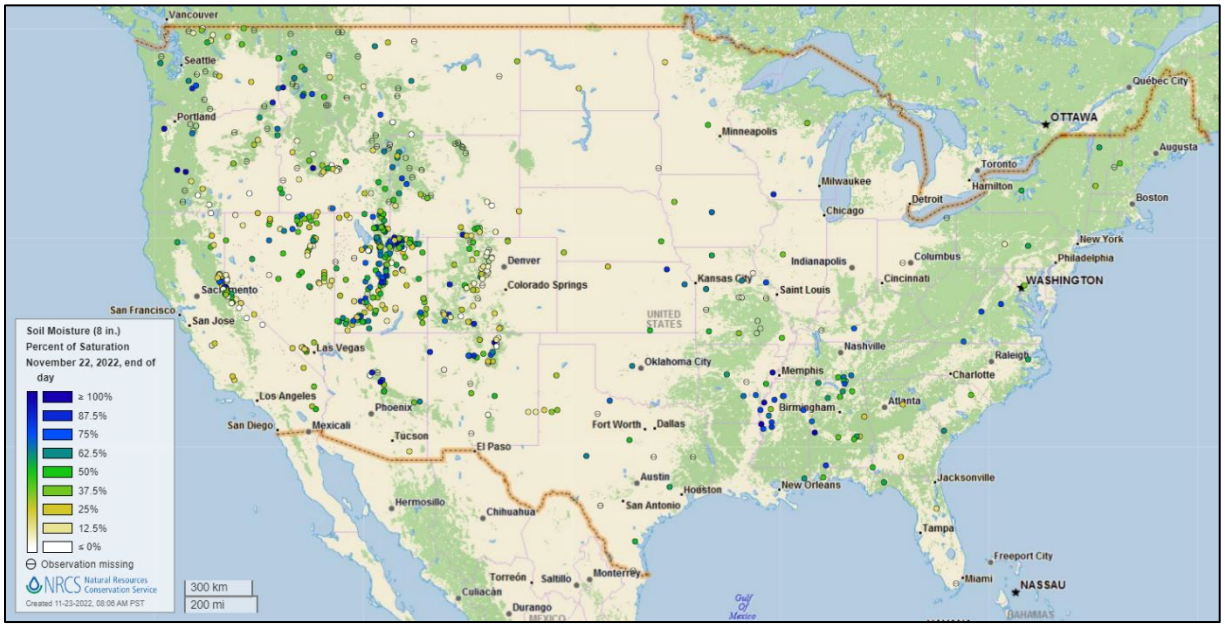


Modeled soil moisture percentiles as of November 18, 2022

Soil Moisture Percent of Saturation

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

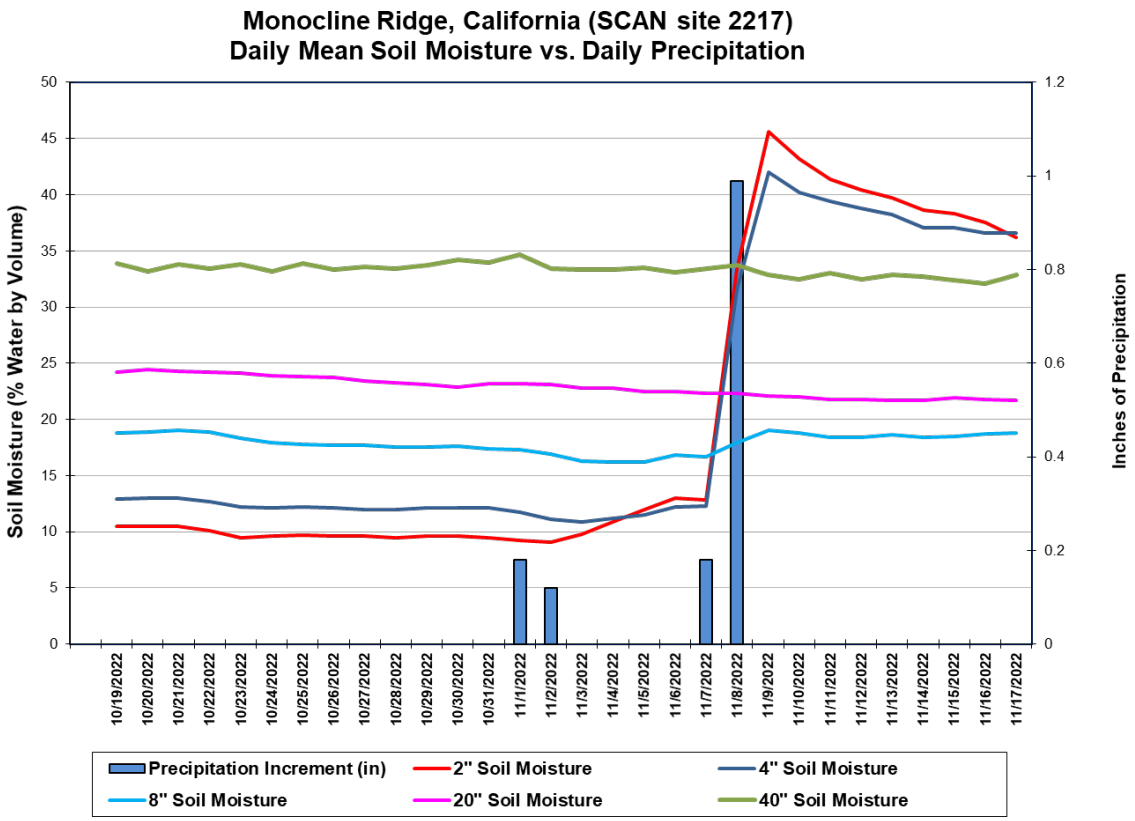
U.S. soil moisture map at 8-inch depth:



Soil Moisture

Source: NRCS Soil Climate Analysis Network (SCAN)

.



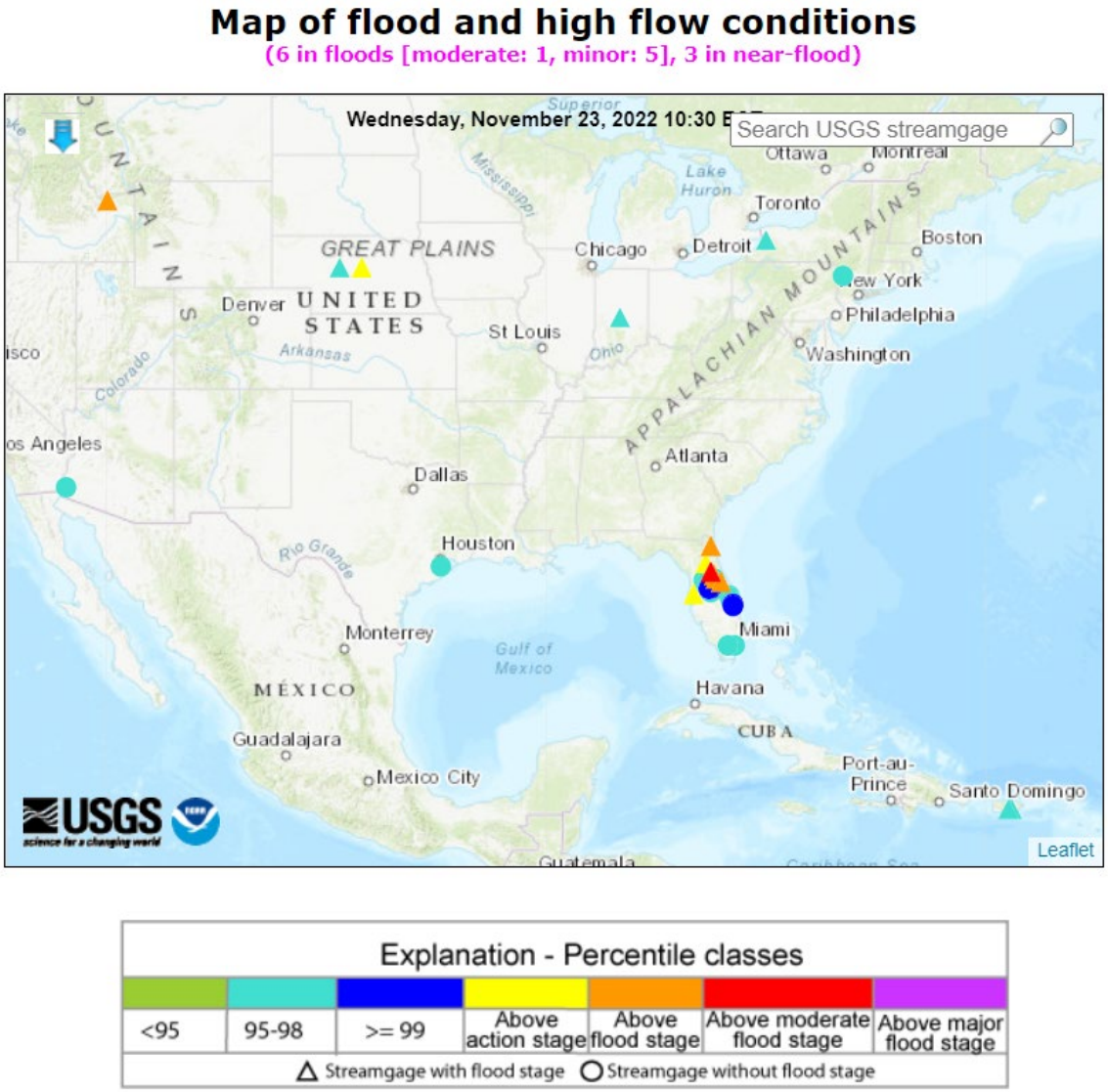
This chart shows the precipitation and soil moisture for the last 30 days at the Monocline Ridge SCAN site in California. The largest precipitation event fell on November 7-8 and resulted in an increase in soil moisture at the -2, -4, and -8-inch sensors. The deeper soil sensors reported no change. Total precipitation for the period was 1.47 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

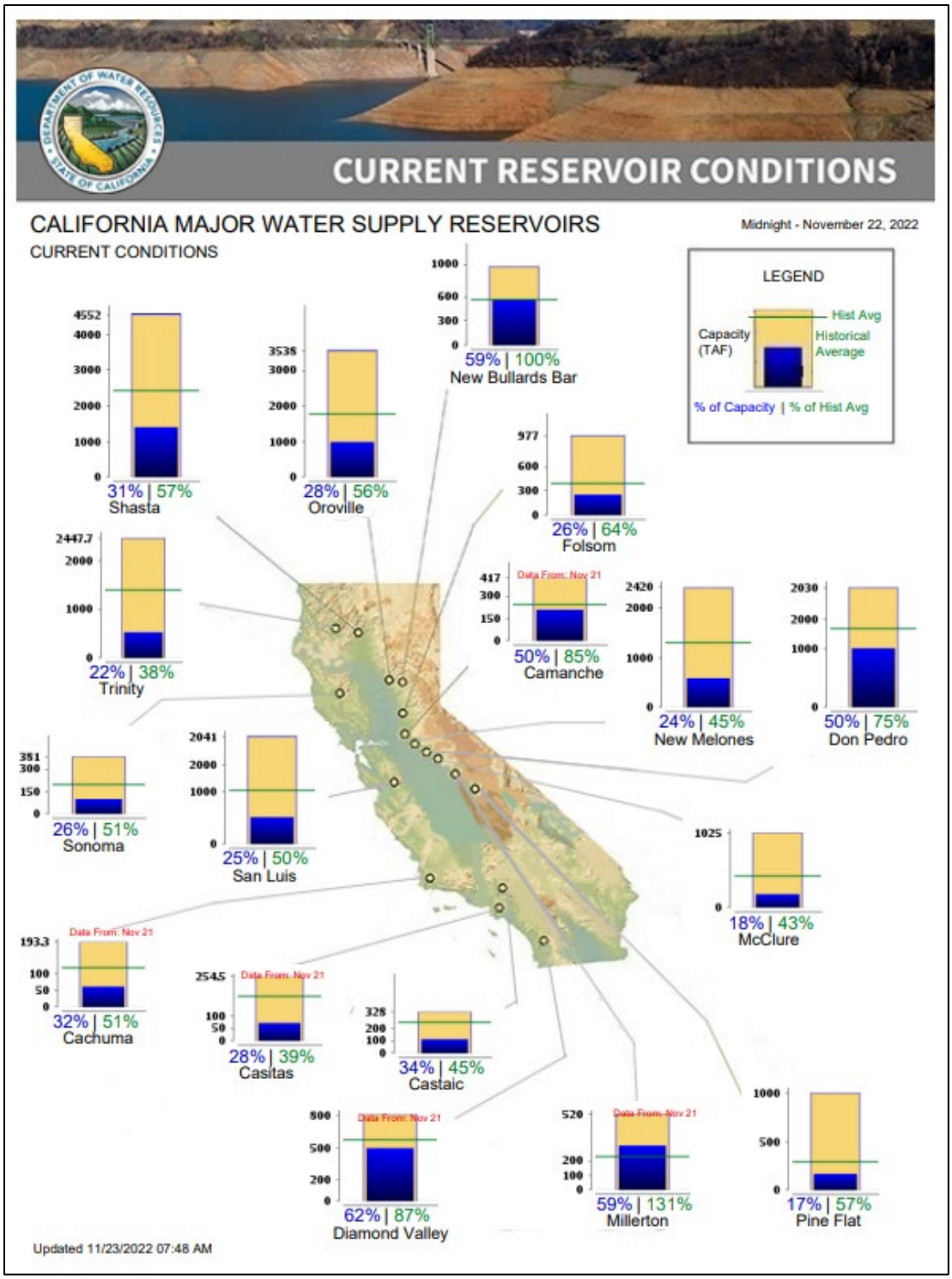
Hydromet Teacup Reservoir Depictions

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, Wednesday November 23, 2022: **"**A developing storm system will produce widespread precipitation in the South, East, and lower Midwest, starting across the south-central U.S. on Thanksgiving Day. Wet snow may blanket portions of the southern High Plains as the event unfolds, while storm-total rainfall could reach 2 to 4 inches or more from the southeastern Plains to the southern Appalachians. However, there will be a sharp northwestern precipitation cutoff, likely extending from western Oklahoma to southern Michigan. As a result, mostly dry weather will prevail during the next 5 days from California to the northwestern half of the Plains and the upper Midwest. Elsewhere, the Northwest will experience a gradual increase in storminess, starting during the weekend after Thanksgiving. The NWS 6- to 10-day outlook for November 28 – December 2 calls for the likelihood of below-normal temperatures across the northern Plains and much of the West, while warmer-than-normal weather will prevail east of a line from the southern Rockies to Lake Michigan. Meanwhile, near- or below-normal precipitation in much of the southern and eastern U.S. should contrast with wetter-than-normal conditions from the Pacific Coast to the northern half of the Plains, the Midwest, and the mid-South."

Weather Hazards Outlook: November 25 – 29, 2022

Source: NOAA Weather Prediction Center

U.S. Day 3-7 Hazards Outlook

About the Hazards Outlook

Created November 22, 2022

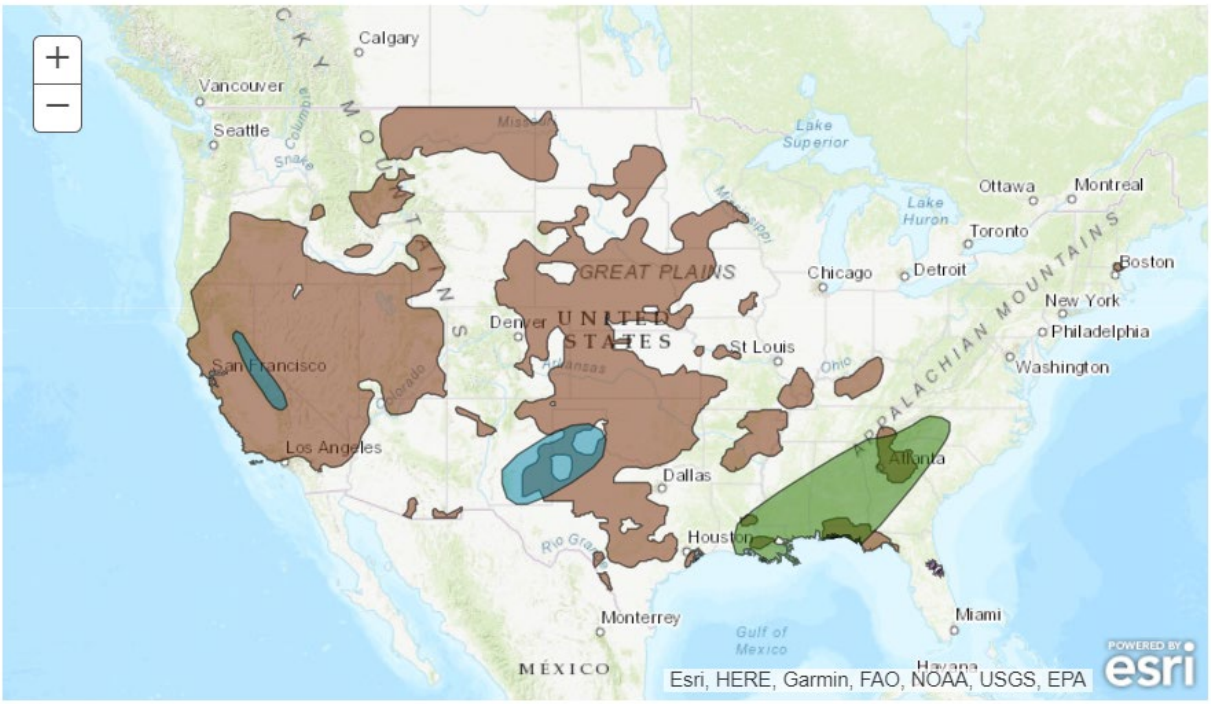
NOTE: These products are only created Monday through Friday. Please exercise caution using this outlook during the weekend.

Precipitation	☑
Temperature	☑
Soils	☑

Valid November 25, 2022 - November 29, 2022

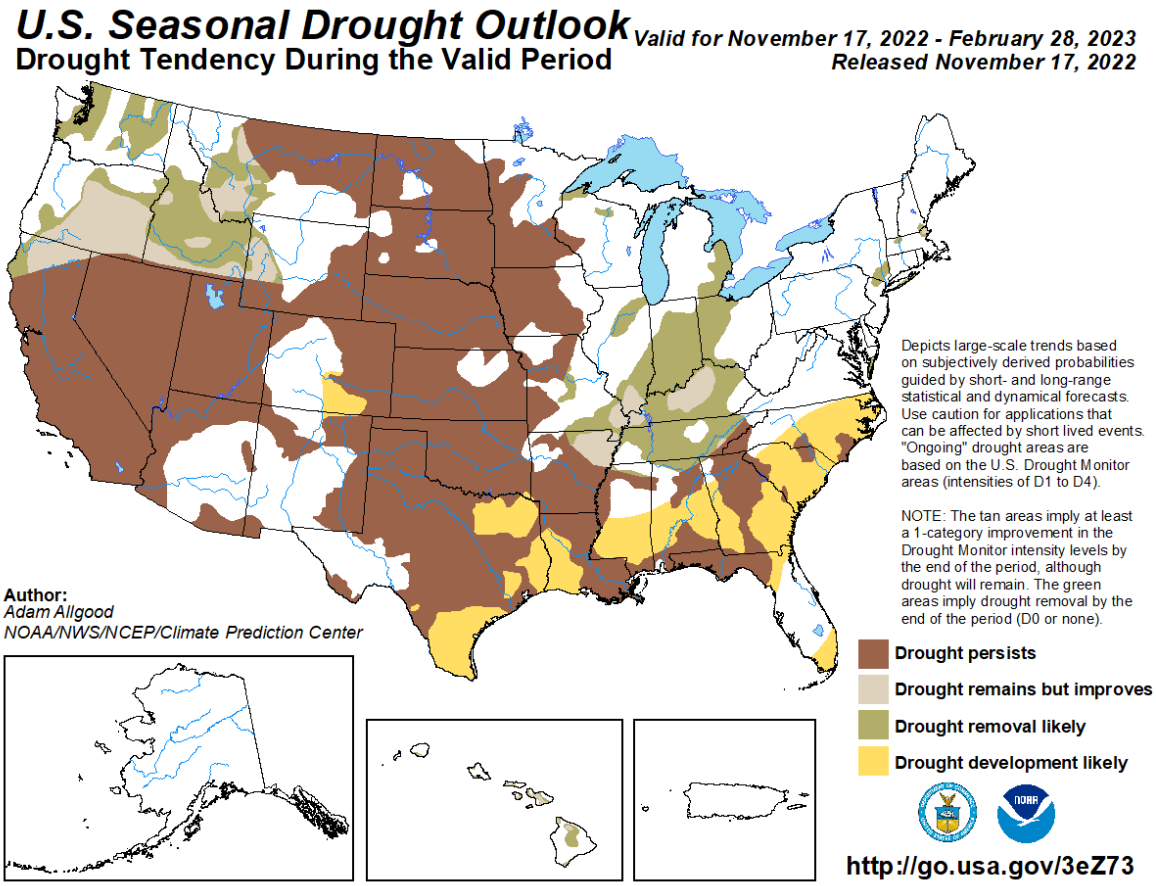
Legend

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



Seasonal Drought Outlook: November 17, 2022 – February 28, 2023

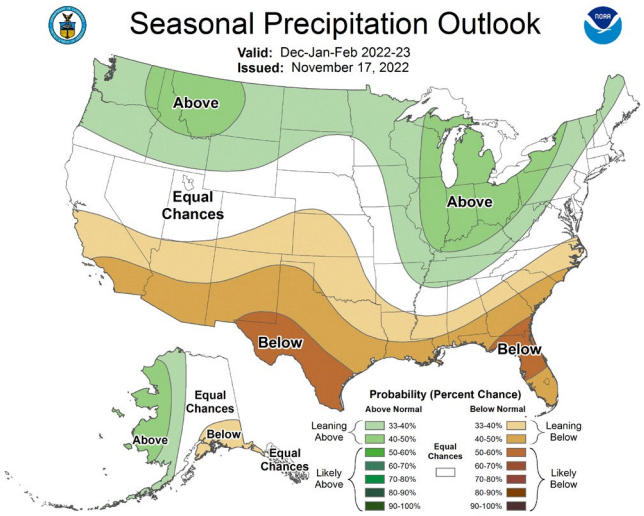
Source: National Weather Service



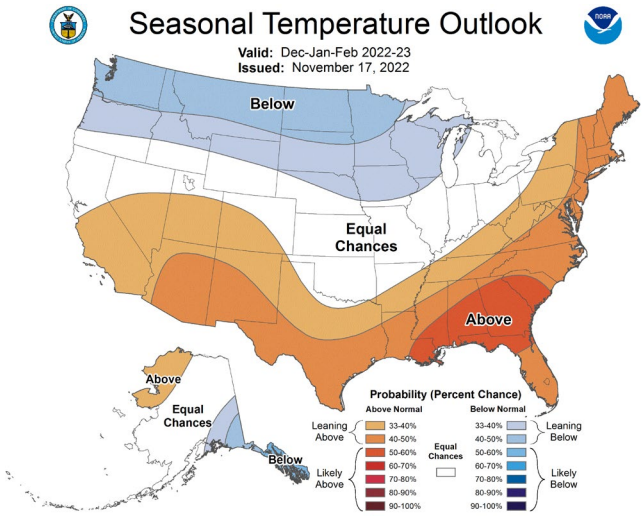
Climate Prediction Center 3-Month Outlook

Source: National Weather Service

Precipitation



Temperature



December-January-February 2022-2023 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.