United States Department of Agriculture

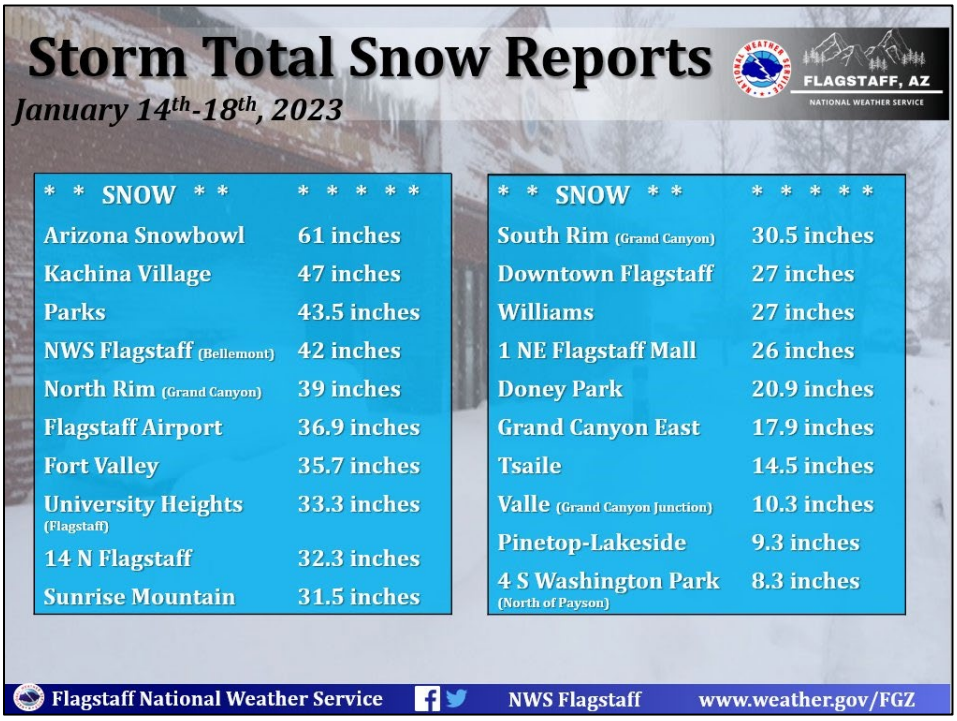
Water and Climate Update

January 19, 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
Precipitation 4
Temperature 8
Drought 10
Other Climatic and Water Supply Indicators 14
More Information 20

Winter storms bring record-breaking snowfall

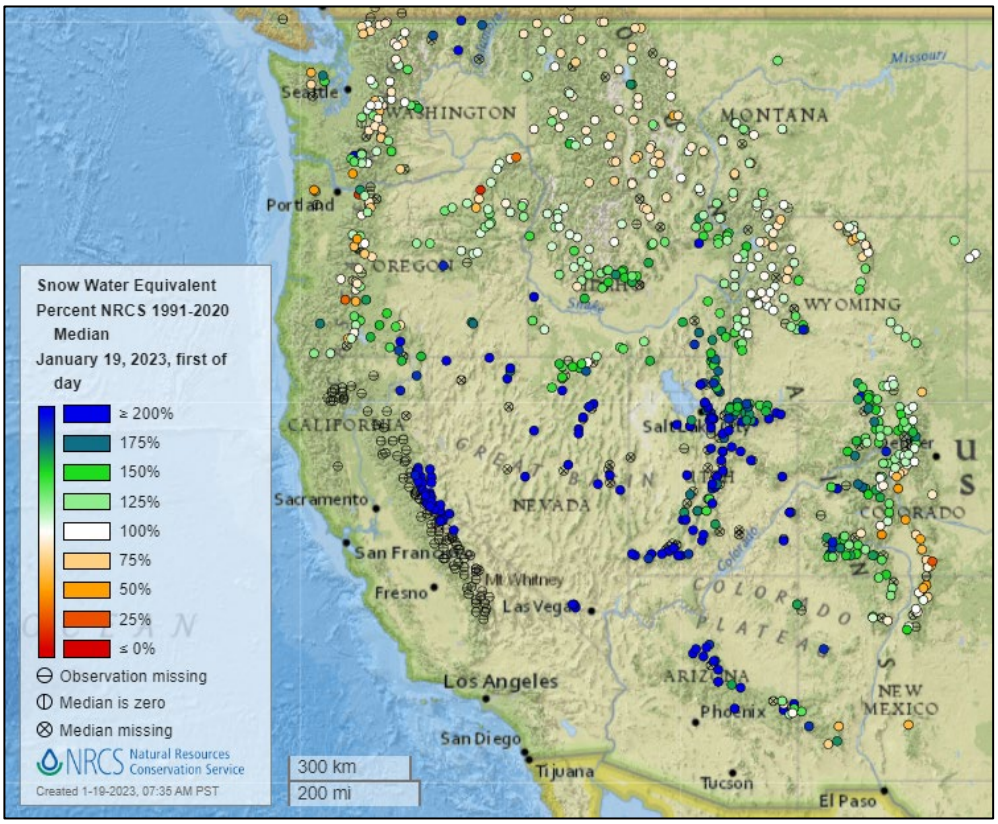


Northern Arizona received record snowfall on January 15, with winter storms also blanketing Colorado and other parts of the central U.S this week. The storm cycle is expected to continue making its way to the Upper Midwest and Great Lakes region on January 19. While the snowstorms have disrupted travel in many areas throughout the period, the mountains in the southwestern U.S. are welcoming record-breaking snowpacks as they enhance winter recreation conditions and offer hope for drought improvement.

Related:

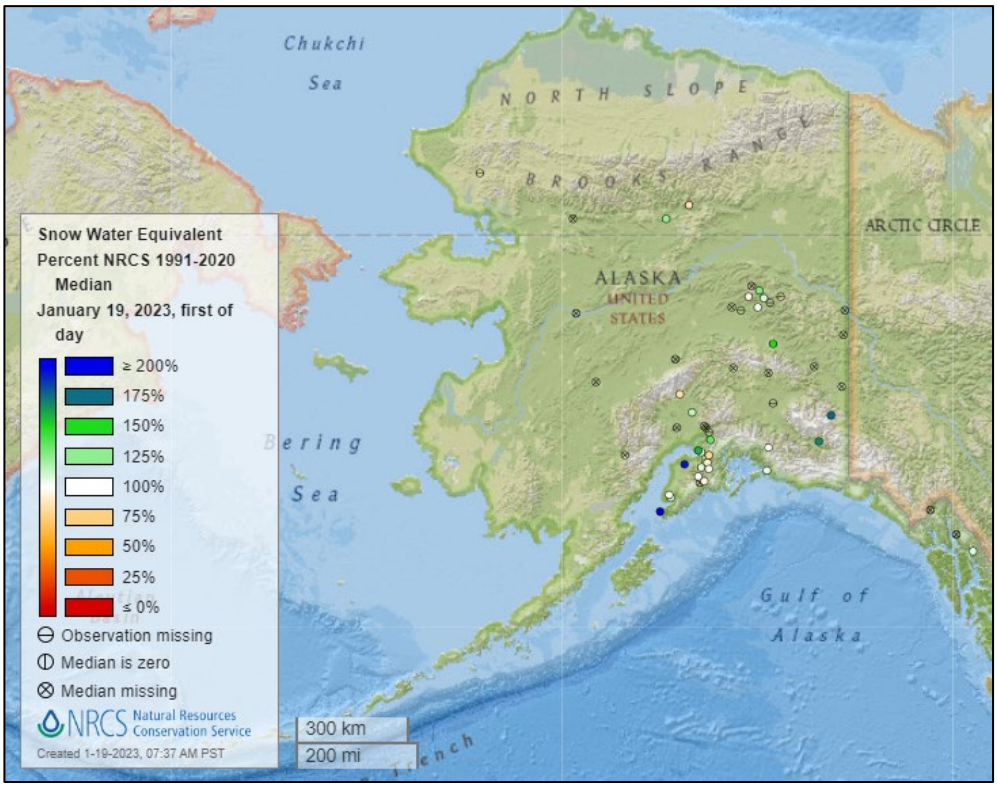
Record-breaking snowfall blankets northern Arizona – AZ Central (AZ)
I-70 closed in Colorado from Denver to Kansas Wednesday afternoon – KKTV (CO)
Snow forecast for central US increases Thursday; 21-vehicle pileup closes Colorado interstate – USA Today
How much snow, sleet and rain has fallen in Kansas - KSN (KS)
Snowfall totals, road conditions for Nebraska, Iowa - KETV (NE)
Three Utah ski resorts have the most snow in the U.S. – Salt Lake Tribune (UT)
Snowpack records as of January 19, 2023 - USDA-NRCS Snow Survey & Water Supply Forecasting Program
State Climate Officer Explains the Winter Snow Surge and What it Means for Utah's Water Future – USU (UT)

Snow



[Snow water equivalent percent of median map]

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

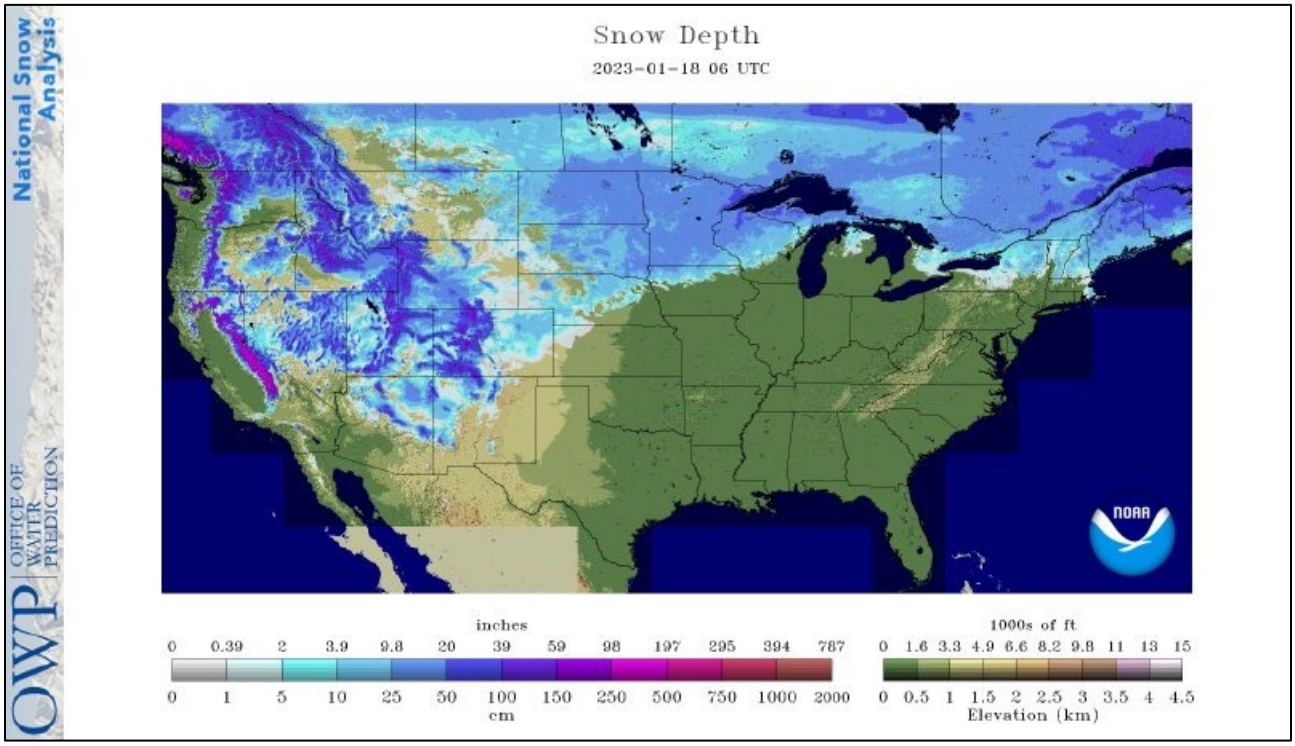


[Alaska snow water equivalent percent of median map]

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

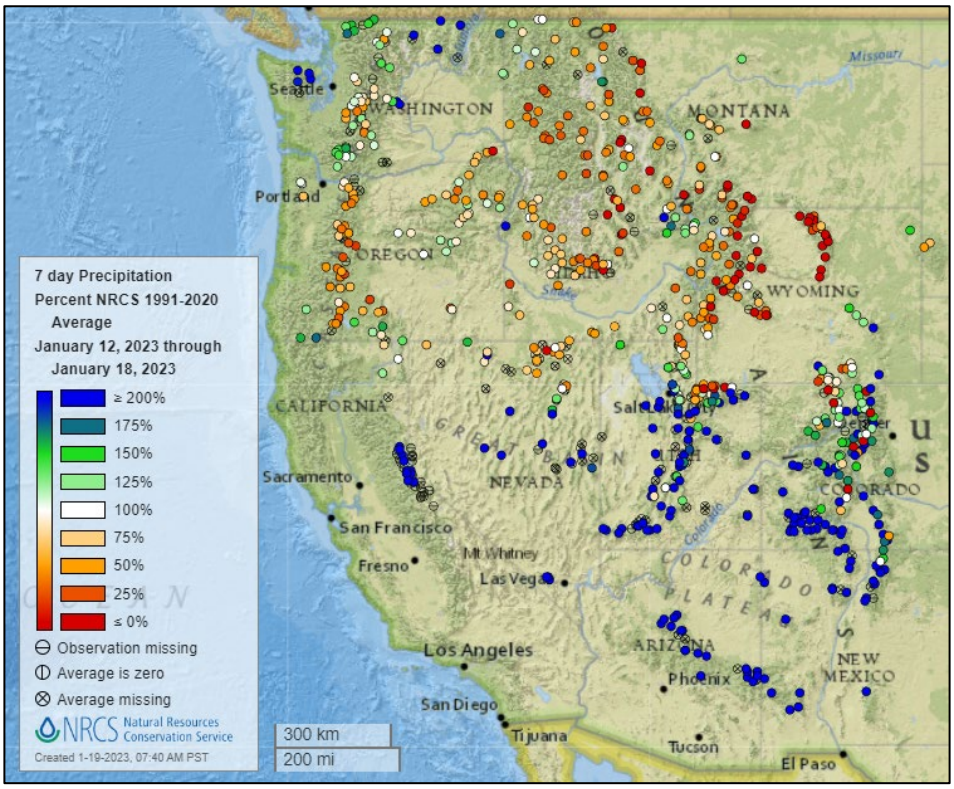
Current Snow Depth, National Weather Service Snow Analysis

Source: NOAA NWS National Operational Hydrologic Remote Sensing Center



Precipitation

Last 7 Days, NRCS SNOTEL Network

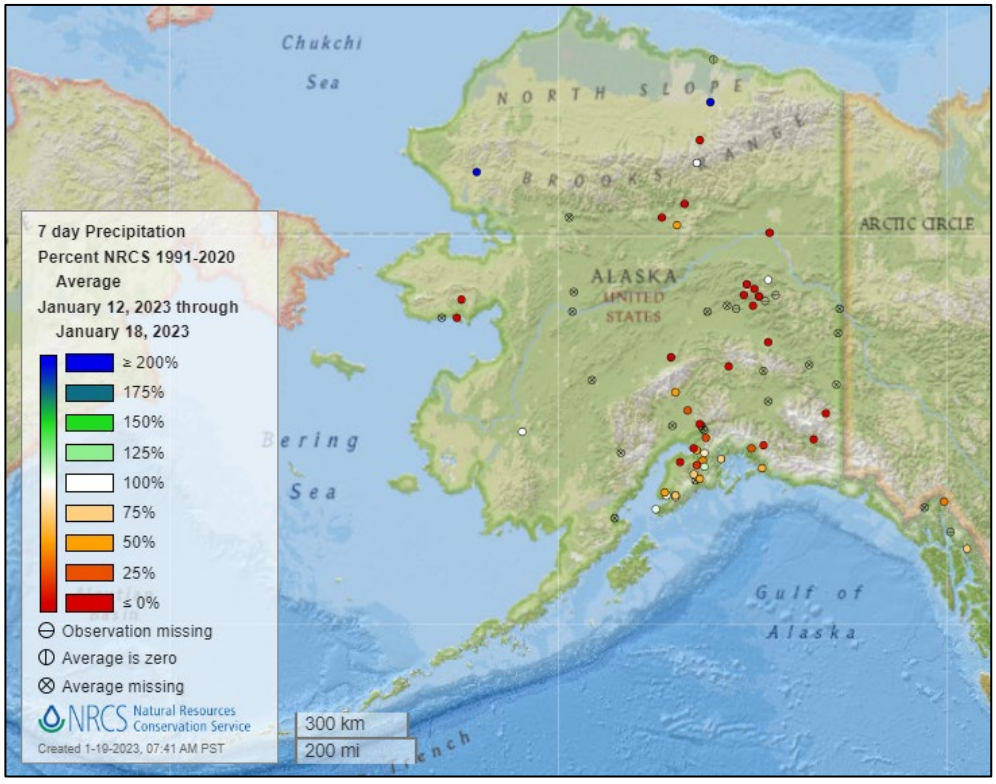


[7-day precipitation percent of average map]

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]

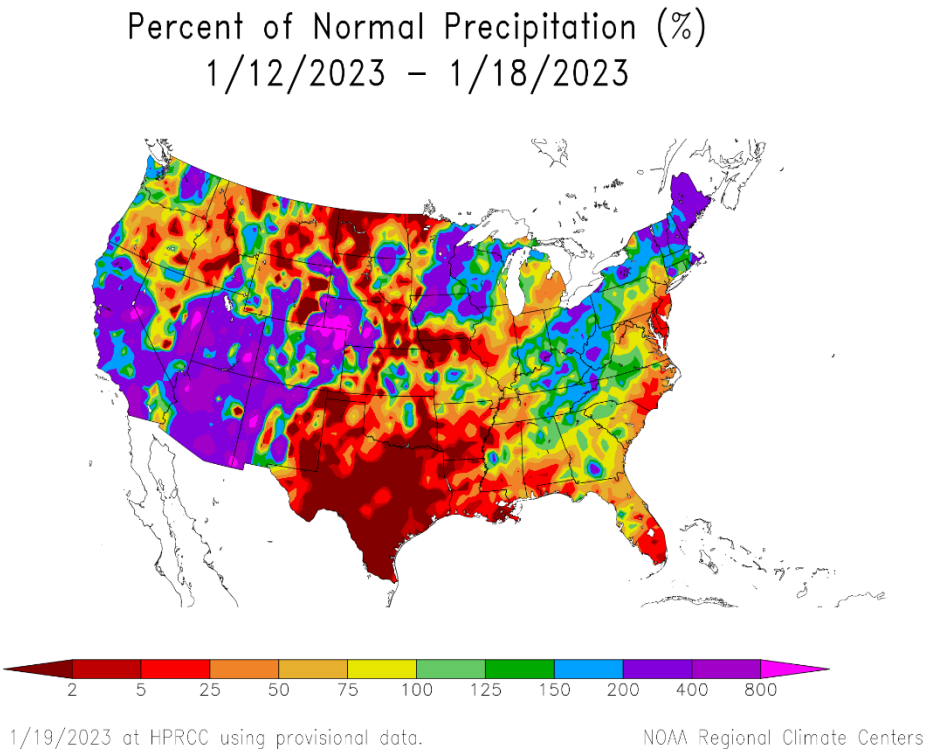


Last 7 Days, National Weather Service (NWS) Networks

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

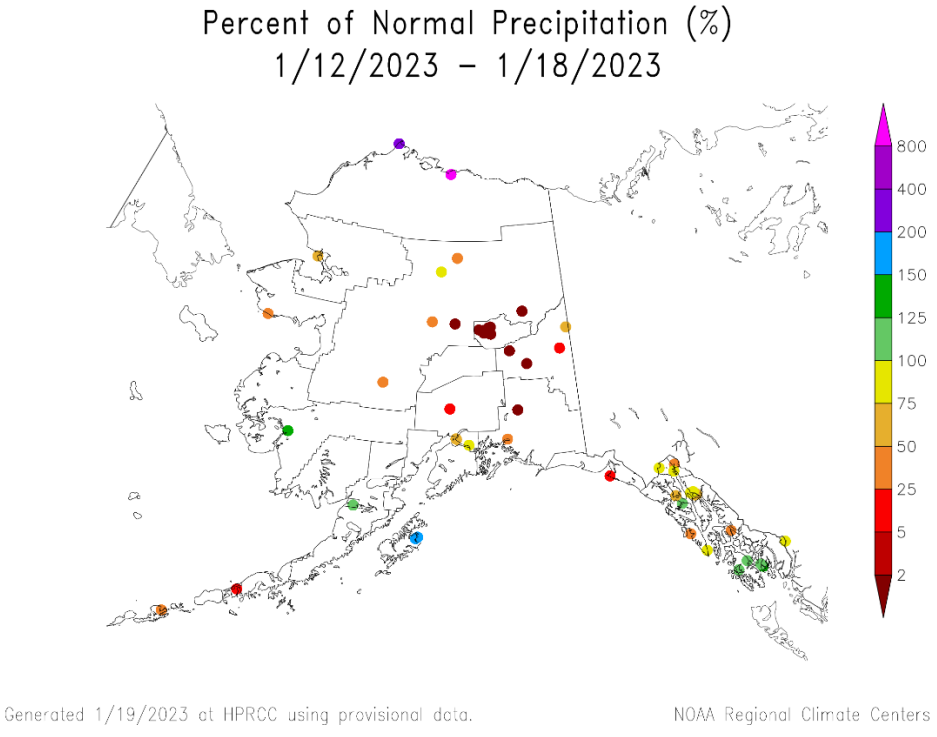


Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

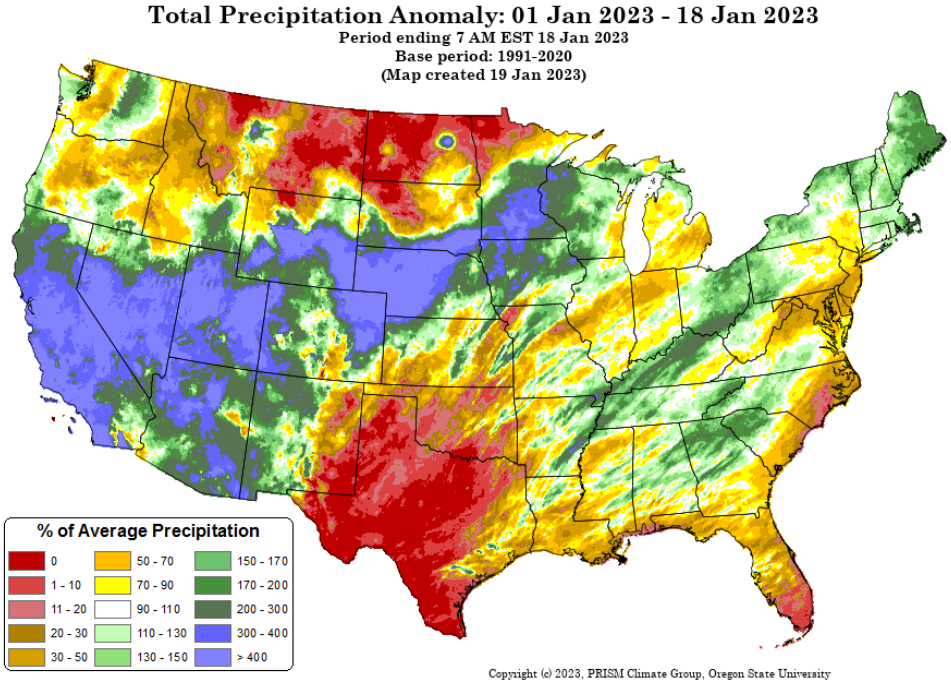
7-day precipitation percent of normal map for Alaska.

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



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

Source: PRISM

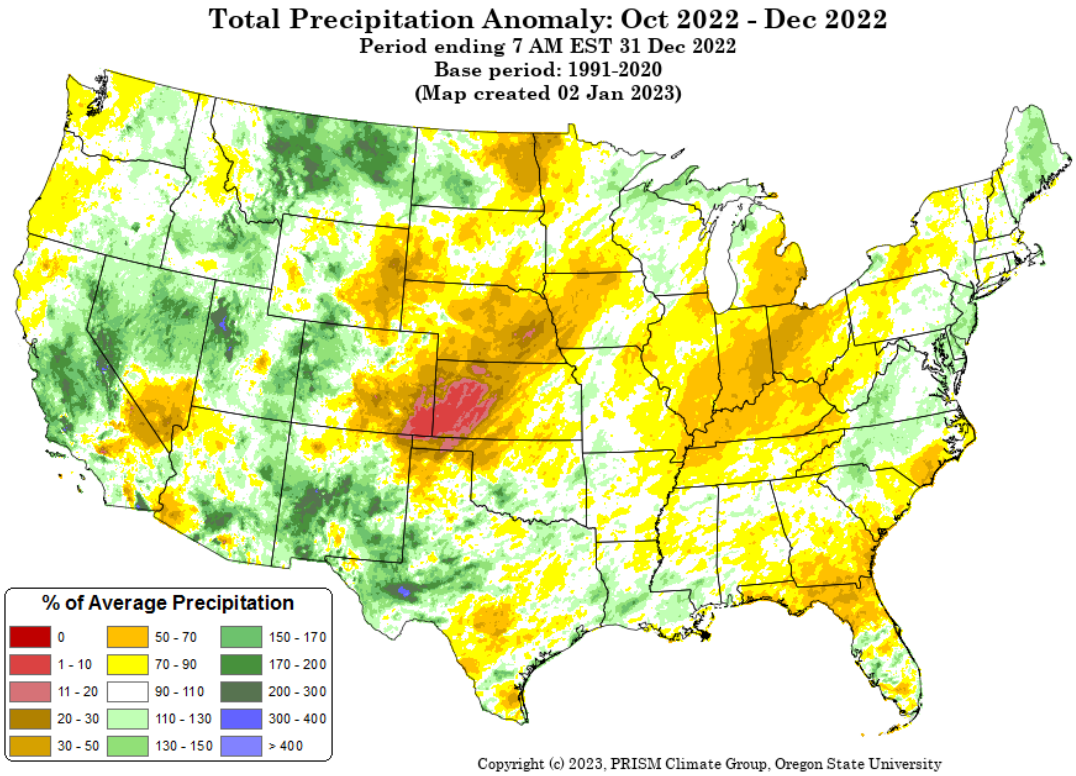


Month-to-date national total precipitation anomaly map

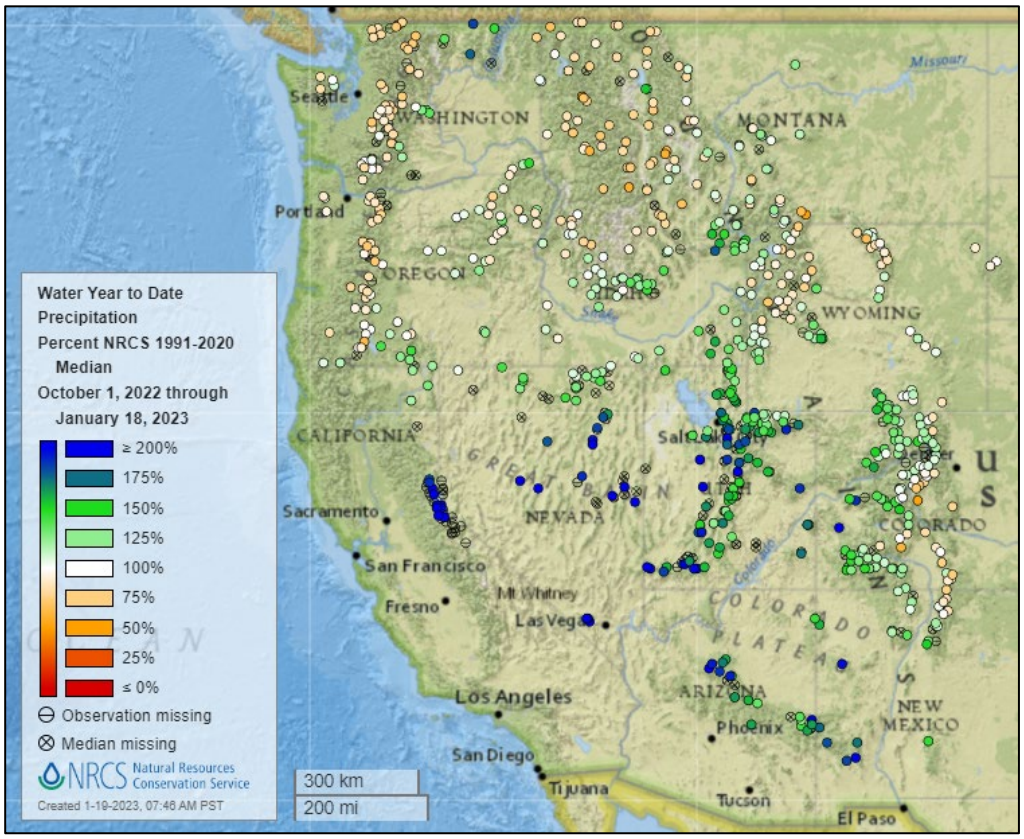
Last 3 Months, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

October through December 2022 precipitation anomaly map



Water Year-to-Date, NRCS SNOTEL Network

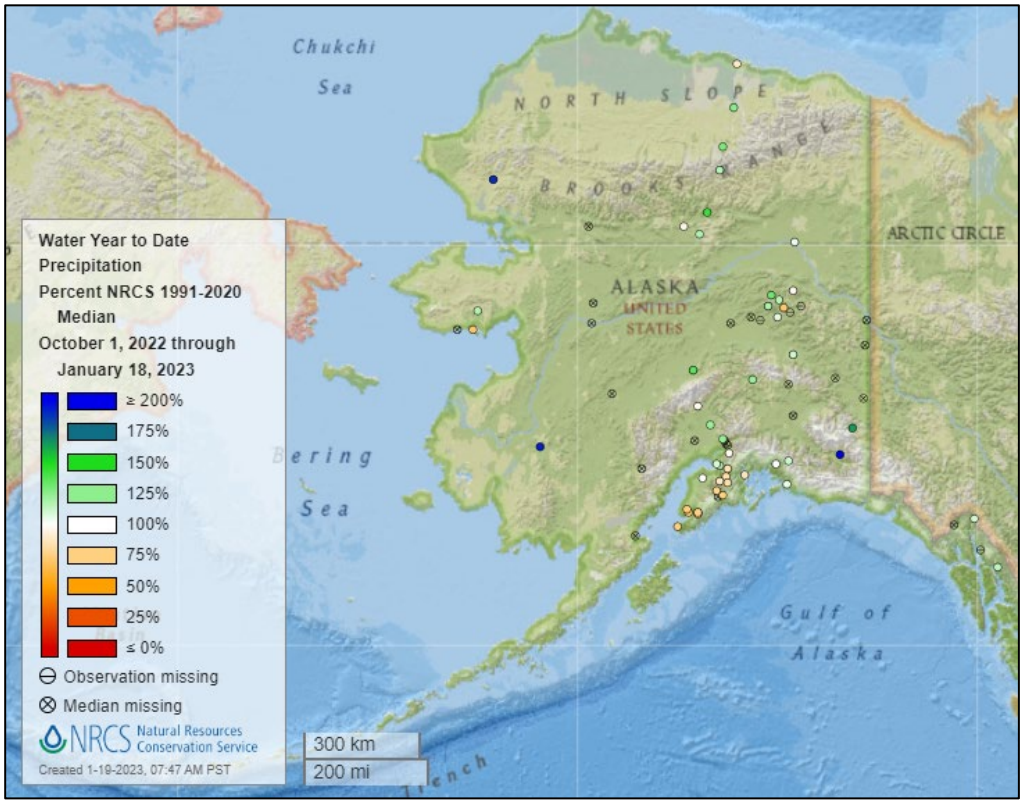


[2023 water year-to-date precipitation percent of median map]

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]

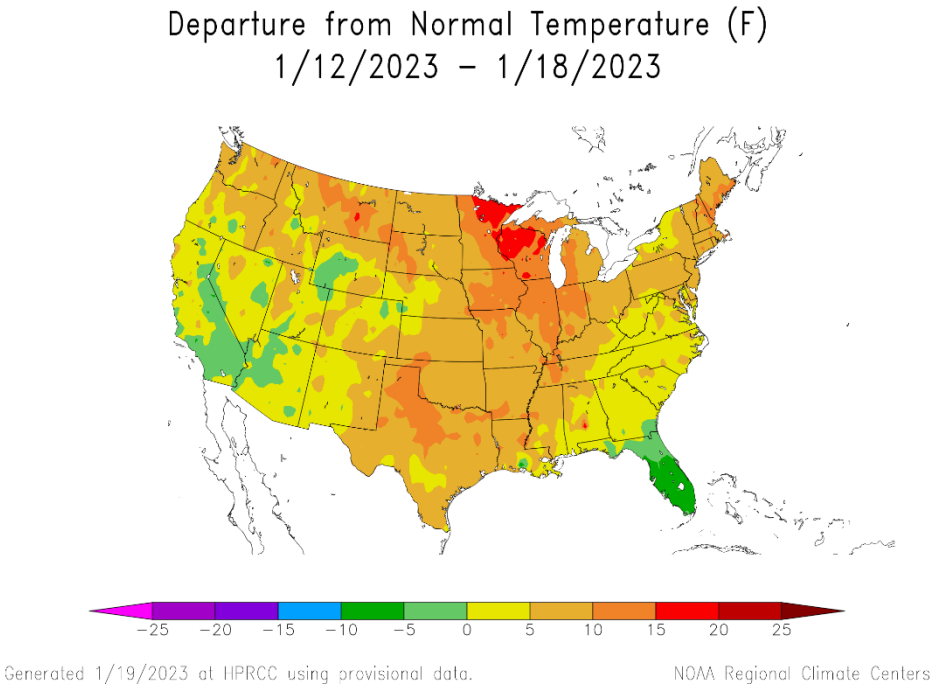
Temperature

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

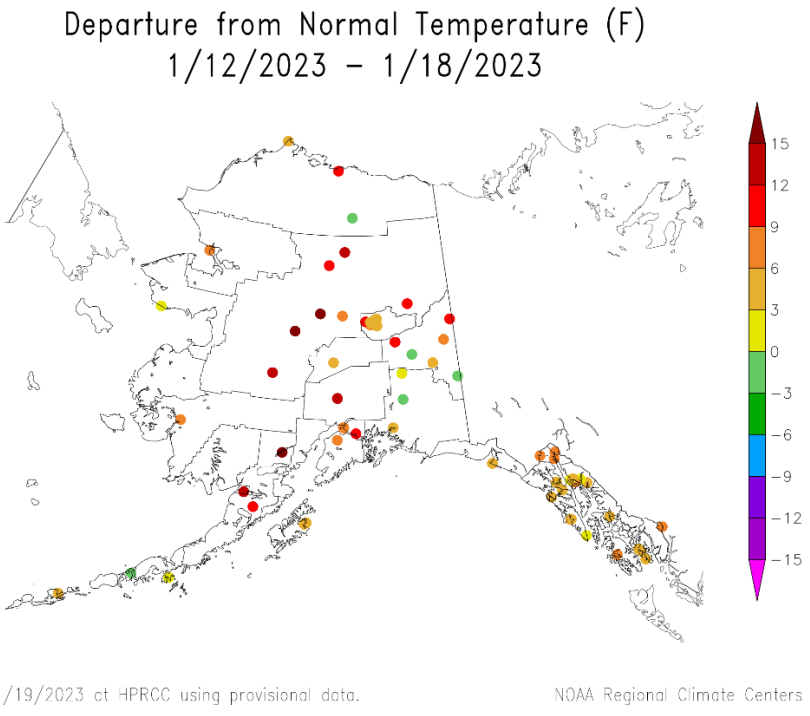


Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

7-day temperature anomaly map for Alaska.

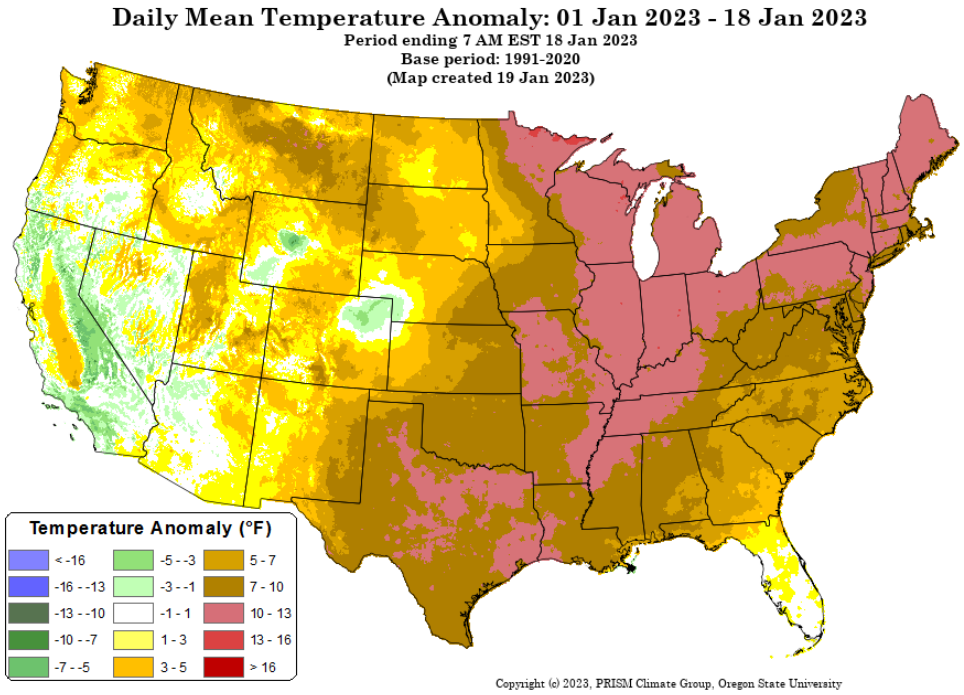
See also: 7-day temperature (° F) map



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

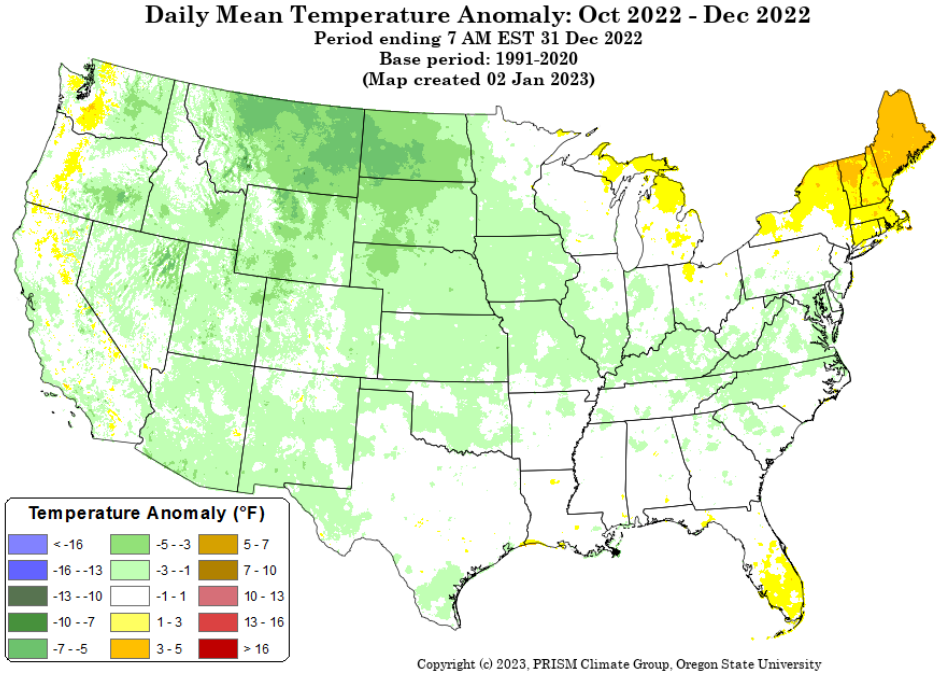
Source: PRISM

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



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

Source: PRISM

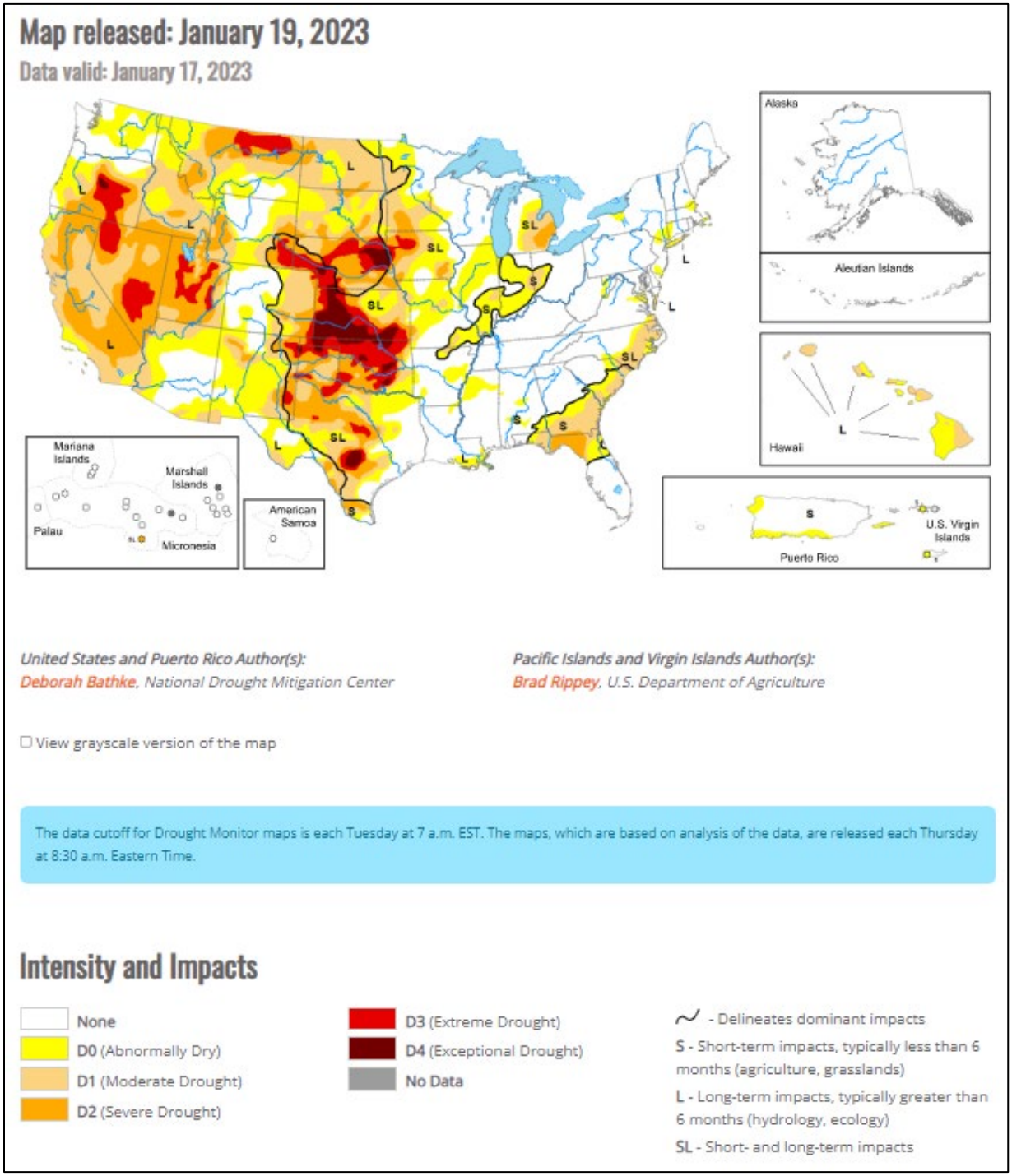


[October through December 2022 daily mean temperature anomaly map]

Drought

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

U.S. Drought Portal
Source: NOAA



Current National Drought Summary, January 17, 2023

Source: National Drought Mitigation Center

“An atmospheric river brought heavy rain and high-elevation snow across part of the West, leading to drought improvements in California, the Pacific Northwest, the northern Rockies and the Great Basin. A band of heavy rainfall, combined with severe weather, impacted the Southeast, leading to areas of drought improvement in Georgia. Meanwhile, persistent dryness led to the expansion of drought in the Carolinas. Drought in the High Plains remains largely unchanged; much of the excess moisture is tied up in snowpack and its effects on soil moisture and groundwater recharge remain to be seen. Drought expanded across parts of the South where short-term moisture deficits on top of longer-term drought continue to build.”

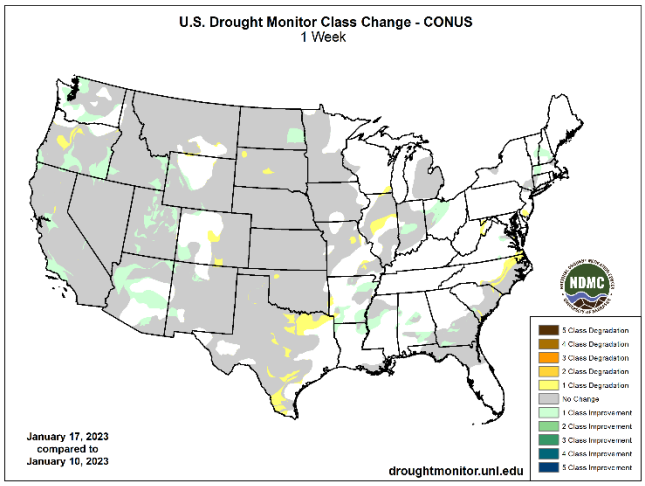
National Drought Summary – West

“The long-term drought continues across California, the Great Basin and parts of the Pacific Northwest. However, a barrage of atmospheric river events – streams of moisture in the atmosphere that transport water vapor from the tropics – has reduced the drought intensity over the past few weeks. In California, 1-category improvements were made along the Northern Coast, around the Delta and along the South Coast region. While precipitation over much of the state was over 300% of normal over the previous 2 weeks (2 to 12.5 inches, depending on location), deficits have been years in the making. While this last round of rain has helped return smaller reservoirs to the historical averages, many of the larger reservoirs still remain below the historical average for this time of year. Historically, long-term drought is interrupted by a period of abnormally wet weather. However, it’s too early to tell if the wet weather is enough to end the drought. Many other parts of the West also saw improvements to drought and abnormally dry areas. In Oregon, 1-category improvements were made to extreme (D3) and severe (D2) drought in the southeast and near Klamath County based on above-average snow water equivalent and improvements to long-term indicators such as 6- to 24-month precipitation and shallow groundwater. In Idaho, severe (D2) and moderate (D1) drought improved where precipitation deficits over the past 12 months and streamflows show improvement. In Utah, areas of D3 and D2 improved based on precipitation in excess of 300% of normal (3 to 10 inches, depending on location) over the last 30 days and its resulting effect on streamflows, soil moisture, and groundwater. Heavy precipitation helped erase areas of abnormal dryness in parts of Washington, Oregon, western Wyoming, western Colorado, Arizona and New Mexico. The only places in the West seeing an expansion of drought were Oregon and Colorado. In Oregon, D1 was introduced in the south Willamette Valley and central Oregon Cascades and D1 and D2 expanded in the north-central part of the state. These expansions were in response to below-normal water-year-to date precipitation on top of longer-term deficits and groundwater impacts.”

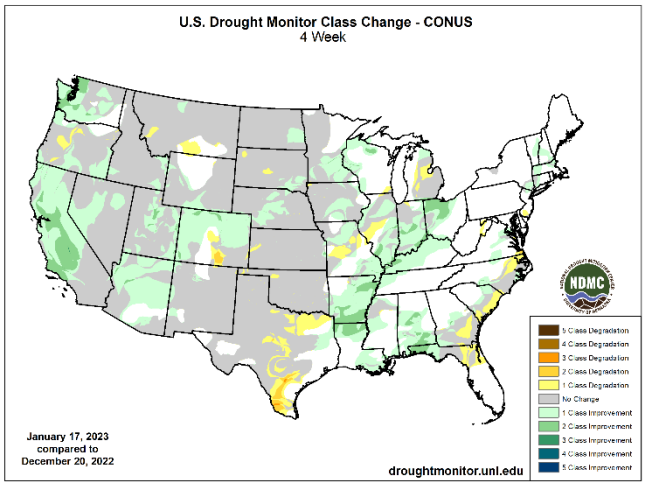
Changes in Drought Monitor Categories over Time

Source: National Drought Mitigation Center

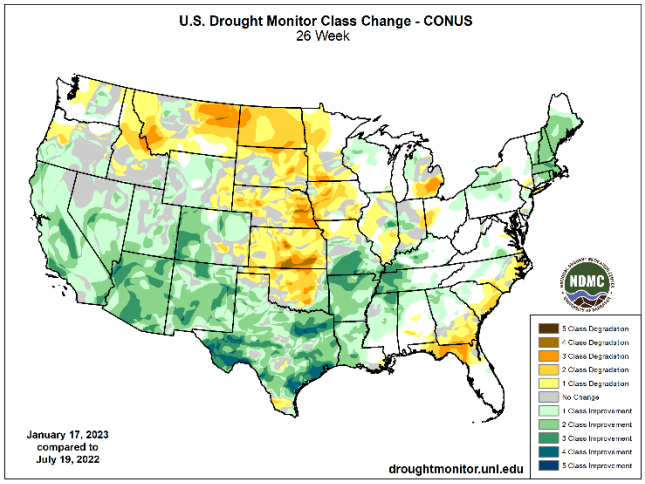
1 Week



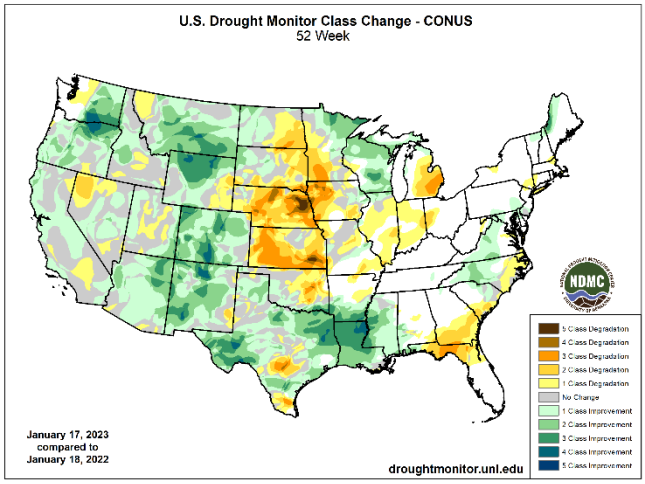
1 Month



6 Months



1 Year



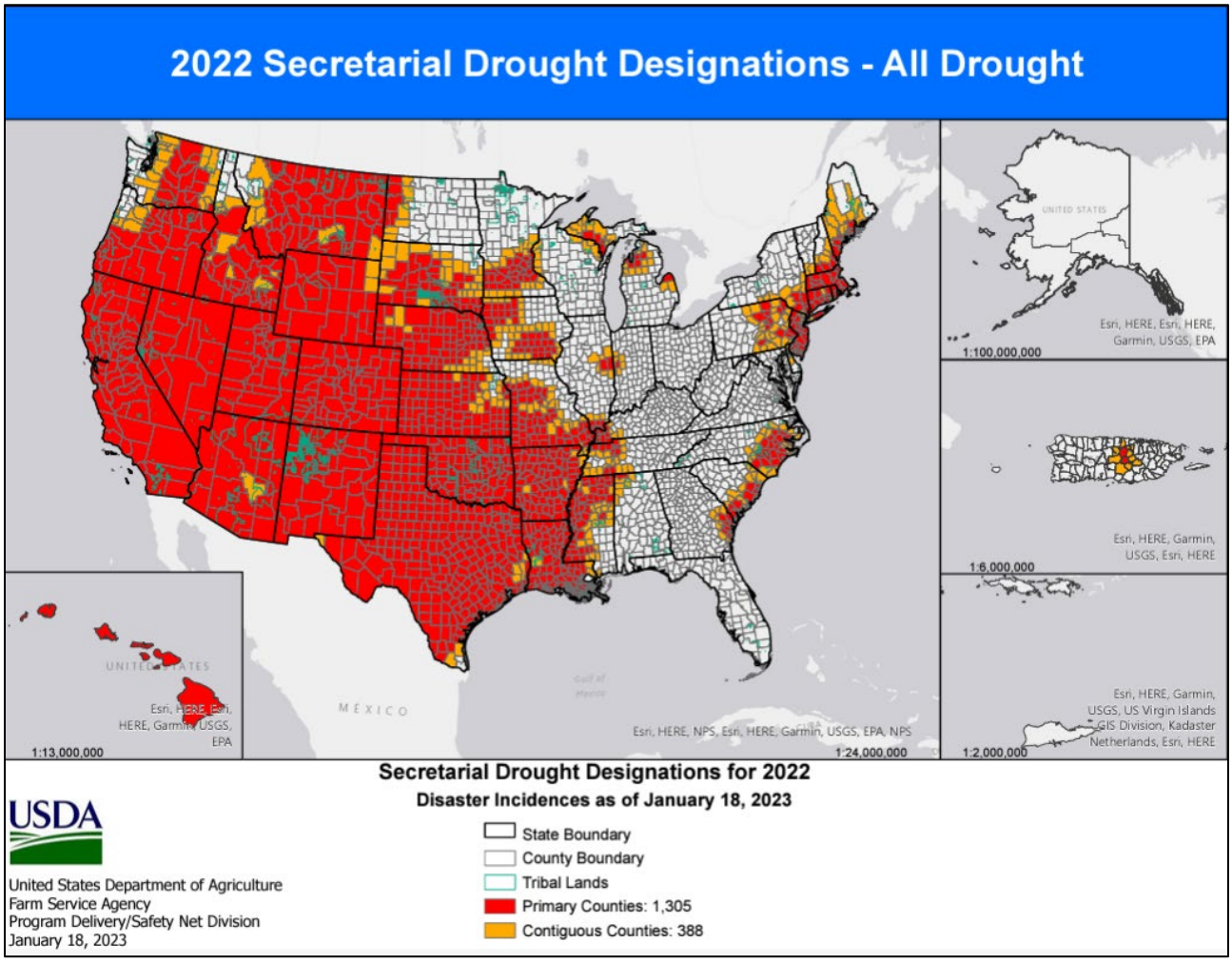
Changes in drought conditions over the last 12 months for the contiguous U.S.

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

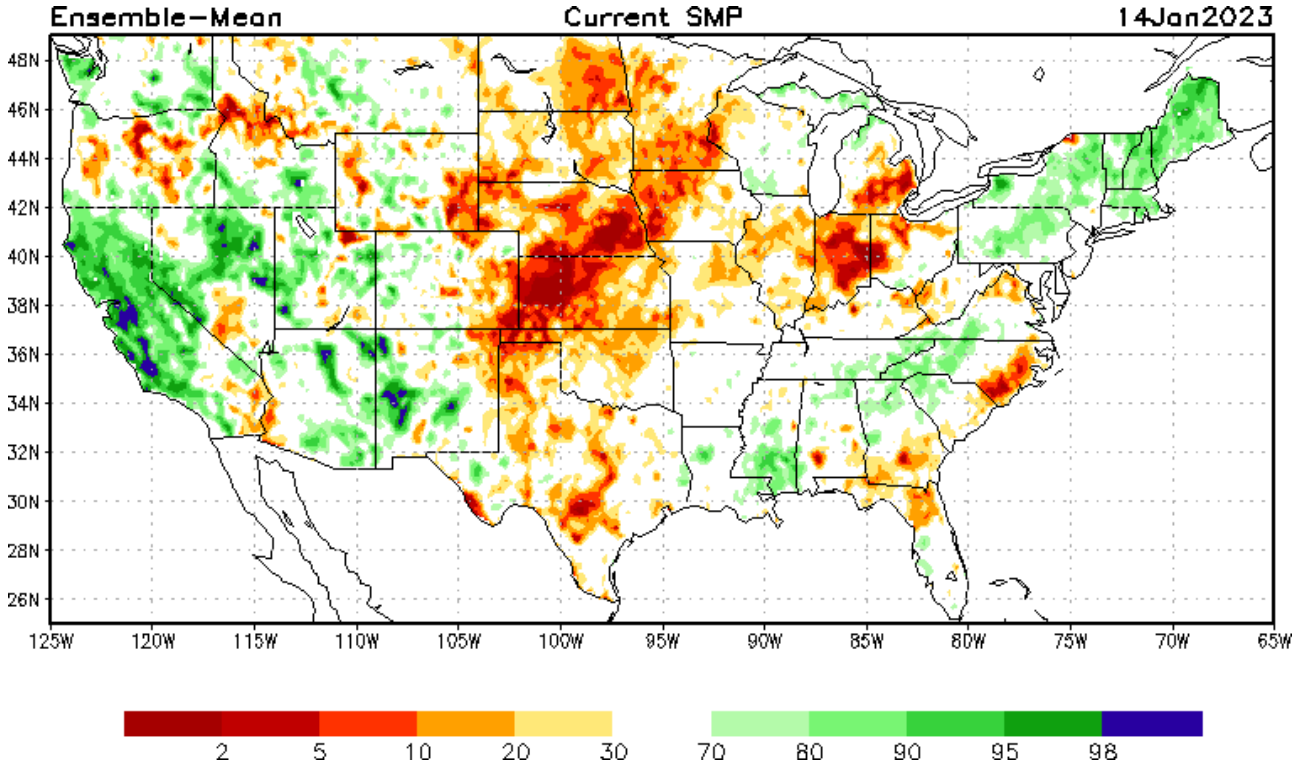
Source: USDA Farm Service Agency



Other Climatic and Water Supply Indicators

Soil Moisture

Source: NOAA National Centers for Environmental Prediction

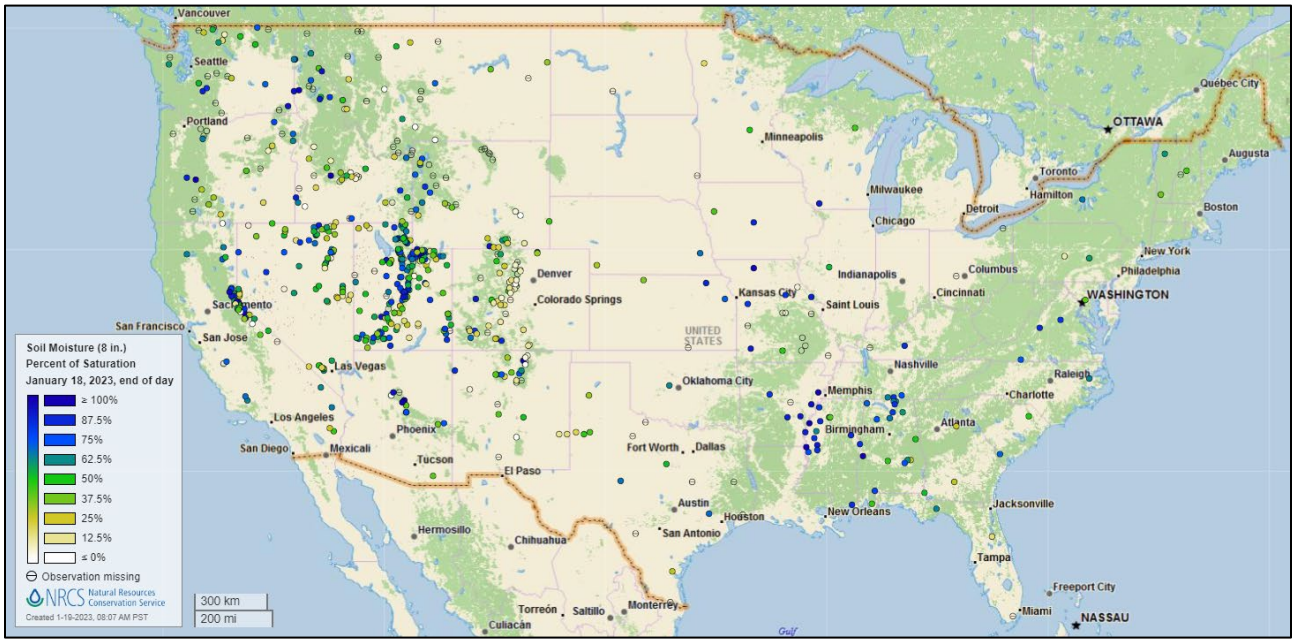


Modeled soil moisture percentiles as of January 14, 2023

Soil Moisture Percent of Saturation

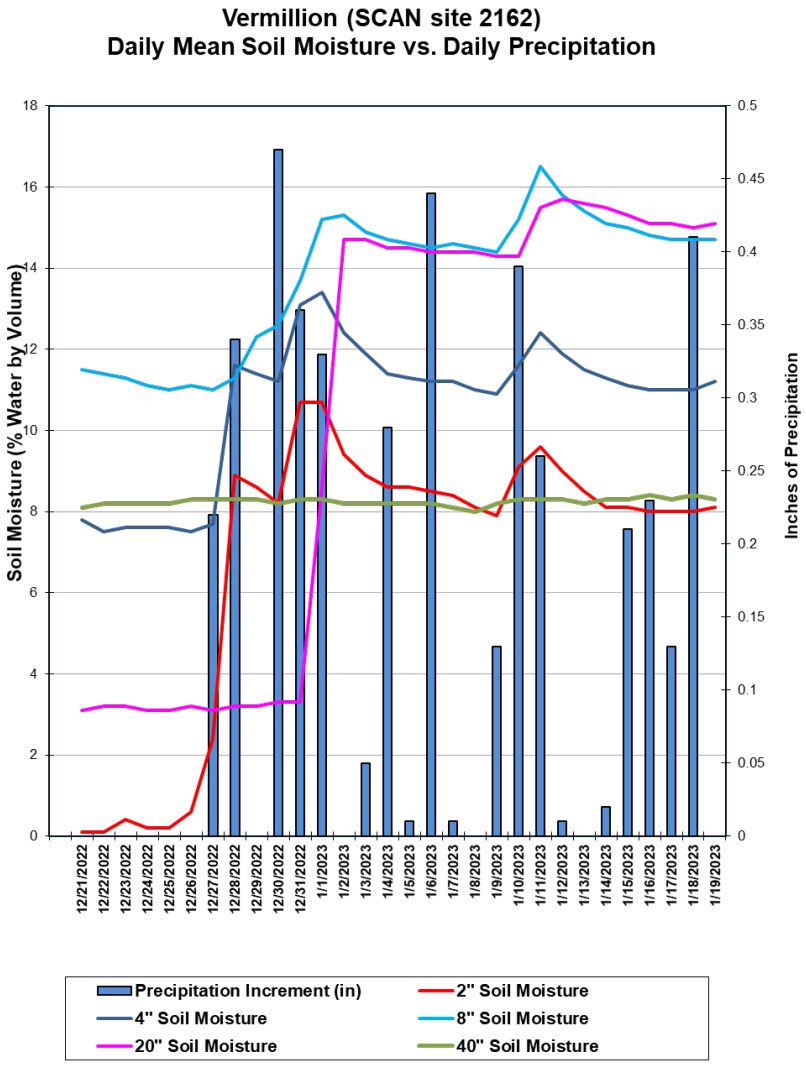
Source: NRCS SNOTEL and Soil Climate Analysis Network (SCAN)

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



Soil Moisture

Source: NRCS Soil Climate Analysis Network (SCAN)



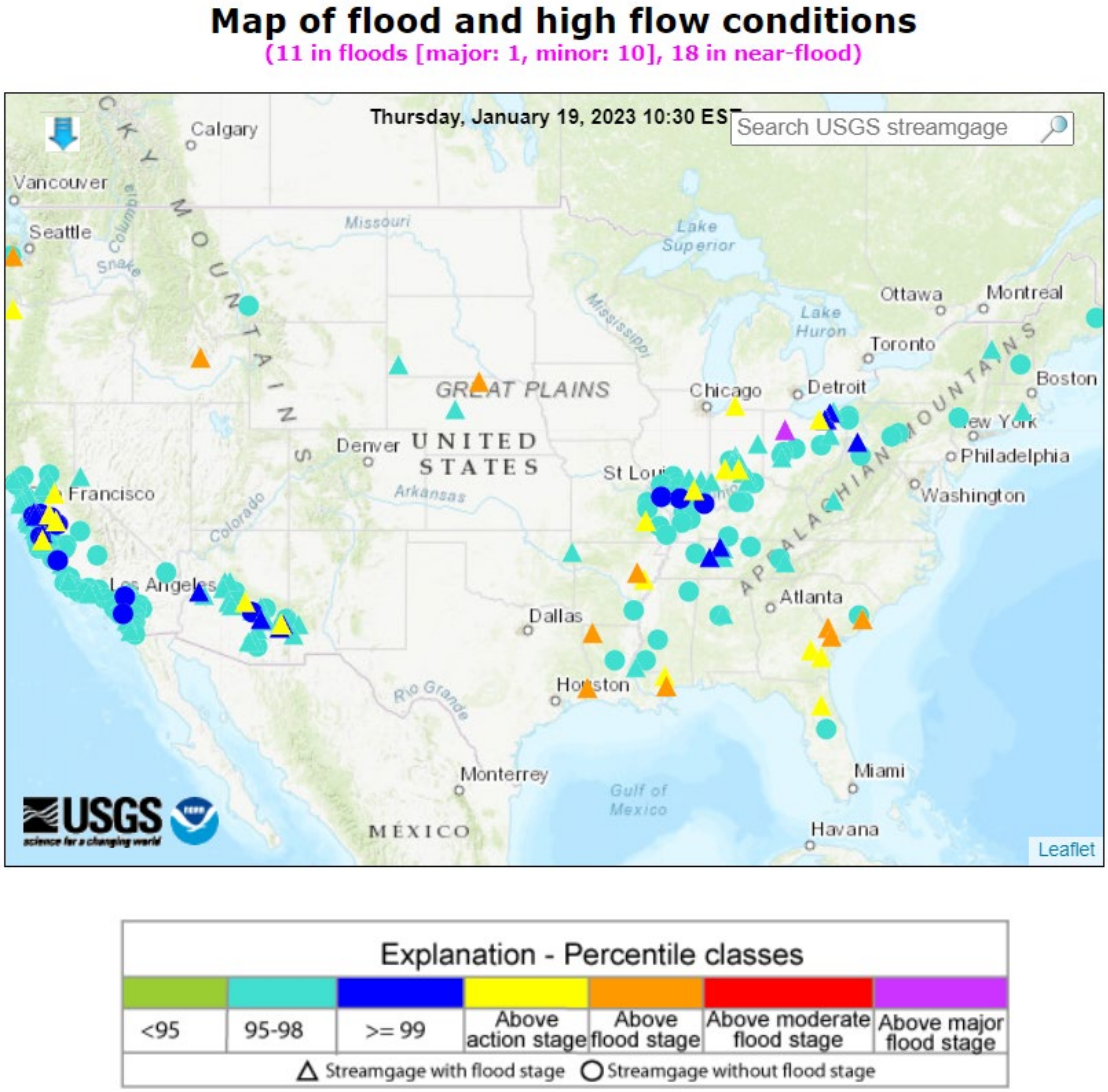
This chart shows the precipitation and soil moisture for the last 30 days at the Vermillion SCAN site in California. Storm activity on December 30 brought 0.47 inches of precipitation to the station with the -2, -4, -8, and -20-inch soil sensors reporting an increase in soil moisture. Total precipitation for the 30-day period was 4.3 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]



[WaterWatch: Streamflow, drought, flood, and runoff conditions]

Reservoir Storage

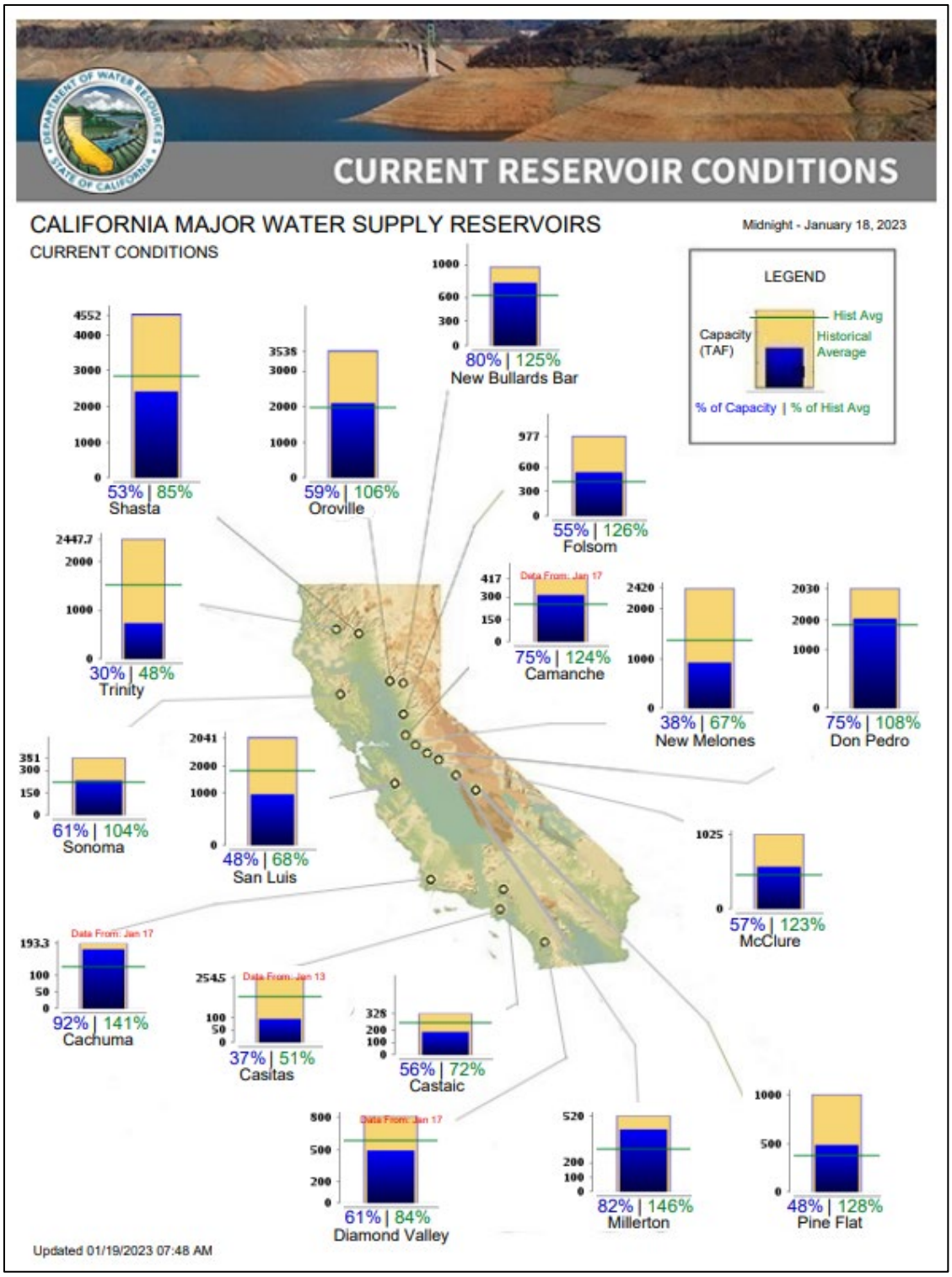
Hydromet Teacup Reservoir Depictions

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 January 19, 2023: "An active weather pattern will continue across the central and eastern U.S. for the next few days. The storm system currently traversing the Midwest, with a trailing cold front extending southward to the central Gulf Coast, will exit the East Coast by Friday. A trailing system will cross the nation's mid-section early in the weekend, with accumulating snow expected on the central High Plains. Subsequently, heavy rain may fall across the South, with 1- to 3-inch totals possible by early next week. In contrast, mostly dry weather will prevail during the next 5 days across the north-central U.S. and the Far West. However, some winter agricultural areas in the western U.S.—including California's San Joaquin Valley and parts of the Desert Southwest—may experience frost or freezes during the next few days. The NWS 6- to 10-day outlook for January 24– 28 calls for the likelihood of below-normal temperatures from the Pacific Coast to the Mississippi River, while warmer-than-normal weather will linger along the Atlantic Seaboard. Meanwhile, below-normal precipitation west of the Rockies should contrast with wetter-than-normal conditions in much of the central and eastern U.S."

Weather Hazards Outlook: January 21 – 25, 2023

Source: NOAA Weather Prediction Center

U.S. Day 3-7 Hazards Outlook

About the Hazards Outlook

Created January 18, 2023

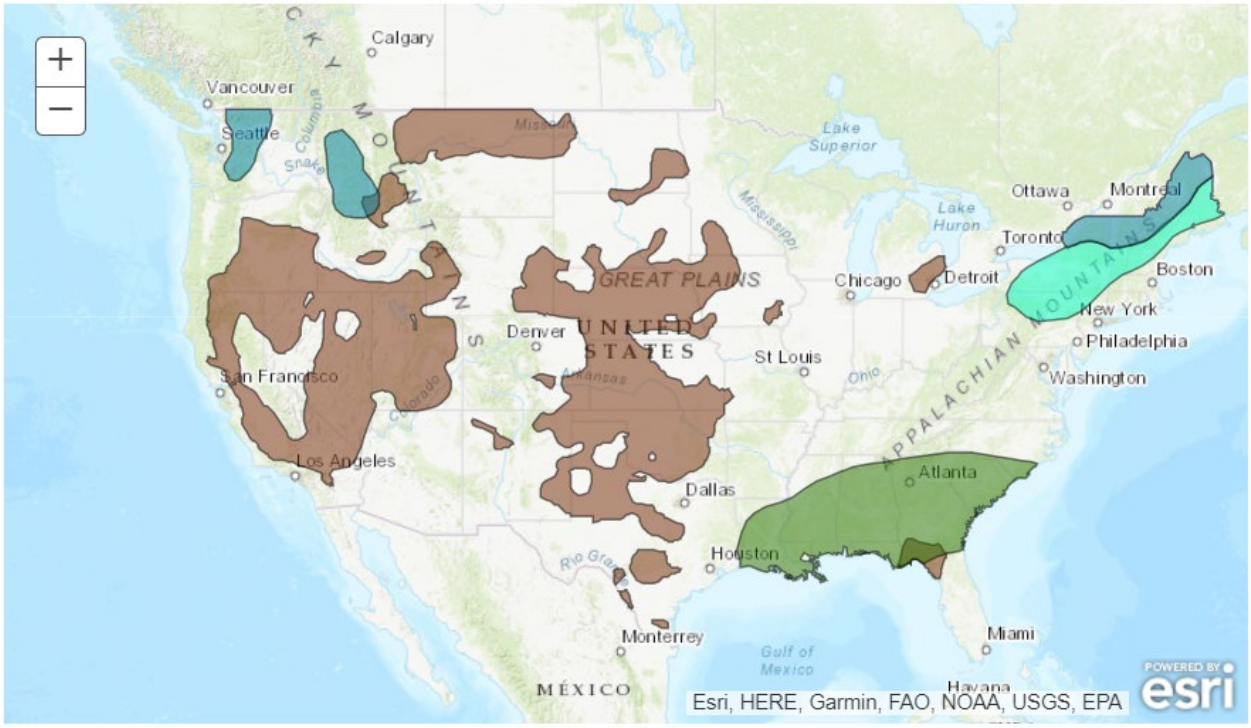
NOTE: These products are only created Monday through Friday. Please exercise caution using this outlook during the weekend.

Precipitation	☑
Temperature	☑
Soils	☑

Legend

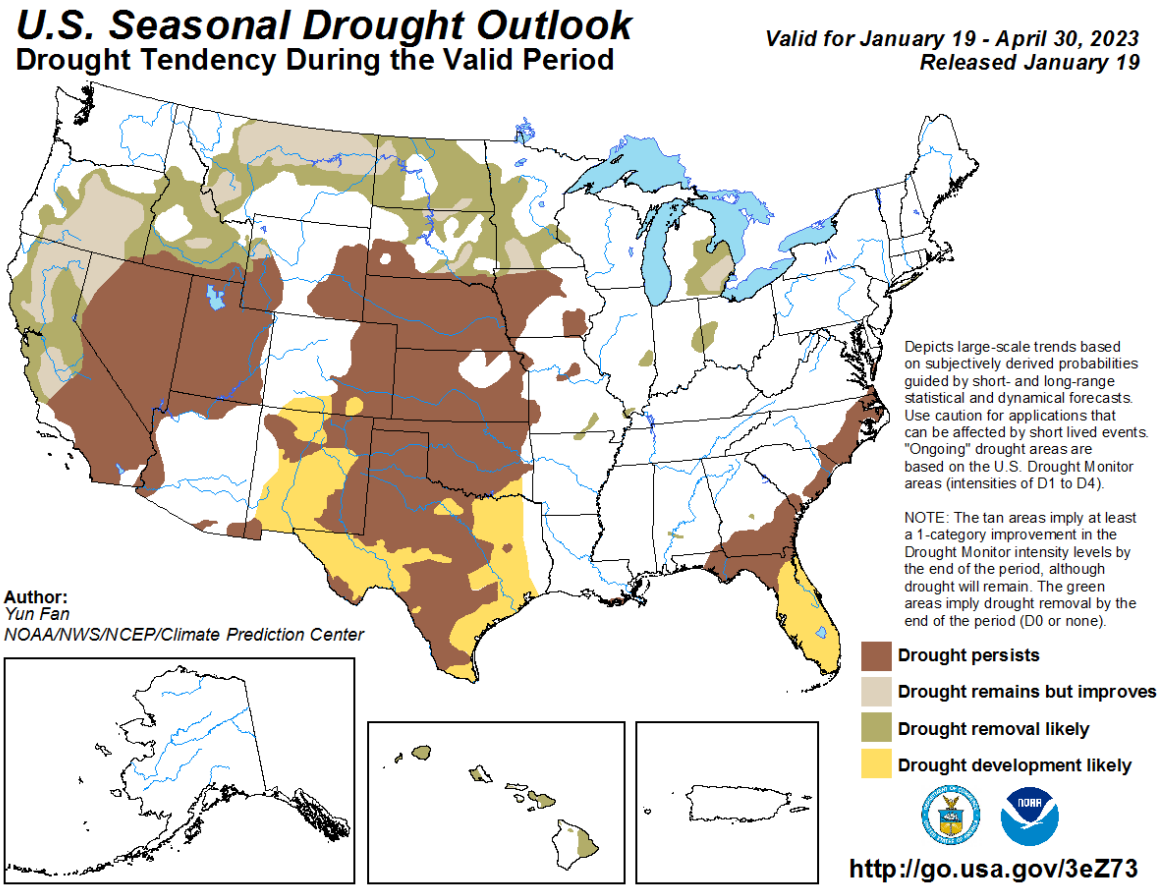
- Flooding Likely
- Flooding Occurring or Imminent
- Flooding Possible
- Freezing Rain
- Heavy Ice
- Heavy Precipitation
- Heavy Rain
- Heavy Snow
- Severe Weather
- Excessive Heat
- High Winds
- Much Above Normal Temperatures
- Much Below Normal Temperatures
- Significant Waves
- Enhanced Wildfire Risk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

Valid January 21, 2023 - January 25, 2023



Seasonal Drought Outlook: January 19 – April 30, 2023

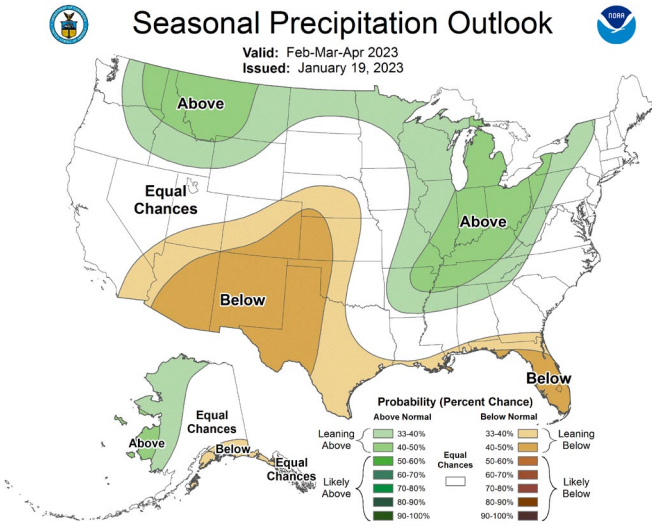
Source: National Weather Service



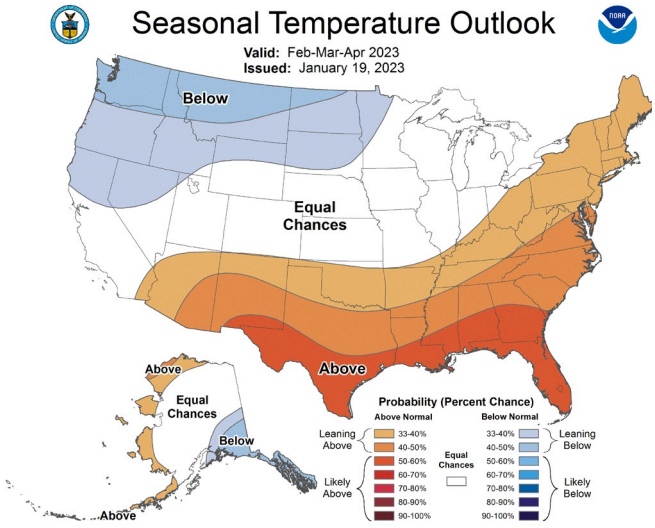
Climate Prediction Center Three-month Outlook

Source: National Weather Service

Precipitation



Temperature



February-March-April 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.