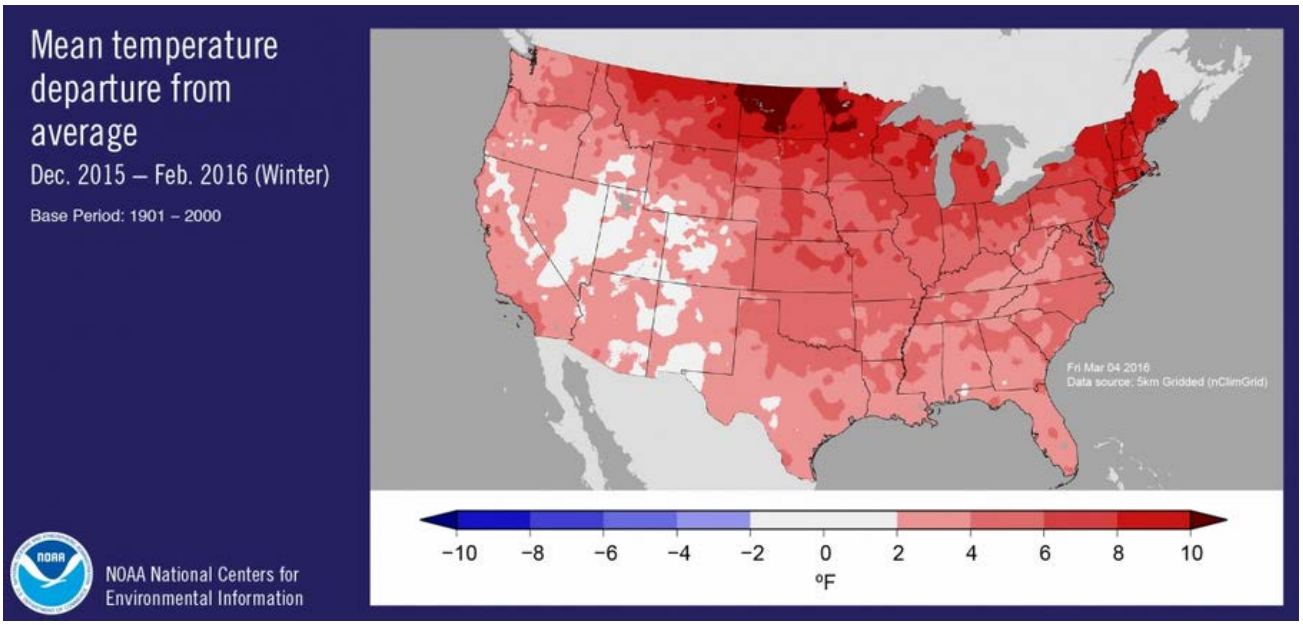
United States Department of Agriculture

Water and Climate Update

March 10, 2016

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.

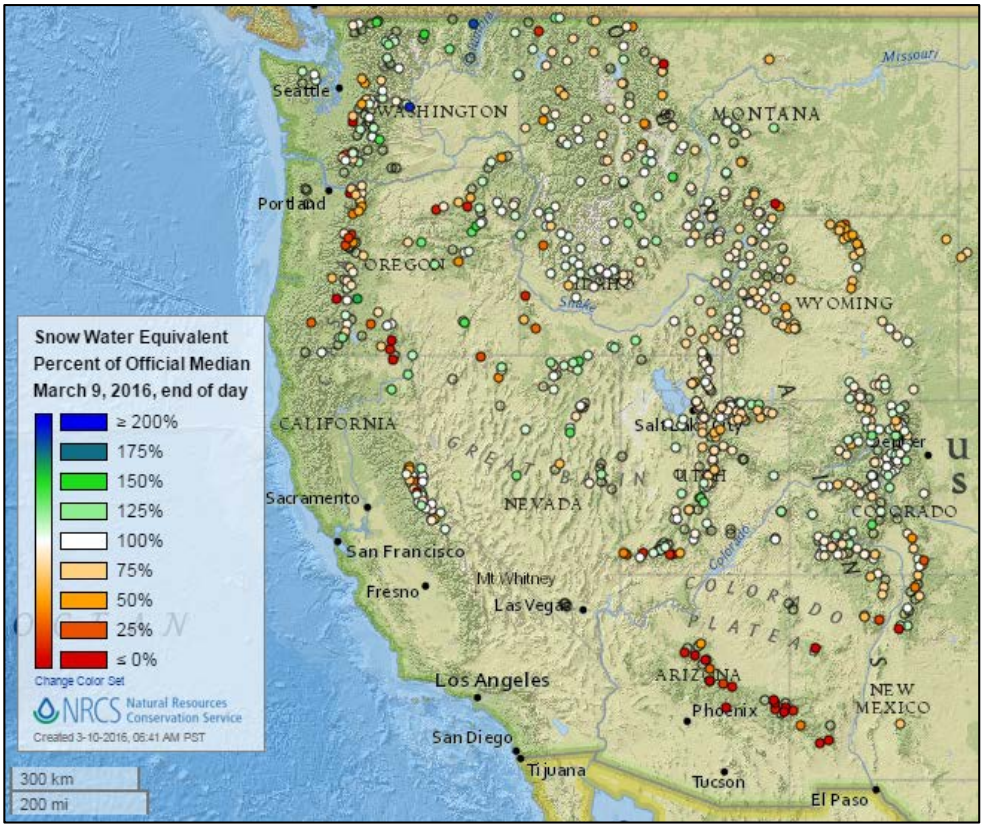
Weekly Highlight: Record warm winter temperatures for the contiguous U.S.



News release from NOAA's National Centers for Environmental Information: "A strong El Niño helped fuel a warm and wet winter for the United States. The average temperature for the contiguous U.S. during winter (December – February) was 4.6°F above the 20th century average, a new record, according to scientists from NOAA's National Centers for Environmental Information. Alaska had its second warmest winter on record. The winter precipitation total for the contiguous U.S. was 1.26 inches above the 20th century average, ranking as the 12th wettest winter on record for the Lower 48 states and the wettest since 1997/1998."

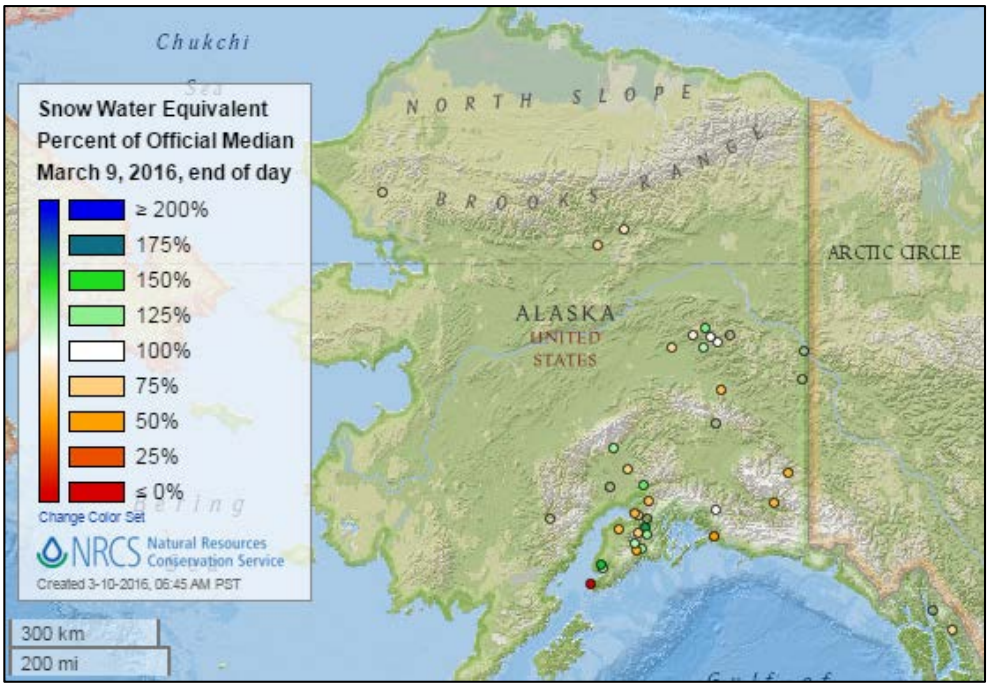
Snow

Current Snow Water Equivalent, NRCS SNOTEL Network



The current **snow water equivalent percent of median** map shows that most of the West is near average. Warm weather has again reduced the snow water equivalent at stations in the Southwest and in the Cascades, which are now well below median. A very few stations in the West report values above median.

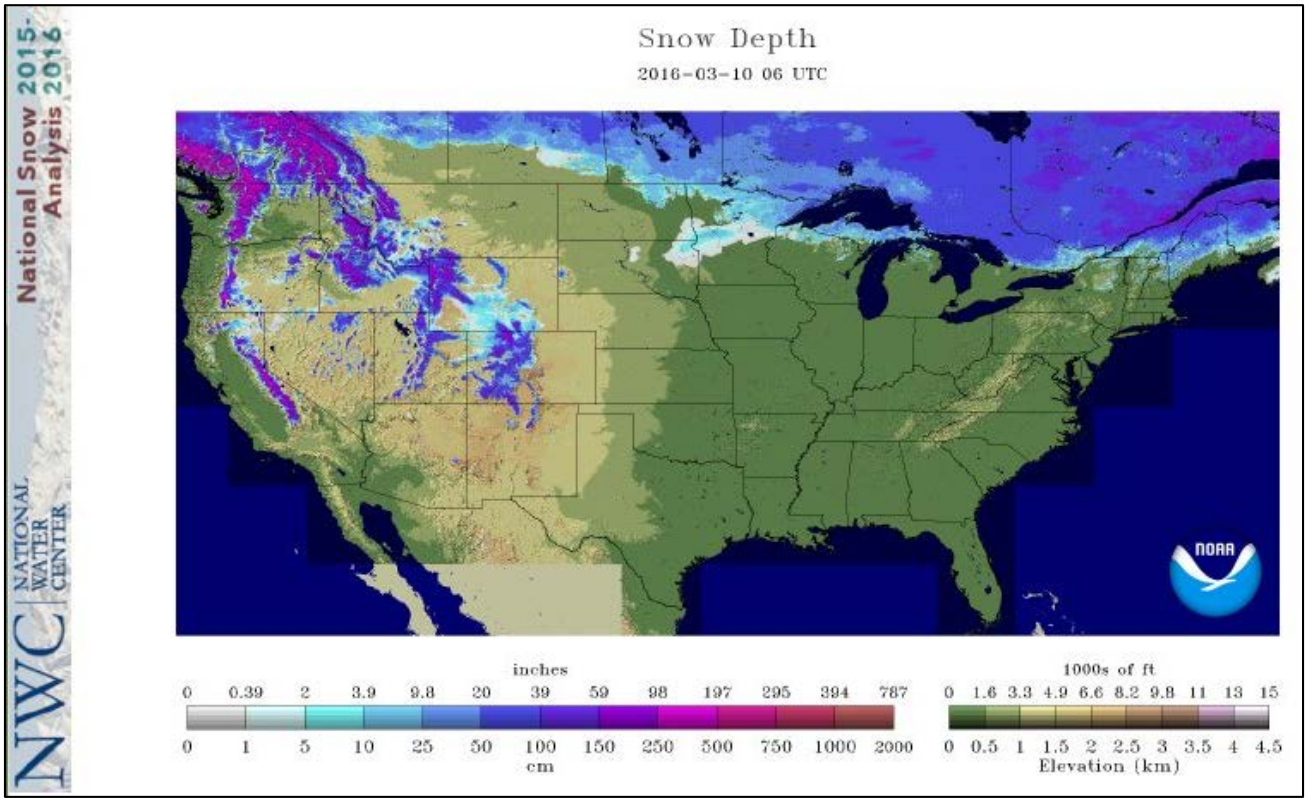
See also: **Current snow water equivalent values (inches) map**



The Alaska current **snow water equivalent percent of median** map shows little change to a slight decrease from a week ago. Some stations on the Kenai Peninsula show declines from last week. The snowpacks in all regions are mixed from slightly above to below median across the state.

See also: **Alaska current snow water equivalent values (inches) map**

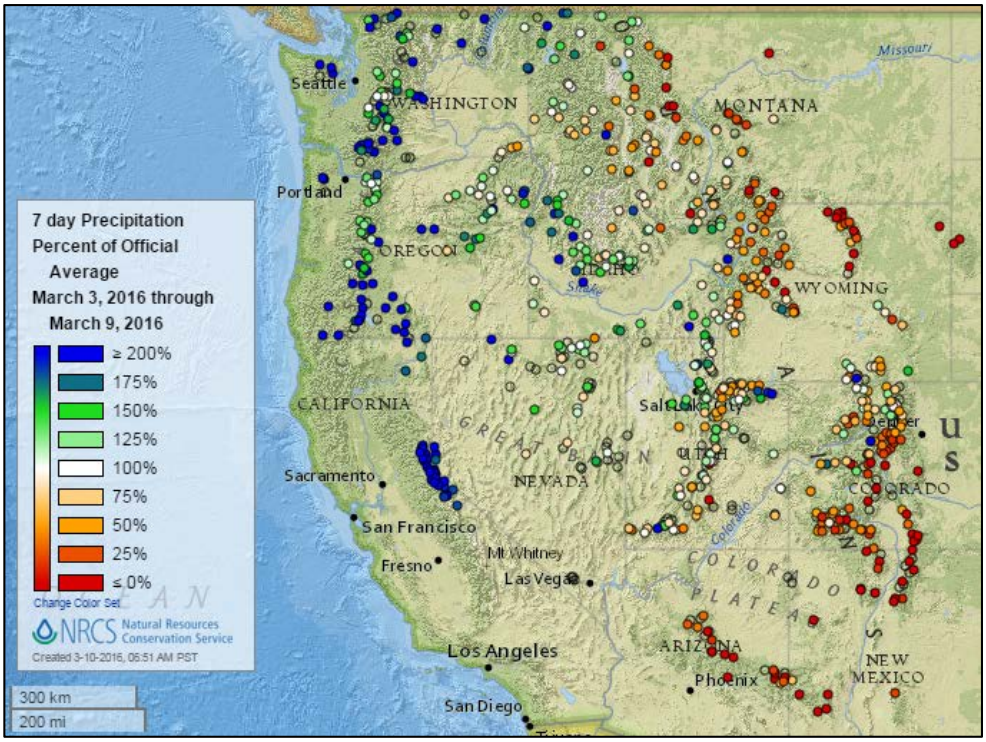
Current Snow Depth, National Weather Service (NWS) Networks



The NOAA National Operational Hydrologic Remote Sensing Center's current **snow depth** map shows a snow reduction across much of the U.S. this week, specifically in the upper Midwest, northern Plains, across the Great Lakes, and in New England. New snow has fallen this week in the western mountains, and the snowline has lowered into the valleys of southern Montana, southern Wyoming, and northern Colorado. New additional snow also fell at lower elevations in the Cascades and Sierra Nevada.

Precipitation

Last 7 Days, Western Mountain Sites (NRCS SNOTEL Network)

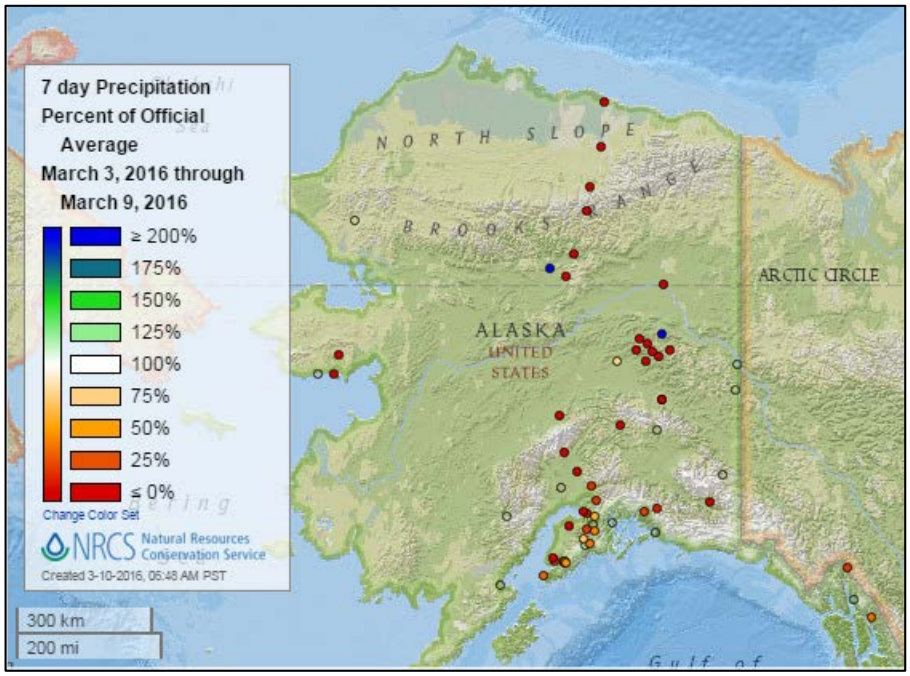


The **7-day precipitation percent of average** map shows above average precipitation at many stations in the north and west areas of the region, especially in the Cascades and the Sierra Nevada. The Southwest and much of the Rockies were primarily below average to dry this week.

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

The **Alaska 7-day precipitation percent of average** map shows a dry week across the state. There were only a few scattered stations reporting near normal to above normal precipitation.

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

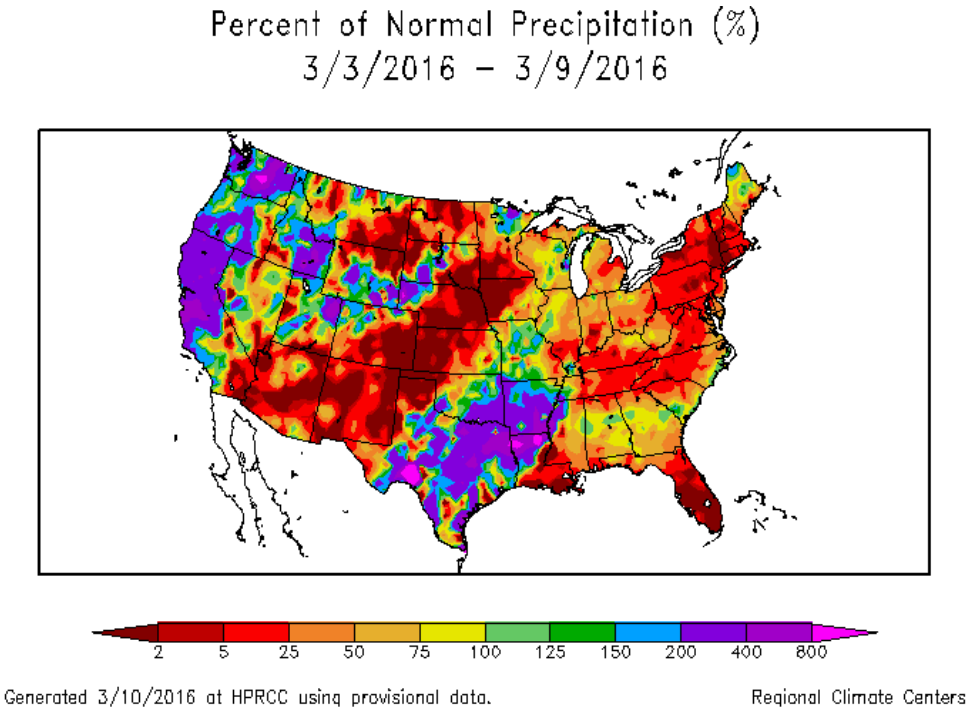


Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

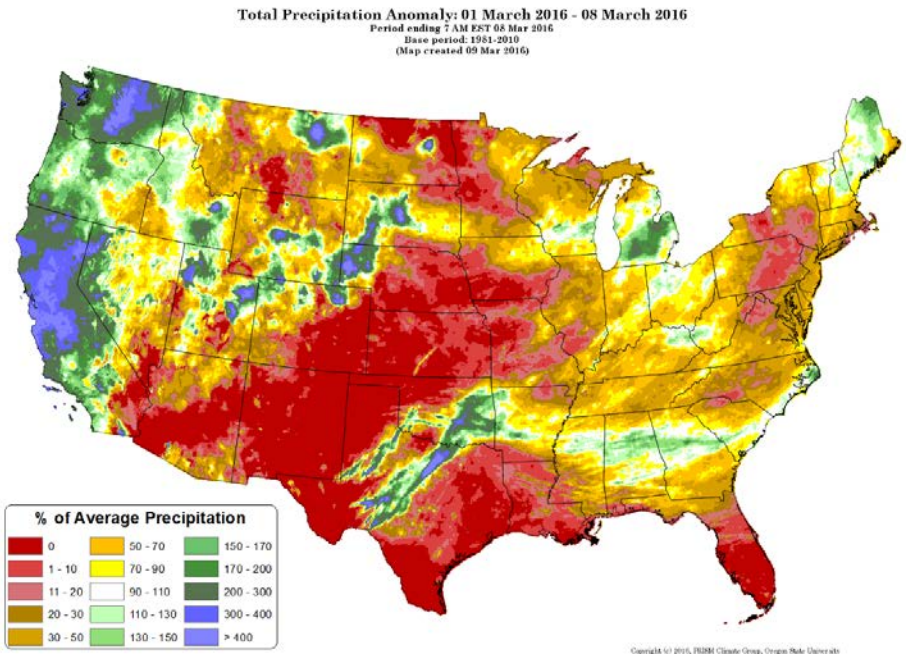
The **7-day percent of normal precipitation** map for the continental U.S. shows well above average precipitation in the Pacific Northwest, northern California, and across Texas into Arkansas and northern Louisiana. Much of the Southwest, central and northern Plains, and the eastern U.S. had a dry week.

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



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

Source: PRISM



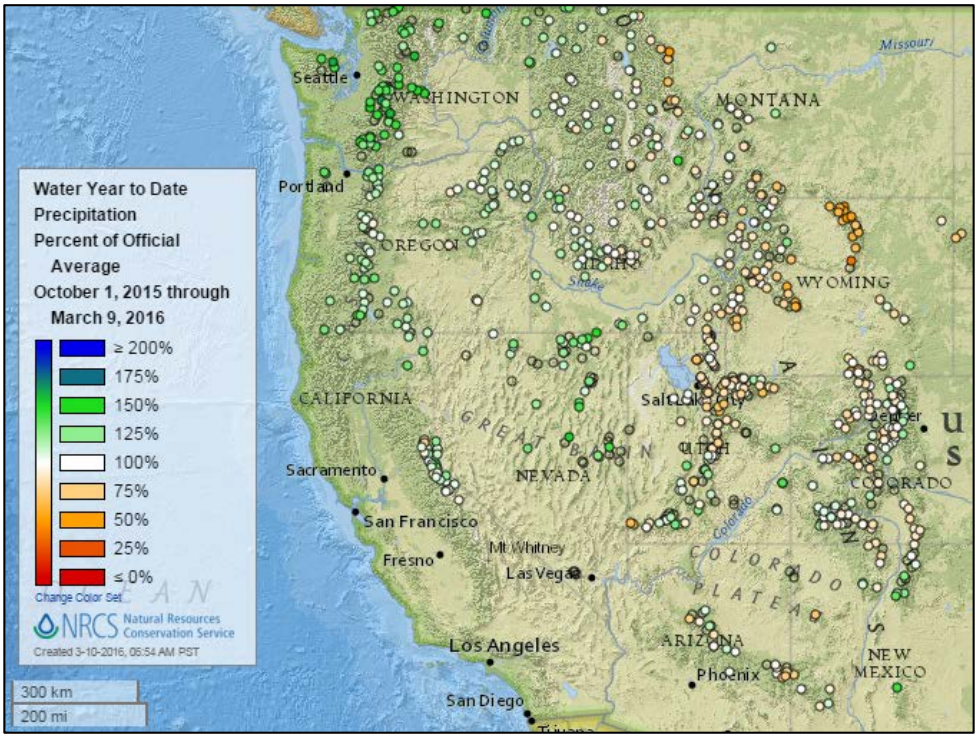
The March national month-to-date **precipitation percent of average** map shows much of the West Coast had well above normal precipitation. Smaller areas of above normal precipitation were recorded in the central Plains, Great Lakes, south central U.S., and northern New England. The Plains, much of the Southwest, and the central and eastern U.S. have been drier than normal for the month.

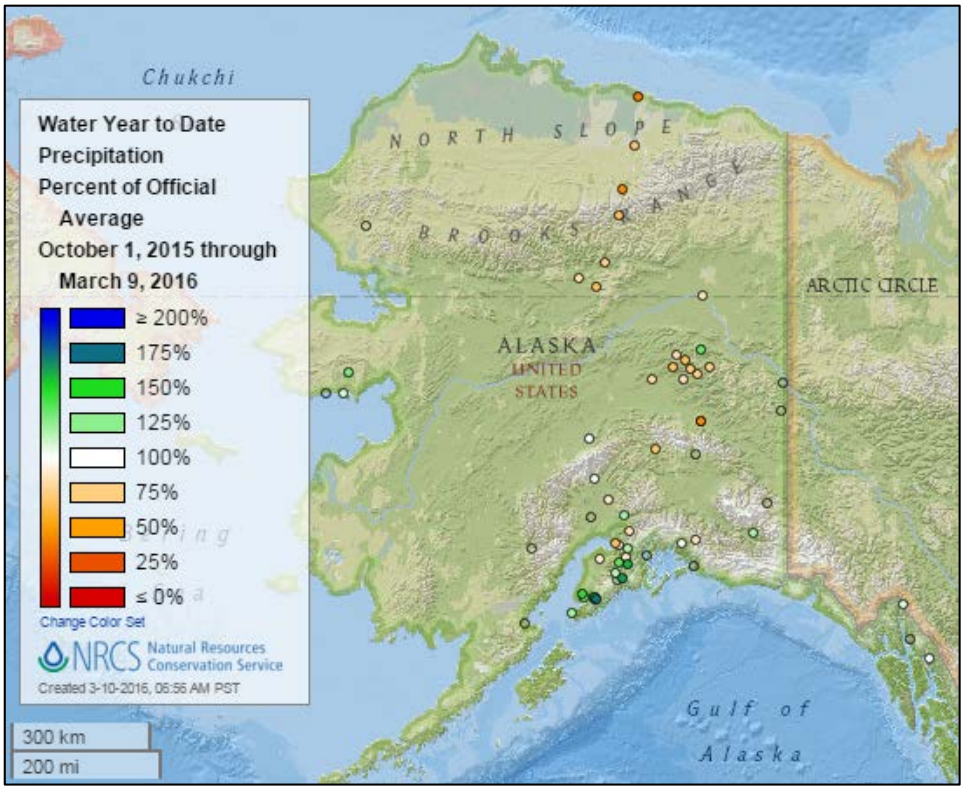
See also: **March month-to-date total precipitation values (inches) map**

Water Year-to-Date, Western Mountain Sites (NRCS SNOTEL Network)

The **2016 water year-to-date precipitation percent of average** map shows average to above average precipitation in the Cascades, Sierra Nevada, Great Basin, and southern Rockies. Many stations are reporting near average conditions. Areas of below average precipitation are in the central and northern Rocky Mountains and Big Horn Mountains of Wyoming.

See also: **2016 water year-to-date total precipitation values (inches) map**





The **Alaska 2016 water year-to-date precipitation percent of average** map shows much of the Interior and north coast has had drier than normal to average precipitation, with near normal or above normal precipitation in the Kenai Peninsula and along the south coast and in the southeast.

See also: **Alaska 2016 water year-to-date total precipitation values (inches) map**

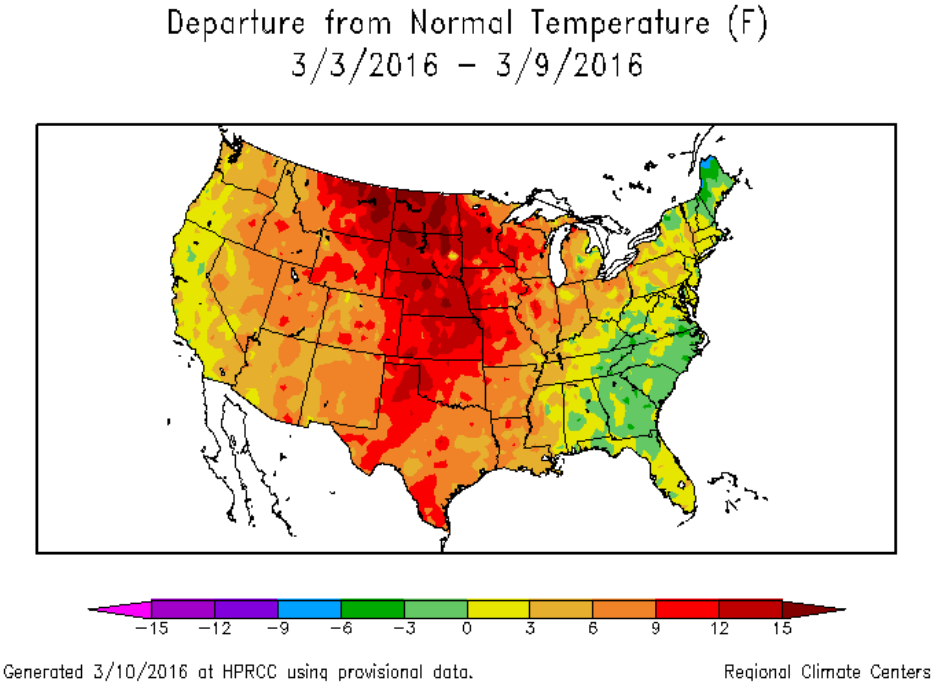
Temperature

Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

The **7-day temperature anomalies** map shows the U.S. was again warmer than normal for much of the country, especially across the Plains. Near normal temperatures were reported in the East, with the coolest departures from normal in Maine.

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

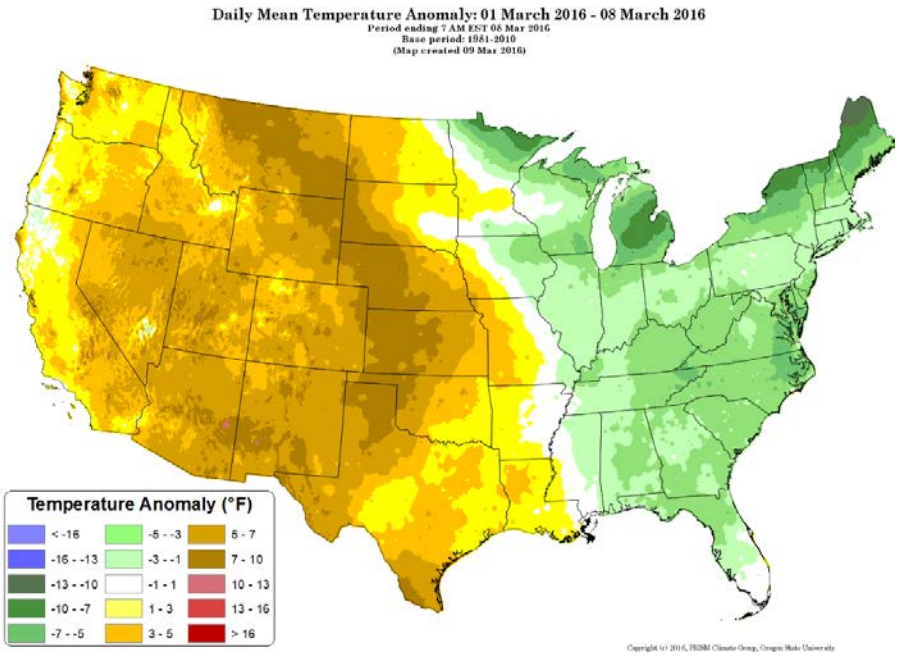


Month-to-Date, All Available Data Including SNOTEL and NWS Networks

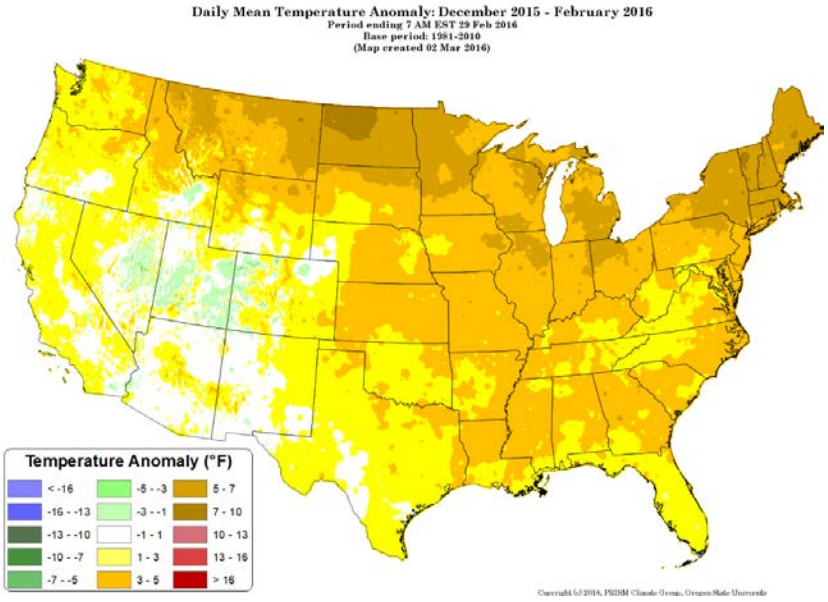
Source: PRISM

The March month-to-date **daily mean temperature anomaly** map shows above normal temperatures over much of the western half of the country, while much of the East has been below normal so far this month.

See also: **March month-to-date daily mean temperature (° F) map**



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

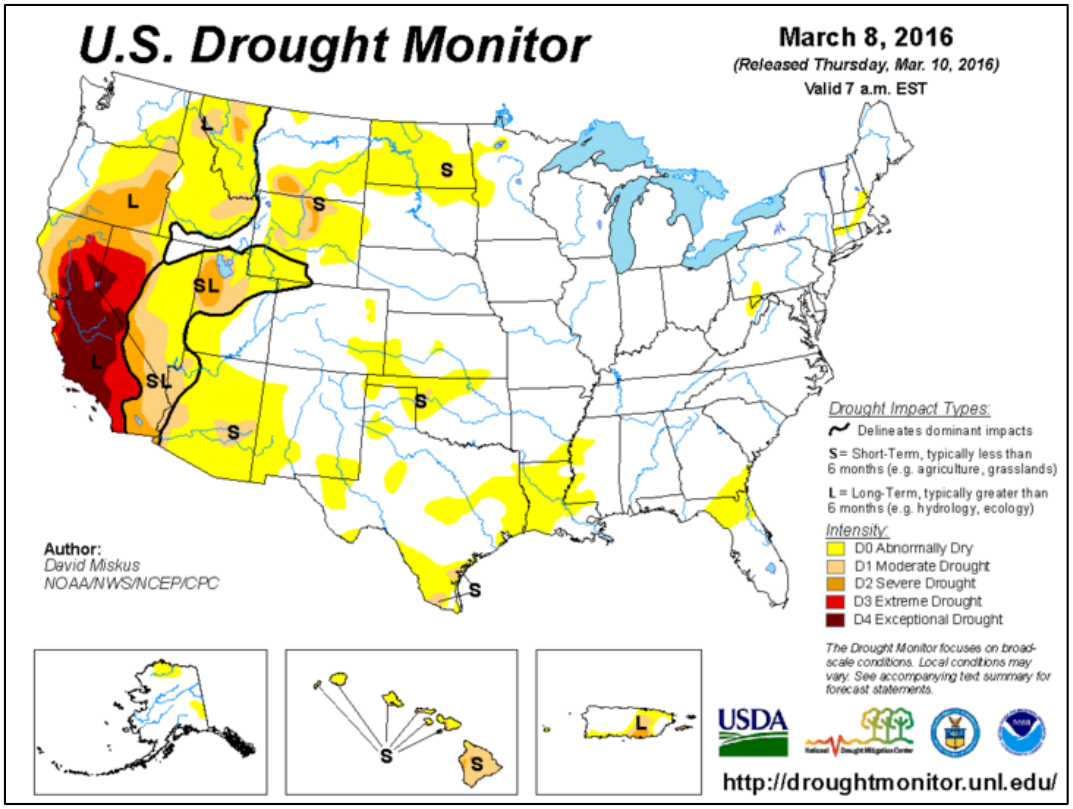


The December through February national **daily mean temperature anomaly** map shows that most of the country was warmer than normal. The warmest departures from normal were across the northern tier states from Montana to New England. The central West was near normal to slightly cooler than normal.

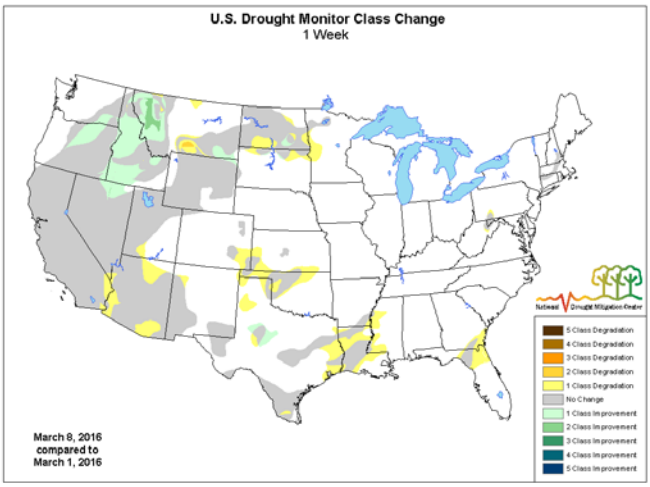
Drought

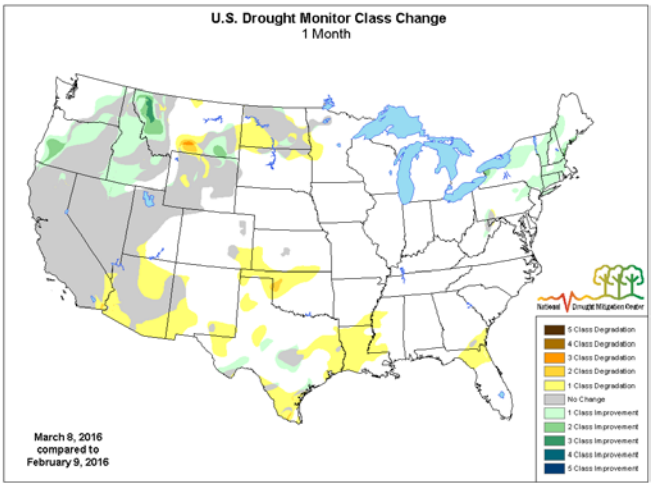
U.S. Drought Portal Comprehensive drought resource.

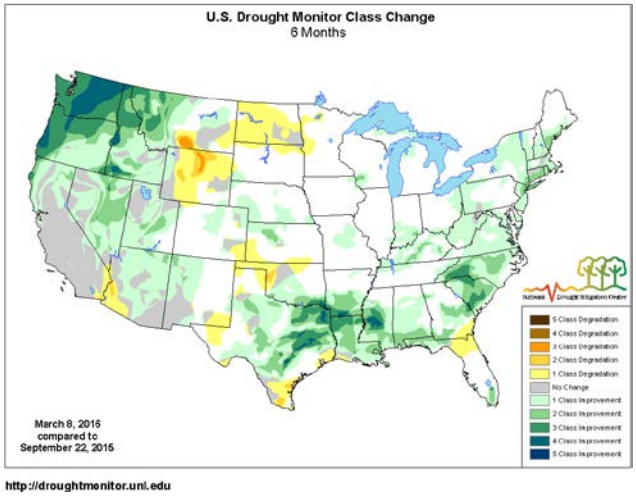
U.S. Drought Monitor See map below. Drought conditions continue in the western states, including the exceptional drought in California and Nevada.

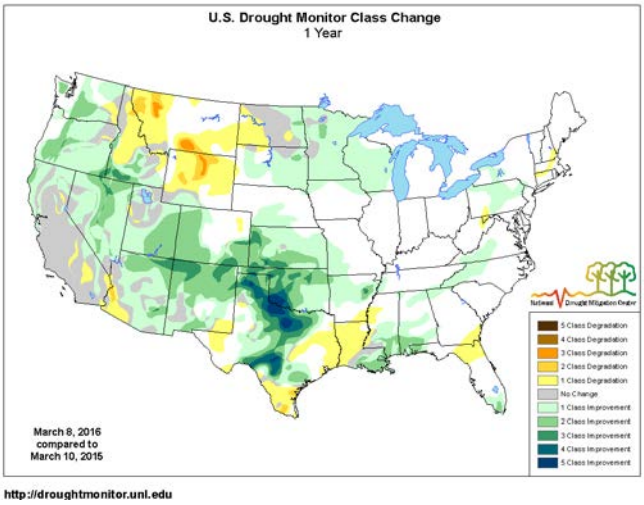


Changes in Drought Monitor Categories over Time









Drought conditions continue to improve over much of the country. Over the past 6-12 months, conditions have improved in the south-central U.S. and the Pacific Northwest. The remainder of the West has shown improvement, but long-term drought persists in California and Nevada.

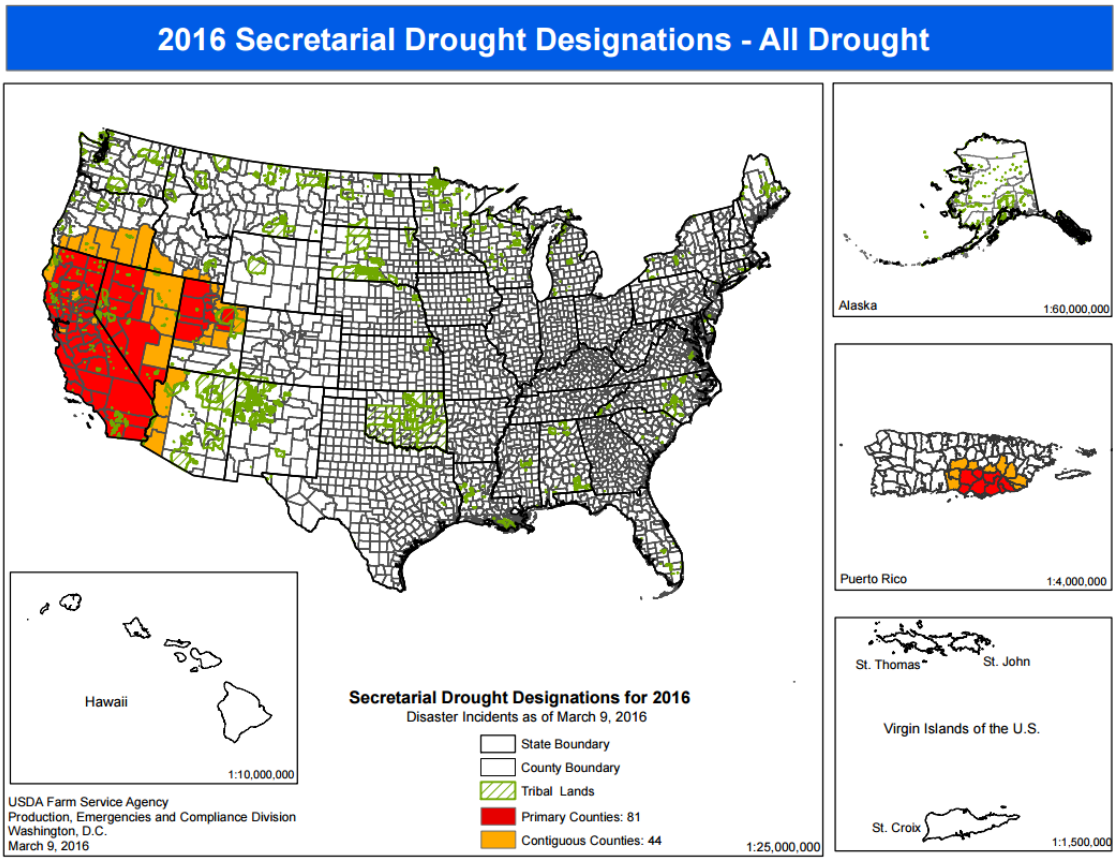
Current National Drought Summary, March 8, 2016

Author: David Miskus, NOAA/NWS/NCEP/CPC

“Early in the period, a ridge of high pressure over the Southwest directed Pacific storm systems into the Northwest, bringing persistent unsettled weather to Washington and Oregon but dry and warm weather further south. Meanwhile, an upper-air trough of low pressure over the East steered these Pacific storms southeastward across the Midwest which then tracked northeastward into New England. Since these systems were moisture-starved and moving rather fast, precipitation that fell on parts of the Southeast, Ohio Valley, and Northeast was mostly light. Later in the period, however, a change in the upper-air pattern allowed Pacific storm systems to move farther southward into California. This brought the state some badly-needed precipitation after rather dry and mild conditions the past 3 weeks caused a sharp decline in the Water Year-To-Date (WYTD) precipitation and snow pack that were both above-normal in early February. In the meanwhile, warmer and drier weather enveloped the eastern third of the Nation. As the period ended, the California storm began to impact the southern Plains. Showers and thunderstorms developed in north-central

Texas and eastern Oklahoma late Monday, and expanded and intensified across the southern Plains and Delta after the 12 UTC (7 am EST) Tuesday Drought Monitor cutoff time. Therefore, the appropriate improvements in these two regions will be made next week. Weekly temperatures averaged above-normal in the West and Plains, and subnormal in the eastern third of the Nation. Light to moderate showers fell across Puerto Rico, while Alaska and Hawaii were quite dry. Unseasonably mild air persisted across Alaska - just like much of this winter."

USDA Secretarial Drought Designations

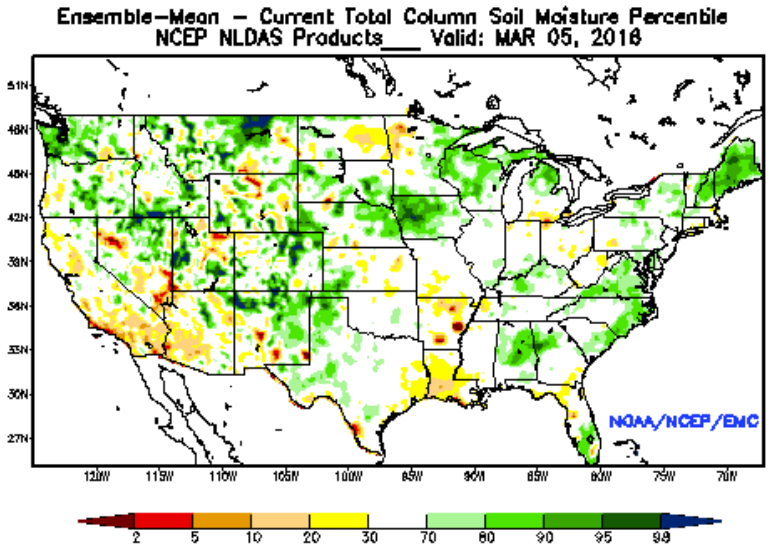


Highlighted Drought Resources

- 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

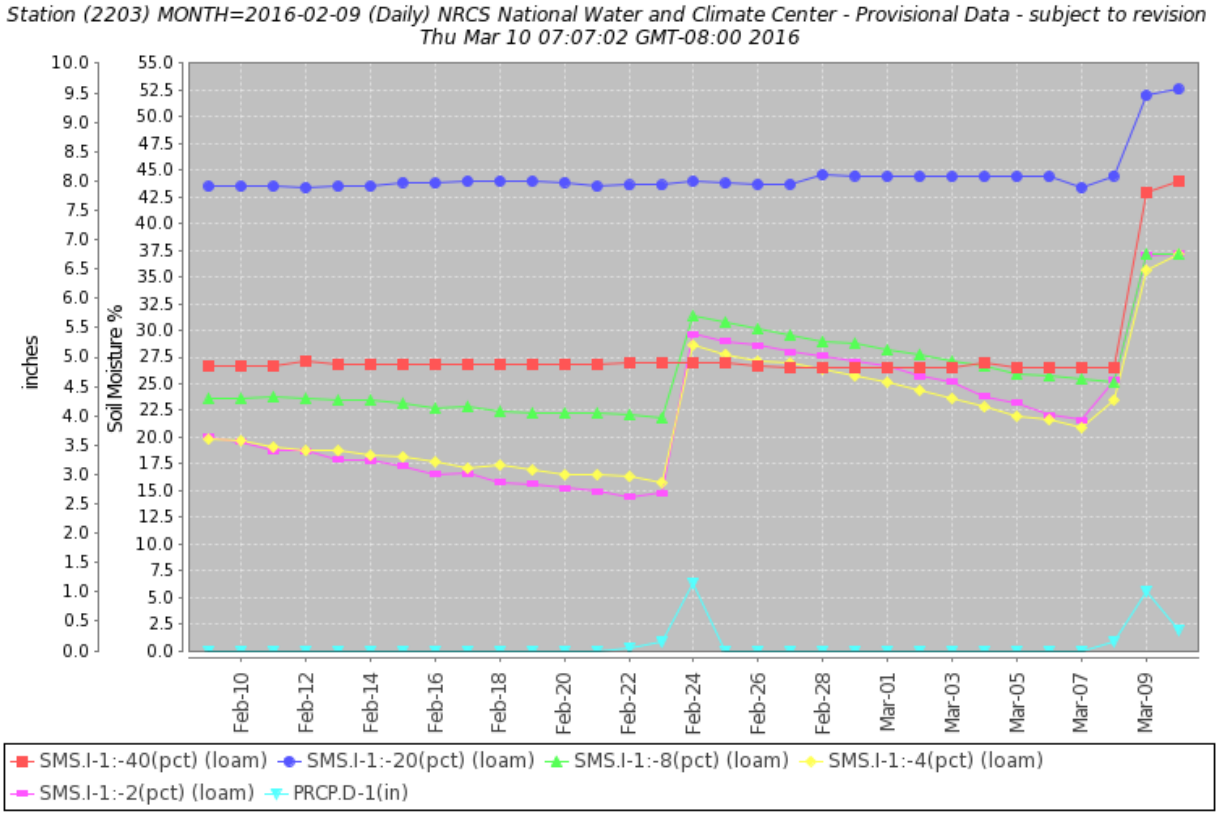
Other Climatic and Water Supply Indicators

Soil Moisture



The modeled **soil moisture percentiles** as of March 5, 2016 show primarily average to above average conditions throughout the country. The East, Great Lakes, upper Midwest, central Plains, and western mountains have the largest areas of wet soil conditions. North-central Montana has the wettest soil moisture percentile for the country. There are only a few scattered areas of dryness, primarily in parts of the West, the northern Great Plains, and the lower Mississippi Valley.

Soil Moisture Data: NRCS Soil Climate Analysis Network (SCAN)



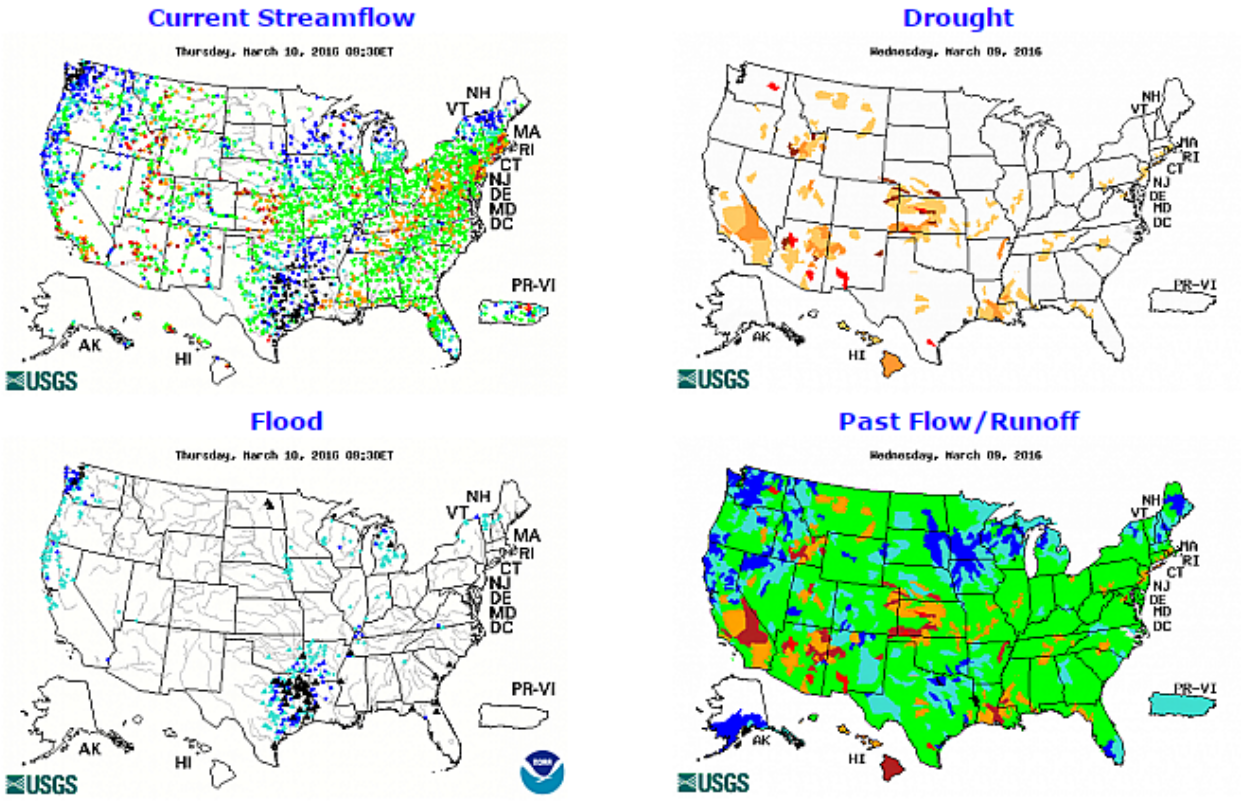
This graph shows soil moisture (at 2-, 4-, 8-, 20-, and 40-inch depths) and precipitation for the past 30 days at the Stephenville SCAN Site #2203 in Texas. The two precipitation events in the past 30 days show soil moisture increases at the 2-, 4-, and 8-inch depths. The 20- and 40-inch depth sensors only responded to the most recent rainfall.

Soil Moisture Data Portals

CRN Soil Moisture
Texas A&M University North American Soil Moisture Database
University of Washington Experimental Modeled Soil Moisture

Streamflow

Source: USGS



The **Streamflow** map shows stations reporting above flood stage conditions in Washington, North Dakota, Wisconsin, Texas, and the southern Mississippi River Valley due to recent snowmelt and storms. The Southeast continues to have river gages with lingering above flood stage conditions. Many gages along the West Coast, Great Lakes, Southeast, and northern New England are reporting above normal streamflow at this time.

Select any individual map to enlarge and display a legend.

Current Reservoir Storage

National Water and Climate Center Reservoir Data

U.S. Bureau of Reclamation Hydromet Tea Cup Reservoir Depictions:

Upper Colorado
Pacific Northwest/Snake/Columbia
Sevier River Water, Utah
Upper Missouri, Kansas, Oklahoma, Texas

California Reservoir Conditions

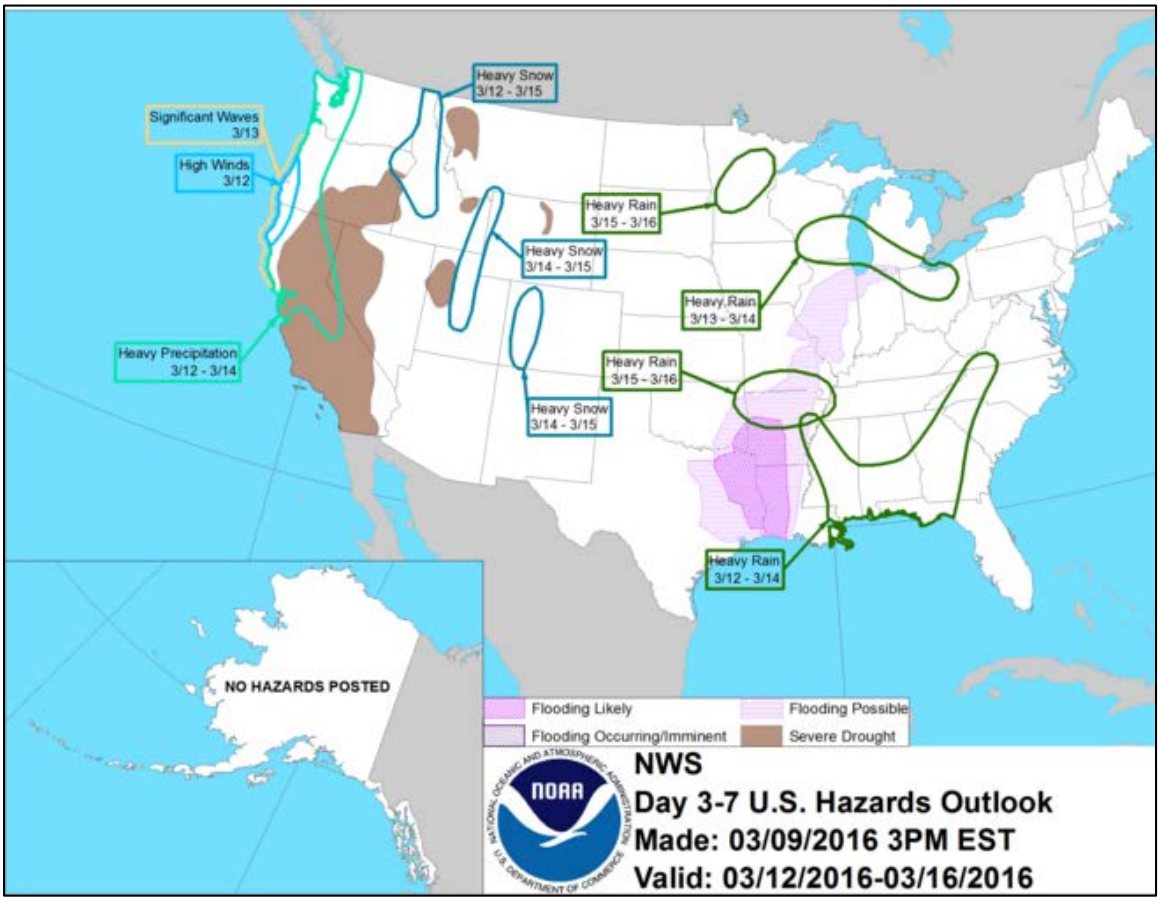
Short- and Long-Range Outlooks

Agricultural Weather Highlights

Author: Brad Rippey, Agricultural Meteorologist, USDA/OCE/WAOB

National Outlook, March 10, 2016: "A final day of torrential rain will affect the mid-South and environs, although lingering, late-week showers could aggravate flood-recovery efforts. Later today, the focus for flooding rains will shift to the central Gulf Coast region, where storm totals should reach 4 to 10 inches. A broader area, covering much of the South, East, and lower Midwest, could receive 1 to 3 inches of rain. In the West, storms during the next 5 days could lead to precipitation totals of 4 to 10 inches in northern California. In contrast, mostly dry weather and record-setting high temperatures will cover the north-central U.S. The NWS 6- to 10-day outlook for March 15 – 19 calls for the likelihood of above-normal temperatures along the immediate Pacific Coast and throughout the eastern half of the U.S., while cooler-than-normal conditions will be limited to the Intermountain West. Meanwhile, below-normal precipitation in the Pacific Coast States, the Desert Southwest, southern Florida, and portions of the central and southern Plains will contrast with wetter-than-normal weather in all other areas from the Rockies to the East Coast."

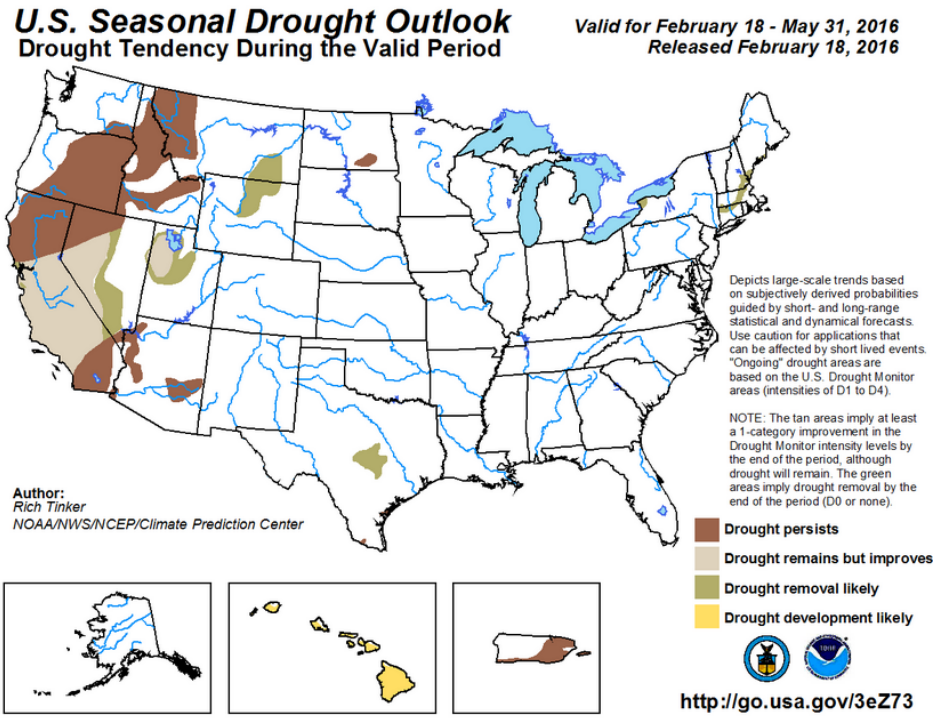
National Weather Hazards



The NWS Climate Prediction Center's outlook for **weather hazards** over the next week shows heavy rain over the Southeast, central Mississippi River Valley, and across the southern Great Lakes. High winds and significant waves are expected in southern Oregon and northern California. Heavy snow is expected in the northern and central Rockies, and heavy precipitation along most of the Pacific Coast. The severe drought continues in parts of the West.

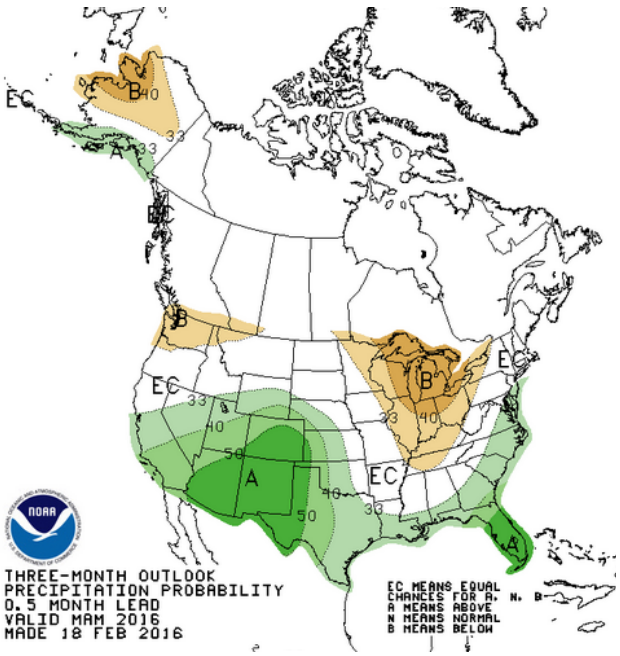
Seasonal Drought Outlook

During the next three months, **drought** will persist in Puerto Rico, the Northwest, and southern California. Drought may develop in Hawaii. Elsewhere, most drought designations are expected to improve or be removed.

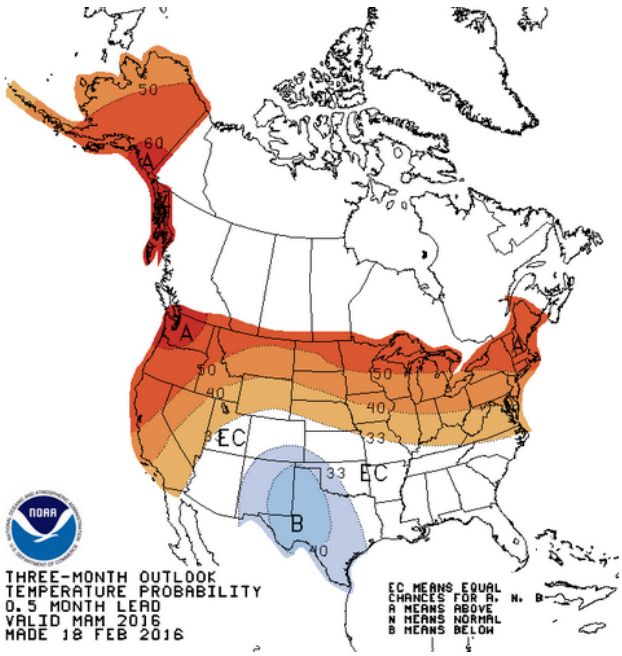


NWS Climate Prediction Center 3-Month Outlook

Precipitation



Temperature



Outlook Summary

NWS Climate Prediction Center:

The March-April-May (MAM) 2016 precipitation outlook: "The March-April-May (MAM) 2016 temperature outlook favors above-normal temperatures across much of the continental U.S., Hawaii, and all of Alaska. Above-normal temperature are favored for the West Coast states, Nevada, and from the northern Rockies across the Great Plains to the Mid-Atlantic and New England. The odds of above-normal temperatures are highest across the Pacific Northwest and from the upper Great Lakes to North Dakota. Below-normal temperatures are favored for a small area of the southern Rockies and Texas."

The March-April-May (MAM) 2016 temperature outlook: "The MAM 2016 precipitation outlook is changed minimally from the prior outlook for that period. Above-median precipitation is forecast from California to the central and southern Great Plains, and from the Gulf Coast to the Mid-Atlantic and southern New England. Above-median precipitation is also forecast for southern Alaska. Below-median precipitation is favored for the Pacific Northwest, portions of the northern Rockies, and from the Great Lakes to the Tennessee Valley. Western and interior Alaska are also likely to experience below-median precipitation."

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**.