United States Department of Agriculture

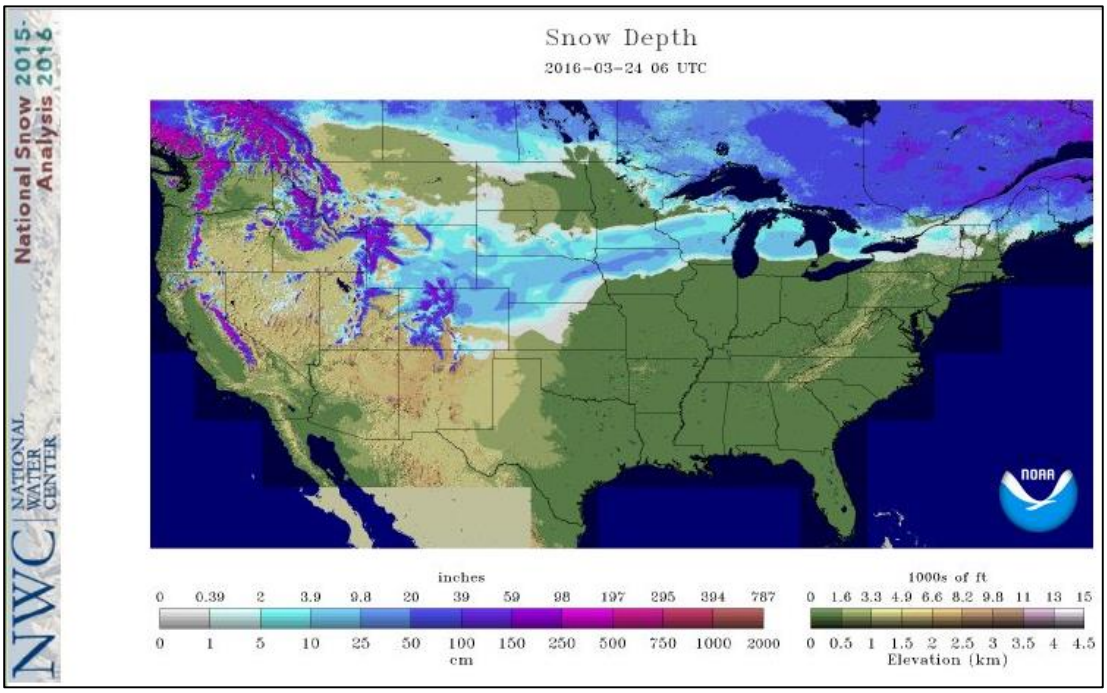
# Water and Climate Update

**March 24, 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: Winter storm drops heavy snow from Colorado to New England

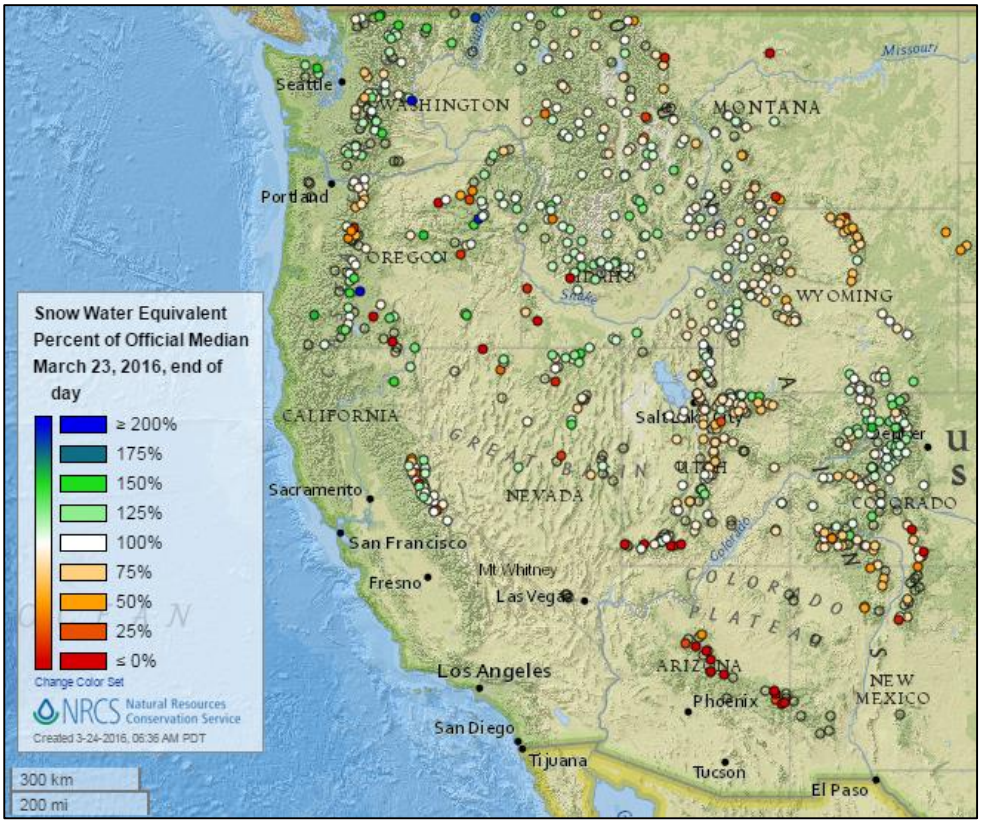



Over 31 inches of snow was reported in some areas of the Colorado Front Range as a winter storm laid down a wide swath of snow across the country. The storm has moved into the Great Lakes and New England with snow and ice accumulating across this area.

**Winter Storm Selene Spreads Snow, Ice to Great Lakes, Northern New England After High Plains Blizzard.** **The Weather Channel**

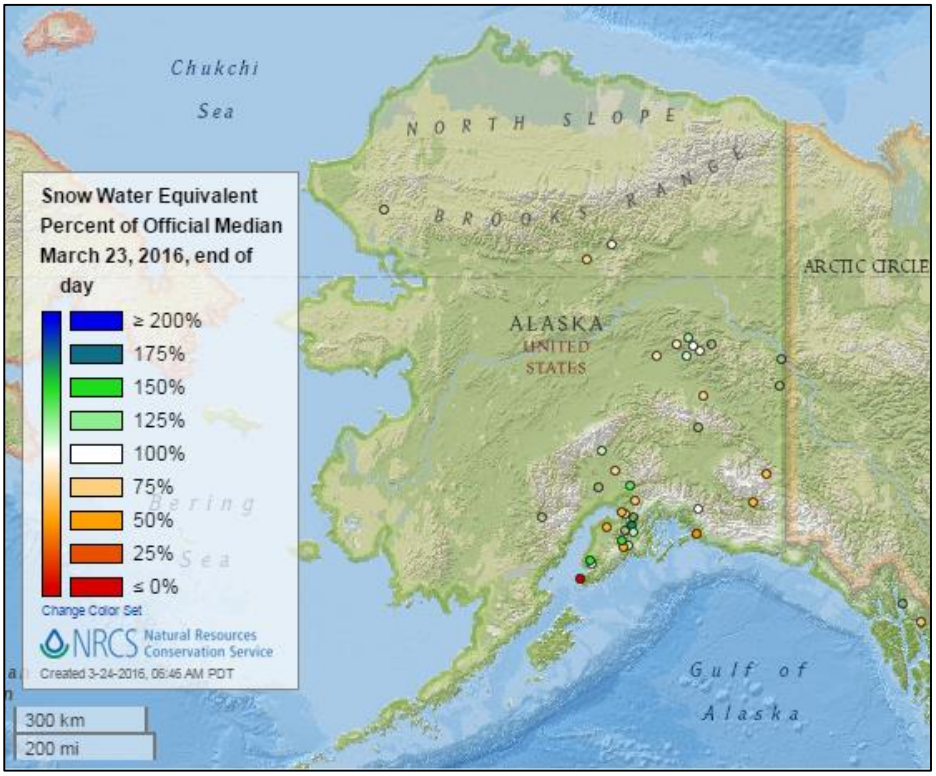
# Snow

## Current Snow Water Equivalent, NRCS SNOTEL Network




The current **snow water equivalent percent of median** map shows that, overall, the West is near average. There was little change from last week except in northern Colorado. Stations in the Southwest and along the eastern Rockies, excluding the Front Range in northern Colorado were below median. A very few stations in the West report values above median.

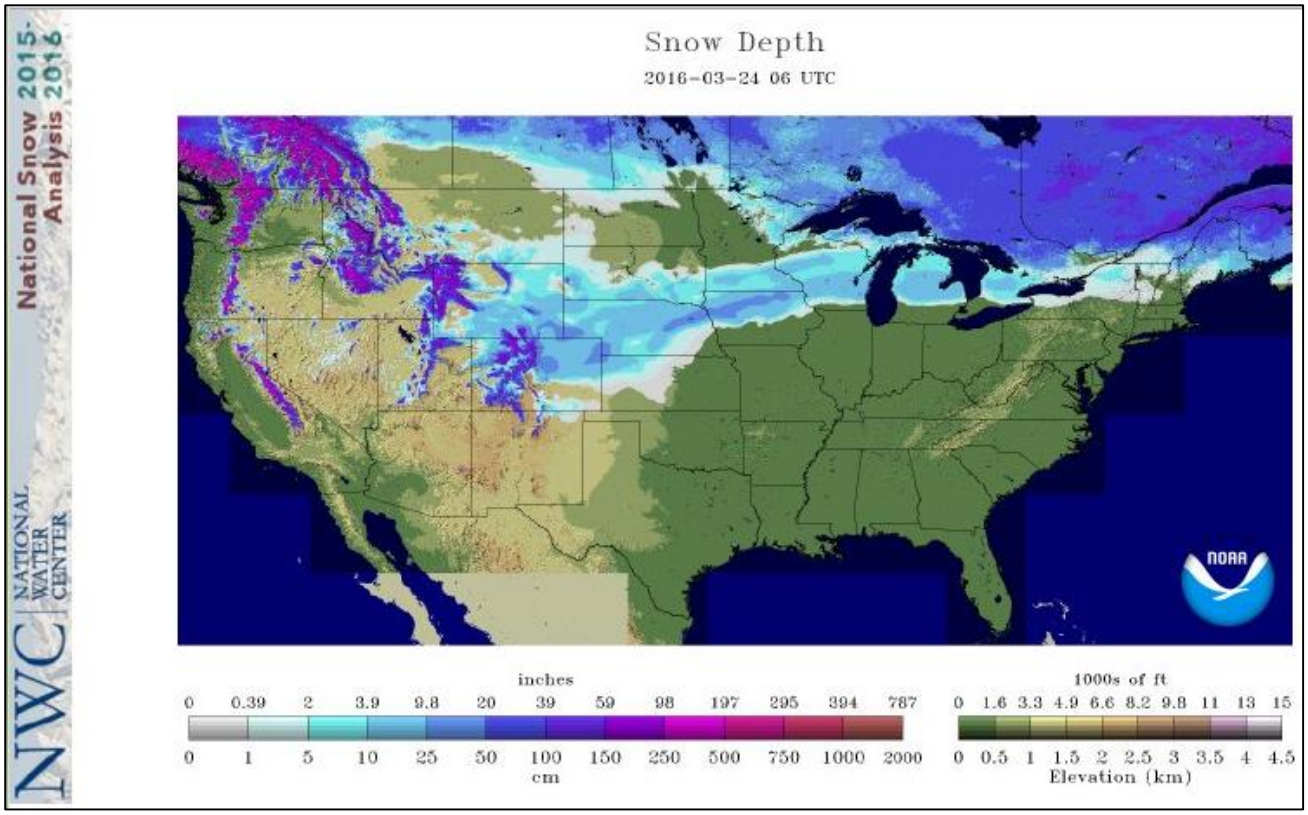
See also: **Current snow water equivalent values (inches) map**




The Alaska current **snow water equivalent percent of median** map shows little change from a week ago. 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**

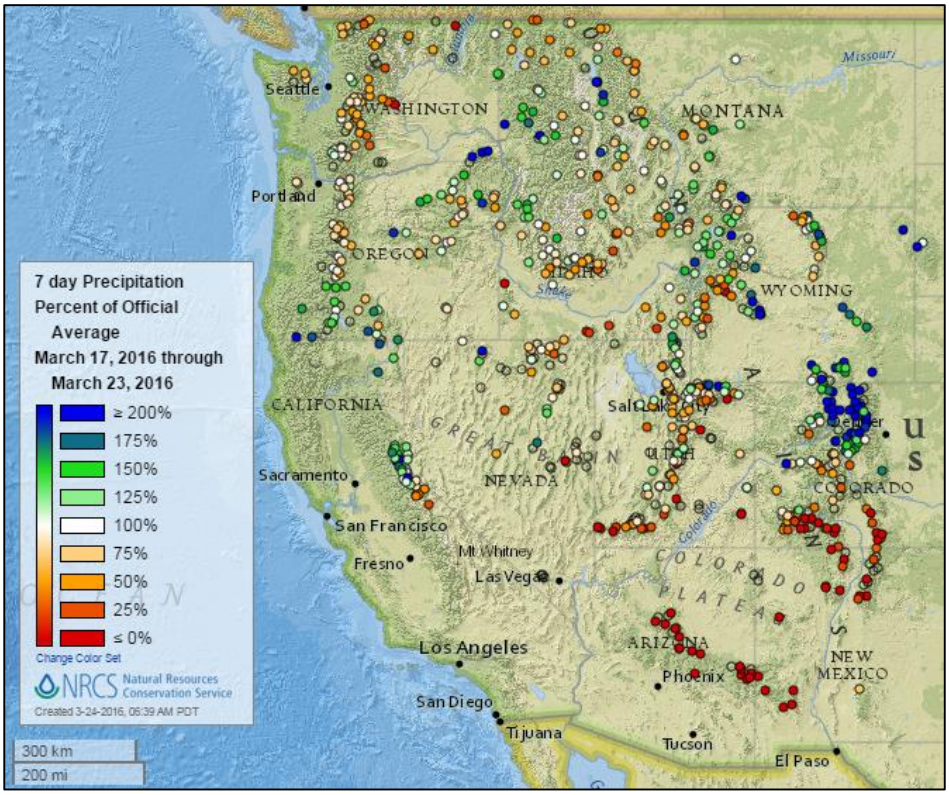
## Current Snow Depth, National Weather Service (NWS) Networks




The NOAA National Operational Hydrologic Remote Sensing Center's current **snow depth** map shows new snow from a winter storm across the central Great Plains into the Great Lakes region and New England. Snow has also increased in the western mountains.

# Precipitation

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

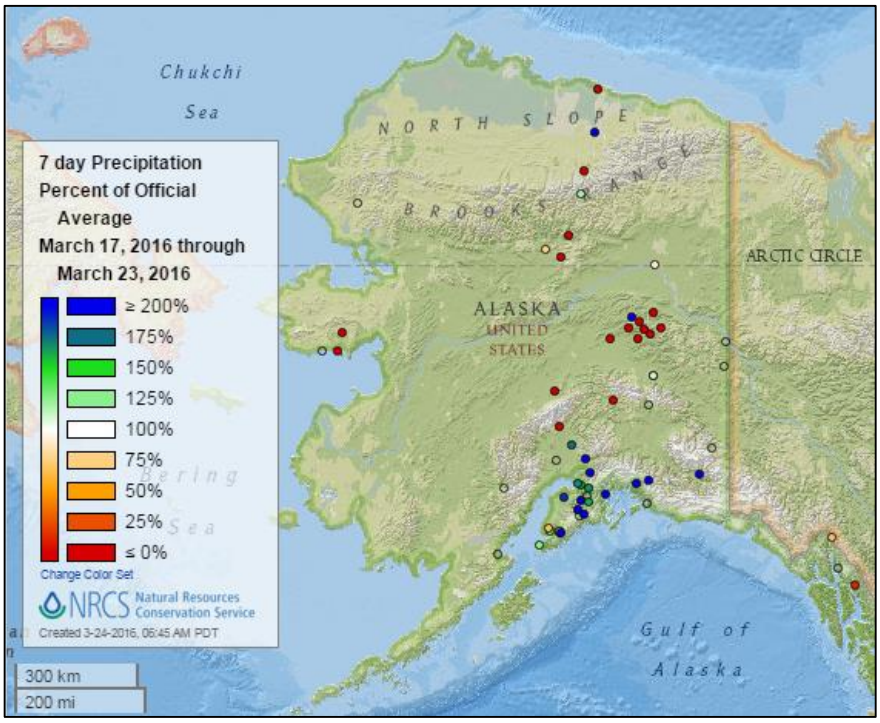



The **7-day precipitation percent of average** map shows above average precipitation at a few stations in the southern Cascades, northern Sierra Nevada, and northern and central Rockies. The Rockies in northern Colorado saw over 200% of average for the week. The Southwest was primarily dry this week.

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

The **Alaska 7-day precipitation percent of average** map shows a dry week across most of the state, with the exception of the southern coast and Kenai Peninsula which reported much above average precipitation.

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

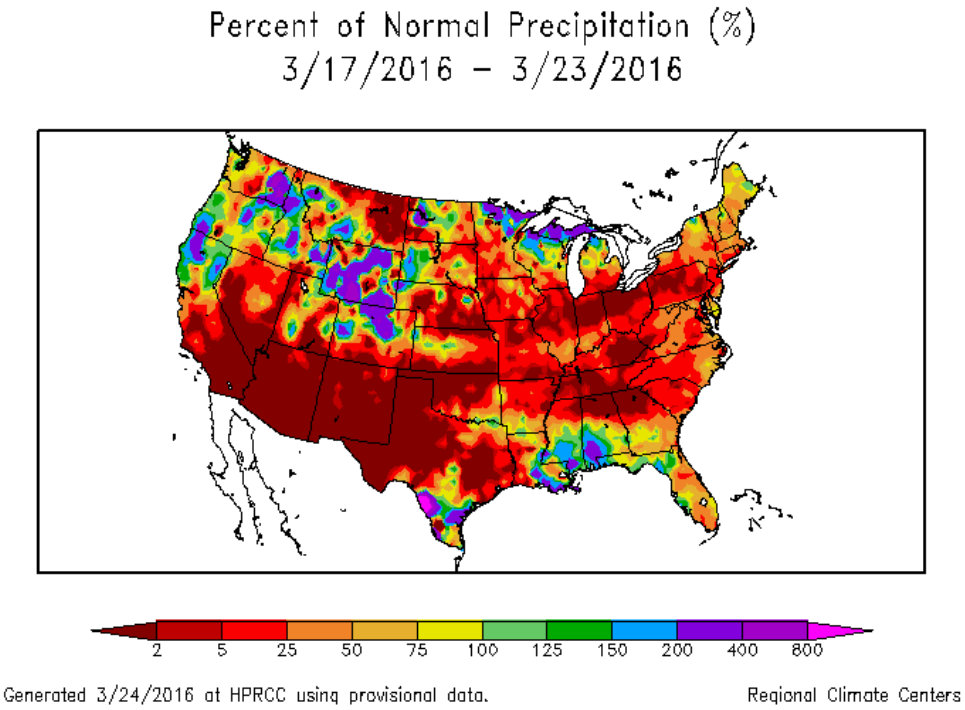


## Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

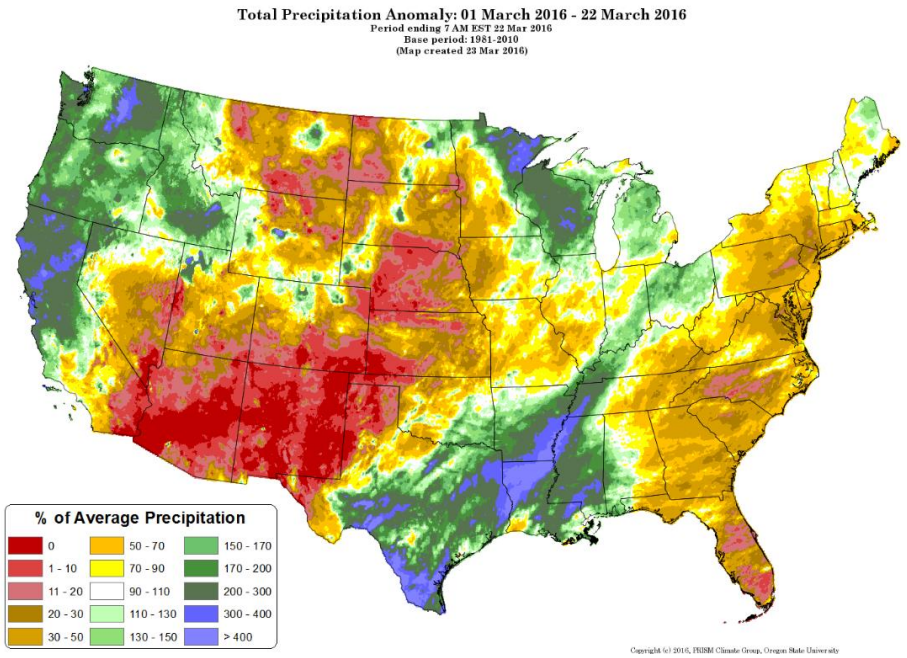
The **7-day percent of normal precipitation** map for the continental U.S. shows a few areas with well above normal precipitation, concentrated in parts of the northern Rockies, Pacific Coast, western Great Lakes, and Gulf Coast. Most of the Southwest, Great Plains, and the eastern U.S. had a below normal to dry week.

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




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

Source: PRISM



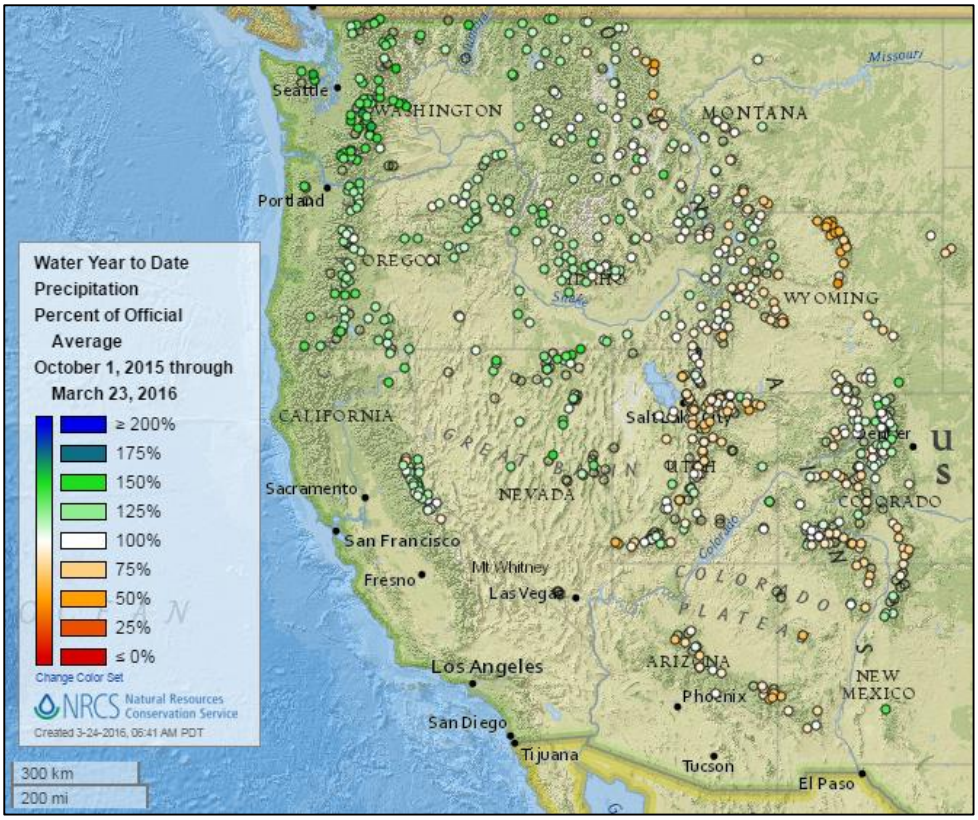

The March national month-to-date **precipitation percent of average** map shows much of the southern Mississippi River Valley, Texas, western Great Lakes, and the West Coast had well above normal precipitation. The Great Plains, Southwest, and parts of the central and eastern U.S. have been drier than normal for the month.

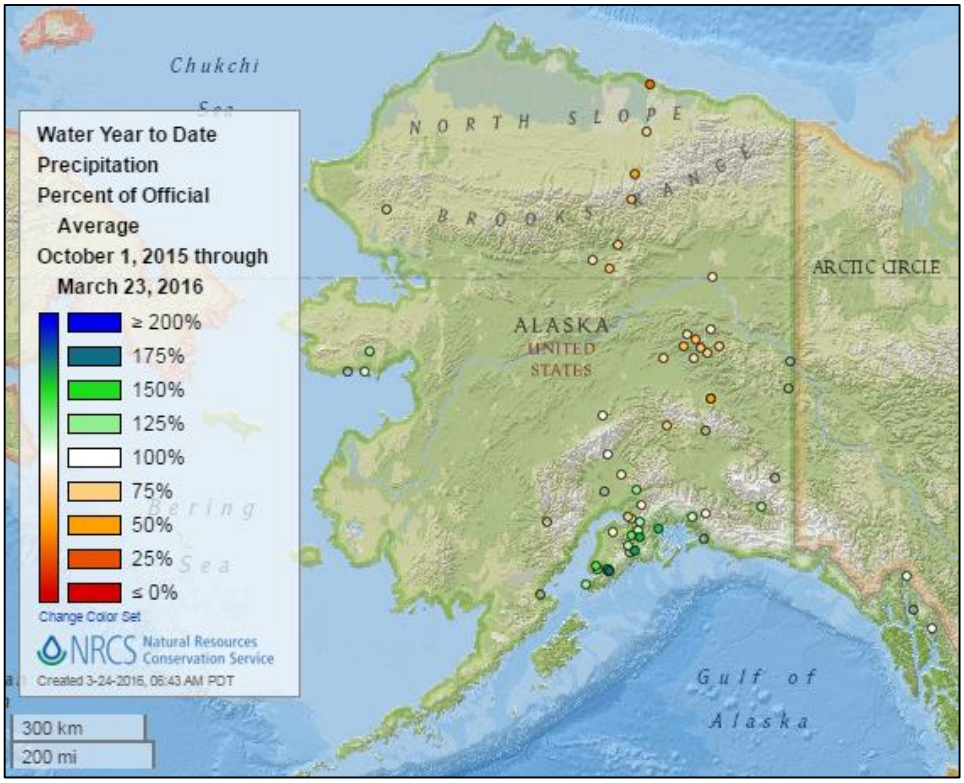
See also: **March month-to-date total precipitation values (inches) map**

## 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 at most stations across the West. Areas of below average precipitation have occurred in the Southwest, north central Utah, the Big Horn Mountains of Wyoming and northern Montana.

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 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 southeast Alaska.

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

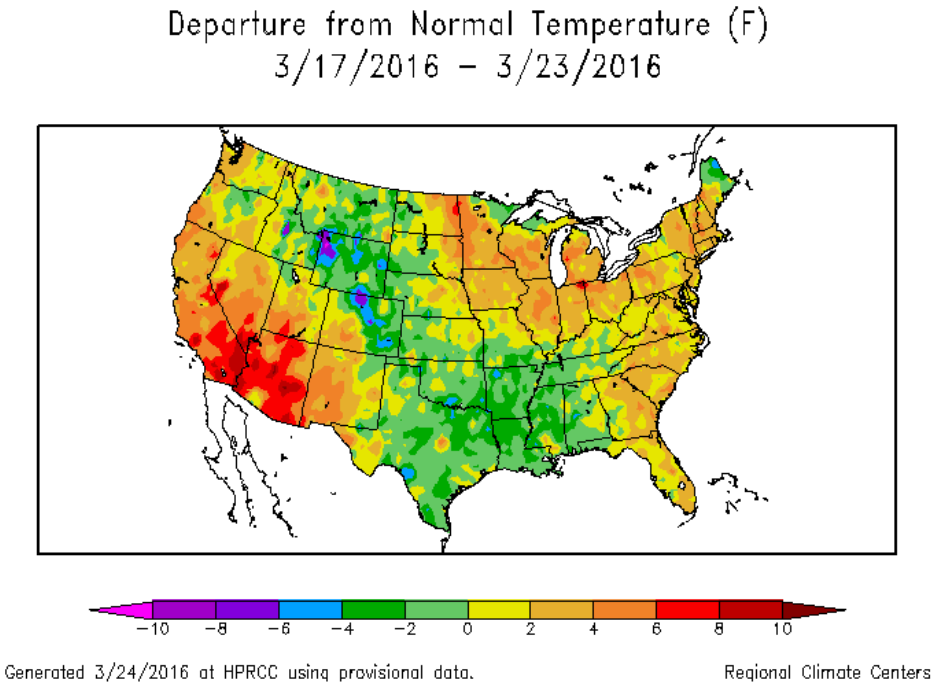
# Temperature

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

Source: Regional Climate Centers

The **7-day temperature anomaly** map shows the country was warmer than normal in the Northeast, Southeast, Southwest, California, and north central U.S. Cooler than normal temperatures were reported in the Rockies, Great Plains, and throughout Texas and the lower Mississippi River Valley. The coolest anomaly was in northwest Wyoming.

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

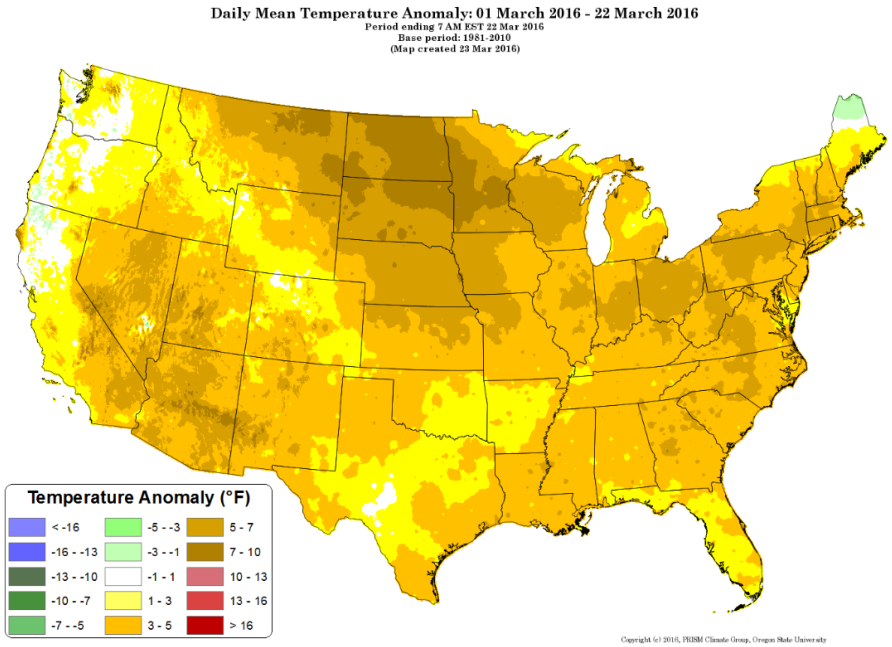



## Month-to-Date, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

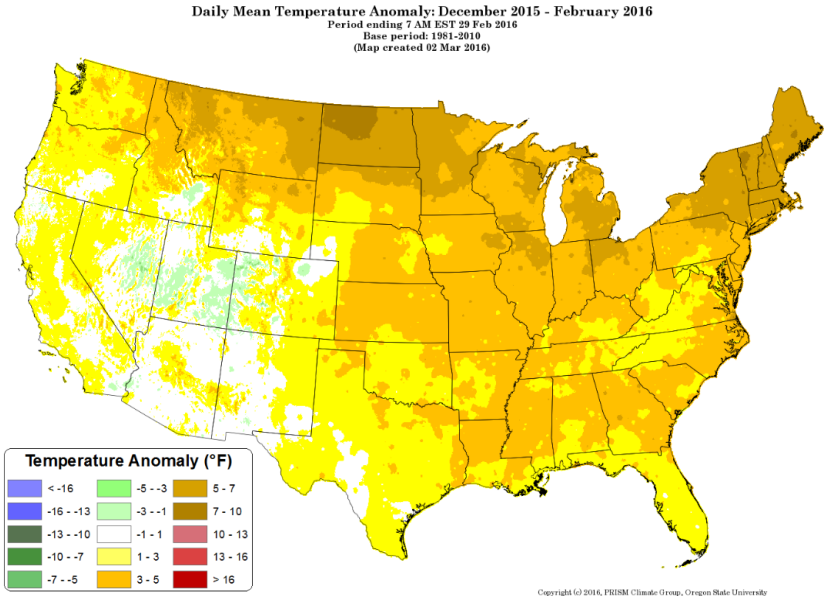
The March month-to-date **daily mean temperature anomaly** map shows above normal temperatures over much of the country. The warmest areas were in the northern Great Plains. A small area of the Pacific Coast and northern Maine reported slightly cooler than normal temperatures so far this month.

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



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

Source: PRISM

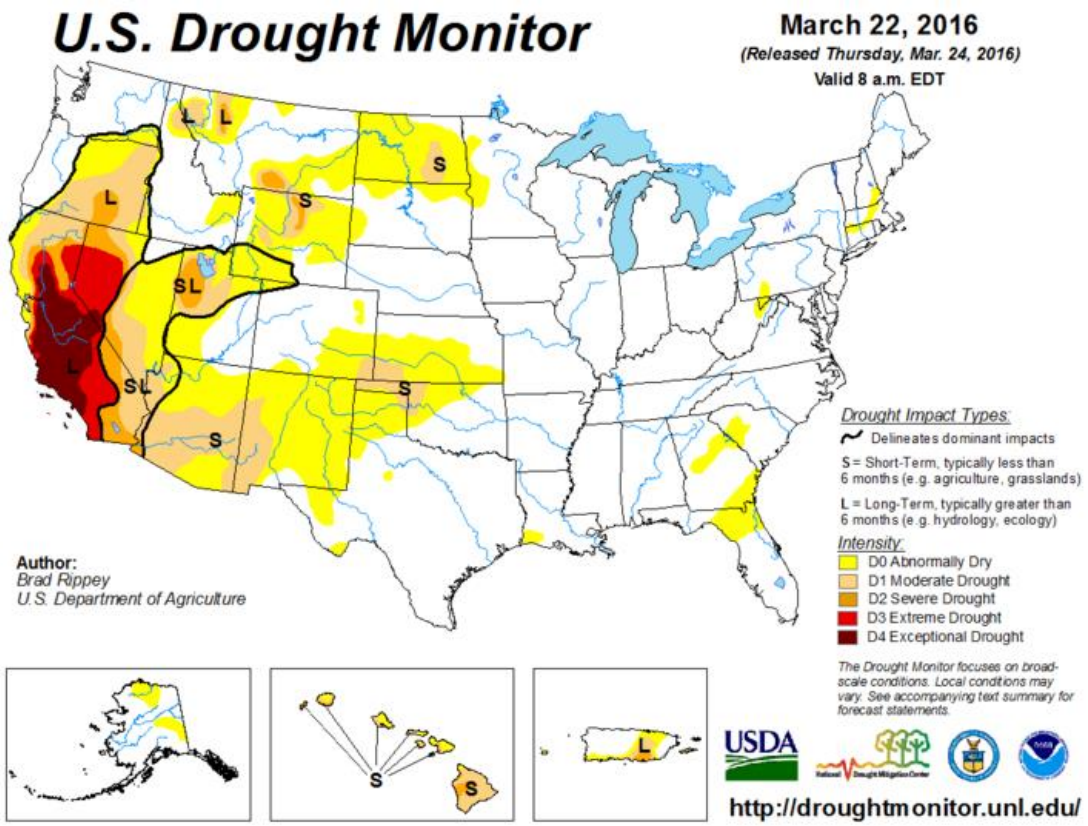



The December through February national **daily mean temperature anomaly** map shows that most of the country was warmer than normal. The warmest departures from normal were across the northern tier states from Montana to New England. The central West was near normal to slightly cooler than normal.

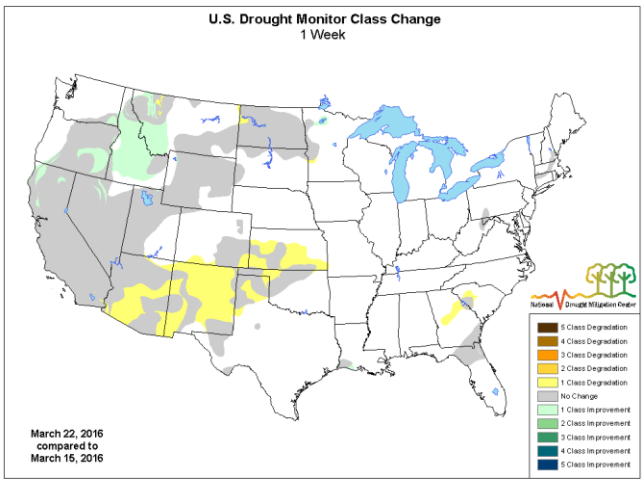
## Drought

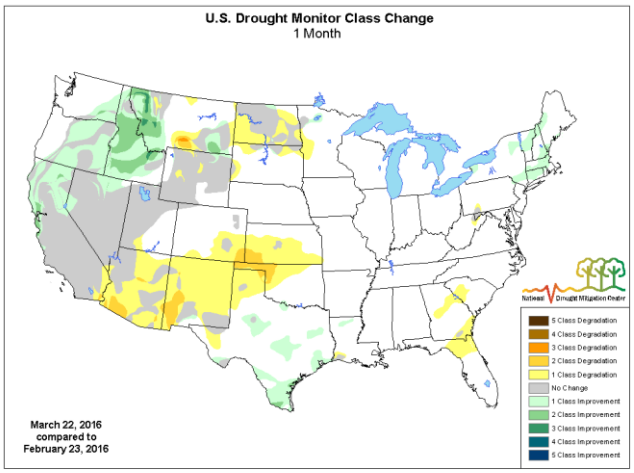
**U.S. Drought Portal** Comprehensive drought resource.

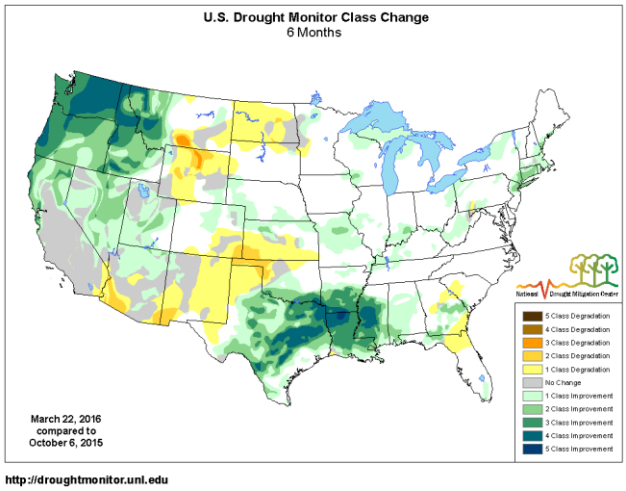
**U.S. Drought Monitor** See map below. Drought conditions continue in the western states, including the exceptional drought in California and Nevada.

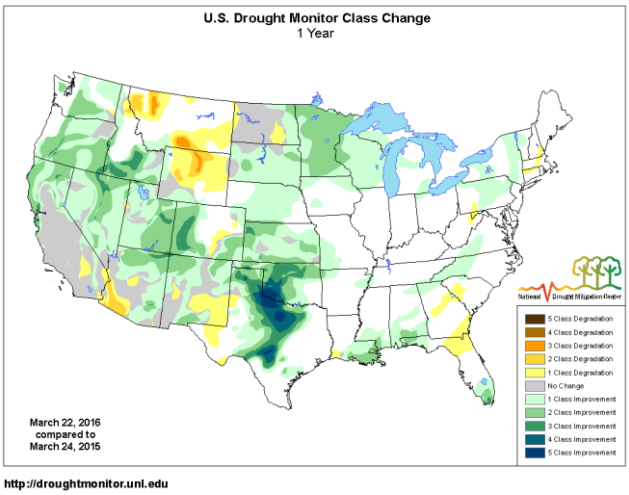


## Changes in Drought Monitor Categories over Time



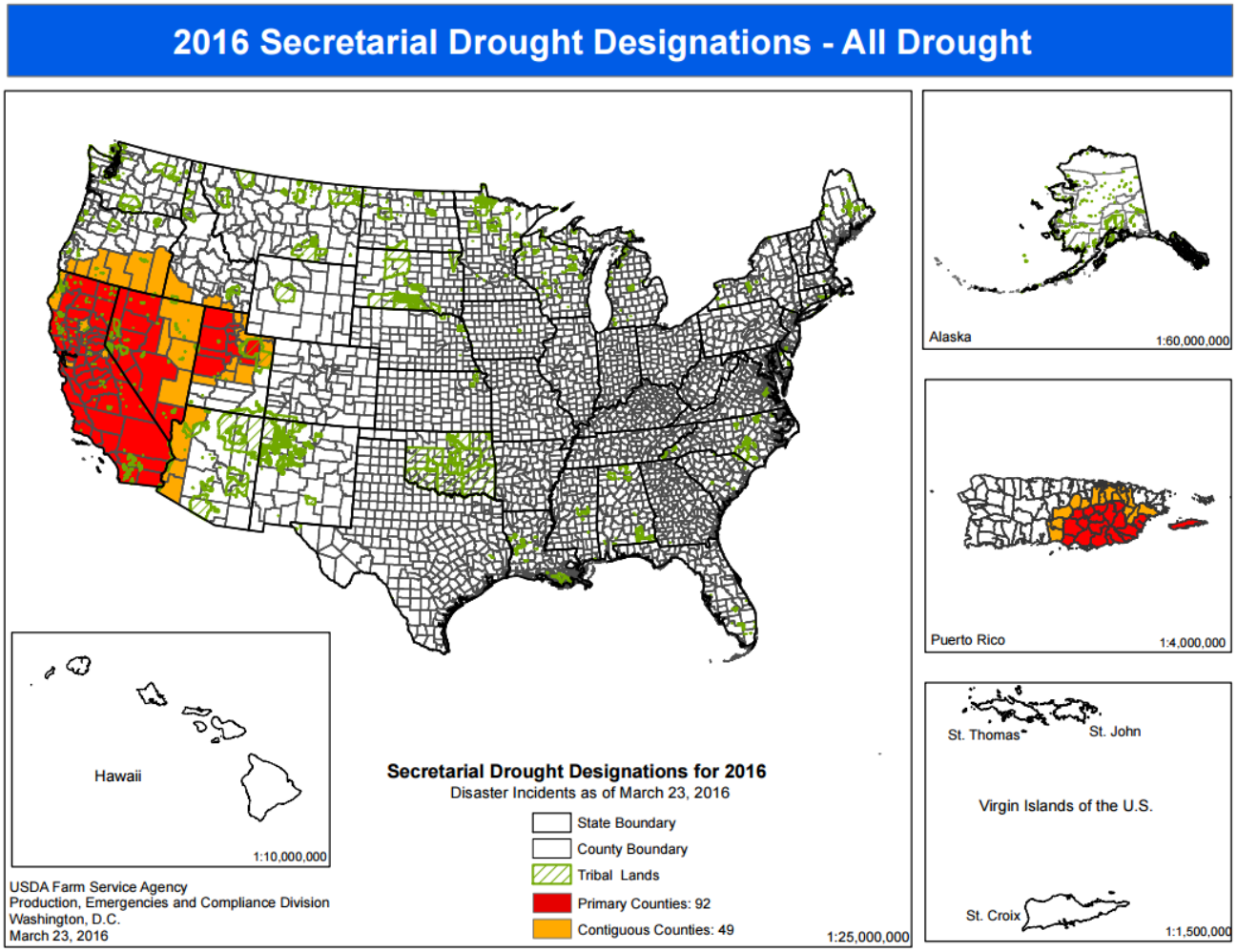

**Drought conditions** continue to improve over much of the country. Over the past 6-12 months, conditions have improved in the south central U.S. and the Pacific Northwest. The remainder of the West has shown improvement, but long-term drought persists in California and Nevada.

## Current National Drought Summary, March 22, 2016

Author: Brad Rippey, U.S. Department of Agriculture

"Storms continued to chip away at drought across northern California and the Northwest, while short-term dryness led to further moderate (D1) drought expansion in the southwestern and south-central U.S. During the 168-hour drought-monitoring period, ending on the morning of March 22, some of the heaviest precipitation fell in non-drought areas of the South, Pacific Northwest, and upper Great Lakes region. However, the Northwestern precipitation reached southward and inland, targeting parts of northern California and the northern Rockies. Farther east, snow grazed a portion of the Northeastern dry (D0) region on March 21, while periodic but widely scattered showers and thunderstorms dampened the lower Southeast. Elsewhere, short-term dryness began to intensify across the southwestern and south-central U.S., where until recently crops such as winter wheat had been growing well and rangeland and pastures had not been experiencing much stress. However, that has started to change as short-term dryness, aggravated by high winds and temperature extremes, has reduced soil moisture and begun to stress crops."

**USDA Secretarial Drought Designations**

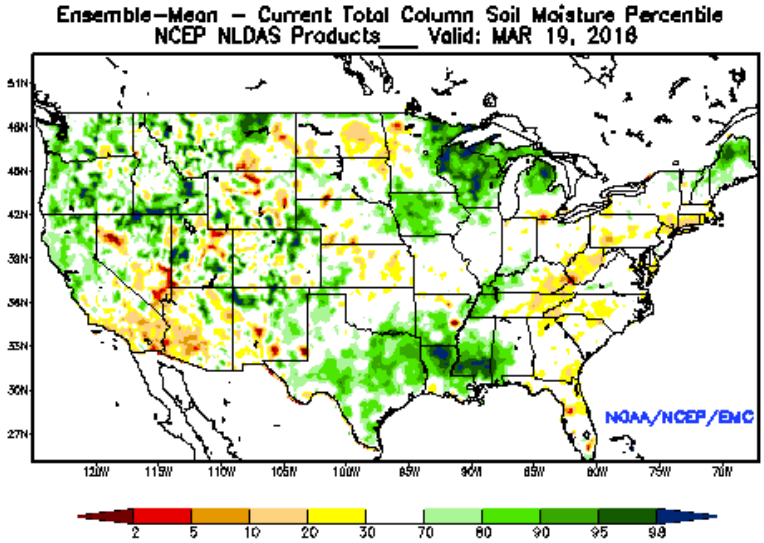



## Highlighted Drought Resources

- 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

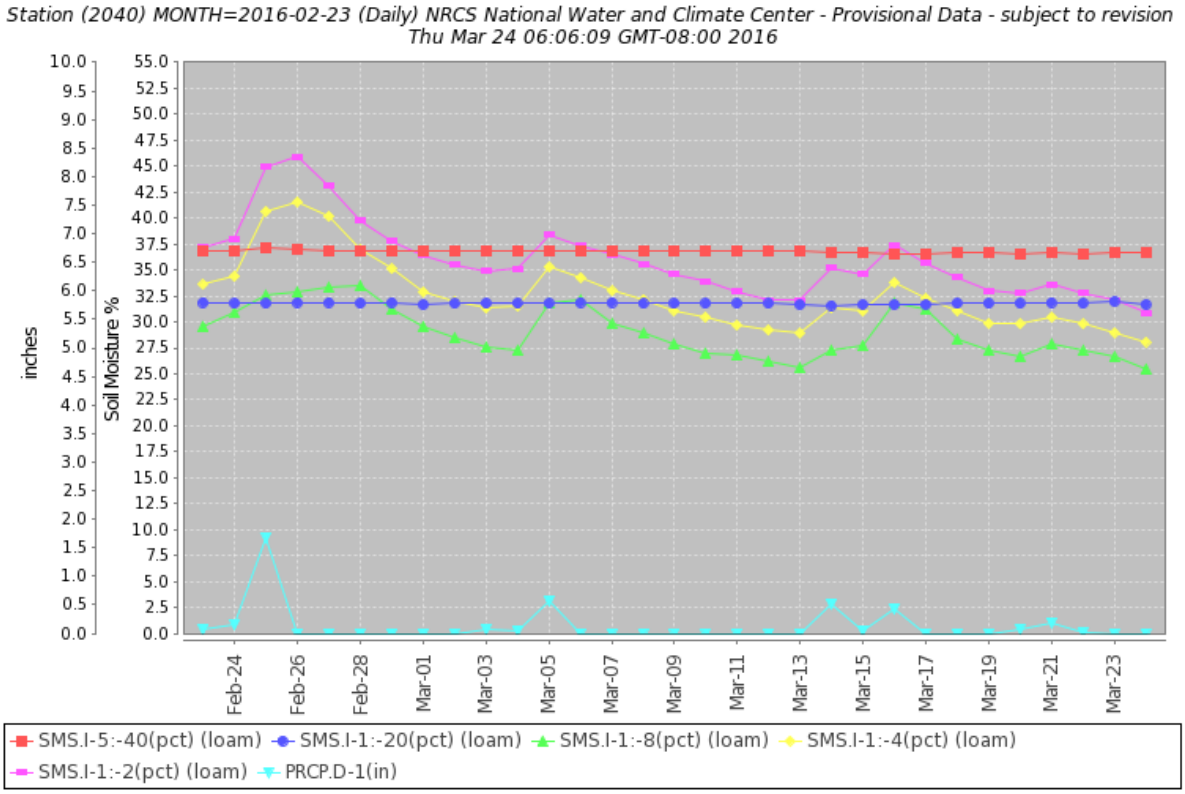
# Other Climatic and Water Supply Indicators

## Soil Moisture




The modeled **soil moisture percentiles** as of March 19, 2016 show a mix of below average to above average conditions throughout the country. The lower Mississippi River Valley, Great Lakes, central Great Plains, and western mountains have the largest areas of wet soil conditions. There are only a few scattered areas of dryness, primarily in parts of the West, Southwest, the northern Great Plains, and in parts of the eastern U.S.

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



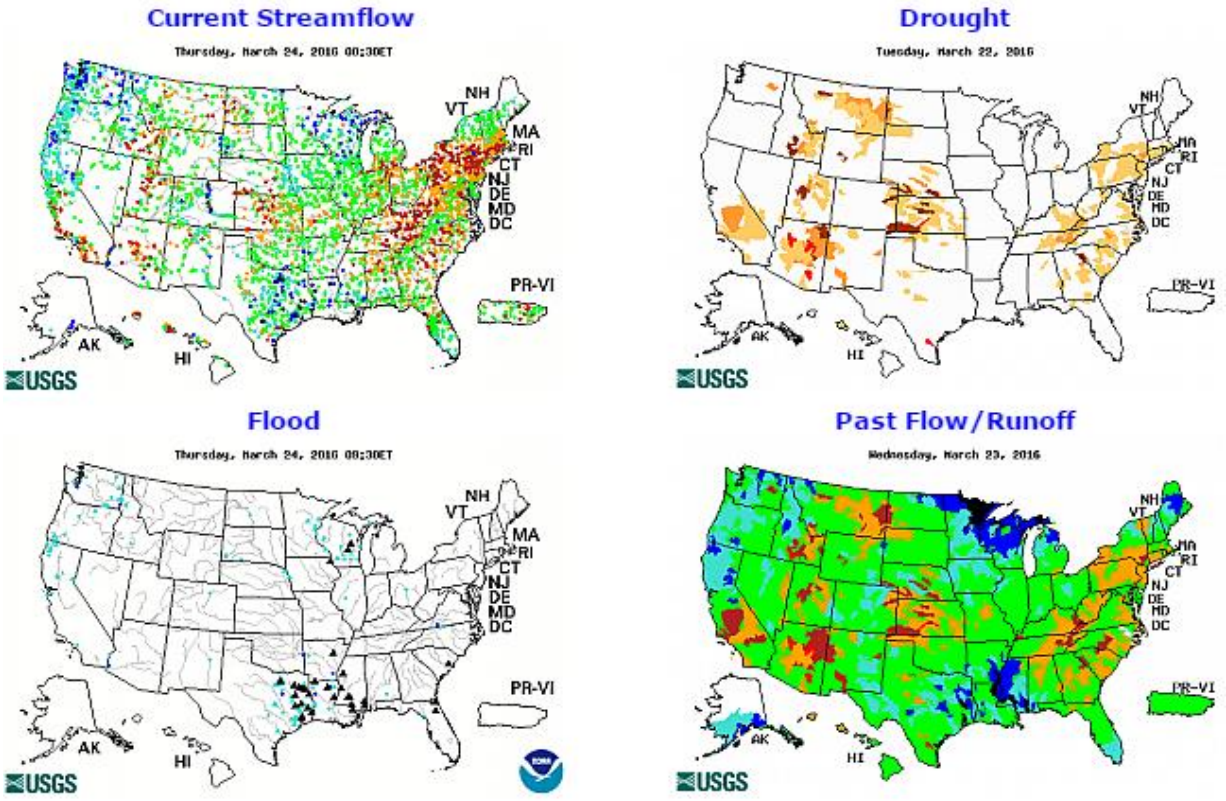

This graph shows soil moisture (at 2-, 4-, 8-, 20-, and 40-inch depths) and precipitation for the past 30 days at the Tidewater AREC SCAN Site #2040 in Virginia. The precipitation events in the past 30 days resulted in soil moisture increases at the 2-, 4-, and 8-inch depths. The 20- and 40-inch depth sensors are at or near saturation from the 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 the Upper Midwest and throughout the lower Mississippi River Valley due to recent storms. Northern Florida continues to have river gages with lingering above flood stage conditions. Some gages in the West, Great Lakes, Great Plains, South, and Southeast 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**

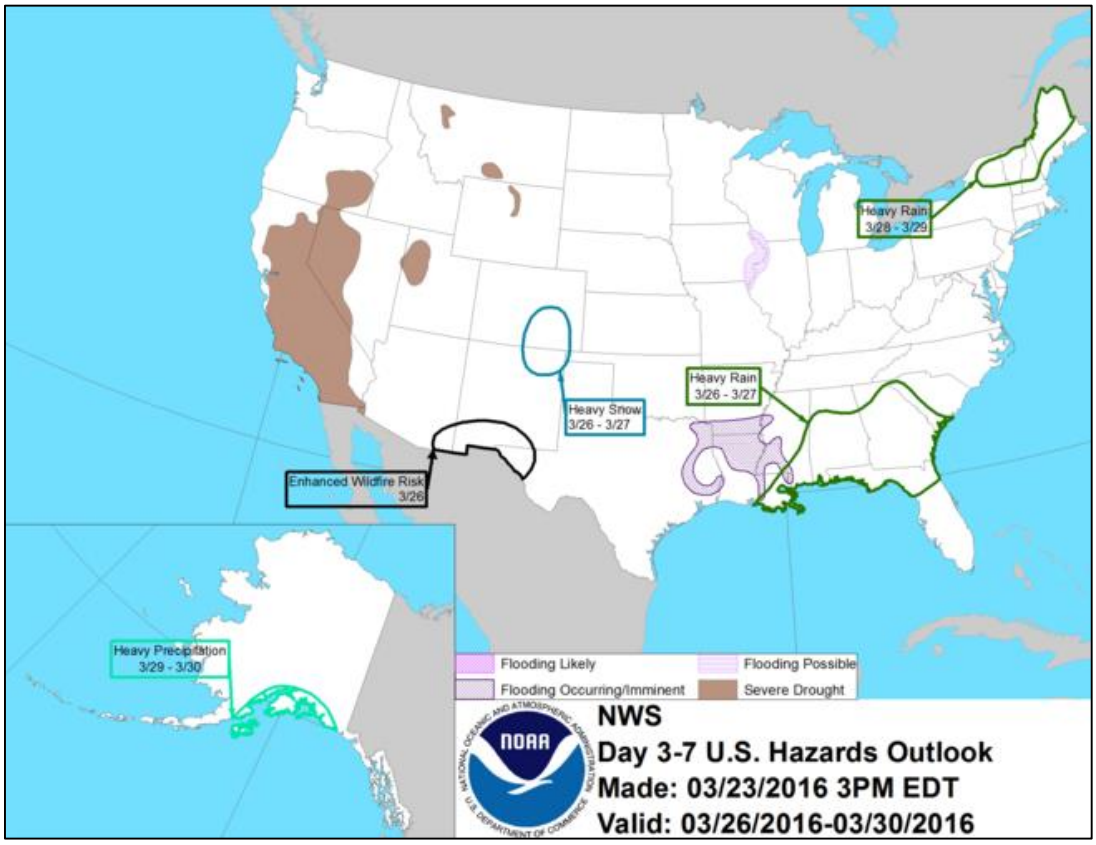
# Short- and Long-Range Outlooks

## Agricultural Weather Highlights

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

**National Outlook, March 24, 2016:** "For today, snow will gradually end from west to east across the Great Lakes region, while showers and thunderstorms will sweep into the eastern U.S. Rain will end by Friday along the Atlantic Seaboard, except for lingering showers across the lower Southeast. Meanwhile, a new storm will drift southeastward, producing high elevation snow from the Washington Cascades to the Colorado Rockies. During the weekend, generally light precipitation should occur across the nation's mid-section, including the southern Plains. Cold air trailing the second storm could result in weekend temperatures below 30°F as far south as northernmost Texas. The NWS 6- to 10-day outlook for March 29 – April 2 calls for the likelihood of near- to above-normal temperatures across the eastern half of the U.S. and in the Pacific Northwest, while colder-than-normal conditions can be expected across the remainder of the West. Meanwhile, near- to above-normal precipitation in most of the country should contrast with drier-than-normal weather across the southern High Plains, northern California, and the Pacific Northwest."

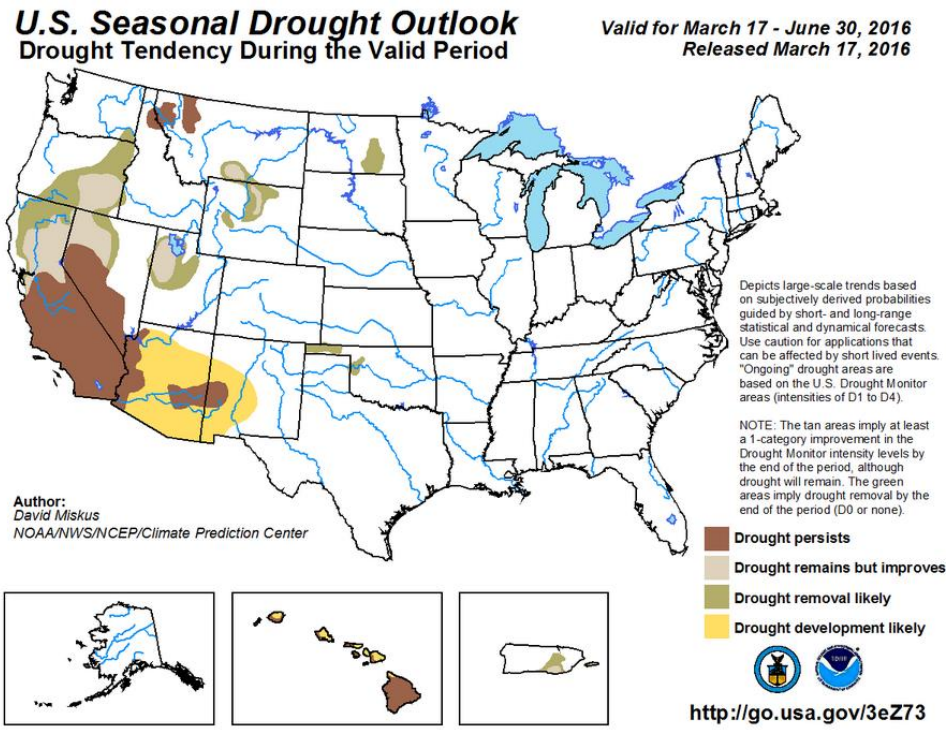
## National Weather Hazards




The NWS Climate Prediction Center's outlook for **weather hazards** over the next week shows heavy rain over northern New England and the Southeast. Heavy snow is expected in southeast Colorado and northeast New Mexico. Enhanced wildfire risk is indicated in southeast Arizona, southern New Mexico, and western Texas. Flooding is occurring over much of the southern Mississippi River Valley. The severe drought continues in parts of the West. In Alaska, heavy precipitation is expected along the southern coast.

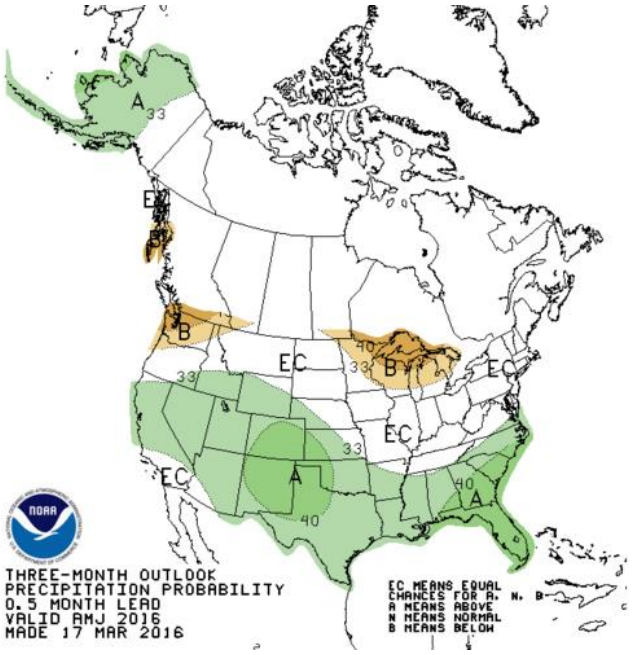
## Seasonal Drought Outlook

During the next three months, **drought** will persist on the Big Island in Hawaii, the northern Rockies, southern California, western Nevada, Arizona, and New Mexico. Drought may develop on the other islands in Hawaii and the Southwest. Elsewhere, most drought designations are expected to improve or be removed.

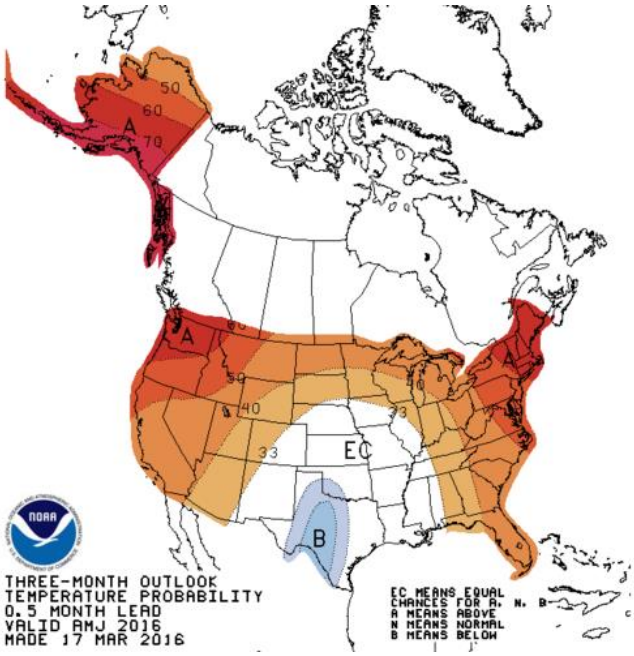



## NWS Climate Prediction Center 3-Month Outlook

**Precipitation**




**Temperature**



### Outlook Summary

NWS Climate Prediction Center:

The April-May-June (AMJ) 2016 precipitation outlook: "The AMJ and MJJ 2016 precipitation outlooks follow a pattern that is on average associated with El Niño. Enhanced chances for above-median precipitation are forecast for AMJ and MJJ 2016 from northern and central California, across the central Rockies and southwest, into the central and southern Great Plains, and for AMJ into the gulf and southern Atlantic coasts. Equal chances are indicated for southern California and southwestern Arizona, where climatological precipitation is very low during this season. Below-median precipitation is most likely through MJJ for northern regions of the Pacific Northwest and the western Great Lakes. A slightly increased chance of above-median precipitation is forecast for western and northern Alaska into summer by dynamical models, resulting from anomalously open sea ice and warm, open-ocean temperatures.

During autumn of 2016 and winter of 2016-17, the increasing likelihood of developing la Niña conditions is the primary factor for increased probabilities of below-median precipitation across the southern tier of the contiguous U.S. and the southern coast of Alaska, and increased probabilities of above-median precipitation for the Pacific Northwest, Ohio Valley, and central Great Lakes."

The April-May-June (AMJ) 2016 temperature outlook: "The AMJ temperature outlook is similar to the outlook from a month ago, with some increase in probabilities, consistent with shorter lead times and dynamical model forecasts. All temperature tools predict increased probabilities of above-normal temperatures across the northern half of the continental U.S. Through the early spring, consistent with an El Niño. Equal chances of below-normal and above-normal, or increased chances of below-normal are indicated in parts of the south-central contiguous U.S. Increased chances of above-normal temperatures continue across much of the contiguous U.S. and Alaska through the summer into autumn, as indicated by model forecasts, influenced by the combined signals of global sea surface temperature anomalies and a warming climate on decadal timescales.

Increased chances for above-normal temperatures forecast across parts of the southern contiguous U.S. and a slight increase in the probability for below-normal temperatures across the northern U.S. from NDJ 2016 through AMJ 2017 are based largely on the impacts of likely La Niña conditions. An increased probability of above-normal temperatures for the north slope of Alaska during the autumn is due to the likelihood of anomalously open sea ice and the feedback between sea ice coverage and changes in the climate state."

## 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**.