

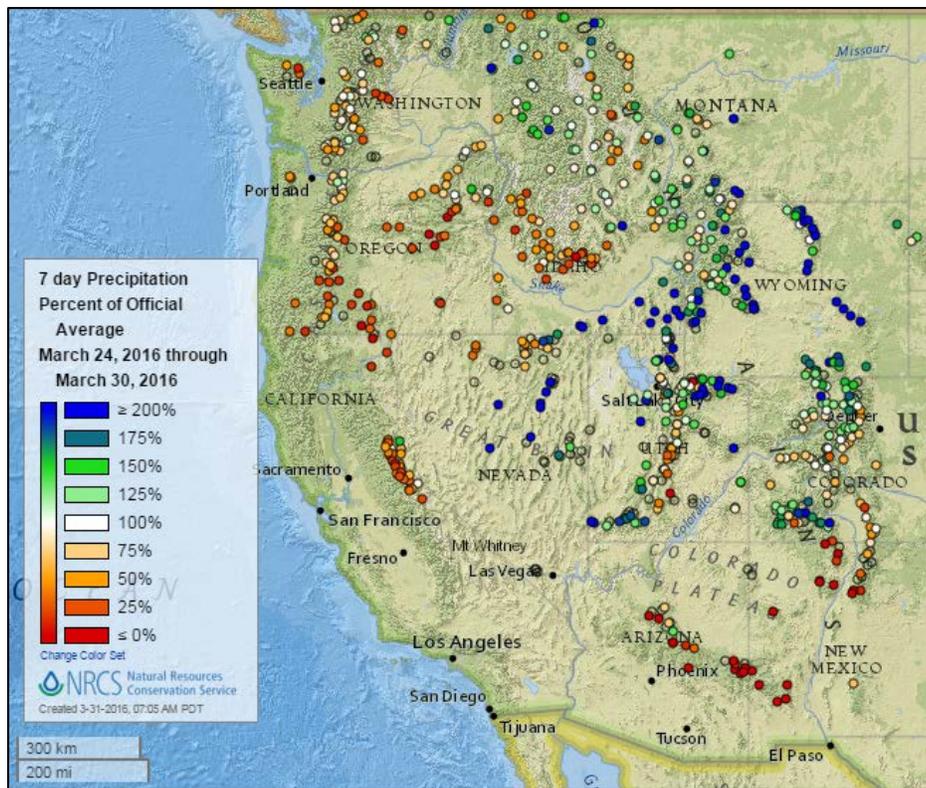
# Water and Climate Update

March 31, 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.

Snow .....	2	Drought .....	8
Precipitation .....	4	Other Climatic and Water Supply Indicators .....	11
Temperature .....	7	Short- and Long-Range Outlooks.....	13

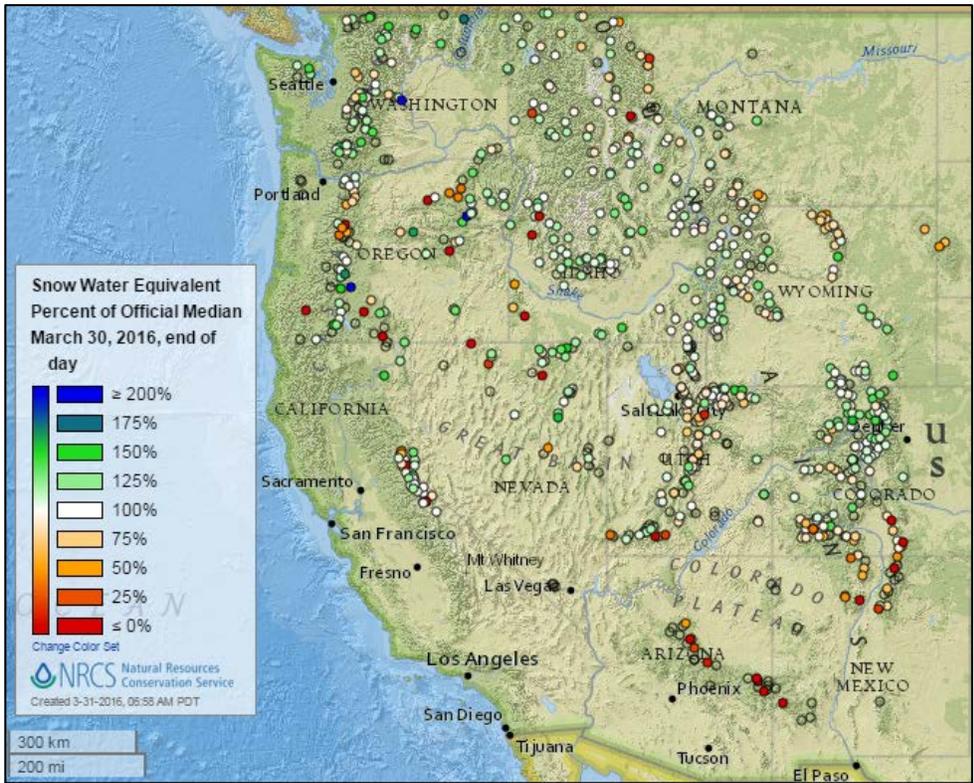
## Weekly Highlight: Some western snowpacks receive a boost from storms this week



The [7-day precipitation percent of average](#) map shows above average precipitation from the Great Basin through the central Rocky Mountains and into eastern Wyoming.

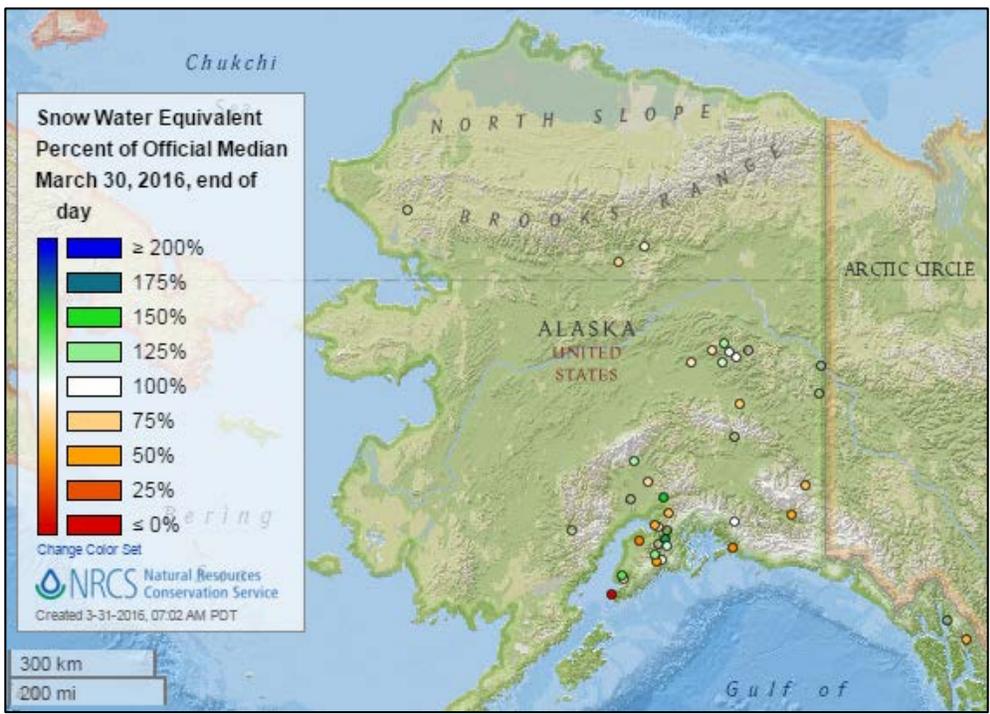
**Snow**

**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. Stations in the Southwest and in the southern Rockies were below median. Stations distributed across the Cascades and intermountain West report values above median. Some stations in Arizona, New Mexico, and a few other places report values well below median.

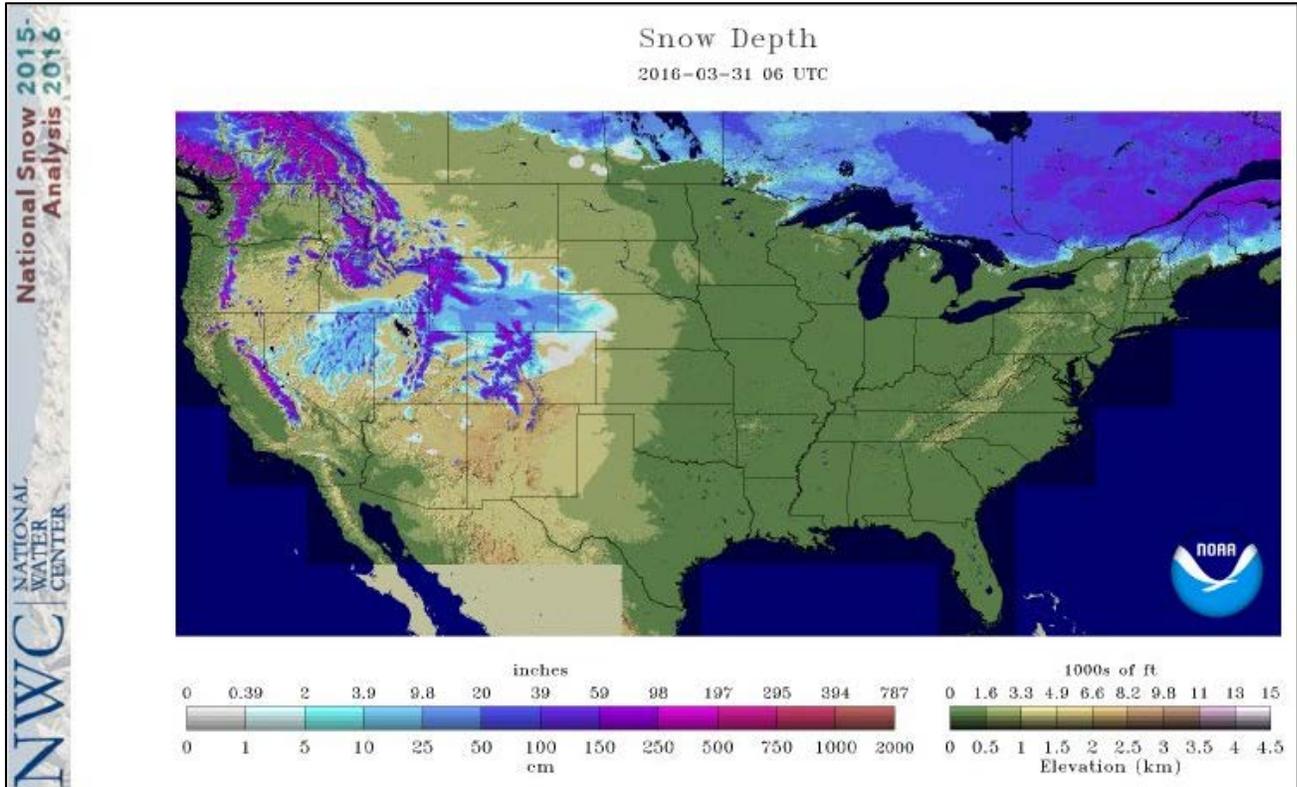
See also: [Current snow water equivalent values \(inches\) map](#)



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](#)

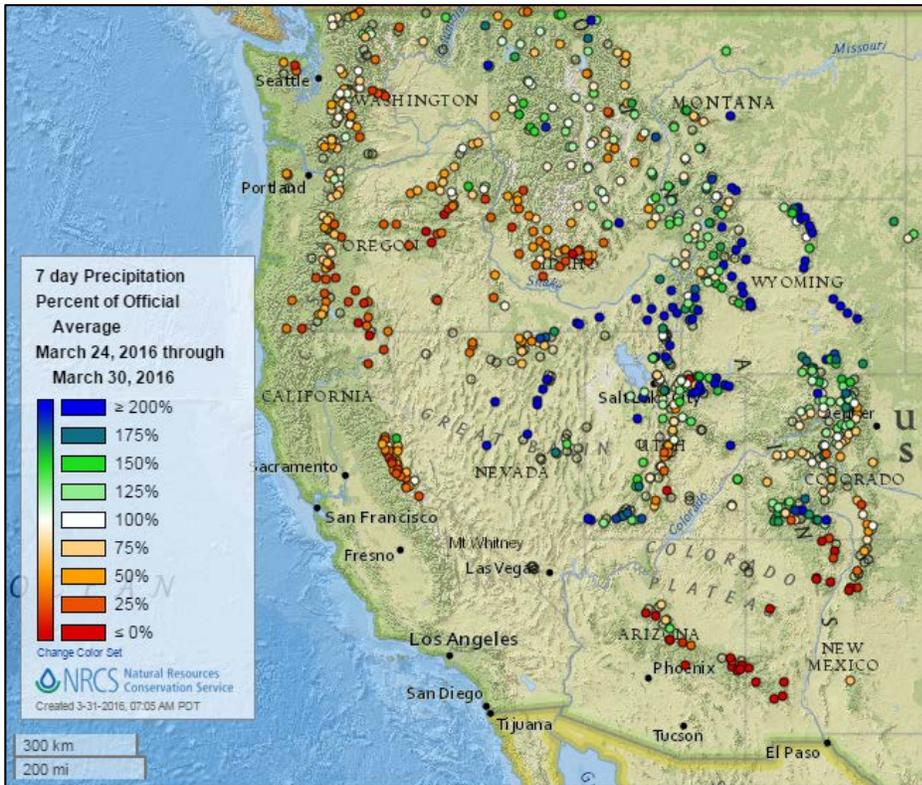
Current Snow Depth, National Weather Service (NWS) Networks



The NOAA National Operational Hydrologic Remote Sensing Center's current [snow depth](#) map shows snow receding across the central Great Plains, the Great Lakes region, and New England. New snow has fallen across northern Nevada, southern Idaho, northern Utah, much of Wyoming, and northern Colorado.

## Precipitation

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

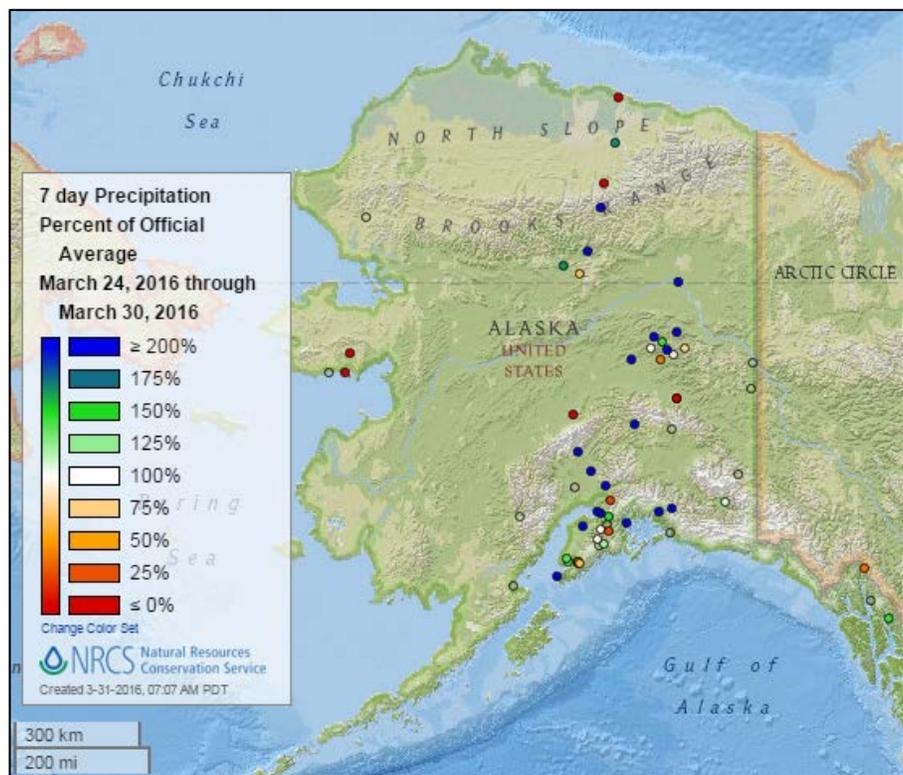


The [7-day precipitation percent of average](#) map shows above average precipitation from the Great Basin through the central Rocky Mountains and into eastern Wyoming. Elsewhere in the West saw a below average to average week.

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

The [Alaska 7-day precipitation percent of average](#) map shows stations reporting a highly variable mix of dry to wetter than average conditions across most of the state.

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

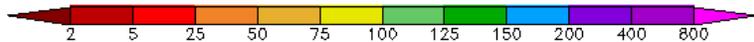
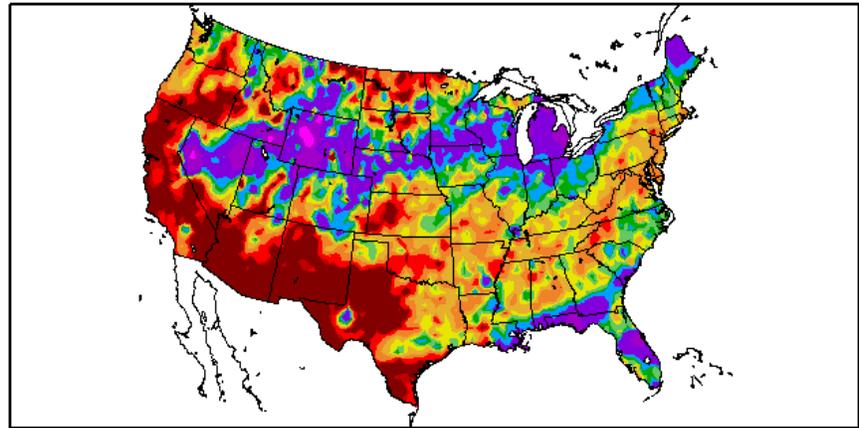


Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

The [7-day percent of normal precipitation](#) map for the continental U.S. shows normal to above normal conditions across much of the country compared to last week. Areas with well above normal precipitation were in the central West, across the Great Lakes, and into New England. Additionally, the Southeast saw above normal precipitation. The coastal West, northern Great Plains, and Southwest had a below normal to dry week.

Percent of Normal Precipitation (%)  
3/24/2016 – 3/30/2016



Generated 3/31/2016 at HPRCC using provisional data.

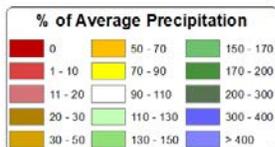
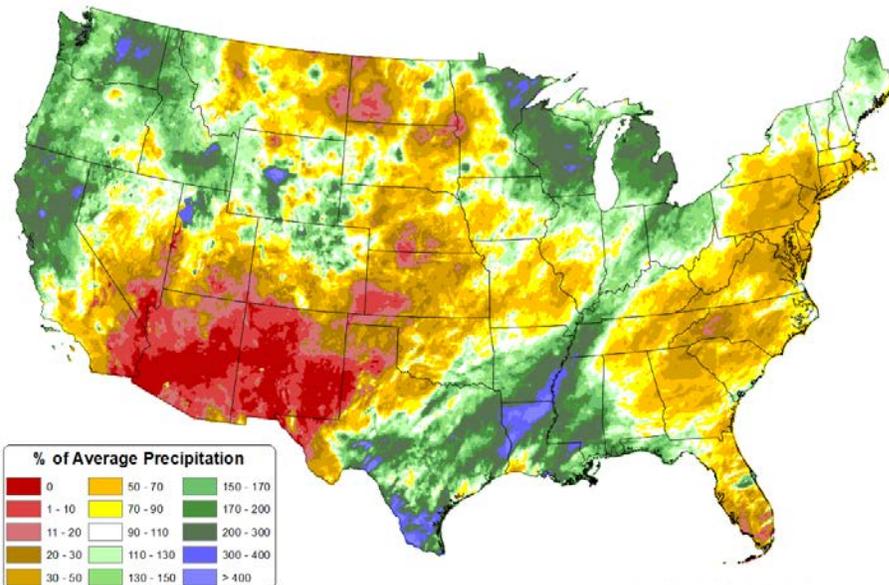
Regional Climate Centers

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

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

Source: PRISM

Total Precipitation Anomaly: 01 March 2016 - 29 March 2016  
Period ending 7 AM EST 29 Mar 2016  
Base period: 1951-2010  
(Map created 30 Mar 2016)



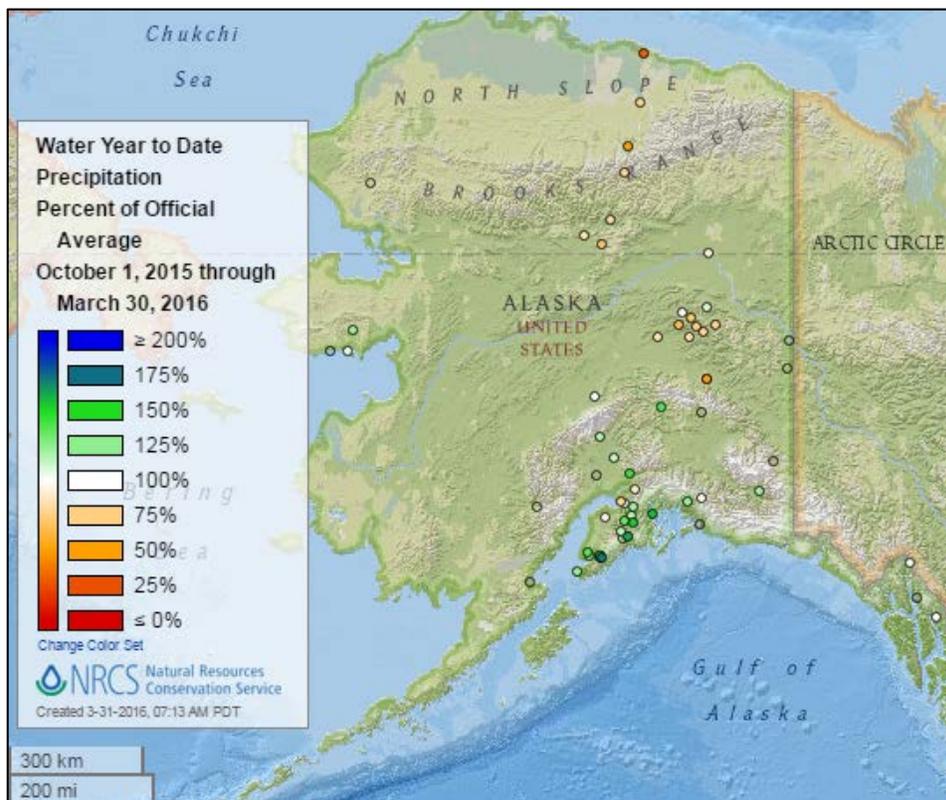
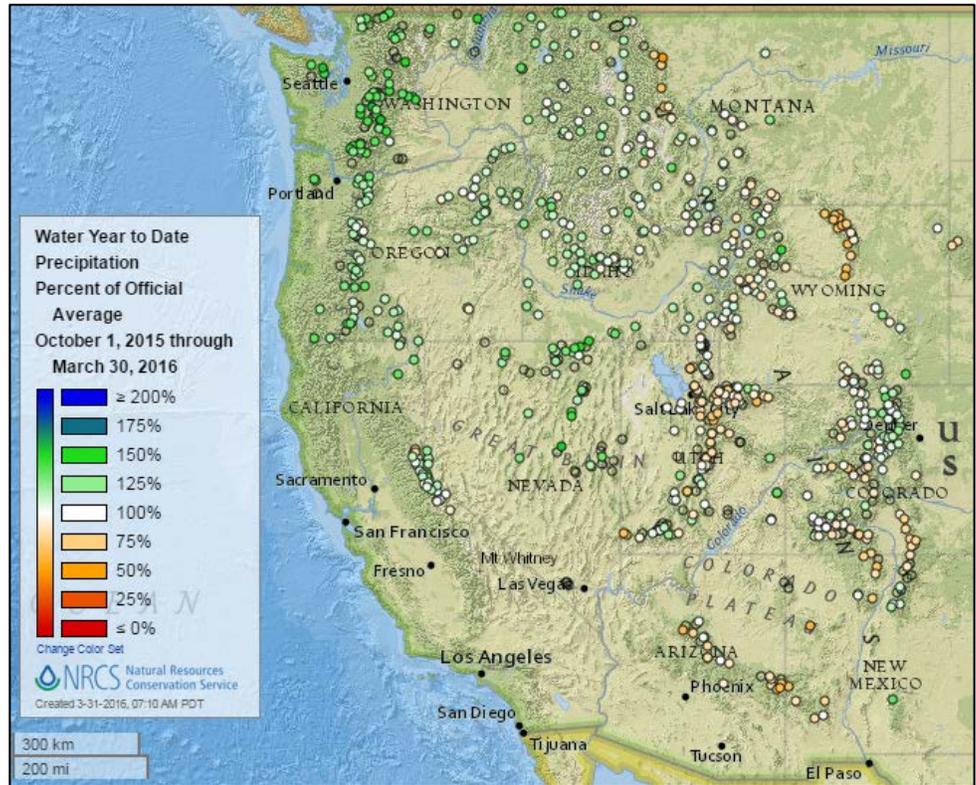
The March national month-to-date [precipitation percent of average](#) map shows much of the southern Mississippi River Valley, Texas, western Great Lakes, and the West Coast had well above normal precipitation. The Great Plains, Southwest, and parts of the central and eastern U.S. have been drier than 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 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 are drier than normal to average precipitation, with near normal or above normal precipitation in the Kenai Peninsula and along the south coast and the Southeast.

See also: [Alaska 2016 water year-to-date total precipitation values \(inches\) map](#)

## Temperature

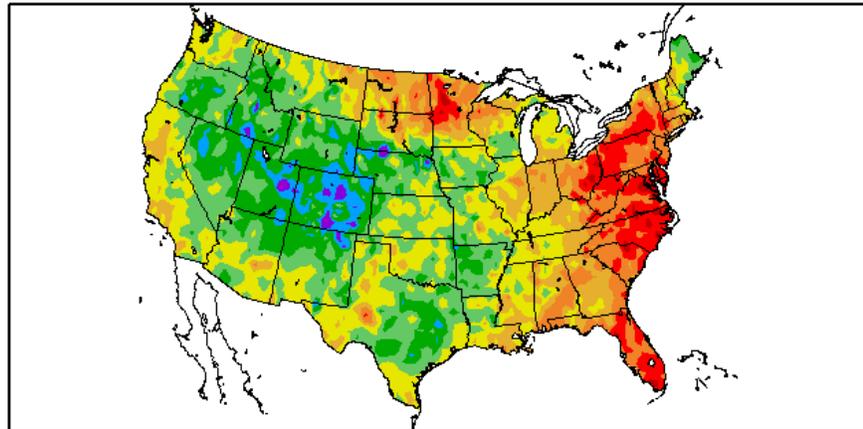
### Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

The [7-day temperature anomaly](#) map shows the country was warmer than normal in the East and north central U.S. Cooler than normal temperatures were reported in the Rockies, central Great Plains, and the central West.

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

Departure from Normal Temperature (F)  
3/24/2016 – 3/30/2016



Generated 3/31/2016 at HPRCC using provisional data.

Regional Climate Centers

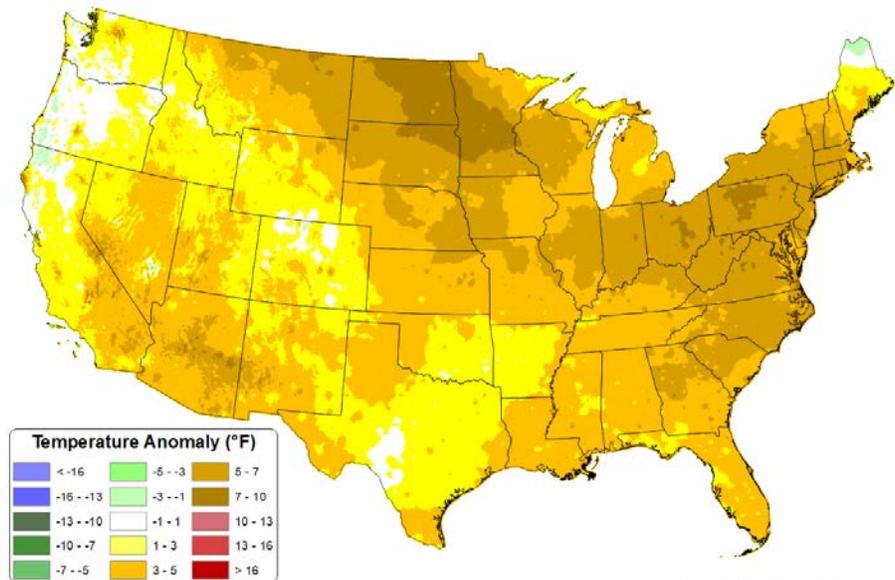
### Month-to-Date, All Available Data Including SNOTEL and NWS Networks

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 and the Ohio Valley. A small area of the Pacific Coast and northern Maine reported slightly cooler than normal temperatures for the month.

See also: [March month-to-date daily mean temperature \(° F\) map](#)

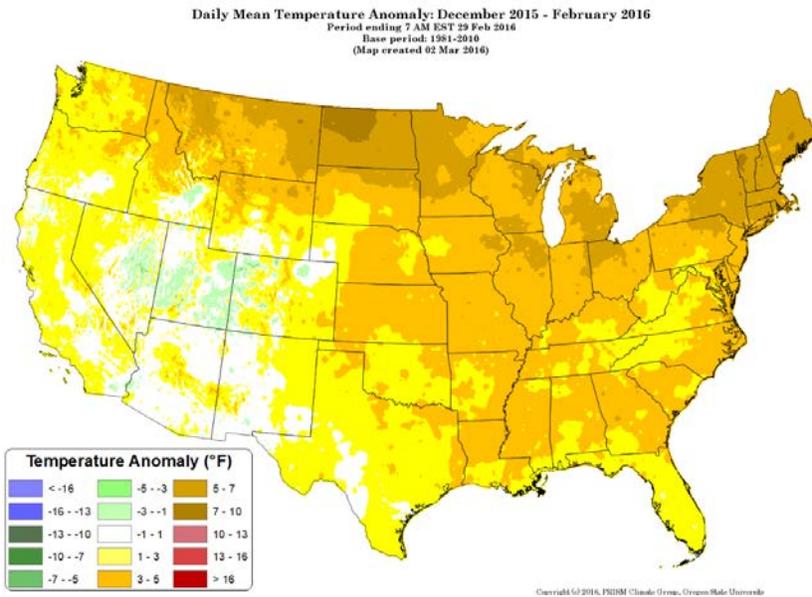
Daily Mean Temperature Anomaly: 01 March 2016 - 29 March 2016  
Period ending 7 AM EST 29 Mar 2016  
Base period: 1981-2010  
(Map created 30 Mar 2016)



Copyright (c) 2016, PRISM Climate Group, Oregon State University

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

Source: PRISM

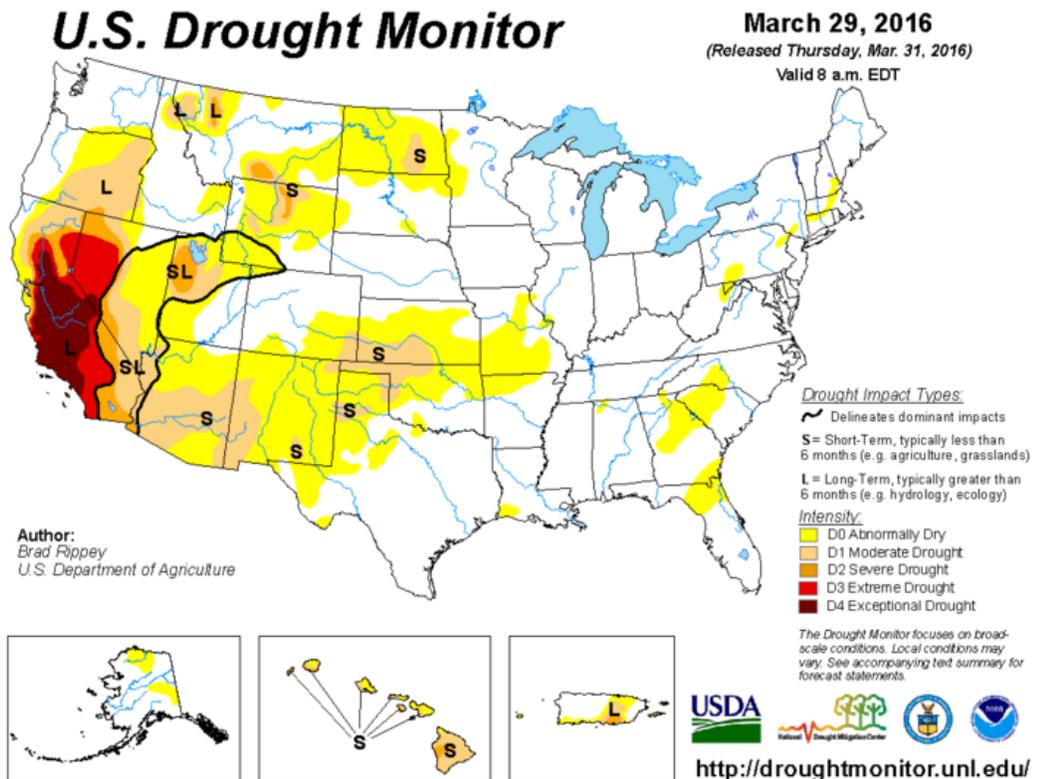


The December through February national **daily mean temperature anomaly** map shows that most of the country was warmer than normal. The warmest departures from normal were across the northern tier states from Montana to New England. The central West was near normal to slightly cooler than normal.

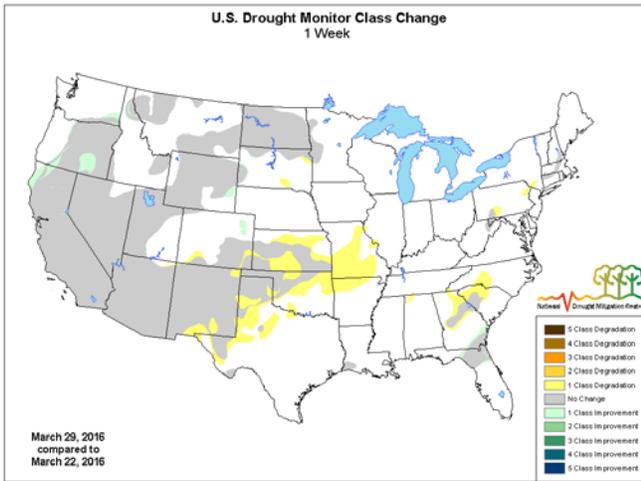
## Drought

[U.S. Drought Portal](#) Comprehensive drought resource.

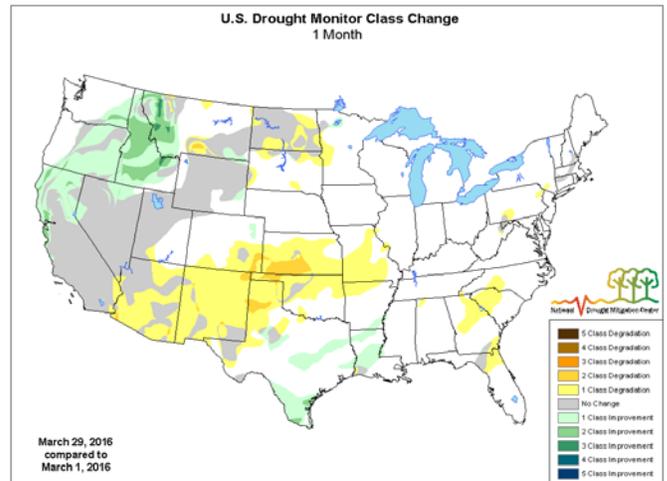
[U.S. Drought Monitor](#) See map below. Drought conditions continue in the western states, including the exceptional drought in California and Nevada.



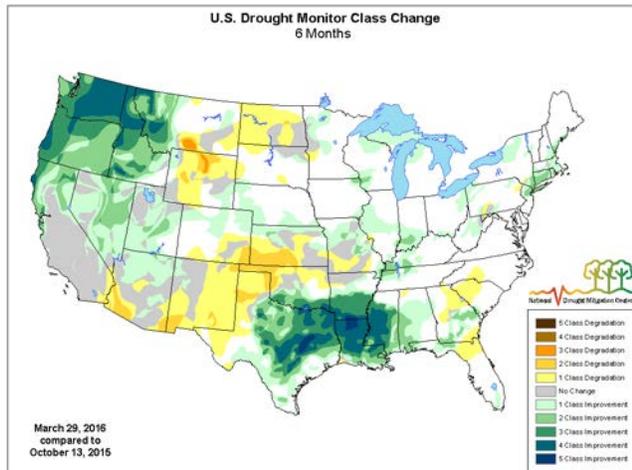
## Changes in Drought Monitor Categories over Time



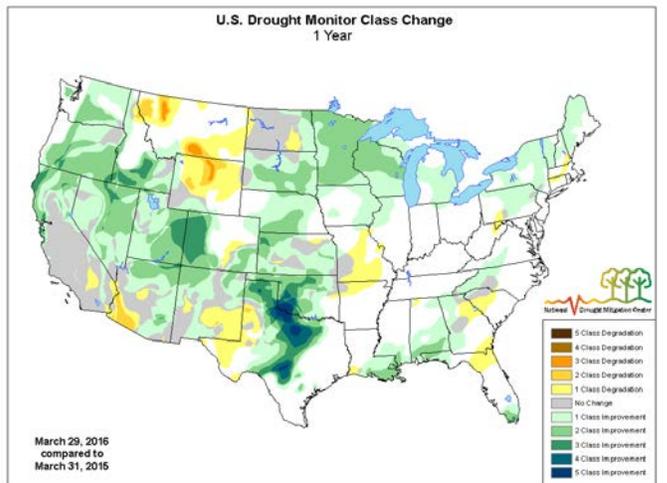
<http://droughtmonitor.unl.edu>



<http://droughtmonitor.unl.edu>



<http://droughtmonitor.unl.edu>



<http://droughtmonitor.unl.edu>

Click any map to enlarge it.

**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., the Great Plains, and the Pacific Northwest, whereas some degradation in drought category is seen in the northern Rockies. The remainder of the West has shown improvement, but long-term drought persists in California and Nevada.

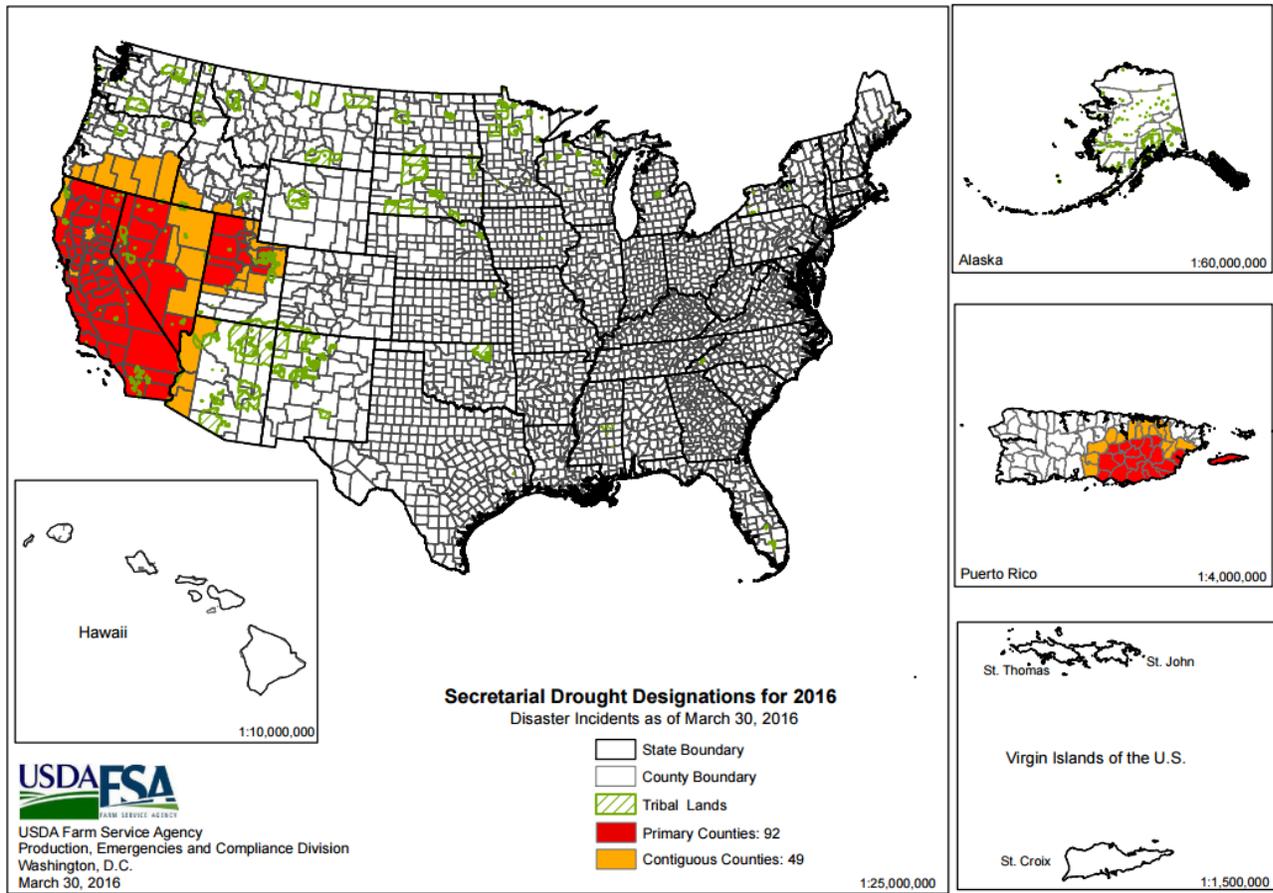
### Current National [Drought Summary](#), March 29, 2016

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

“The bulk of the precipitation that occurred during the 168-hour (March 22-29) monitoring period did not fall in areas experiencing dryness (D0) or drought (D1 or worse). Some of the heaviest precipitation soaked non-drought areas of the lower Southeast and the Pacific Northwest. And, a late-season snowstorm from the central Rockies into northern Lower Michigan also fell mostly “between the drought lines.” However, some of the Southeastern rain chipped away at D0 across southern Georgia and northern Florida. And, stormy weather in the Northwest pushed far enough inland to further dent lingering drought. In contrast, breezy, mostly dry weather covered the central and southern Plains and the Southwest, leading to further expansion of D0 and D1. On the southern High Plains, a combination of weather extremes—including developing drought, hard freezes, and large temperature oscillations—led to an increase in stress on rangeland, pastures, and winter wheat.”

USDA Secretarial [Drought Designations](#)

2016 Secretarial Drought Designations - All Drought

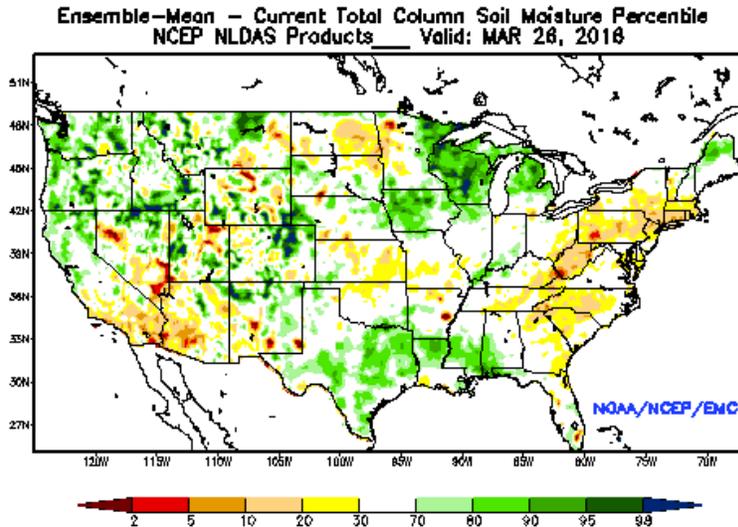


Highlighted Drought Resources

- [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

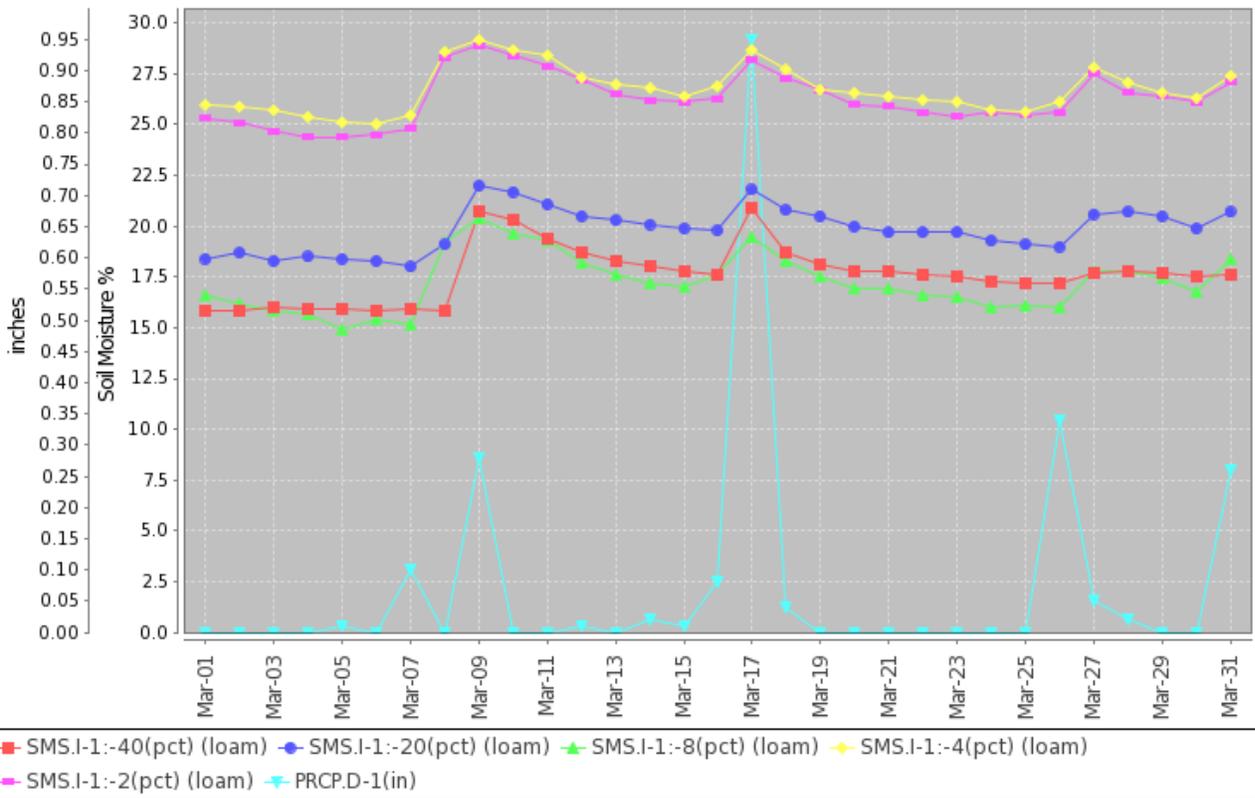
### Soil Moisture



The modeled [soil moisture percentiles](#) as of March 26, 2016 show a mix of below average to above average conditions throughout the country. The lower Mississippi River Valley, Great Lakes, parts of the central Great Plains, and western mountains have the largest areas of wet soil conditions. Scattered areas of dryness are in the Southwest, the Great Plains, and in much of the eastern U.S.

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

Station (2003) MONTH=2016-03-01 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision  
Thu Mar 31 06:27:25 GMT-08:00 2016



This graph shows soil moisture (at 2-, 4-, 8-, 20-, and 40-inch depths) and precipitation for the past 30 days at the [Wabeno #1 SCAN Site 2003](#) in Wisconsin. The precipitation events in the past 30 days resulted in soil moisture increases at all sensor depths.

## Soil Moisture Data Portals

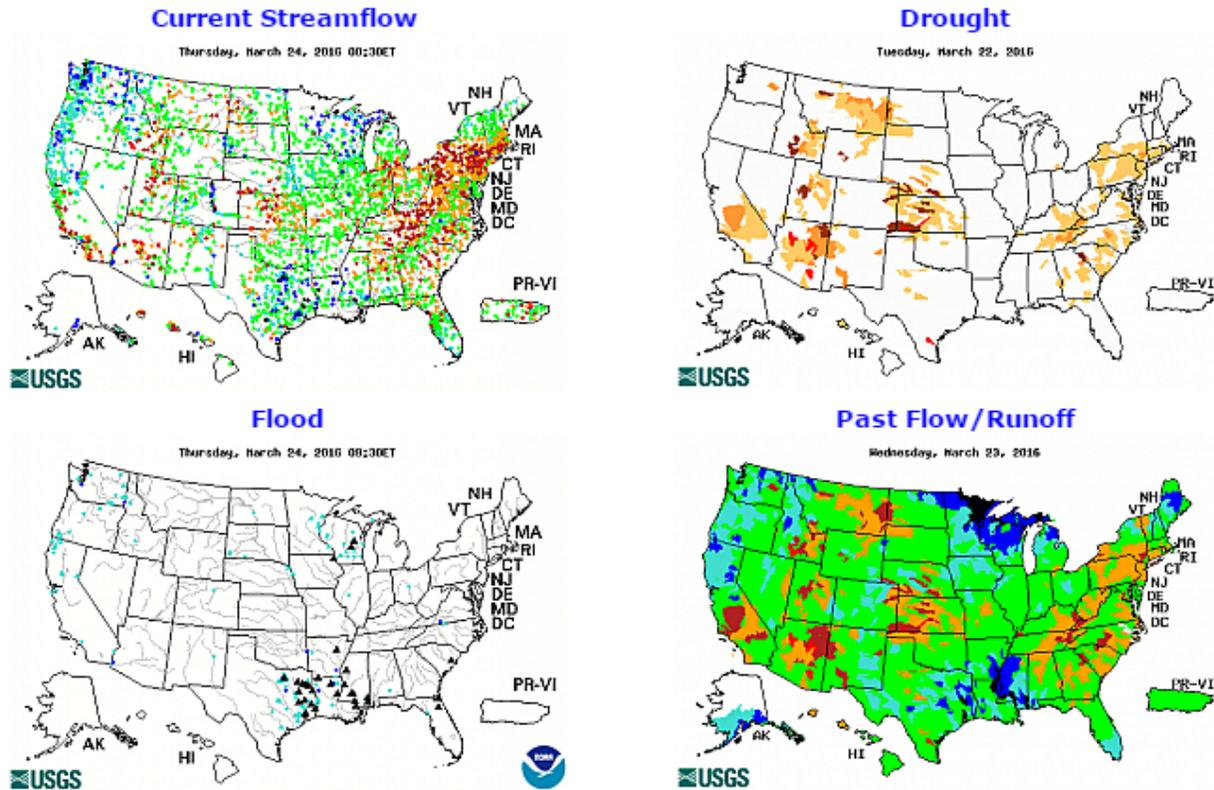
[CRN Soil Moisture](#)

[Texas A&M University North American Soil Moisture Database](#)

[University of Washington Experimental Modeled Soil Moisture](#)

## Streamflow

Source: USGS



Select any individual map to enlarge and display a legend.

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, South, and Southeast are reporting above normal streamflow at this time.

## 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](#)

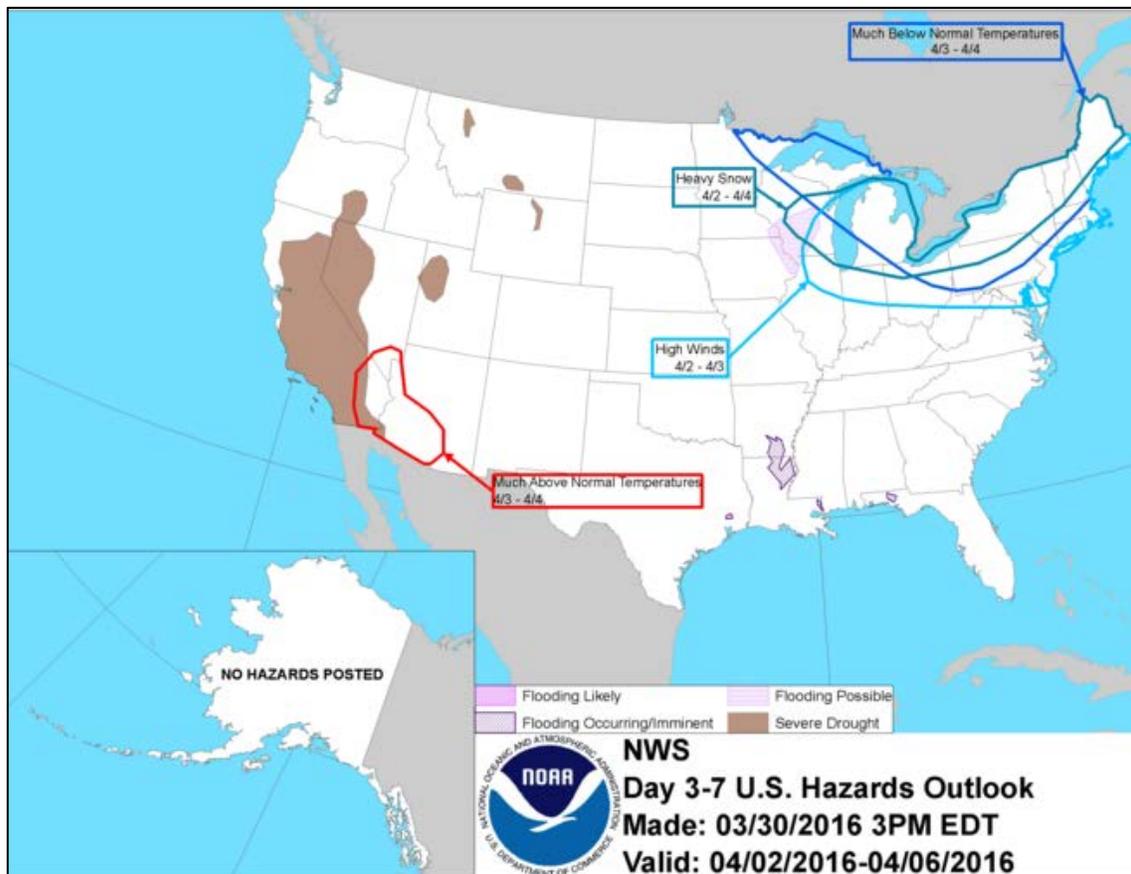
## Short- and Long-Range Outlooks

### Agricultural Weather Highlights

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

**National Outlook, March 31, 2016:** “A storm system currently centered over Nebraska will cross the Great Lakes region on Thursday. The storm’s trailing cold front will reach the Atlantic Seaboard on Friday, but should stall across Florida’s peninsula. Precipitation totals associated with the storm (and its cold front) could reach 2 to 5 inches—in the form of heavy showers and locally severe thunderstorms—in the Southeast and 1 to 2 inches along and north of the path of the low pressure system. Snow will end later today across Wyoming, western Nebraska, and southwestern South Dakota, but some accumulations may occur on Thursday in the upper Great Lakes region. During the weekend, warm, dry weather will dominate the West, while a blast of cold air and snow showers will engulf the Great Lakes and Northeastern States. The southern Plains will remain mostly dry with rapid temperature fluctuations—from warm to cool to warm again. The NWS 6- to 10-day outlook for April 4 – 8 calls for the likelihood of above-normal temperatures from the Pacific Coast to the Plains, while colder-than-normal conditions will dominate the Great Lakes, Northeastern, and Mid-Atlantic States. Meanwhile, near- to below-normal precipitation in most areas of the U.S. will contrast with wetter-than-normal weather in southern Florida and the Great Lakes and Northeastern States.”

### National Weather Hazards



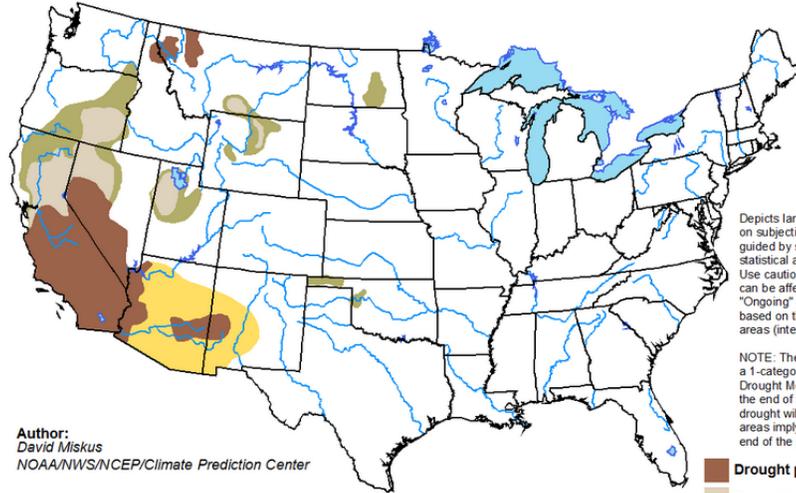
The NWS Climate Prediction Center’s outlook for [weather hazards](#) over the next week shows heavy snow, high winds, and much below normal temperatures from the Great Lakes into the Northeast. Much above normal temperatures are expected in the Southeast. Flooding is likely along the upper Mississippi River, and is occurring in much of the southern Mississippi River Valley and Gulf Coast. The severe drought continues in parts of the West.

**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.

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

Valid for March 17 - June 30, 2016  
Released March 17, 2016



Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author:  
David Miskus  
NOAA/NWS/NCEP/Climate Prediction Center

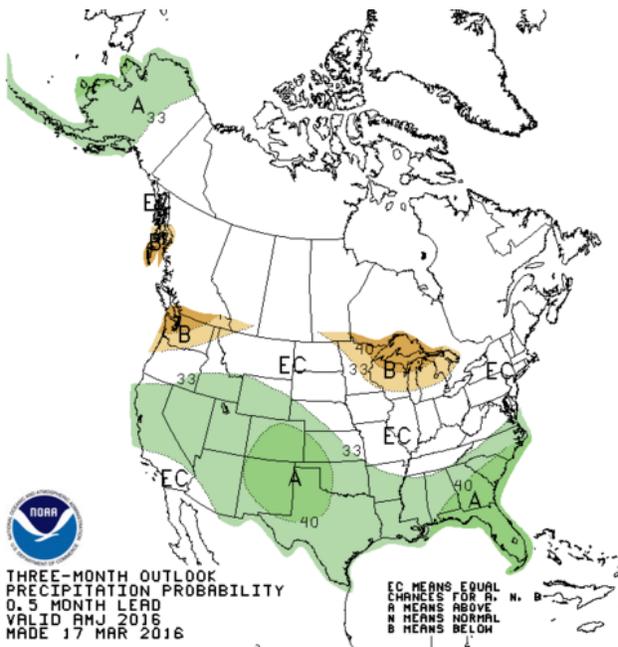
- Drought persists
- Drought remains but improves
- Drought removal likely
- Drought development likely



<http://go.usa.gov/3eZ73>

**NWS Climate Prediction Center 3-Month Outlook**

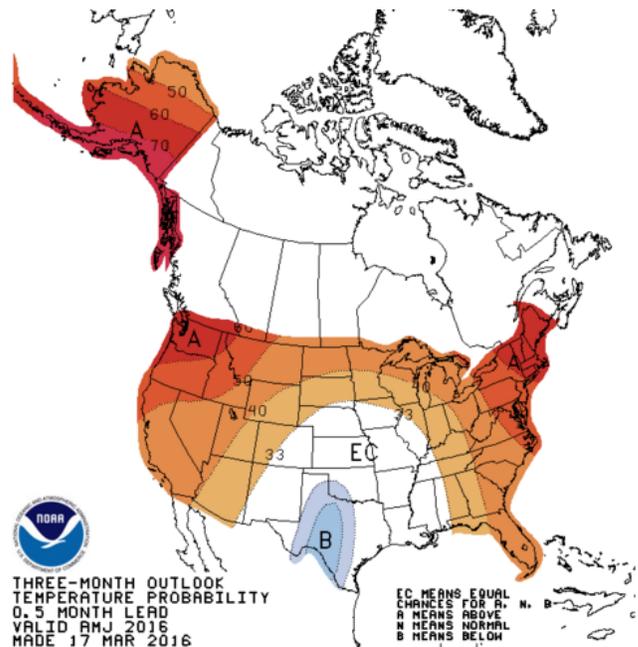
Precipitation



THREE-MONTH OUTLOOK  
PRECIPITATION PROBABILITY  
0.5 MONTH LEAD  
VALID AMJ 2016  
MADE 17 MAR 2016

EC MEANS EQUAL  
CHANCES FOR A, N, B  
A MEANS ABOVE  
N MEANS NORMAL  
B MEANS BELOW

Temperature



THREE-MONTH OUTLOOK  
TEMPERATURE PROBABILITY  
0.5 MONTH LEAD  
VALID AMJ 2016  
MADE 17 MAR 2016

EC MEANS EQUAL  
CHANCES FOR A, N, B  
A MEANS ABOVE  
N MEANS NORMAL  
B MEANS BELOW

### 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](#).