

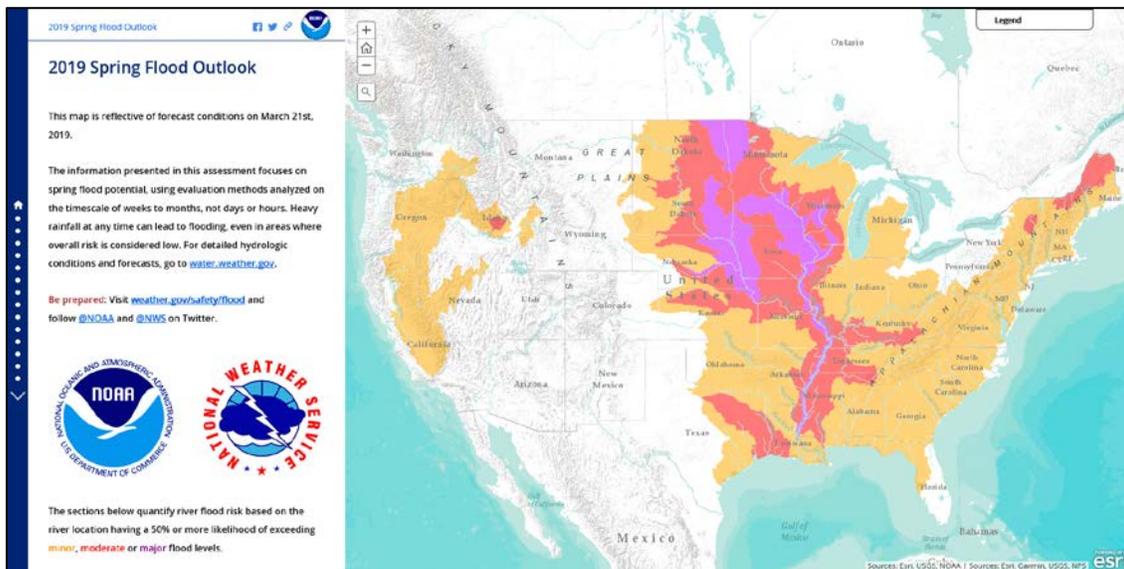
# Water and Climate Update

March 28, 2019

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.

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## Severe Midwest flooding damages continue to mount



Major flooding continues from Montana, the Dakotas, and Minnesota to Louisiana, the Mississippi River, and its tributaries. There are currently 18 USGS streamgages at major flood stage and 41 gages have moderate flooding along these rivers. See page 15 for the location of these gages.

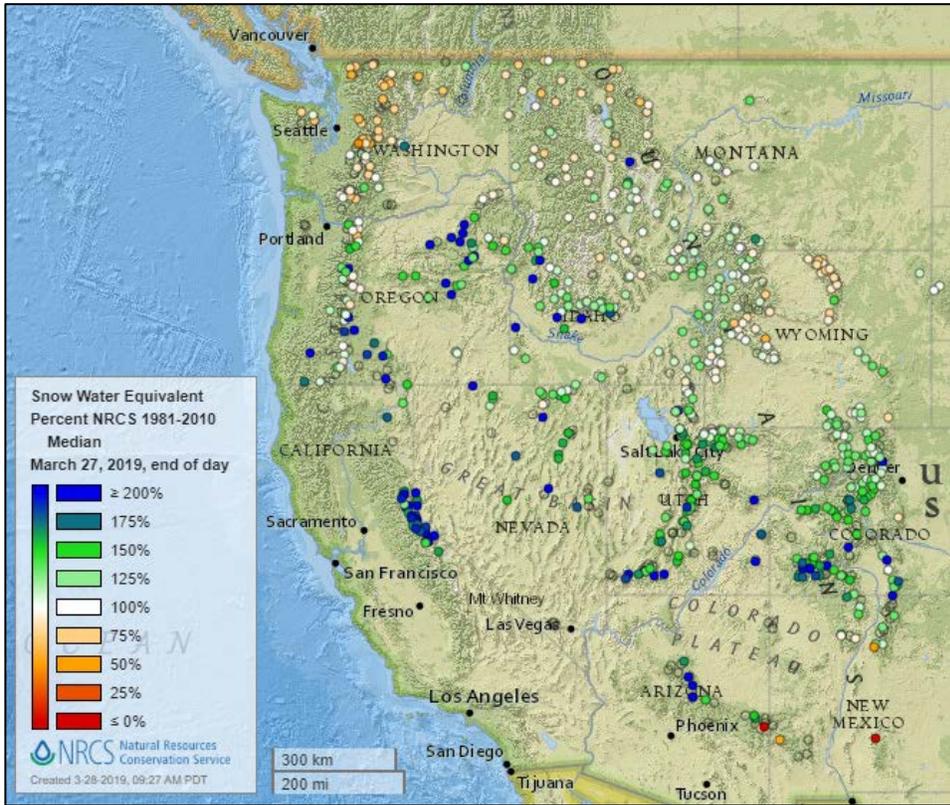
Flood alerts and warnings cover a broad area where cities, farms, and tribal lands are isolated and under water. Damage is extensive to homes, businesses, crops, livestock, and transportation and power infrastructure. To date, the damage in Iowa and Nebraska is estimated to exceed \$2 billion. The National Weather Service Spring Flood Outlook (above) identifies large areas where flooding forecasts project a 50% likelihood of exceeding these three flooding categories.

**Related:**

- [More Flooding expected in Midwest](#) – NBC4i.com (OH)
- [Burgum declares statewide emergency for spring flooding](#) – The Dickenson Press (ND)
- [Missouri River Flooding Didn't Just Damage Farms, It Impacted The Global Supply Chain](#) – KUNC (CO)
- [USDA Opening 2 Emergency Programs For NE Producers Dealing With Flood](#) - AgWeb
- [U.S. EPA assessing Superfund sites in flood-hit Nebraska, Missouri](#) - Reuters
- [Flooding poses potential risk for 1 million private wells](#) – ABC News
- [Flooding hits South Dakota American Indian reservation hard](#) – The Washington Post
- [Record spring flooding across West River reservations](#) – Native Sun News Today (SD)
- [Midwest flooding costs increasing, with \\$1.6B damage in Iowa](#) – KTIC (NE)

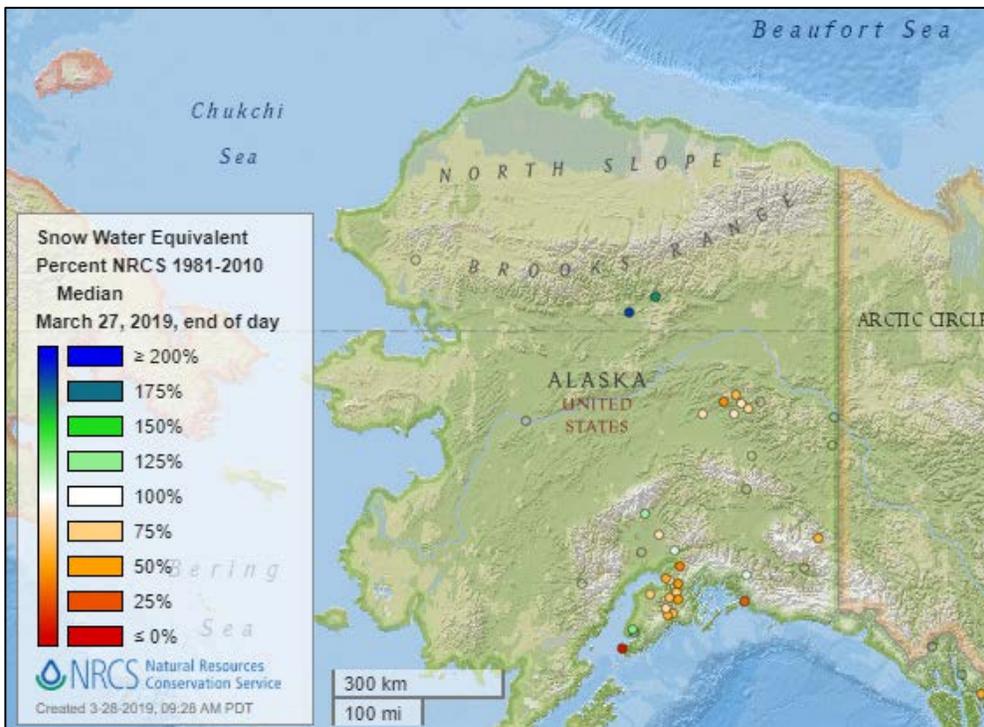
# Snow

## Current Snow Water Equivalent, NRCS SNOTEL Network



[Snow water equivalent percent of median map](#)

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

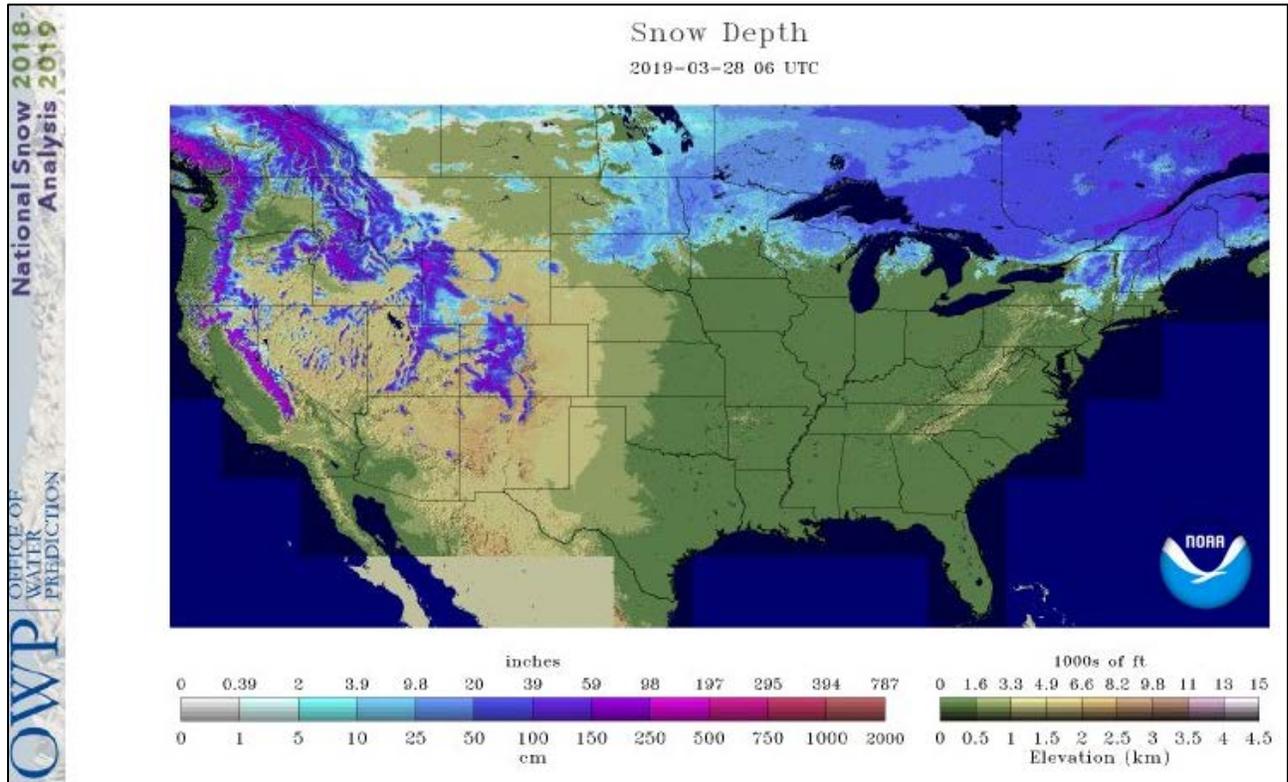


[Alaska snow water equivalent percent of median map](#)

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

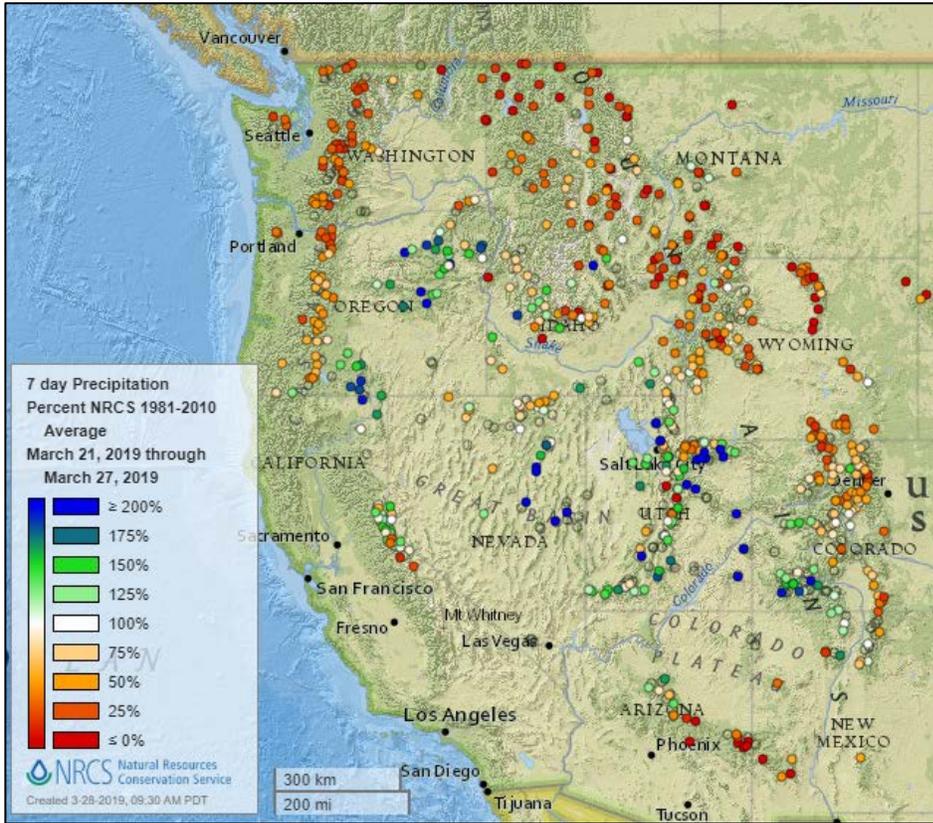
Current Snow Depth

Source: National Weather Service Snow Analysis



## Precipitation

### Last 7 Days, NRCS SNOTEL Network

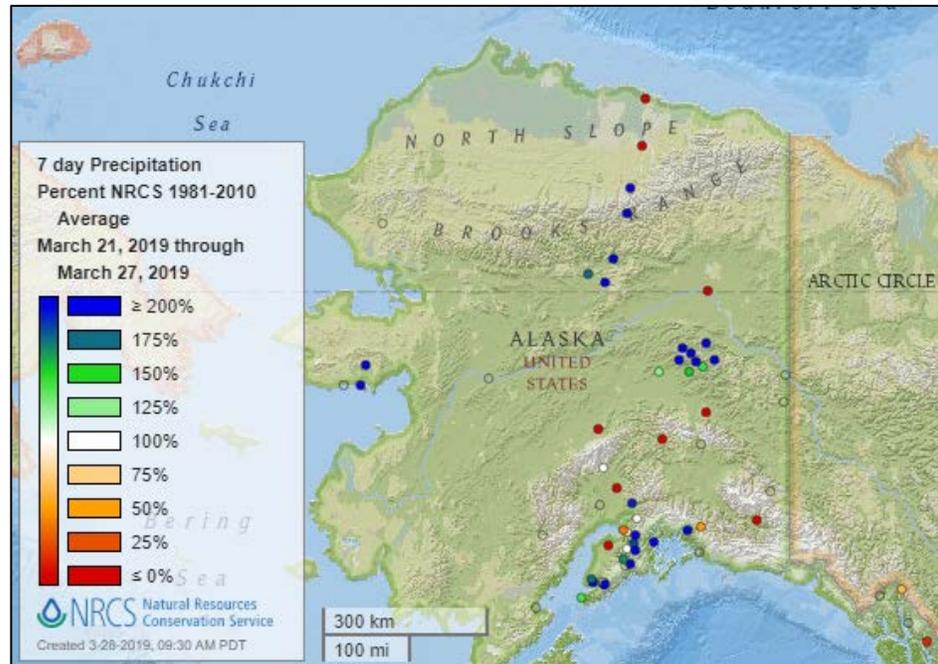


[7-day precipitation percent of average map](#)

**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](#)



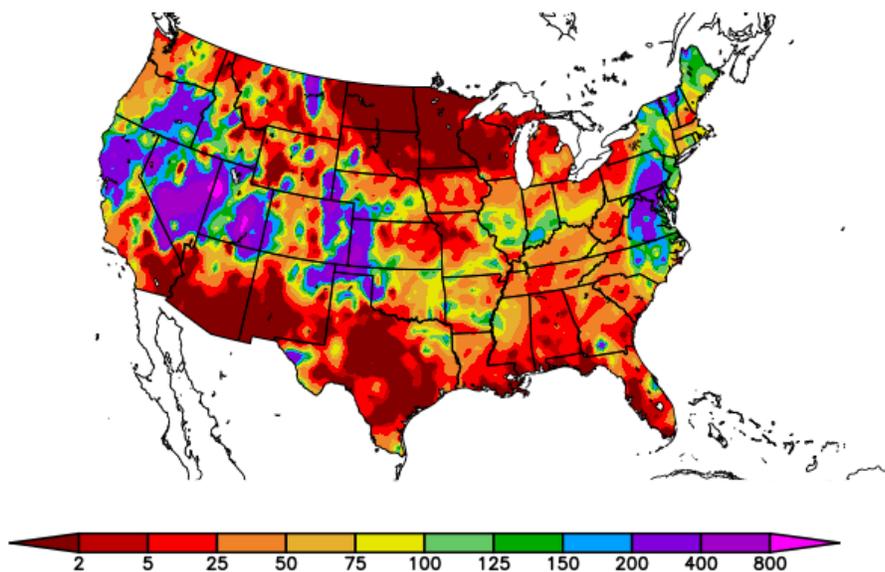
**Last 7 Days, National Weather Service (NWS) Networks**

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](#)

Percent of Normal Precipitation (%)  
3/21/2019 – 3/27/2019



Generated 3/28/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

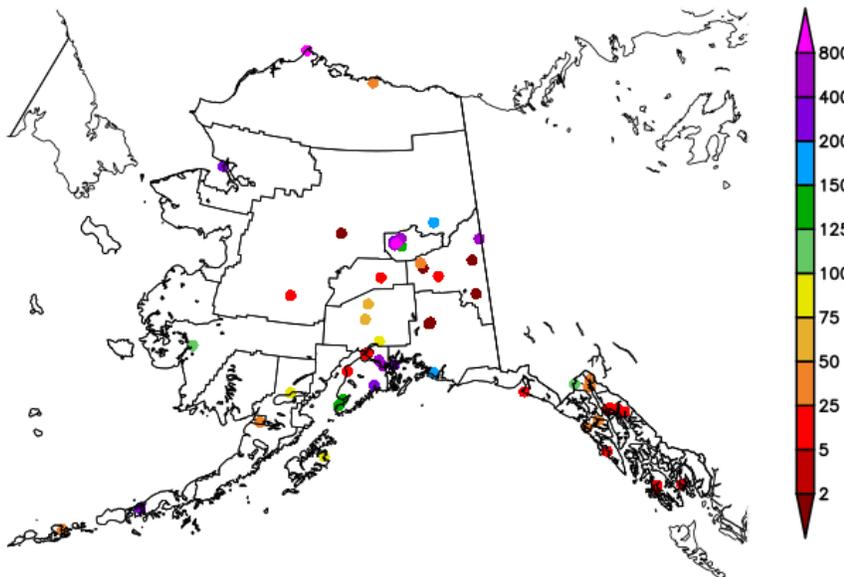
**Last 7 Days, National Weather Service (NWS) Networks**

Source: Regional Climate Centers

[7-day precipitation anomaly map](#) for Alaska.

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

Percent of Normal Precipitation (%)  
3/21/2019 – 3/27/2019



Generated 3/28/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

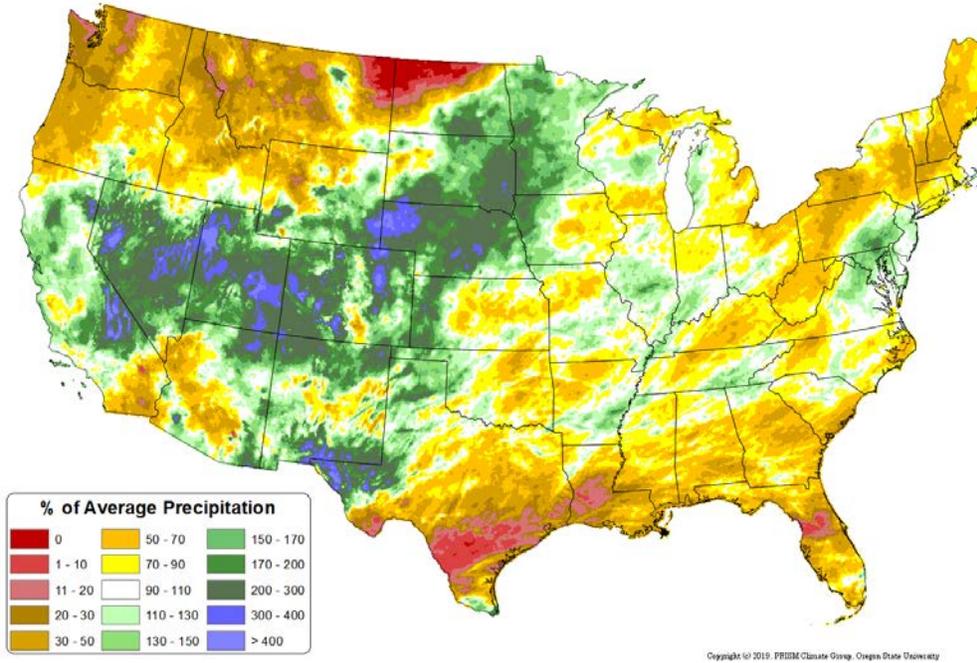
# Water and Climate Update

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

Source: PRISM

Total Precipitation Anomaly: 01 Mar 2019 - 27 Mar 2019  
Period ending 7 AM EST 27 Mar 2019  
Base period: 1981-2010  
(Map created 28 Mar 2019)

[Month-to-date national total precipitation percent of average map](#)

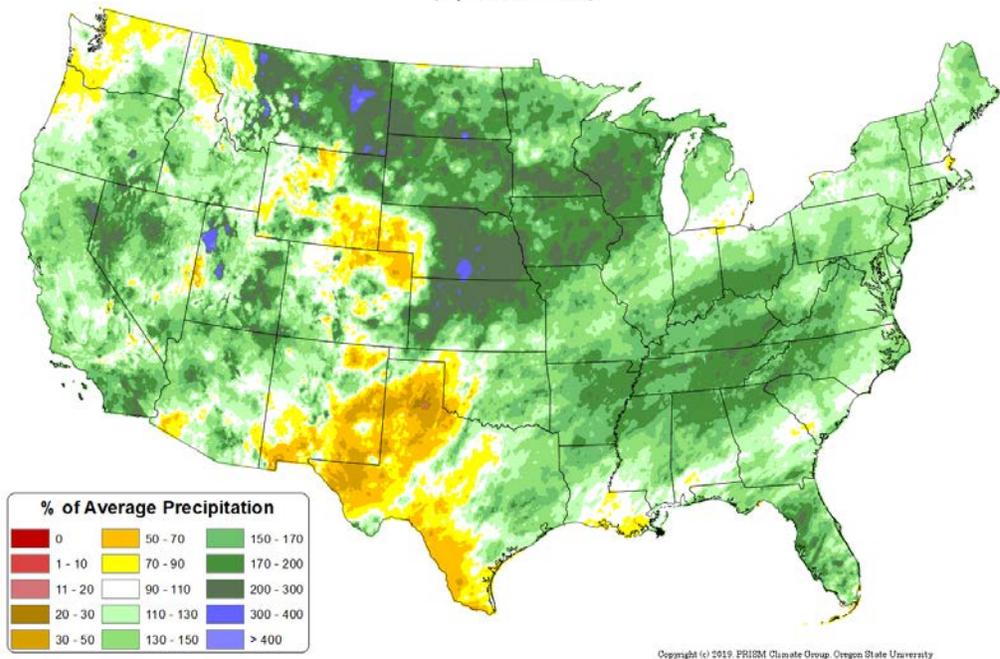


## Last 3 Months, All Available Data Including SNOTEL and NWS Networks

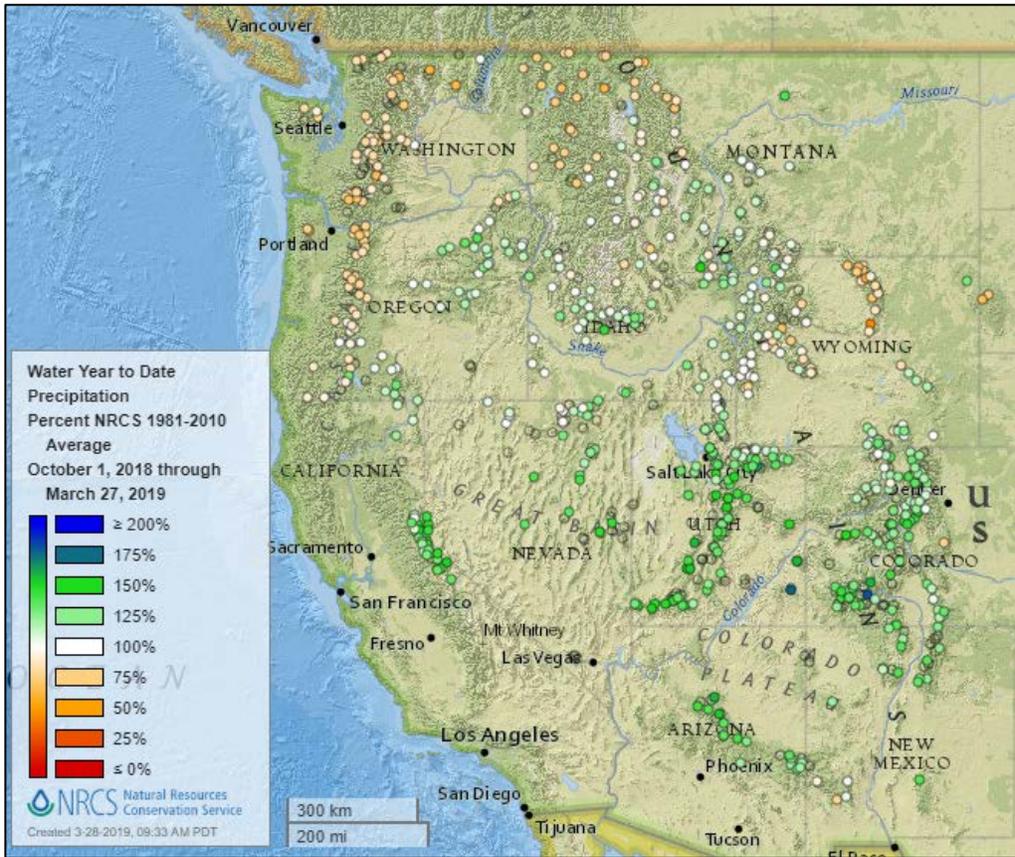
Source: PRISM

[December 2018 through February 2019 total precipitation percent of average map](#)

Total Precipitation Anomaly: Dec 2018 - Feb 2019  
Period ending 7 AM EST 28 Feb 2019  
Base period: 1981-2010  
(Map created 02 Mar 2019)

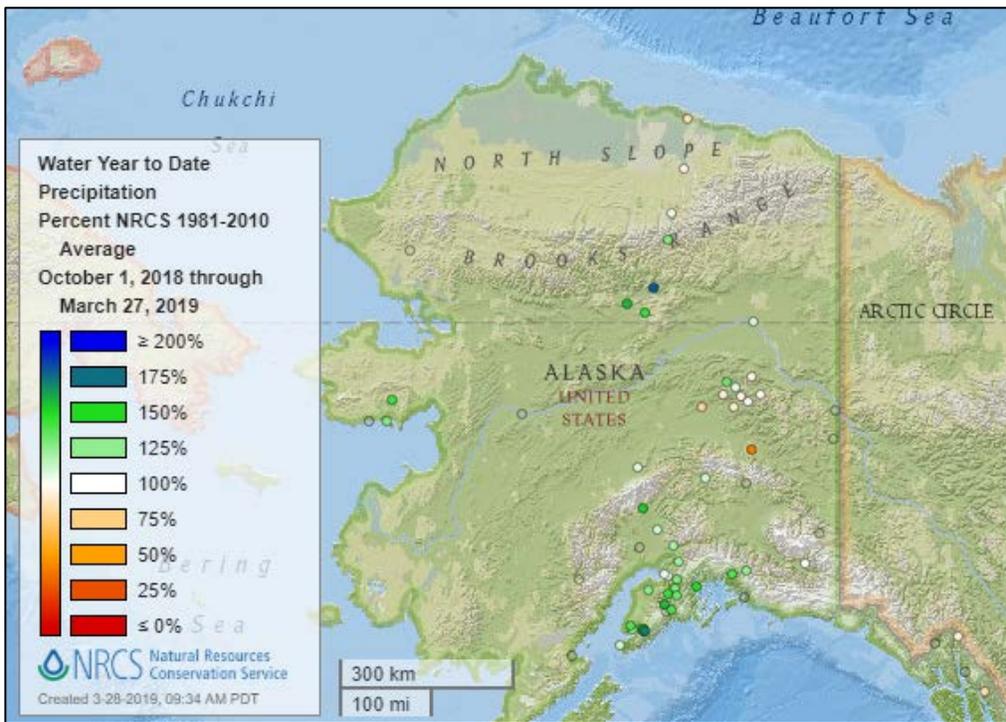


Water Year-to-Date, NRCS SNOTEL Network



[2019 water year-to-date precipitation percent of average map](#)

**See also:** [2019 water year-to-date precipitation values \(inches\) map](#)



[Alaska 2019 water year-to-date precipitation percent of average map](#)

**See also:** [Alaska 2019 water year-to-date precipitation values \(inches\) map](#)

## Temperature

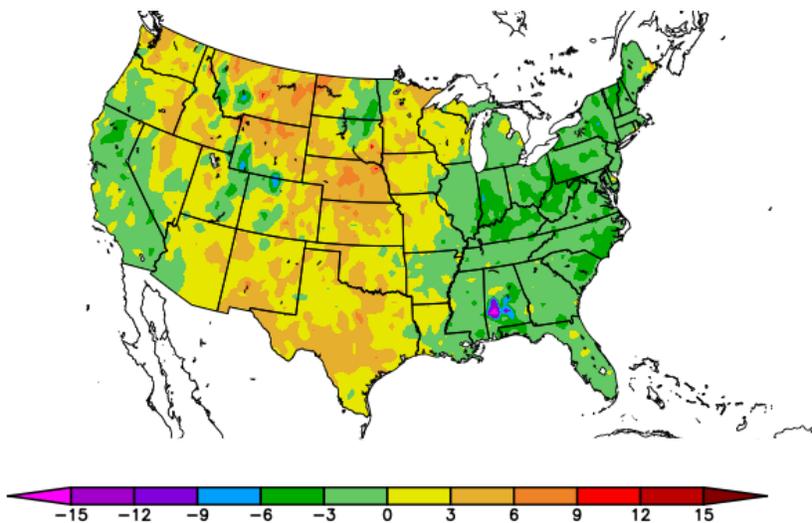
### Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

[7-day temperature anomaly map](#) for the contiguous U.S.

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

### Departure from Normal Temperature (F) 3/21/2019 – 3/27/2019



Generated 3/28/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

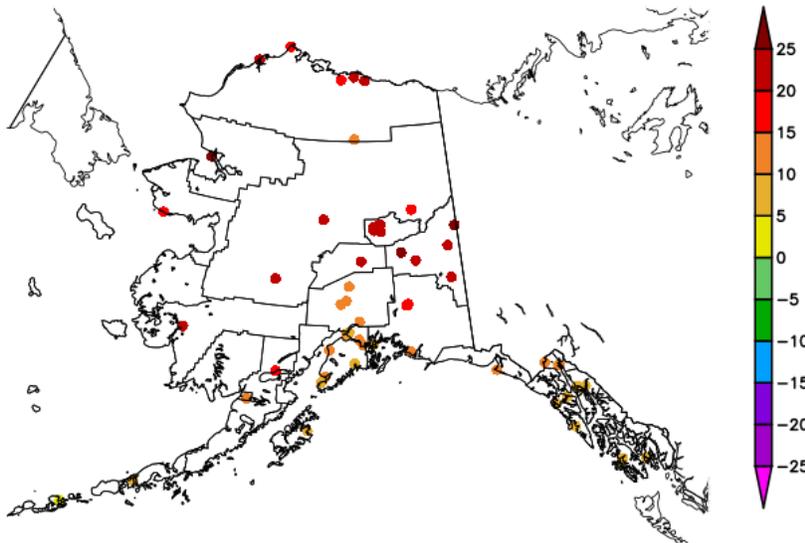
### Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

[7-day temperature anomaly map](#) for Alaska.

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

### Departure from Normal Temperature (F) 3/21/2019 – 3/27/2019



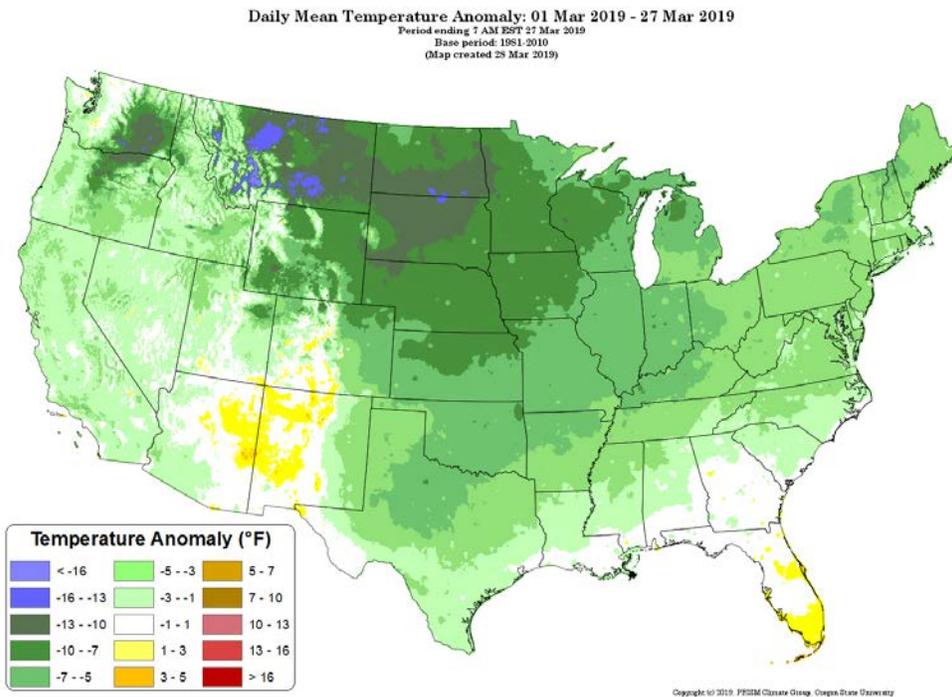
Generated 3/28/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

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

Source: PRISM

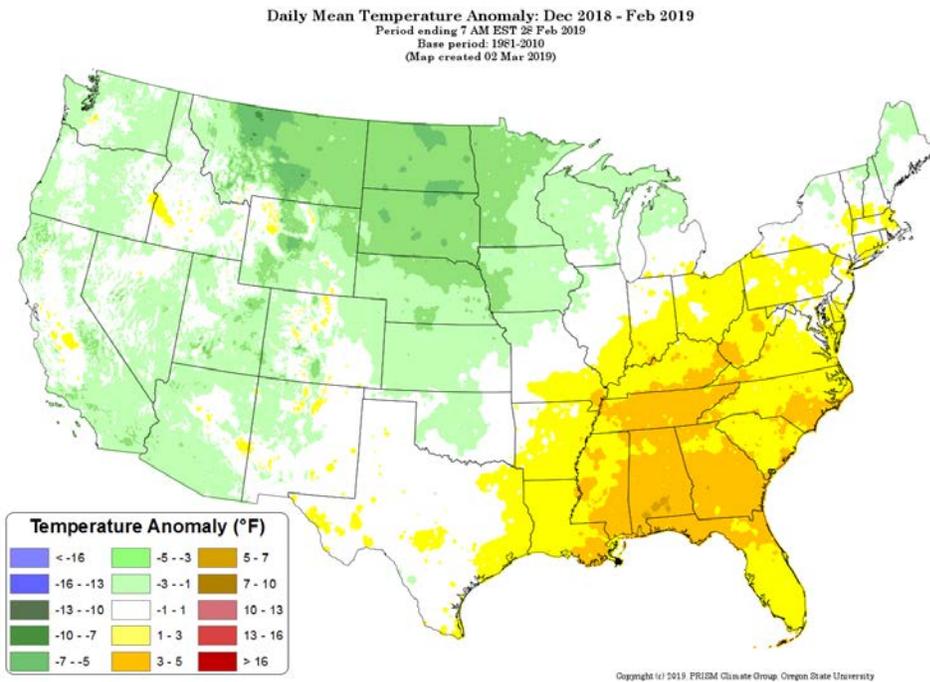
[Month-to-date national daily mean temperature anomaly map](#)



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

Source: PRISM

[December 2018 through February 2019 daily mean temperature anomaly map](#)



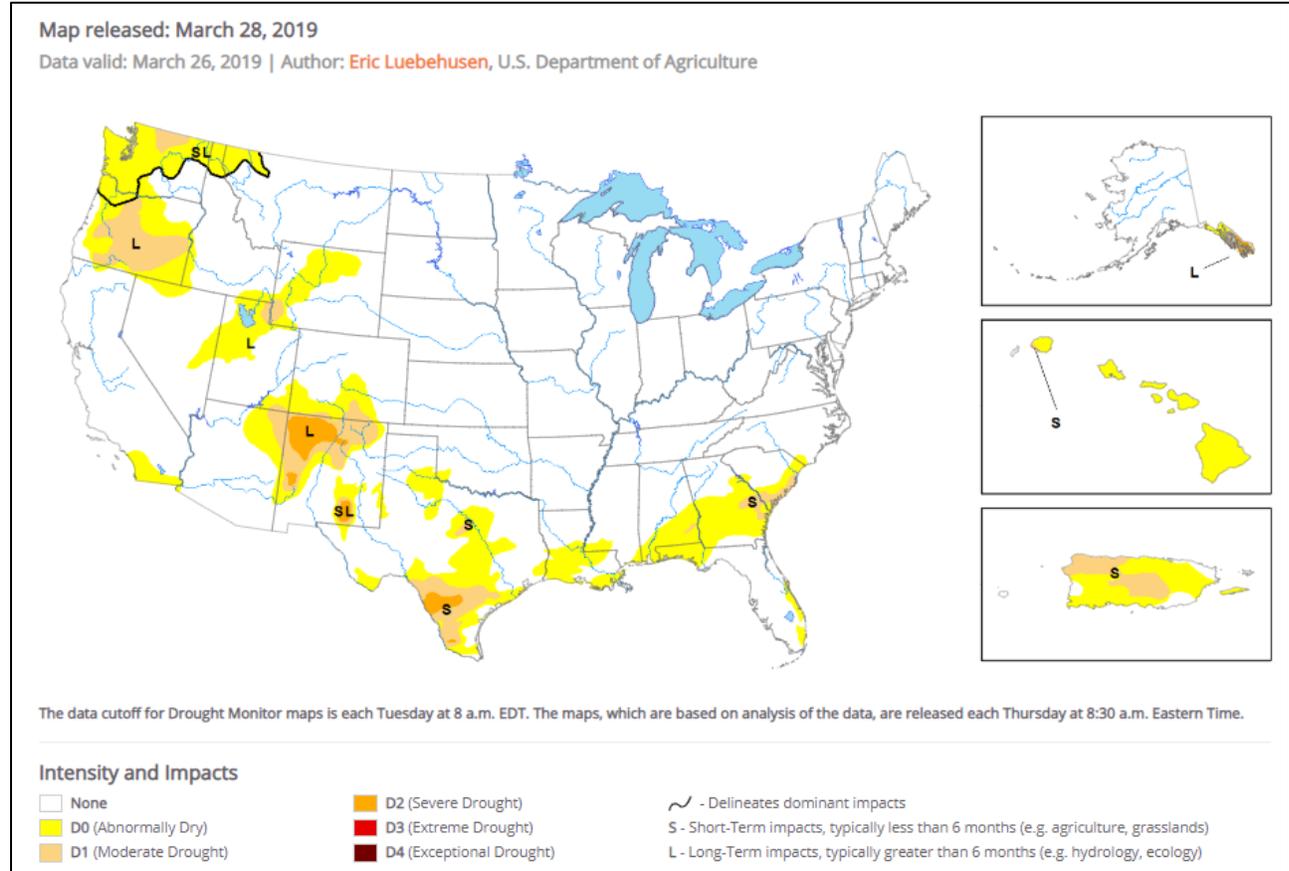
# Drought

## [U.S. Drought Monitor](#)

Source: National Drought Mitigation Center

## [U.S. Drought Portal](#)

Source: NOAA



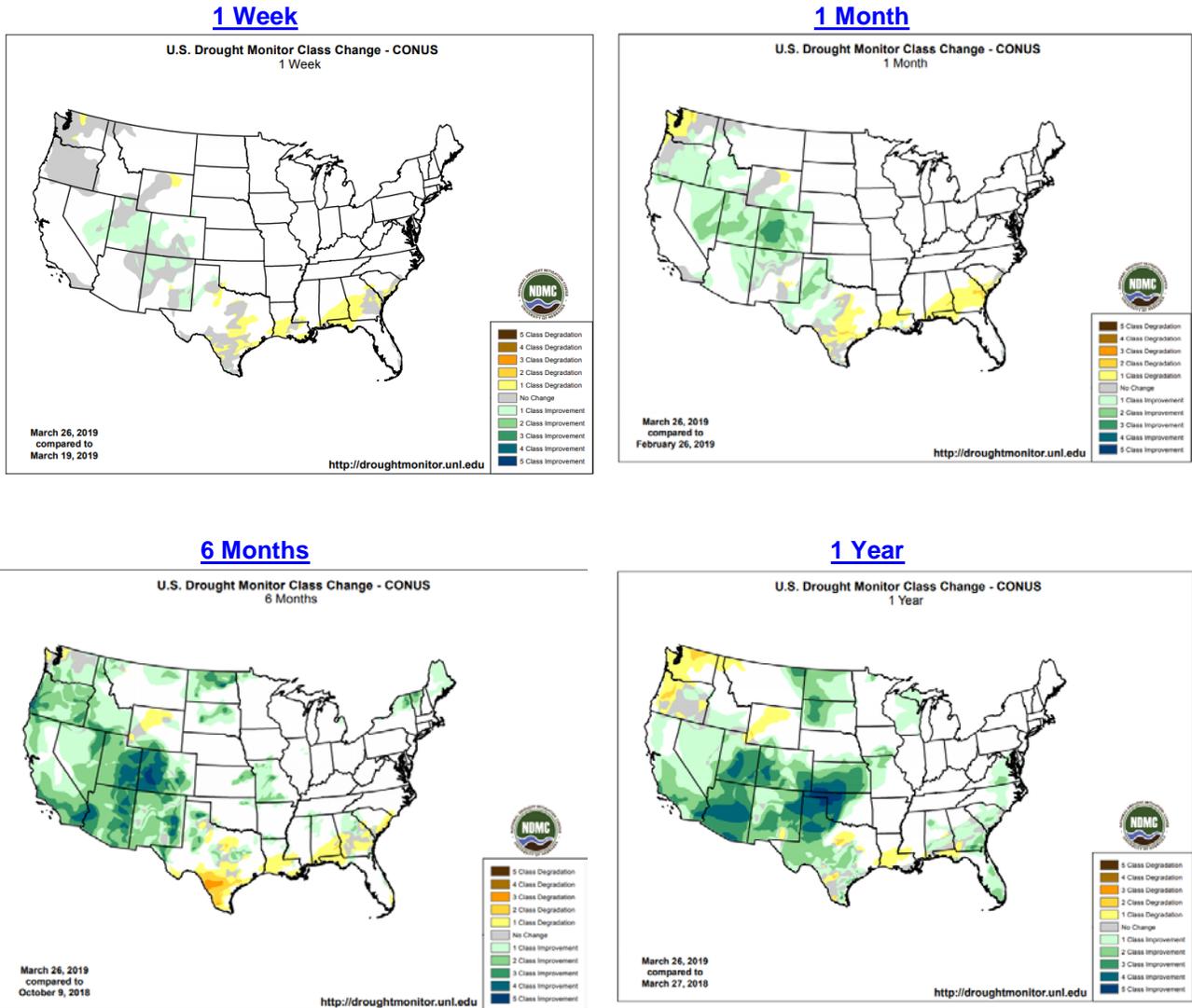
## Current [National Drought Summary](#), March 28, 2019

Author: Eric Luebehusen, U.S. Department of Agriculture

“Dryness and drought intensified across parts of the South, while the overall trend toward drought recovery continued in the Four Corners region. Elsewhere, dryness concerns increased in the Northwest where drought expanded slightly; rain and snow will be needed soon across the northwestern quarter of the nation to prevent the region from slipping further into drought. Most of the nation from the central and northern Plains to the Mid-Atlantic and Northeast remained free of drought, with severe flooding the primary concern in the nation’s heartland.”

## Changes in Drought Monitor Categories over Time

Source: National Drought Mitigation Center



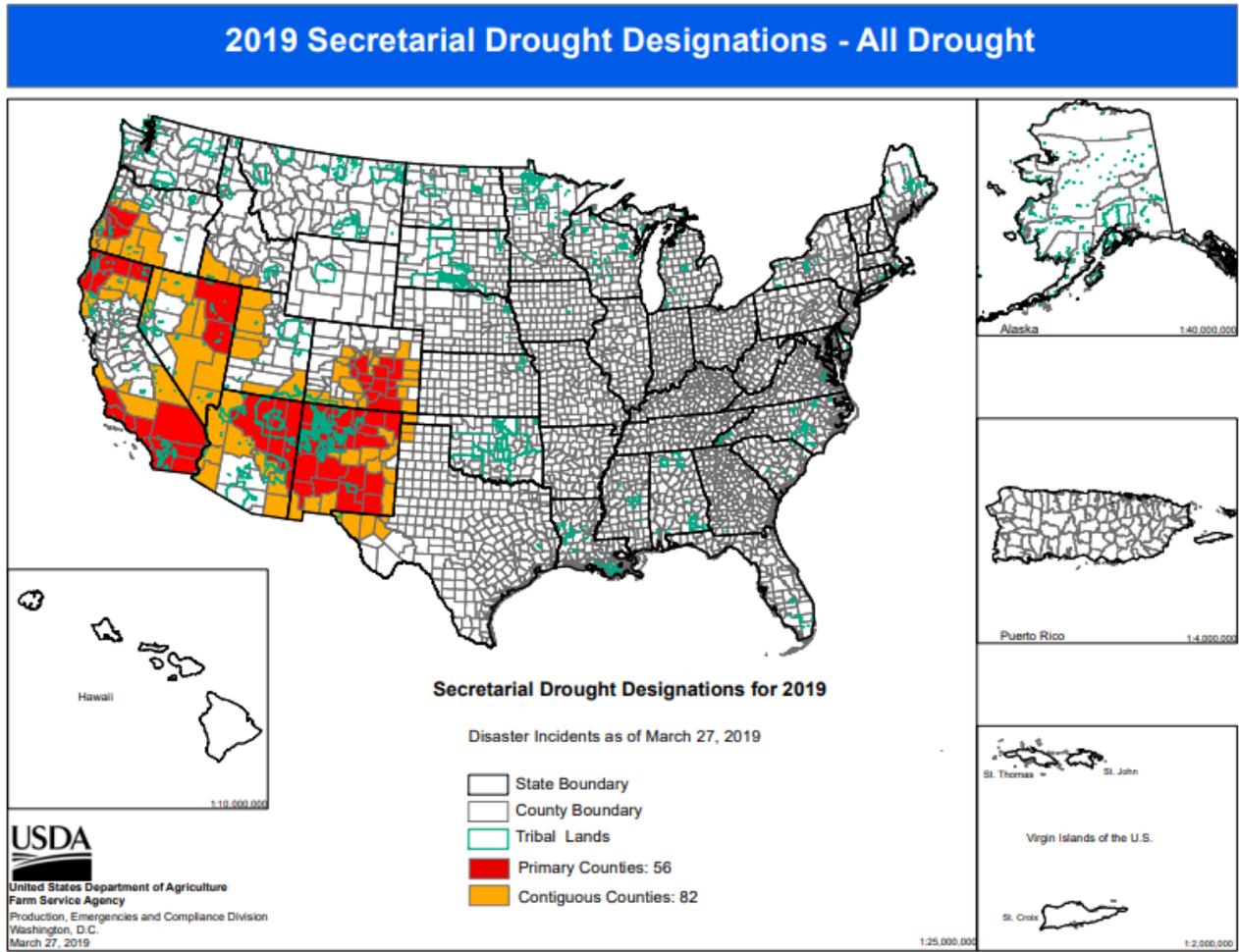
[Changes in drought conditions over the last 12 months for the contiguous U.S.](#)

### 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](#)

**Secretarial Drought Designations**

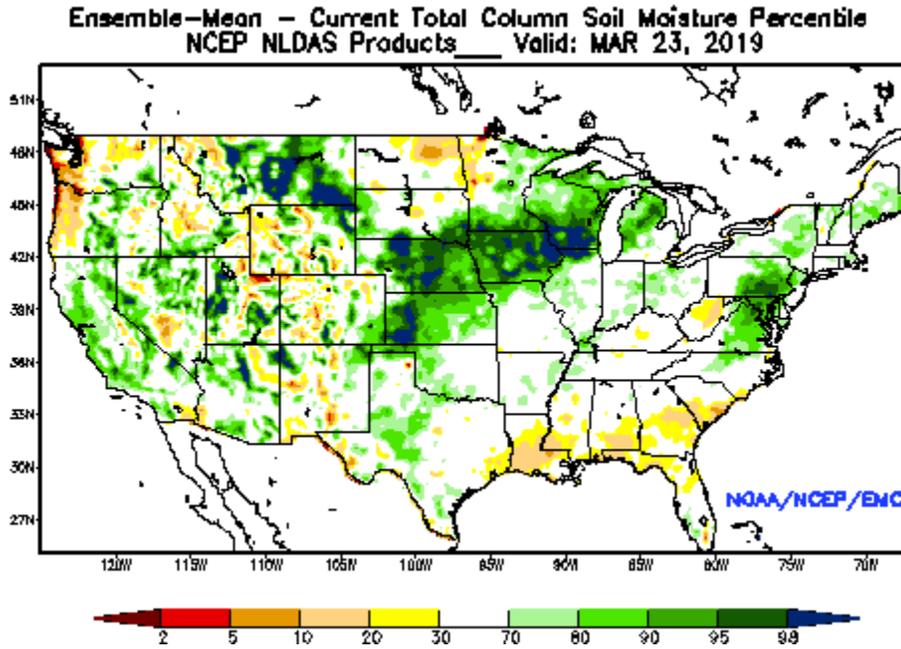
Source: USDA Farm Service Agency



## Other Climatic and Water Supply Indicators

### Soil Moisture

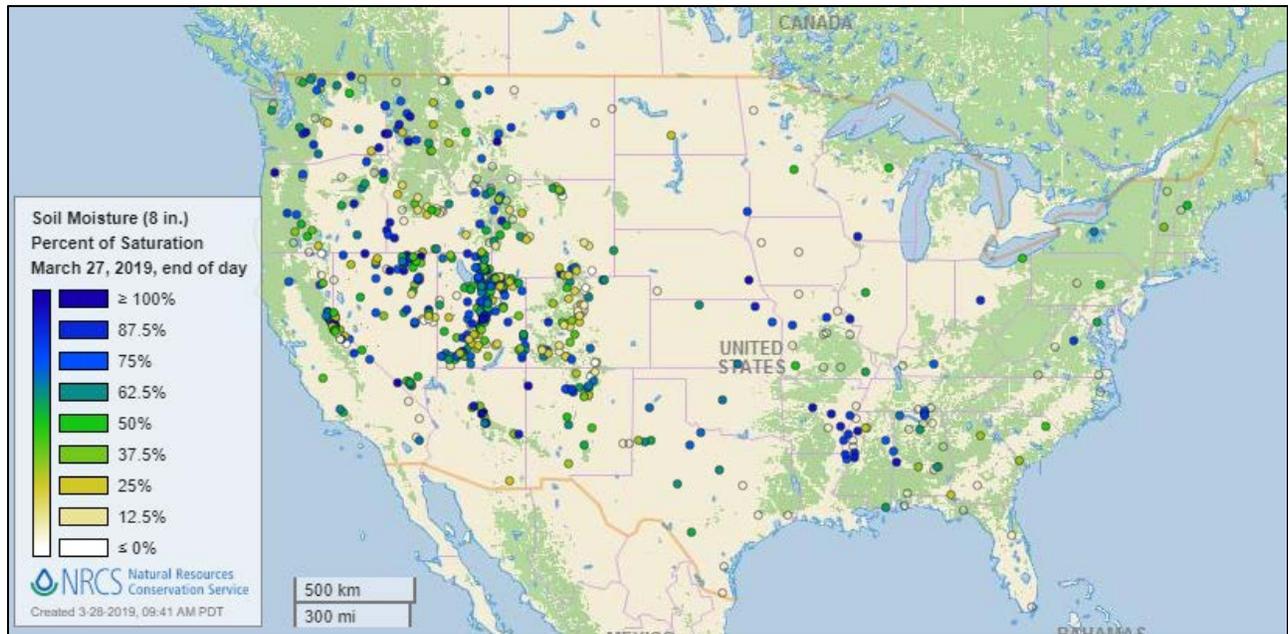
Source: NOAA National Centers for Environmental Prediction



[Modeled soil moisture percentiles](#) as of March 23, 2019

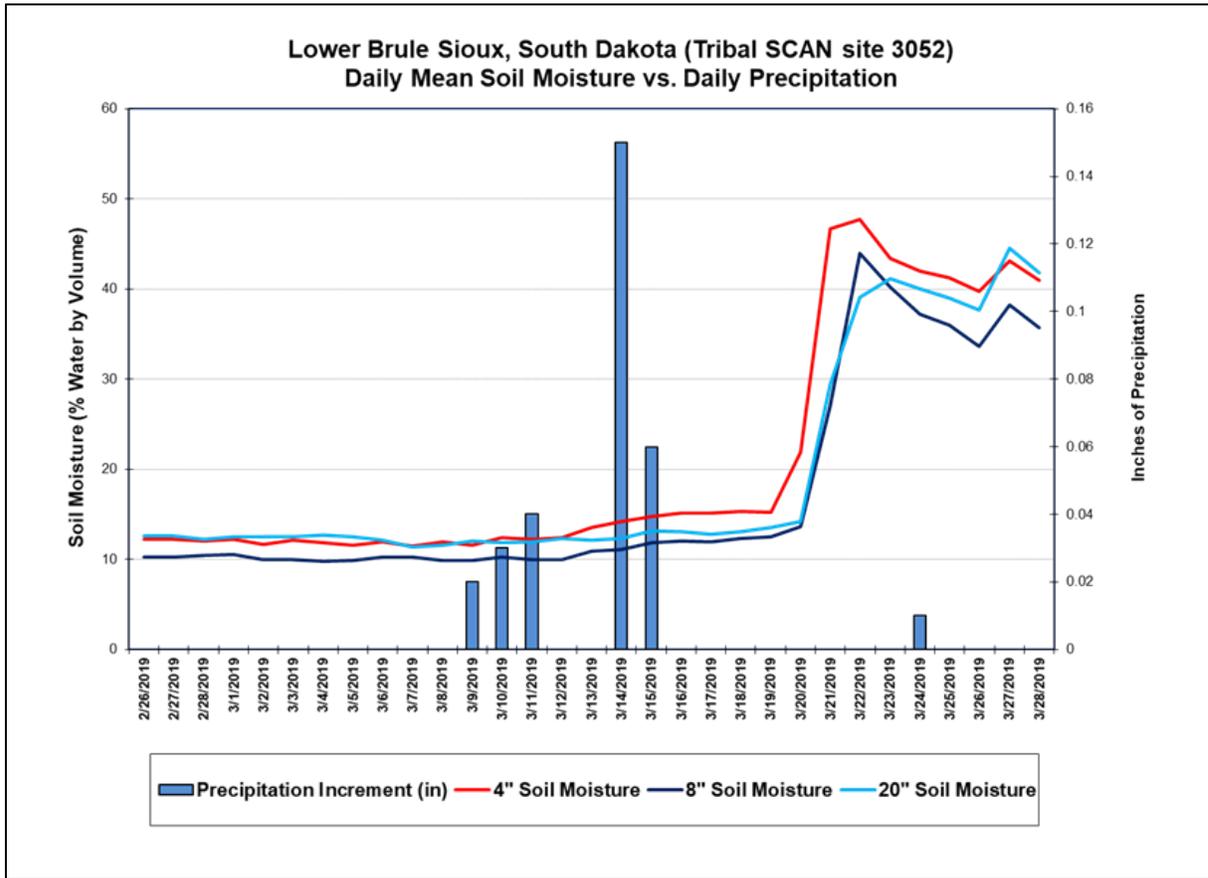
### Soil Moisture Percent of Saturation

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



### Soil Moisture Data

Source: NRCS [Soil Climate Analysis Network](#) (SCAN)



This chart shows the precipitation and soil moisture during the last 30 days at the [Lower Brule Sioux Tribal SCAN site](#) in South Dakota. On March 21, the soil temperature rose above freezing, resulting in a large increase in soil moisture at all sensor levels.

### Soil Moisture Data Portals

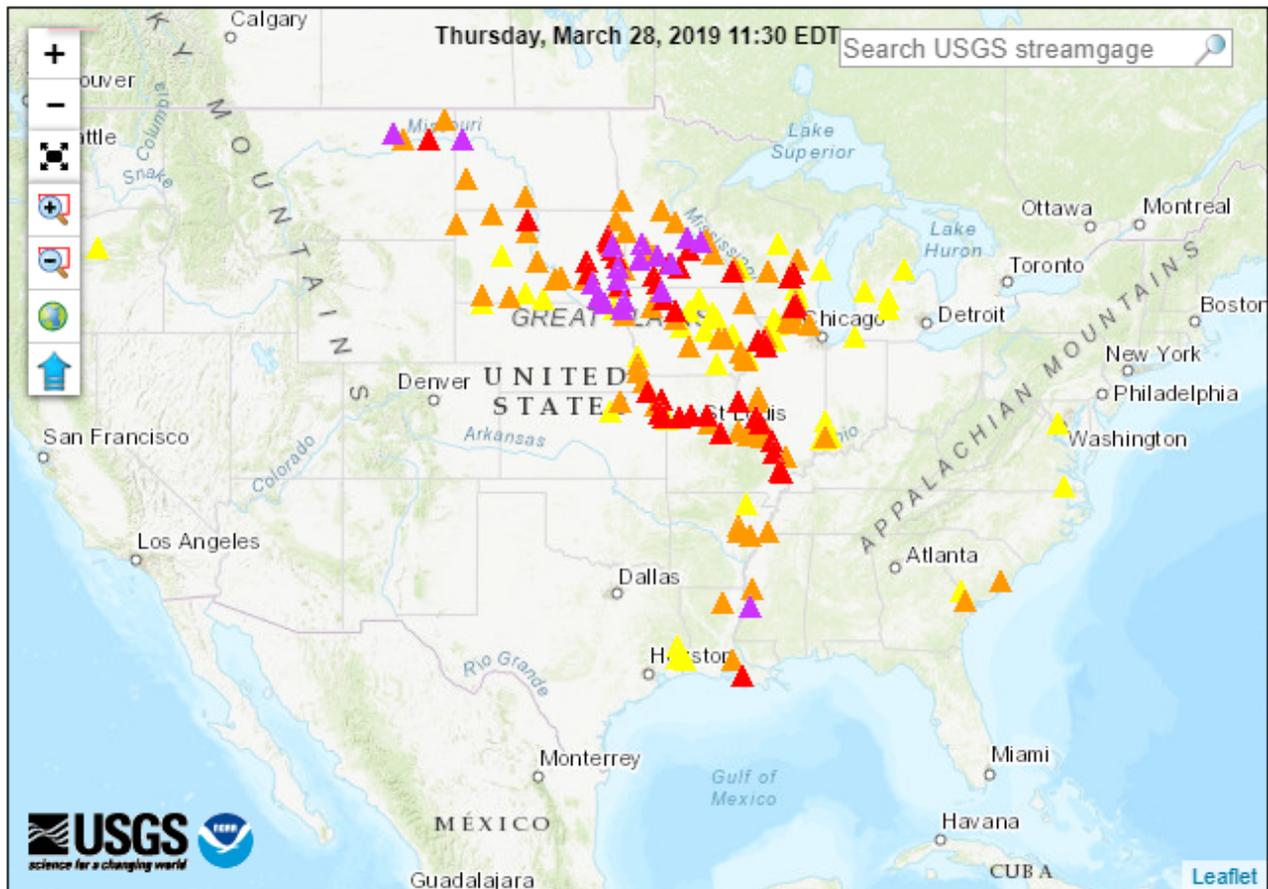
- [CRN Soil Moisture](#)
- [Texas A&M University North American Soil Moisture Database](#)
- [University of Washington Experimental Modeled Soil Moisture](#)

**Streamflow, Drought, Flood, and Runoff**

Source: U.S. Geological Survey

**Map of flood and high flow conditions**

(18 in major flood, 41 in moderate flood, 72 in minor flood, 43 in near flood)



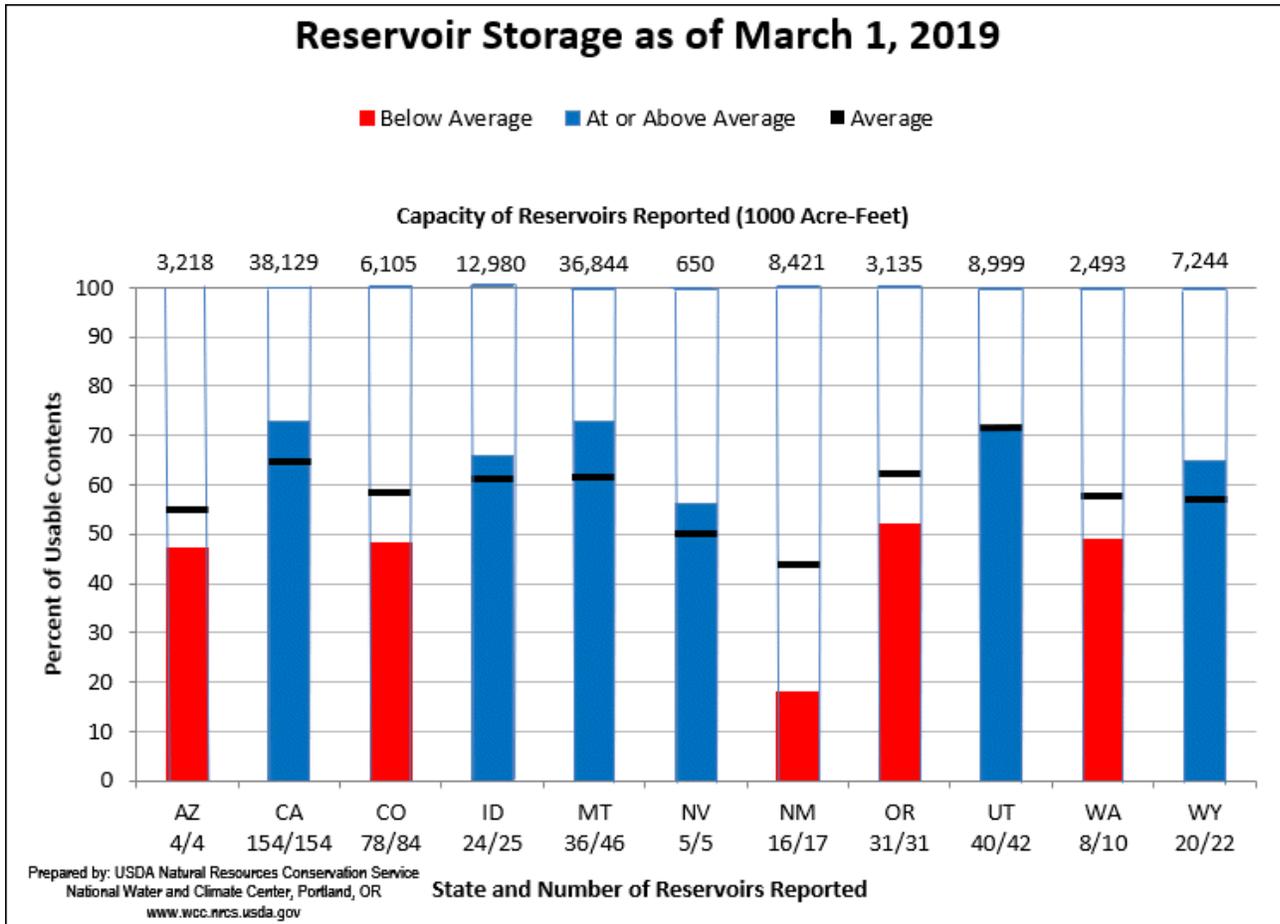
Explanation - Percentile classes						
<95	95-98	>= 99	Above action stage	Above flood stage	Above moderate flood stage	Above major flood stage
			△ Streamgage with flood stage	○ Streamgage without flood stage		

[WaterWatch: Streamflow, drought, flood, and runoff conditions](#)

## Reservoir Storage

### Western States Reservoir Storage

Source: NRCS National Water and Climate Center



March 1, 2019 Reservoir Storage: [Chart](#) | [Dataset](#)

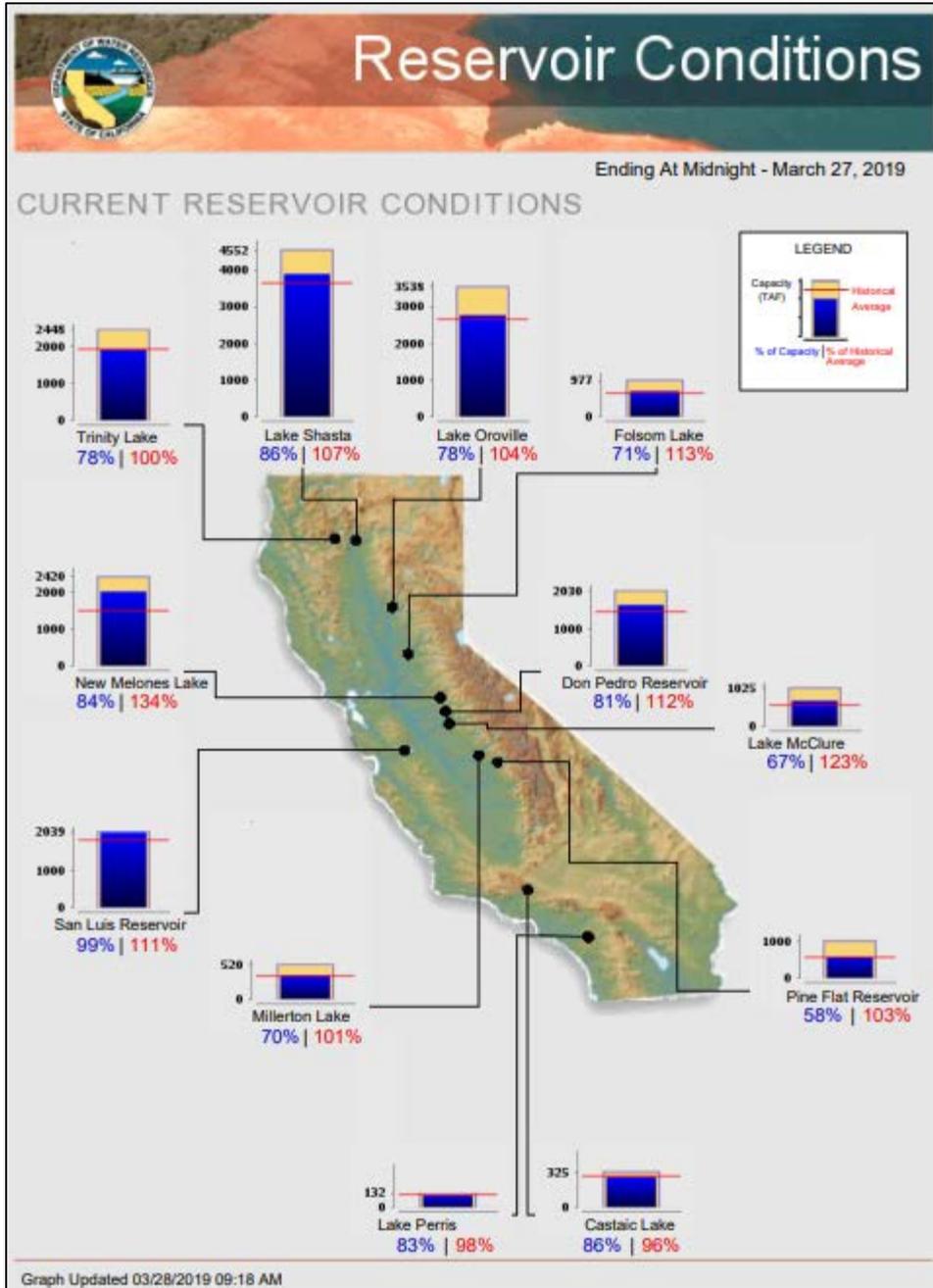
### Hydromet Tea Cup Reservoir Depictions

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](#)

## Short- and Long-Range Outlooks

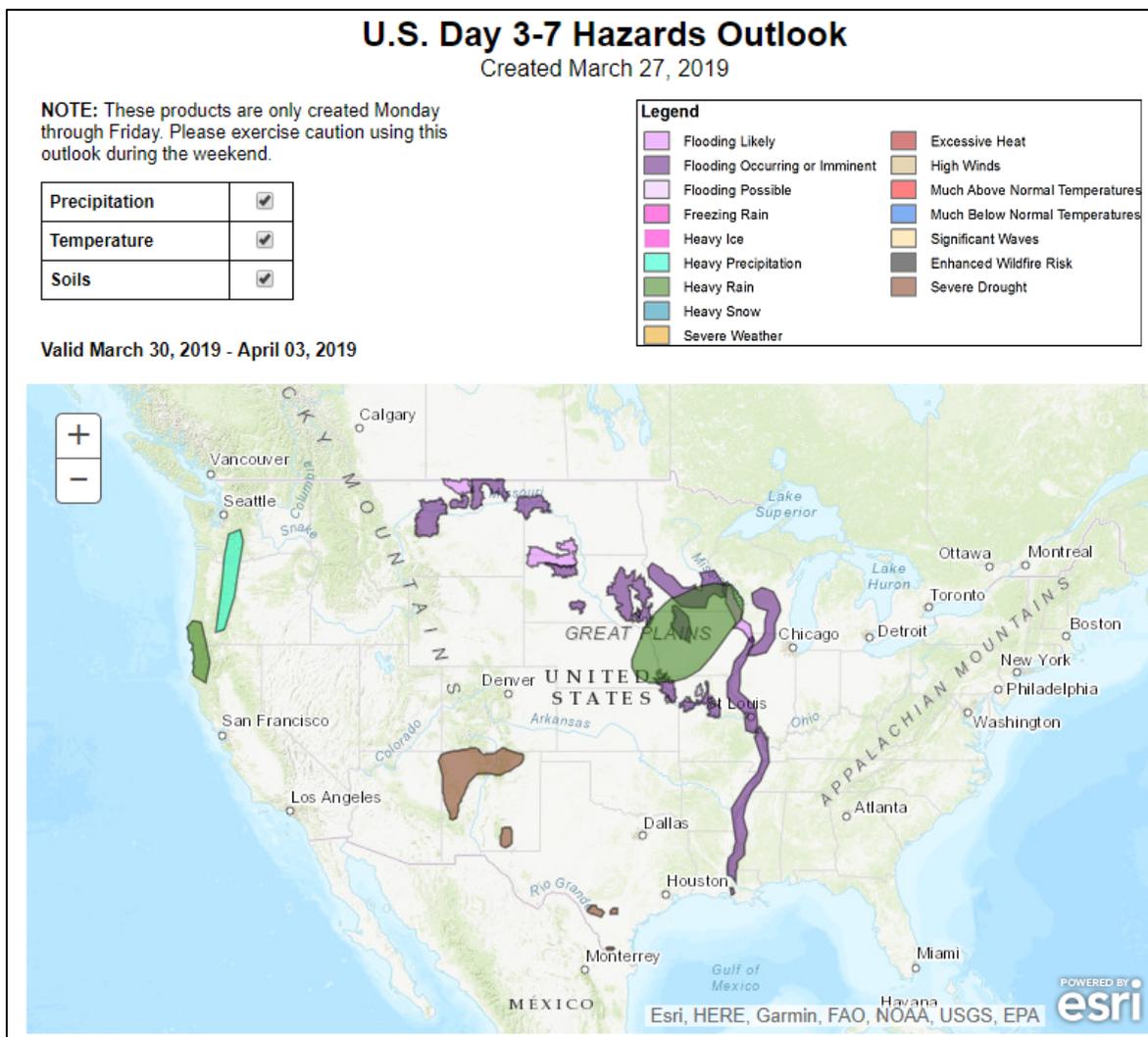
### Agricultural Weather Highlights

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

**National Outlook, Thursday, March 28, 2019:** “During the next couple of days, precipitation will gradually end in the Northwest and develop across the nation’s mid-section. Late-week precipitation could reach 1 to 3 inches from the east-central Plains into the lower Great Lakes region, with accumulating snow possible from Nebraska to Michigan. This includes some areas, such as northern Missouri, which are still recovering from recent flooding. During the weekend, precipitation will spread into the East, trailed by a surge of cold air. Early next week, freezes may occur along and north of a line from northern Texas to the Carolinas. Rain may linger early next week in the Southeast, while a new storm system will arrive in northern California and the Northwest. The NWS 6- to 10-day outlook for April 2 – 6 calls for near- or below-normal temperatures in most areas east of the Rockies, while warmer-than-normal weather will be limited to the West, southern Florida, and parts of the Northeast. Meanwhile, near- or above-normal precipitation will dominate the country, with the greatest likelihood of wet conditions covering northern California and southern Texas.”

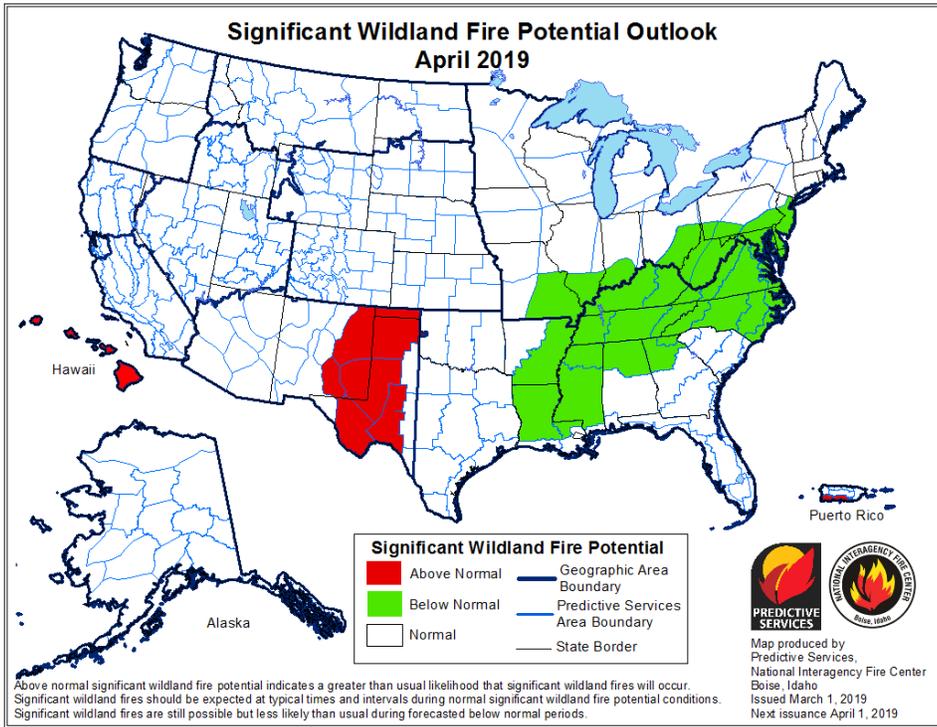
### Weather Hazards Outlook: [March 30 – April 3, 2019](#)

Source: NOAA Climate Prediction Center



**Significant Wildland Fire Potential Outlook**

Source: National Interagency Fire Center

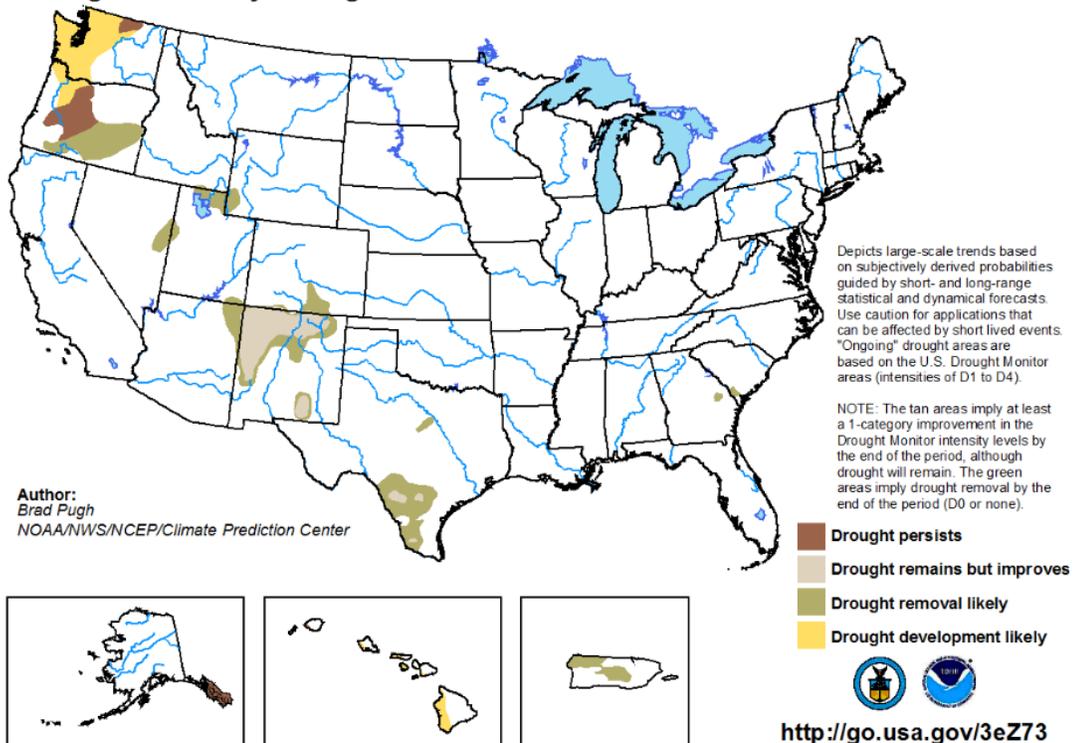


**Seasonal Drought Outlook: March 21 – June 30, 2019**

Source: National Weather Service

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

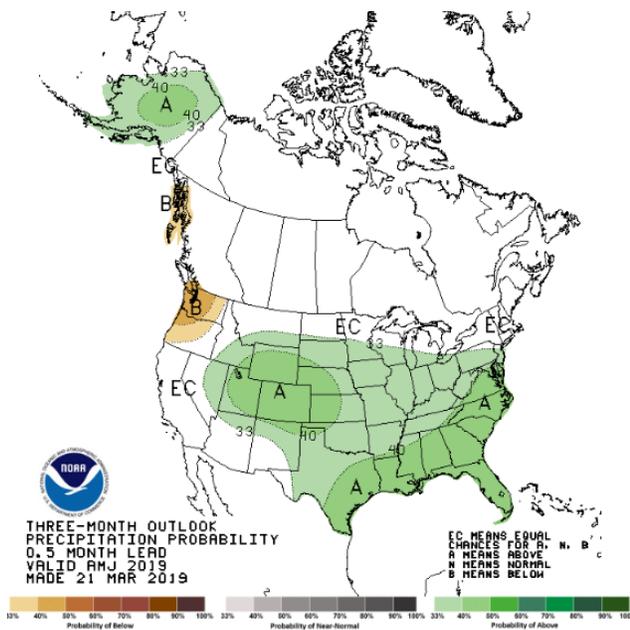
Valid for March 21 - June 30, 2019  
Released March 21



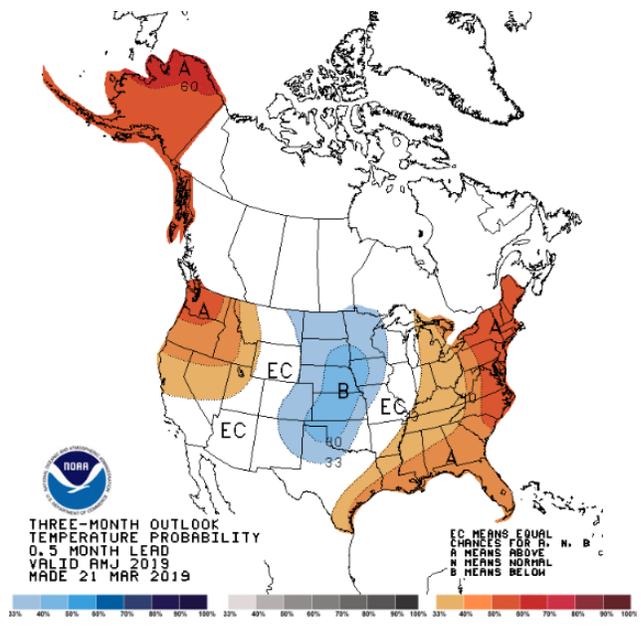
### Climate Prediction Center 3-Month Outlook

Source: National Weather Service

#### Precipitation



#### Temperature



[April-May-June \(AMJ\) 2019 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](#).