

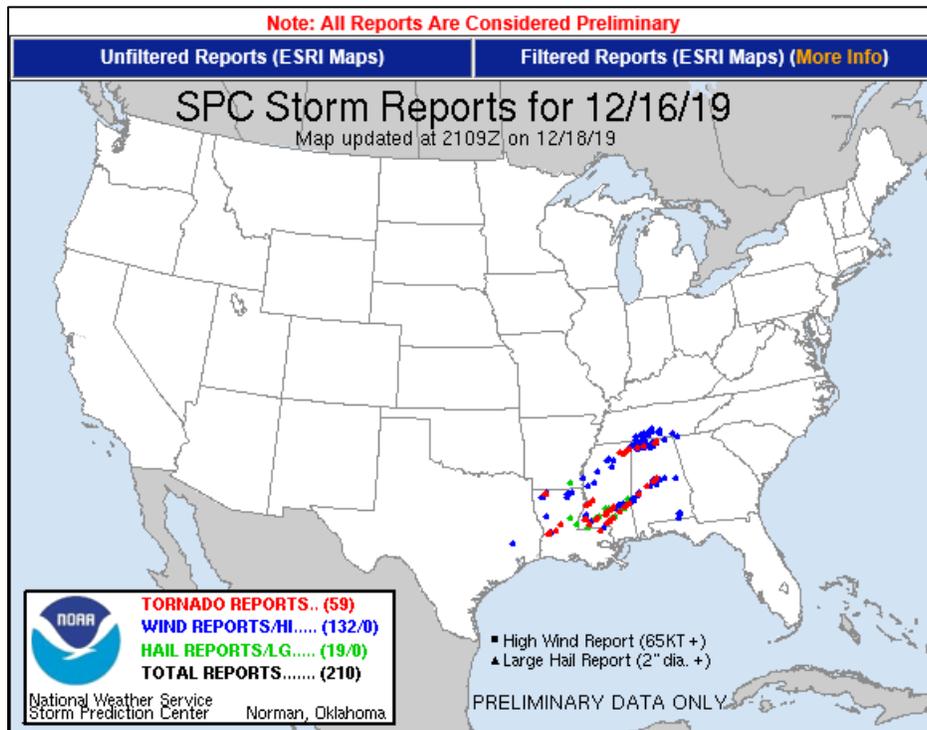
# Water and Climate Update

December 19, 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 storms spawn tornadoes in the South, snow in the Northeast



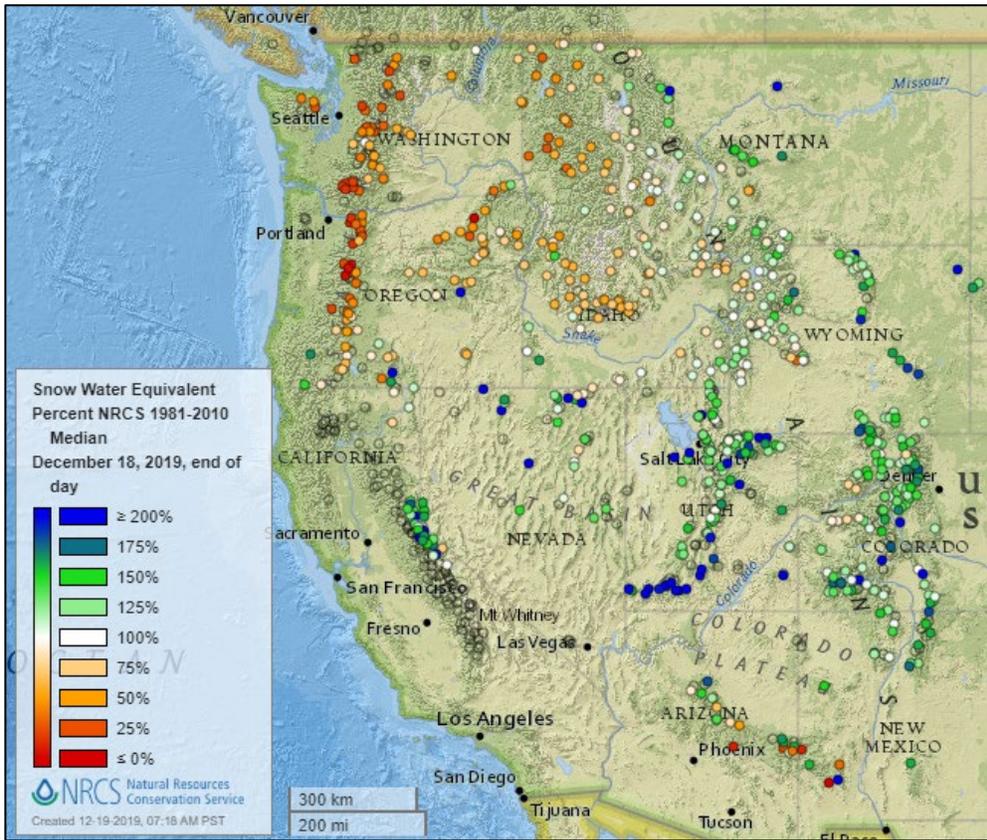
On December 16, fifteen confirmed tornadoes touched down in Louisiana, Mississippi, and Alabama. The governor of Mississippi declared a state of emergency after torrential rain, wind, and flooding caused damage in 27 counties. About 150 homes and buildings were damaged. That same storm brought snow to Missouri, Ohio, and the Northeast, prompting school closings and delays.

**Related:**

- ['Total chaos': Tornadoes, storms kill four, injure dozens across South](#) – USA Today
- [Gov. Bryant declares state emergency: 14 tornadoes confirmed, damage in 27 counties](#) - MSN
- [Weather officials: 24 tornadoes hit South over 2 days](#) - ABC
- [Multiple tornadoes hit Mississippi: Homes, buildings damaged](#) – The Clarion-Ledger (MS)
- [The storm system that unleashed deadly tornadoes in the South will bring snow to the Eastern US](#) – CNN
- [Storms and coldest air of the season to hit Northeast](#) – WTVD (NC)
- [A windswept Wednesday with snow showers and squalls followed by frigid air](#) – WFMZ (PA)
- [The storm system that unleashed deadly tornadoes in the South maintains its wind threat and delivers snow to the eastern US](#) – Clayton News (GA)

## Snow

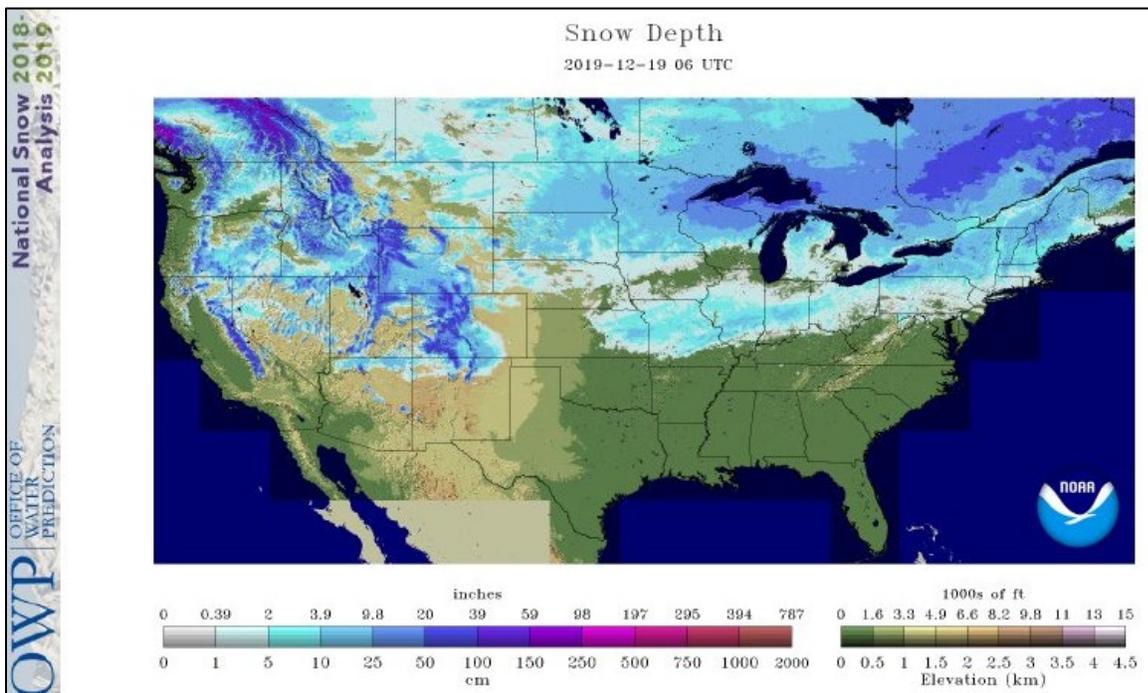
### Current Snow Water Equivalent, NRCS SNOTEL Network



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

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

### [Current Snow Depth](#), National Weather Service Snow Analysis



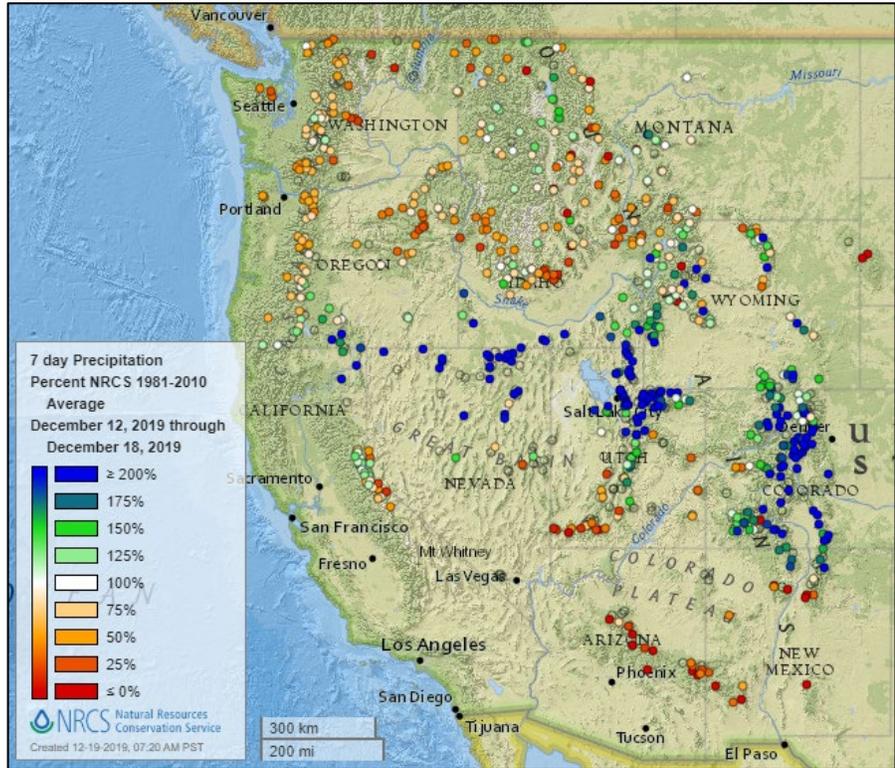
## Precipitation

### Last 7 Days, NRCS SNOTEL Network

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

See also:

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



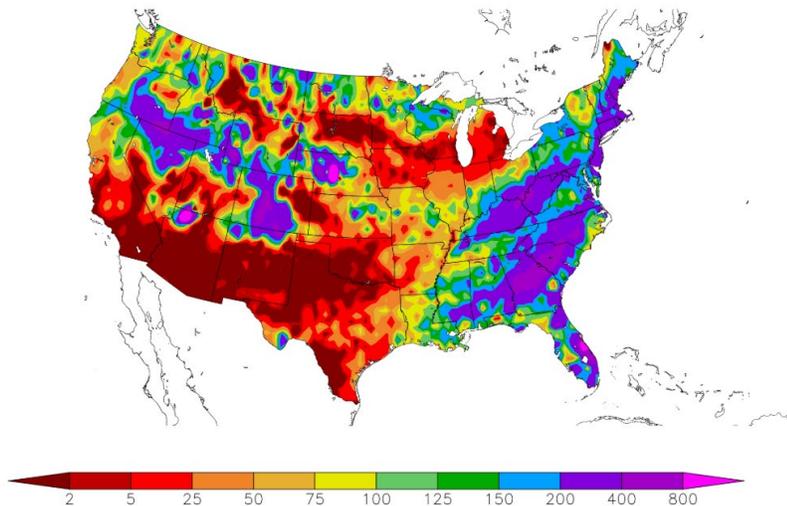
### Last 7 Days, National Weather Service (NWS) Networks

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 (%)  
12/11/2019 – 12/17/2019



Generated 12/18/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

# Water and Climate Update

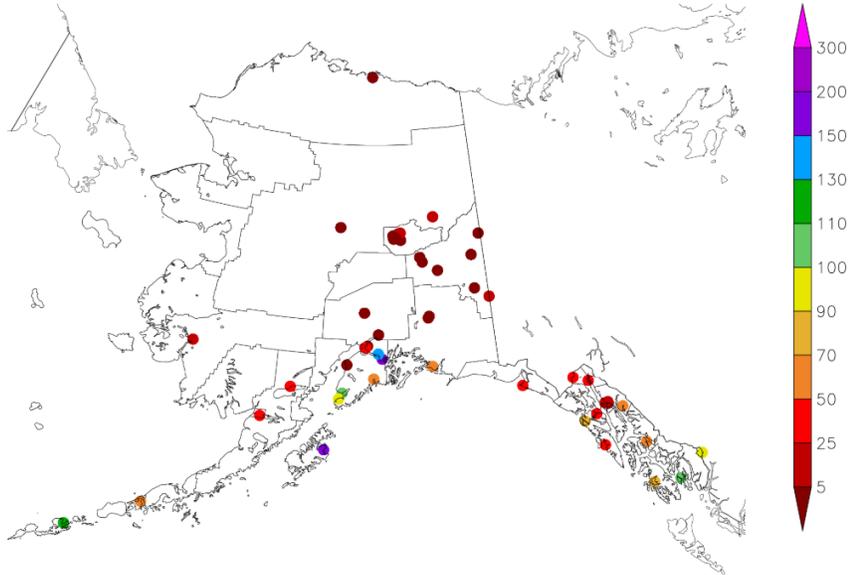
## Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

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

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

Percent of Normal Precipitation (%)  
12/11/2019 – 12/17/2019



Generated 12/18/2019 at HPRCC using provisional data.

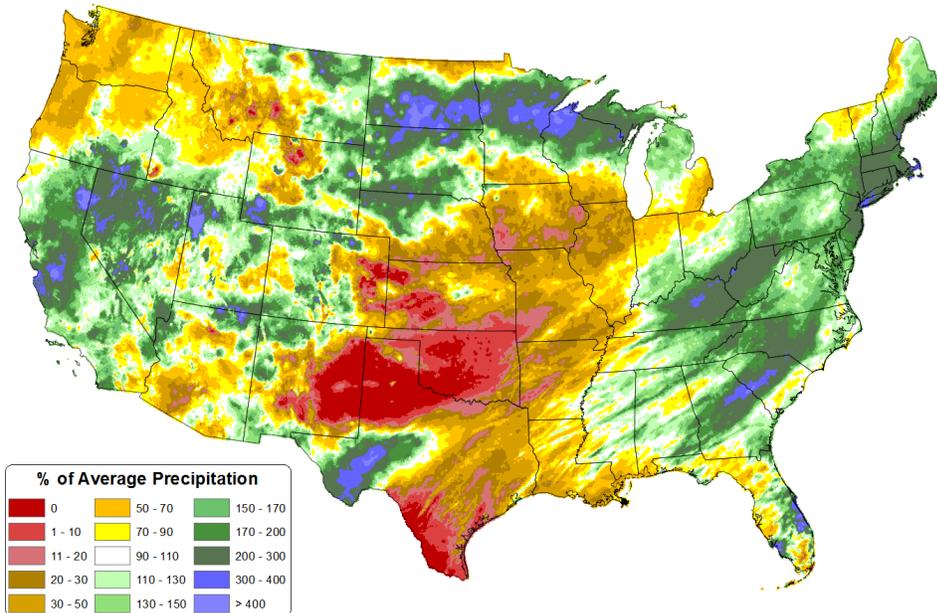
NOAA Regional Climate Centers

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

Source: PRISM

Total Precipitation Anomaly: 01 Dec 2019 - 18 Dec 2019  
Period ending 7 AM EST 18 Dec 2019  
Base period: 1981-2010  
(Map created 19 Dec 2019)

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



Copyright (c) 2019 PRISM Climate Group, Oregon State University

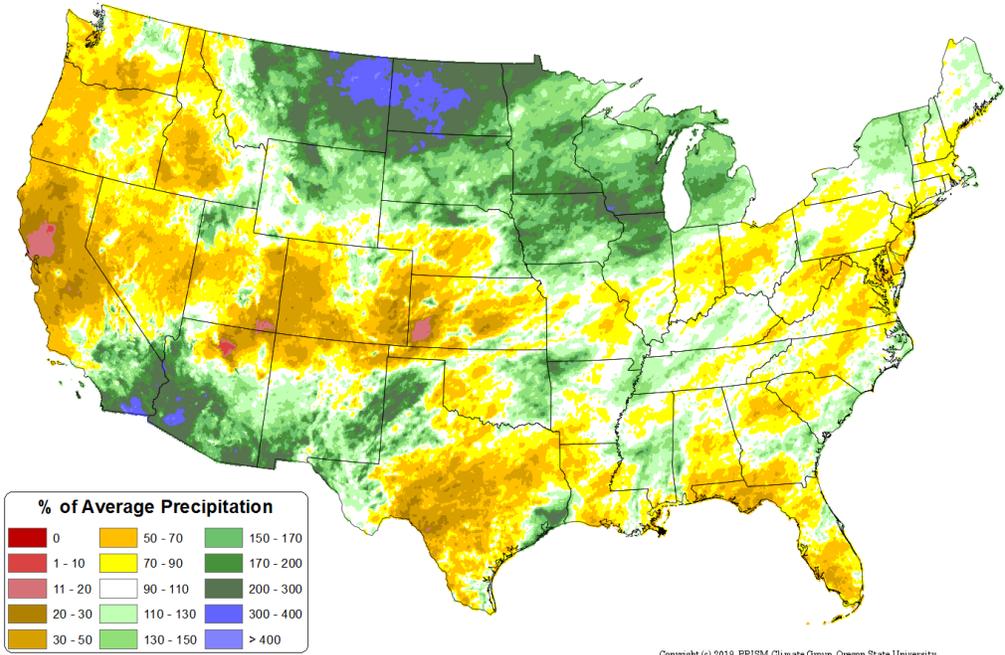
# Water and Climate Update

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

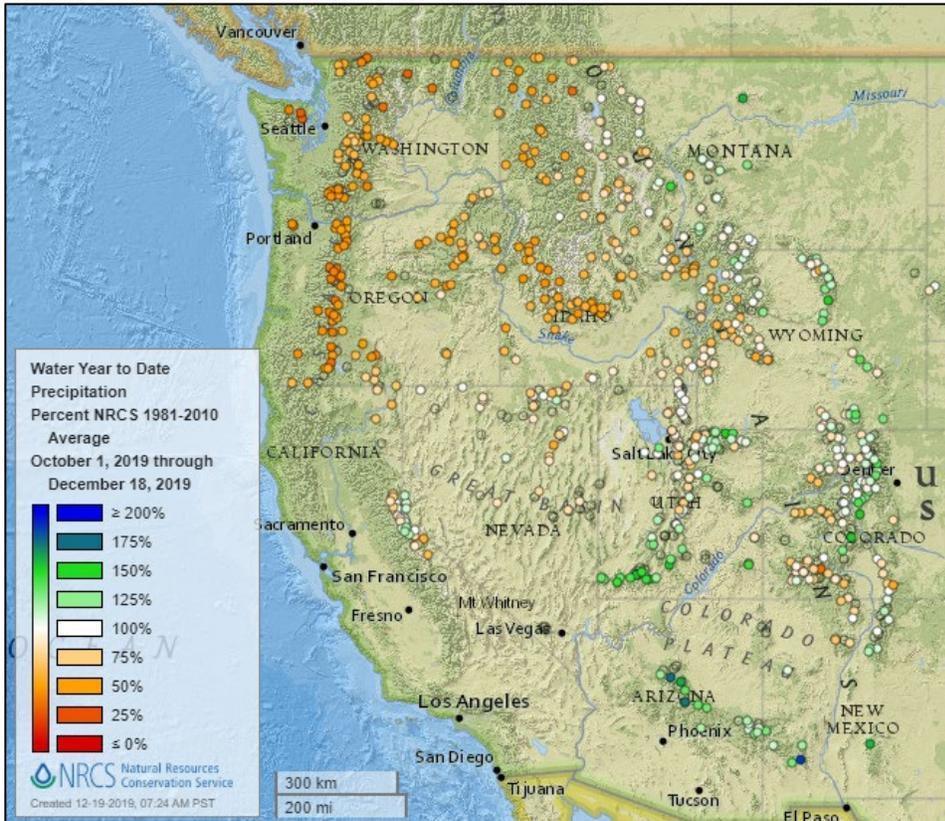
Source: PRISM

[September through November 2019 total precipitation percent of average map](#)

Total Precipitation Anomaly: Sep 2019 - Nov 2019  
Period ending 7 AM EST 30 Nov 2019  
Base period: 1961-2010  
(Map created 02 Dec 2019)



## Water Year-to-Date, NRCS SNOTEL Network



[2020 water year-to-date precipitation percent of average map](#)

**See also:**  
[2020 water year-to-date precipitation values \(inches\) map](#)

## Temperature

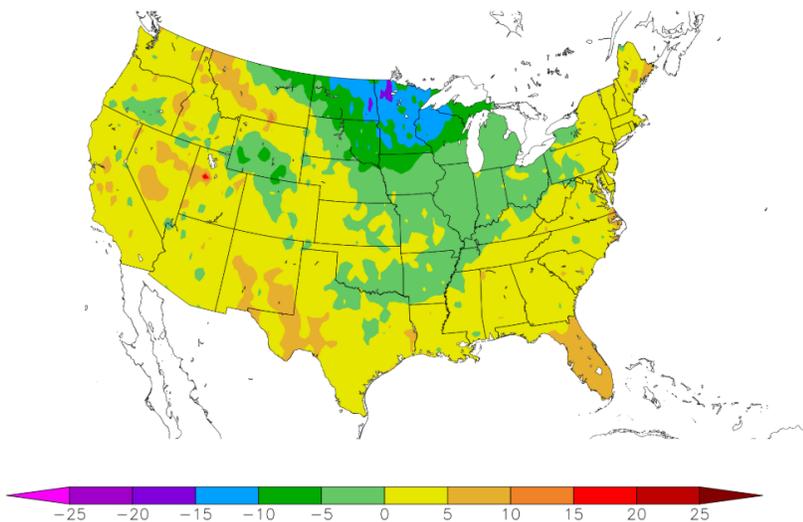
### Last 7 Days, National Weather Service (NWS) Networks

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)  
12/11/2019 – 12/17/2019



Generated 12/18/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

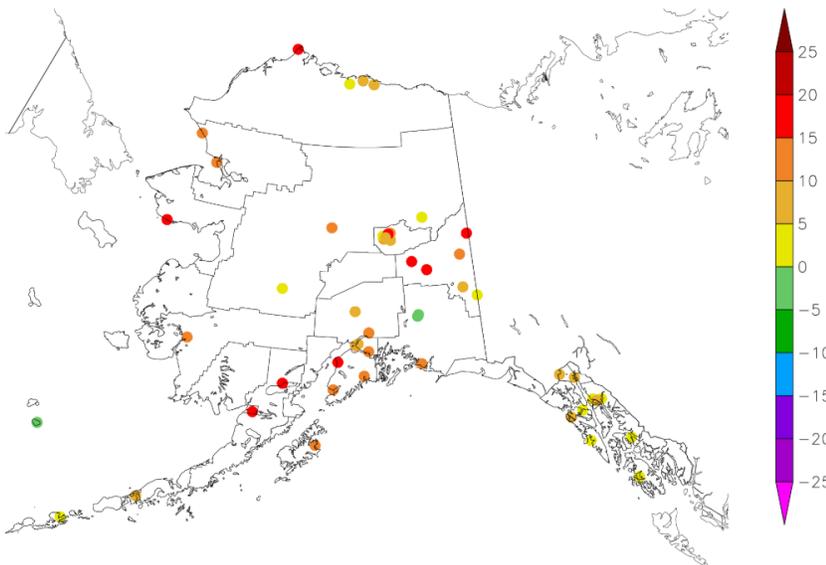
### Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

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

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

Departure from Normal Temperature (F)  
12/11/2019 – 12/17/2019



Generated 12/18/2019 at HPRCC using provisional data.

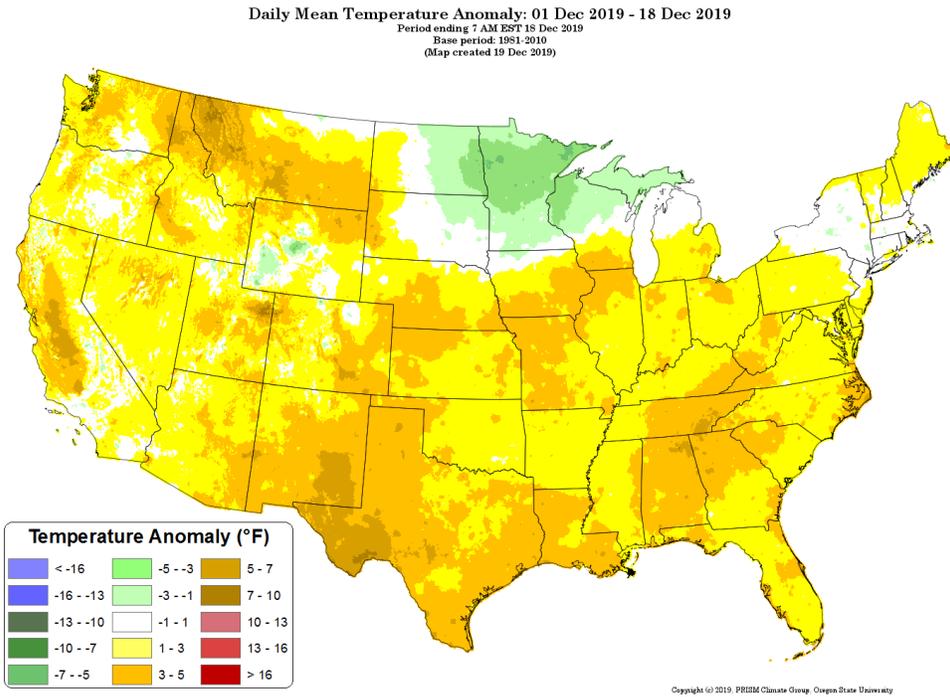
NOAA Regional Climate Centers

# Water and Climate Update

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

Source: PRISM

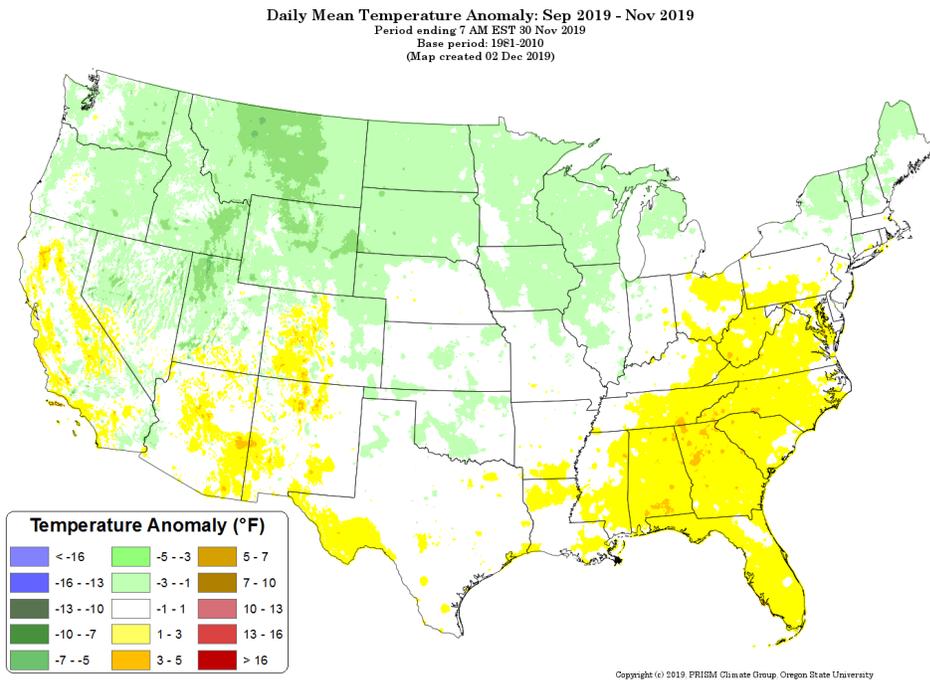
[Month-to-date national daily mean temperature anomaly map](#)



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

Source: PRISM

[September through November 2019 daily mean temperature anomaly map](#)



## Drought

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

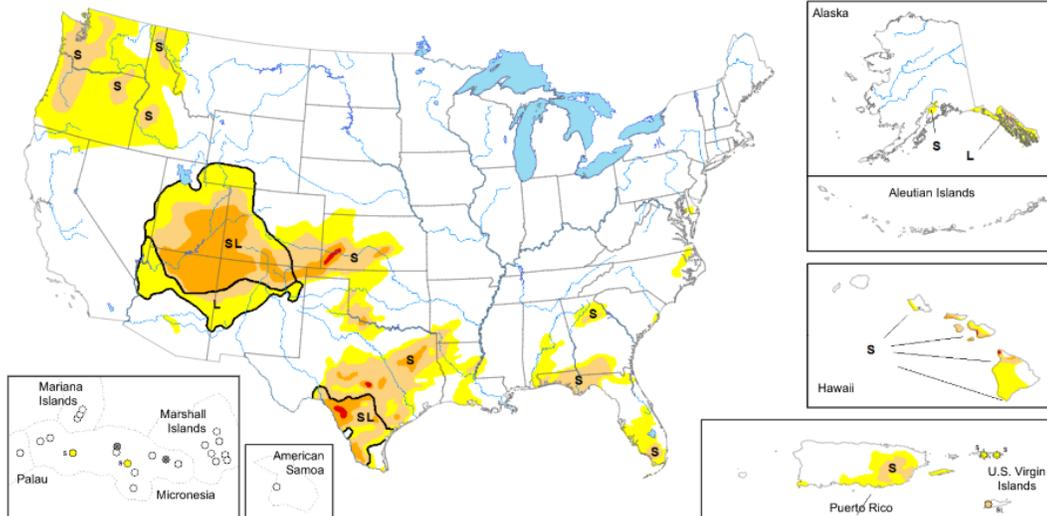
Source: National Drought Mitigation Center

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

Source: NOAA

Map released: December 19, 2019

Data valid: December 17, 2019



United States and Puerto Rico Author(s):  
David Miskus, NOAA/NWS/NCEP/CPD

U.S. Affiliated Pacific Islands and Virgin Islands Author(s):  
Richard Helm, NOAA/NCEI

The data cutoff for Drought Monitor maps is each Tuesday at 7 a.m. EST. The maps, which are based on analysis of the data, are released each Thursday at 8:30 a.m. Eastern Time.

#### Intensity and Impacts

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> None                  | <input type="checkbox"/> D3 (Extreme Drought)     | ~ - Delineates dominant impacts   |
| <input type="checkbox"/> D0 (Abnormally Dry)   | <input type="checkbox"/> D4 (Exceptional Drought) | S - Short-Term impacts, typically less than 6 months (e.g. agriculture, grasslands) |
| <input type="checkbox"/> D1 (Moderate Drought) | <input type="checkbox"/> No Data                  | L - Long-Term impacts, typically greater than 6 months (e.g. hydrology, ecology)    |
| <input type="checkbox"/> D2 (Severe Drought)   |   |   |

### Current [National Drought Summary](#), December 19, 2019

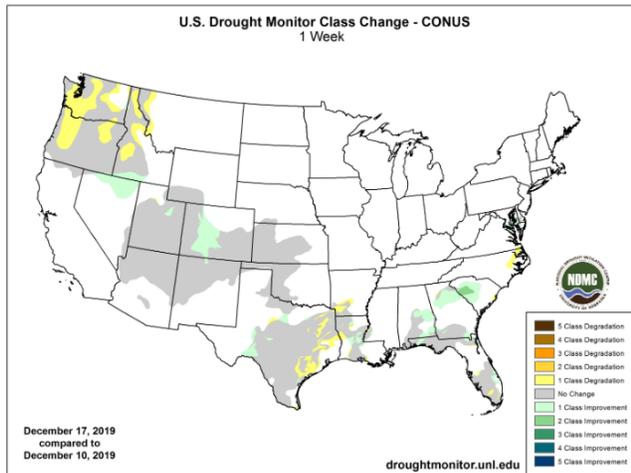
Source: National Drought Mitigation Center

“A series of Pacific fronts brought welcome moisture to the Northwest (from northern California northward into Washington), but even with this precipitation, the Water Year to Date (WYTD; since Oct. 1) basin average precipitation and Snow Water Content (SWC) were still well below normal (30-70%). Farther east, frigid Arctic air (weekly average temperatures up to 15 degrees F below normal) was bottled up in the northern Plains and upper Midwest (and central Canada), while the West, South, and East observed above-normal readings (weekly temperature anomalies + 3 to 6 degrees F). As the fronts progressed eastward, they slowed and waves of low pressure developed along the fronts, generating widespread rains (1-4 inches, locally to 8 inches) in the Southeast, mid-Atlantic, and along coastal New England. In the colder air to the north, the precipitation fell as snow, blanketing parts of the lower Missouri and Ohio Valleys, northern Appalachians, eastern Great Lakes region, and interior New England with light to moderate totals (2-6 inches). In contrast, the Southwest, Plains, and western Corn Belt were mainly dry. In Alaska, above-normal temperatures prevailed across the state, with decent precipitation observed along the southern coast. Shower activity increased across the eastern Hawaiian Islands, allowing for some improvements on the Big Island.”

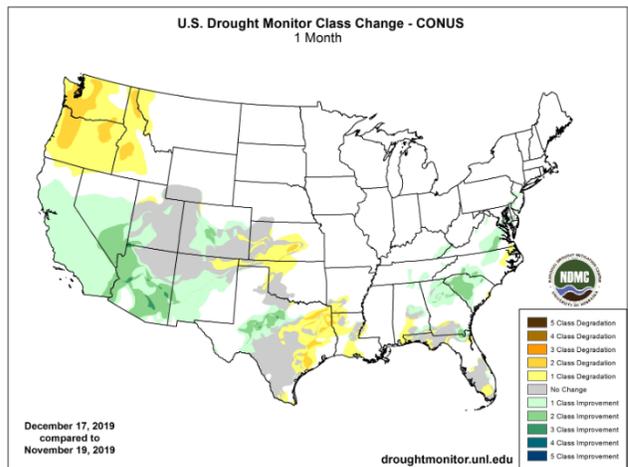
## Changes in Drought Monitor Categories over Time

Source: National Drought Mitigation Center

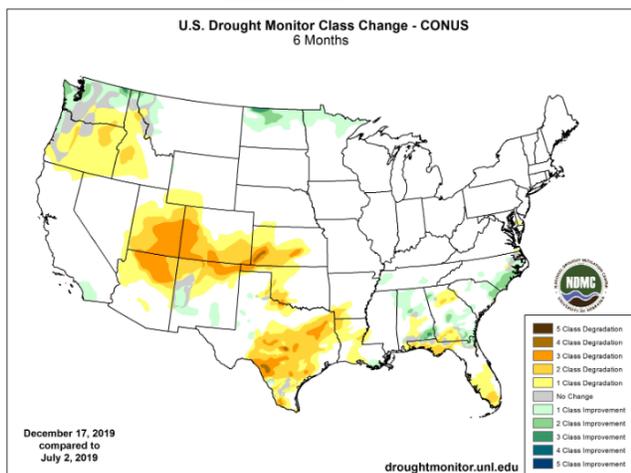
### 1 Week



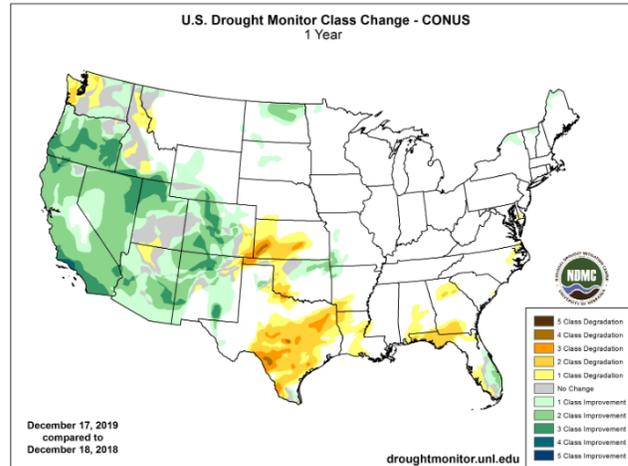
### 1 Month



### 6 Months



### 1 Year



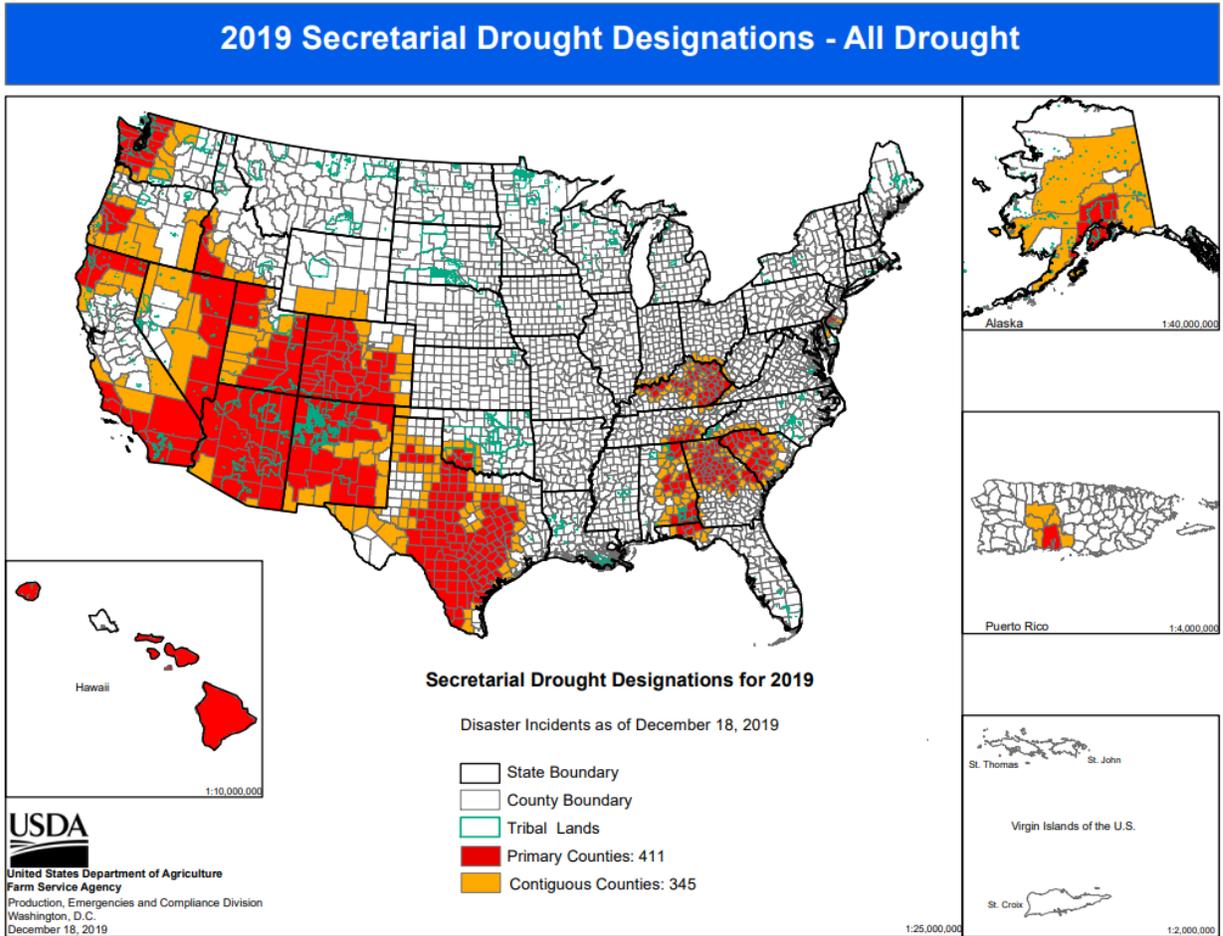
[Changes in drought conditions over the last 12 months for the contiguous U.S.](#)

## 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](#)

**Secretarial Drought Designations**

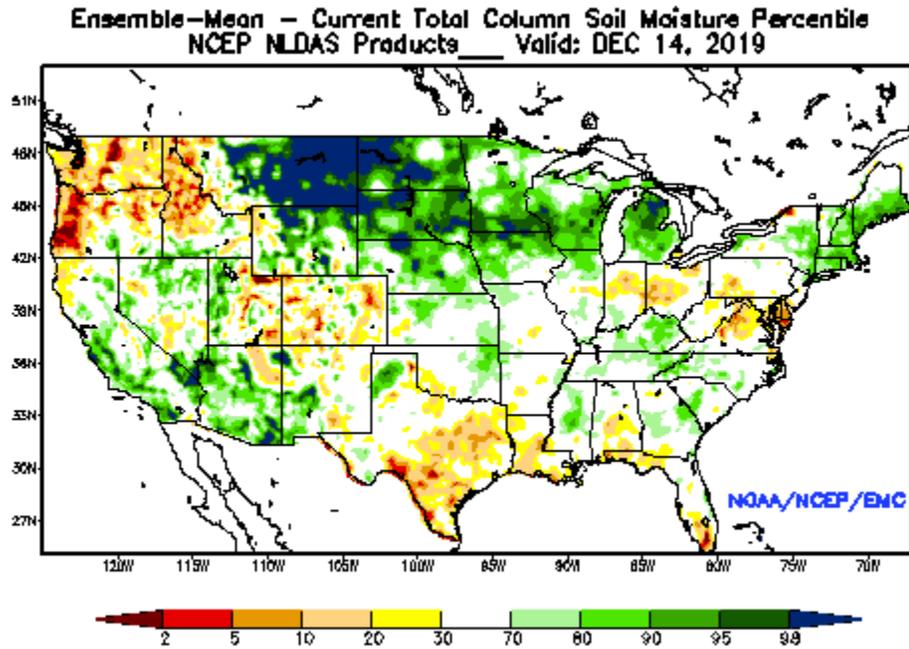
Source: USDA Farm Service Agency



## Other Climatic and Water Supply Indicators

### Soil Moisture

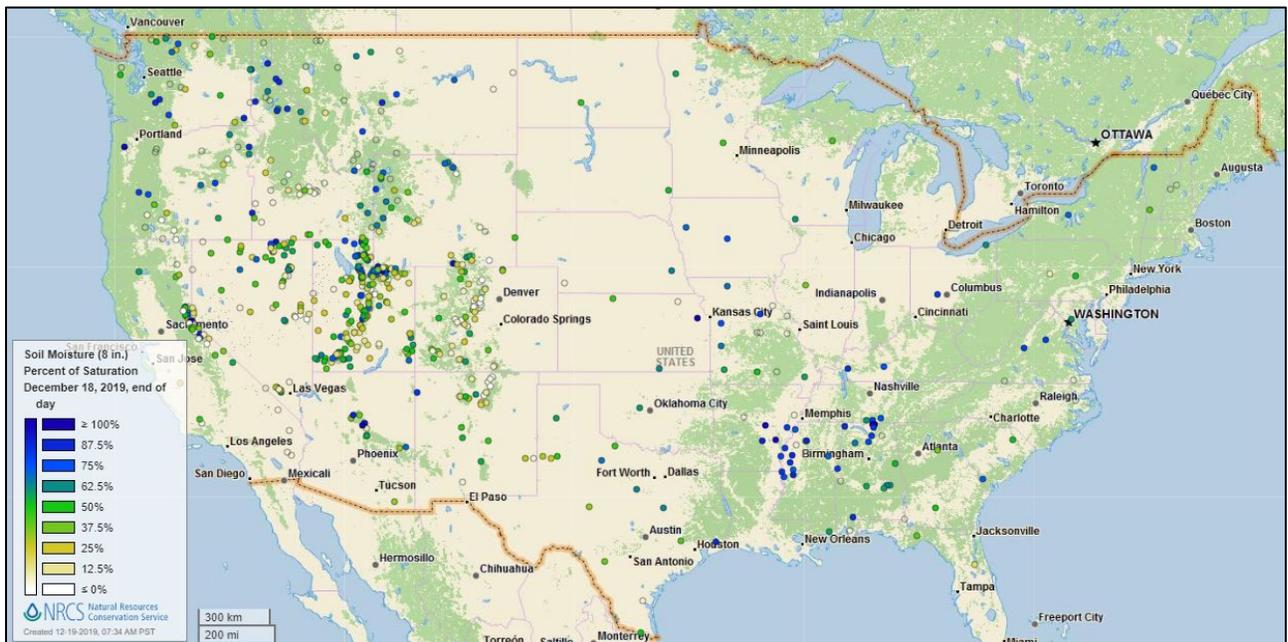
Source: NOAA National Centers for Environmental Prediction



[Modeled soil moisture percentiles](#) as of December 14, 2019

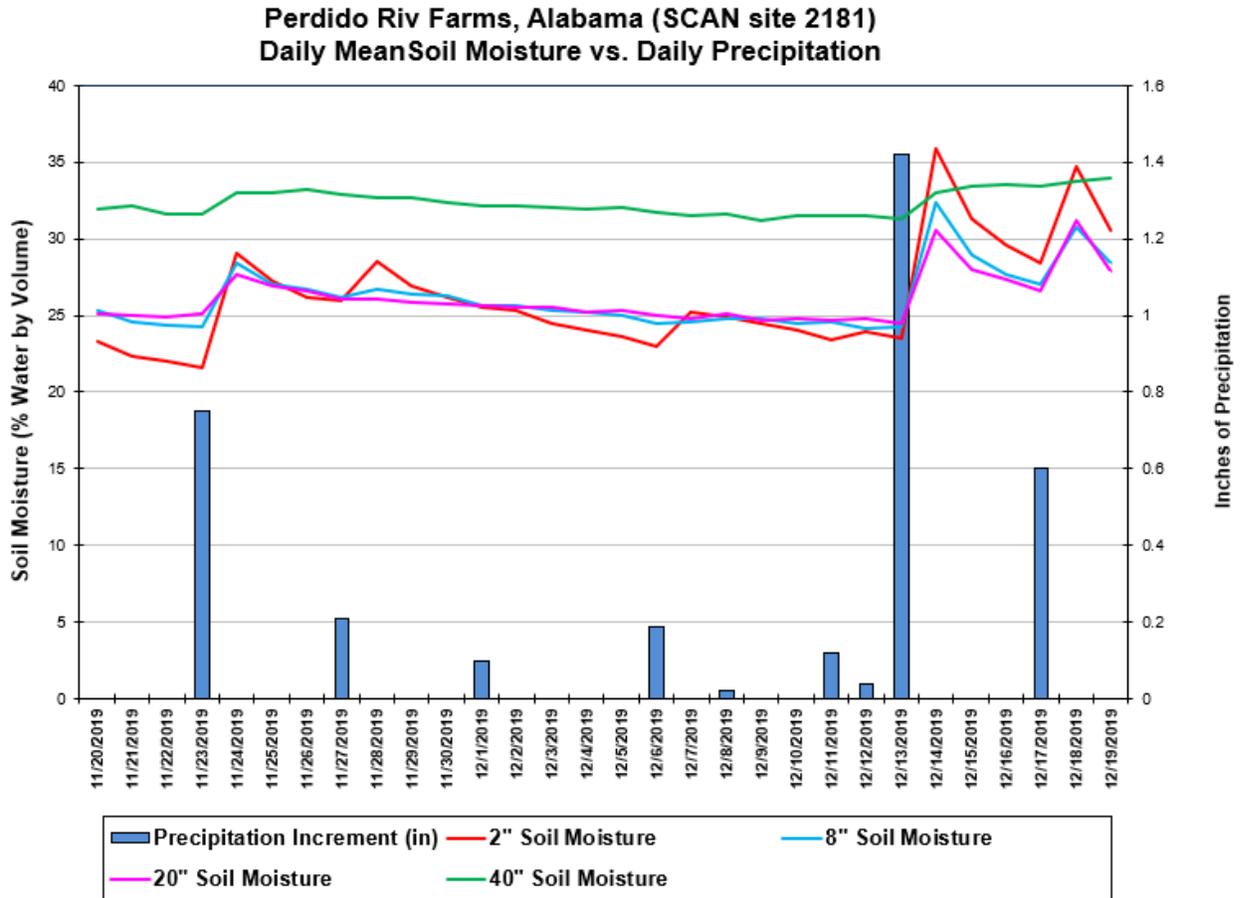
### Soil Moisture Percent of Saturation

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



**Soil Moisture Data**

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



This chart shows the soil moisture and precipitation for the last 30 days at the [Perdido Riv Farms SCAN site](#) in Alabama. The precipitation on December 13 and 17 resulted in increased 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](#)

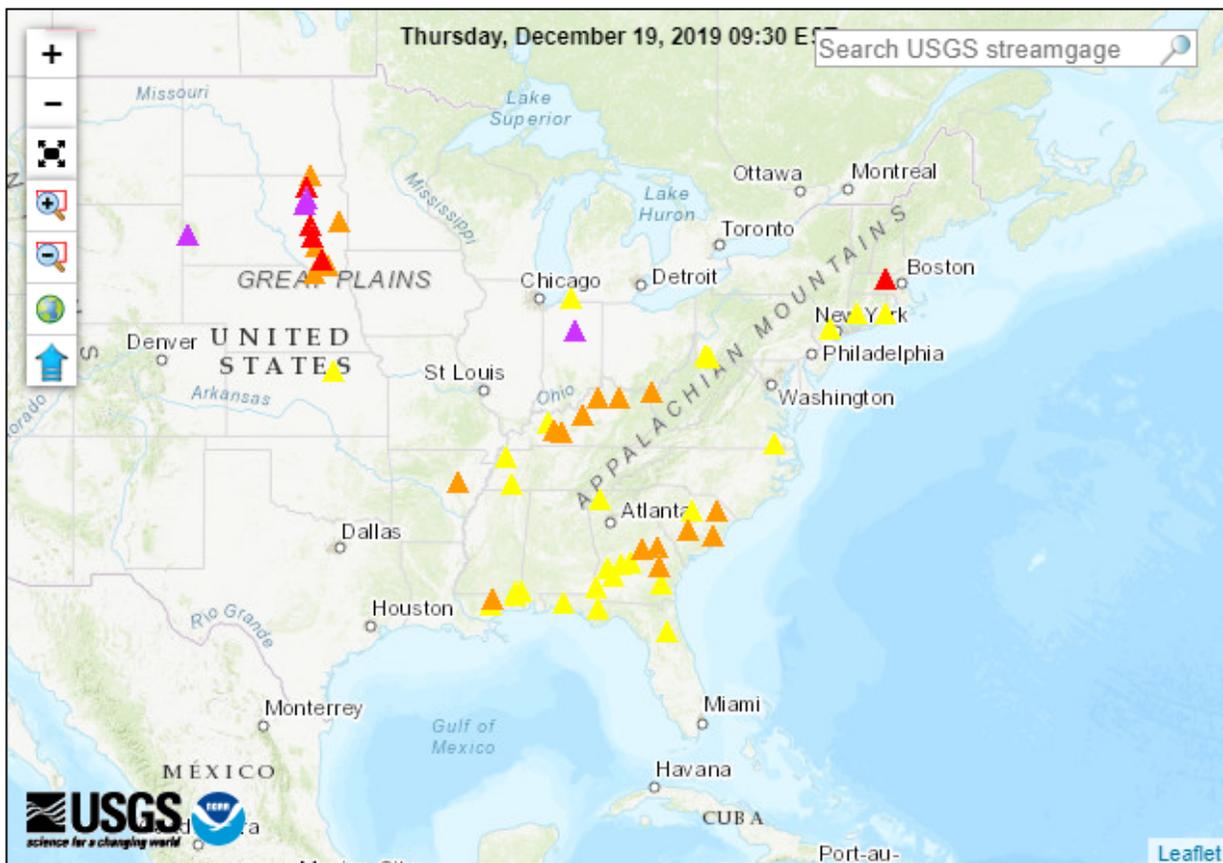
**Streamflow, Drought, Flood, and Runoff**

Source: U.S. Geological Survey

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

**Map of flood and high flow conditions**

(28 in floods [major: 4, moderate: 5, minor: 19], 27 in near-flood)



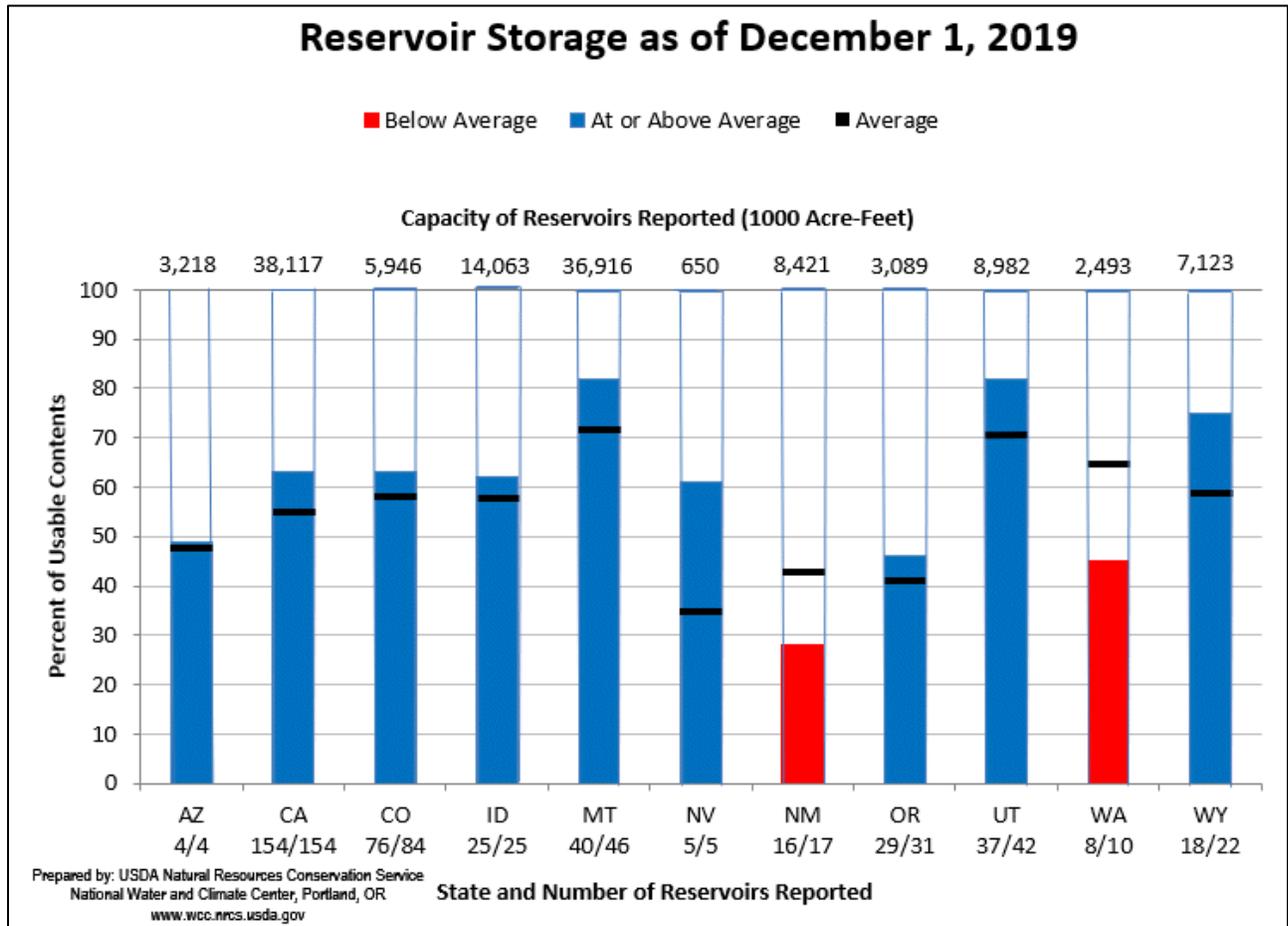
Explanation - Percentile classes						
<95	95-98	>= 99	Above action stage	Above flood stage	Above moderate flood stage	Above major flood stage
△ Streamgage with flood stage			○ Streamgage without flood stage			

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

## Reservoir Storage

### Western States Reservoir Storage

Source: NRCS National Water and Climate Center



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

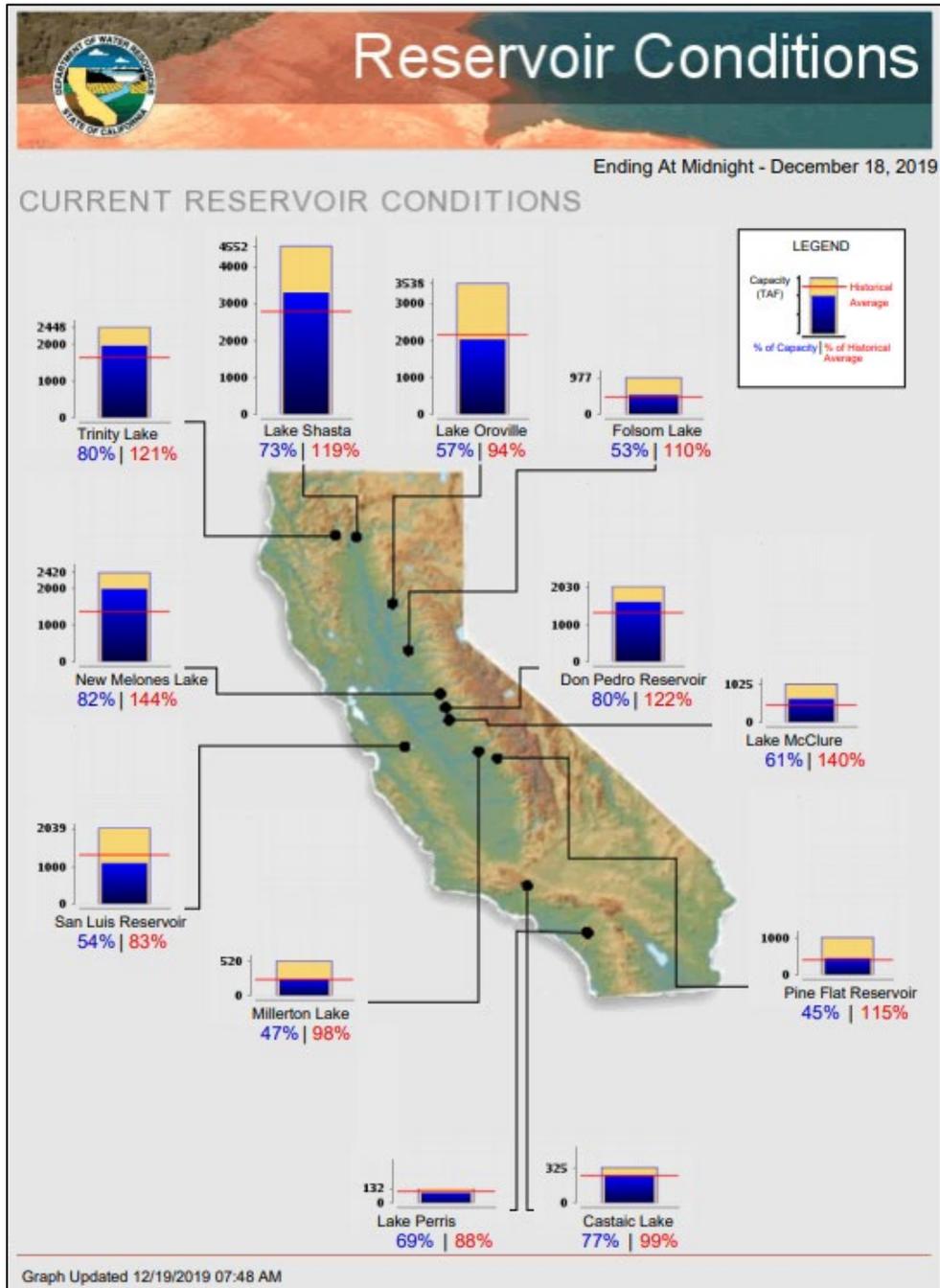
### Hydromet Tea Cup Reservoir Depictions

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

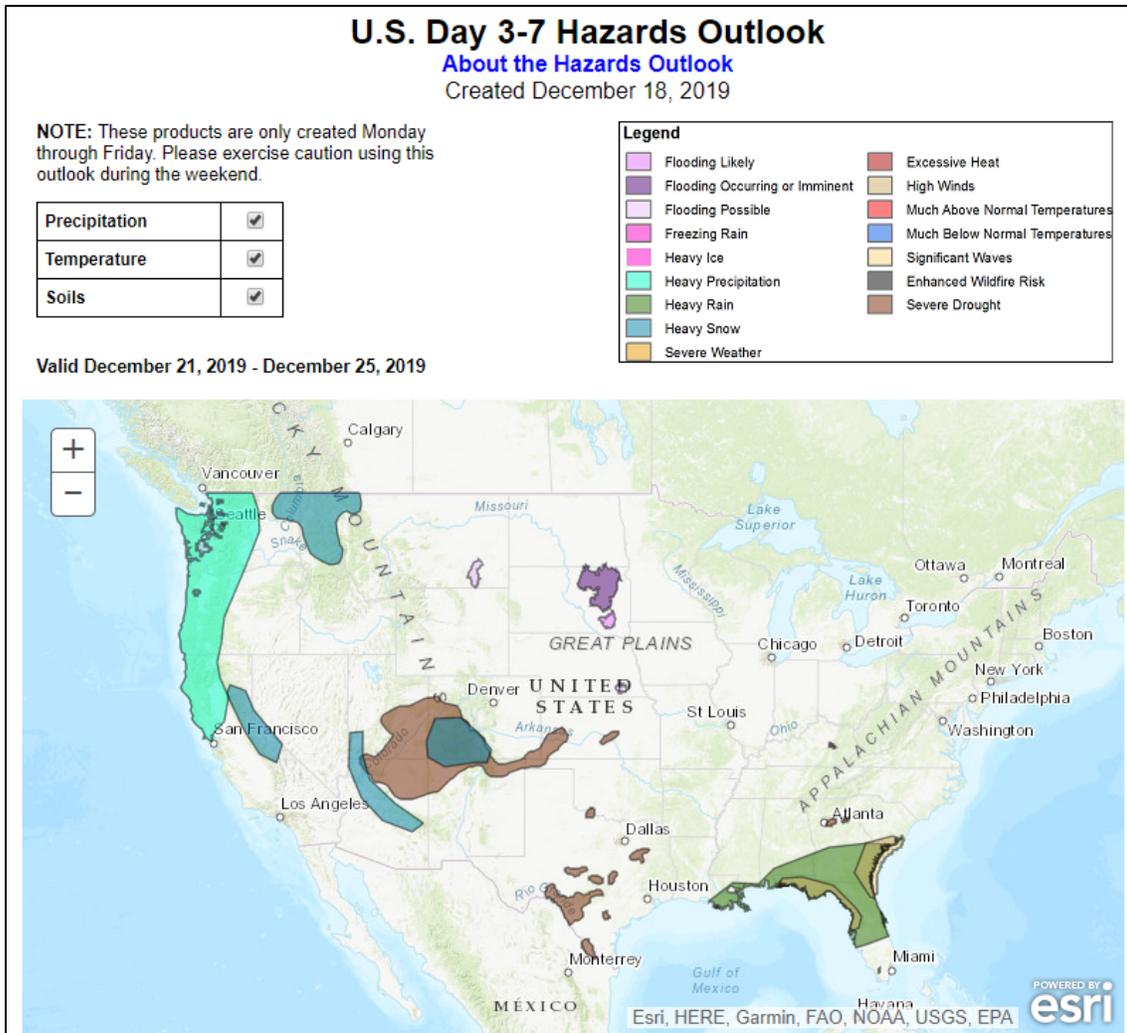
### Agricultural Weather Highlights

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

**National Outlook, Thursday, December 19, 2019:** “A gradual warming trend will occur nearly nationwide for the remainder of the week. During the weekend, temperatures across portions of the Plains should average at least 20°F above normal, with readings topping the 60-degree mark as far north as Nebraska. Meanwhile, heavy precipitation will affect the Northwest through Friday, followed by a southward shift in unsettled weather. Late in the weekend and early next week, rain and mountain snow will overspread California and the Desert Southwest. Elsewhere, dry weather will prevail during the next 5 days across large sections of the central and southern Rockies, Plains, Midwest, and Northeast, but a weekend storm system will produce heavy rain and gusty winds across parts of the Southeast. Storm-total rainfall could exceed 5 inches from northeastern Florida to coastal South Carolina. The NWS 6- to 10-day outlook for December 24 – 28 calls for the likelihood of above-normal temperatures throughout the central and eastern U.S., while colder-than-normal conditions will be confined to the Far West. Meanwhile, below-normal precipitation in the East and from Washington to the northern Rockies should contrast with wetter-than-normal weather from California to the Plains and Midwest.”

### Weather Hazards Outlook: [December 21 – December 25, 2019](#)

Source: NOAA Climate Prediction Center

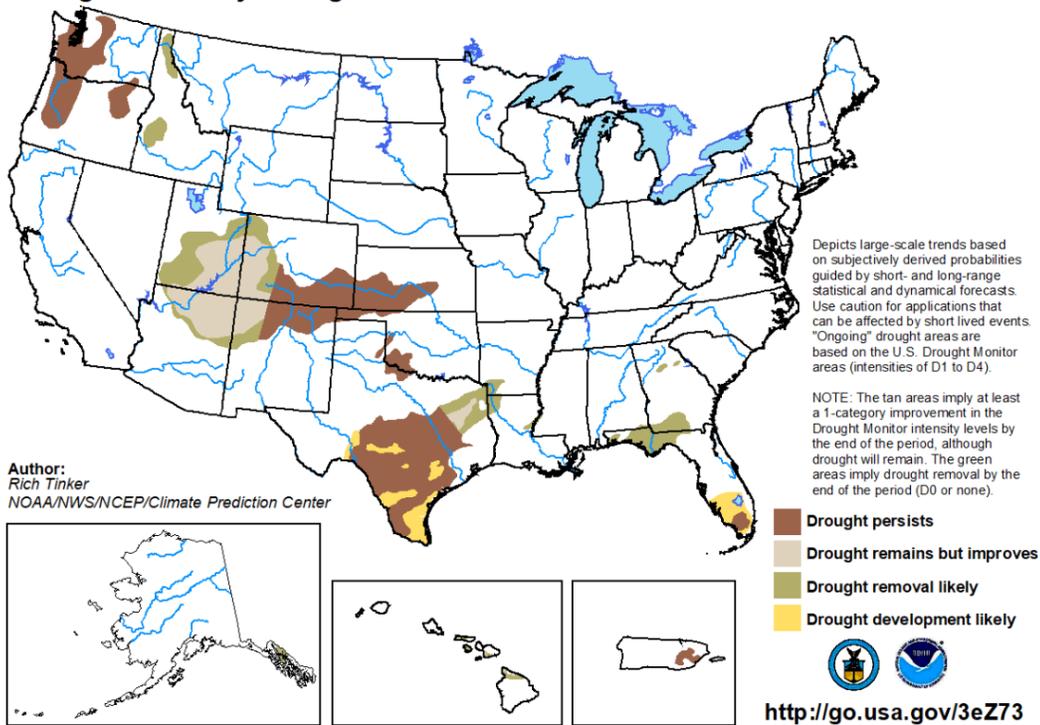


Seasonal Drought Outlook: [December 19, 2019 – March 31, 2020](#)

Source: National Weather Service

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

Valid for December 19, 2019 - March 31, 2020  
Released December 19, 2019

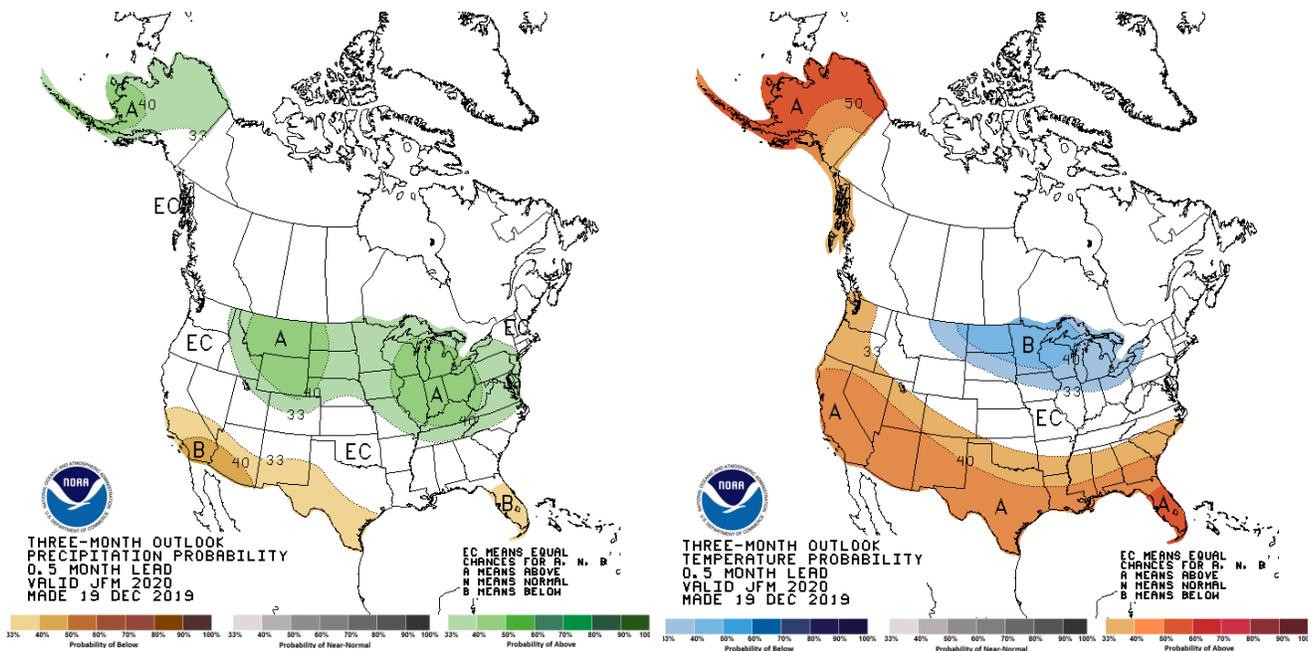


Climate Prediction Center 3-Month Outlook

Source: National Weather Service

Precipitation

Temperature



## 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](#).