



Water and Climate Update

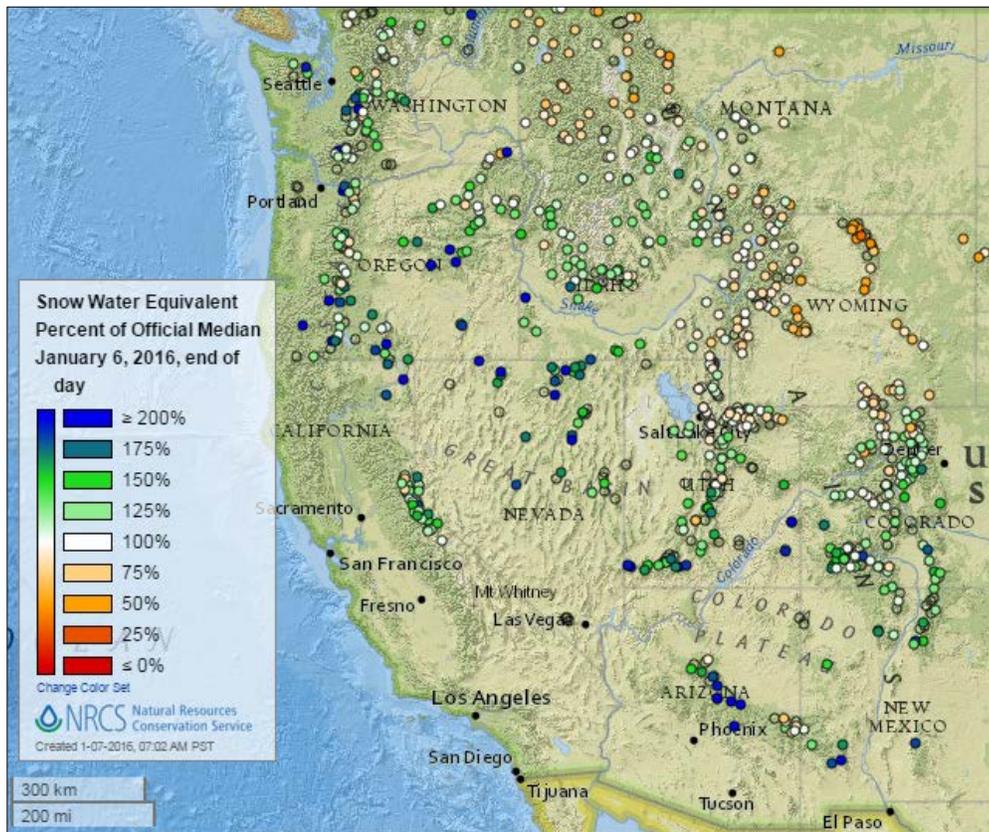
January 7, 2016

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.

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Weekly Highlight: Snow at normal levels or above in many parts of the West

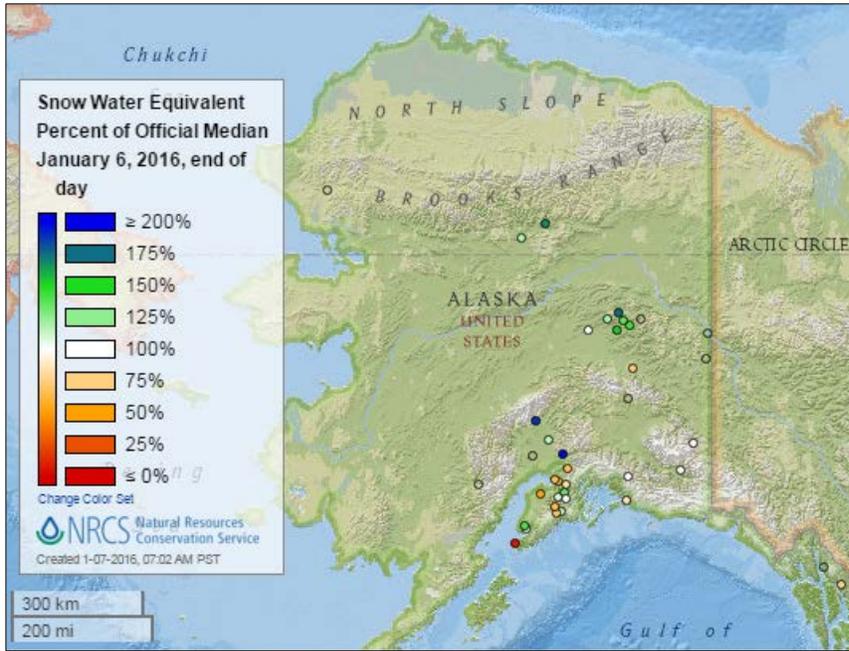
The current [snow water equivalent percent of median](#) map shows that the snowpack in the West is primarily at median or above at this time. Many stations in Washington, Oregon, Nevada, California, Idaho, Utah, Arizona, New Mexico, and Colorado are reporting above 150% of median. The Bighorn Mountains of Wyoming, some stations on the eastern slope of the Rockies, and stations in western Wyoming, northern Idaho, and Montana have below median snowpack at this time.



Current Snow Water Equivalent, Western Mountain Sites (NRCS SNOTEL Network)

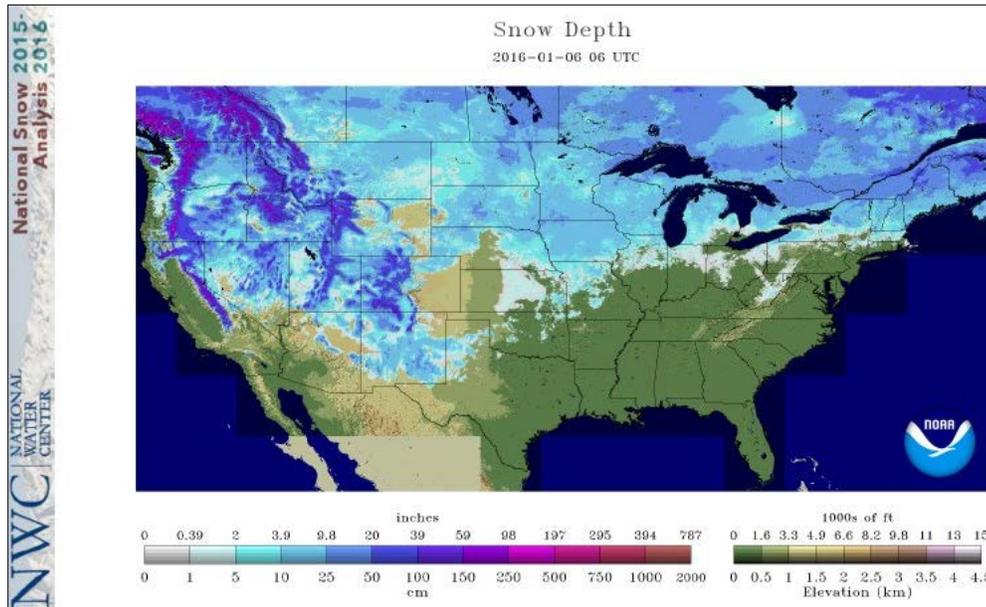
Snow

Current Snow Water Equivalent, NRCS SNOTEL Network



The current [snow water equivalent percent of median](#) map for Alaska shows median to above median snowpack in the Interior, and median to below median snowpack along the southern part of the state.

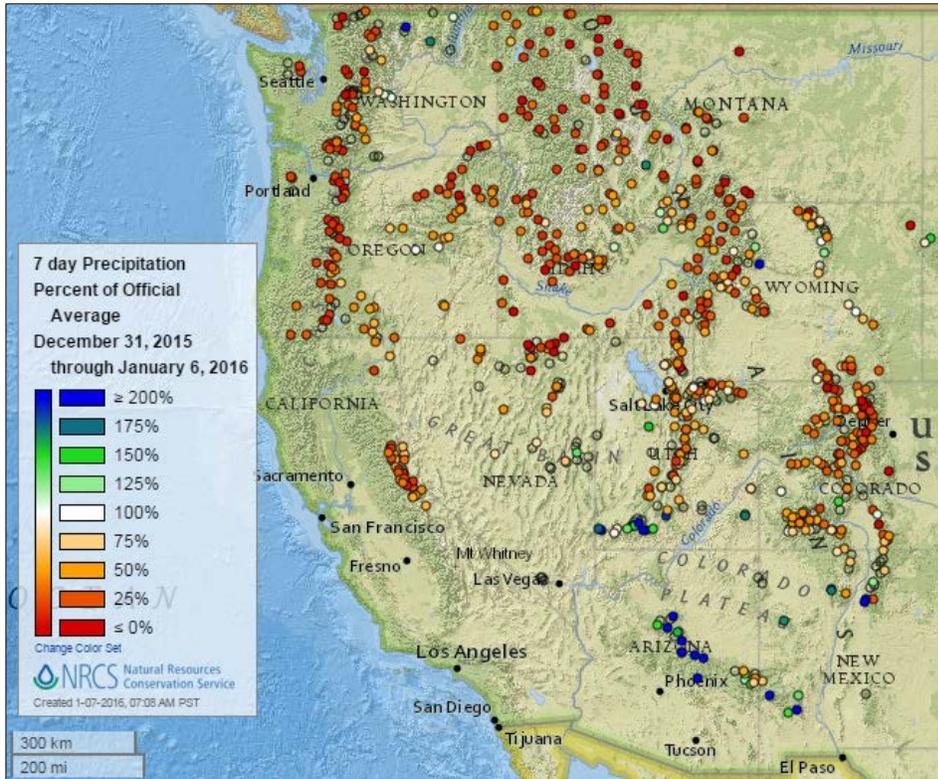
Current Snow Depth, National Weather Service (NWS) Networks



The National Water Center's current [snow depth](#) map for the continental U.S. shows areas of significant snow accumulation across much of the West and from the northern Great Plains to the upper Midwest. There is also a building snowpack across the Great Lakes to New York and New England. New snowpack for this week is reported in northern Texas, the central Great Plains, and the Appalachian Mountains.

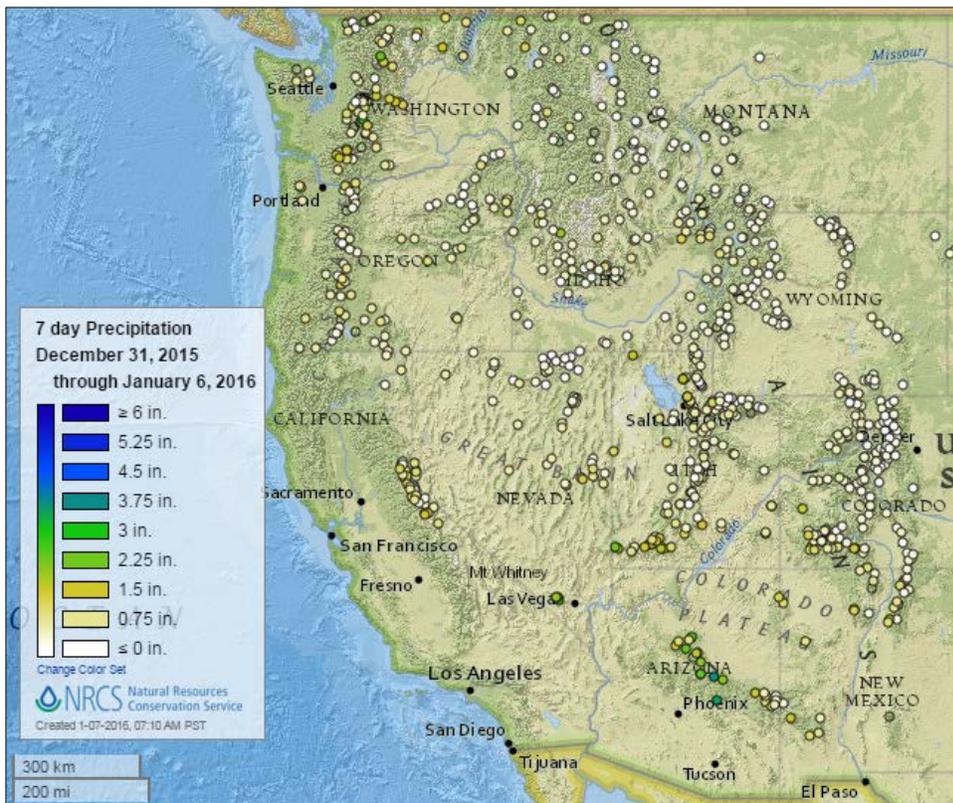
Precipitation

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



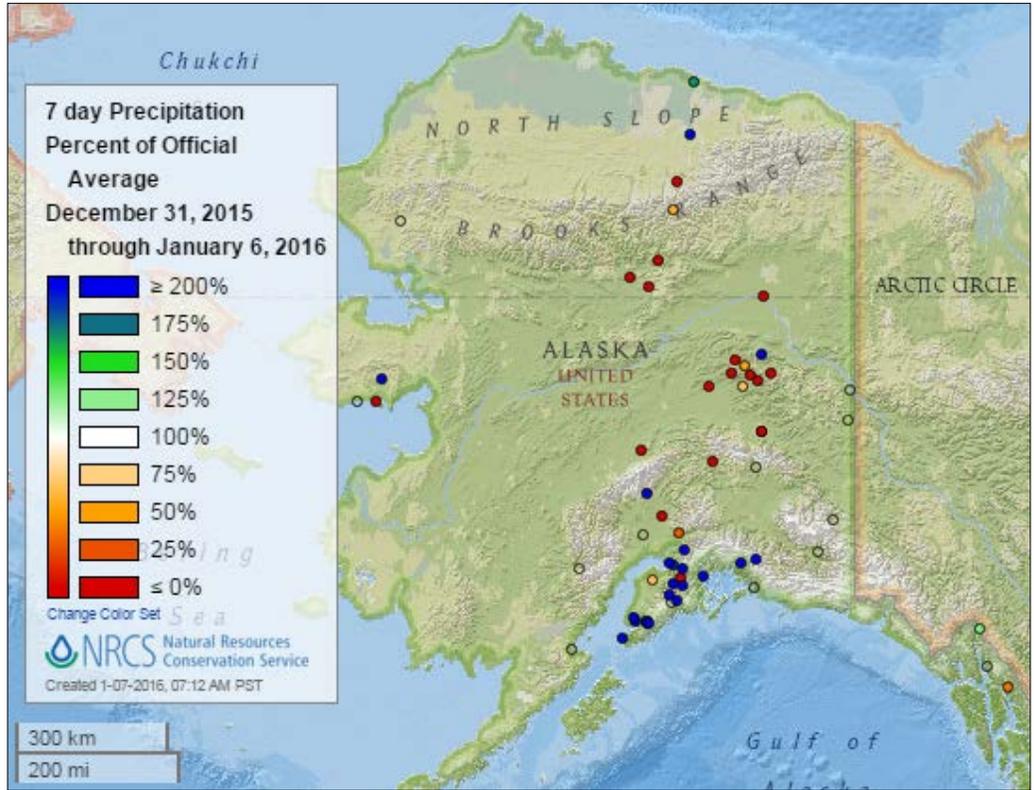
The 7-day [precipitation percent of average](#) map shows that much of the West had many stations with less than average precipitation this week.

A few stations in Utah, Colorado, Arizona, and New Mexico reported above average precipitation.



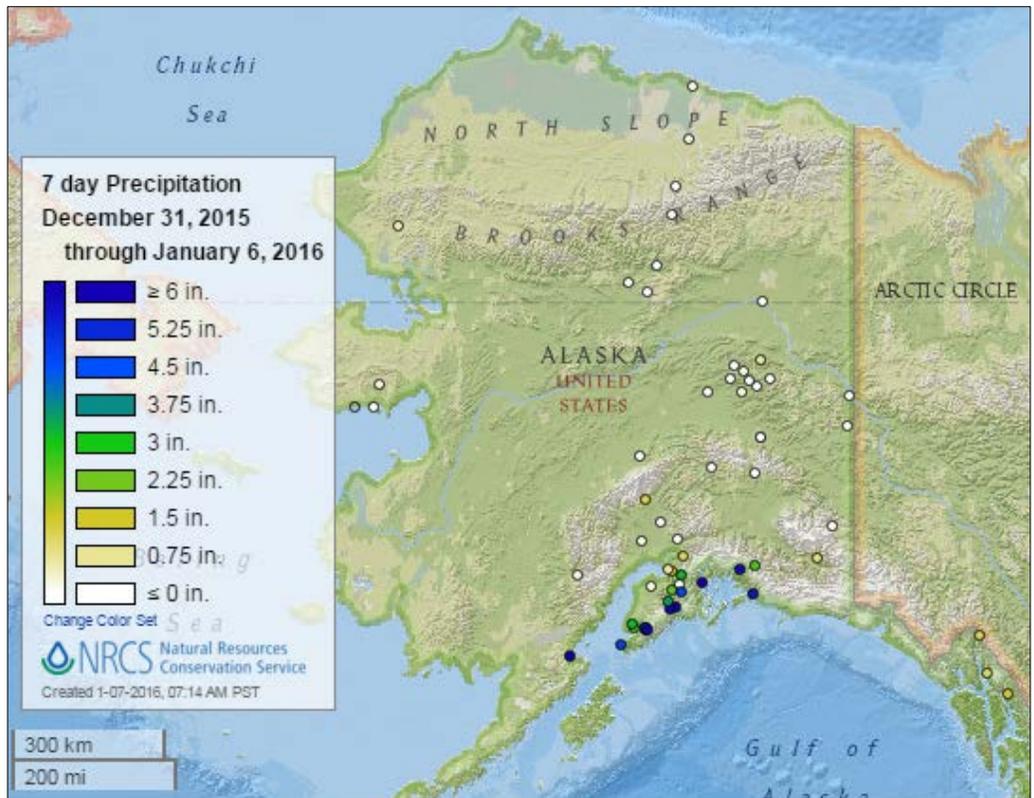
The [total precipitation](#) map shows that much of the West received less than 0.75 inches for the week. There were a few stations in Washington, Utah, and Arizona that received over 1.5 inches.

The Alaska [precipitation percent of average](#) map for the last seven days shows much of the Interior was well below average for the week. The south coast, north coast, and a few other stations had well above average precipitation.



The Alaska seven day [total precipitation](#) map shows that little to no precipitation fell in much of the state this week.

In contrast, southern Alaska had several stations with over 6 inches along the coast.



Last 7 Days, National Weather Service (NWS) Networks

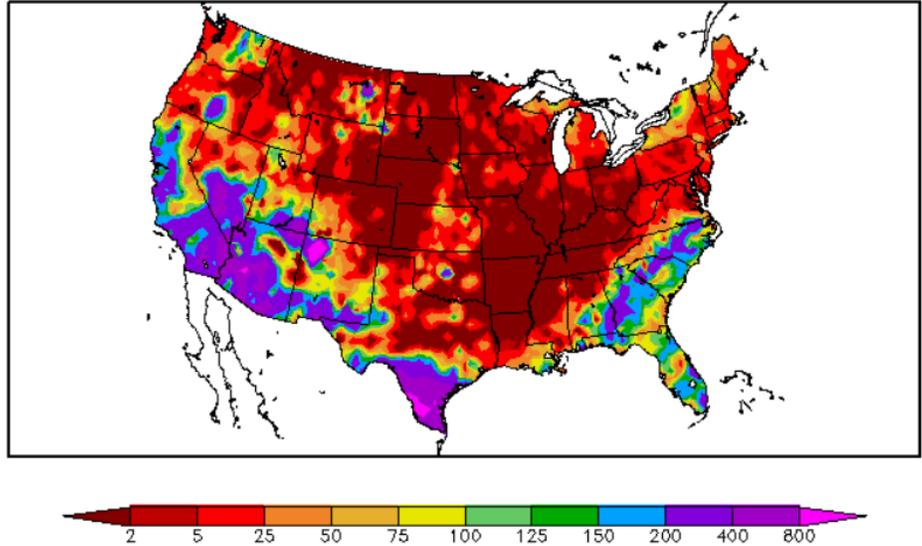
Source: Regional Climate Centers

The [percent of normal precipitation](#)

map shows well above normal precipitation in several widely scattered areas. This includes the highest percent of averages reported in New Mexico and Texas, in excess of 800% of normal

Very dry conditions dominated most of the central U.S. this past week.

Percent of Normal Precipitation (%)
12/31/2015 - 1/6/2016



Generated 1/7/2016 at HPRCC using provisional data.

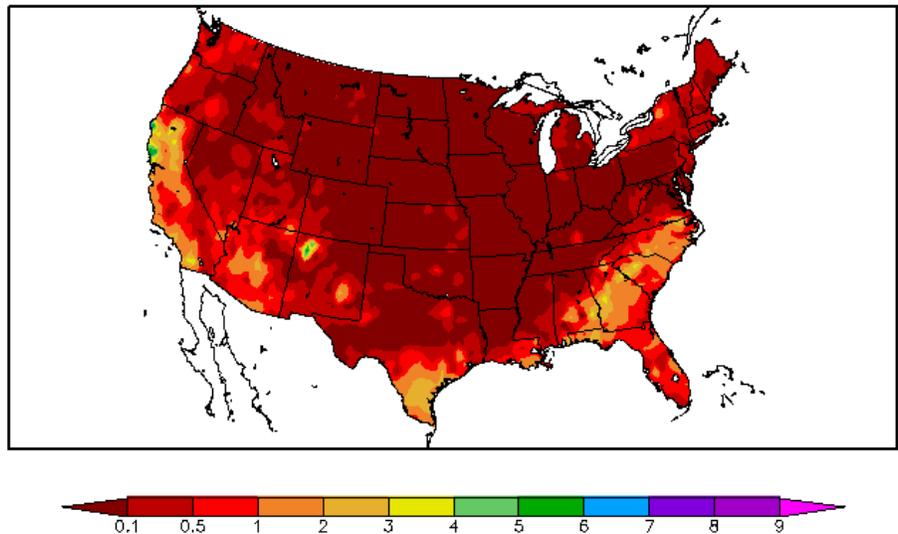
Regional Climate Centers

The [7-day total precipitation](#)

map prominently shows the highest amounts of precipitation over 2.5 inches fell in northern California, New Mexico, southern Texas, Alabama, Georgia, and South Carolina.

Much of the remainder of the country had less than 1 inch of precipitation or was dry for the week.

Precipitation (in)
12/31/2015 - 1/6/2016



Generated 1/7/2016 at HPRCC using provisional data.

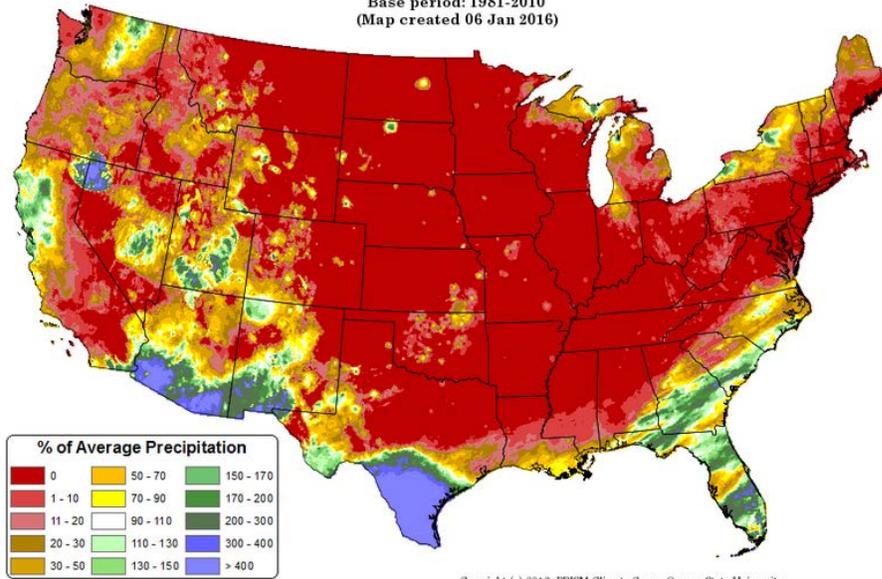
Regional Climate Centers

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

Source: PRISM

Total Precipitation Anomaly: 01 January 2016 - 05 January 2016

Period ending 7 AM EST 05 Jan 2016
Base period: 1981-2010
(Map created 06 Jan 2016)

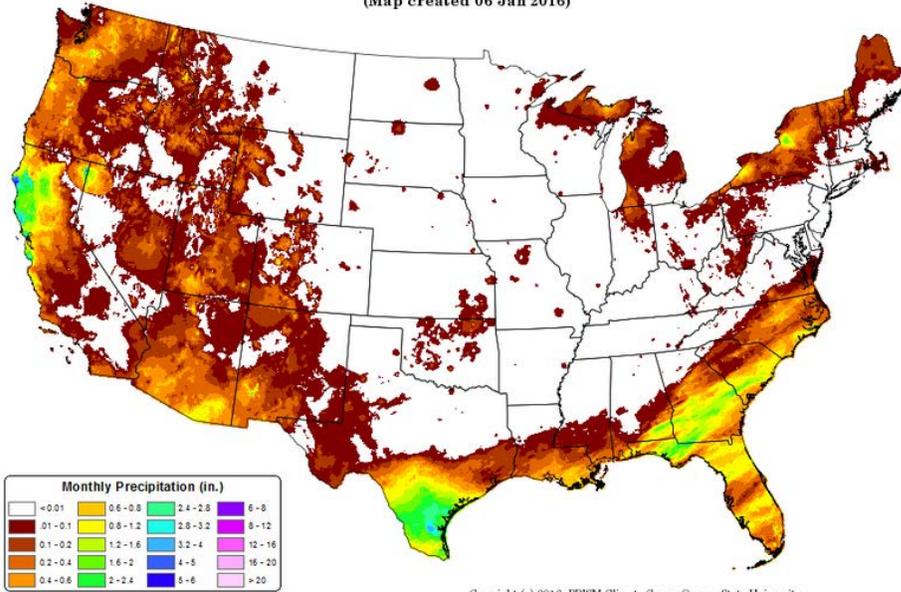


Copyright (c) 2016, PRISM Climate Group, Oregon State University

For the early part of January, the national [precipitation percent of average](#) map shows the largest area of well above average precipitation in northwest Nevada, southern Arizona, New Mexico, and Texas. Other small areas of above average precipitation were in the Southeast. Drier than average areas include a large region from the Rocky Mountains to the east coast, and other smaller areas across the country.

Total Precipitation: 01 January 2016 - 05 January 2016

Period ending 7 AM EST 05 Jan 2016
(Map created 06 Jan 2016)



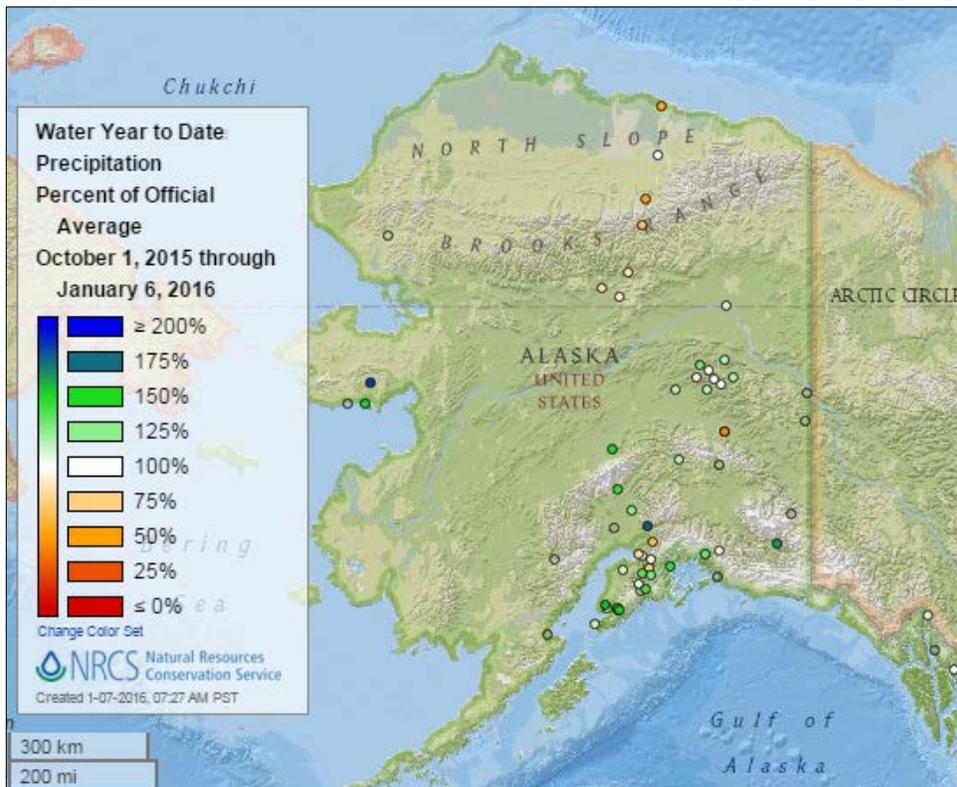
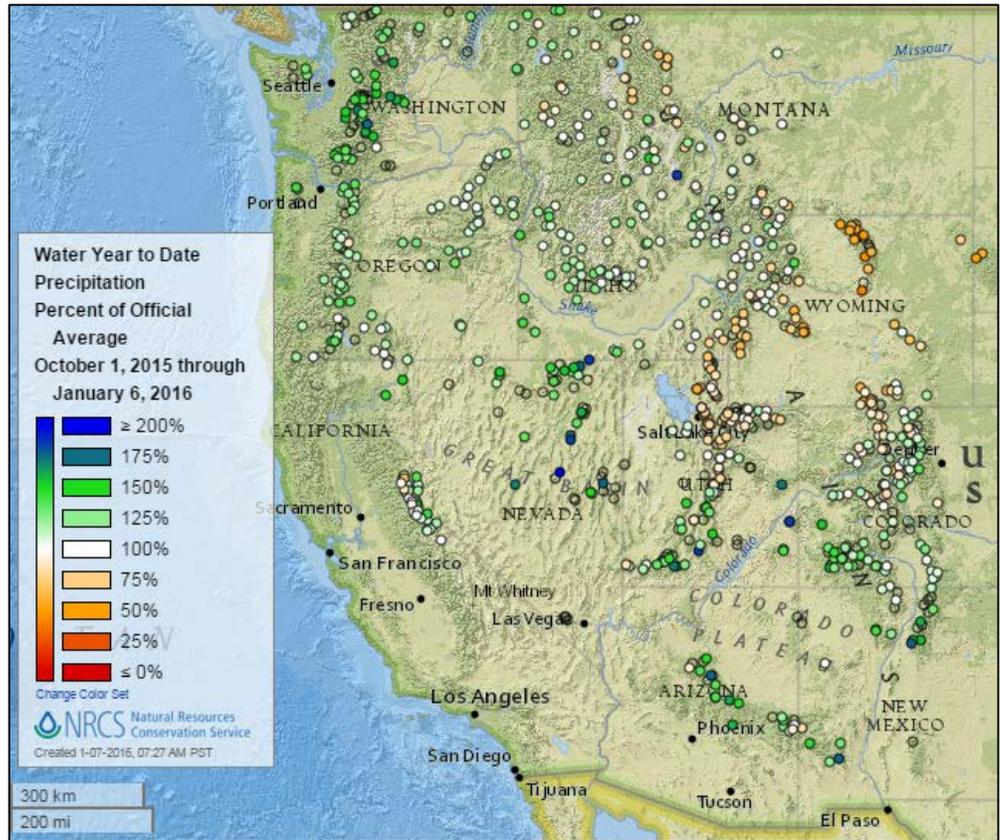
Copyright (c) 2016, PRISM Climate Group, Oregon State University

The January month-to-date [total precipitation map](#) highlights the precipitation around the edge of the country in the last few days. Precipitation fell in northern California, southern Texas, across the Southeast, and in a few other areas.

Noticeably dry areas cover a majority of the country from the eastern Rocky Mountains to the Atlantic coast.

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

The [2016 water year to date precipitation percent of average](#) map shows that much of the West reported average to above average precipitation. Below average areas included much of Wyoming, northern Utah, and northern Montana.



The Alaska [water year to date precipitation percent of average](#) map shows a mix of above, near, and below average sites throughout the state, although generally drier in the north and wetter in the south.

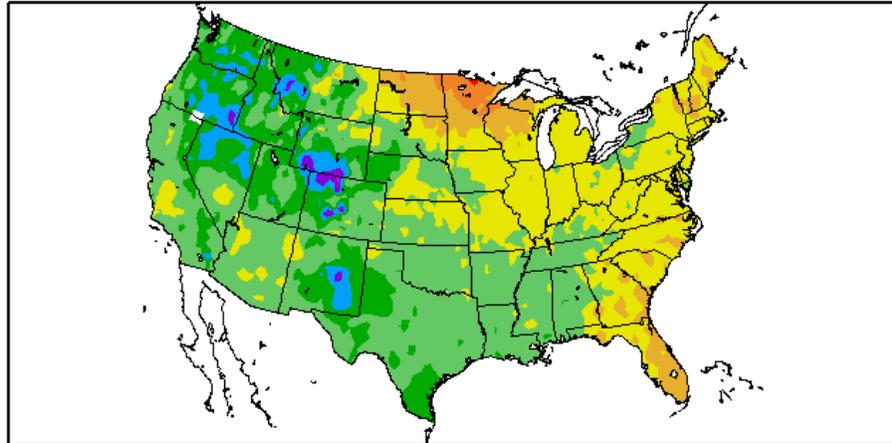
Temperature

Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

The map of the [average temperature anomalies](#) for the past week shows the eastern seaboard and north central U.S. was warmer than normal for the week. The south central U.S. and the West reported temperatures near or below normal. The coolest areas of the country were in southeast Oregon, central New Mexico, and along the eastern Rockies.

Departure from Normal Temperature (F)
12/31/2015 – 1/6/2016



Generated 1/7/2016 at HPRCC using provisional data.

Regional Climate Centers

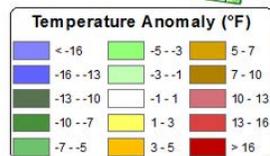
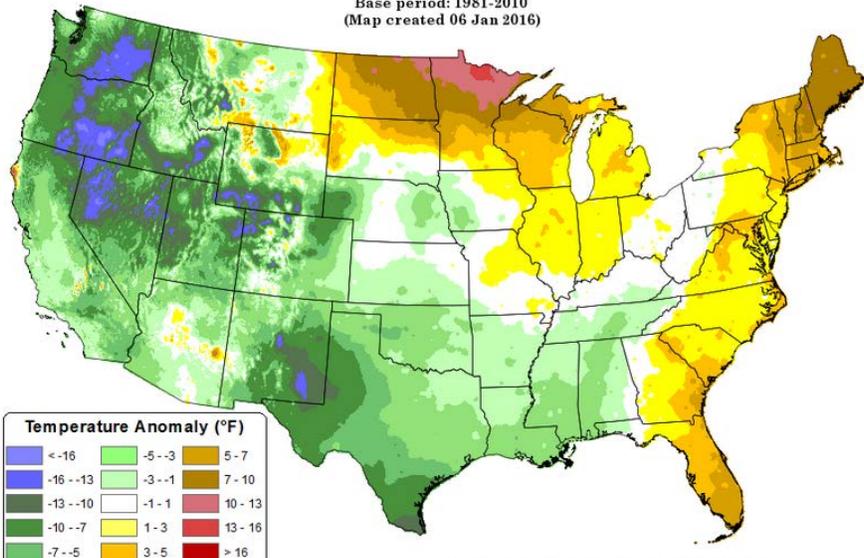
Month-to-Date, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

For January 2016, the national [daily mean temperature anomaly](#) map shows well above normal temperatures in the north central U.S and along the east coast. The warmest anomaly was in northern Minnesota.

The majority of the country was below normal, with the coldest areas on the east side of the Cascades and Sierra Nevada.

Daily Mean Temperature Anomaly: 01 January 2016 - 05 January 2016
Period ending 7 AM EST 05 Jan 2016
Base period: 1981-2010
(Map created 06 Jan 2016)

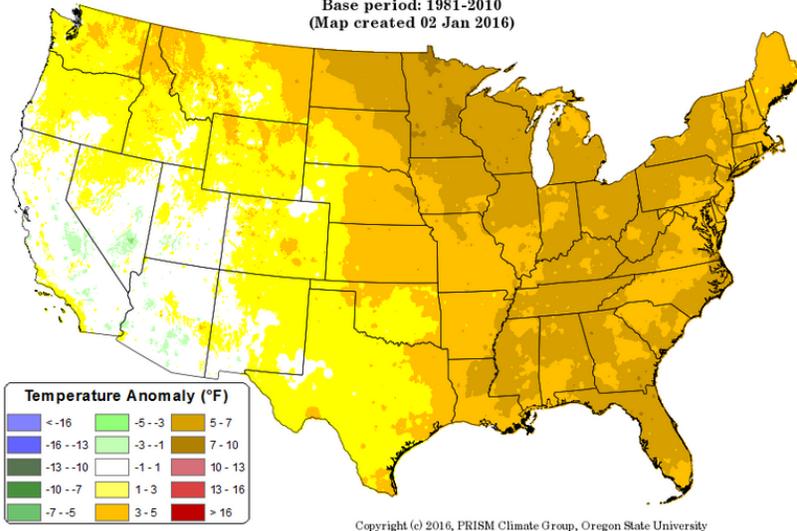


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Last 3 Months, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

Daily Mean Temperature Anomaly: October 2015 - December 2015
 Period ending 7 AM EST 31 Dec 2015
 Base period: 1981-2010
 (Map created 02 Jan 2016)



The October through December national [daily mean temperature anomaly](#) map shows most of the country reporting conditions above average. The largest warm anomaly for the past three months was in the upper Midwest, centered in Minnesota.

The southwestern part of the country and most of the West was near normal for this time.

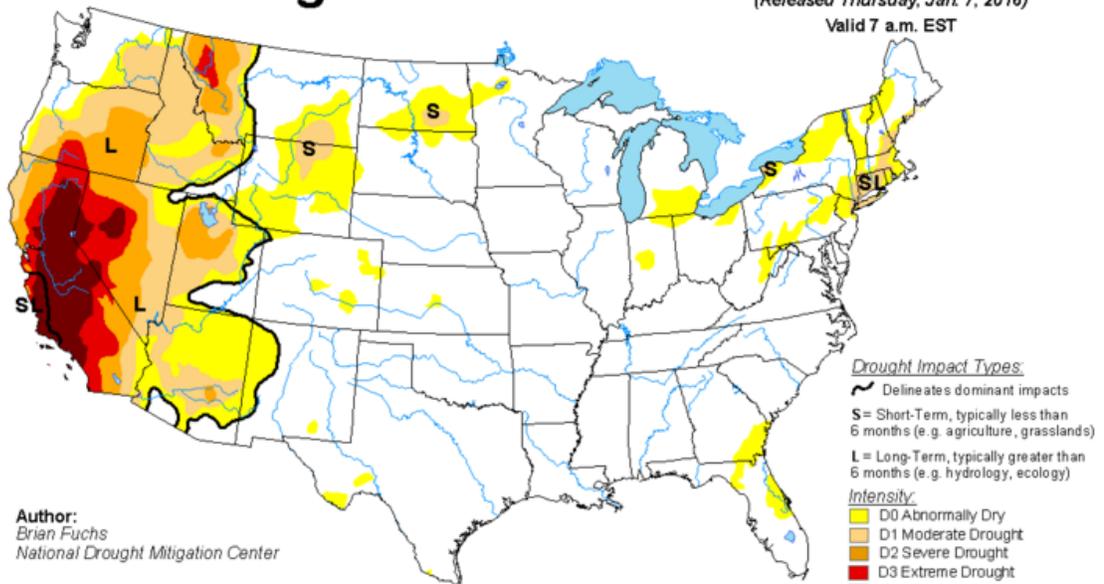
Drought

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

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

U.S. Drought Monitor

January 5, 2016
 (Released Thursday, Jan. 7, 2016)
 Valid 7 a.m. EST



Author:
 Brian Fuchs
 National Drought Mitigation Center

Drought Impact Types:
 ~ Delineates dominant impacts
 S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
 L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:
 D0 Abnormally Dry
 D1 Moderate Drought
 D2 Severe Drought
 D3 Extreme Drought
 D4 Exceptional Drought

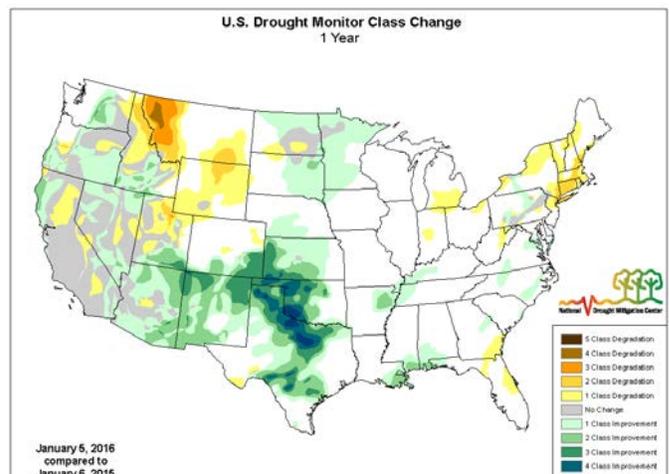
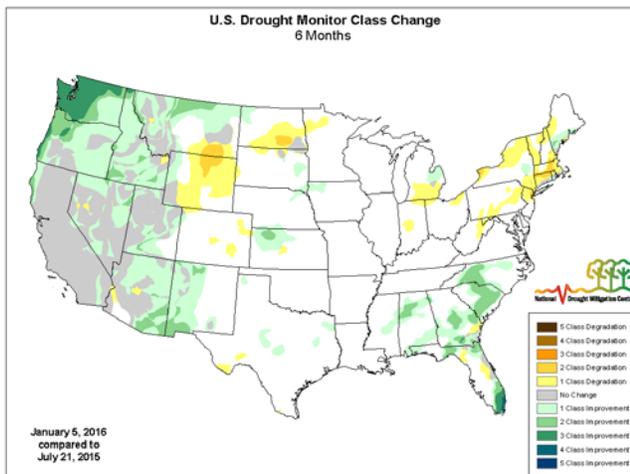
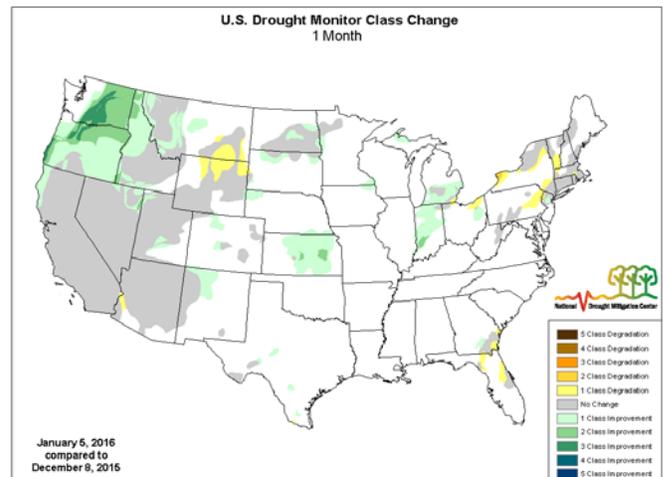
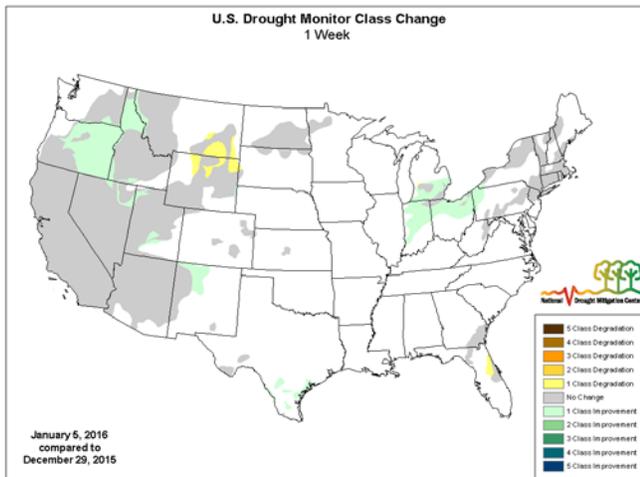
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



USDA National Drought Mitigation Center

<http://droughtmonitor.unl.edu/>

Changes in Drought Monitor Categories over Time



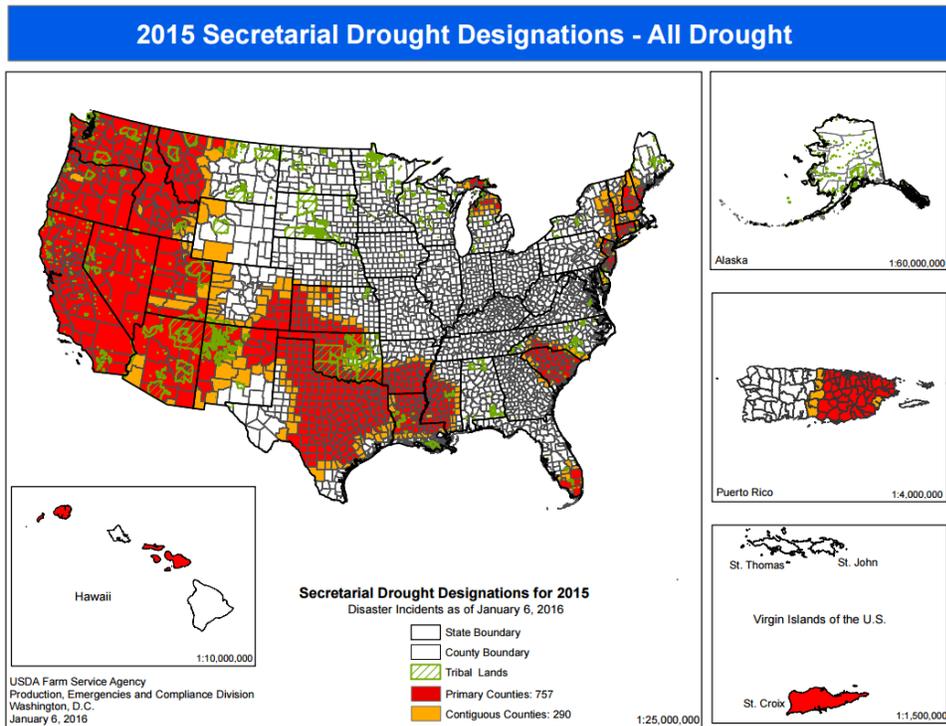
Drought conditions have improved in much of the country, especially in the south central U.S. and the Pacific Northwest. The remainder of the West has shown improvement, but long-term drought persists.

Current National [Drought Summary](#), January 5, 2016

Author: Brian Fuchs, National Drought Mitigation Center

“It was a fairly dry week over much of the United States with the majority of the country seeing little to no precipitation. The exceptions were in south Texas, the Southeast, and along the Pacific coast. At the end of the current U.S. Drought Monitor period and the beginning of the next, the first of several storms started sweeping across the West Coast and into the Southwest. The resulting precipitation will be analyzed for potential improvements to the region next week. Temperatures remained well above normal for the upper Midwest and for most areas east of the Mississippi River. Departures of 5-10 degrees above normal were common from the Mid-Atlantic into the Southeast as well as in eastern North Dakota, northern Minnesota, and northern Wisconsin. Below-normal temperatures were common for most areas west of the Missouri River. Portions of the northern Rocky Mountains were 15-20 degrees below normal in the last week.”

2015 USDA Drought Designations



[Drought Designations as of January 6, 2016](#)

[USDA Disaster and Drought Information](#)

[U.S. Population in Drought, Weekly Comparison](#)

Highlighted Drought Resources

- [Drought Impact Reporter](#)
- [Quarterly Regional Climate Impacts and Outlook](#)
- [U.S. Drought Portal Indicators and Monitoring](#)

USDA Crops in Drought Update: Heavy rains reduce drought

<http://www.usda.gov/oce/weather/Drought/AgInDrought.pdf>

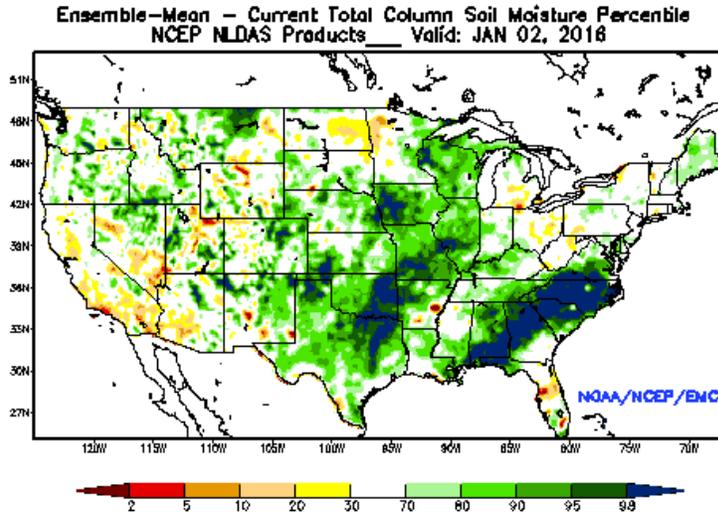
By Brad Rippey, USDA Meteorologist, Office of the Chief Economist, World Agricultural Outlook Board, Washington, D.C.

“During the five-week period ending Jan. 5, 2016, contiguous U.S. drought coverage fell to 18.39 percent—a decrease of 2.19 percentage points. This also represents the smallest areal coverage of U.S. drought in more than five years, since Dec. 7, 2010. Perhaps not coincidentally, the U.S. drought minimum of 2010 occurred near the end of the most recently completed El Niño, which lasted from the summer of 2009 to the spring of 2010.

Since mid-October 2015, a procession of storms, in part driven by a near-record-strength El Niño, has significantly reduced U.S. drought coverage from 34.78 to 18.39 percent—a drop of 16.39 percentage points.”

Other Climatic and Water Supply Indicators

Soil Moisture



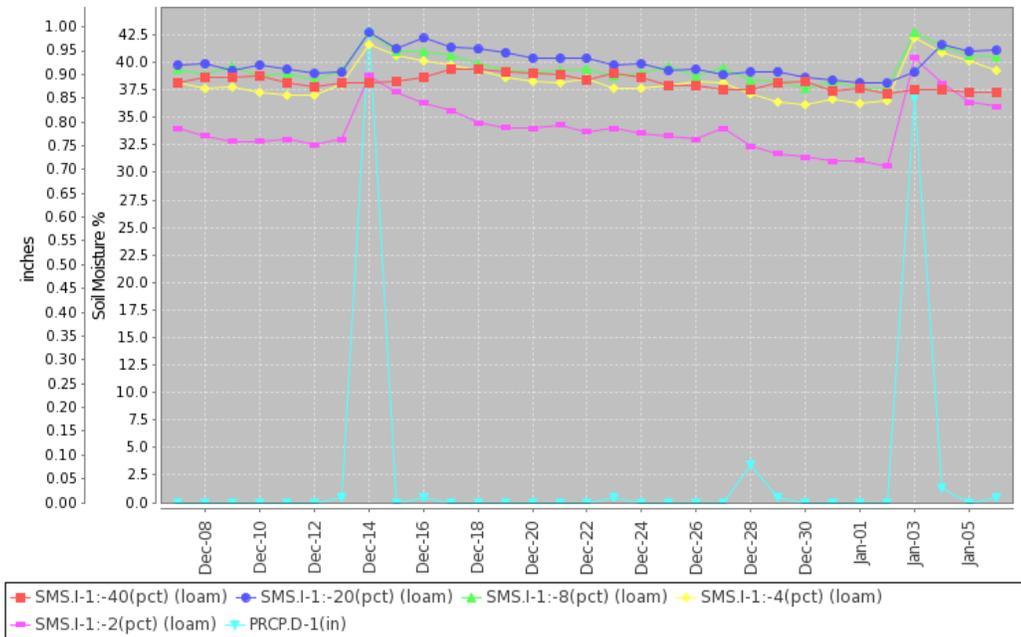
The modeled [soil moisture percentiles](#) as of January 2, 2016 show a very few scattered areas of dryness in the West, the Midwest, and the Northeast.

Above average soil moisture was modeled in much of the central U.S., scattered areas across the West, and a large area in the Southeast.

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

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

Station (2204) MONTH=2015-12-07 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision
Wed Jan 06 18:06:52 GMT-08:00 2016



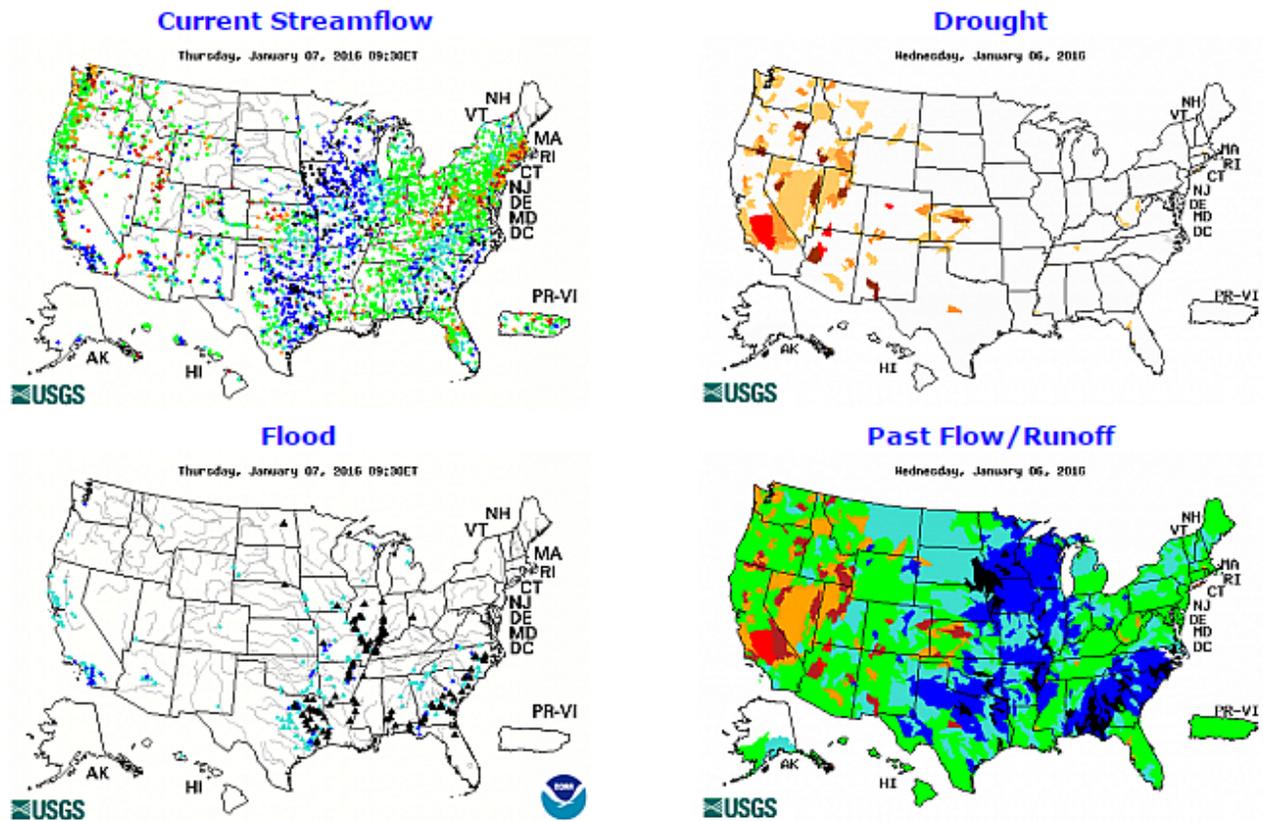
This graph shows soil moisture (at 2-, 4-, 8-, 20-, and 40-inch depths) and precipitation for the last 30 days at the [Uvalde SCAN site #2204](#) in Texas. Soil moisture is extremely high in response to the recent heavy precipitation events and has noticeably increased at all depths.

Soil Moisture Data Portals

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

Streamflow

Source: USGS



Streamflow is notably high in the Midwest, the lower Mississippi River Valley, and the Southeast. A large number of rivers in the central U.S., eastern Texas, along the Mississippi River, and in the Southeast are above flood stage.

Select any individual map to enlarge and display a legend.

- [NOAA Midwest Flooding Damage Assessment Imagery](#) National Oceanic and Atmospheric Administration
- [Tracking the massive floods affecting the Midwest](#) The Washington Post
- [Midwest States Tally Damage from Last Week's Flooding](#) The Wall Street Journal
- [Flooding in the Midwest: 2 Killed, Tens of Thousands without Power](#) The Weather Channel

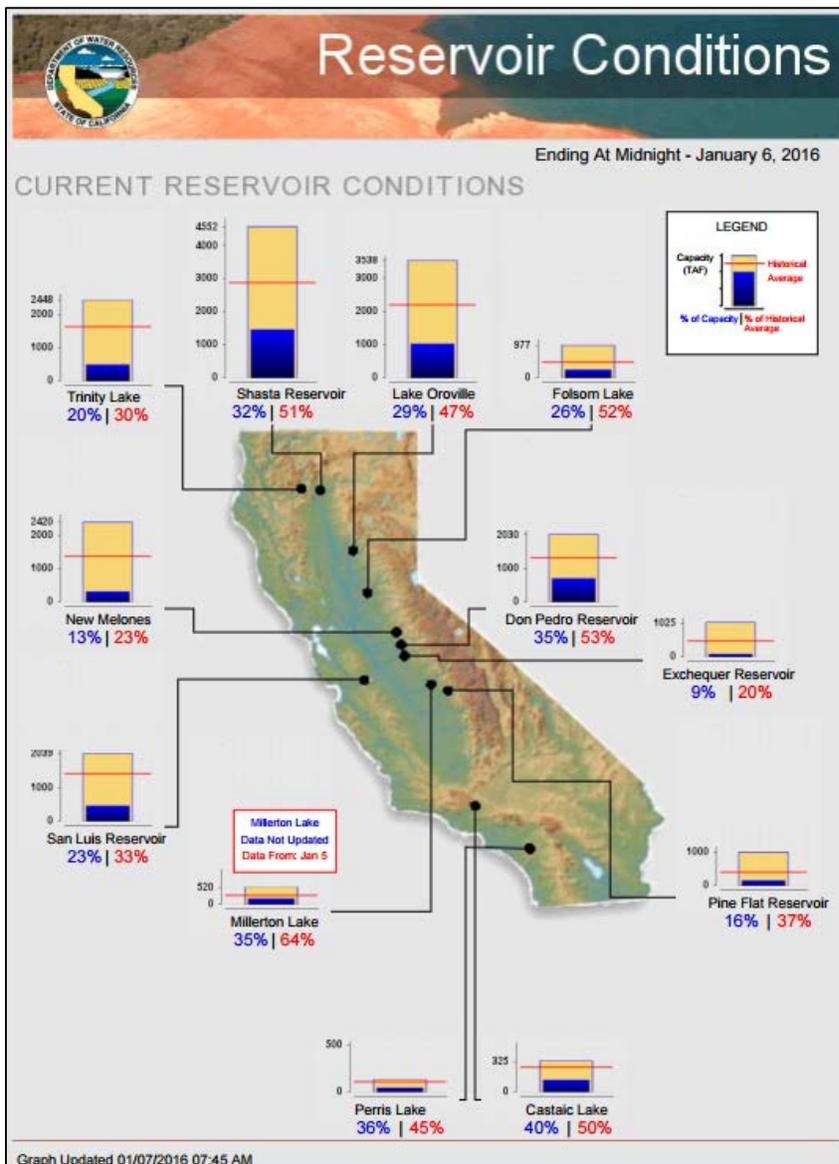
Current Reservoir Storage

[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, January 7, 2016: “For the remainder of the week, a mild, active weather pattern will return to the eastern half of the U.S. East of the Rockies, accumulating snow should be confined to an area stretching from the central High Plains into the Great Lakes region, although weekend snow could become heavy in the latter region. Meanwhile, 3-day rainfall totals should reach an inch or more in parts of the South, East, and lower Midwest. Precipitation will be slow to exit the Northeast, lingering through the weekend. Elsewhere, heavy snow will shift from the Southwest to the central Rockies before ending, although snow showers will return to the Far West—including the Sierra Nevada—during the weekend. During the next several days, a broad surge of cold air will spread eastward across the U.S. The NWS 6- to 10-day outlook for January 12 – 16 calls for the likelihood of near- to below-normal temperatures nationwide, except for warmer-than-normal weather in the Far West, including the Pacific Coast States. Meanwhile, below normal precipitation should occur in a broad area stretching across the central and southern Rockies, through the mid-Mississippi Valley, and into the Mid-Atlantic States and southern New England. In contrast, wetter-than-normal conditions will cover the Far West, the Gulf Coast region, and much of the nation’s northern tier.”

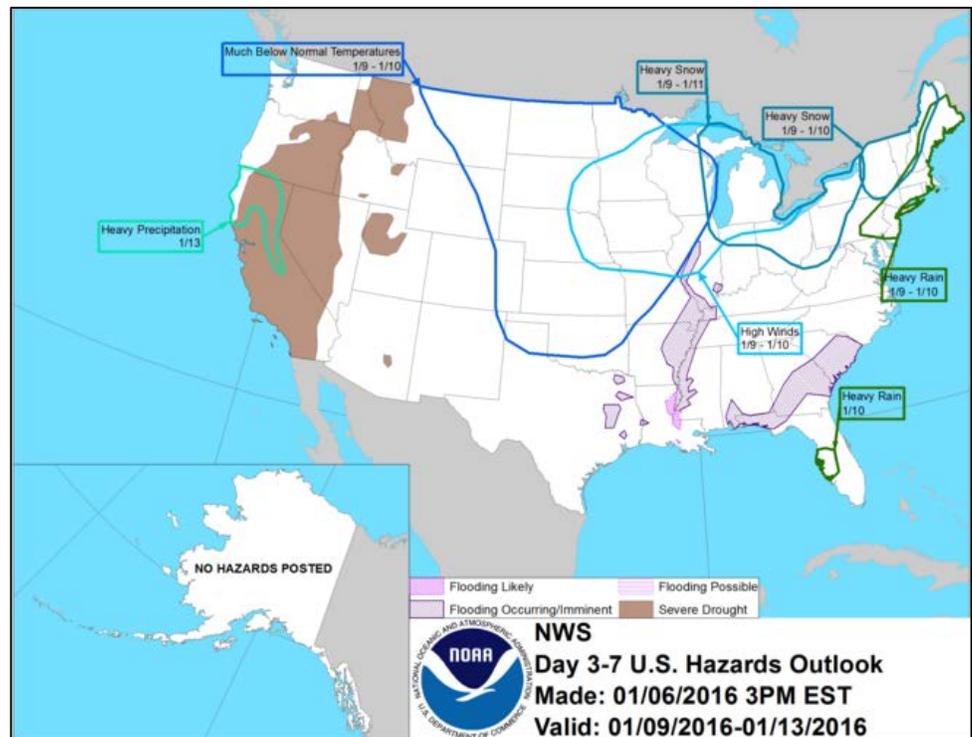
National Weather Hazards

The outlook for [weather hazards](#) over the next week include heavy flooding occurring in most of the middle and lower Mississippi River Basin, eastern Texas, and across the Southeast.

High winds are expected in much of the upper Midwest. Heavy snow is forecast from the Great Lakes east through northern New England. Much below normal temperatures are expected across most of the Plains.

Heavy rain is expected in southern New England to New Jersey, western Florida, and northern California.

Severe drought covers a large area of the West.

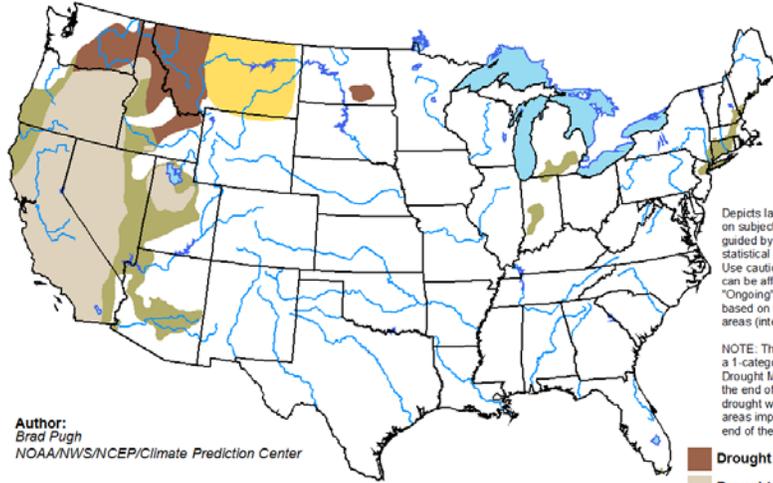


Seasonal Drought Outlook

During the next three months, **drought** will persist in the Northwest and may develop in eastern Montana and Hawaii. Elsewhere, most drought designations are expected to improve.

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

Valid for December 17 - March 31, 2016
Released December 17, 2015



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:
Brad Pugh
NOAA/NWS/NCEP/Climate Prediction Center

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

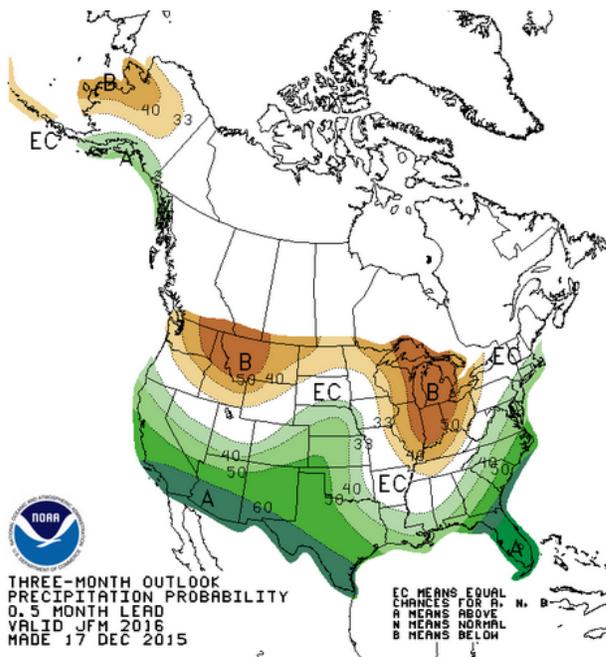


<http://go.usa.gov/3eZ73>



NWS Climate Prediction Center 3-Month Outlook

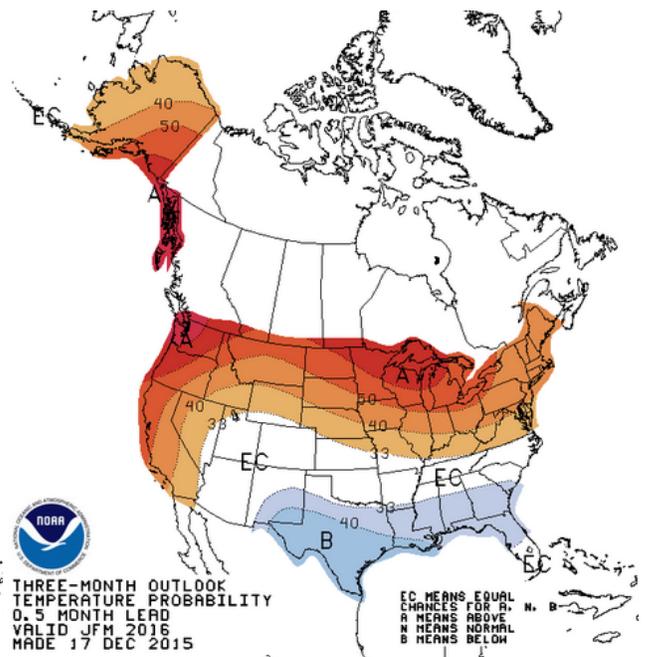
Precipitation



THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.5 MONTH LEAD
VALID JFM 2016
MADE 17 DEC 2015

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 JFM 2016
MADE 17 DEC 2015

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

Outlook Summary

NWS Climate Prediction Center:

[“The January-February-March \(JFM\) 2016 precipitation outlook](#) The JFM 2016 precipitation outlook through the early spring continues to favor a pattern that is typically associated with El Nino. Enhanced odds for above-median precipitation are forecast across California, the Southwest, central/southern Great Plains, gulf coast states, and parts of the east coast. The highest probabilities (above 70 percent) for above-median precipitation are forecast across the Florida peninsula for JFM 2016 which typically has the strongest wet signal during El Nino. Below-median precipitation is favored through the early spring across the northern Rockies, parts of the northern Great Plains, Great Lakes, and the Ohio Valley. The dry signal across the Ohio Valley peaks during the JFM 2016 season during El Nino. This dry signal slowly weakens with time through late spring and early summer.”

[“The January-February-March \(JFM\) 2016 temperature outlook](#) There are very few changes to the early lead temperature outlooks, which largely harvest the low-frequency Enso response, evident among all the current dynamical and statistical guidance. Statistical guidance is generally colder than the dynamical guidance across the southeast, where a very slight shift toward colder temperatures is indicated near the Gulf Coast. Dynamical guidance indicates a slight cooling trend over that region compared to last month. In spite of the near-record warm December underway across much of the eastern two-third of the CONUS, the low-frequency climate signals still point toward a colder solution for the far southeastern CONUS. All temperature tools continue to strongly favor above-normal temperatures across the northern half of the continental U.S. Through the early spring which is consistent with a strong El Nino. Also, above-normal SSTs along the west coast contribute to the enhanced odds for above-normal temperatures in early leads. Below-normal temperatures favored for the southern high plains during the 2016 spring are partly related to the expectation of abnormally moist topsoil at that lead time.”

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](#).