

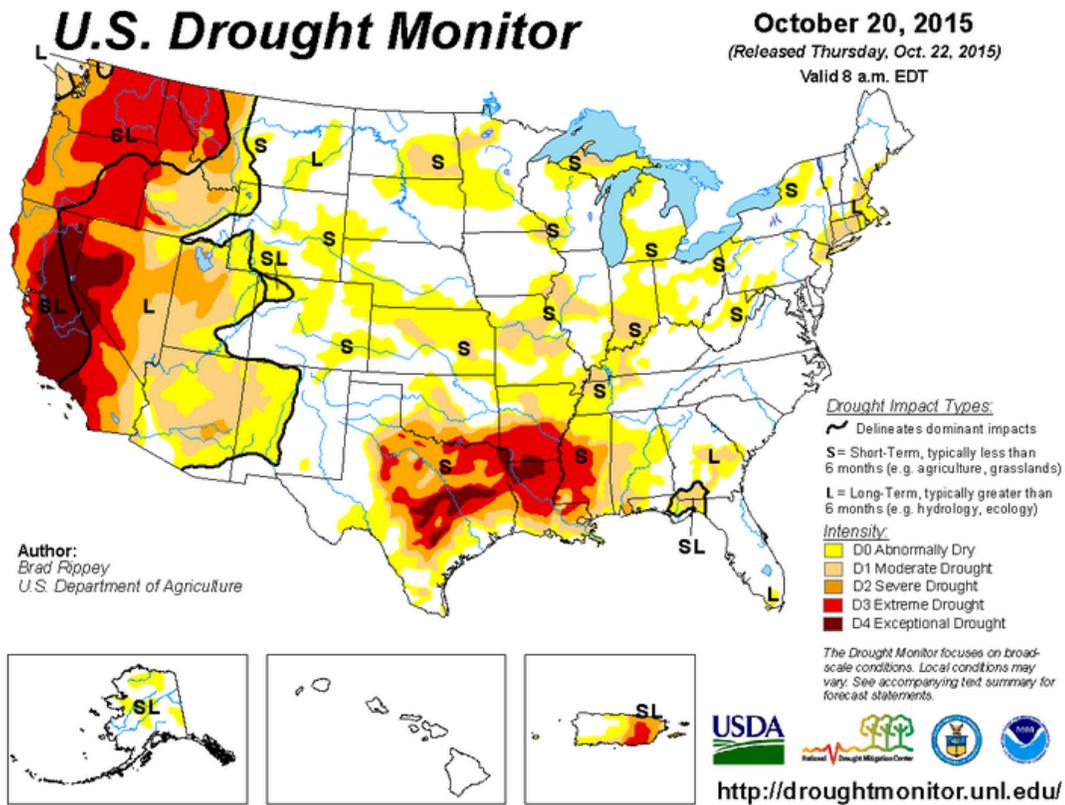
Water and Climate Update

October 22, 2015

The Natural Resources Conservation Service produces this weekly report using data and products from the National Water and Climate Center and information provided by other agencies. The report focuses on current precipitation, seasonal snowpack, temperature, and drought conditions in the U.S.

Weekly Highlight	1	Drought	7
Precipitation	2	Other Climatic and Water Supply Indicators	10
Temperature.....	6	Short- and Long-Range Forecasts.....	12

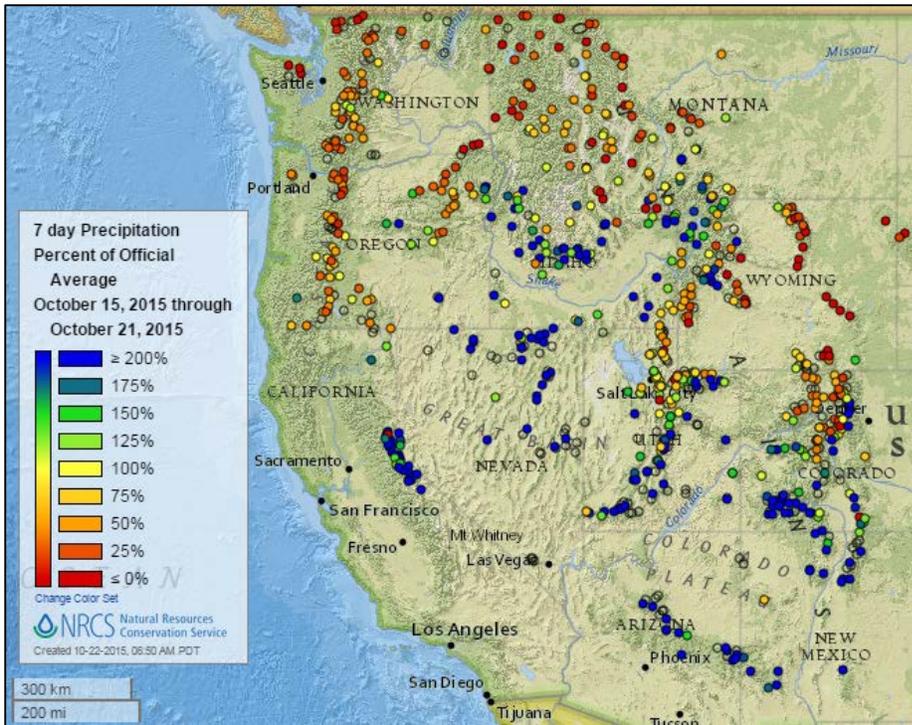
Weekly Highlight: Exceptional drought impacts increasing in south central U.S.



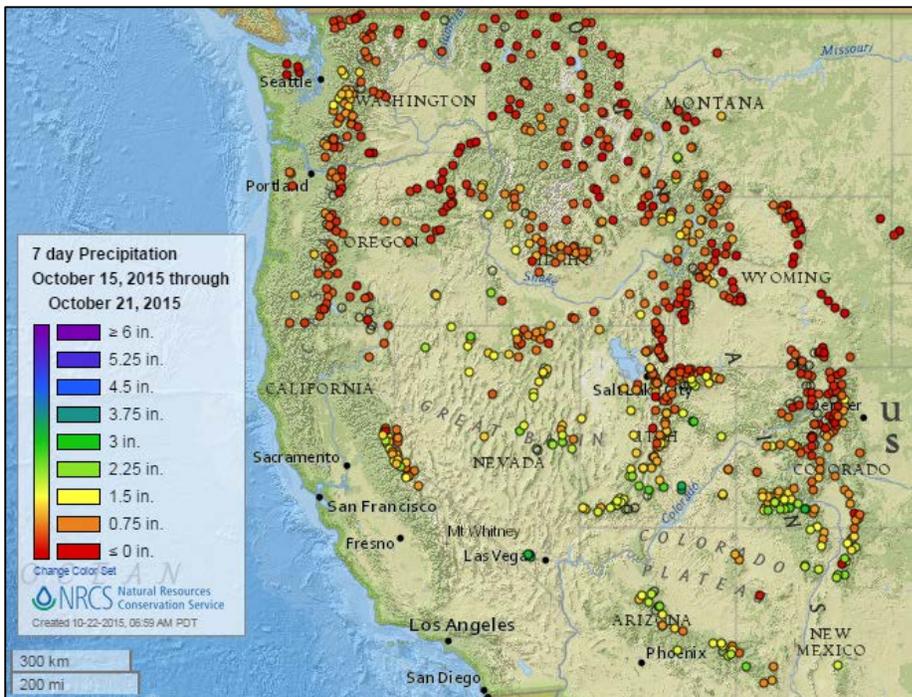
“A sharp, 3- to 4-month [drought](#) has brought significant impacts to a broad area stretching from southern Oklahoma and central and eastern Texas to the Mississippi Delta. In mid-October, a spell of extreme heat – accompanied by gusty winds and low humidity – caused further drought intensification and brought a rash of fires.” Brad Rippey, USDA

Precipitation

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

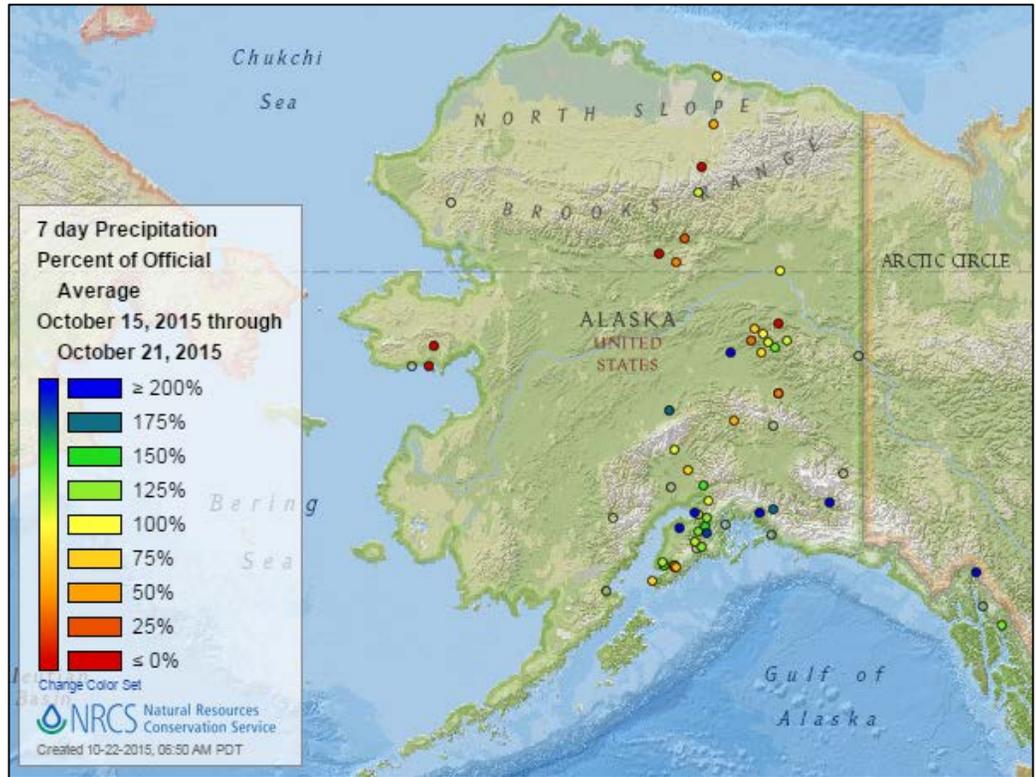


The 7-day [precipitation percent of average](#) map shows primarily drier than average conditions in the northern parts of the West and wetter than average conditions across the southern parts of the region. Specifically, mainly dry conditions were reported across the Cascades and most of the northern and central Rockies. Above average precipitation fell in the Sierra Nevada, some areas in eastern Oregon and southern Idaho, and across to the central and southern Rockies and the Southwest.

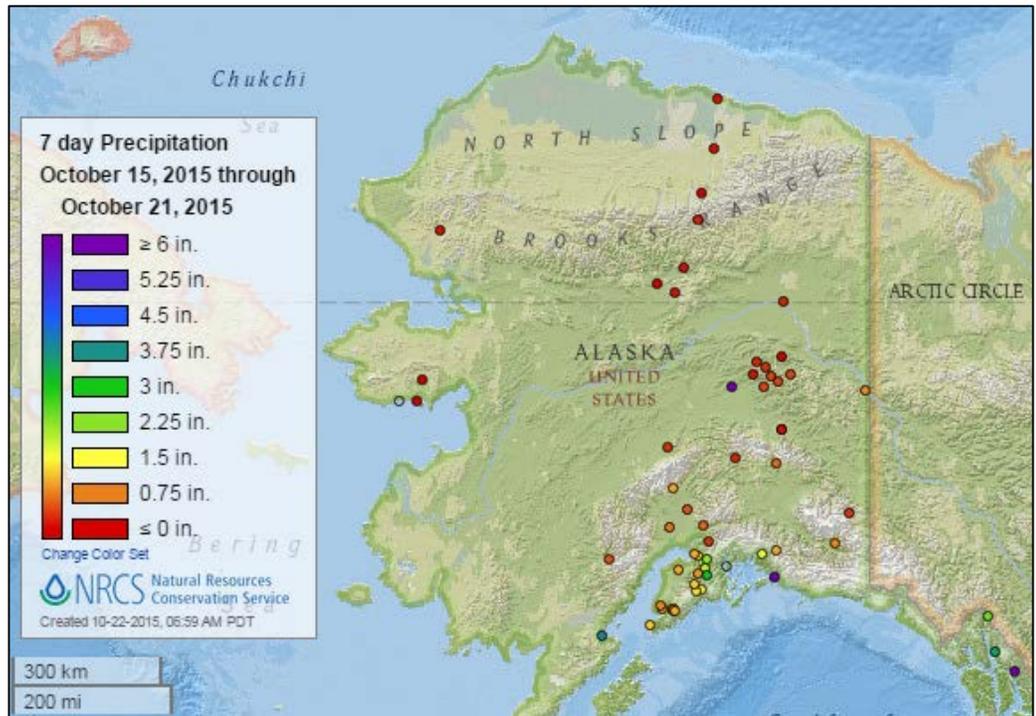


The [total precipitation](#) map shows mainly dry conditions for most of the West. The areas that received precipitation are mostly in California, Nevada, southern Idaho, southern Utah, southwest Colorado, Arizona, and New Mexico, and ranged up to 3 inches. There was also precipitation reported totaling less than 0.75 inches elsewhere across the West.

The Alaska [precipitation percent of average](#) map for the last seven days shows much of Interior and western Alaska reporting below average precipitation for the week. South and southeast Alaska and a few stations in the Interior had much above average precipitation.



The Alaska [total precipitation](#) map shows generally no precipitation for the interior regions and less than 3.75 inches in the coastal areas. Two stations along the coast in southern and southeast Alaska and one Interior station had more than 6 inches for the week.

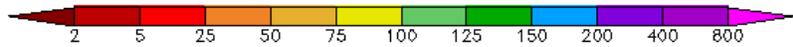
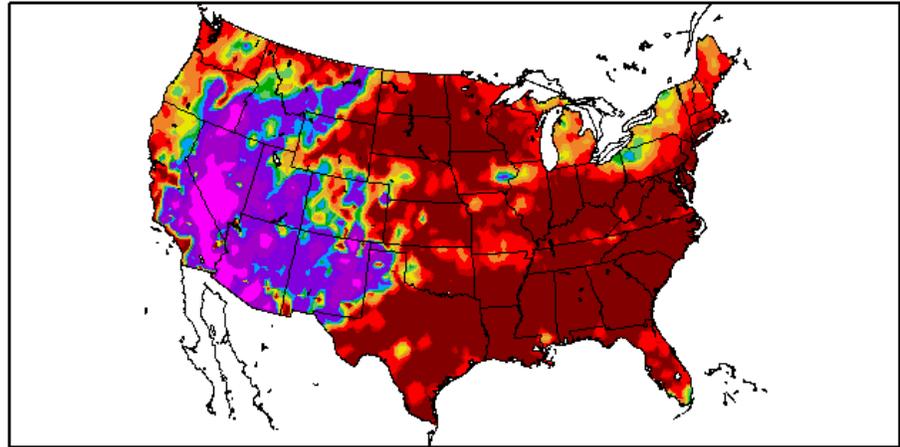


Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

Percent of Normal Precipitation (%)
10/15/2015 – 10/21/2015

The [percent of normal precipitation](#) map shows well above average precipitation across the Southwest and much of the West. In contrast, most of the area east of the Rockies was dry.

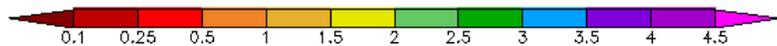
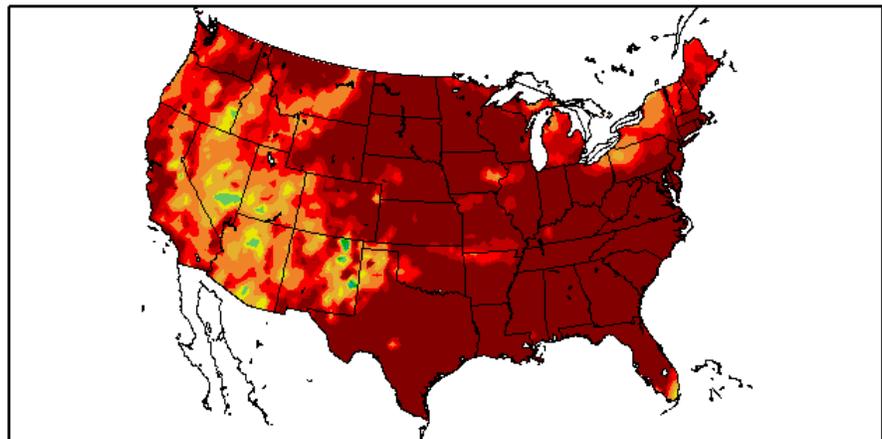


Generated 10/22/2015 at HPRCC using provisional data.

Regional Climate Centers

Precipitation (in)
10/15/2015 – 10/21/2015

The [7-day total precipitation](#) map shows the largest rainfall of over 2 inches fell in several areas of the West, including eastern Oregon, southern Nevada, southern Utah, Arizona, and New Mexico. Large portions of the country were dry.



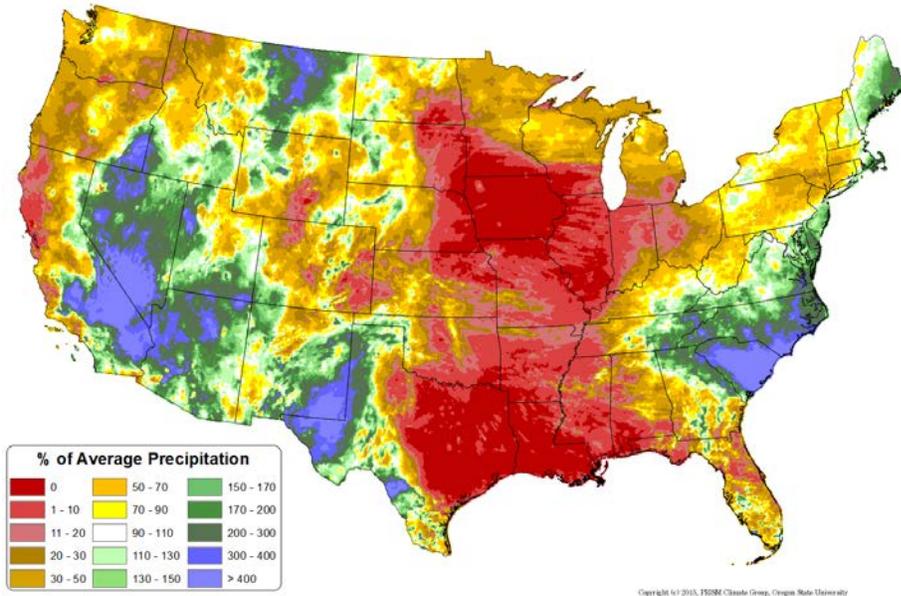
Generated 10/22/2015 at HPRCC using provisional data.

Regional Climate Centers

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

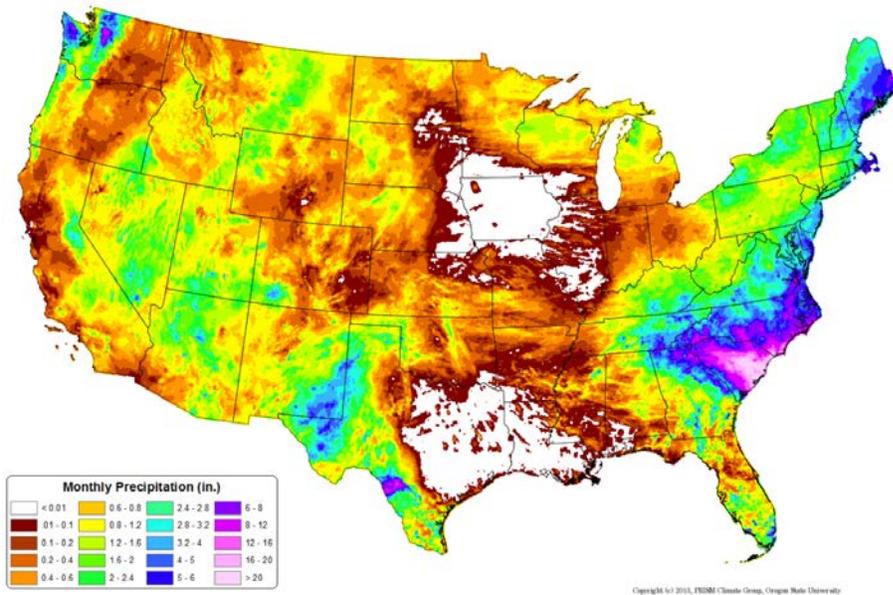
Source: PRISM

Total Precipitation Anomaly: 01 October 2015 - 20 October 2015
 Period ending 7 AM EST 20 Oct 2015
 Base period: 1981-2010
 (Map created 21 Oct 2015)



For the month of October, the national [total precipitation anomaly](#) map shows high percent of average precipitation fell in the Carolinas, central Montana, and in areas of the Southwest from California to Texas. The central U.S. was mainly dry for the month.

Total Precipitation: 01 October 2015 - 20 October 2015
 Period ending 7 AM EST 20 Oct 2015
 (Map created 21 Oct 2015)



The October month-to-date [total precipitation map](#) shows a very high precipitation total in the Carolinas where up to 20 inches of rain fell from the storms during the first week of the month.

Other areas that received precipitation were in the Northeast, Northwest, and Southwest into Texas. The central U.S. and some areas of the West have been dry thus far in October.

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

Note: Because the 2016 Water Year began on October 1, the water year-to-date coincides exactly with the month-to-date. Therefore, water year-to-date maps will not be included until November.

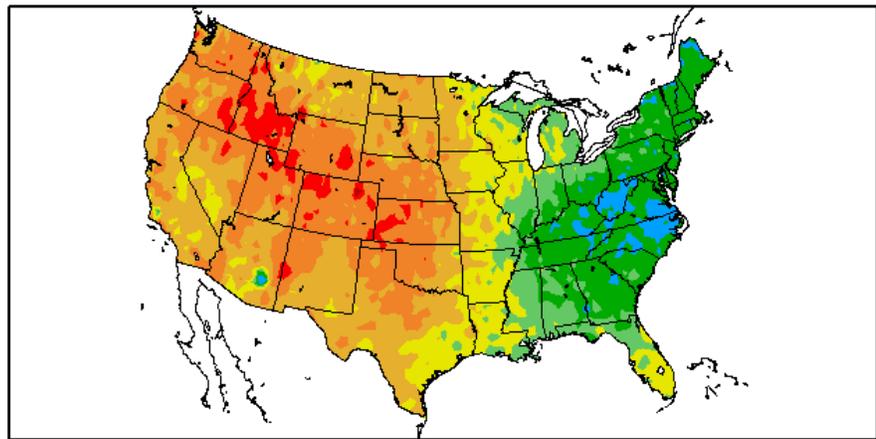
Temperature

Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

Departure from Normal Temperature (F)
10/15/2015 – 10/21/2015

The map of the [average temperature anomalies](#) for the past week shows much of the West and Plains reporting a warm week, with readings up to 9 degrees above normal. The East had cooler than normal temperatures, with the Mid-Atlantic states reporting cool anomalies of more than 6 degrees for the week. Much of the central U.S. was near normal.



Generated 10/22/2015 at HPRCC using provisional data.

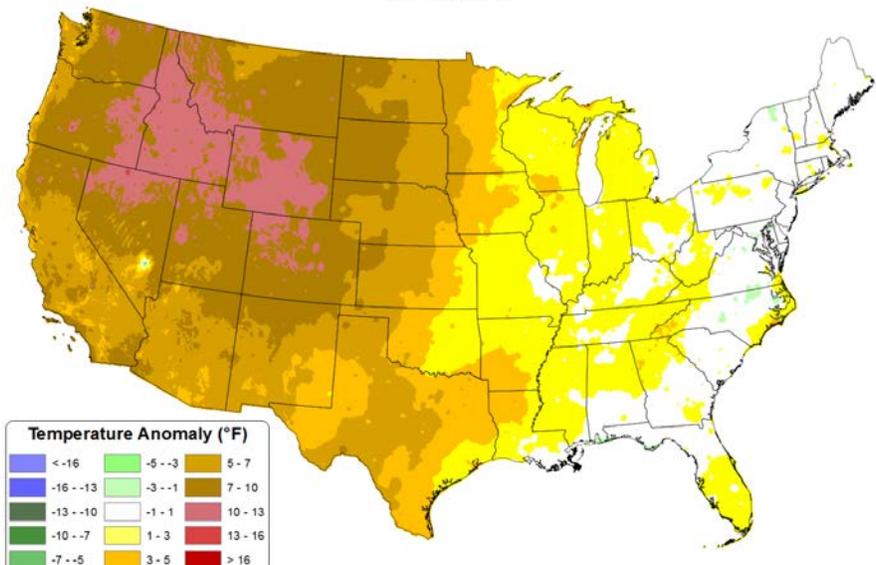
Regional Climate Centers

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

Source: PRISM

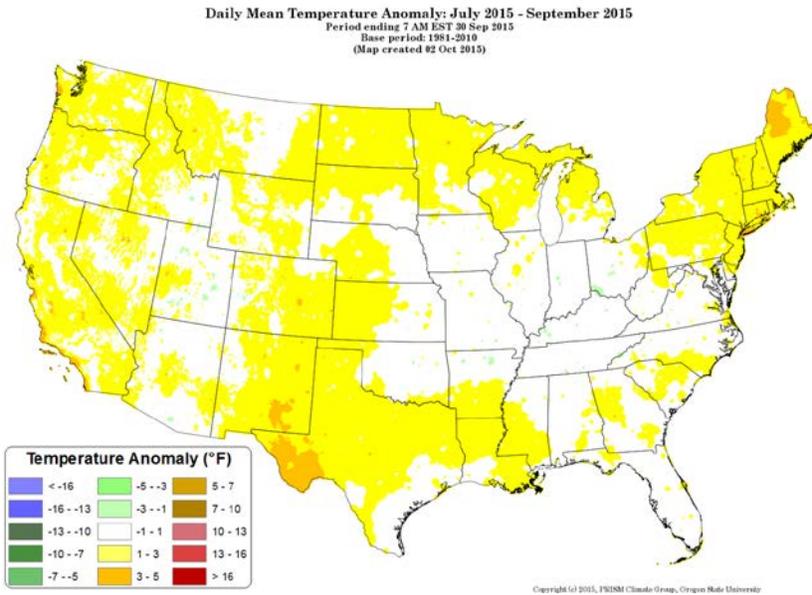
For October 2015, the national [daily mean temperature anomaly](#) map shows above normal temperatures across the West with some temperatures topping 10 degrees F. The warm temperatures gradually decrease as you move east, until most of the Atlantic coastal states are near normal for the month.

Daily Mean Temperature Anomaly: 01 October 2015 - 20 October 2015
Period ending 7 AM EST 20 Oct 2015
Base period: 1981-2010
(Map created 21 Oct 2015)



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

Source: PRISM

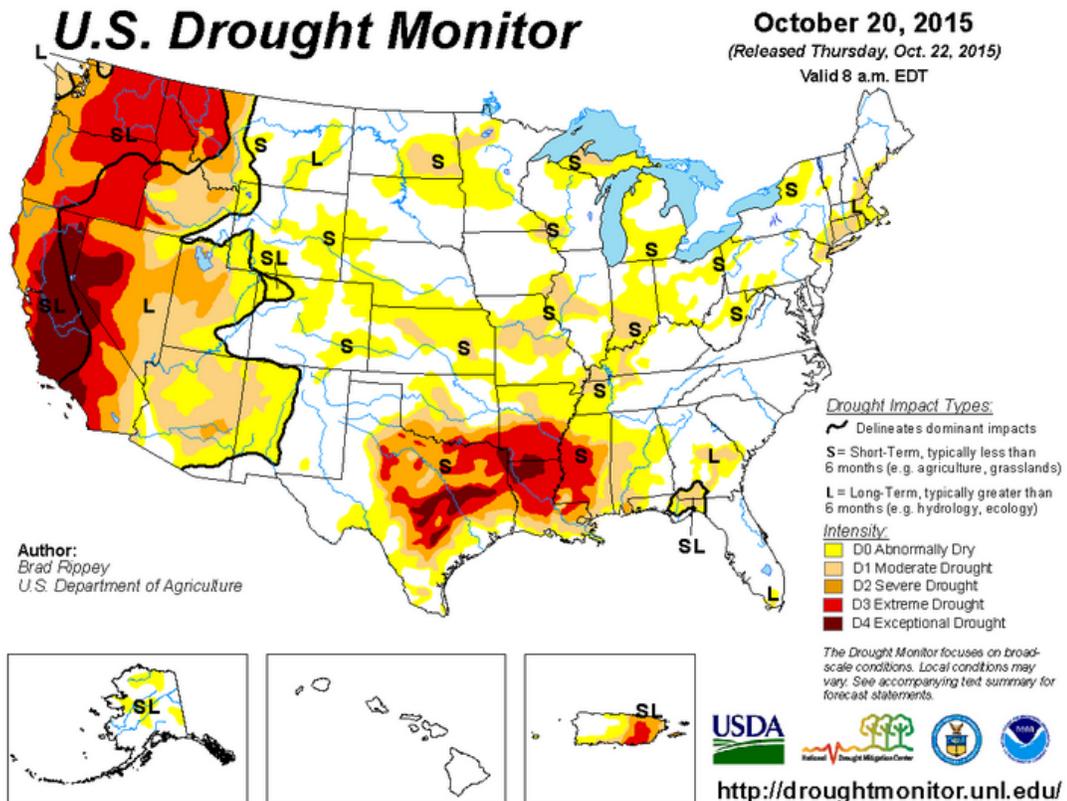


The July through September national **daily mean temperature anomalies** shows areas that were either above average or near average. The above average areas occurred across the country, with the warmest temperatures in the Southwest, western Texas, California coast, and Northeast.

Drought

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

[U.S. Drought Monitor](#) See map below. Exceptional levels of drought continue in Texas, Louisiana, Arkansas, California, and Nevada, with extreme drought in the Pacific Northwest, the south-central U.S., and the eastern half of Puerto Rico.



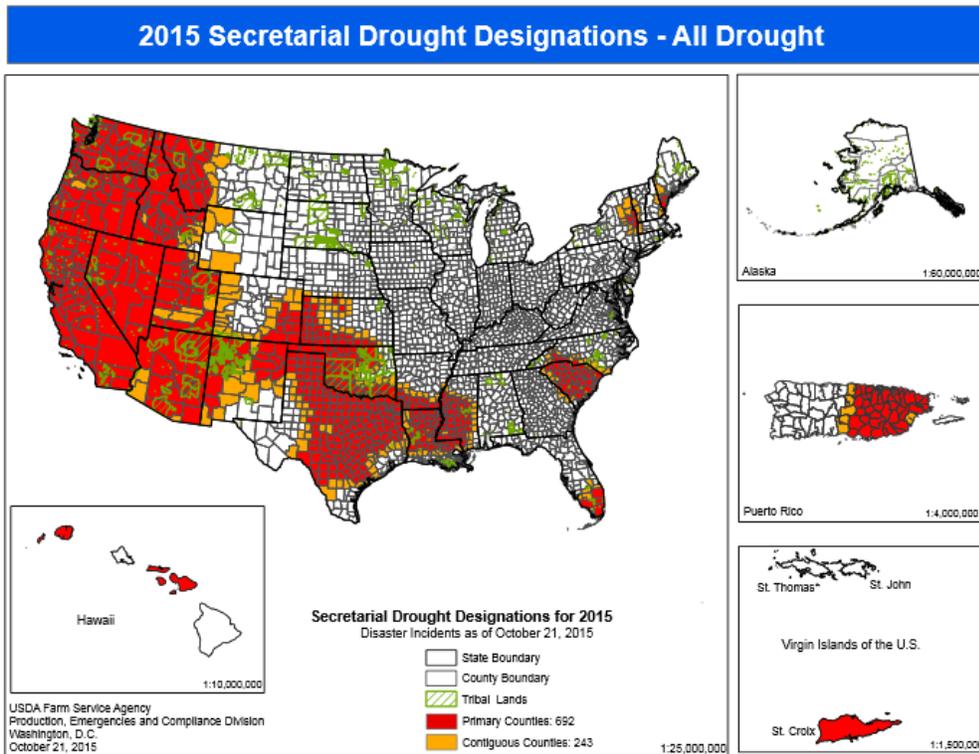
Current National [Drought Summary](#), October 20, 2015

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

“Dry weather dominated much of the country, favoring summer crop harvesting and winter wheat planting. However, topsoil moisture shortages hampered wheat emergence and establishment in a variety of regions, including portions of the Plains, lower Midwest, and interior Northwest. Meanwhile, significant short-term drought continued to grip the South, primarily from the southeastern Great Plains to the Mississippi Delta. In addition to concerns about recently planted winter wheat, Southern drought issues included stress on pastures and late-maturing summer crops; an elevated risk of wildfires; and diminishing surface-water supplies. In stark contrast, dry weather in South Carolina and environs favored flood-recovery efforts. Starting on October 16-17, widespread freezes ended the Midwestern growing season—as much as 1 to 2 weeks later than the normal first freeze in some locations. On October 18-19, freezes into the mid-Atlantic region and interior Southeast were roughly on schedule, or even a little earlier than normal. Elsewhere, a period of record-setting Western warmth preceded the arrival of a slow-moving storm system. Showers overspread California by October 15 and over the next several days reached into the Great Basin, Southwest, and Intermountain West. The Western precipitation caused local flooding, but replenished topsoil moisture, benefited rangeland and pastures, and provided limited relief from long-term drought. Significant rain began to overspread the south-central U.S. on October 21, a day after the drought-monitoring period ended, and will be reflected in next week’s U.S. Drought Monitor.”

Detailed regional drought narratives for the week are [here](#).

2015 USDA Drought Designations

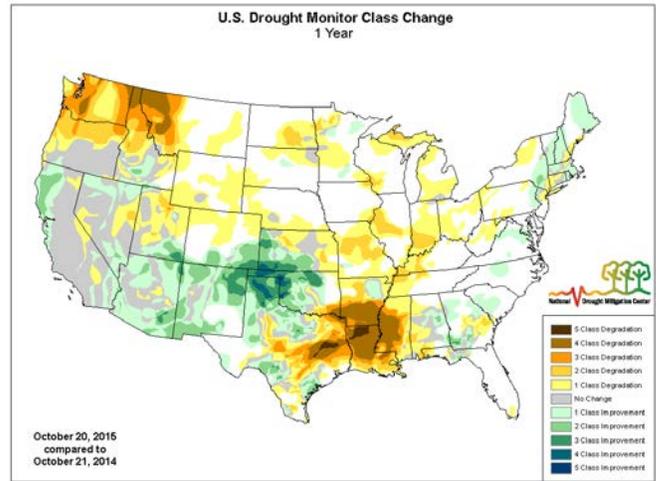
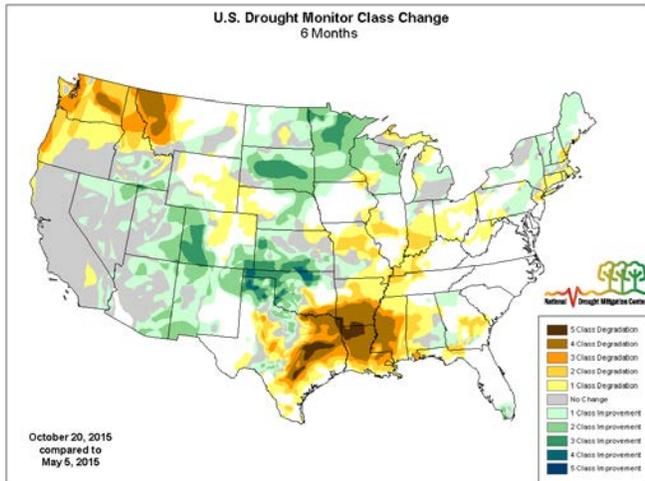
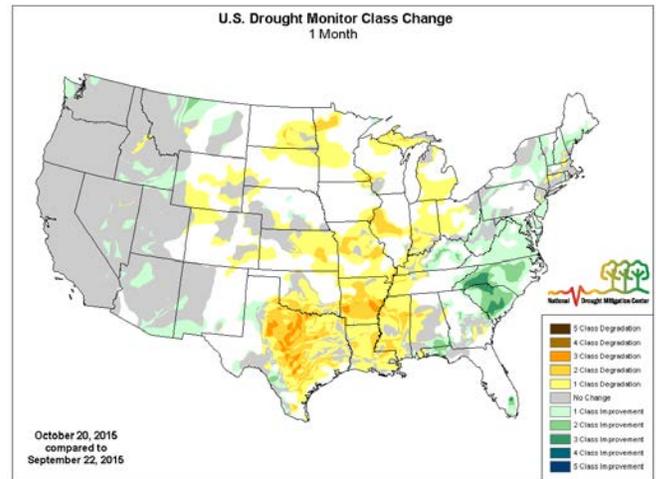
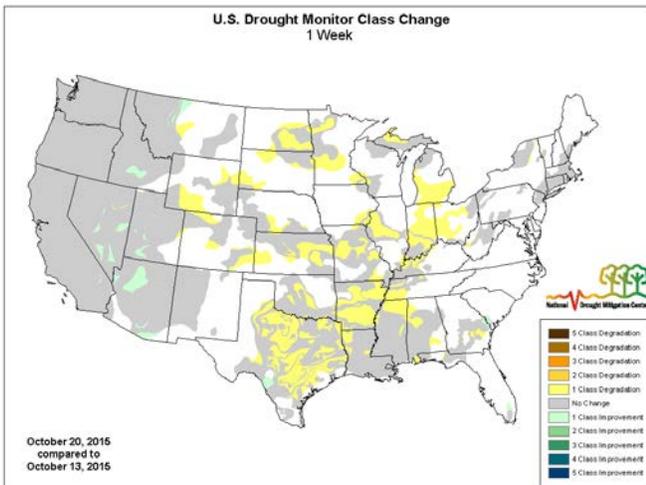


[Drought Designations as of October 21, 2015](#)

[USDA Disaster and Drought Information](#)

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

Changes in Drought Monitor Categories over Time



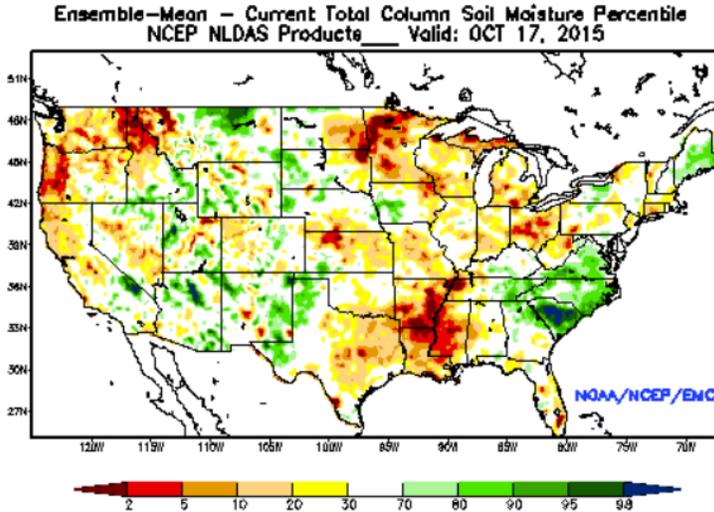
[Persistent, dry conditions](#) are particularly notable in the Northwest and parts of the South and Southeast. Conditions have deteriorated in the lower Mississippi Valley and have improved significantly in the Carolinas during the past month and the southern Great Plains and the Southwest during the past 6-12 months.

Highlighted Drought Resources

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

Other Climatic and Water Supply Indicators

Soil Moisture

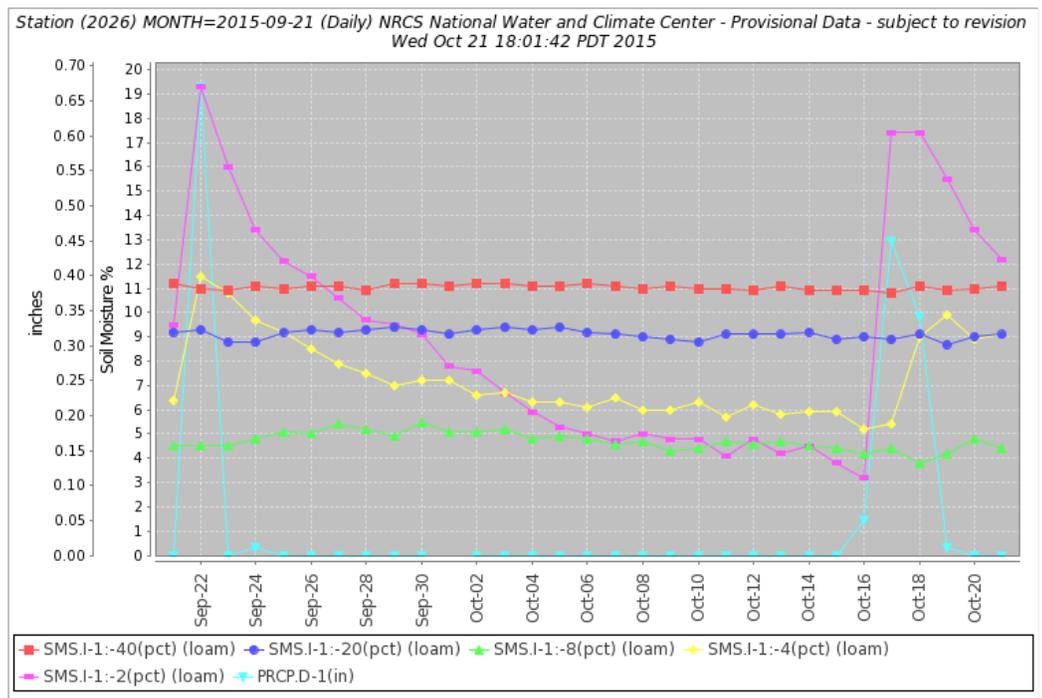


The modeled [soil moisture percentiles](#) as of October 17, 2015 show dryness in the far West, the upper Midwest, and areas in the South.

Areas of above average soil moisture include parts of the Rocky Mountains, the northern Plains, and much of the Mid Atlantic seaboard. Extreme soil moisture due to flooding is extensive in South Carolina.

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

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

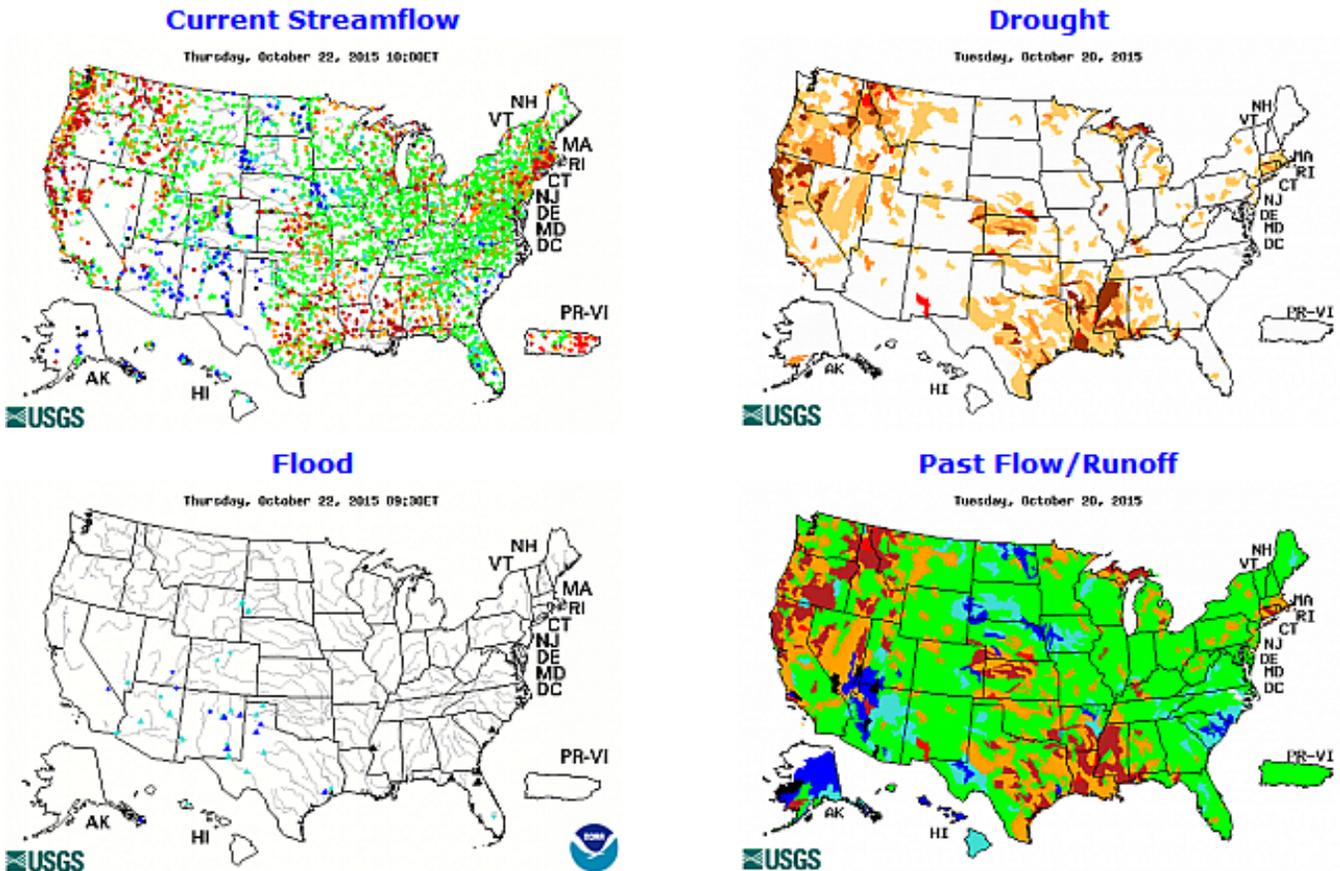


This graph shows soil moisture (2-, 4-, 8-, 20-, and 40-inch depth) and precipitation for the last 30 days at the SCAN site at [Walnut Gulch \(2026\)](#), in Arizona. The precipitation on September 22 and October 16-18 has caused an increase in soil moisture at the 2- and 4-inch depths, whereas the 8-, 20- and 40-inch sensors show little change.

Soil Moisture Data Portals

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

Streamflow



[Streamflow](#) remains below normal in parts of the far West, parts of the Northeast, the South, and Puerto Rico. High flows and flooding have occurred in the Southeast and the Southwest. Other areas with much above normal flows are in a few scattered areas in the West and Plains.

From the USGS web site, select any individual map to enlarge and display a legend.

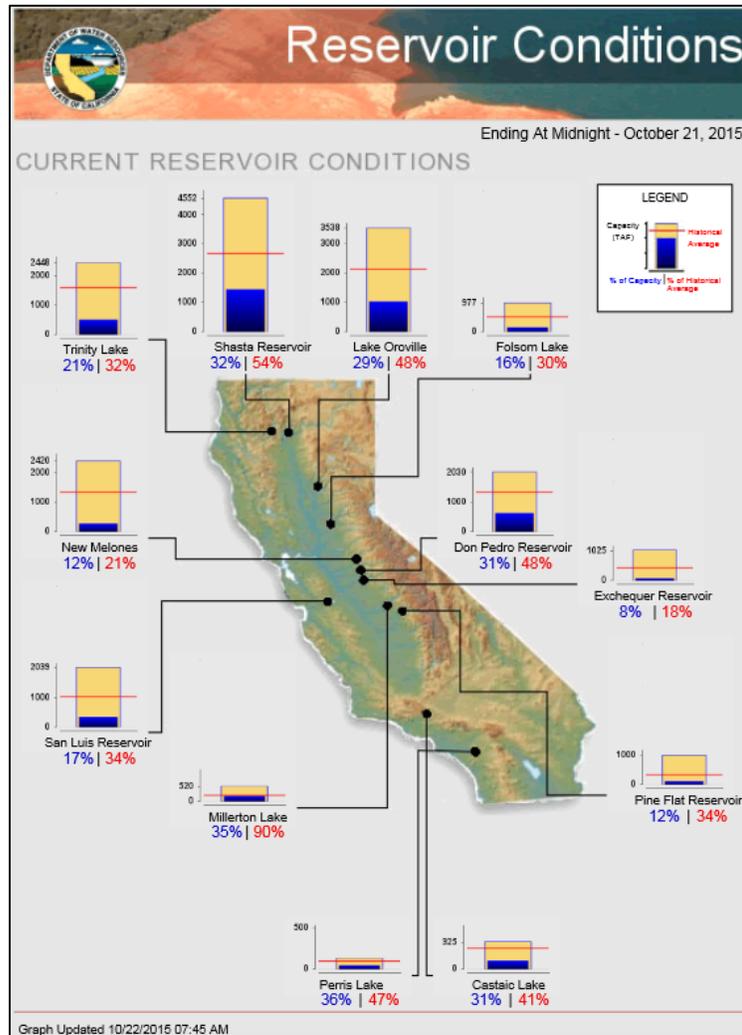
Current Reservoir Storage

[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 Forecasts

Agricultural Weather Highlights

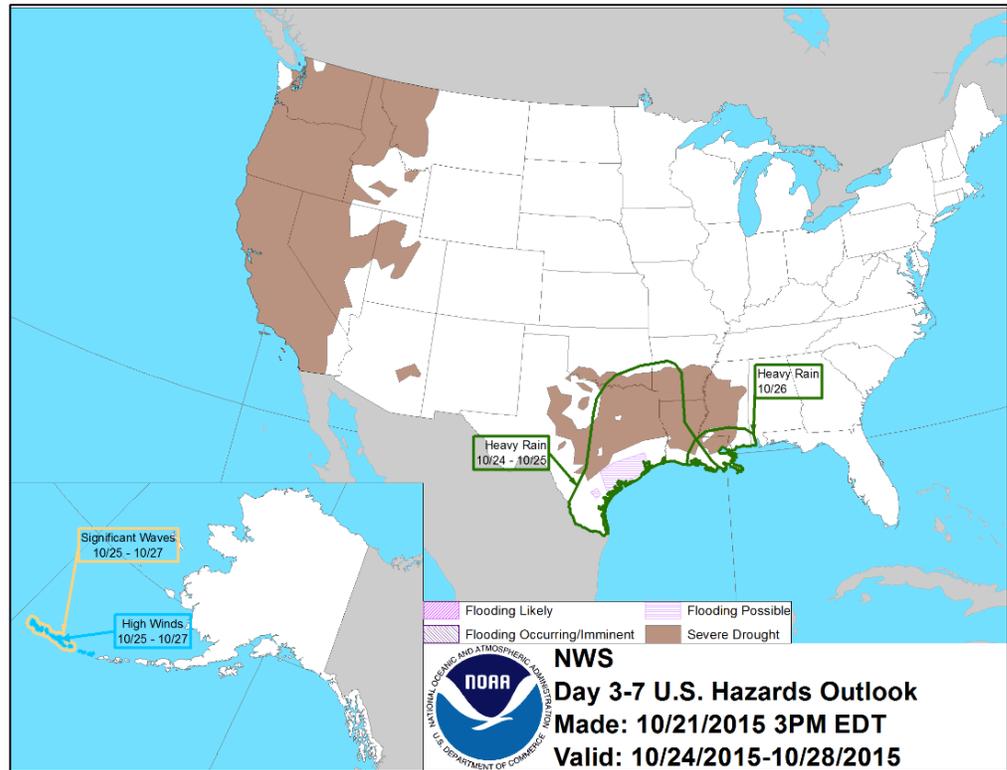
Author: Brad Rippey, Agricultural Meteorologist, USDA/OCE/WAOB, Washington, D.C.

National Outlook, October 22, 2015: “A slow-moving storm system crossing the south-central U.S. will remain the focus for heavy rainfall, drought relief, and local flooding. During the weekend, the storm will begin to interact with the remnants of eastern Pacific Hurricane Patricia. Moisture associated with Patricia will be drawn northeastward, helping to boost 5-day rainfall totals to 5 to 10 inches or more in parts of central and eastern Texas and neighboring areas. Farther north, rainfall totals in excess of an inch can be expected in parts of the north-central U.S., but most of the Midwest and Northeast will receive less than one-half inch. Elsewhere, mostly dry weather will prevail in the western U.S. and the southern Atlantic States. The NWS 6- to 10-day outlook for October 27 – 31 calls for the likelihood of warmer-than-normal weather across Florida and from the Pacific Coast to the northern and central Plains and the upper Midwest, while near- to below-normal temperatures can be expected across much of the South, East, and lower Midwest. Meanwhile, near- to above-normal precipitation across the majority of the U.S. will contrast with drier-than-normal conditions from the northern Plains into the upper Great Lakes region.”

National Weather Hazards

The outlook for [weather hazards](#) over the next week show heavy rain is expected over the eastern half of Texas into parts of Arkansas, Louisiana, and Mississippi (10/24 - 26). This may cause flooding in coastal Texas. Continued drought covers much of the far West and parts of the South.

In Alaska, high winds and significant waves (10/25-27) are forecast for the western Aleutians.



Seasonal Drought Outlook

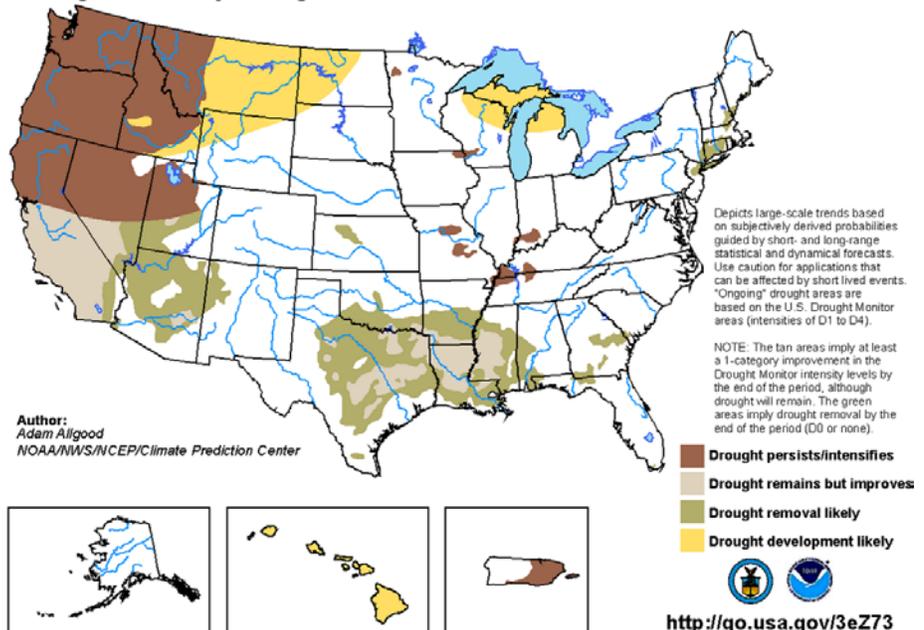
During the next three months, [drought](#) will persist or intensify over the West, parts of the central U.S., and eastern Puerto Rico.

Drought remains, but is improving, in parts of the Southwest, and the South.

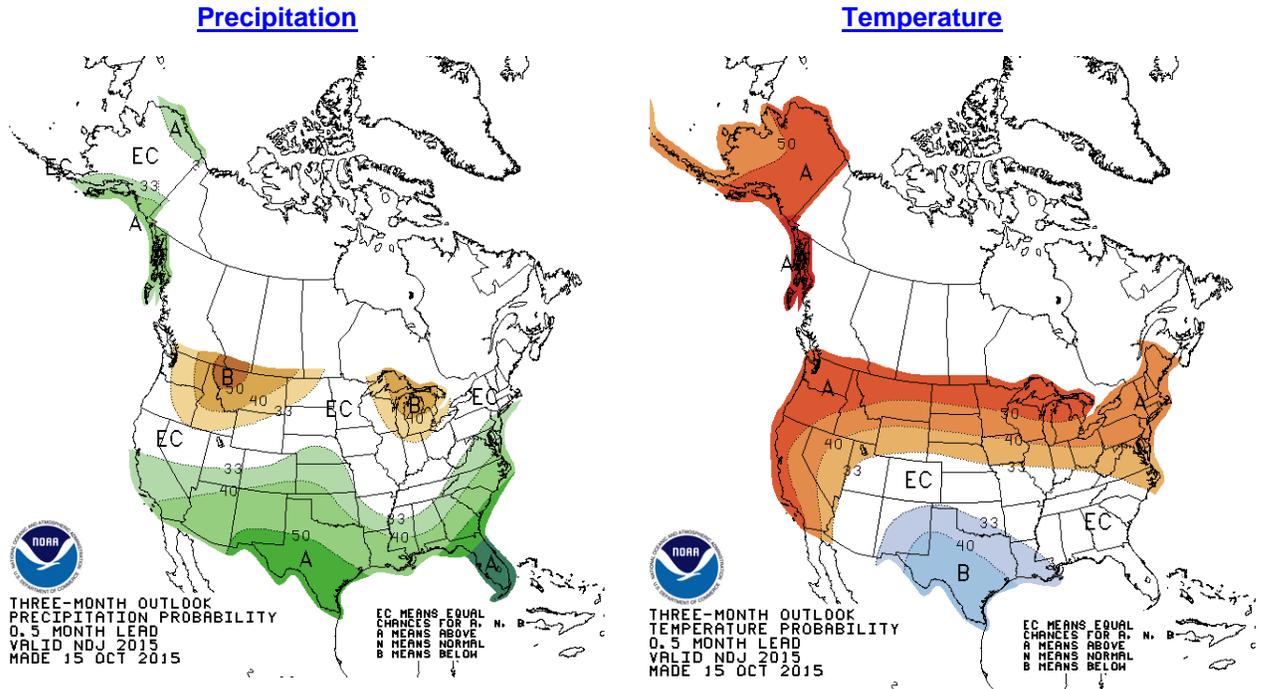
Drought removal is likely in the parts of the Southwest, South and New England.

Drought development is likely from eastern Idaho to central North Dakota, in northern Wisconsin and Michigan, and across Hawaii.

U.S. Seasonal Drought Outlook Valid for October 15 - January 31, 2016
Drought Tendency During the Valid Period Released October 15, 2015



NWS Climate Prediction Center 3-Month Outlook



Outlook Summary

NWS Climate Prediction Center:

“[The October-November-December \(OND\) 2015 precipitation outlook](#) indicates enhanced probabilities of above-median precipitation amounts for central and southern California, the Southwest, parts of the central and southern Plains, the lower Mississippi valley, the southeast northward to the Mid-Atlantic. Above-median precipitation amounts are also most likely for the southern and northern coasts of Alaska. Below-median precipitation amounts are most likely for parts of the Pacific Northwest, northern Rockies and Great Lakes.”

“[The October-November-December \(OND\) 2015 temperature outlook](#) indicates enhanced probabilities of above-normal temperatures for the far West, across the northern contiguous U.S. to the Northeast, and southward to the Mid-Atlantic. Within the contiguous U.S., the chances of above-normal temperatures are greatest along the Pacific coast and along the northern tier from the Pacific Northwest to the Great Lakes with probabilities exceeding 50 percent. Below-normal temperatures are favored from New Mexico to Louisiana while above-normal temperatures are also most likely for Alaska.”

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](#).