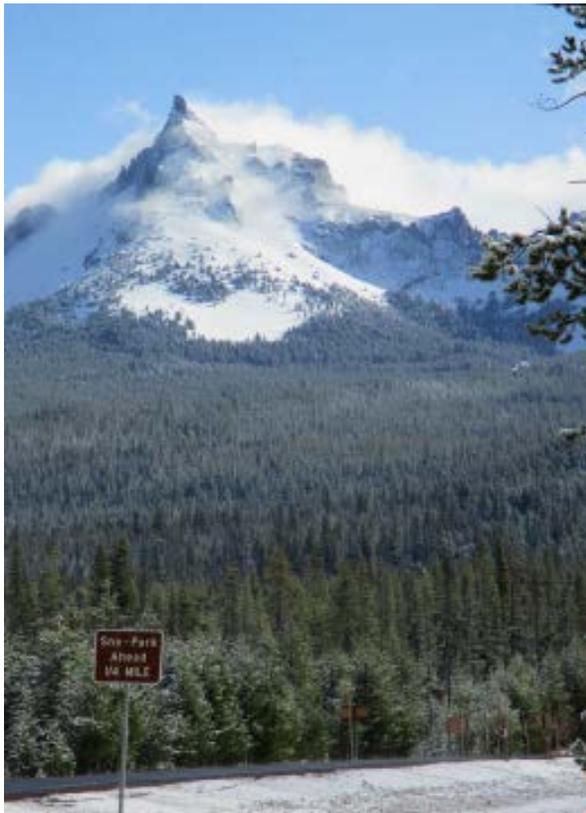




Natural Resources Conservation Service  
P.O. Box 2890  
Washington, D.C. 20013

## Weekly Water and Climate Update Thursday, April 23, 2015

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**A snow-capped Mt. Thielsen illustrates the scarce snowpack in all but the highest elevations of Oregon this winter.**

*Photo courtesy of Scott Robbins (Oregon NRCS)*

**National Outlook:** “Very cool conditions will result in additional freezes in the Midwest and Northeast, while another surge of cool air will reach the South early next week. In contrast, a marked warming trend will commence along the Pacific Coast by Sunday and spread to the remainder of the West early next week. During the next 5 days, a pair of storms will emerge from the West before crossing the south-central and southeastern U.S. As a result, 5-day rainfall could reach 1 to 3 inches or more from the Gulf Coast northward into the southern Corn Belt. Rain and wet snow could result in 1- to 2-inch totals from the Pacific Northwest to northern and central portions of the Rockies and High Plains. The NWS 6- to 10-day outlook for April 28 – May 2 calls for above normal temperatures in the West, while cooler-than-normal conditions will cover the

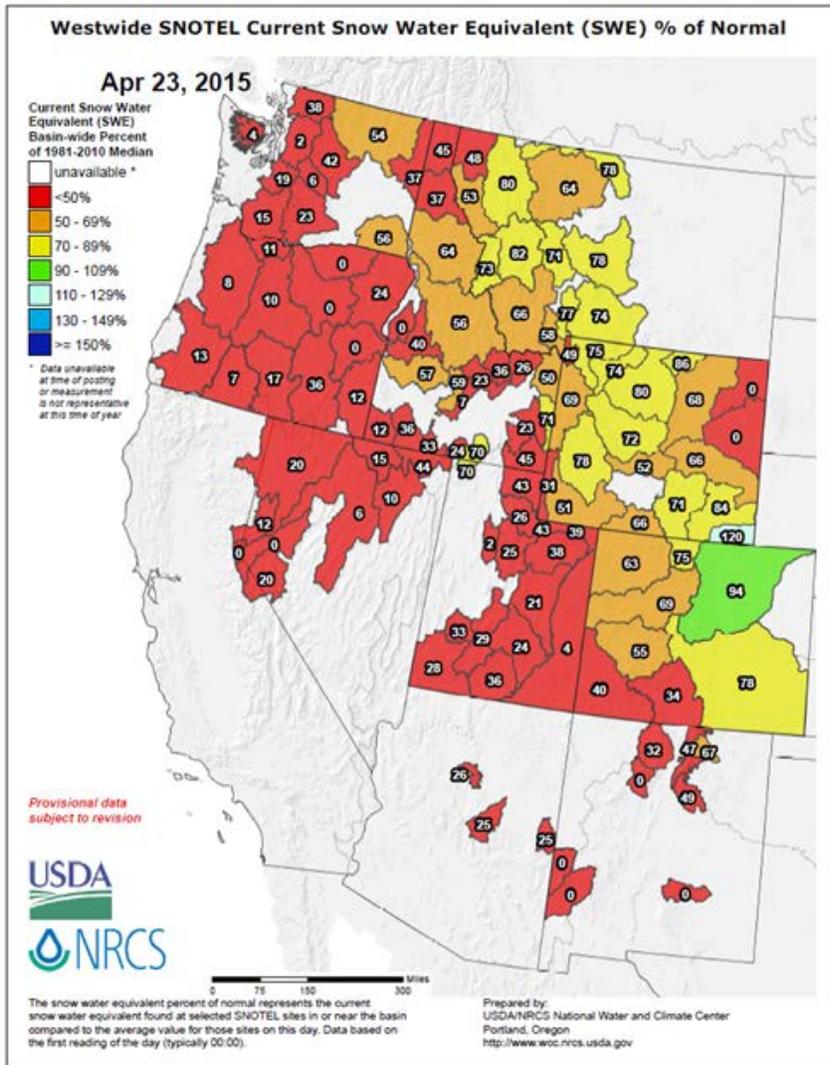
eastern half of the U.S. Meanwhile, near- to below-normal precipitation across the majority of the nation will contrast with wetter-than normal weather in the East from the eastern half of the Gulf Coast region to coastal New England.”

**Contact:** Brad Rippey, Agricultural Meteorologist, USDA/OCE/WAOB, Washington, D.C. (202-720-2397)  
**Website:** <http://www.usda.gov/oce/weather/pubs/Daily/TODAYSWX.pdf>

The Natural Resources Conservation Service provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment

# Weekly Water and Climate Update

## Snow

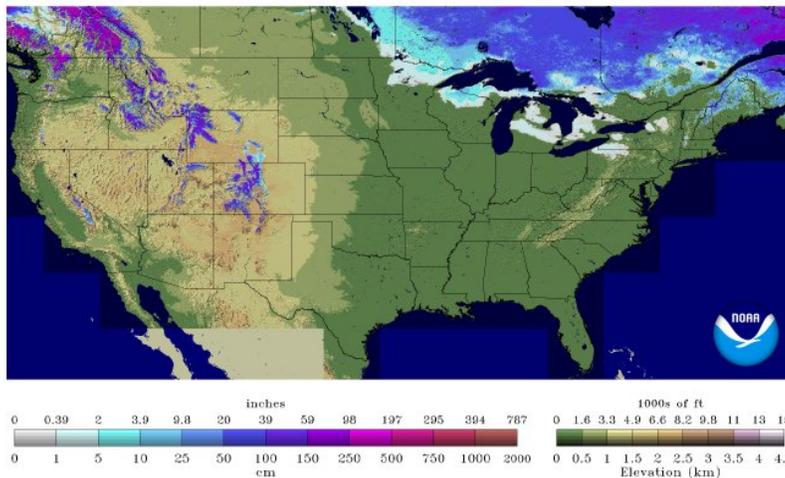


The [Westwide SNOTEL Current Snow Water Equivalent \(SWE\) % of Normal map](#) shows the largest snowpack deficits are in record territory for many basins, especially in the Cascades and Sierra Nevada where single-digit percent of normal conditions prevail. Very low snowpacks (red areas) are reported in most of Washington, all of Oregon, Nevada, California, Arizona, much of Idaho, most of New Mexico and Utah, and parts of Wyoming, Colorado, and Montana. Below normal snowpacks (orange and yellow areas) are also located across the Rocky Mountain region.

Only northeast Colorado and southeast Wyoming in the South Platte basin shows near to above normal conditions resulting from recent snow events in the region.

National Snow 2014-2015 Analysis

Snow Depth  
2015-04-23 06 UTC



The snow depth map as reported from the [NWS NOHRSC](#) for April 23, 2015, shows a decrease in snow cover from last week in the Cascades but an increase in snow across northern Utah, Wyoming and western Montana resulting from recent storms. The recent storms also left snow across parts of the Great Lakes region from Minnesota and Wisconsin across the Upper Peninsula of Michigan and into Pennsylvania.

# Weekly Water and Climate Update

## Precipitation

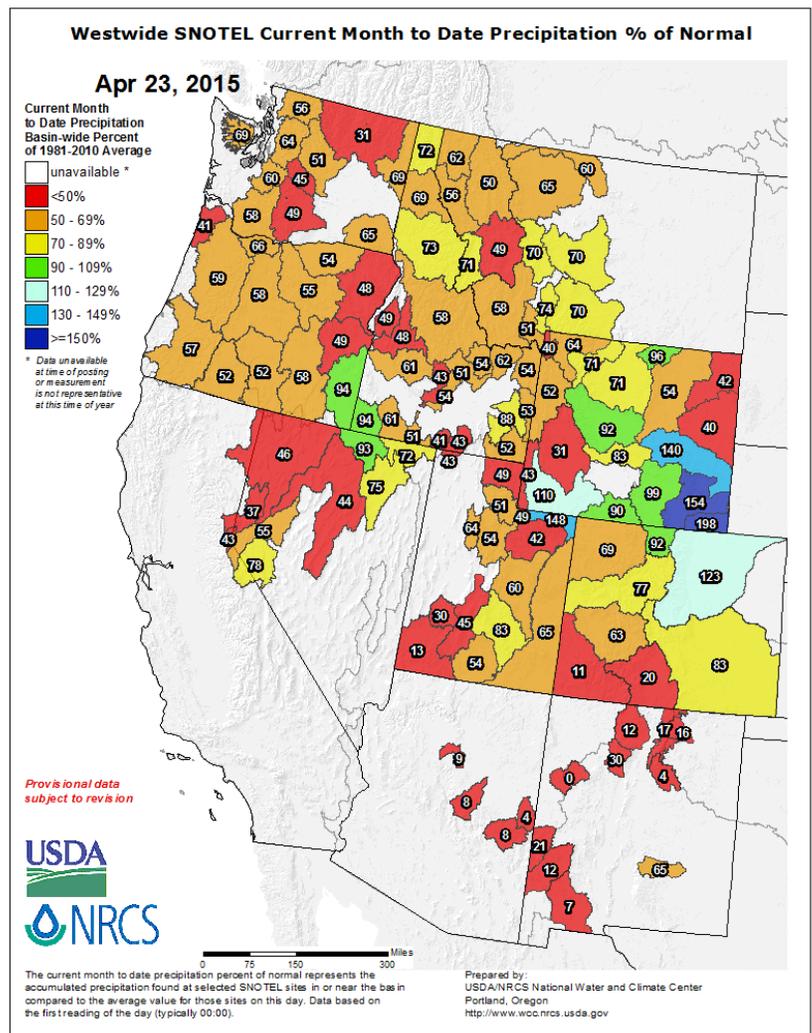
### 2015, an unusually warm year...

Most of this winter, temperatures have persistently remained above to much above normal across much of the West. This has had a dramatic effect on the snowpack. This was well-noted in the Cascades and Sierra Nevada where the snowpack was much below normal for most of the winter. The Sierra Nevada precipitation for the water year (Oct. 1 – today) has remained well below normal. A few cool storms in the Cascades have resulted in small improvements in the snowpack conditions in this region. The overriding influence in these unusual circumstances of having a low snowpack but near normal precipitation is the persistent warm temperatures that have dominated the snowpack processes.

Freezing levels for most storm events have remained well above the elevation of many SNOTEL sites. The near to slightly below average water year precipitation (see map on page 5), especially in the Cascades of Oregon and Washington, has helped to improve any soil moisture, groundwater, and reservoir deficits. Warm temperatures and very little precipitation in the Sierra Nevada have provided for an extreme record-breaking snow season. Any precipitation that has fallen across the region has helped to offset the current effects of the low snow conditions that these areas have experienced but may not be enough to offset future deficits in snowmelt runoff for spring and summer streamflow.

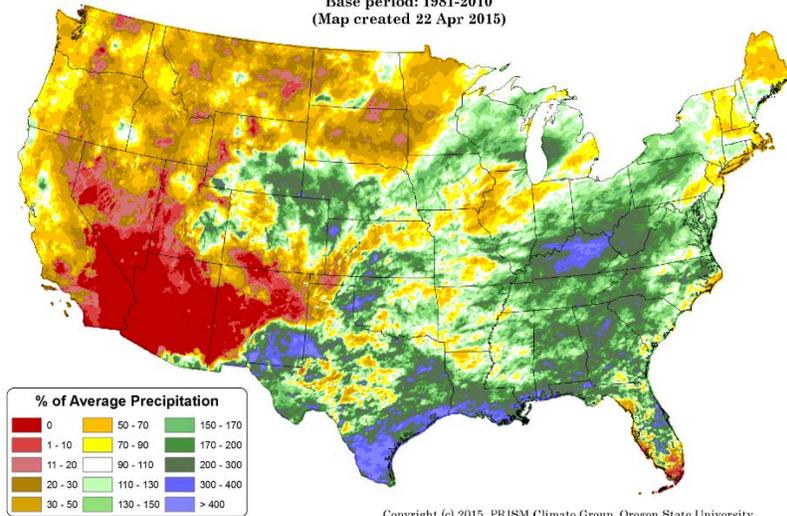
In the West, the [SNOTEL](#) precipitation percent of normal map shows declining conditions from last week for most basins, with only a few areas in the normal range for this time of year. The exceptions are southern Wyoming, northeastern Utah and most of Colorado, where recent storms have improved the conditions for April.

*Click on most maps in this report to enlarge and see the latest available update.*



# Weekly Water and Climate Update

Total Precipitation Anomaly: 01 April 2015 - 21 April 2015  
 Period ending 7 AM EST 21 Apr 2015  
 Base period: 1981-2010  
 (Map created 22 Apr 2015)



Copyright (c) 2015, PRISM Climate Group, Oregon State University

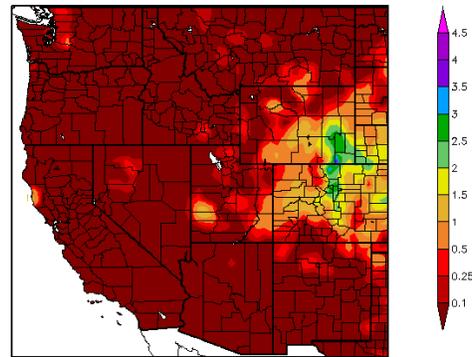
So far in April, the national total [precipitation anomaly](#) pattern reveals some higher than normal precipitation, primarily in Kentucky, several areas of Texas, southeast New Mexico, near the Kansas-Nebraska-Colorado border, along the Gulf Coast, and in eastern Florida. There was little or no precipitation in most of the Southwest, parts of the northern Great Plains, and parts of Florida (red and dark orange areas).

*This preliminary daily PRISM precipitation anomaly map contains all available network data, including SNOTEL data, and is updated periodically as additional data become available and are quality controlled.*

The [ACIS 7-day](#) total precipitation map for the western U.S. shows precipitation mainly in southeastern Wyoming, northern Colorado, and into Nebraska.

Little to no precipitation fell in most areas of the West this week (dark red). The largest contiguous dry area covered from North Dakota west and south to California, Nevada, much of Utah, Arizona, New Mexico, and southern Colorado.

Precipitation (in)  
 4/16/2015 - 4/22/2015



Generated 4/23/2015 at HPRCC using provisional data.

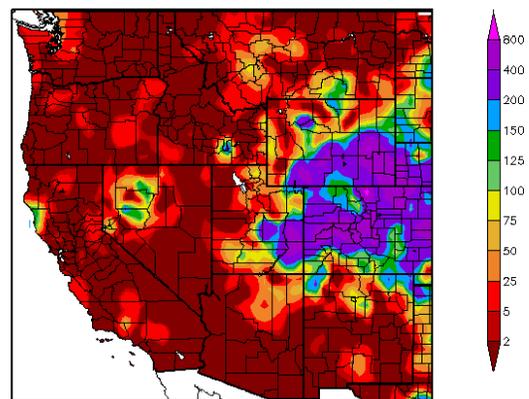
Regional Climate Centers

This ACIS percent of normal [map](#) of the West for the last seven days reflects precipitation in the central section of the west including southern Wyoming, eastern Utah, Colorado, and northern New Mexico (magenta areas).

Very dry conditions for the week were reported in most other parts of the West (red areas), with the exception of a few scattered areas of precipitation.

Percent of normal precipitation may be exaggerated in areas where the average for this seven-day period is at or near zero.

Percent of Normal Precipitation (%)  
 4/16/2015 - 4/22/2015

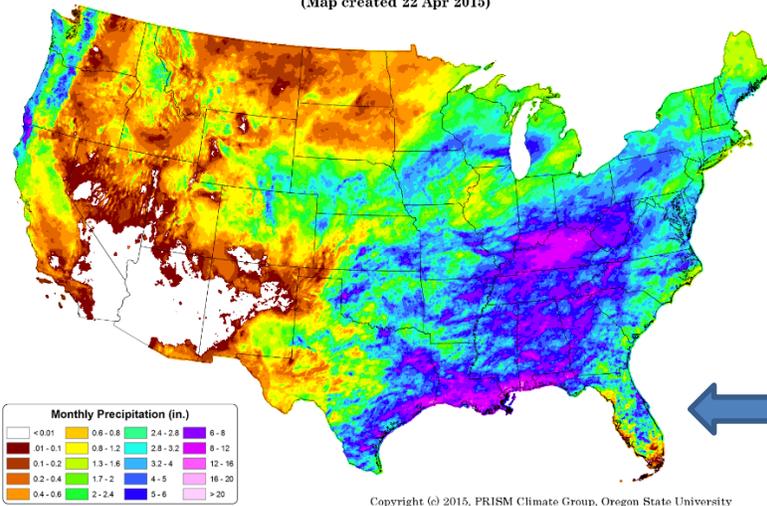


Generated 4/23/2015 at HPRCC using provisional data.

Regional Climate Centers

## Weekly Water and Climate Update

Total Precipitation: 01 April 2015 - 21 April 2015  
 Period ending 7 AM EST 21 Apr 2015  
 (Map created 22 Apr 2015)



Copyright (c) 2015, PRISM Climate Group, Oregon State University

For much of April 2015, the [total precipitation](#) across the continental U.S. was heaviest in northwest California and southwest Oregon, and stretching from Kentucky and surrounding areas south to the Gulf Coast. Scattered precipitation also fell elsewhere. In contrast, much of the Southwest and northern Great Plains were mainly dry. Storms did impact parts of Wyoming and Colorado into Nebraska and from Iowa into Michigan.



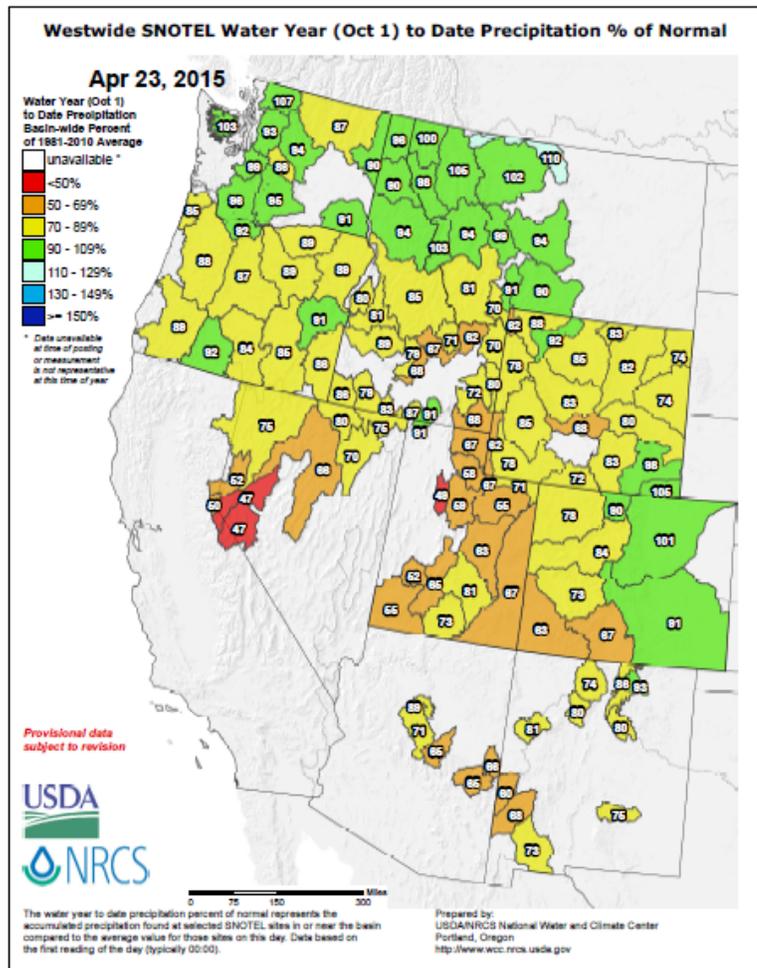
See [Go Hydrology](#) for current and forecast conditions over southern Florida.

For the [2015 Water Year](#) that began on October 1, 2014, there was one basin with a precipitation surplus in the West. The northcentral part of Montana is just slightly above normal at this time.

Many basins across the West have near normal conditions for this part of the Water Year (mapped in green). These include most of Montana, northwest and southeast Wyoming, eastern Colorado, most of Washington, parts of Oregon, and parts of Idaho.

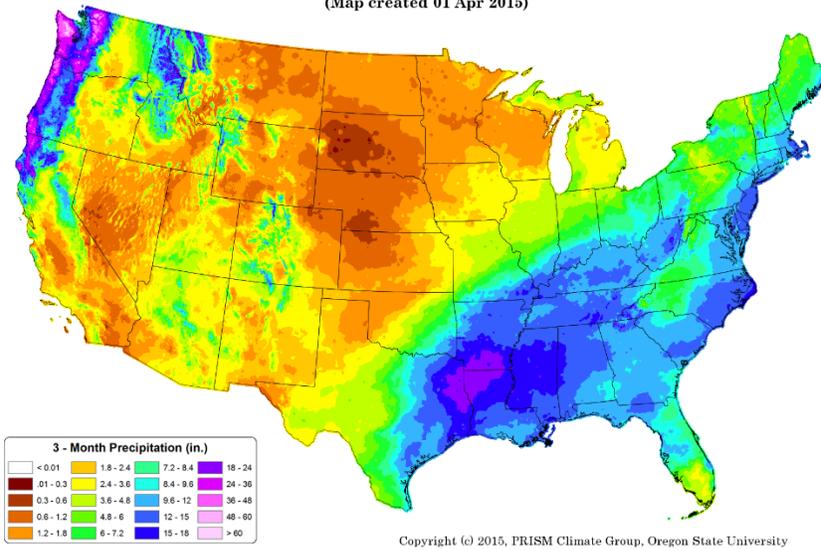
Several areas have less than normal precipitation for the Water Year. These include basins in Idaho, most of Wyoming, western Colorado, almost all of Utah, California, Nevada, Arizona, most of New Mexico, most of Oregon, northern Washington, and southwest Montana (mapped in yellow and orange).

Basins around Lake Tahoe that cross the California and Nevada border are reporting less than 50% of normal precipitation for the Water Year, as is a part of western Utah (red area).



## Weekly Water and Climate Update

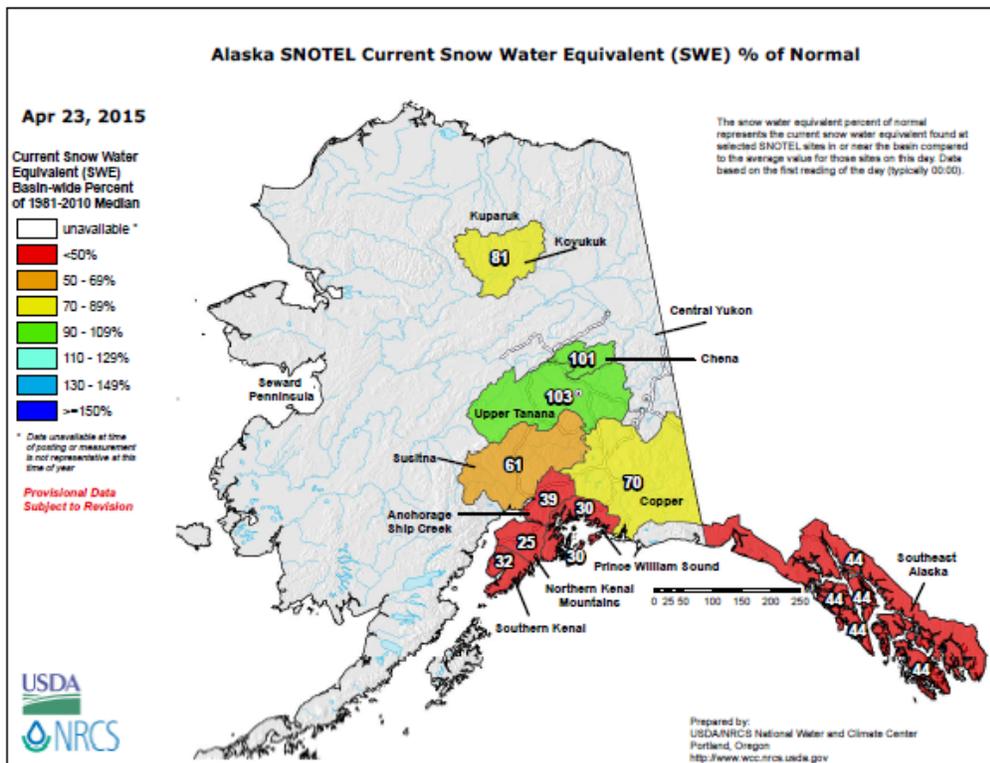
**Total Precipitation: January 2015 - March 2015**  
 Period ending 7 AM EST 31 Mar 2015  
 (Map created 01 Apr 2015)



The national map of the [three-month period](#) (January - March) shows that the southcentral to the northeast region of the nation received precipitation from 2.4 inches to greater than 18 inches. Parts of the West, especially in the mountains, also received significant precipitation. The highest amounts over 60 inches were recorded in northern California, Oregon, and the Washington mountains.

In contrast to the eastern U.S. and Pacific coast, parts of the West, the Plains, and much of the Midwest received totals of less than 2.4 inches.

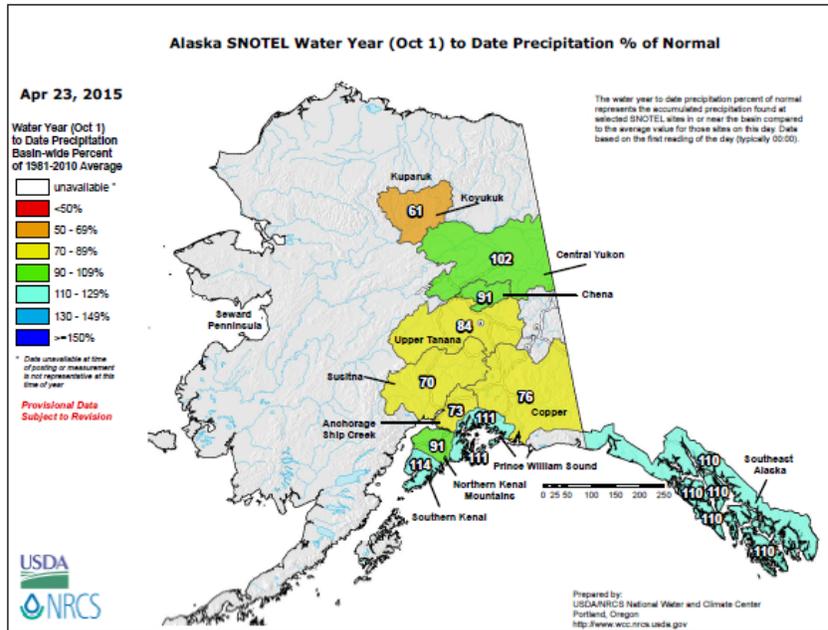
## Alaska Snow Water Equivalent & Precipitation Conditions



The [Alaska SNOTEL current SWE percent of normal map](#) shows below normal conditions across most of the state, with the exception of the Chena Basin and Upper Tanana, which are near normal. The areas with much below normal snowpack are on the Kenai Peninsula, the Copper and Anchorage/Ship Creek, and southeast basins. See the [Alaska update report](#) for individual station data.

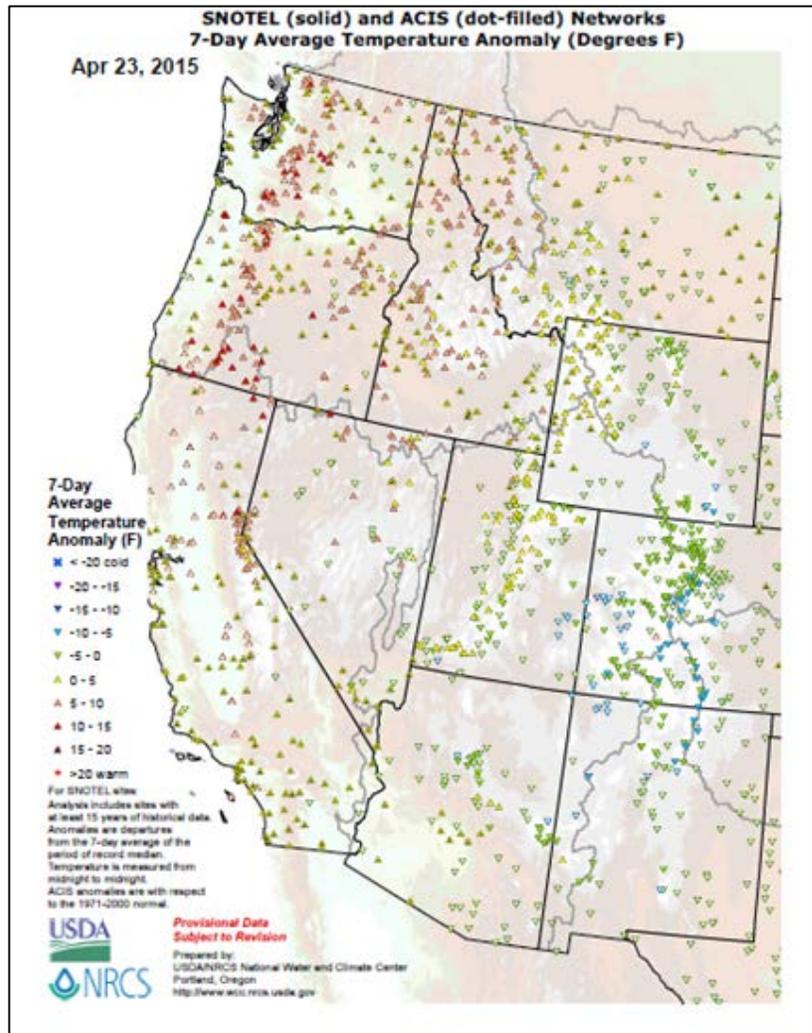
## Weekly Water and Climate Update

The [Alaska Water Year to Date Precipitation Percent of Normal](#) map shows above normal conditions for the southern and southeast parts of the state, and near normal conditions for two basins in interior Alaska. Much of the remainder of interior Alaska is reporting drier than normal conditions. This is in contrast to the poor snow conditions due to warm temperatures across southern Alaska. See the [Alaska update report](#) for individual station data.



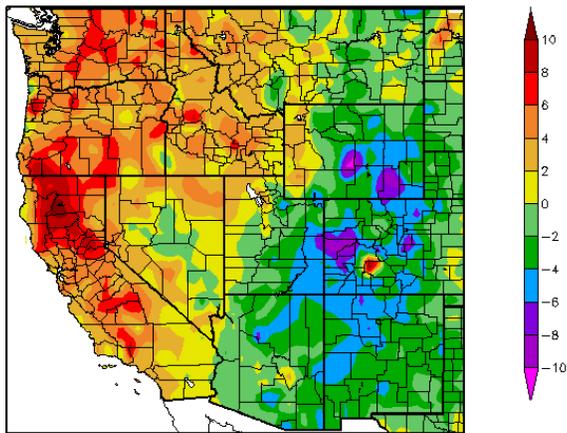
## Temperature

The SNOTEL and ACIS [7-day temperature anomaly](#) map for the western U.S. shows much of the far West was above normal. The highest temperature anomalies were in the Cascades and Sierra Nevada and into Idaho and western Montana. Cooler conditions were in Colorado and extending into Wyoming, New Mexico, Utah, Colorado, and northern New Mexico,



## Weekly Water and Climate Update

Departure from Normal Temperature (F)  
4/16/2015 - 4/22/2015



The [ACIS](#) map of the 7-day average temperature anomalies in the West ending April 22 shows that the West Coast and into Idaho had warmer temperatures for this time of year, whereas much of Colorado, Wyoming and into eastern Utah, Arizona, and New Mexico had a cooler week in contrast to much of the winter.

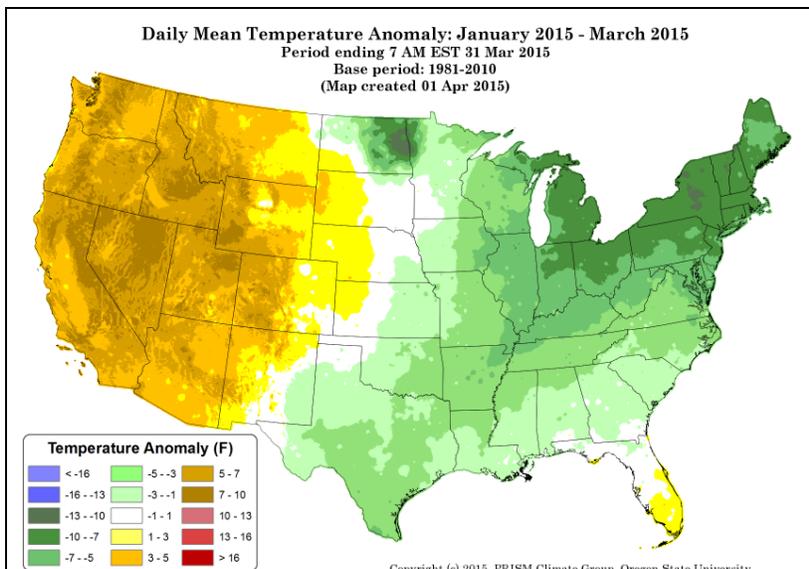
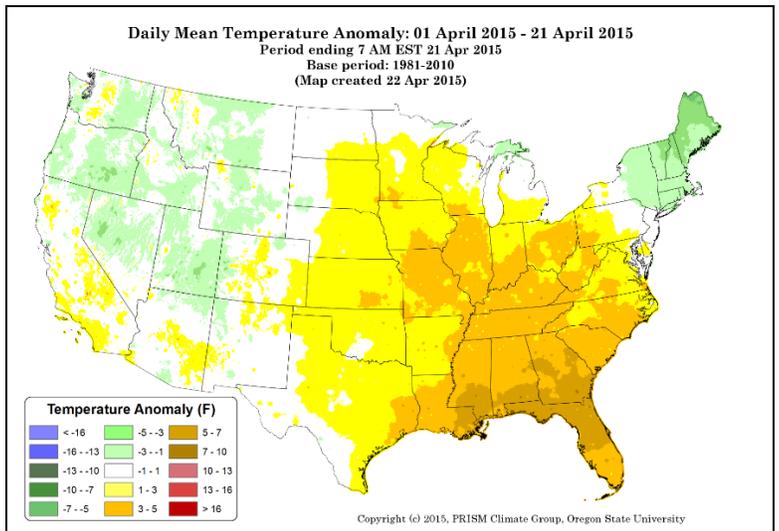
Also, see [Dashboard](#) and the [Westwide Drought Tracker](#)

Generated 4/23/2015 at HPRCC using provisional data.

Regional Climate Centers

*This preliminary [PRISM](#) temperature map contains all available network data, including SNOTEL data, and will be updated periodically as additional data become available and are quality controlled.*

For most of April 2015, the national daily mean temperature anomaly [map](#) shows a slightly cool region over much of the West and in the Northeast, with the largest cool anomaly in Maine. In contrast, above normal temperatures were recorded from the Midwest to the Southeast, with the highest warm anomalies in the Southeast in Mississippi, Georgia, and Florida.



The January - March national daily mean temperature anomalies for the U.S. in this [climate map](#) shows the western U.S. had above normal temperatures ( $>+7^{\circ}\text{F}$ ). The central and southeast sections of the country reported normal to slightly cooler than normal temperatures for this period, with the coolest temperatures in a large area covering most of the Midwest and eastern U.S. The coolest anomalies were in New York, Vermont, and North Dakota ( $<-10^{\circ}\text{F}$ ).

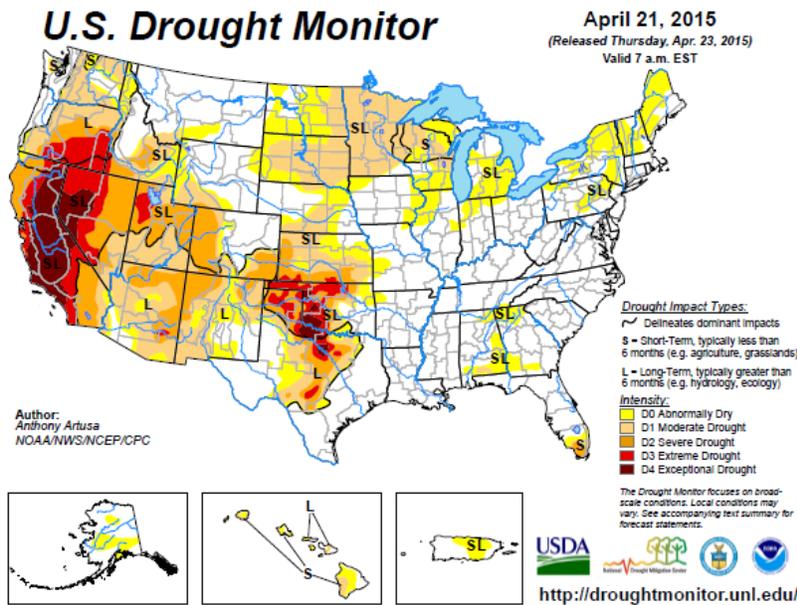
Weather and Drought Summary

**National Drought Summary – April 21, 2015**

The following **Weather and Drought Summary** is provided by this week’s NDMC Drought Author, Brad Rippey, NOAA/NCDC.

USDM Map Services: contains [archived maps](#)

“During the past 7-days, moderate to heavy rain (generally 0.5-3.0 inches, locally greater) fell across portions of the Southeast, the Gulf Coast, the Great Plains, and the Ohio Valley. These areas of precipitation occurred in proximity to several slow-moving/stationary fronts and mid-level troughs. By far the heaviest precipitation totals were observed near the Gulf Coast, where numerous coastal counties from southeastern Texas to the extreme western Florida Panhandle received 5-10 inches during the past week. Precipitation amounts were generally light (0.5-inch or less) in the interior Pacific Northwest, the Southwest and the northern Plains.”



See: Latest Drought [Impacts](#) during the past week.

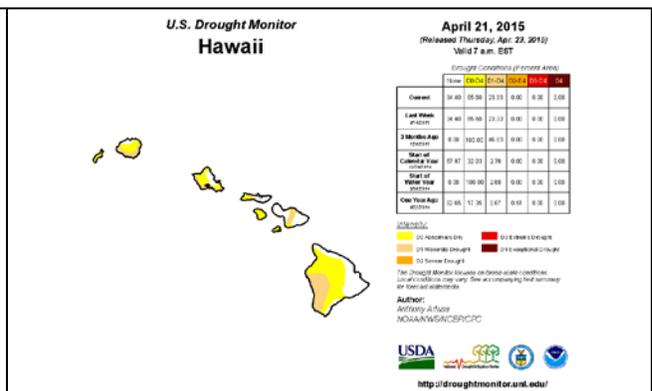
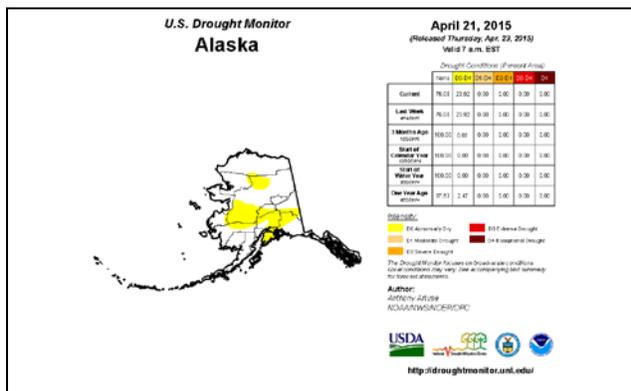
[Current Drought Monitor](#) weekly summary. The exceptional D4 levels of drought are scattered across CA, NV, TX, and OK.

The latest [drought indicator blend and component percentiles](#) spreadsheet is a great resource for climate division drought statistics. This link is for the latest [Drought Outlook](#) (forecast). See [climatological rankings](#).

For more drought news, see [Drought Impact Reporter](#).  
New: [ENSO Blog](#).

**Drought Management Resources:**

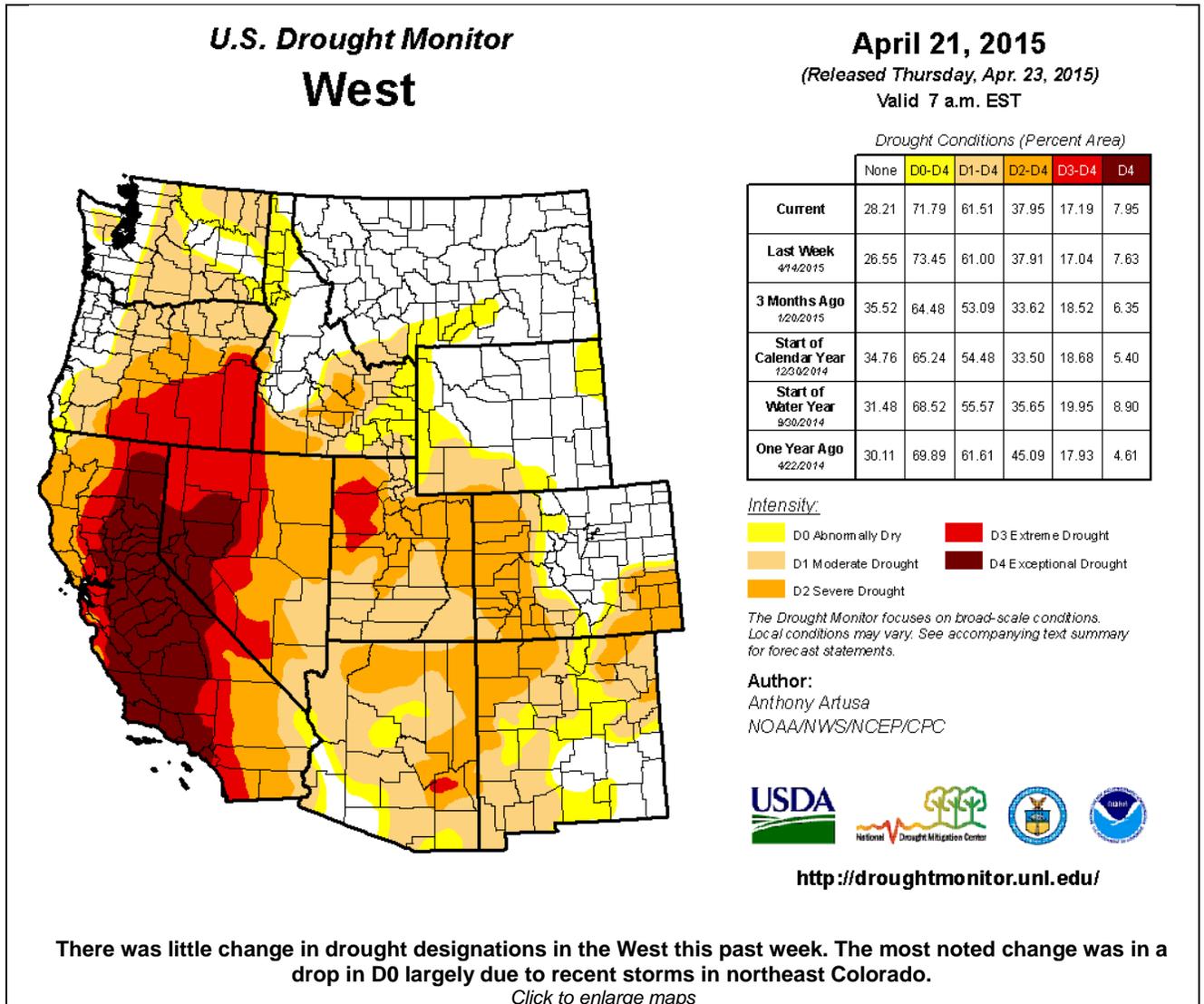
- ✓ <http://www.usda.gov/oce/weather/Drought/AgInDrought.pdf>
- ✓ [Watch AgDay TV](#)
- ✓ [Drought Impacts Webinar Series](#)
- ✓ [NIDIS Quarterly Climate Impacts and Outlook](#)
- ✓ [The Spring 2014 edition of DroughtScope](#)
- ✓ [U.S.Crops in Drought](#)



“No changes were made to the Hawaiian depiction this week. In the southern half of southeastern Alaska, dams are generally in good shape. However, a lack of snow melt in this area (especially if summer turns out to be warmer and drier than usual) could negatively impact stream volume and fishing. A comprehensive narrative describing drought

## Weekly Water and Climate Update

conditions across other parts of the nation can be found toward the end of this document. For drought impacts definitions for the figures that follow, click [here](#).”



### Risk Management Web Resources

Drought Monitor for the [Western States](#). Drought Impact Reporter for [New Mexico](#), [California Data Exchange Center](#) & [Flood Management Intermountain West Climate Dashboard](#)  
[California Sierra Nevada-related snow pack](#)

# Weekly Water and Climate Update

## State with D-4 Exceptional Drought

### U.S. Drought Monitor California

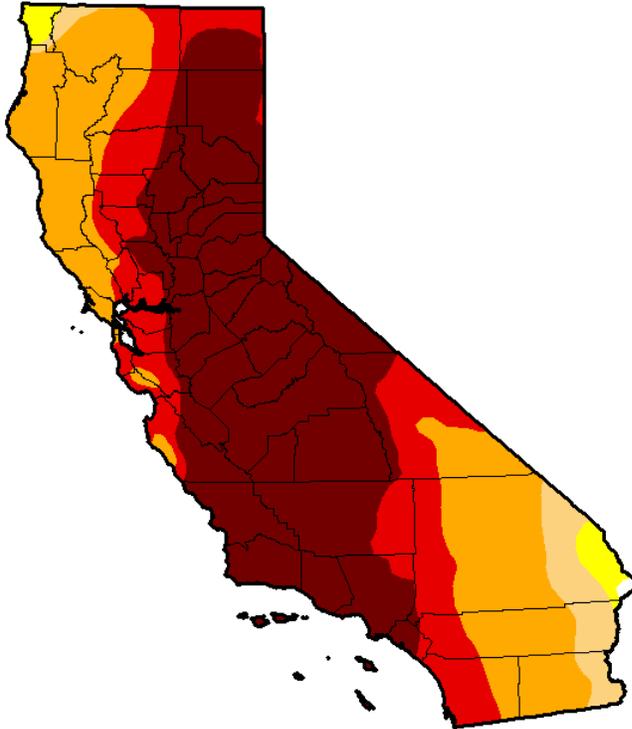
**April 21, 2015**

(Released Thursday, Apr. 23, 2015)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

|   | None | D0-D4  | D1-D4  | D2-D4 | D3-D4 | D4    |
|---|------|--------|--------|-------|-------|-------|
| <b>Current</b>                                    | 0.14 | 99.86  | 98.11  | 93.44 | 66.60 | 46.77 |
| <b>Last Week</b><br><i>4/14/2015</i>              | 0.14 | 99.86  | 98.11  | 93.44 | 66.60 | 44.32 |
| <b>3 Months Ago</b><br><i>1/20/2015</i>           | 0.00 | 100.00 | 98.13  | 94.34 | 77.52 | 39.15 |
| <b>Start of Calendar Year</b><br><i>1/20/2014</i> | 0.00 | 100.00 | 98.12  | 94.34 | 77.94 | 32.21 |
| <b>Start of Water Year</b><br><i>9/30/2014</i>    | 0.00 | 100.00 | 100.00 | 95.04 | 81.92 | 58.41 |
| <b>One Year Ago</b><br><i>4/22/2014</i>           | 0.00 | 100.00 | 100.00 | 96.01 | 76.68 | 24.77 |



*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.*

**Author:**

Anthony Artusa

NOAA/NWS/NCEP/CPC



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

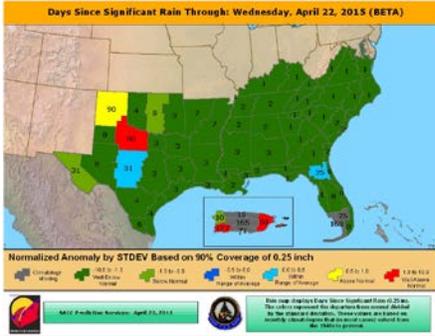
**There was a very small change in drought category designations in California for the week. The exception was an increase in D4 cover over the state.**

[CA Drought Information Resources](#)

[Drought News from California](#)

# Weekly Water and Climate Update

Texas Drought [Website](#).  
 Texas [Reservoirs](#).  
 Texas [Drought Monitor Coordination Conference Call](#): on Monday's 2:00 PM - 3:00 PM CST



[Days since Significant Rain Summary](#)

## State with D-4 Exceptional Drought

### U.S. Drought Monitor Texas

**April 21, 2015**  
(Released Thursday, Apr. 23, 2015)  
Valid 7 a.m. EST

|   | None  | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4    |
|---|-------|-------|-------|-------|-------|-------|
| <b>Current</b>                              | 55.48 | 44.52 | 34.56 | 21.93 | 9.35  | 2.55  |
| <b>Last Week</b><br>4/4/2015                | 62.88 | 47.12 | 35.25 | 24.65 | 14.91 | 3.34  |
| <b>3 Months Ago</b><br>6/26/2014            | 39.80 | 60.20 | 40.64 | 24.74 | 11.34 | 3.05  |
| <b>Start of Calendar Year</b><br>12/02/2014 | 34.37 | 65.63 | 44.68 | 25.73 | 11.70 | 3.17  |
| <b>Start of Water Year</b><br>9/02/2014     | 28.92 | 71.08 | 48.95 | 29.54 | 11.26 | 2.69  |
| <b>One Year Ago</b><br>4/22/2014            | 13.62 | 86.38 | 88.68 | 48.56 | 32.67 | 12.54 |

**Intensity:**

|  |                     |  |                        |
|--|---------------------|--|------------------------|
|  | D0 Abnormally Dry   |  | D3 Extreme Drought     |
|  | D1 Moderate Drought |  | D4 Exceptional Drought |
|  | D2 Severe Drought   |  |                        |

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

**Author:**  
Anthony Artusa  
NOAA/NWS/NCEP/CPC

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

**There was a decrease in all drought categories in Texas this past week. The drought-free areas increased this week.**

## State with D-4 Exceptional Drought

### U.S. Drought Monitor Nevada

**April 21, 2015**  
(Released Thursday, Apr. 23, 2015)  
Valid 7 a.m. EST

|   | None | D0-D4  | D1-D4  | D2-D4 | D3-D4 | D4    |
|---|------|--------|--------|-------|-------|-------|
| <b>Current</b>                              | 0.00 | 100.00 | 99.93  | 86.67 | 49.12 | 18.38 |
| <b>Last Week</b><br>4/4/2015                | 0.00 | 100.00 | 99.93  | 85.72 | 47.96 | 18.38 |
| <b>3 Months Ago</b><br>12/02/2014           | 0.00 | 100.00 | 96.97  | 68.25 | 48.38 | 12.18 |
| <b>Start of Calendar Year</b><br>12/02/2014 | 0.00 | 100.00 | 96.98  | 68.25 | 48.38 | 11.89 |
| <b>Start of Water Year</b><br>9/02/2014     | 0.00 | 100.00 | 97.04  | 69.89 | 48.38 | 11.89 |
| <b>One Year Ago</b><br>4/22/2014            | 0.00 | 100.00 | 100.00 | 84.46 | 38.73 | 8.24  |

**Intensity:**

|  |                     |  |                        |
|--|---------------------|--|------------------------|
|  | D0 Abnormally Dry   |  | D3 Extreme Drought     |
|  | D1 Moderate Drought |  | D4 Exceptional Drought |
|  | D2 Severe Drought   |  |                        |

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

**Author:**  
Anthony Artusa  
NOAA/NWS/NCEP/CPC

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

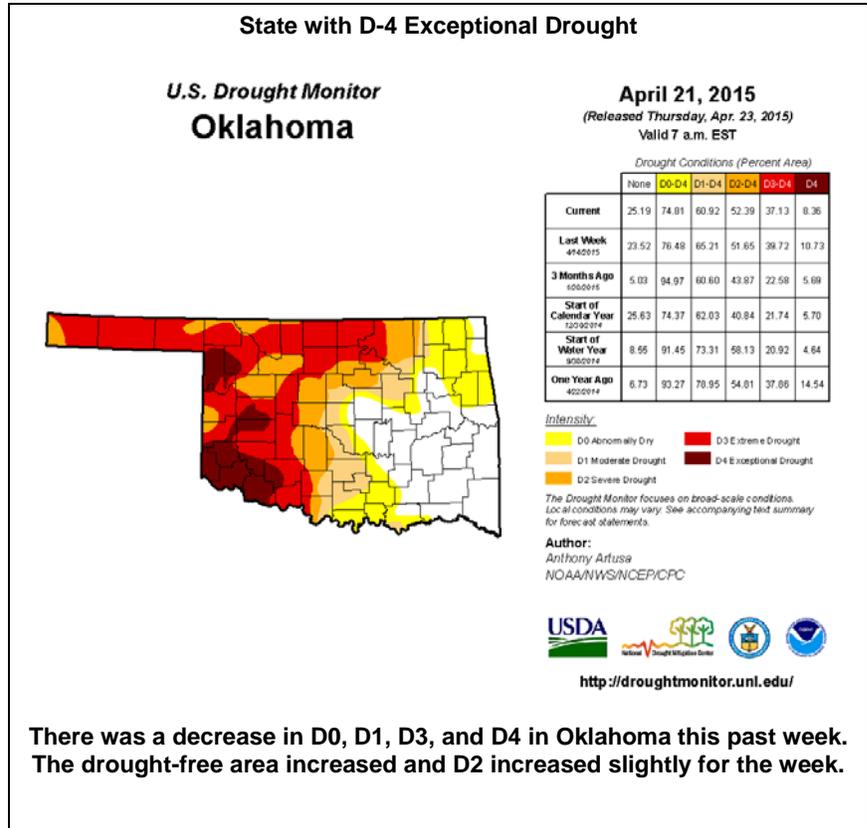
**There was a slight increase in D2 and D3 in Nevada for the week.**

## Weekly Water and Climate Update

### Related Area News:

[2014 Kansas Drought Report and Summary](#)

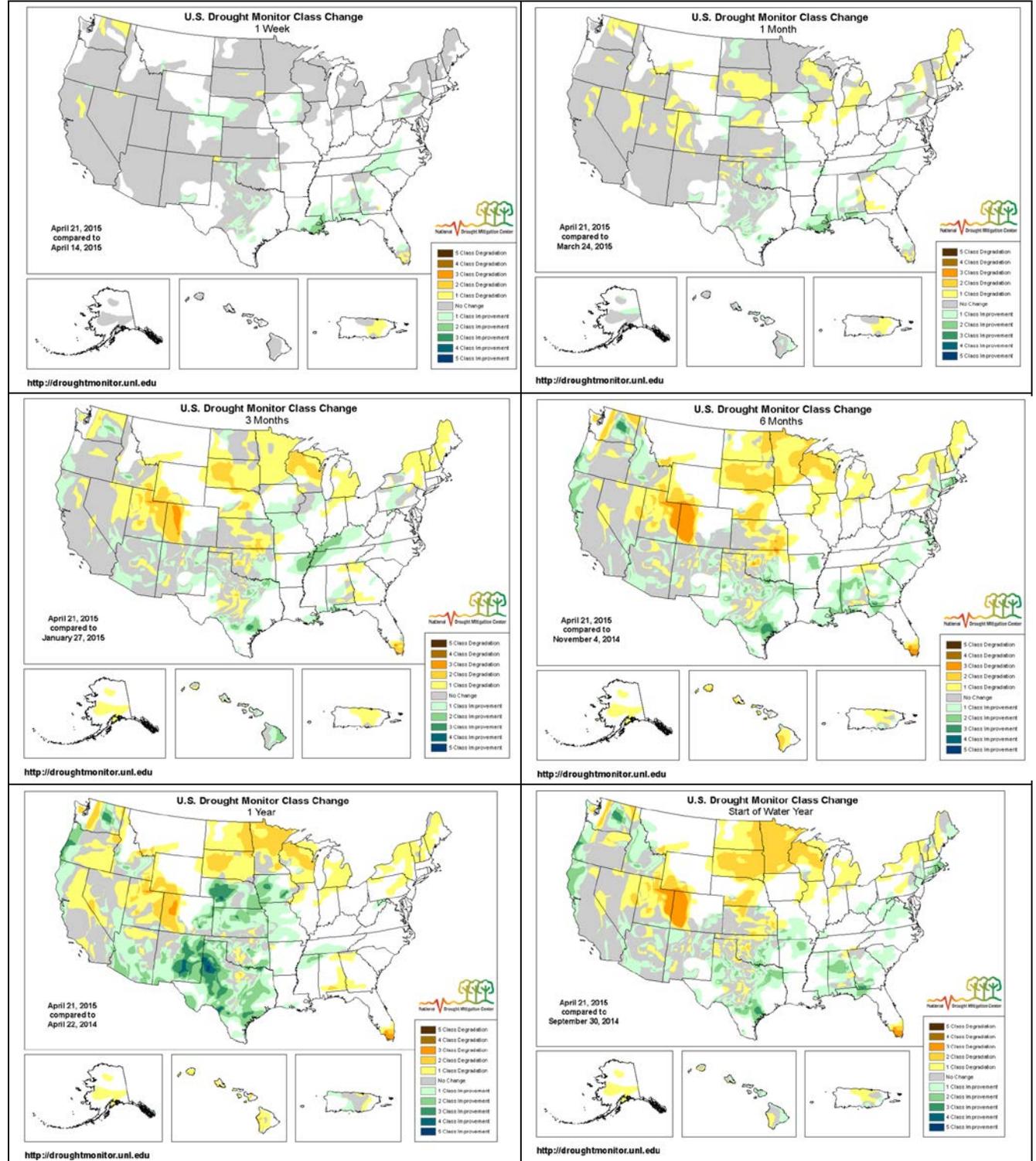
- [Past 30 days precipitation totals](#)
- [Past 30 days precipitation percent of normal](#)
- [Calendar Year precipitation totals](#)
- [Calendar Year Precip percent of normal](#)
- [Short Crop ET](#)



# Weekly Water and Climate Update

## Changes in Drought Monitor Categories

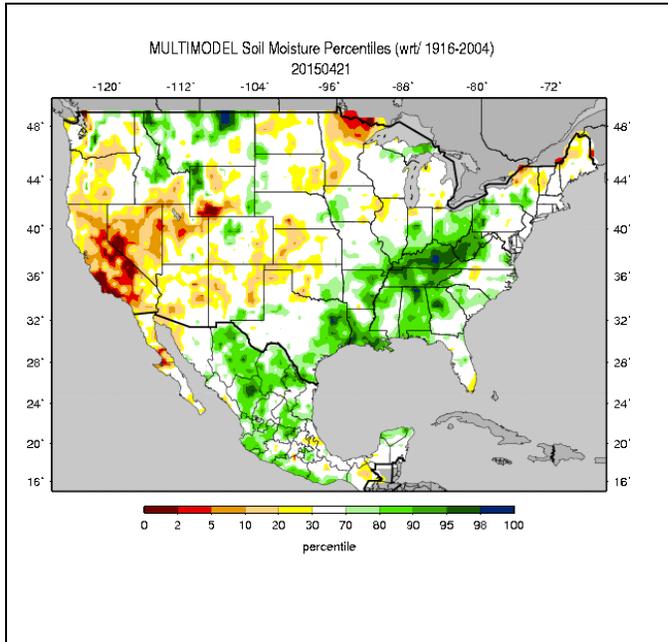
### Over Various Time Periods



Click on any map to enlarge it.

# Weekly Water and Climate Update

## Soil Moisture

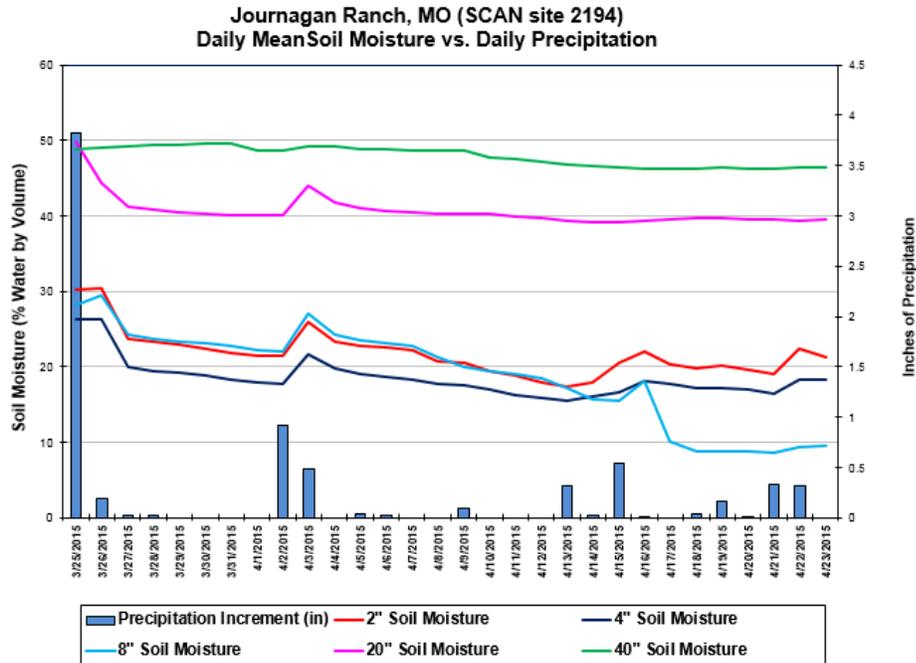


The national soil moisture model ranking in [percentile](#) as of April 21, 2015, shows dryness over parts of the Northeast, West, Southwest, and Great Plains. The driest areas were in Nevada, California, Utah, southern Wyoming, Nebraska, Kansas, Oklahoma, Minnesota, New York, Vermont, Maine, and New Hampshire. Moist soils occurred in areas of Washington, Montana, northern Idaho, western Wyoming, and stretching from eastern Texas northeast through the Ohio Valley and into Pennsylvania. Slightly moist soils were also scattered elsewhere in the U.S.

Some of the country may have frozen soil conditions, so soil moisture conditions may not be representative.

Useful Hydrological Links: [Crop Moisture Index](#); [Palmer Drought Severity Index](#); [Standardized Precipitation Index](#); [Surface Water Supply Index](#); [Weekly supplemental maps](#); [Minnesota Climate Working Group](#); [Experimental High Resolution Drought Trigger Tool](#); [NLDAS Drought Monitor](#); [Soil Moisture](#)

## Soil Climate Analysis Network (SCAN)

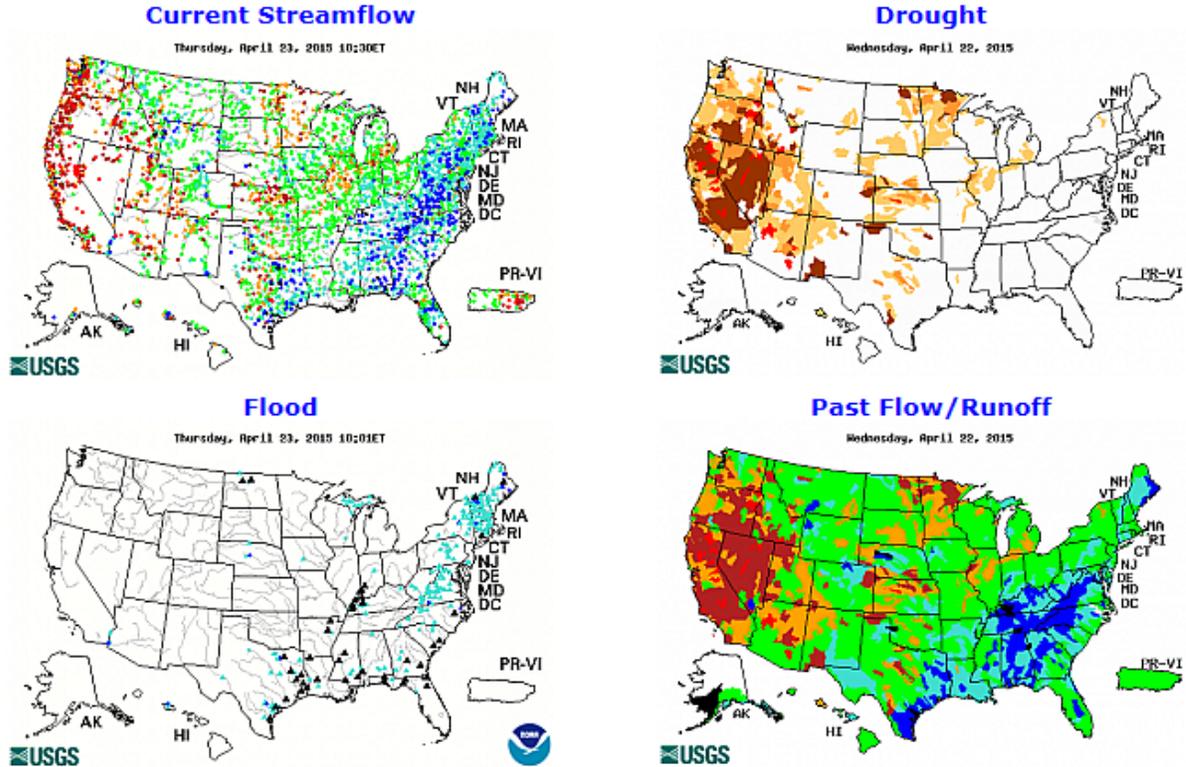


This NRCS resource shows soil moisture data for the last month at the [Journagan Ranch SCAN site 2194](#) in Missouri. The area had several small precipitation events recently and a large recent event in the past 30 days (blue bars). This rainfall resulted in an increase in soil moisture at the beginning of the month at all sensors, with the exception of the 40-inch sensor, and a noticeable drying during much of the month. Rainfall during the month mainly impacted the conditions at 2-, 4-, and 8-inch depths.

Useful Agriculture Links: [Vegetation Drought Response Index](#); [Evaporative Stress Index](#); [Vegetation Health Index](#); [NDVI Greenness Map](#); [GRACE-Based Surface Soil Moisture](#); [North American Soil Moisture Network](#); [Monthly Wild Fire Forecast Report](#).

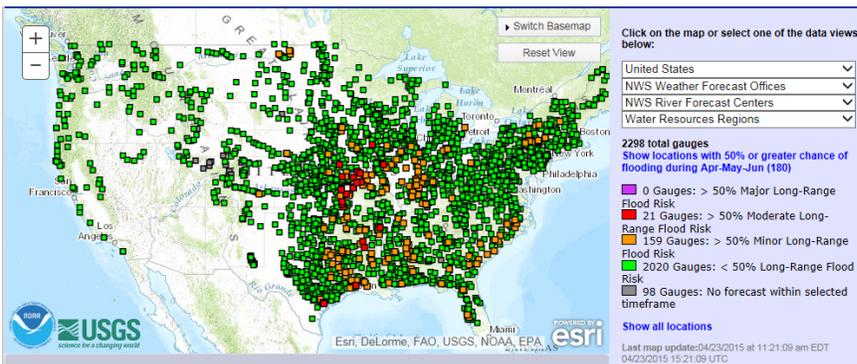
# Weekly Water and Climate Update

## Streamflow



Gages in several regions of the U.S. are reporting much above normal streamflow. There are many gages at flood stage centered in the Ohio Valley, but also concentrated in the Connecticut River and lower Mississippi tributaries, as well as the Gulf Coast and southern Atlantic Coast this week.

## National Long-Range Outlook



Click map to enlarge and update

Currently the Upper Midwest part of the map has not been calculated for the long range flood outlook (dark gray dots).

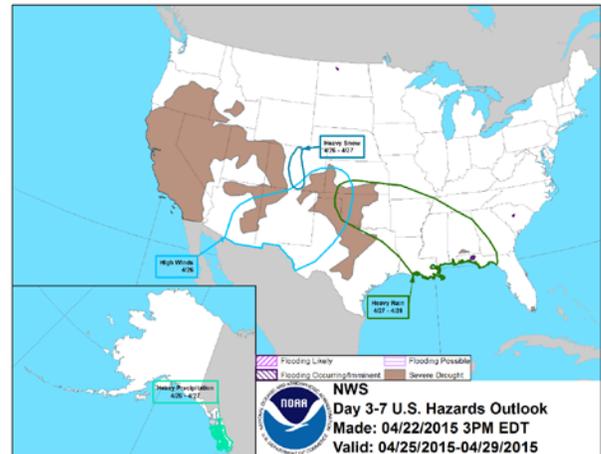
According to the National Weather Service, during the next three months there is a risk of flooding in much of the eastern U.S. The Southeast and the Midwest have gauges with a slight to higher risk of flooding. Currently, 0 gauges have a greater than 50% chance to experience major flooding; 21 gauges for moderate flooding; and 159 gauges for minor flooding.

These numbers represent a 25 gage increase in the greater than 50 percent chance of minor flooding category since last week.

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### National [Weather Hazards](#)

The National Weather Service map of national weather hazards for the next 3 – 7 days.



### [National Drought Summary for April 21, 2015](#)

Prepared by the Drought Monitor Author: Anthony Artusa, NOAA/NCDC.

#### Summary

During the past 7-days, moderate to heavy rain (generally 0.5-3.0 inches, locally greater) fell across portions of the Southeast, the Gulf Coast, the Great Plains, and the Ohio Valley. These areas of precipitation occurred in proximity to several slow-moving/stationary fronts and mid-level troughs. By far the heaviest precipitation totals were observed near the Gulf Coast, where numerous coastal counties from southeastern Texas to the extreme western Florida Panhandle received 5-10 inches during the past week. Precipitation amounts were generally light (0.5-inch or less) in the interior Pacific Northwest, the Southwest and the northern Plains.

#### Hawaii, Alaska and Puerto Rico

No changes were made to the Hawaiian depiction this week. In the southern half of southeastern Alaska, dams are generally in good shape. However, a lack of snow melt in this area (especially if summer turns out to be warmer and drier than usual) could negatively impact stream volume and fishing. In Puerto Rico, abnormal dryness (D0) was expanded across central and east-central sections of the island, due to stream flows in the lowest quartile of the historical distribution, and the lack of substantial rain across much of this area. Climatologically, April represents the tail end of the dry season in Puerto Rico, before the approach of the late spring/early summer ITCZ (Inter-Tropical Convergence Zone) and its associated showers and thundershowers.

#### The Midwest

Moderate rain (1-2 inches) fell over western portions of the abnormal dryness (D0) area in eastern Iowa over the weekend, resulting in minor trimming of the drought depiction. In west-central Iowa, about 1.5 inches of rain fell this past week, prompting the elimination of the small area of abnormal dryness (D0). In northern Minnesota, variable temperature and precipitation conditions occurred throughout the week. Dry, warm and windy conditions prevailed early in the week, while cooler temperatures, reduced evaporation and precipitation amounts ranging from 0.3-1.0 inch occurred late in the week. Despite the rain, stream flows in northwestern and north-central Minnesota remain within the lowest quartile of the historical distribution. For now, no degradations were made to the drought depiction in Minnesota.

#### The Northeast and Mid-Atlantic

About an inch of rain fell Monday night and Tuesday morning across much of Massachusetts. This precipitation, along with rebounding reservoirs and a boost in stream flows (following snow melt), supports a slight trimming of the southern margin of the abnormal dryness (D0) area in both Berkshire and Franklin Counties in northwestern Massachusetts. In north-central Pennsylvania and south-central New York, abnormal dryness (D0) was eliminated, due to sufficient precipitation (2-4 inches) in the past two weeks. Heavy rain (generally 4-7 inches in April so far, with isolated greater amounts) fell across the mountains of southwestern Virginia. Stream flows in

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the region are mostly within the 95th to 98th percentile of the historical distribution. The area of abnormal dryness (D0) was therefore removed from the drought depiction.

### The Plains

In North Dakota, light rain fell during the past 7-days, offsetting further deterioration of conditions. Temperatures also fell significantly (below freezing in some areas), keeping evaporation rates low. In South Dakota, only slight adjustments were made to the drought depiction. In north-central South Dakota, moderate drought (D1) was extended slightly northward into Walworth and Edmunds Counties. In southeastern South Dakota, moderate drought (D1) was expanded slightly southward to include eastern Hutchinson, central Turner, and northern Lincoln Counties. Most other areas of the state received enough rain this past week (a quarter-inch to an inch) to offset additional deterioration of conditions, but not enough to justify improvements. In the southern portion of the Nebraska Panhandle and nearby southeastern Wyoming, abnormal dryness (D0) was eliminated due to a recent storm system that produced about 2 inches of precipitation (liquid equivalent), much of which fell as wet snow. The region is finally beginning to experience spring green-up. The improved conditions also warranted the removal of abnormal dryness (D0) in the northern Laramie Range in southeastern Wyoming. During the past week in the Sand hills region of north-central Nebraska, 2-4 inch rainfall surpluses and good soil moisture infiltration prompted a 1-category improvement to the depiction. In northeastern Nebraska, despite receiving decent moisture over the past 2 weeks, significant deficits still linger at the 30-, 60-, and 90-day time periods. Therefore, the depiction remains unchanged in this area, pending reassessment next week. In Kansas, respectable rains (mostly 0.5-2.0 inches, locally greater) helped to offset any additional degradation. Surface water supplies are still low, and runoff is minimal. No alteration was made to the Kansas drought depiction this week.

The southern Great Plains also experienced a mix of both improvements and degradations. In Oklahoma, 1-category degradations were made in the western Panhandle, as only 1.0-1.5 inches of rain fell during the past 30-days. There were reports of dust storms and dead dryland wheat across much of this area. In west-central Oklahoma, a swath of 4-8 inch rains prompted a 1-category improvement from about Roger Mills County northeastward to Major County. In extreme northeastern and northwestern Roger Mills County, and most of adjacent Ellis County, no good runoff rains were reported, suggesting status quo for those areas. In Texas, widespread 1-category improvements were made to the drought depiction after recent rain fell over many areas that needed it. Stream flows are improving in southern and south-central Texas, and there is continued reservoir improvement in the Dallas area. In the Panhandle region, some of the wheat crop is expected to be salvaged, but it is unlikely the crop will return to normal.

### The Southeast and lower Mississippi Valley

Several quasi-stationary fronts draped across the Southeast contributed to heavy rain (generally 2 inches or greater) near the Gulf Coast, with 3-10 inch totals common from southeastern Texas to the extreme western Florida Panhandle. Stream flows across this region are well above-average (90th-98th percentile of the historical distribution). Accordingly, areas of abnormal dryness (D0) and moderate drought (D1) were eliminated from eastern Louisiana and southern Mississippi, and a general 1-category improvement was rendered to the drought depiction in central and southern Alabama. Widespread moderate to heavy rain (1-4 inches) across Georgia and the Carolinas, stream flows at or above the 90th percentile, and support from CPC's short- and long-term drought blends prompted the elimination of all remaining abnormal dryness (D0) across the Carolinas and much of Georgia. In southern Florida, timely rains resulted in a 1-category improvement (the removal of D0) for Glades, northern Hendry, and the northwestern half of Palm Beach Counties. In contrast, a 1-category downgrade was rendered to the depiction in much of Miami-Dade, Broward, Monroe, and eastern Collier Counties (including Big Cypress National Preserve). The KBDI (Keetch-Byram Drought Index), a drought index specifically designed for fire potential assessment, is at an extremely high value of 650-700 (and higher) in this area. For reference, the maximum value of this index is 800.

### The West

Moderate precipitation (0.5-2.0 inches, liquid equivalent) fell in much of the Upper Colorado River Basin this past week, though not enough to greatly improve snowpack or stream flows. This region will be monitored for possible improvements next week. In parts of northeastern Colorado, where 1-3 inches of rain have fallen so far this April, 1-category upgrades were made. This includes Cheyenne County in extreme eastern Colorado, and near the northern border with Wyoming. In southern New Mexico, moderate drought (D1) was removed from southwestern Chavez and all of Otero Counties due to good moisture conditions. The Pecos River Valley is

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doing well on the eastern side of the state, with full reservoirs and commencement of irrigation. Conditions are not as promising though for the Rio Grande Valley.

In northeastern California, exceptional drought (D4) was expanded across the northern Sierras this week, while in northern Modoc County, a one-category improvement (from D4 to D3) was rendered to the depiction to more accurately reflect local conditions. In east-central California near Yosemite National Park, the average surface elevation of Mono Lake stood at 6378.9 feet, as of April 15th. This is the lowest surface elevation of the lake since early 1996. The target elevation is 6391 feet. For the past two weeks, extreme to exceptional drought (D3-D4) covered two-thirds of California. In northern Nevada, a one-category degradation was made to northwestern Elko County, while in southwestern Montana, small improvements were made to the drought depiction in Gallatin County.

In Washington state, record/near-record low snowpack supports the expansion of moderate drought (D1) across the northern Cascades, and the introduction of moderate drought in northeastern Washington.

### Looking Ahead

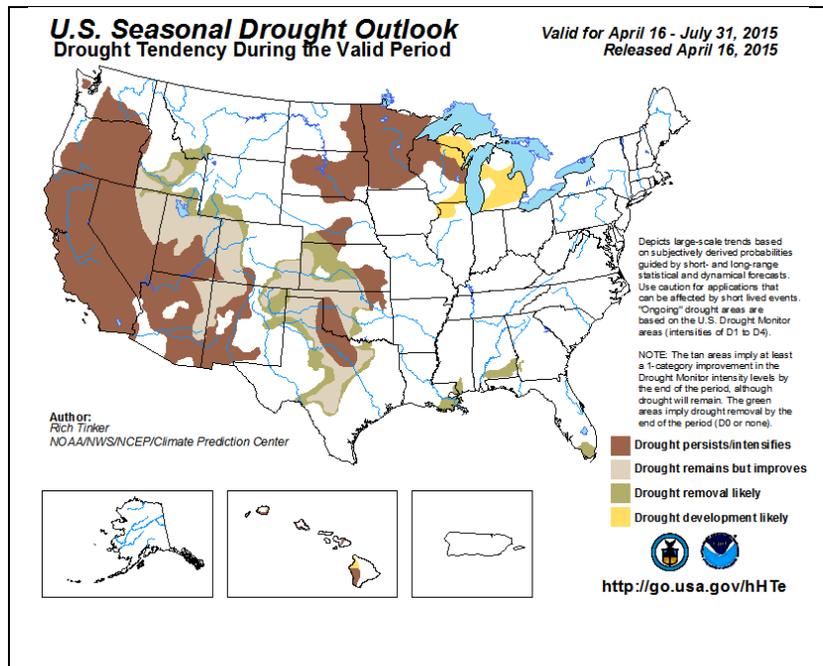
For the ensuing 5-day period, April 23-27, northern New England, portions of Georgia and Alabama, and southern Florida are expected to receive 1.0-1.5 inches of precipitation, which would help in the mitigation of existing dryness/drought. Up to about 2 inches of rain is forecast for the easternmost portions of the drought region in both Oklahoma and Texas, during this period. Light precipitation (0.25-inch or less) is anticipated for most of the Dakotas and upper Mississippi Valley, though western South Dakota is expected to receive 1.0-1.5 inches of rain. Between 1.0-1.5 inches of precipitation (liquid equivalent) is predicted for parts of the West.

For the 6-10 day period, April 28-May 2, there are enhanced odds of near- to below-median precipitation across most of the contiguous U.S. Odds favor above-median rainfall from the central and eastern Gulf Coast region northeastward across the Southeast, mid-Atlantic, and southeastern New England.

## Supplemental Drought Information

### National Seasonal Drought Outlook

Nationally, [drought](#) is expected to persist or intensify over much of the West and Central U.S., including California, Nevada, Oregon, Washington, Utah, Arizona, New Mexico, Texas, Oklahoma, Minnesota, North Dakota, South Dakota, Colorado, and Hawaii. Improvements are expected in parts of Idaho, Nevada, Utah, Colorado, Arizona, New Mexico, Texas, Oklahoma, and Nebraska. Drought removal is likely in parts of Idaho, Wyoming, Utah, Colorado, Nebraska, New Mexico, Texas, Oklahoma, Louisiana, Mississippi, Alabama, and Florida. The areas of drought that are likely to develop further are in the upper Midwest and Hawaii.



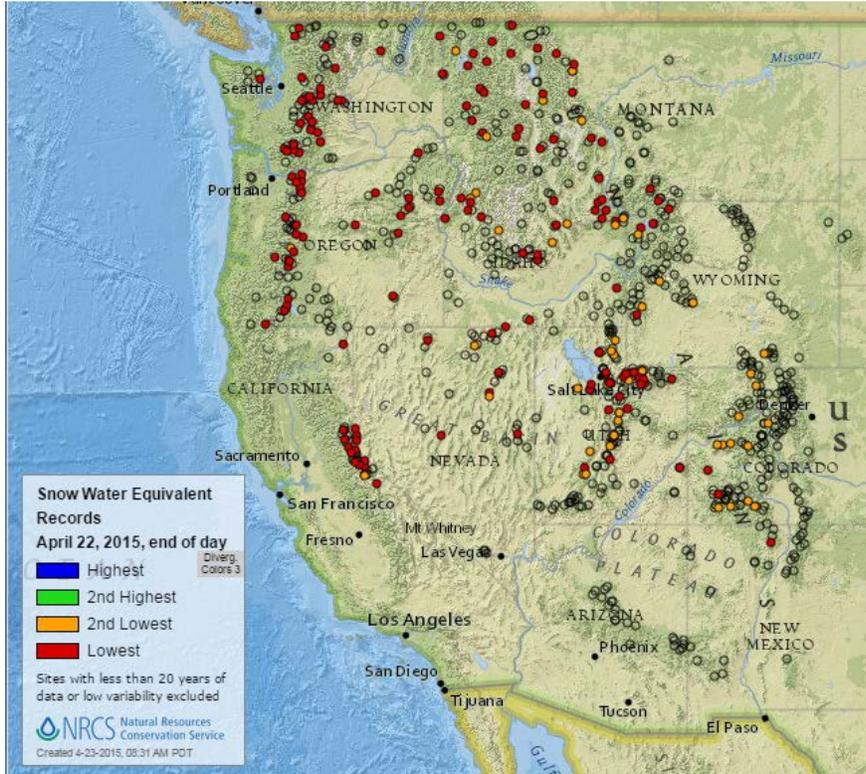


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### Additional Maps

U.S. Maps PowerPoint presentation: <http://dmcommunity.unl.edu/maps/US-Maps.ppt>.

Regional zooms of ACIS station data percent-of-normal precipitation: <http://dmcommunity.unl.edu/maps/All-CONUS-ACIS-PNP.pptx>. National Water and Climate Center (NWCC) Surface Water Supply Index (SWSI) maps: <http://www.wcc.nrcs.usda.gov/wsf/swsi.html>



The National Water and Climate Center is introducing a new map product. This map depicts NRCS SNOTEL and snow course sites with new record low or near record low snow water equivalent (SWE) for April 22. Stations colored red are in record territory, while yellow shows stations at their second lowest record for the day.

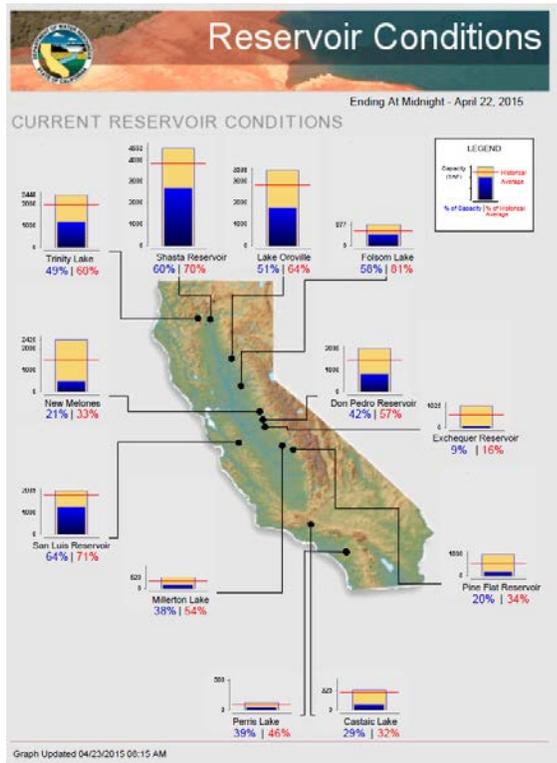
### Tea Cup Reservoir Depictions

- <http://www.usbr.gov/uc/water/basin/> ← Upper Colorado
- [http://www.usbr.gov/uc/wcao/water/basin/tc\\_gr.html](http://www.usbr.gov/uc/wcao/water/basin/tc_gr.html); ← Upper Snake
- <http://www.usbr.gov/pn/hydromet/burtea.html> ← Upper Colorado
- [http://www.usbr.gov/uc/water/basin/tc\\_cr.html](http://www.usbr.gov/uc/water/basin/tc_cr.html) ← Upper Colorado
- <http://www.usbr.gov/pn/hydromet/select.html> ← Pacific Northwest
- <http://www.sevierriver.org/reservoirs/teacup-diagram-of-reservoirs/> ← Sevier River Water (UT)

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## California Reservoir Conditions

[California Major Reservoir conditions from the CA Department of Water Resources](#)

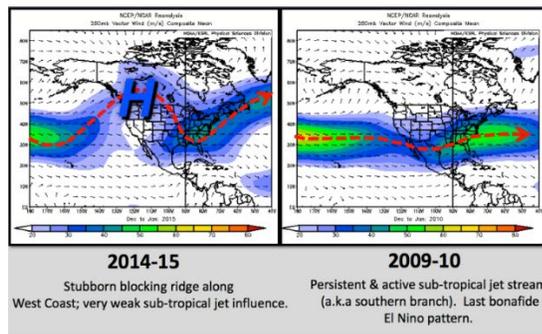


## State Activities

[State government drought activities](#) can be tracked through their drought plans. NRCS Snow Survey and Water Supply Forecasting (SSWSF) Program State Office personnel are participating in state drought committee meetings and providing the committees and media with appropriate SSWSF information. Additional information describing the [tools](#) available from the Drought Monitor can also be found at the [U.S. Drought Portal](#).

## Persistent Weather Pattern Dominates the U.S.

Here is a graphic from the National Weather Service on the persistent weather pattern and mean jet stream position that has affected the U.S. for much of this winter. The current year was originally forecast to be in an El Niño pattern, which hasn't occurred. The current year's weather pattern on the left is in contrast to the normal El Niño pattern on the right that occurred in 2009-2010.



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### More Information

The National Water and Climate Center (NWCC) [Homepage](#) provides the latest available snowpack and water supply information. This document is available [weekly](#). CONUS Water and Climate Updates from 2007 are available online. Reports from 2001-2006 are available on request.

This report uses data and products provided by the Interagency Drought Monitor Consortium members and the National Interagency Fire Center.

/s/

David W. Smith

Deputy Chief, Soil Science and Resource Assessment