

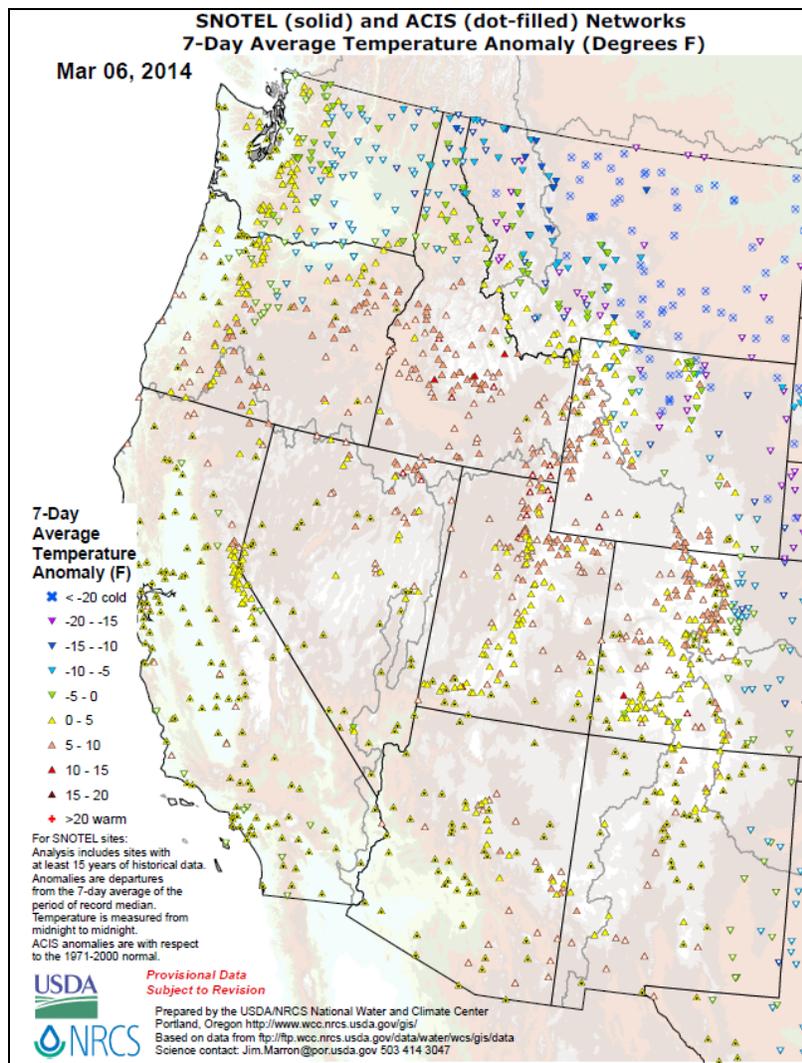


Natural Resources Conservation Service
 P.O. Box 2890
 Washington, D.C. 20013

Weekly Snowpack / Drought Monitor Update March 6, 2014

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Temperature



SNOTEL and ACIS [7-day temperature anomaly](#) shows temperatures well below normal over the northern tier states and well above normal over the interior West and Colorado Rockies.

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

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

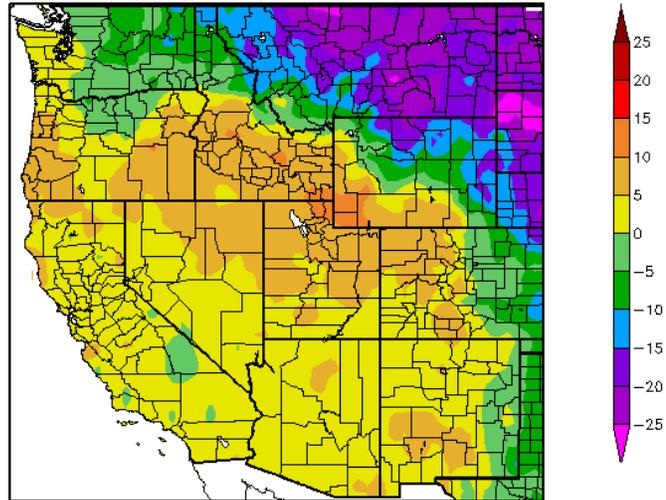
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Weekly Snowpack and Drought Monitor Update Report

[ACIS](#) 7-day average temperature anomalies, ending March 5, show the greatest negative temperature departures over Montana (<-20°F). The greatest positive temperature departures occurred over southwestern Wyoming and northeast Utah (>+10°F). The Rockies served to hold back the cold air from spilling over the Continental Divide.

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

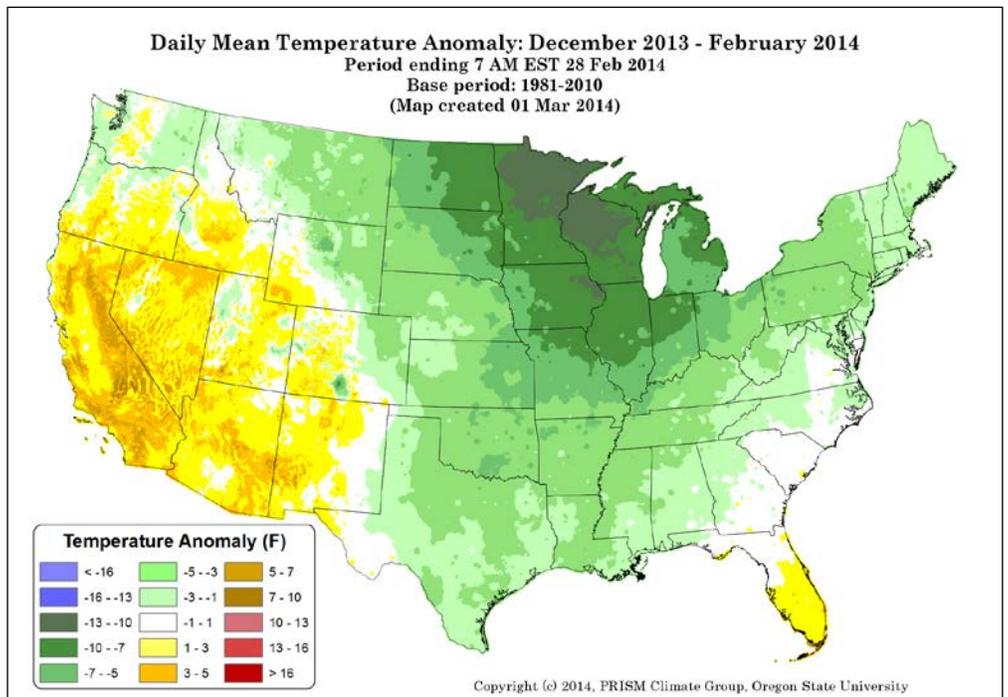
Departure from Normal Temperature (F)
2/27/2014 – 3/5/2014



Generated 3/6/2014 at HPRDC 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.

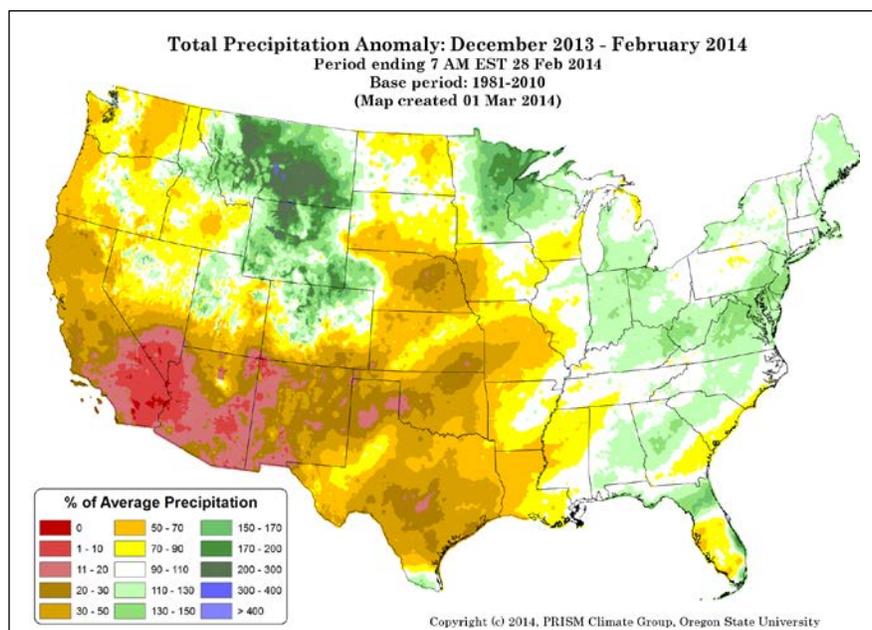
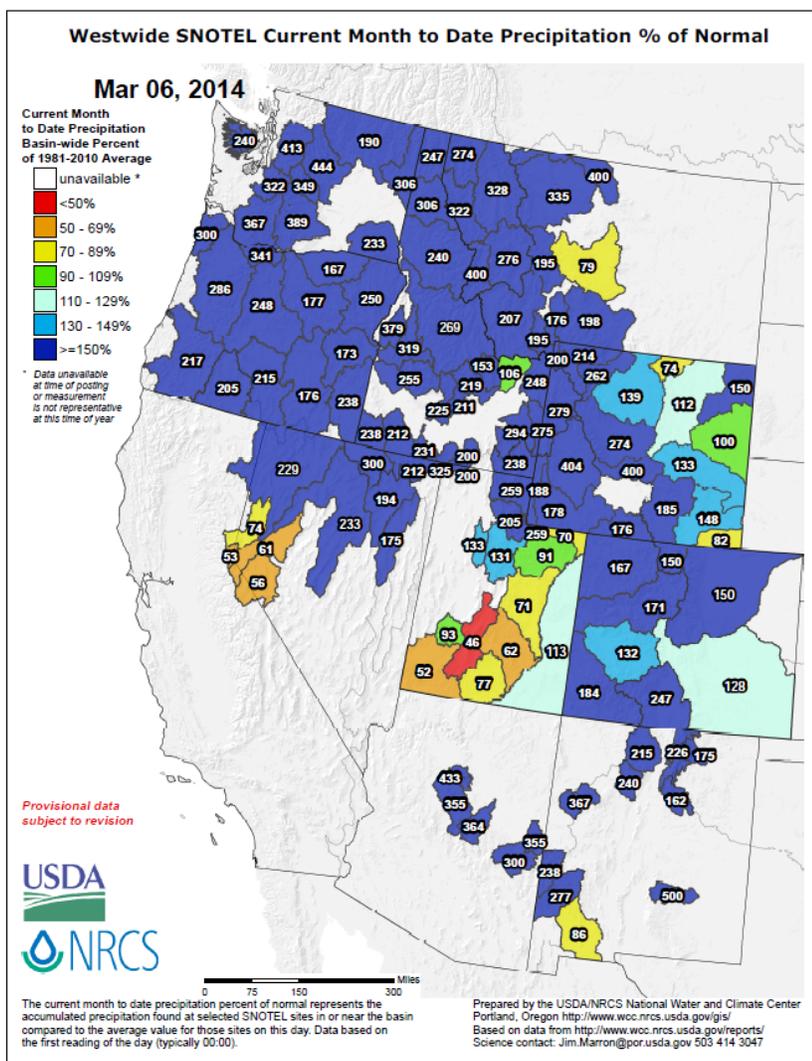


For the period from **December 2013 through February 2014**, temperatures have been exceptionally cold over the upper Midwest and western Great Lakes regions (<-13°F departures). Significantly warmer than normal temperatures have been confined to parts of the Great Basin, California, Arizona, southwestern New Mexico (>+5°F).

Weekly Snowpack and Drought Monitor Update Report

Precipitation

SNOTEL [month to date](#) precipitation percent of normal shows much of the West with well above normal values. A few river basins in the Lake Tahoe area and the southern half of Utah have not benefitted as much from the recent weather activity.



← The [December through February precipitation](#) pattern has been spotty across the U.S. Areas with above normal amounts have occurred in the northern Rockies and Minnesota. The greatest deficits have been confined over northern and central Texas, the Southwest, and southern California. Lesser deficits dominated western Florida, the High Plains, northern California, and parts of the Pacific Northwest.

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

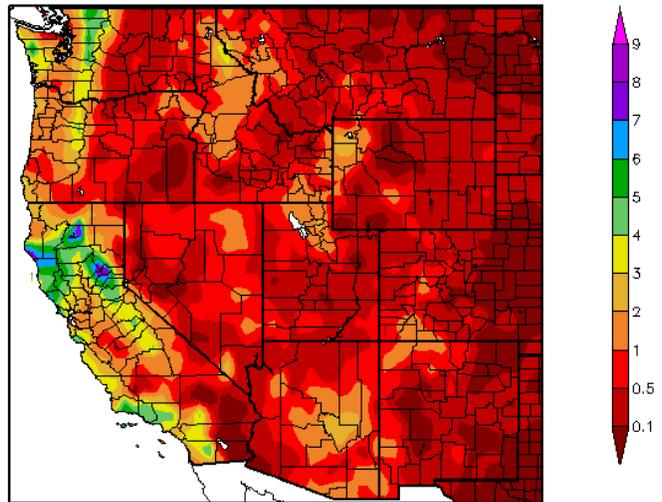
Weekly Snowpack and Drought Monitor Update Report

[ACIS 7-day](#) total precipitation amounts were greatest over northern California (eight inches).

A secondary maximum area occurred over the Los Angeles Basin and Washington Cascades (four to six inches). Less but significant amounts fell over parts of the Rockies and Arizona (one to three inches)

Elsewhere, amounts were generally less than one inch.

Precipitation (in)
2/27/2014 – 3/5/2014



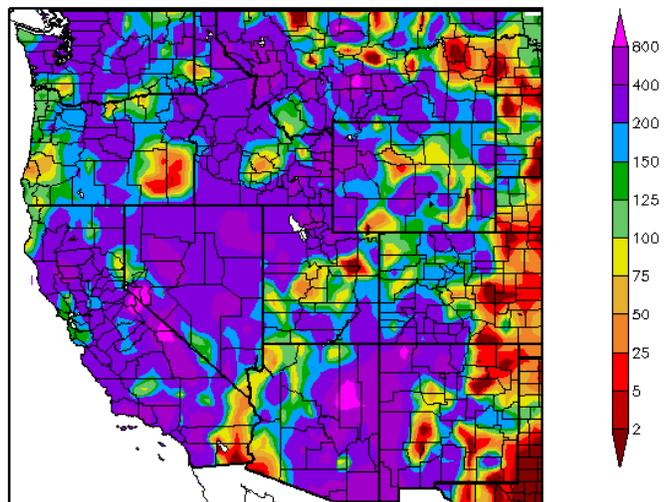
Generated 3/6/2014 at HPRCC using provisional data.

Regional Climate Centers

This [map](#) shows that most of the West experienced much-needed moisture. →

Note that these ACIS maps reflect only low-elevation stations, where precipitation is typically lighter this time of year than it is over higher terrain. Under average conditions (based on long-term climatology), precipitation tends to increase in the coming weeks for the interior West.

Percent of Normal Precipitation (%)
2/27/2014 – 3/5/2014

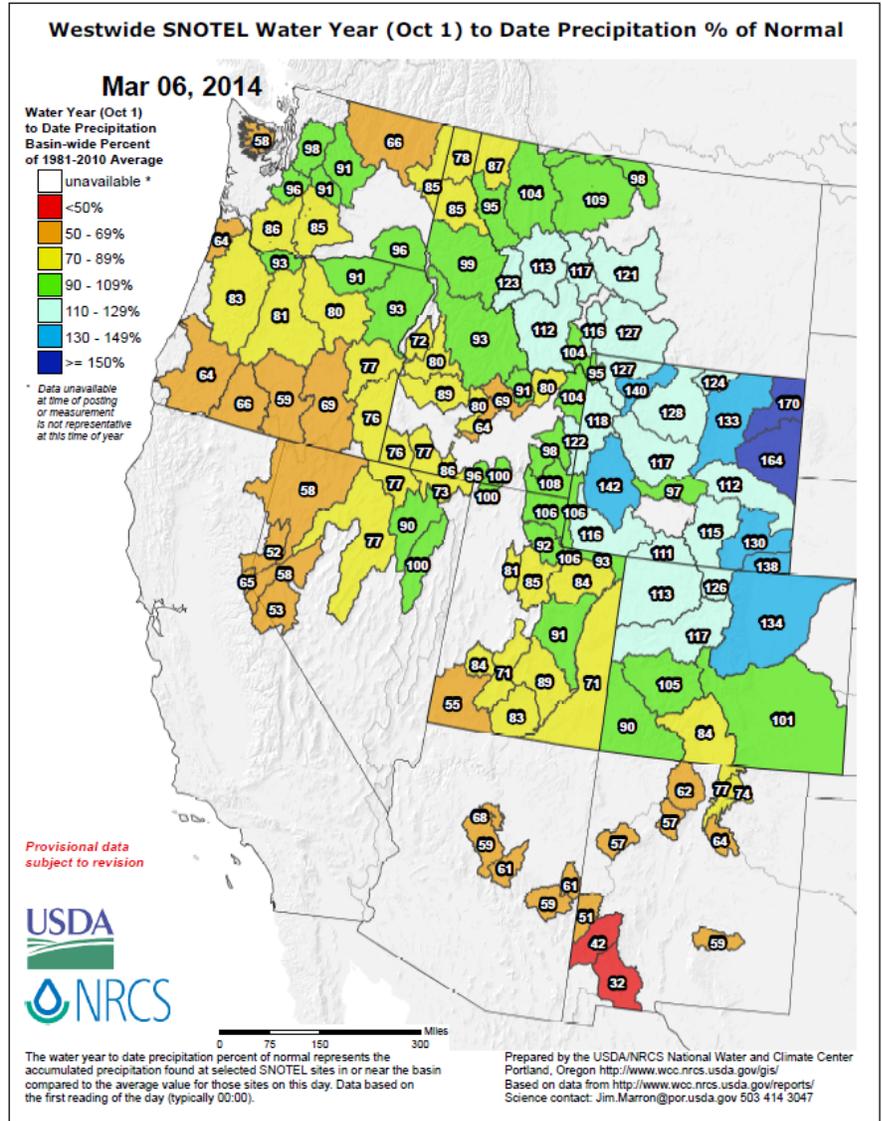


Generated 3/6/2014 at HPRCC using provisional data.

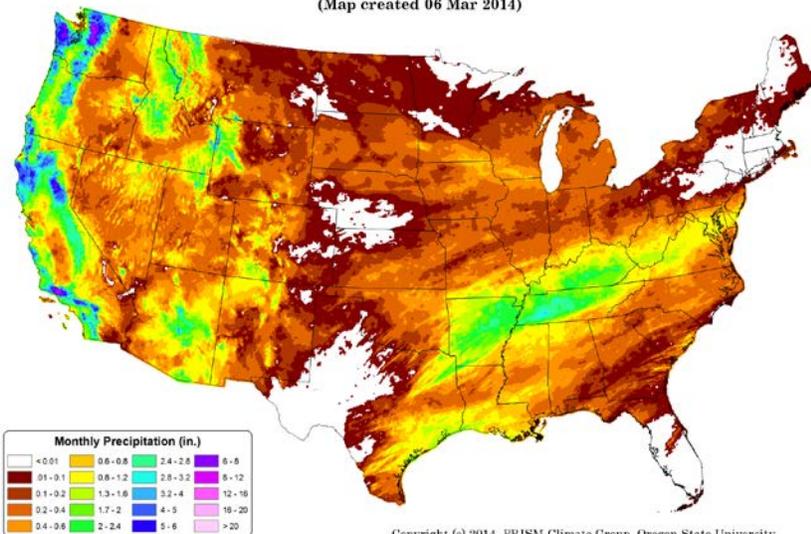
Regional Climate Centers

Weekly Snowpack and Drought Monitor Update Report

For the [2014 Water Year](#) that began on October 1, 2013, only central Montana, all of Wyoming, and northern Colorado are experiencing surpluses. The biggest deficits are located over southern Oregon, western Nevada, southwest Utah, and much of Arizona and New Mexico.



Total Precipitation: 01 March 2014 - 05 March 2014
 Period ending 7 AM EST 05 Mar 2014
 (Map created 06 Mar 2014)

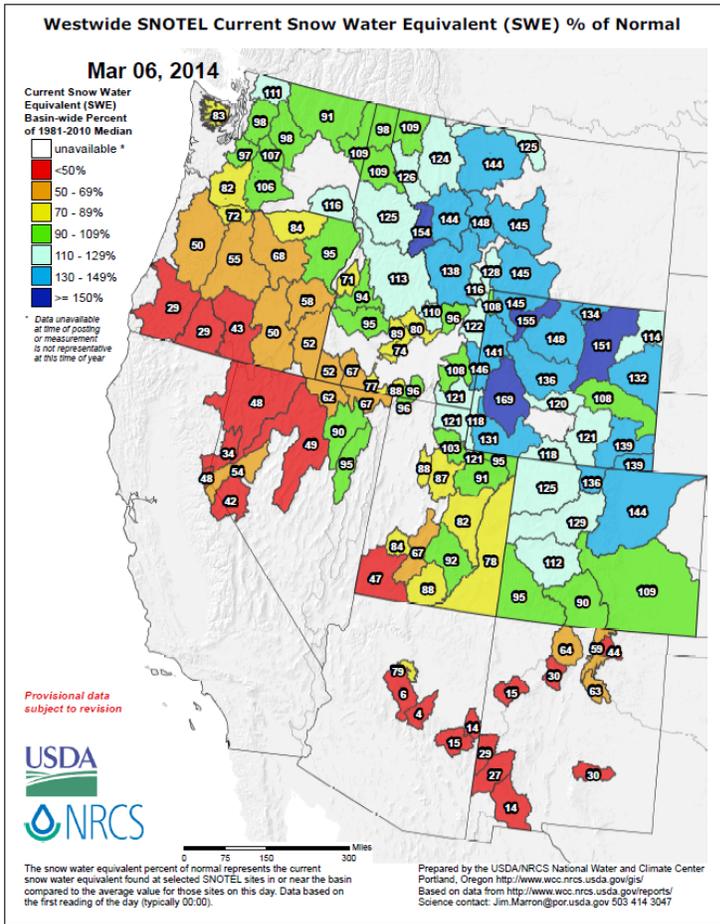


In this [PRISM](#) map, preliminary data show the **total precipitation** (rain and snow water equivalent) for the first five days of March.

Note the large amounts of precipitation along the west coast states with lesser amounts over the inter-mountain West and from Arkansas to the Tennessee River Valley.

Weekly Snowpack and Drought Monitor Update Report

Snow



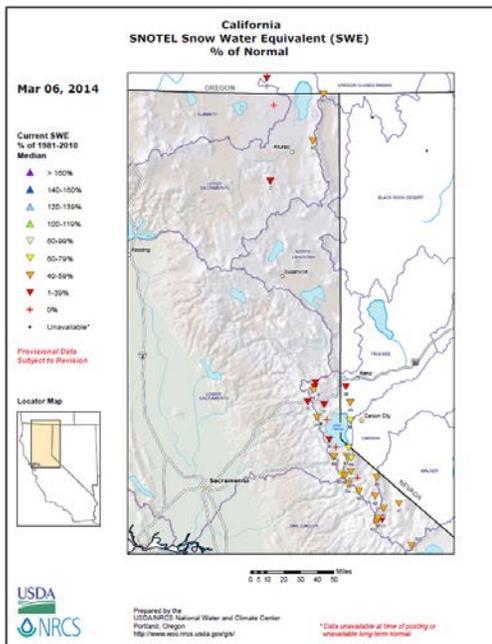
Snow Water Equivalent (SWE) values are higher east of the Continental Divide with the exception of New Mexico. During the week, more than 90 percent of the river basins across the West increased SWE from 5 to 10 percent. However, for many river basins in the Southwest, that only meant values increased from 10 to 20 percent.

The Sierra Nevada snowpack continues to be in deficit, despite intense precipitation last week.

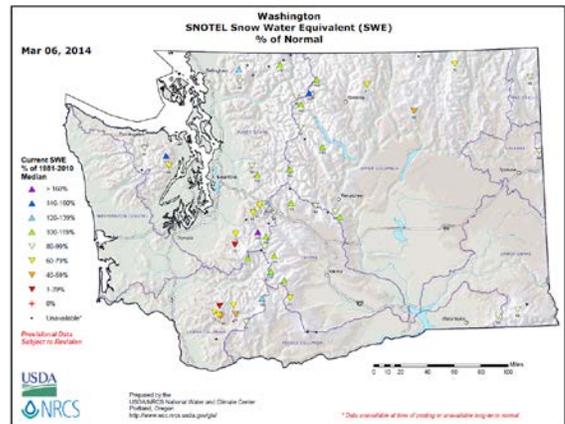
The all-important April 1 SWE date will best determine the water supply forecasts issued by the [National Water and Climate Center](#).

See the latest:

- [National Snow Analysis](#)
- [West-Wide Water Supply Forecast Tables](#)



[California-Nevada](#) SWE map by station. Despite recent precipitation most sites have not changed significantly.



[Washington](#) SWE map by station. Most river basins in the state increased SWE by 5 to 10 percent this past week.

← “An intense low pressure system moved over California during the final days of last month, helping to bolster snowpack of the northern, central, and southern Sierra Nevada snowpack at 5, 10, and 8” (19, 37, and 36% of normal for the date), up from 3, 8, and 4” (13, 30, and 21%) on February 25, respectively.” - CA DWR

Weekly Snowpack and Drought Monitor Update Report

Weather and Drought Summary

National Drought Summary – March 4, 2014

The following **Weather and Drought Summary** is provided by this week's NDMC Drought Author: Brad Rippey, USDA

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

For the contiguous 48 states, the U.S. Drought Monitor showed 35.85 percent of the area in moderate drought or worse, compared with 36.08 percent a week earlier. D4 decreased to 1.57 percent for CONUS.

For all 50 U.S. states and Puerto Rico, the U.S. Drought Monitor showed 30.05 percent of the area in moderate drought or worse, compared with 30.24 percent a week earlier.

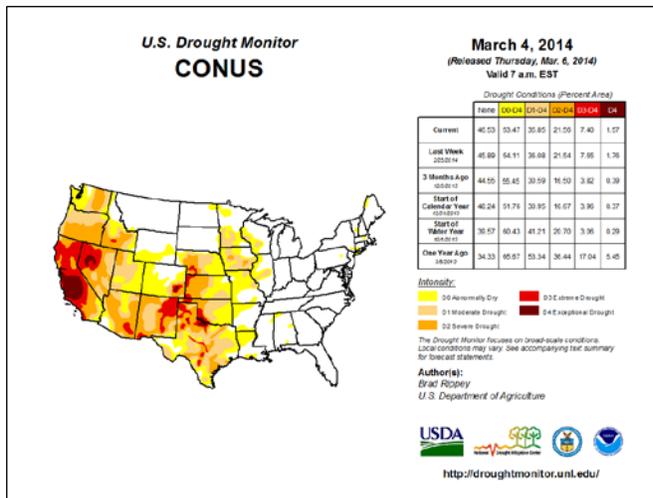
[Current Drought Monitor](#) weekly summary. The exceptional D4 levels of drought are scattered across CA, NV, CO, TX, and OK.

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](#).

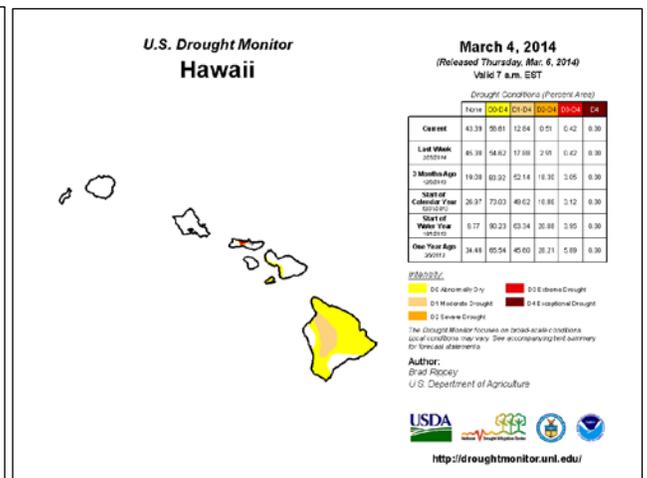
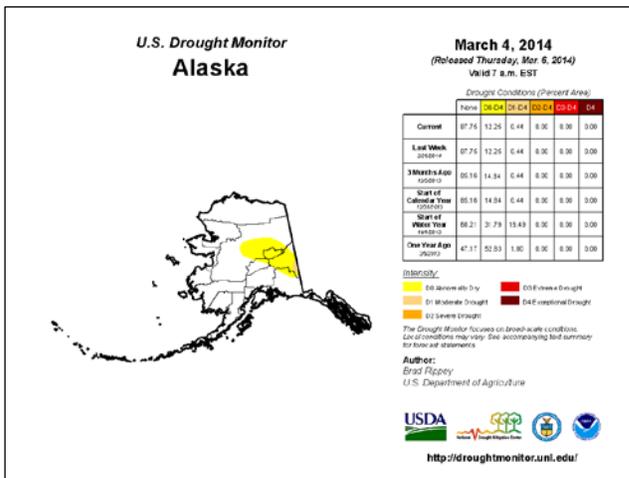
Drought Management Resources (✓):

- ✓ [Watch AgDay TV](#)
- ✓ [Drought Impacts Webinar Series](#)



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

- [Grain traders' profits hit as US farmers hoard corn](#) - Feb 26
- [Chiquita reduces fourth quarter loss](#) - Feb 27
- [Drought Eases in Plains, Northwest](#) - Feb 27



The 49th and 50th States show relatively benign drought conditions. Hawaii has shown some improvement this past week in D1 to D3.

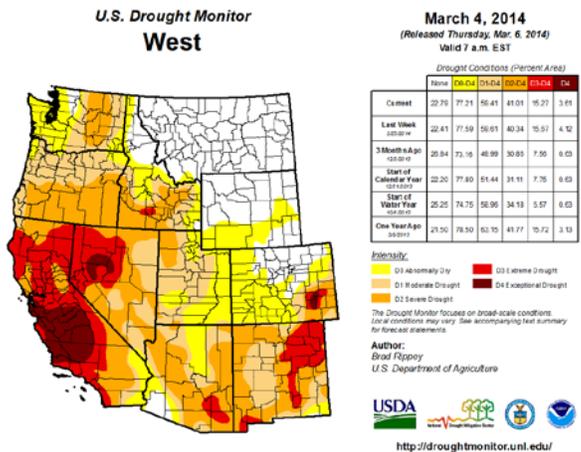
A comprehensive narrative describing drought conditions across other parts of the nation can be found toward the end of this document. For drought impacts definitions for the figures that follow, click [here](#).

Weekly Snowpack and Drought Monitor Update Report

- ✓ Drought Monitor for the [Western States](#)
- ✓ Drought Impact Reporter for [New Mexico](#)
- ✓ [California Data Exchange Center & Flood Management](#)
- ✓ [Intermountain West Climate Dashboard](#)
- ✓ [Great Basin Dashboard](#)
- ✓ [CLIMAS January 2014 Climate Summary](#)
- ✓ [March Southwest Climate Podcast](#)

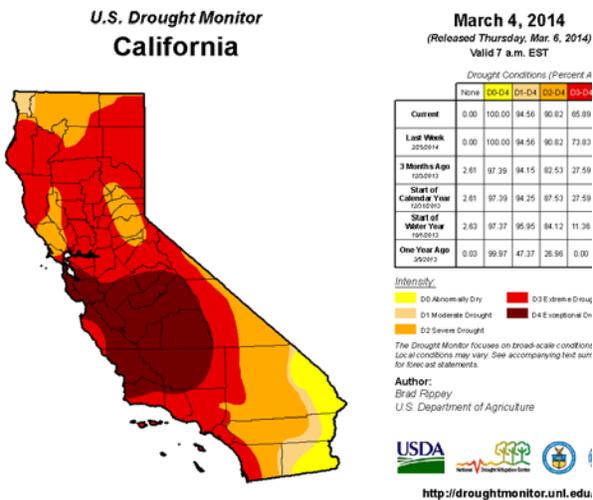
Drought News across the West

- [White House plans fund for large-wildfire suppression](#) - Feb 24, Western U.S.
- [Fireworks, open fires, smoking banned on state trust lands](#) - Feb 28, New Mexico
- [Commission chairman warns no snow runoff](#) - Feb 27, Lincoln County, New Mexico
- [South-central Idaho water outlook improves](#) - Feb 25, Idaho

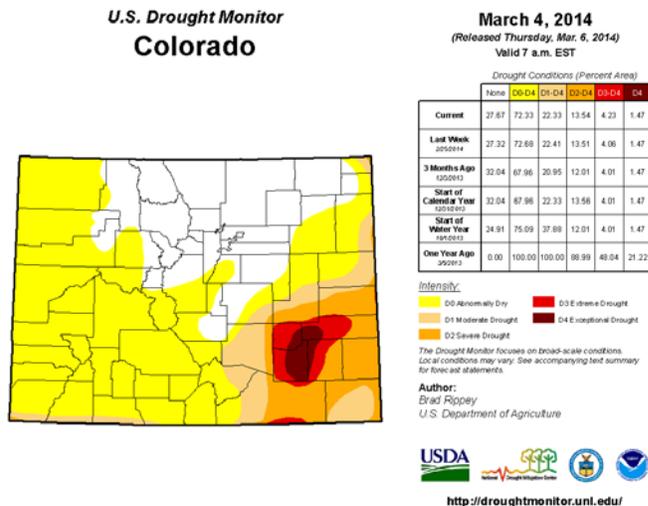


Slight improvement in D2-D4 has occurred during the past week. - Click to enlarge

Drought News from California



Significant improvement in D3 & D4 has occurred this week. However, these percentages are still too high.



No significant changes have occurred during the past week.

CA Drought Information Resources

- [California almond farmers face tough choices](#) - Feb 23
- [Valley business owners see opportunities during historic dry spell](#) - Feb 22
- [Drought Helping Insects to Thrive](#) - Feb 24
- [Committees approve \\$687 million in drought relief](#) - Feb 27
- [Drought be dammed, Calif. lawmakers look to storing water](#) - Feb 27
- [NASA turns research to California drought](#) - Feb 25
- [California's Springtime Wonders Struck by Drought](#) - Feb 25
- [Low reservoir level closes Woodward to recreation](#) - Feb 27
- [Auburn, Placer Union schools asked to tighten the tap](#) - Feb 25
- [California drought: Snowpack grows, but not enough](#) - Feb 28
- [Drought-Hit California Gets \\$165 Million Water Debt: Muni Deals](#) - Feb 24
- [East Bay district pursues emergency water source](#) - Feb 26
- [Long Beach Declares "Imminent Water Supply Shortage"](#) - Feb 27
- [Mandatory 50% water cutbacks ordered by Russian River district](#) - Feb 24
- [Santa Clara Valley water board sets 20 percent conservation goal](#) - Feb 24
- [Santa Cruz council declares water shortage emergency, rationing anticipated May 1](#) - Feb 25
- [The California Drought In One Photo](#) - Feb 26

Weekly Snowpack and Drought Monitor Update Report

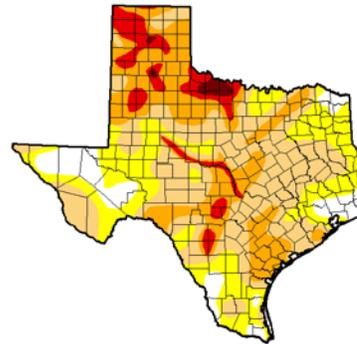
State with D-4 Exceptional Drought

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

Texas [Impacts](#) during the past week

- [Rice farmers dealt another blow in ongoing drought](#) - Feb 26
- [As water usage drops, Austin officials weigh higher rates](#) - Feb 25
- [Feds side with Texas in battle over water](#) - Feb 28
- [SAWS may need tougher watering limits by May](#) - Feb 27

U.S. Drought Monitor Texas



March 4, 2014
(Released Thursday, Mar. 6, 2014)
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D1	D1-D2	D2-D3	D3-D4	D4
Current	8.95	91.05	67.15	31.38	8.52	1.07
Last Week 2/25/14	7.38	82.62	67.88	33.55	9.45	0.93
3 Months Ago 12/2/13	24.58	75.42	47.39	21.29	5.84	0.96
Start of Calendar Year 1/1/14	28.48	71.52	43.84	21.15	5.82	0.79
Start of Water Year 10/1/13	6.42	93.38	70.95	25.88	4.01	0.12
One Year Ago 3/5/13	11.15	88.85	76.29	55.82	23.98	7.41

Intensity:
 D0 Abnormally Dry D3 D3 Severe Drought
 D1 Moderate Drought D4 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.

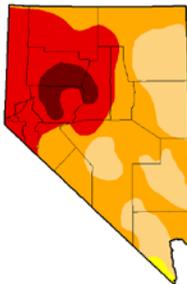
Author:
Brad Rippey
U.S. Department of Agriculture



No significant changes occurred during the past week.

State with D-4 Exceptional Drought

U.S. Drought Monitor Nevada



March 4, 2014
(Released Thursday, Mar. 6, 2014)
Valid 7 a.m. EST

	DROUGHT CONDITIONS (PERCENT AREA)					
	None	D0-D1	D1-D2	D2-D3	D3-D4	D4
Current	0.00	100.00	80.32	71.04	33.46	6.37
Last Week 2/25/14	0.00	100.00	80.32	71.04	33.44	6.37
3 Months Ago 12/2/13	0.00	88.64	58.81	27.68	20.55	6.37
Start of Calendar Year 1/1/14	0.00	88.64	58.81	27.68	20.55	6.37
Start of Water Year 10/1/13	0.00	88.64	58.79	27.71	20.55	6.37
One Year Ago 3/5/13	0.00	100.00	80.68	50.44	12.22	0.00

Intensity:
 D0 Abnormally Dry D3 D3 Severe Drought
 D1 Moderate Drought D4 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.

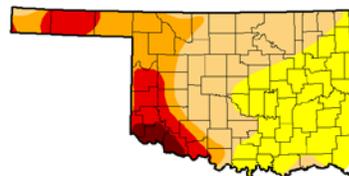
Author:
Brad Rippey
U.S. Department of Agriculture

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

No changes have occurred during the past week.

State with D-4 Exceptional Drought

U.S. Drought Monitor Oklahoma



March 4, 2014
(Released Thursday, Mar. 6, 2014)
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D1	D1-D2	D2-D3	D3-D4	D4
Current	0.78	99.22	62.55	28.86	13.07	2.40
Last Week 2/25/14	0.00	89.91	62.41	28.86	13.07	2.40
3 Months Ago 12/2/13	52.86	47.34	30.90	15.93	4.92	2.40
Start of Calendar Year 1/1/14	50.04	49.16	30.17	18.99	4.84	2.40
Start of Water Year 10/1/13	21.74	79.26	43.00	17.82	4.42	1.45
One Year Ago 3/5/13	0.00	100.00	100.00	100.00	6.85	9.54

Intensity:
 D0 Abnormally Dry D3 D3 Severe Drought
 D1 Moderate Drought D4 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.

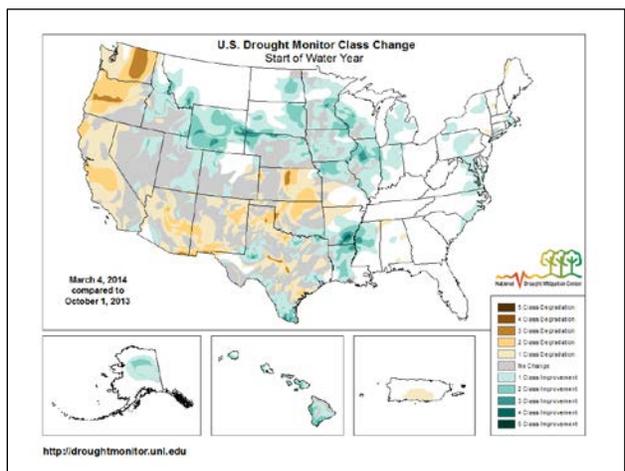
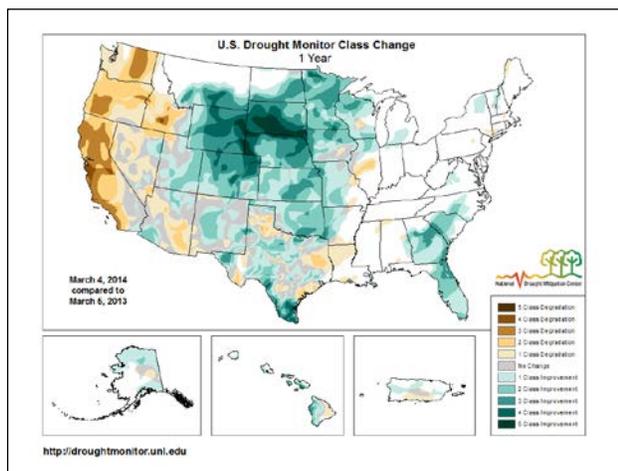
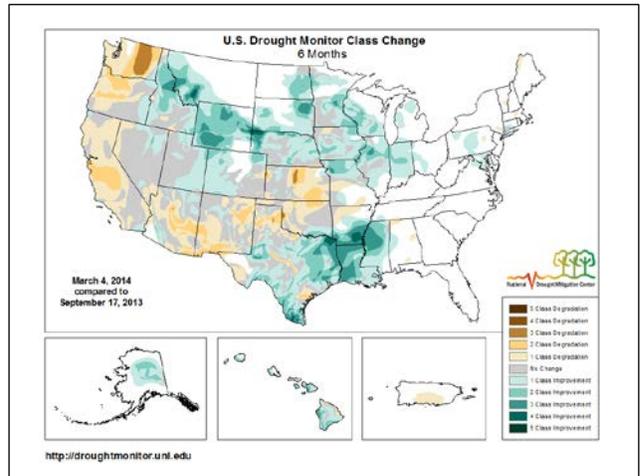
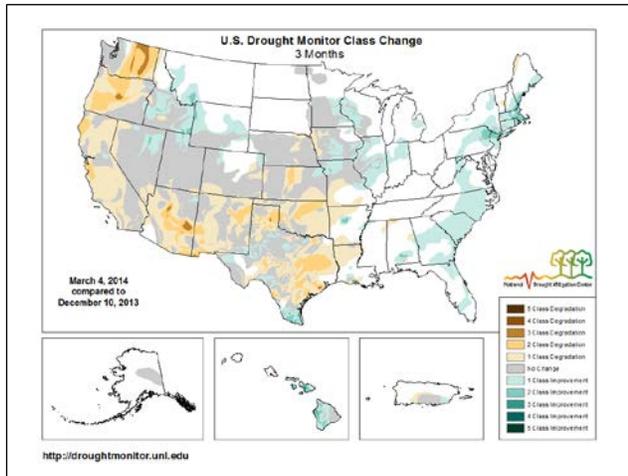
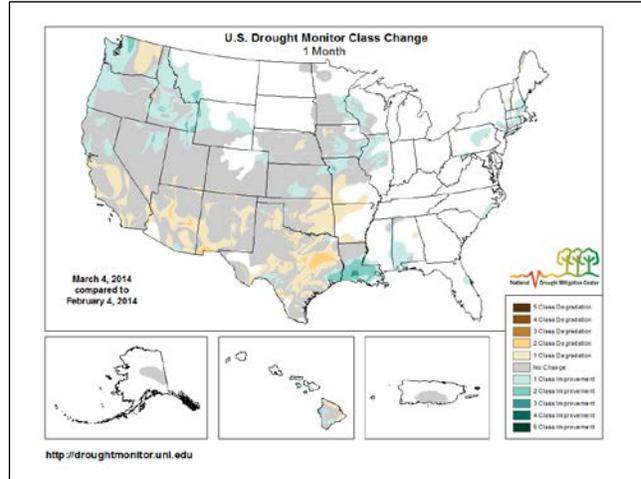
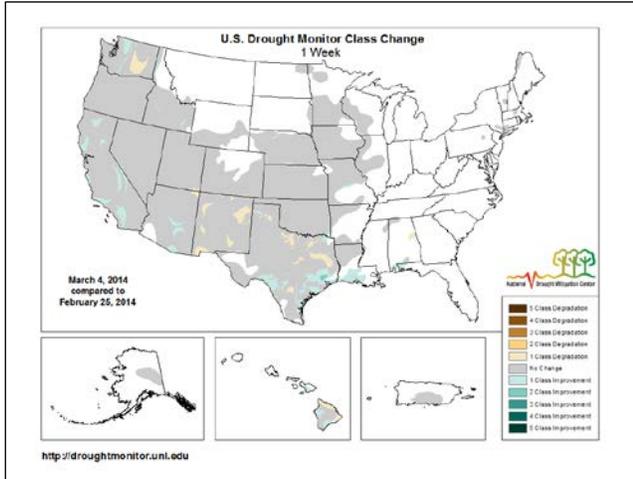
Author:
Brad Rippey
U.S. Department of Agriculture



No changes have occurred during the past week.

Weekly Snowpack and Drought Monitor Update Report

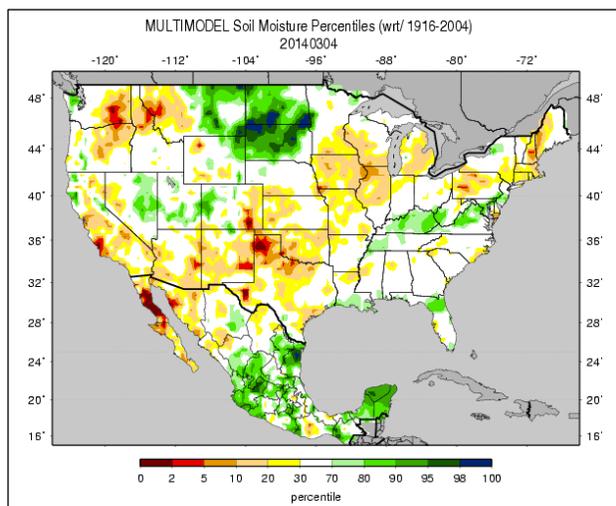
Changes in Drought Monitor Categories (over various time periods)



Winter time changes to the drought monitor are usually minimal. However, since the start of the 2014 Water Year (lower right map), the western drought conditions have worsened over the Pacific Northwest and improved over Wyoming. Conditions have also improved over the Mississippi River Valley, but have worsened over Kansas to northern Texas.

Weekly Snowpack and Drought Monitor Update Report

Soil Moisture



Soil moisture ranking in [percentile](#) as of March 4 shows dryness over California, Arizona, New Mexico, parts of central Washington, and the southwestern Great Plains. Moist soils dominate the Northern Plains.

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 Health-unlock your farm's potential](#)

Note: With frozen ground, accuracy of measured moisture becomes suspect.

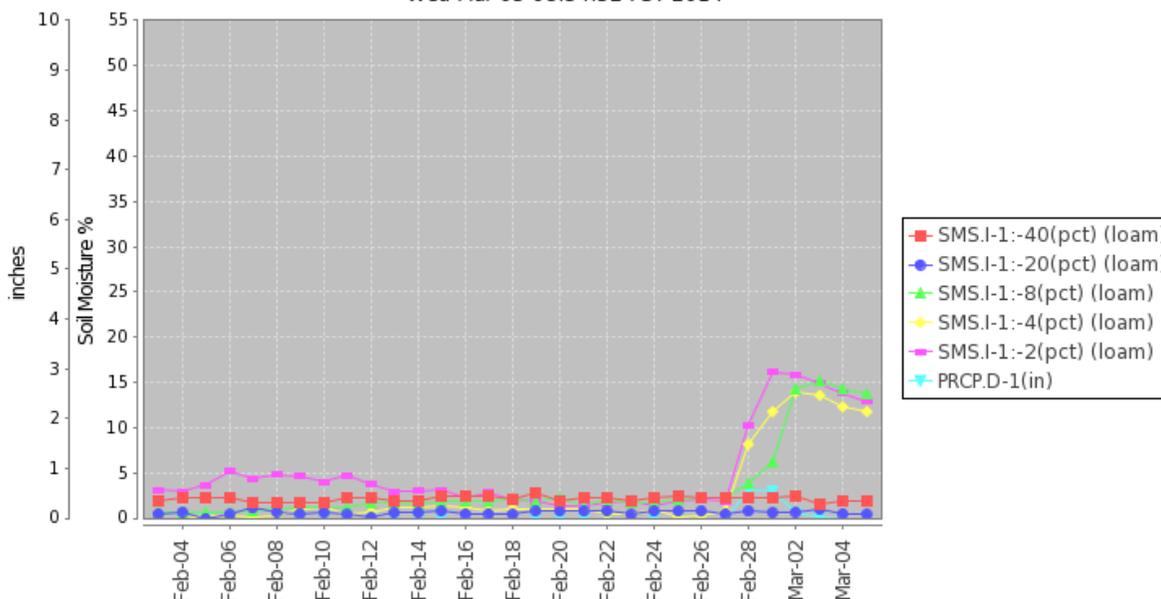
"With the talk about Upper Midwestern frost depths and uncertainties about whether the extensive snowpack will soak in or run off – let's just say that it might be a while until we know for sure. Take a look at these phenomenal frost depths from MNDot:

http://www.mrr.dot.state.mn.us/research/seasonal_load_limits/thawindex/frost/fs_olmsted.asp
http://www.mrr.dot.state.mn.us/research/seasonal_load_limits/thawindex/frost/fs_wright.asp

This may not be representative of agricultural fields, as it appears to be a road bed (e.g. clay under crushed granite), but it still gives you an idea of what we will be dealing with in this part of the country when spring finally arrives." - Provided by Brad Rippey, USDA

Soil Climate Analysis Network ([SCAN](#))

Station (2149) MONTH=2014-02-03 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision
 Wed Mar 05 08:54:32 PST 2014



This NRCS resource shows soil moisture data at a SCAN site located in [east-central California](#). Recent intense rainfall was only able to penetrate the top 8 inches of soil.

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 Snowpack and Drought Monitor Update Report

[National Drought Summary for March 4, 2014](#)

Prepared by: Drought Monitor Author: Brad Rippey, USDA

Summary

“The most significant storm of the season crossed California, delivering drought-easing rainfall to coastal areas and beneficial snow in the Sierra Nevada. In addition, rain in California’s agricultural regions temporarily eased irrigation requirements and aided drought-stressed rangeland and winter grains. However, spring and summer runoff prospects improved only slightly, as pre-storm snowpack values were near record lows and because drought-parched soils soaked up most of the available moisture. In addition, the storm moved too far south to provide optimal amounts of moisture in California’s key watershed areas, with the heaviest precipitation occurring in coastal and southern California rather than the Sierra Nevada. The remainder of the West also experienced stormy weather, with some of the heaviest precipitation occurring in central Arizona. Meanwhile, water-supply prospects further improved under a generally wet regime across the northern tier of the West. East of the Rockies, heavy rain was mostly confined to the Gulf Coast region. In early March, a late-winter storm unfolded across parts of the Plains, Midwest, mid-South, and mid-Atlantic States, where varying amounts of snow and sleet fell in advance of a record-setting March cold outbreak. By the morning of March 3, more than half (57%) of the contiguous U.S. was covered by snow, according to NOAA’s National Operational Hydrologic Remote Sensing Center.

Alaska, Hawaii, and Puerto Rico

As generally dry weather covered both Alaska and Puerto Rico, there were no changes to the depictions of dryness and drought. Parts of western Alaska experienced record-setting warmth, while cold conditions prevailed in the southeastern part of the state. On February 27, Anchorage (49°F) and Bethel (46°F) posted daily-record highs. Two days later, King Salmon (52°F) notched a record-breaking high for March 1. Meanwhile, dryness (D0) was apparent at several time scales in south-central Puerto Rico. In recent weeks, drier-than-normal conditions have begun to develop on other parts of Puerto Rico, including western portions of the northern coast—and this region will need to be watched for possible D0 development. Meanwhile, generous cold frontal rains continued to erode dryness and drought in Hawaii. As a result, drought (D1) was removed from Kahoolawe, while abnormal dryness (D0) was eliminated from Lanai. In addition, severe drought (D2) completely disappeared from Maui for the first time since the summer of 2011, and from the Big Island for the first time since the summer of 2008. Interestingly, windward sections of the Big Island have turned drier in recent weeks due to weak trade winds, and saw some D0 expansion. In Hilo, for example, February rainfall totaled just 2.57 inches (27% of normal). Meanwhile, extreme drought (D3) persisted on central Molokai, where conservation measures within the Molokai Irrigation System continued to require all non-homestead water users to cut consumption by 30%.

Central and Southern Plains

Generally light, wintry precipitation prevented further drought expansion on the central Plains. On March 2, USDA reported that 31% of the winter wheat in Oklahoma was rated in very poor to poor condition, up from 24% a month earlier. Kansas wheat was 22% very poor to poor, up from 20% at the end of January. Nebraska’s winter wheat was unchanged at 18% very poor to poor. When the wheat crop entered dormancy in late 2013, very poor to poor ratings were lower than 10% in all of those states. However, some of the perceived harm to the wheat may not have been explicitly caused by drought, but rather the cumulative effects of a harsh winter featuring wild temperature swings, occasional high winds, and exposure to extreme cold without the benefit of a protective snow cover.

Weekly Snowpack and Drought Monitor Update Report

Drought was still a concern, though, especially in western sections of those states. On March 2, topsoil moisture was rated 87% very short to short in Oklahoma, along with 57% in Nebraska and 55% in Kansas. Rangeland and pastures were rated 46% very poor to poor in Oklahoma, reflective of both short- and long-term drought.

In Texas, there were a variety of changes to the drought depiction, both improvement and deterioration. Recent precipitation was heaviest across southern and eastern Texas, where there were widespread changes for the better. General, slight deterioration was noted—with a few exceptions—across northern and western Texas. The portion of the Texas winter wheat crop rated in very poor to poor condition stood at 46% on March 2, up from 28% in late-November 2013. Additionally, 52% of Texas' rangeland and pastures were rated very poor to poor on March 2, up from 30% just over 3 months ago. Spring planting is underway across Deep South Texas (e.g. Texas corn was 8% planted, statewide, by March 2), and moisture will be needed soon as fieldwork moves northward. On March 2, statewide topsoil moisture was rated 78% very short to short in Texas, with numbers topping 90% in several northern and western districts.

Mississippi Valley

Rain, sleet, and snow in early March mostly arrested the expansion of abnormal dryness (D0) across the lower half of the Mississippi Valley. During the 7-day drought-monitoring period, precipitation totaled 0.23 inch in Joplin, Missouri, and 0.55 inch in Shreveport, Louisiana. Despite the moisture, year-to-date (January 1 – March 4) precipitation totaled 1.06 inch (22% of normal) in Joplin and 3.85 inches (40%) in Shreveport, Louisiana.

Farther north, mostly dry, extremely cold weather covered the Midwestern areas of lingering dryness (D0) and moderate to severe drought (D1 to D2), resulting in no changes to the depiction. Minneapolis-St. Paul, Minnesota reported its 50th day with a below 0°F reading on March 3, the most in any winter at that location since 1977-78.

Northeast

Cold, dry weather resulted in no change in the depiction of lingering Northeastern dryness (D0). Much of the region remains encased in snow, following several earlier storms, with depths on March 5 reported at 10 inches in Hartford, Connecticut, and 9 inches in Manchester, New Hampshire. In coming weeks, the effect of the snow on soils that are still dry from long-term precipitation deficits will depend on conditions during the spring thaw.

Southeast

Additional rain near the Gulf Coast led to the removal of abnormal dryness (D0) from western Florida and a reduction in coverage in southern Alabama. At the same time, year-to-date rainfall deficits led to the introduction of some D0 in east-central Alabama. Anniston, Alabama, near the edge of the new dry area, reported precipitation of 7.49 inches (73% of normal) from January 1 – March 4.

The West

A blockbuster storm struck California as the calendar turned from February to March, averting a record-breaking season for dryness. From February 26 – March 2, the potent storm—and a weaker, initial system—accounted for more than 75 percent of the season-to-date precipitation in California locations such as Burbank (4.78 of 5.28 inches); downtown Los Angeles (4.52 of 5.72 inches); Camarillo (3.66 of 4.85 inches); and Sandberg (3.04 of 3.93 inches). However, after the precipitation ended, season-to-

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date (July 1 – March 4) totals were just 40 percent of normal in Burbank, Camarillo, and Sandberg, and 49 percent of normal in downtown Los Angeles. At the height of the second storm, on February 28, Los Angeles—with 2.24 inches—experienced its wettest day since March 20, 2011. Los Angeles also received at least an inch of rain on 3 consecutive days (February 27 – March 1) for the first time since December 18-20, 2010. Benefits from the storms extended northward along the California coast and into some northern areas of the state, leading to a modest reduction in the coverage of extreme to exceptional drought (D3 to D4). However, short-term benefits from the storms were mostly offset by still-large, 3-year precipitation deficits, low reservoir levels, and a sub-par snowpack.

The California Department of Water Sources reported a slight jump in the water equivalency of the high-elevation Sierra Nevada snowpack. The water content, which averaged just 5 inches (22 percent of the late-February normal) prior to the two storms, climbed to 8 inches (33 percent) by March 5. The snowfall was heaviest in the southern Sierra Nevada, where a slight reduction in the coverage of extreme to exceptional drought (D3 to D4) resulted.

Arizona, in particular, also benefited from the second storm, although snow levels were quite high. Flagstaff, Arizona, nearly 7,000 feet above sea level, received 1.13 inches of precipitation on March 1-2, but only 1.1 inches of snow. Due to heavy precipitation, mainly in central Arizona, some reductions in drought intensity were noted. Some heavy precipitation spilled into northern and western New Mexico, but several other areas of the state remained mostly dry and experienced further drought deterioration. There were few changes to the drought depiction across the Intermountain West, mainly because recent precipitation failed to significantly dent existing seasonal deficits. In the Northwest, however, rain and snow continued to chip away at dryness and drought. For example, dryness (D0) was removed from portions of the northern Cascades. One exception to the Northwestern improvement was the rain-shadow areas east of the Washington Cascades, where severe drought (D2) was expanded. Precipitation in Washington from October 1 – March 4 totaled just 1.85 inches (38% of normal) in Wenatchee; 1.95 inches (37%) in Moses Lake; and 3.01 inches (35%) in Omak.

Looking Ahead

From March 6 - 10, a barrage of Pacific moisture will maintain mild, wet conditions in the Northwest, leading to possible flooding as far east as the northern Rockies. Five-day precipitation totals could reach 4 to 8 inches in the Pacific Northwest and 2 to 4 inches in the northern Rockies—although lighter amounts will occur in rain-shadow areas east of the Cascades. Although some precipitation will graze northern California, central and southern portions of the state will experience warm, mostly dry weather. Meanwhile, a series of disturbances will result in showers across the Deep South, where 5-day rainfall could reach 1 to 3 inches. On March 7, some snow or freezing rain may occur east of the southern Appalachians, as moisture interacts with lingering cold air. Elsewhere, cold weather will linger for several more days across the eastern half of the U.S., although a marked warming trend can be expected early next week. The NWS 6- to 10-day outlook for March 11 - 15 calls for below-normal temperatures across the eastern half of the U.S., while warmer-than-normal weather will prevail in the West. Meanwhile, near- to below-normal precipitation across the majority of the nation will contrast with wetter-than-normal conditions in southern Florida and from the Great Lakes region into the Northeast.”

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](#)

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[information](#). Additional information describing the [tools](#) available from the Drought Monitor can also be found at the [U.S. Drought Portal](#).

More Information

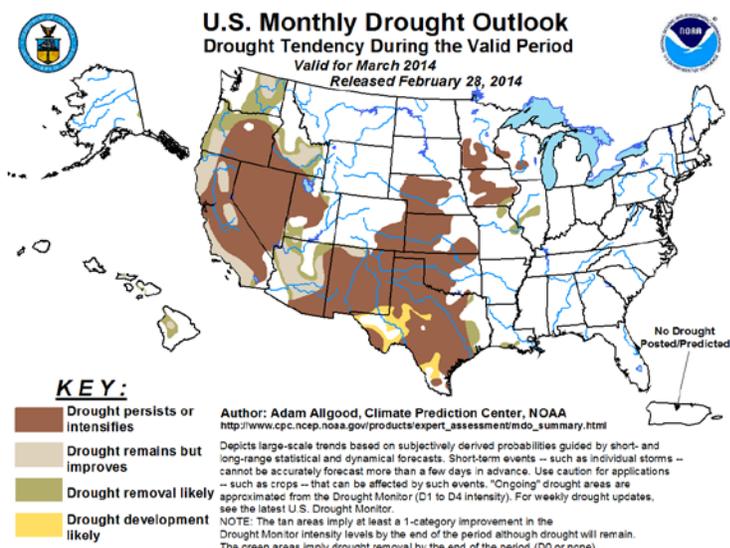
The National Water and Climate Center (NWCC) [Homepage](#) provides the latest available snowpack and water supply information. This document is available [weekly](#). CONUS Snowpack and Drought Reports from 2007 are available online. Reports from 2001-2006 are available on request.

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

/s/

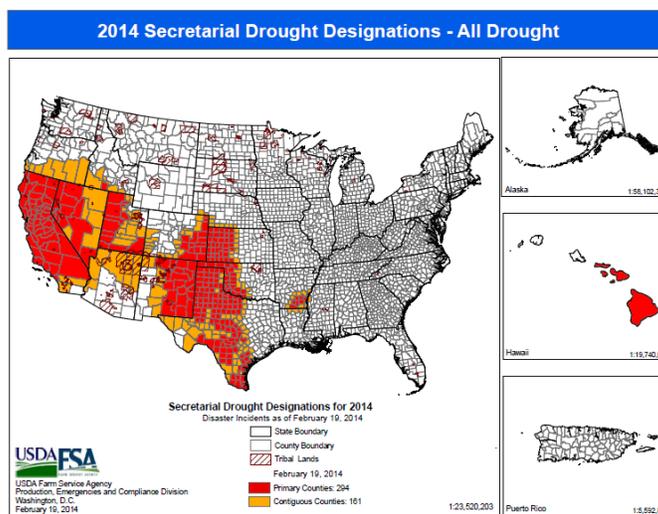
David W. Smith
Acting Deputy Chief, Soil Science and Resource Assessment

[Drought Outlook](#) ← (March – May)



U.S. Seasonal Drought Outlook for [March](#):

- Drought is expected to deteriorate over parts of the southern and western Texas. Much of the West and south-central Plains including parts of the upper Mississippi River Valley are expected to have persistent drought. Improvement is suggested over Arizona, parts of California, and the Pacific Northwest.
- ✓ Also see: [National Significant Wildland Fire Potential Outlook](#) (updated on the first of each month) contains a content summary of the previous month's conditions.



Refer to the USDA Drought Assistance [website](#) and [National Sustainable Agriculture Information Service](#). Read about the new [USDA Regional Climate Hubs](#).

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Supplemental Drought News (provided by Brad Rippey, USDA Meteorologist)

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

Download archived "U.S. Crops in Drought" files here:

<http://drought.unl.edu/Planning/Impacts/USAginDroughtArchive.aspx>.

- "During the four-week period ending on February 4, 2014, U.S. drought coverage increased more than four percentage points to 37.38%. Drought coverage had fallen to 30.28% on December 10, 2013; that figure represented the smallest drought coverage since December 27, 2011.

- In addition, U.S. coverage of the two most serious drought categories—extreme to exceptional (D3 to D4) drought—nearly doubled in the last four weeks from 4.13 to 7.37%. That change was driven by deteriorating conditions in California. During the four-week period ending February 4, California's coverage of extreme to exceptional drought surged from 27.59 to 67.13%. California also experienced its first-ever coverage of exceptional drought (D4) in the nearly 15-year history of the U.S. Drought Monitor, beginning on January 28. By February 4, nearly one-tenth (9.81%) of California was considered to be in D4.

- Storms in late February and early March rolled the portion of California in extreme to exceptional drought (D3-D4) back to 65.89 percent of the state by March 4, from 73.83 percent a week earlier.
- A blockbuster storm struck California as the calendar turned from February to March, averting a record-breaking season for dryness. From February 26 to March 2, the potent storm—and a weaker, initial system—accounted for more than 75 percent of the season-to-date precipitation in California locations such as Burbank (4.78 of 5.28 inches); downtown Los Angeles (4.52 of 5.72 inches); Camarillo (3.66 of 4.85 inches); and Sandberg (3.04 of 3.93 inches). However, after the precipitation ended, season-to-date (July 1- March 4) totals were just 40 percent of normal in Burbank, Camarillo, and Sandberg, and 49 percent of normal in downtown Los Angeles.

- The Western winter wet season has largely been a bust, not just in California. Drought covers more than half of eight of the eleven Western States—all but Colorado, Montana, and Wyoming. California, nearing the end of a third consecutive year of drought, has been drier this winter than each of the previous two. According to the California Department of Water Resources, the average water content of the high-elevation Sierra Nevada snowpack stands at three inches, just 15% of the early-February normal. Currently, a favorably wetter pattern is developing across California, but a sustained period of late-winter precipitation will be needed to dent huge moisture deficits.

- Meanwhile on the Plains, winter wheat condition declined during January due to dry, windy weather and sharp temperature fluctuations. During several January cold outbreaks, some of the Plains' wheat was exposed to sub-zero temperatures without the benefit of snow cover. According to USDA, the portion of the wheat rated good to excellent fell during January from 70 to 60% in South Dakota; 65 to 46% in Nebraska; 60 to 46% in Montana; 63 to 36% in Oklahoma; and 58 to 35% in Kansas. Texas wheat, already stressed by drought, was rated 19% good to excellent and 41% very poor to poor by the end of January.

- The portion of the U.S. winter wheat crop in drought stood at 45 percent on March 4, down from 49 percent on Feb. 4 but up from 30 percent as recently as Dec. 3, 2013. Domestic cattle inventory in drought (41 percent on March 4) and U.S. hay in drought (26 percent) have changed little in recent weeks. Although the Midwest remains locked in a deep-freeze and spring planting is still weeks away, it is worth noting that a relatively small area of the U.S. corn and soybean production belts—25 and 17 percent, respectively—are experiencing lingering drought.

- USDA reports found that on the Plains, winter wheat conditions remained steady, or slowly declined, during February. As of March 2, USDA reported:

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- In Oklahoma 31 percent of the winter wheat was rated in very poor to poor condition, up from 24 percent a month earlier, and topsoil moisture was rated 87 percent very short to short.
- Kansas winter wheat was 22 percent very poor to poor, up from 20 percent at the end of January, and topsoil moisture was rated 55 percent very short to short.
- Nebraska's winter wheat was unchanged at 18 percent very poor to poor, and topsoil moisture was 57 percent very short to short.
- Iowa topsoil moisture was 53 percent very short to short.
- Texas winter wheat was 46 percent very poor to poor condition, up from 28 percent in late-November 2013. Additionally, 52 percent of Texas' rangeland and pastures were rated very poor to poor on March 2, up from 30 percent just over three months ago. Statewide topsoil moisture was rated 78 percent very short to short in Texas, with numbers topping 90 percent in several northern and western districts.

- **Weather outlook:** Frigid conditions will persist across much of the Plains and Midwest into next week. During the weekend, however, warm weather will return to the West—excluding the northern tier of the region. Aside from some generally light, late-week rain and snow across the South and East, the focus for significant precipitation will be the West. In fact, five-day precipitation totals could reach four to eight inches in drought-stricken northern California. Somewhat lighter but still highly beneficial precipitation—as much as two to four inches—may occur in the southern Cascades and northern Intermountain West.”

This following a collection of drought-related news stories from the past seven days or so. Impact information from these articles is entered into the [Drought Impact Reporter](#). A number of these articles will also be posted on the [Drought Headlines](#) page at the NDMC website. List compiled by Denise D. Gutzmer, Drought Impact Specialist, National Drought Mitigation Center

Some encouraging storms are rolling across California, but they are dropping too much rain in a short time, bringing flooding and mudslides. Time is clearly running out for much more snowfall in the Sierra Nevada as snow depth usually hits its peak around April 1.

California

Feb. 27 snow survey

The California snowpack was 24 percent of average for this time of year as of Feb. 27, but is growing deeper as more storms move across the state. The runoff from the Sierra Nevada comprises one-third of California's water supply.

Drought plan

California lawmakers passed legislation on Feb. 27, approving a \$687 million plan to offer relief to thirsty communities, farmers who did not plant for lack of water and unemployed farm workers. The funds in the plan come from the state budget and other bonds and are available for immediate use. Under the plan, illegal water diversions will incur greater penalties, and the State Water Resources Control Board has more authority during a state of emergency.

Snowpack and groundwater monitoring

The California Department of Water Resources and NASA have partnered to use satellites and other advanced technology to help California water managers better monitor snowpack and groundwater conditions. Satellite images will be used to determine the amount of land left unplanted and where subsidence is occurring due to the over pumping of groundwater. NASA will also monitor “atmospheric rivers” to take advantage of upcoming precipitation so it can be stored in reservoirs.

Push for additional water storage

To be better prepared to store water and weather future droughts, California House members are interested in enlarging and constructing more dams to store precious mountain runoff and have a package of bills to authorize dam expansion in the state.

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Water conservation

- The California Department of General Services asked schools statewide to conserve water.
- The Long Beach Board of Water Commissioners declared an imminent water shortage and hopes to reduce water use by 10 percent.
- Water users in Ukiah Valley must cut their water use in *half* beginning in March as the Russian River Flood Control and Water Conservation Improvement District strives to slow the water use from Lake Mendocino, which holds about 41.7 percent of capacity.
- The Santa Clara Valley Water District asked its customers to use 20 percent less water to keep groundwater levels from falling to near critical levels if drought persists through 2014.
- The Santa Cruz City Council declared a water shortage emergency, introducing rationing and penalty pricing for using excessive amounts of water beginning on May 1, 2014.

Water features in Yosemite National Park

Horsetail Fall and Yosemite Falls in Yosemite National Park have been dry for most of February. Horsetail Fall flows in the winter and early spring as snow melts, but this year the flow has been negligible until storms brought enough precipitation to bring the fall back to life.

Texas

Austin, Texas

The Austin water utility lost \$27 million in 2013 as water customers conserved—and paid for—less water. The utility will lose another \$10 million in the first quarter of 2014 and will be raising rates to make up for the losses.

Rice growers on the Lower Colorado River in Texas

While rice farmers on the Lower Colorado River did not expect to get water, the Texas Commission on Environmental Quality sealed their fate by postponing a decision on trigger levels for releasing water from lakes Travis and Buchanan. This is the third straight year without water for rice growers.

New Mexico

Fire restrictions

Deteriorating drought is driving up the fire danger in New Mexico, prompting the state land commissioner to ban fireworks, open fires and smoking on state trust lands.

Impending water shortage

Meager snowfall of just 20 inches near Ruidoso means that snowmelt may not even reach the village, likely leaving springs going dry and rivers dwindling to a trickle, warned the Lincoln County Commission chairwoman. Average snowfall is 180 inches.

Folsom Lake has changed dramatically in less than three years, as shown in photos by the California Department of Water Resources. On the left, Folsom Lake was at 97 percent of capacity, while on the right, the lake holds only 17 percent of capacity.

<http://www.businessinsider.com/folsom-dam-illustrates-california-drought-2014-2>



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Simplified map of the California water system by Jay Lund from the California WaterBlog at <http://californiawaterblog.com/>



The “U.S. Crops in Drought” products are produced on a weekly basis. Archived “U.S. Crops in Drought” files may be downloaded [here](#).

Tea Cup reservoir depictions:

- <http://www.usbr.gov/uc/water/basin/> ← Upper Colorado
- 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 ← 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)