



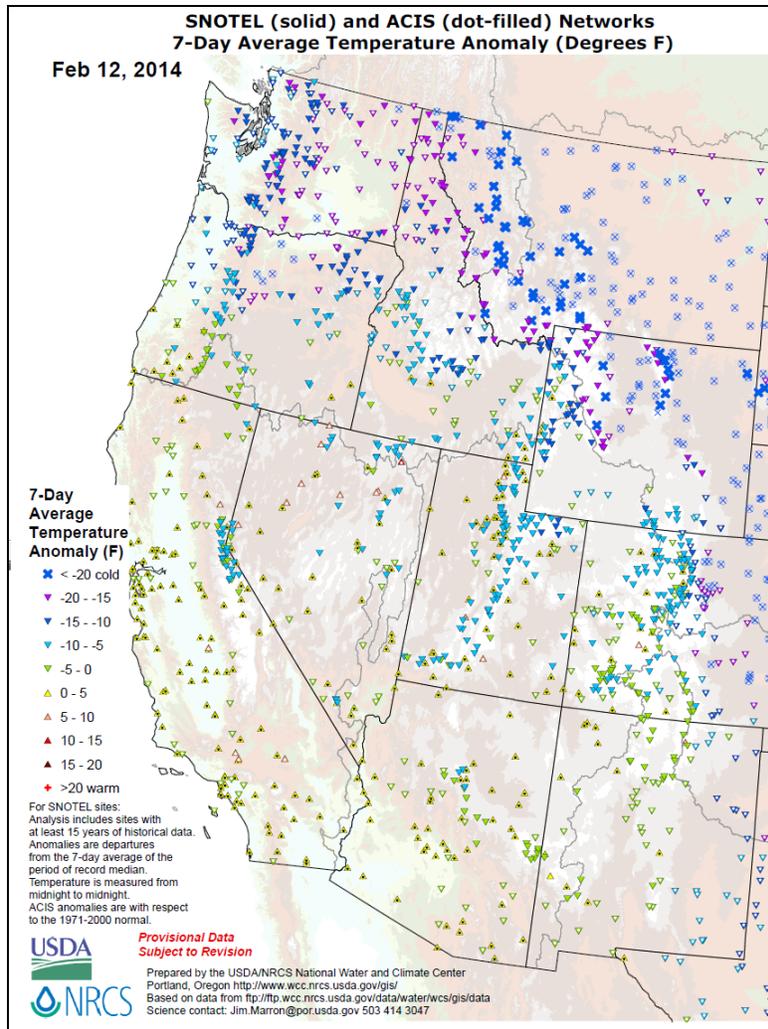
Natural Resources Conservation Service
P.O. Box 2890
Washington, D.C. 20013

Weekly Snowpack / Drought Monitor Update

February 13, 2014

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Temperature



SNOTEL and ACIS [7-day temperature anomaly](#) map shows temperatures well below normal across the northern tier states of the West. Above normal values dominated California.

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

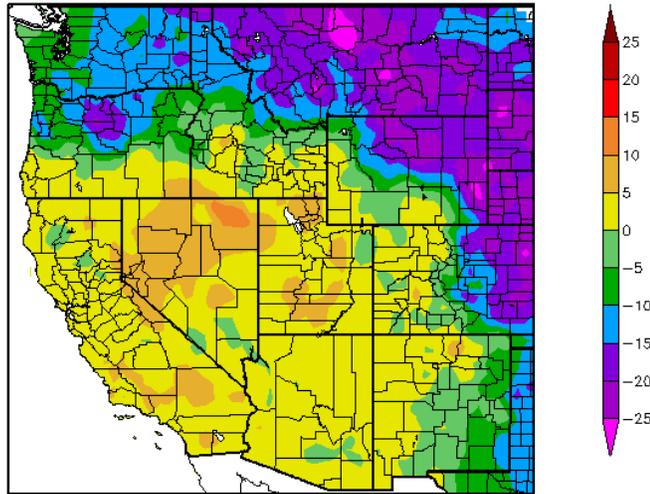
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Weekly Snowpack and Drought Monitor Update Report

[ACIS](#) 7-day average temperature anomalies, ending February 12, show the greatest negative temperature departures scattered across Montana to eastern Colorado ($<-25^{\circ}\text{F}$). The greatest positive temperature departures occurred over northeastern Nevada ($>+10^{\circ}\text{F}$).

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

Departure from Normal Temperature (F)
2/6/2014 – 2/12/2014

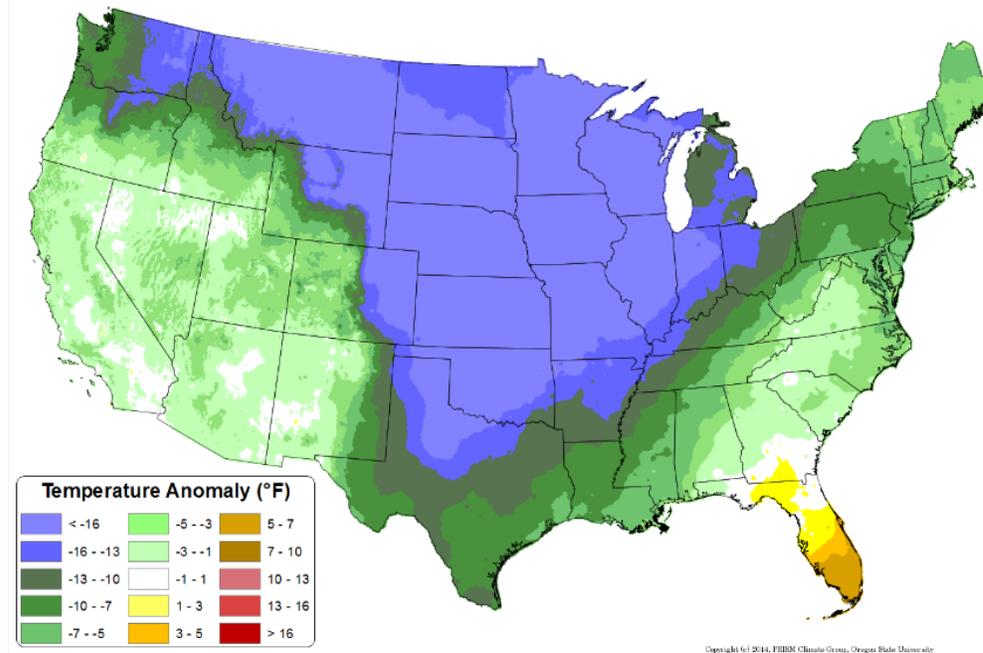


Generated 2/13/2014 at HPRCC using provisional data.

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.

Daily Mean Temperature Anomaly: 01 February 2014 - 12 February 2014
Period ending 7 AM EST 12 Feb 2014
Base period: 1981-2010
(Map created 13 Feb 2014)



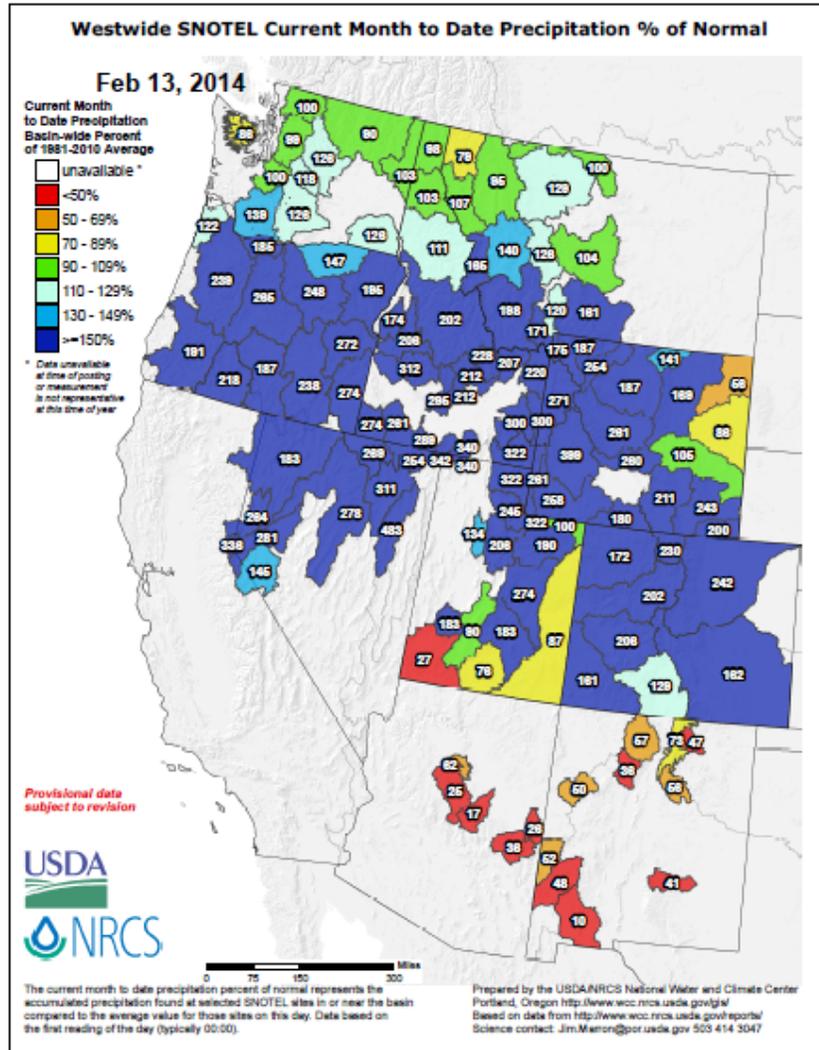
Thus far, February has been exceptionally cold over the Great Plains and western Great Lakes regions ($<-16^{\circ}\text{F}$ departures). Warmer than normal temperatures have been confined to southern Florida ($>+5^{\circ}\text{F}$).

Weekly Snowpack and Drought Monitor Update Report

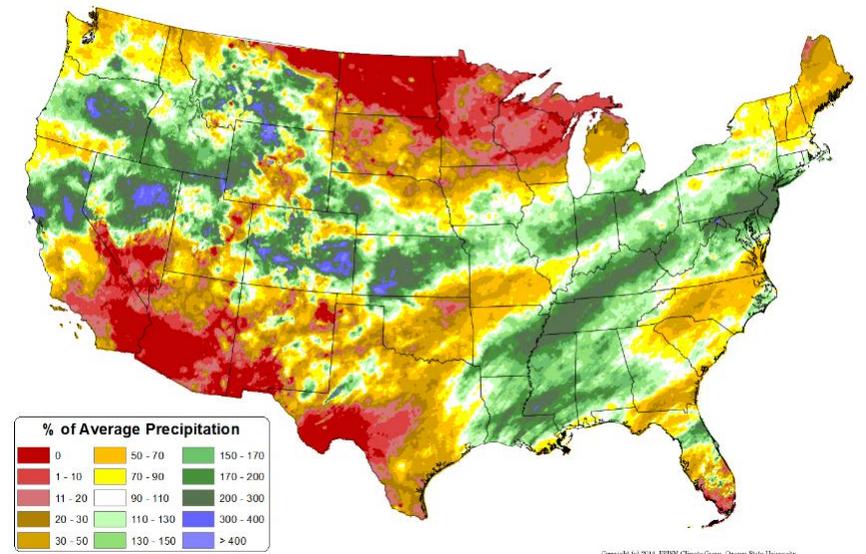
Precipitation

SNOTEL [month to date](#) precipitation percent of normal shows a **significant increase** in values since last week. Although southern Utah, Arizona, and New Mexico are still running well below normal, northern California has benefitted from a significant storm during this past weekend.

See more specifics about this event and its impact on the California drought at the end of this week's report.



Total Precipitation Anomaly: 01 February 2014 - 12 February 2014
 Period ending 7 AM EST 12 Feb 2014
 Base period: 1981-2010
 (Map created 12 Feb 2014)



← February's precipitation pattern has been spotty across the U.S. Areas with above normal amounts have been focused over parts of the Pacific Northwest, the interior West, Ohio, the lower Mississippi River Valley, and the mid-Atlantic states. Drier conditions dominated the northern High Plains, western Great Lakes, southern California, and the Southwest.

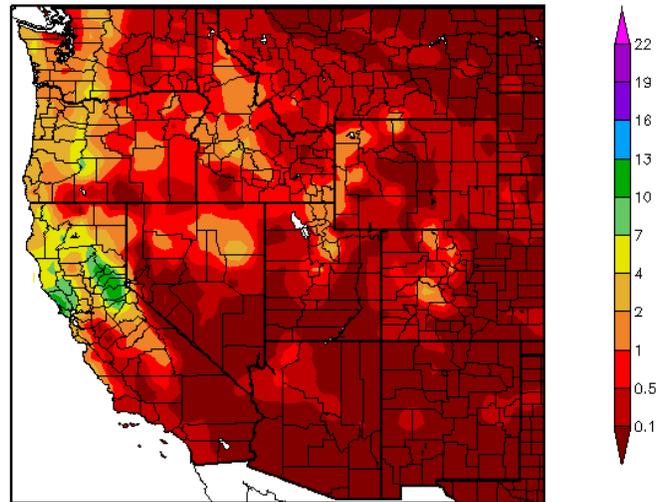
This preliminary daily PRISM precipitation map contains all available network data, including SNOTEL data, and is updated periodically as additional data become available and are quality controlled.

Weekly Snowpack and Drought Monitor Update Report

[ACIS 7-day](#) average precipitation amounts show high totals over California's coastal mountains and Sierra Nevada. Lesser but still impressive amounts fell over the central Cascades. Northeastern Nevada's amounts fell mostly as snow and helped increase SWE values by at least a third since last week. →

The effect of the strong jet stream over the Pacific Northwest will help to contribute more moisture during the next few days.

Precipitation (in)
2/6/2014 - 2/12/2014



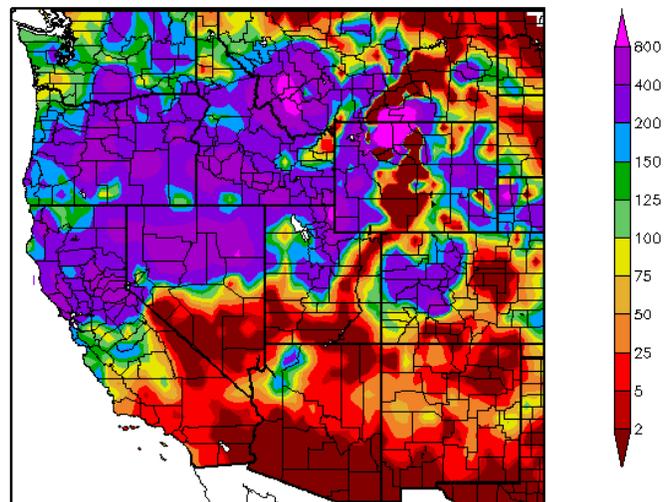
Generated 2/13/2014 at HPRCC using provisional data.

Regional Climate Centers

This [map](#) shows that the bulk of precipitation by percent of normal occurred over all but the southern Great Basin, southern California, and much of the Southwest.

Note that these ACIS maps reflect only low-elevation stations, where precipitation is typically lighter this time of year than 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 (%)
2/6/2014 - 2/12/2014

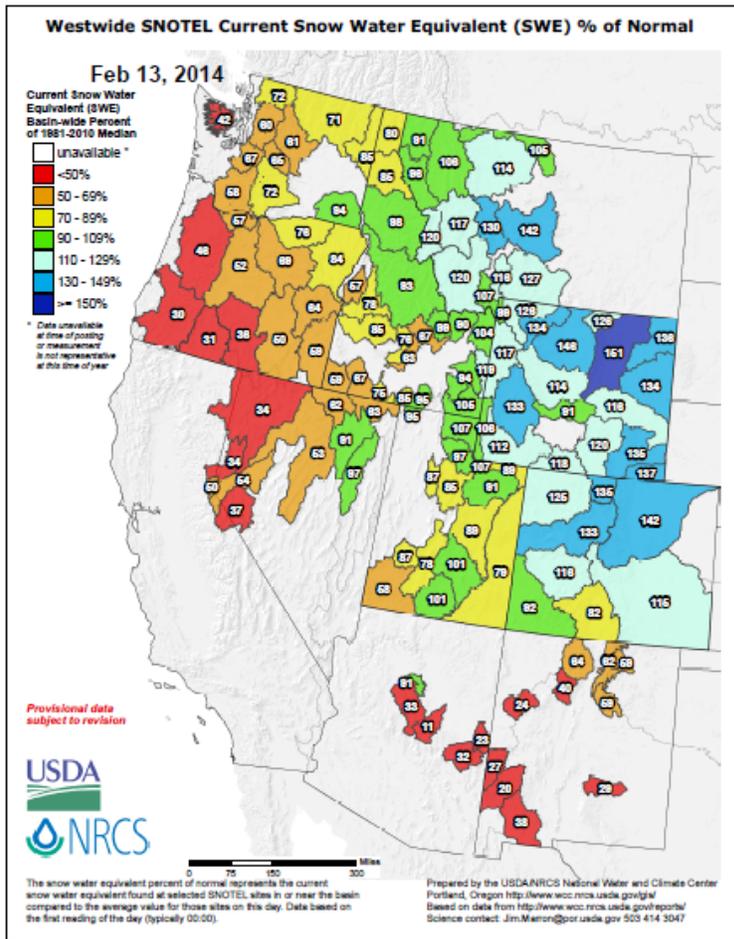


Generated 2/13/2014 at HPRCC using provisional data.

Regional Climate Centers

Weekly Snowpack and Drought Monitor Update Report

Snow



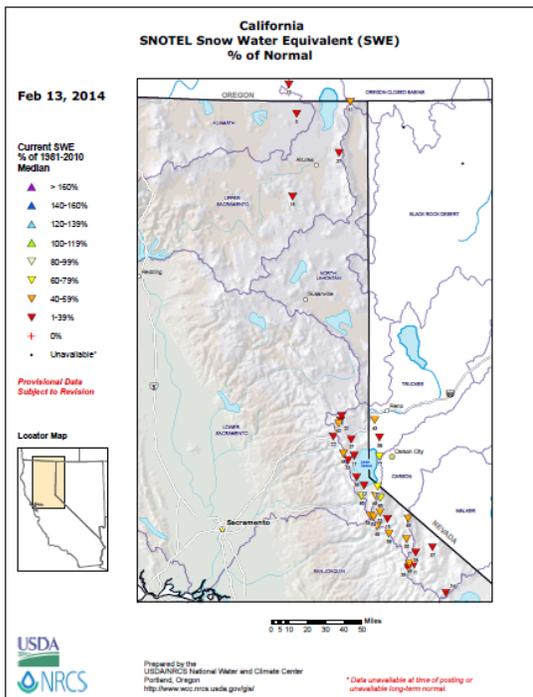
[Snow Water Equivalent \(SWE\)](#) values are higher east of the Continental Divide with the exception of New Mexico. **Significant improvements** occurred by 1-bin category across Colorado, Wyoming, Utah, and Nevada (2-bin improvements occurred over Nevada's eastern river basins) this past week.

Although conditions improved over the northern Sierra Nevada, much more moisture is needed to alleviate the near-record drought conditions.

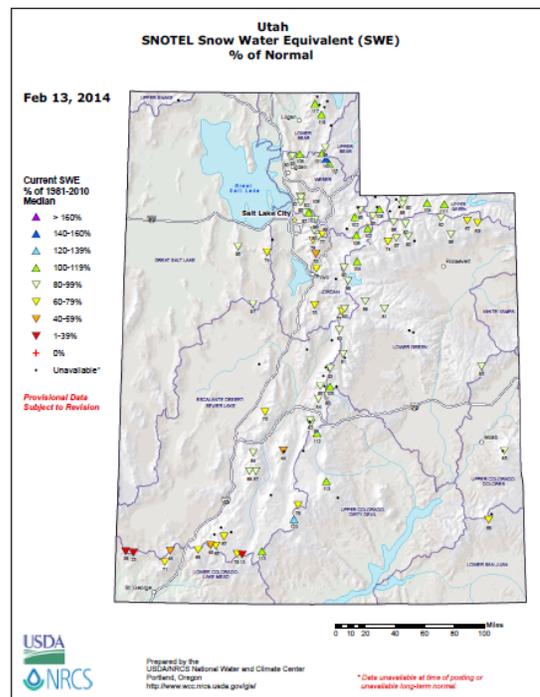
The all-important April 1 SWE date will best determine the water supply forecasts issued by the [National Water and Climate Center](#).

See the latest [National Snow Analysis](#)

See westwide [water supply forecast tables](#)



[California-Nevada SWE map by station.](#)



[Utah SWE map by station.](#)

Weekly Snowpack and Drought Monitor Update Report

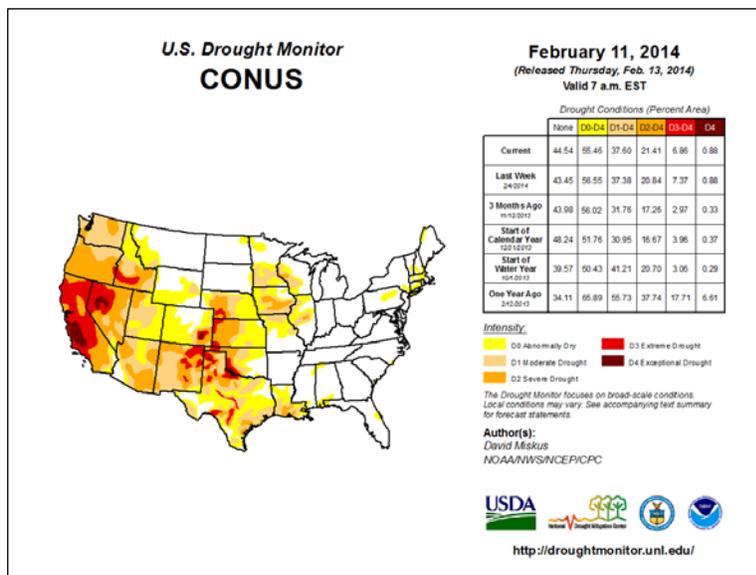
Weather and Drought Summary

National Drought Summary – February 4, 2014

The following **Weather and Drought Summary** is provided by this week's NDMC Drought Author: Anthony Artusa, NOAA/NWS/NCEP/CPC

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

D-4 Exceptional drought only encompasses 0.88% of the U.S.



[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](#).

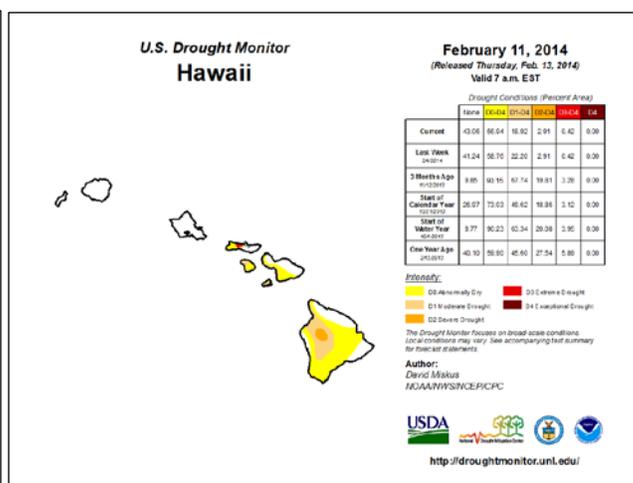
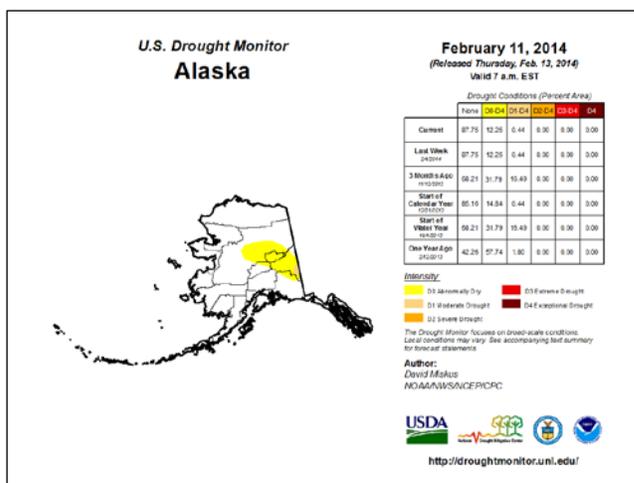
For more drought news, see [Drought Impact Reporter](#).

Drought Management Resources (✓):

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

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

- [Smallest U.S. Cattle Herd Since 1951](#) - Feb 3



"The 49th and 50th States show benign drought conditions with the exception of the Big Island of Hawaii and leeward sides of the central island group of the state."

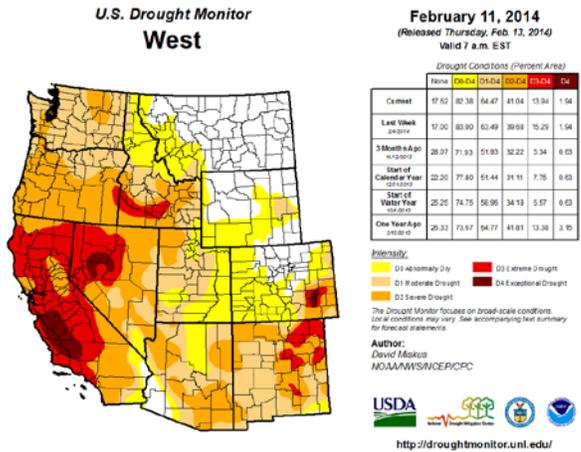
A comprehensive narrative describing drought conditions across other parts of the nation can be found toward the end of this document. For drought impacts definitions for the figures that follow, click [here](#).

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](#)

Drought News across the West

- [Klamath County commissioners declare drought](#) – 2/4, OR
- [Fire managers ready for rain](#) – 2/4, OR
- [Baldy snowpack still near record low](#) – 2/5, ID
- [Drier year, warm spring expected in Inland Northwest](#) – 2/7, ID
- [Winter drought record-breaking for Albuquerque](#) – 2/3, NM
- [DeFazio requests emergency drought hearing](#) – 2/4, OR
- [Rio Grande water outlook dim as February gets underway](#) – 2/3 NM
- [Cimarron-area ranchers struggle with drought](#) – 1/31, NM



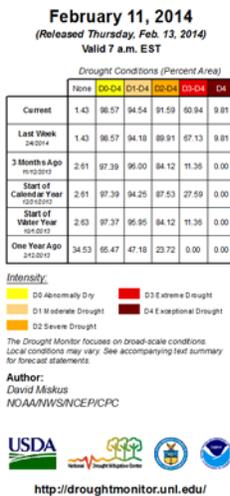
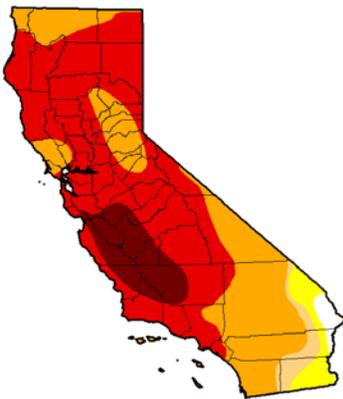
Slight improvement in D3-D4 has occurred during the past week. - Click to enlarge

Drought News from California

- [Drought forces California farmers to idle cropland](#) – 2/5
- [Marin vineyard owners concerned about drought, preparing for fewer wine grapes](#) – 2/3
- [Construction uptick one positive aspect of drought](#) – 2/3
- [Current drought reduces hydro generation forecast for California](#) – 2/6
- [Feds announce another \\$14M for California drought](#) – 2/5
- [Statewide Drought Briefing Scheduled for Feb. 14 in Sacramento](#) – 2/4
- [USDA Offers Drought Funding For California Producers](#) – 2/4
- [California farmers brace for drought, unemployment](#) – 2/2
- [Drought hits ski towns hard](#) – 2/7
- [More lifts open at Sierra resorts](#) – 2/2
- [Responding to historic drought, Fish and Game shuts down fishing in several rivers through April.](#) – 2/6
- [California drought said putting groundwater supplies at risk](#) – 2/3
- [Coming dry season has hard-hit zone braced but not panicked](#) – 2/6
- [El Dorado Irrigation District calls for voluntary 30 percent reduction in water use](#) – 2/3
- [Sprinklers Run Dry in Santa Cruz Amid California Drought](#) – 2/4
- [Interactive map of California water systems'](#)
- [With less than 100 days' water in storage, rural California town grow anxious about future](#) – 2/6
- [California drought exposes Sierra's weaknesses](#) – 2/8

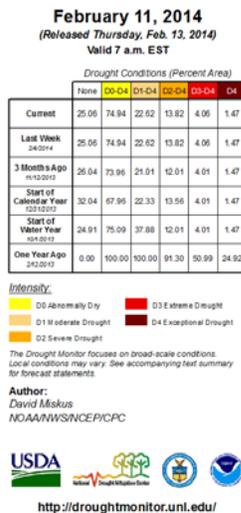
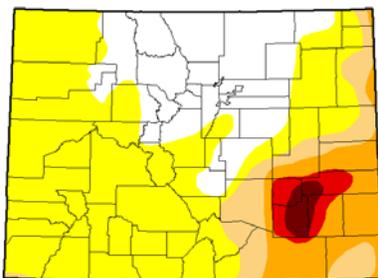
At the end of this week's report, there is more information on [California snowpack and water supply forecasts](#).

U.S. Drought Monitor California



Some improvement in D3 & D4 this week.

U.S. Drought Monitor Colorado



No changes have occurred during the past week.

Weekly Snowpack and Drought Monitor Update Report

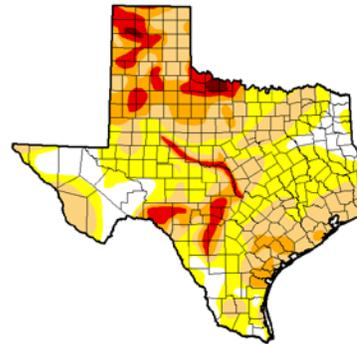
State with D-4 Exceptional Drought

- ✓ 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

- [SAWS To Abandon 'Water Grab,' Focus on Desalination](#) - Feb 7, San Antonio, Texas.

U.S. Drought Monitor Texas



February 11, 2014
(Released Thursday, Feb. 13, 2014)
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D1	D2-D3	D3-D4	D4	D4
Current	12.49	47.51	54.43	22.97	8.33	0.71
Last Week (2/3/14)	14.35	45.05	51.68	22.34	7.95	0.71
3 Months Ago (9/12/13)	20.35	70.65	50.05	23.56	6.25	0.43
Start of Calendar Year (1/1/14)	28.48	71.52	43.84	21.15	5.92	0.79
Start of Water Year (10/1/13)	6.02	93.38	70.95	25.88	4.01	0.12
One Year Ago (2/11/13)	10.84	49.15	75.02	50.95	24.83	7.79

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

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

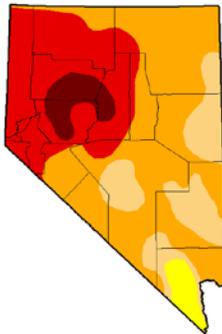
Author:
David Miskus
NOAA/NWS/NCEP/CPC

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

Slight deterioration has occurred in D-3 during the past week.

State with D-4 Exceptional Drought

U.S. Drought Monitor Nevada



February 11, 2014
(Released Thursday, Feb. 13, 2014)
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D1	D2-D3	D3-D4	D4	D4
Current	0.30	100.00	95.54	80.33	33.87	0.37
Last Week (2/3/14)	0.30	100.00	95.95	80.32	38.12	0.37
3 Months Ago (9/12/13)	0.30	98.61	95.61	79.11	29.55	0.37
Start of Calendar Year (1/1/14)	0.30	98.91	95.91	77.68	28.95	0.37
Start of Water Year (10/1/13)	0.30	99.51	95.79	79.11	29.55	0.37
One Year Ago (2/11/13)	0.11	99.38	93.71	90.18	5.28	0.00

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

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

Author:
David Miskus
NOAA/NWS/NCEP/CPC

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

Slight improvement in D3 occurred during the past week.

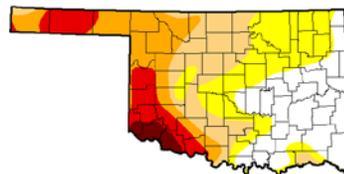
- [Religious leaders, farmers pray for water in West](#) - Feb 2
- [Northern Nevada farmers ready for dry season](#) - Feb 1

State with D-4 Exceptional Drought

- [Fallin Advocates Water Conservation as Drought Engulfs State](#) - Jan 24, OK
- [Lake Texoma Residents Say They Don't Want To Horde Water, But Feel Ignored](#) - Jan 28, OK

No changes have occurred this week.

U.S. Drought Monitor Oklahoma



February 11, 2014
(Released Thursday, Feb. 13, 2014)
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D1	D2-D3	D3-D4	D4	D4
Current	28.93	71.97	47.48	28.38	12.53	2.43
Last Week (2/3/14)	29.77	70.23	46.74	28.81	12.67	2.43
3 Months Ago (9/12/13)	30.24	49.76	29.68	15.43	4.48	2.05
Start of Calendar Year (1/1/14)	30.84	49.16	38.17	18.99	4.94	2.43
Start of Water Year (10/1/13)	21.74	78.25	43.90	17.52	4.42	1.45
One Year Ago (2/11/13)	0.00	100.00	100.00	100.00	87.00	39.58

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

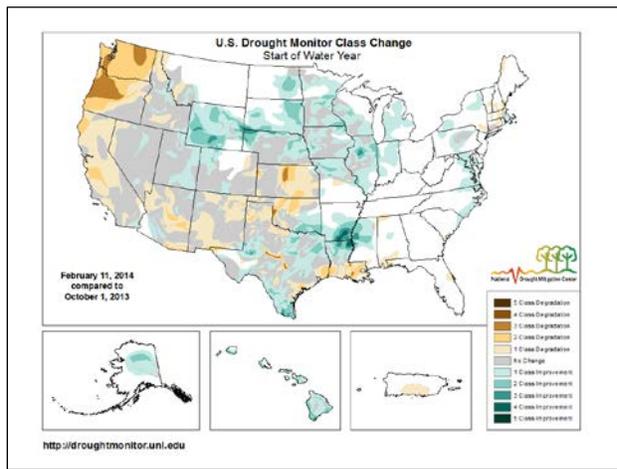
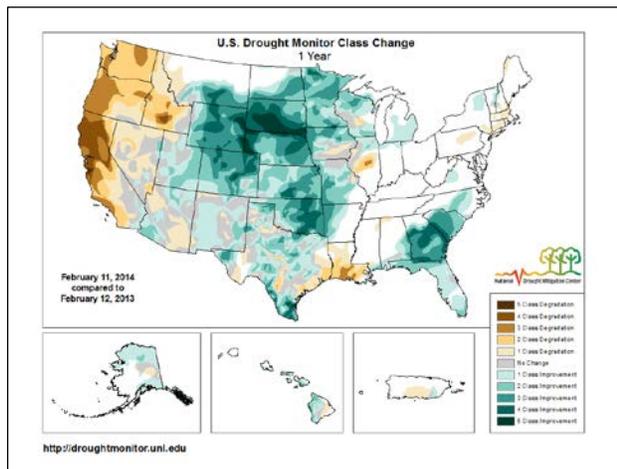
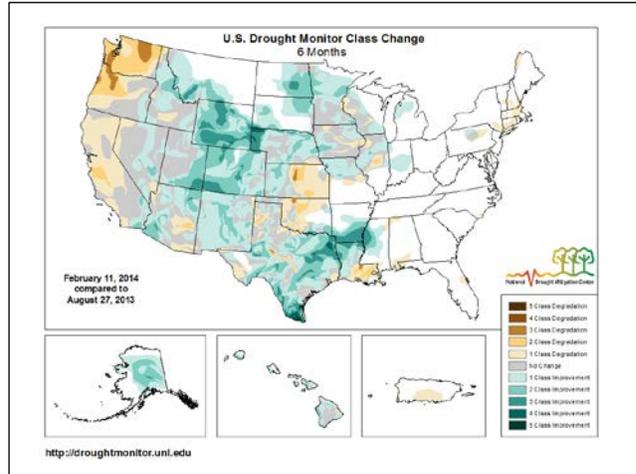
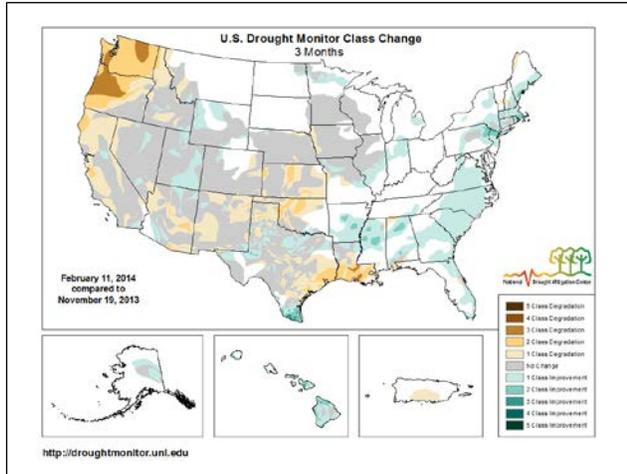
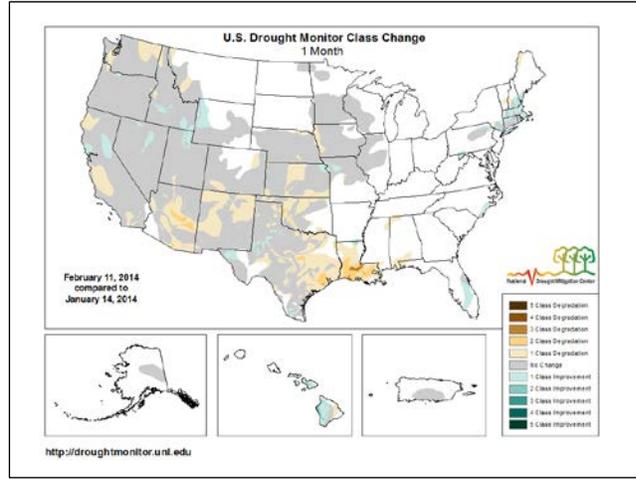
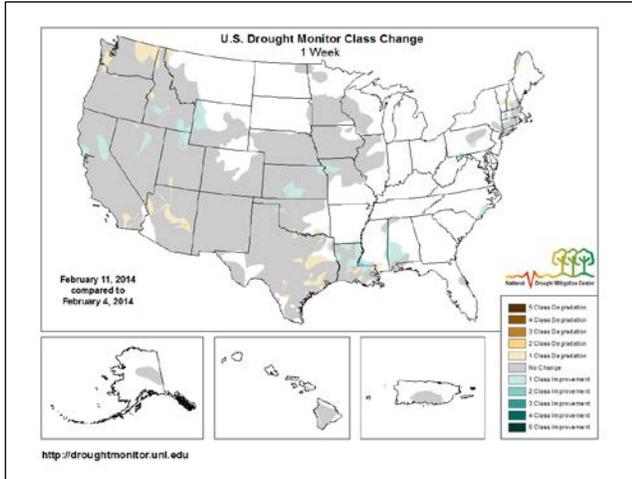
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
David Miskus
NOAA/NWS/NCEP/CPC

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

Weekly Snowpack and Drought Monitor Update Report

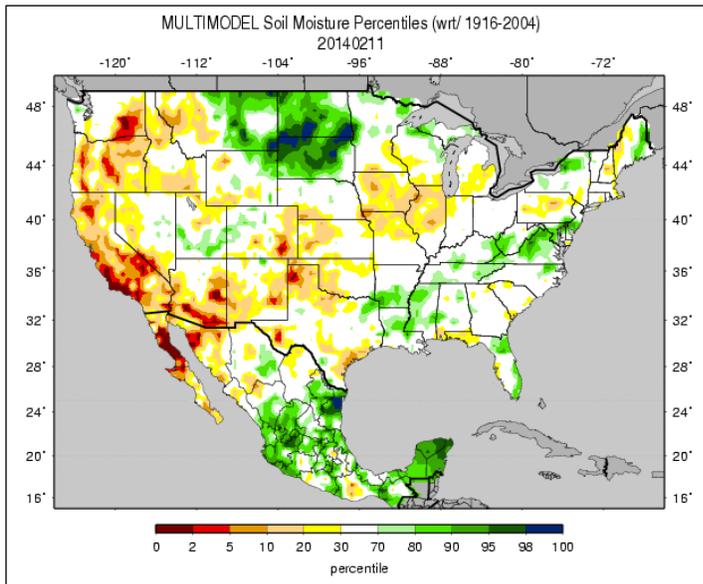
Changes in Drought Monitor Categories (over various time periods)



Winter time changes to the drought monitor are usually minimal. However, over the past one to three months, drought conditions have significantly worsened over the Pacific Northwest.

Weekly Snowpack and Drought Monitor Update Report

Soil Moisture



Soil moisture ranking in [percentile](#) as of February 11 shows considerable dryness over California, Arizona, parts of Oregon, Washington, and the southwestern Great Plains. Moist soils dominate the Northern Plains.

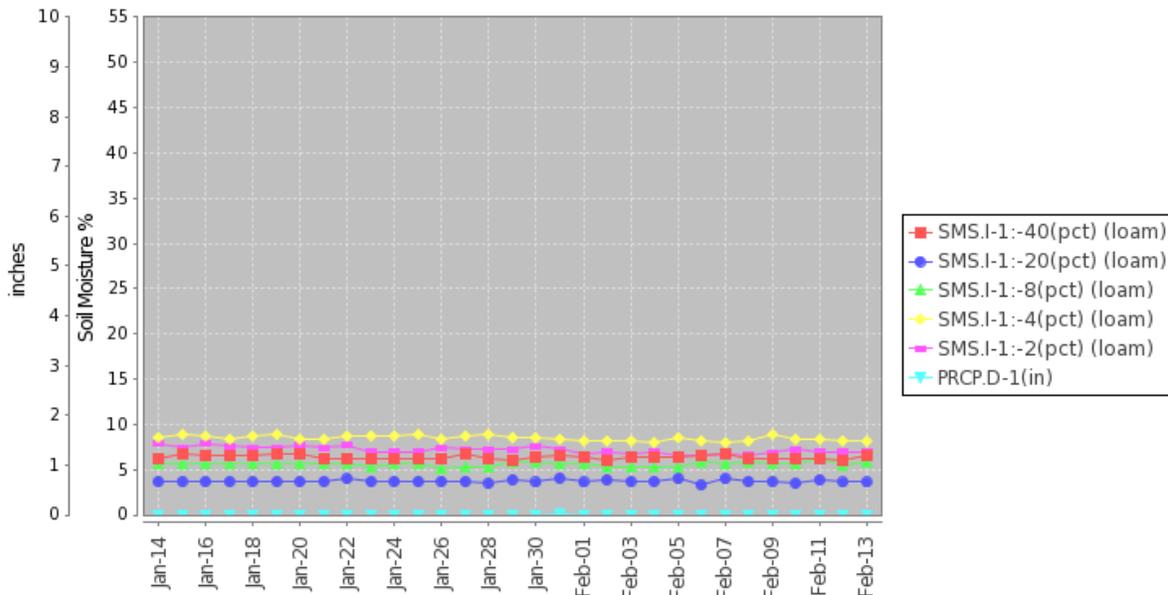
Useful Hydrological Links: [Crop Moisture Index](#); [Palmer Drought Severity Index](#); [Standardized Precipitation Index](#); [Surface Water Supply Index](#); [Weekly supplemental maps](#), [Minnesota Climate Working Group](#); [Experimental High Resolution Drought Trigger Tool](#); [NLDAS Drought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

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

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

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

Station (2187) MONTH=2014-01-14 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision
Thu Feb 13 08:11:18 PST 2014



This NRCS resource shows soil moisture data at a SCAN site located in [central-eastern California](#) with relatively dry soils.

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 February 11, 2014](#)

Prepared by: Drought Monitor Author: David Miskus, NOAA/NWS/NCEP/CPC

Summary

"During the past 7-days, the first significant storm of the wet season (since October 1) inundated parts of central California and the northern Sierra Nevada with 6-12 inches of precipitation, with locally up to 15 inches. Although there were short-term local improvements from this week's ample precipitation, the long stretch of subnormal precipitation dating back to 2011-12 wet season has accumulated large deficits, leaving rivers, lakes, reservoirs, and snow packs well below normal. Even though this storm was welcome, the central Sierra still needs 3-4 more copious storms to bring this wet season close to average. Farther north, lesser but welcome precipitation (2-4 inches) also fell on the southern Cascades, while unseasonably cold air dropped measurable snow from Portland, OR, to Seattle, WA. Unfortunately, little to no precipitation fell on southern California and the Southwest. Elsewhere, frigid conditions gripped much of the lower 48 States, with weekly temperatures averaging more than 10oF below normal from the Northwest into the Plains and Midwest. Decent precipitation from the Pacific storm also fell on parts of northern Nevada, southern Idaho, and the central Rockies. The central Plains into the Midwest saw light snow, while parts of the Southeast received 1-2 inches of rain. In the mid-Atlantic, sub-freezing air at the surface and mild air aloft generated a dangerous ice storm in parts of West Virginia, Maryland, Pennsylvania, and New Jersey. Alaska remained unseasonably mild, Hawaii saw additional showers in the northern and central islands, and eastern and western Puerto Rico reported light to moderate scattered showers.

Alaska, Hawaii, and Puerto Rico

In Alaska, little or no precipitation fell, and much of the state remained unseasonably mild except for slightly below normal readings in the southeastern Panhandle. As of February 1, snowpack remained near to above-normal in the northern, central, and eastern sections, but below-normal in the southwest, south-central, and extreme southeastern Panhandle. With above-normal snowpack, no changes were made to the D0 and D1 areas.

In Hawaii, heavy showers continued across the two western-most islands (Kauai and Oahu) where 2 to 6 inches fell. On Molokai and Maui, lighter showers (0.5 to 1.5 inches) were measured, while under 0.5 inches fell on the Big Island. Although this week was relatively dry, D0 and D1 was improved by one category along the lower Kona slopes of the Big Island where some rain gauges recorded the highest January totals since 2005, and most pastures are coming back, albeit with some sparse patches. According to the Honolulu drought information statement of Feb. 6, drought loosened its grip on Maui and the Big Island as several cold fronts during January were able to move across the island chain and reach the Big Island. The fronts brought much needed rain to the west-facing slopes and helped improve pasture and general vegetative conditions. On Molokai, the water level in Kualapuu Reservoir continued to increase slowly, but remained at less than half capacity, thus keeping the mandatory 30% reduction in irrigation water use (D3L).

In Puerto Rico, moderate to heavy showers (1-3 inches) on the western and eastern sides was enough to trim the far western and eastern edges of the D0 as short-term deficits were removed there.

Mississippi Valley

: Late-period rains fell on the lower Mississippi Valley, with heavier bands of rain (more than 2 inches) oriented from southwest to northeast occurring in central Louisiana, southern Mississippi, and central Alabama. Moderate to heavy precipitation (1.5 to 3 inches) also fell on non-drought areas of the

Weekly Snowpack and Drought Monitor Update Report

Tennessee and Kentucky. The heaviest rains were enough to improve drought by one category in portions of Louisiana and southwestern Mississippi, but there were still lingering deficiencies at 60- and 90-days where rainfall was less than an inch. The D2 was drawn where deficits exceeded 5 inches at both periods, while D1 represented 50-70% of normal precipitation at 90-days (4-8 inch shortages). Farther north, light to moderate snows (liquid equivalent 0.5 to 1.3 inches) across eastern Kansas and northern Missouri contributed to a 60-day surplus in this region, which was enough for some improvement in parts of Kansas and northwestern Missouri. Although light to moderate snows (liquid equivalent 0.3 to 0.7 inches) also fell on the rest of Missouri, southern Iowa, and western Illinois, 60- and 90-day precipitation has been less, producing smaller percentages of normal and larger deficits. Farther north, little or no precipitation fell on the upper Midwest, but normals are generally quite small during the winter months, and soils are frozen. Accordingly, the rest of the Mississippi Valley remained at status-quo.

New England and mid-Atlantic

A mixed bag of precipitation (rain, freezing rain, sleet, and snow) fell on the mid-Atlantic into New England, with weekly totals of 1-2 inches measured in the mid-Atlantic and coastal lower New England, and 0.5 -1 inches in interior New England. Generous and widespread precipitation during the past 3-months has generally eliminated any lingering deficiencies, although a few areas had received subnormal 90-day amounts. At 6-months, however, deficits were more widespread, including 6-month shortages of 4-8 inches in central Pennsylvania, eastern New England, and northwestern Maine. The USGS 7-, 14-, and 28-day average stream flow values were generally close to normal, with the exception of some locations in eastern Massachusetts that were below (<25th percentile) to much below (<10th percentile). Accordingly, this is where D0(L) remained on the map, while D0 removal occurred in wetter sections of western Maryland and south-central Pennsylvania.

Southeast

Most locations saw light to moderate precipitation (0.5 to 2 inches) and seasonable temperatures (within 5oF of normal), keeping conditions generally status-quo. The exceptions to this occurred in southeastern North Carolina where 1-1.5 inches of rain was enough to shave away the northern two-thirds of the D0 area; in east-central Florida where 2-3 inches of rain erased the northern edge of the D0(L) area; and along the Alabama and Mississippi border where 1-3 inches of rain cut the elongated D0(S) into two separate, smaller areas as short-term deficits were eliminated. Abnormal dryness remained where 60- and 90-day shortages still lingered.

Southern and Central Plains

With the exception of light to moderate snows from the Oklahoma Panhandle northeastward across Kansas, southern Nebraska, and into Missouri and Iowa, and light rain in eastern Texas, little or no precipitation fell on the remainder of the central and southern Plains. Fortunately, normal precipitation totals are relatively low during the winter months, so accumulating deficits were also low. In central and eastern Kansas, where snow amounts were highest (liquid equivalent 0.5 to 1 inch), enough precipitation fell to produce 60-day surpluses from south-central to northeastern Kansas, thus improving drought by one category in south-central and northeastern Kansas. Elsewhere in Kansas, Nebraska, and western Oklahoma, the amounts were lighter or 60- to 90-day shortages still existed, so status-quo was kept. In Texas and southern Oklahoma with little precipitation occurring and normals low, most sections maintained their condition. A few areas, however, did require some deterioration as short-term dryness has begun to impact long-term impacts. This included southeastern Texas (D2 expansion), east-central Texas (D0 increase), southwest Texas (D3 merged), and D3-D4 increase eastward along the Red River where USGS flows are at 7-, 14-, and 28-day record lows.

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Southwest

Little or no precipitation was reported in the Southwest as several locations in this region have yet to receive any measurable precipitation during 2014. The lack of appreciable winter precipitation has accumulated short-term deficits as most locations from southern California eastward into New Mexico have measured less than 25% of normal precipitation the past 60-days. Fortunately there was a surplus of rain at 6-months in most of these eastern and western areas; however, with drier conditions at 6-months in central Arizona and near the Salton Sea of southeastern California, D1 and D2 were slightly expanded there. According to the NRCS SNOTEL sites, Feb. 12 basin average snow water content remained low in central Arizona (13-33%, one site at 91%) and New Mexico (19-40% in the west and south, 41-60% in the north).

The West

As mentioned in the opening Weekly Weather Summary, beneficial and overdue precipitation finally fell on much of the Far West, but especially on drought-stricken northern and central California. This was the first big storm of this year's wet season (Oct-Apr) for California, bringing 8-15 inches of precipitation from just north of San Francisco (Marin, Sonoma, Napa counties) and to the western slopes of the Sierra Nevada. Although the amounts were large, the long-term drought in California since the 2011-12 wet season has accumulated huge deficits and brought severe hydrological, agricultural, and ecological impacts. Nevertheless, two small areas of improvement (D3 to D2) were made in locations where the greatest precipitation fell (8-15 inches). This caused localized stream and river flooding and did fill small water storages. On a larger scale, the Folsom Reservoir on the American River was the big winner in the recent event, doubling its storage; however, it would need to double again to get back to average. Oroville Reservoir was next best, going from 1.26 MAF (million acre-feet) to 1.33 MAF, with average for this time of year 2.37 MAF. Other large California reservoirs were not as fortunate. With respect to snowpack, the latest (2/12) NRCS Snotel average basin snow water content stood at 35-54% of normal for the Sierras (CA), 29-59% for the southern Cascades (OR), and 58-69% of normal for the northern Cascades (WA). Values were generally above-normal for the Rockies, and below normal to the west. So with this brief (1-week) glimmer of good news, the bad news is that California has a long, long way to go to get back to normal. To put this in historical perspective (which does NOT include the Feb. 4-10 storm), NCDC stated that except for January 2014 (3rd driest) and June 2013-January 2014 (2nd driest), all of the time periods from the last two months (Dec'13-Jan'14) through the last twelve months (Feb'13-Jan'14) ranked driest on record statewide for California since 1895. In addition, the last 24-months (Feb'12-Jan'14) was also the driest such 24-month period on record.

Elsewhere, from coastal Oregon southward to Sonoma County, 2-8 inches were measured. The northern Cascades generally saw 1.5 to 4 inches, while the southern Cascades 2 to 6 inches. Heavy precipitation (more than 2 inches) also spilled eastward into southern Idaho, northern Nevada, western Wyoming, northern Utah, and central Colorado. However, since the previous 3 months had been relatively dry in the West, only minor improvements were made where the greatest precipitation fell. This included: northeastern Nevada where 1.5 to 3 inches of precipitation diminished the D3 there; Idaho, a slight reduction of the northern D3 area and adjacent D2 area, and D2 to D1 improvement in the southeast; western Wyoming, D0 and D1 reduction; and northeastern Utah, D1 to D0 improvement. Elsewhere, the precipitation was enough to prevent any further deterioration, except in Washington.

In Washington, both short-term ACIS and AHPS precipitation amounts have been well below normal (<50%) at 30-, 60-, and 90-days, especially in the western and northeastern sections. In light of rapidly accumulating 90-day shortages of over 20 inches along the western coast and 4-8 inches in north-central sections, D2 was expanded northward from Oregon into the Seattle-Tacoma area, and

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introduced in north-central portions. D1 was also expanded eastward into northern Idaho while D0 slightly shifted into northwestern Montana.

Looking Ahead

During February 13-17, 2014, a departing Atlantic Coast storm (on Feb. 13) should drop moderate to heavy precipitation on the Northeast, while unsettled weather in the Northwest should bring heavy precipitation (4-12 inches) from the Cascades southward into northern California. Unfortunately, it appears as though the southern half of California will miss out on the precipitation. Decent precipitation should also fall on Idaho and the western parts of Montana and Wyoming. Light snows are expected for the northern Plains into the Great Lakes region and Ohio Valley. Dry weather is forecast for the southwestern quarter of the Nation. Much above-normal temperatures should envelop the western half of the U.S. while subnormal readings are expected in the northeastern quarter of the country.

For the ensuing 5-day period, February 18-22, 2014, the odds favor above-median precipitation across the northern half of the Nation, with the greatest probabilities in the Northwest and Great Lakes region. Below-median precipitation is favored across the southern third of the U.S., especially in the Southwest and Southeast. Above-median temperatures are likely east of the Rockies, while the odds for sub-median readings are probable in the Far West.”

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](#).

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.

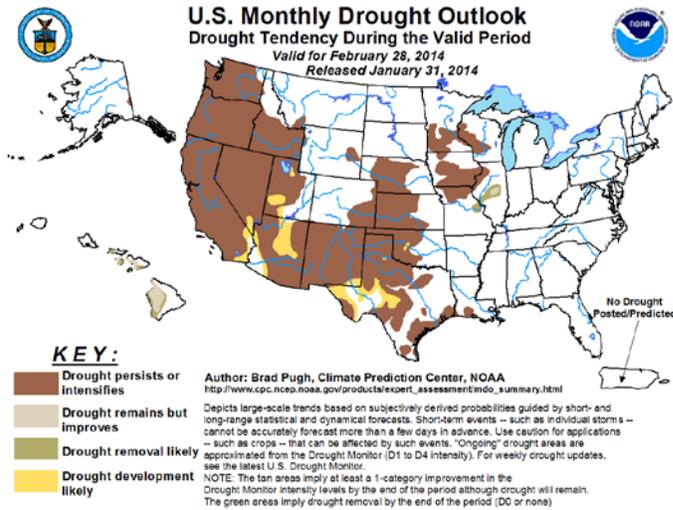
This report uses data and products provided by the Interagency Drought Monitor Consortium members and the National Interagency Fire Center.

/s/

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

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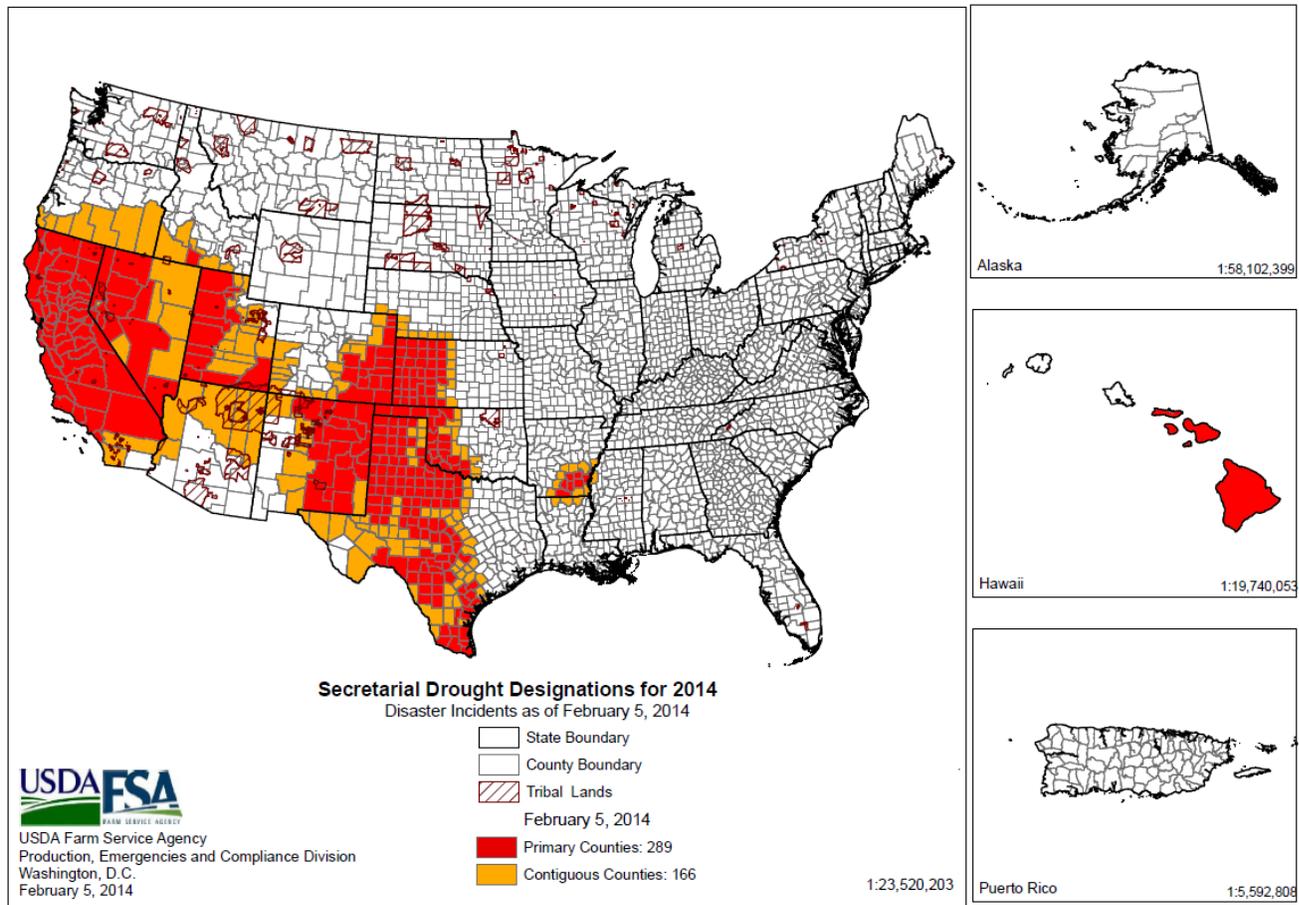
Drought Outlook



U.S. Seasonal Drought Outlook for February:

- Drought is expected to deteriorate over parts of the Southwest and southern Texas. Much of the West and south-central Plains including the upper Mississippi River Valley are expected to have persistent drought.
- ✓ 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.

2014 Secretarial Drought Designations - All Drought



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

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

Archived "U.S. Crops in Drought" files can be downloaded at:

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

California snow survey

The Jan. 31 snow survey in California was disheartening, but not unexpected. The snowpack was 12 percent of average, leading the State Water Project to warn contractors that they may receive no water this year for the first time in SWP's 54-year history.

Assistance for California growers

California's farmers and ranchers were offered \$20 million in aid from the U.S. Department of Agriculture for water conservation projects through the Natural Resources Conservation Services Environmental Quality Incentives Program. The aim is to upgrade irrigation methods, prevent erosion from unplanted fields and devise better ways to water livestock.

U.S. Bureau of Reclamation and Natural Resources Conservation Service announced \$14 million more in aid to improve water management and conservation.

Assistance for the unemployed

California officials are bracing for a wave of high unemployment in the rural towns in the Central Valley as drought results in job losses. Rick Palermo of Community Food Bank in Fresno was scoping out locations for handing out food in Mendota, Firebaugh and other small communities. During the dry spell in 2009, unemployment rates were very high in the Central Valley.

Energy

As water supplies in California fall, hydropower production from the California Independent System Operator, the electric grid operator for much of the state, has been tapering off, as shown in the graph from the U.S. Energy Administration. Hydropower production is expected to be down this year since water supplies are very low, forcing power companies to purchase higher priced power to meet demand.

Daily generation on the California Independent System Operator service area

gigawatt-hours

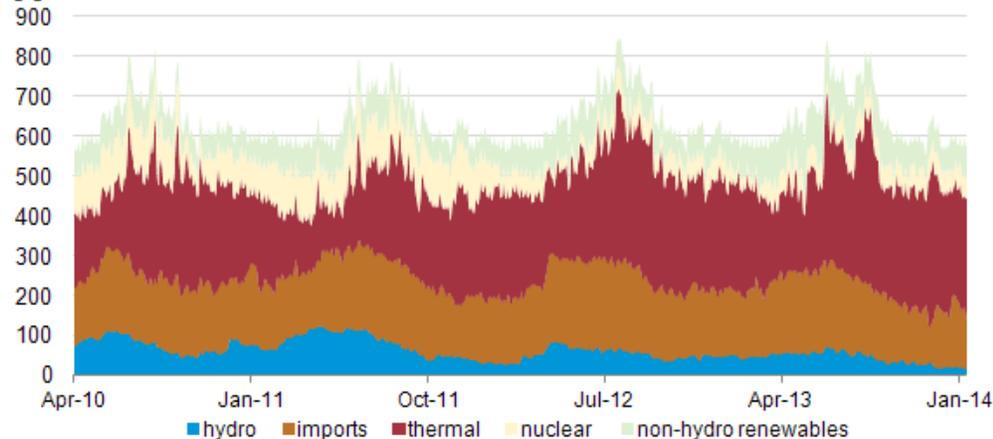


Image courtesy of the U.S. Energy Information Administration based on the CAISO Daily Renewables Watch.

<http://www.eia.gov/todayinenergy/detail.cfm?id=14911>

Recreation

Numerous small ski resorts in northern California, Oregon and Idaho have not received enough snow to open, resulting in revenue losses not only for the ski resorts, but also for hotels, restaurants and bars.

The California Fish and Game Commission closed parts of the American and Russian rivers through April 30 to fishing to protect salmon and steelhead as these fish try to migrate and spawn.

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U.S. cattle herd

The nation's cattle supply continued to shrink by 2.2 percent in 2013 to 87.7 million head, the smallest since 1951, according to the U.S. Department of Agriculture.

Oregon

Fire

Wildfire activity in Oregon was exceptionally high as 18 fires burned roughly 916 acres through Jan. 28, compared to the 10-year average for the same time period of one fire charring 17 acres, according to the public information officer for the Oregon Department of Forestry.

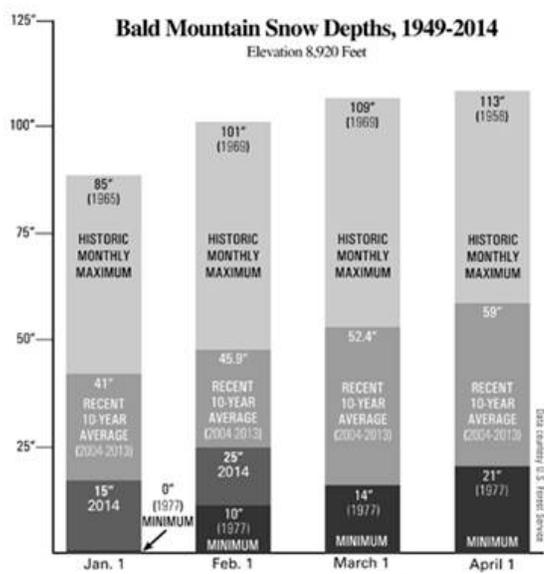
"It's been a highly unusual January," said Russ Lane, an assistant forester for ODF North Cascade District. "Really it's just drought conditions — lack of rainfall and snowpack. ... Our forest fuels (dry debris and dead logs) are just as dry as it would be in August."

Klamath County

Klamath County commissioners declared a state of emergency due to drought on Feb. 4 and urged the governor to do the same. The commissioners feel that "appropriate response is beyond the capability of Klamath County." The state of emergency is intended to assess, evaluate and acquire "the ability to provide appropriate available resources."

Idaho

Bald Mountain in south central Idaho has the fourth least amount of snow for Feb. 1 since the U.S. Forest Service began keeping track in 1949. Snow surveys are done on the first day of each month.



Graph from the [Idaho Mountain Express](#)

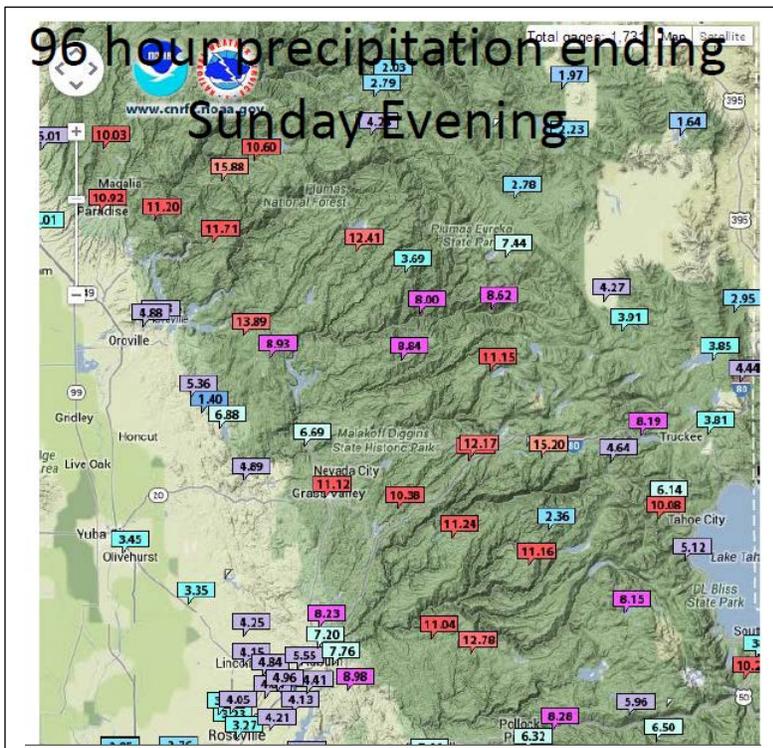
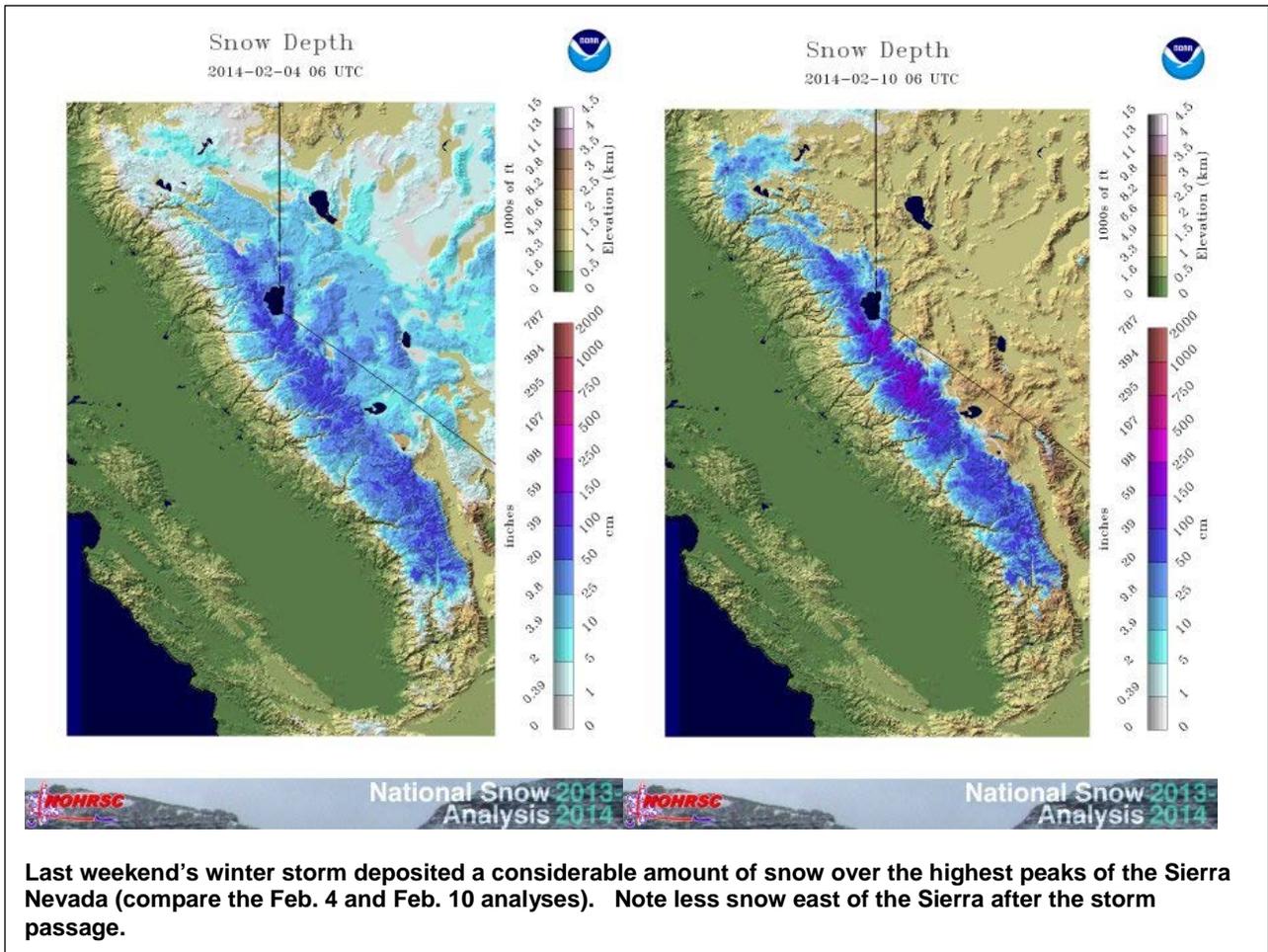
For more detailed drought impact information, see the **Drought Impact Reporter** at <http://droughtreporter.unl.edu/map.aspx>

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:

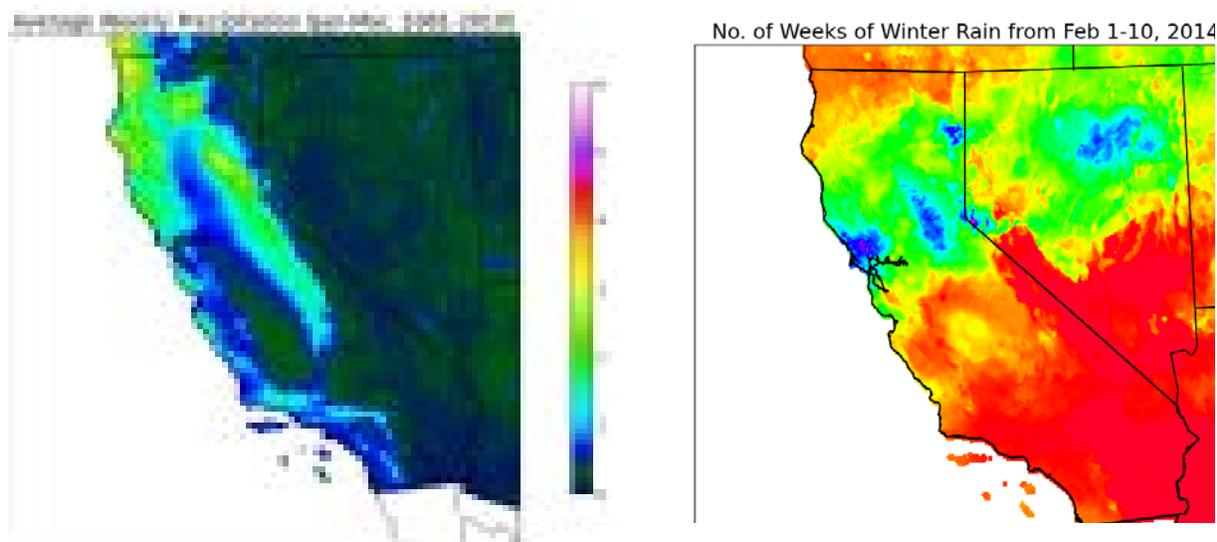
- <http://www.usbr.gov/uc/water/basin/> ← Upper Colorado
- http://www.usbr.gov/uc/wcao/water/basin/tc_gr.html; ← Upper Snake
- <http://www.usbr.gov/pn/hydromet/burtea.html> ← Upper Colorado
- http://www.usbr.gov/uc/water/basin/tc_cr.html ← Upper Colorado
- <http://www.usbr.gov/pn/hydromet/select.html>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

Supplemental California Data



There were Impressive precipitation totals over northern California during the period of February 6 through 9, although much of it was in the form of rain.

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The graphic on the left is how much rain falls during a typical winter (Jan-Mar) week, based on 1981-2010 PRISM data. The graphic on the right is how many weeks of rain have fallen so far this month. It appears that some small areas had 6-9 weeks' worth of rain out of a possible 30 weeks. Provided by Paul Iniguez - NOAA

The following is provided by the California State Snow Survey Staff:

The February 1, 2014 Water Supply Index (WSI) and Bulletin 120 (B120) forecasts. The forecasts include observed conditions through the end of January.

The forecasts are posted at: WSI: <http://cdec.water.ca.gov/cgi-progs/iodir/wsi>
 B120: <http://cdec.water.ca.gov/cgi-progs/iodir?s=b120>

Forecast Summary:

The projected median April-July runoff in the major Sierra river basins ranges from 14 percent on the Tule River to 55 percent on the Pit River. Forecasted median Water Year runoff ranges from 16 percent for the Tule River to 43 percent for the total Inflow to Shasta Lake. These first 4 months of this water year have been persistently dry. But, remember that California climate has been persistently variable, too. The WSI forecast can be summarized as follows:

Sacramento River Unimpaired Runoff Water Year Forecast	6.2 MAF
(50 percent exceedance)	(34 percent of normal)
Sacramento Valley Index (SVI)	3.7
(50 percent exceedance)	(Critical)
San Joaquin Valley Index (SJI)	1.1
(75 percent exceedance)	(Critical)

Runoff:

The low flows this winter are a true reflection of the lack of storm systems moving through California. Monthly flows from October through January have not exceeded 82 percent of normal for any forecasted river. During January, no major Sierra rivers flowed at a rate greater than 45 percent of normal and the statewide average was 8 percent. The January flows in the Sacramento River, San Joaquin River and Tulare Lake regions were 13, 6 and 7 percent of average, respectively.

Precipitation:

Water Year 2013 continues the persistent dry pattern. The Northern Sierra 8-station precipitation has been equal to or less than 25 percent of the monthly average for all months excluding October which was 27% of normal. January only added 1.2 inches of precipitation to the 8-Station total which amounts to just 13% of the historic monthly average. The 4.5 inches recorded by the end of January in the

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Northern Sierra represents 17 percent of average to date and 9 percent of the average Water Year total. This seasonal total-to-date is the all-time driest October through January since 1921.

The San Joaquin region is also behaving the same as the Sacramento with the same persistent dry pattern. The San Joaquin 5-station index was equal to or less than 22 percent of the monthly average for all months excluding October which was 45% of normal. January added 1.7 inches of precipitation to the 5-Station Index (a half an inch greater than the Northern Sierra). This represents just 22% of the historic monthly average. The 4.7 inches of precipitation recorded by the end of January in the San Joaquin region represents 23 percent of average to date and 12 percent of the average Water Year total. This annual total is the 3rd driest October through January since 1905.

At the conclusion of the first four months of the water year, precipitation (based on all available reporting gages per basin) in the Sacramento River region was 15 percent of average to date, the San Joaquin River region was 21 percent of average to date, and the Tulare Lake region was 24 percent of average to date. Statewide, water year cumulative precipitation through January was 20 percent of average to date. The Statewide cumulative precipitation through January was 10 percent of the historic water year average.

Snowpack:

Snowpack is monitored using two complementary methods: automatic snow sensor (or "pillow") readings and manual snow course measurements. The snow sensors give a daily snapshot of snow conditions, while the manual snow course measurements provide a monthly verification of snow conditions in locations where snow has been measured in the same manner as far back as 100 years.

On February 1, snow sensors recorded a snowpack that was 5 percent of average in the Northern Sierra, 17 percent of average in the Central Sierra, and 20 percent of average in the Southern Sierra. Statewide, snow water equivalent based on snow pillow data was 14 percent of the historical February 1 average and 9 percent of the historical statewide April 1 average.

Results from the 209 snow courses measured this month revealed a shallow snowpack with small, non-continuous areas of coverage. Measurements in the Sacramento River Valley watersheds recorded a snowpack that is 5 percent of the historical February 1 average. Measurements in the San Joaquin Valley watersheds indicated a snowpack that is 11 percent of the February 1 average while the snowpack for the Tulare Lake region was 12 percent of the February 1 average. Statewide the snowpack was measured at *9 percent of the February 1 average and 6 percent of the historical April 1 average.*

These measurements set the record for the driest statewide February 1 snowpack since World War II when the bulk of the existing snow course network was in place. There were 55 snow courses which had no snow water content available to be reported, while two courses could not be accessed via their normal means of transportation (snowmobile or ATV) because of the conditions within the watershed. Several snow survey crews visited snow courses more than once to report the latest gains in the snowpack which came around February 1st.

Weather and Climate Outlook:

After a dry October through January period, storms have arrived this February. For the next six days storms track primarily across the northern third of the state. For some areas of the North Coast beginning tomorrow nearly 7 inches has been forecasted while up to 3.5 inches have been forecasted for the Upper Sacramento watershed. Unfortunately, only a half an inch is forecasted for the Lower Sacramento and only trace amounts are forecasted for the San Joaquin watershed. Over the Northern Sierra, the freezing levels will be at their lowest today, 7000 feet, and increase through Friday. Current freezing levels are near 9000 feet over the central and Southern Sierra. Rising freezing levels are expected through Friday.

The NWS Climate Prediction Center (CPC) one-month outlook for February, last updated on January 31, 2014, suggests increased chances of above normal temperatures for California. The only exception is a sliver of Northern California ranging from Redding northward with equal chances of above or below average temperatures. The same outlook predicts increased chances of below normal precipitation ranging from Sacramento southward. The portion of California north of Sacramento is predicted to have equal chances of above or below average precipitation.

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The CPC's three-month outlook (February through April), last updated on January 16, 2014, suggests increased chances of above normal temperatures for all of California. The same outlook predicts increased chances of below normal precipitation for California with the exception of the corner near Oregon and Nevada with equal chances of above or below average precipitation.

Next Update:

A Bulletin 120 Update for conditions on February 11 will be available Thursday, February 13. The March 1, 2014 Bulletin 120 and Water Supply Index forecasts will be available on March 10, 2014.

If you have any questions regarding this forecast, please contact a member of the Snow Surveys staff. We are happy to help.

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Important Links

Full Natural Flow Data:

Daily FNF

http://cdec.water.ca.gov/cgi-progs/snowsurvey_ro/FNF

Monthly FNF

http://cdec.water.ca.gov/cgi-progs/snowsurvey_ro/FNFSUM

Seasonal FNF

http://cdec.water.ca.gov/cgi-progs/snowsurvey_ro/FLOWOUT

Precipitation Data:

Latest Northern Sierra 8-Station Precipitation Index

<http://cdec.water.ca.gov/cgi-progs/queryDaily?s=8SI&d=today>

Northern Sierra 8-Station Precipitation Tabulation Table

http://cdec.water.ca.gov/cgi-progs/products/8-Stations_Tab.pdf

Latest San Joaquin 5-Station Precipitation Index

<http://cdec.water.ca.gov/cgi-progs/queryDaily?s=5SI&d=today>

San Joaquin 5-Station Precipitation Tabulation Table

http://cdec.water.ca.gov/cgi-progs/products/5-Stations_Tab.pdf

2014 WY Precipitation Summary

<http://cdec.water.ca.gov/cgi-progs/precip/PRECIPSUM>

Snow Data:

Latest Snow Sensor Report

<http://cdec.water.ca.gov/cgi-progs/snow/PAGE6>

Latest Statewide Summary of Snow Water Equivalents

<http://cdec.water.ca.gov/cgi-progs/snow/DLYSWEQ>

Monthly Snow Course Report

<http://cdec.water.ca.gov/cgi-progs/snow/COURSES>

Extended Regional Forecasts:

California Nevada River Forecast Center 6 Day QPF and Snow Level Forecast

<http://www.cnrfc.noaa.gov/awipsProducts/RNOHD6RSA.php>

Climate Prediction Center One-Month Outlook Forecasts

<http://www.cpc.noaa.gov/products/predictions/30day/>

Climate Prediction Center Three-Month Outlook Forecasts

<http://www.cpc.noaa.gov/products/predictions/90day/>

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Drought Information:

California Drought Information

<http://www.water.ca.gov/waterconditions/droughtinfo.cfm>

U.S. Seasonal Drought Outlook

http://www.cpc.ncep.noaa.gov/products/expert_assessment/seasonal_drought.html