



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

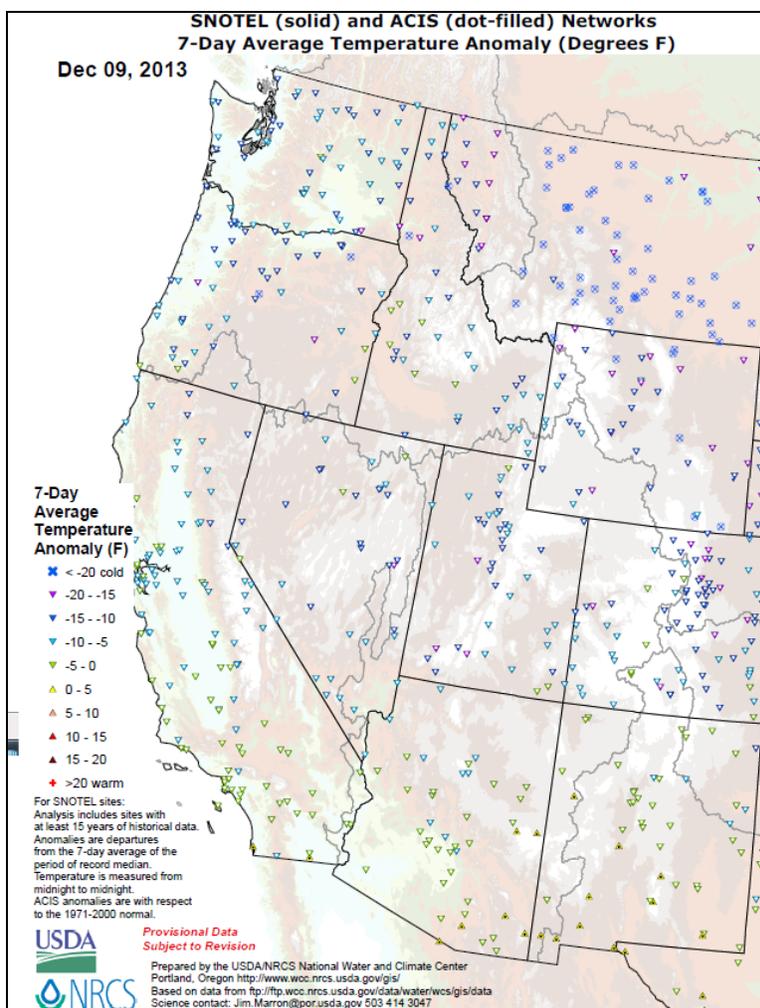
Weekly Snowpack / Drought Monitor Update

December 12, 2013

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Note: Some NRCS products have been delayed this past week, but are expected to be updated shortly.

Temperature



SNOTEL and ACIS [7-day temperature anomaly](#) map shows temperatures well below normal over the interior West and closer to normal over the Southwest. Data are through December 9.

Click map 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

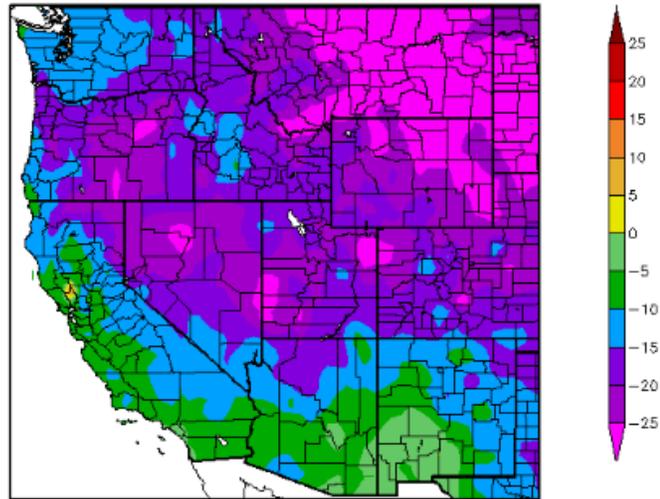
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Weekly Snowpack and Drought Monitor Update Report

[ACIS](#) 7-day average temperature anomalies, ending December 11, show the only positive temperature departures occurred near the wine country in northern California ($>+1^{\circ}\text{F}$). The greatest negative departures occurred over parts of the Great Basin, where cold air was trapped in high valley drainage areas, and over much of the northern Plains as the coldest Arctic outbreak for the season occurred ($>-25^{\circ}\text{F}$).

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

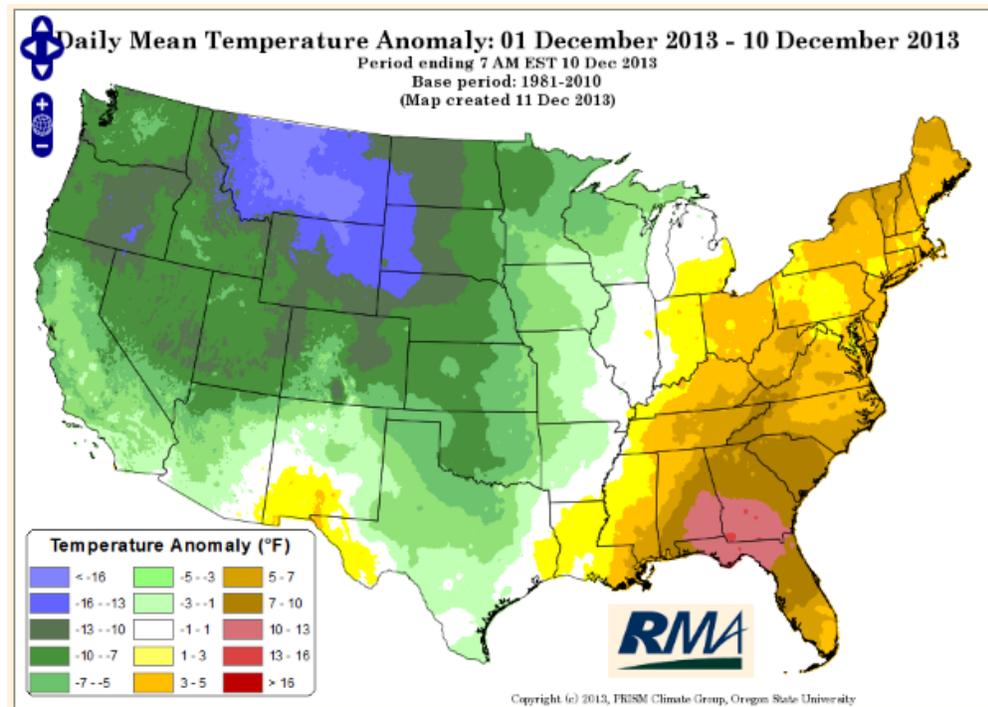
Departure from Normal Temperature (F)
12/5/2013 – 12/11/2013



Generated 12/12/2013 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.



The first third of December is proving to be quite cold over the northern Rockies and across the western half of the country. Above normal conditions are confined to the eastern third of the U.S., with especially warm conditions for this time of year over the extreme southeastern states, southeastern New Mexico, and west Texas.

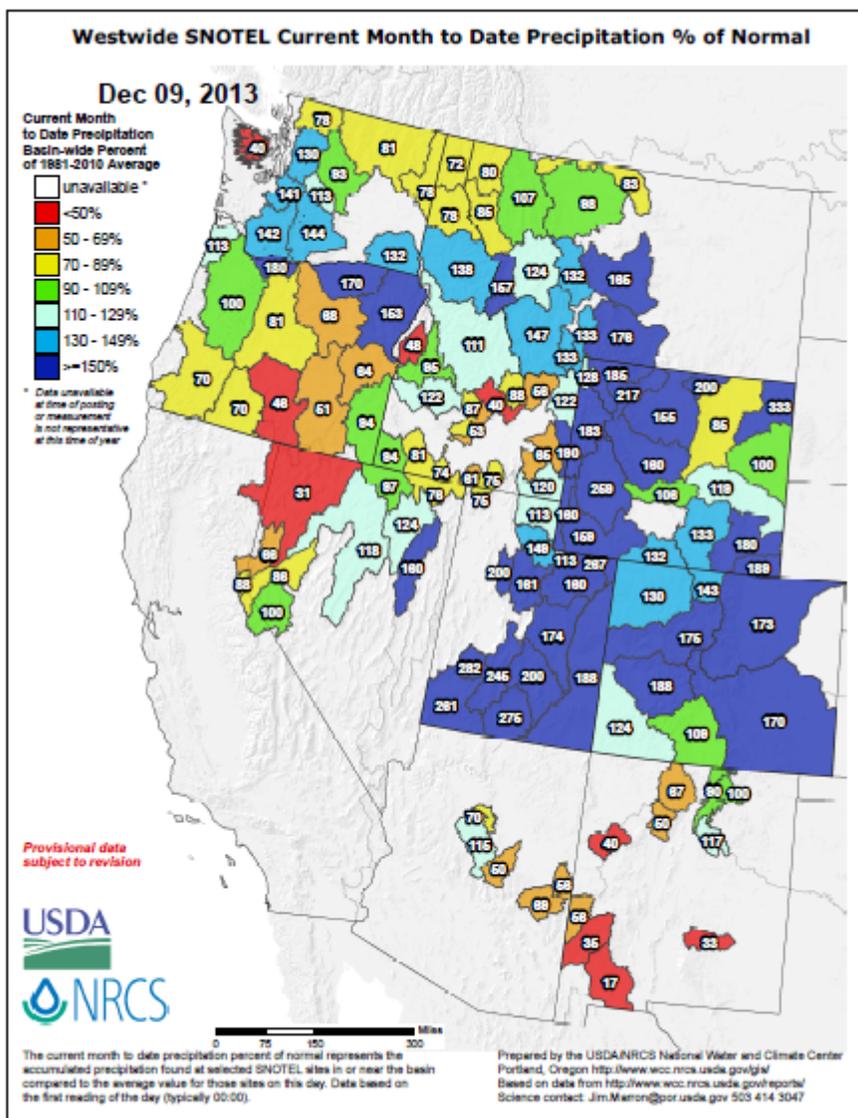
Weekly Snowpack and Drought Monitor Update Report

Precipitation

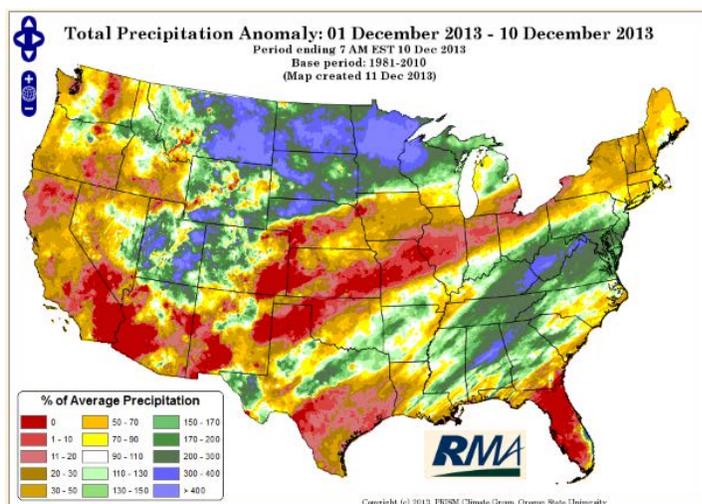
SNOTEL [month to date](#) precipitation percent of normal (through December 09) shows a mixed pattern of wetter and drier regions across the West.

Surpluses currently exist over Utah, Colorado, much of Wyoming, southern Montana, central Idaho, northern Oregon, the Cascades of Washington, and north-central Nevada. A few pockets of above normal precipitation have been recorded over Arizona and New Mexico. Overall, the remaining basins are showing deficits.

More precipitation is expected in about 10 days across a good expanse of the western states as a deep trough of low pressure moves into the region.



Click on images to enlarge and get latest available updates

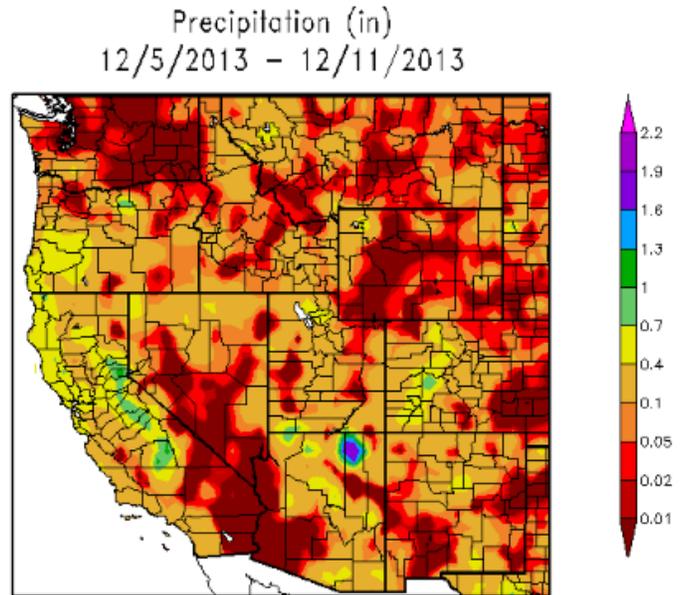


← December precipitation thus far has been a story of haves and have-nots. Alternating bands of surplus and deficit moisture can be seen in this map

This preliminary daily PRISM precipitation contains all available network 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 for the period ending December 11 show generally light amounts over all but the Sierra Nevada and over northeast Arizona. Continued dry weather over the Pacific Northwest has prompted a slight degrade in drought conditions over this region. →

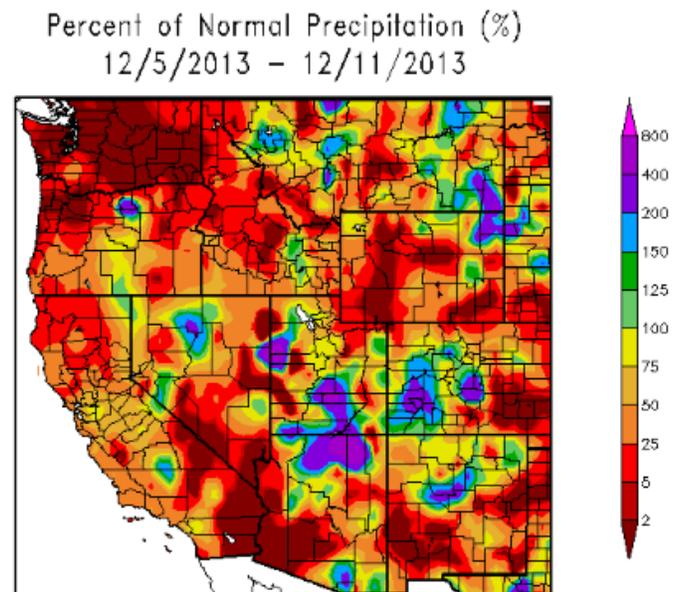


Generated 12/12/2013 at HPRCC using provisional data.

Regional Climate Centers

This [map](#) shows that the bulk of precipitation by percent of normal fell across scattered regions of the West. →

Exceptional dryness this week included much of Washington, southern California, southern Nevada, southwestern Arizona, southern New Mexico, eastern Colorado, and much of Wyoming.



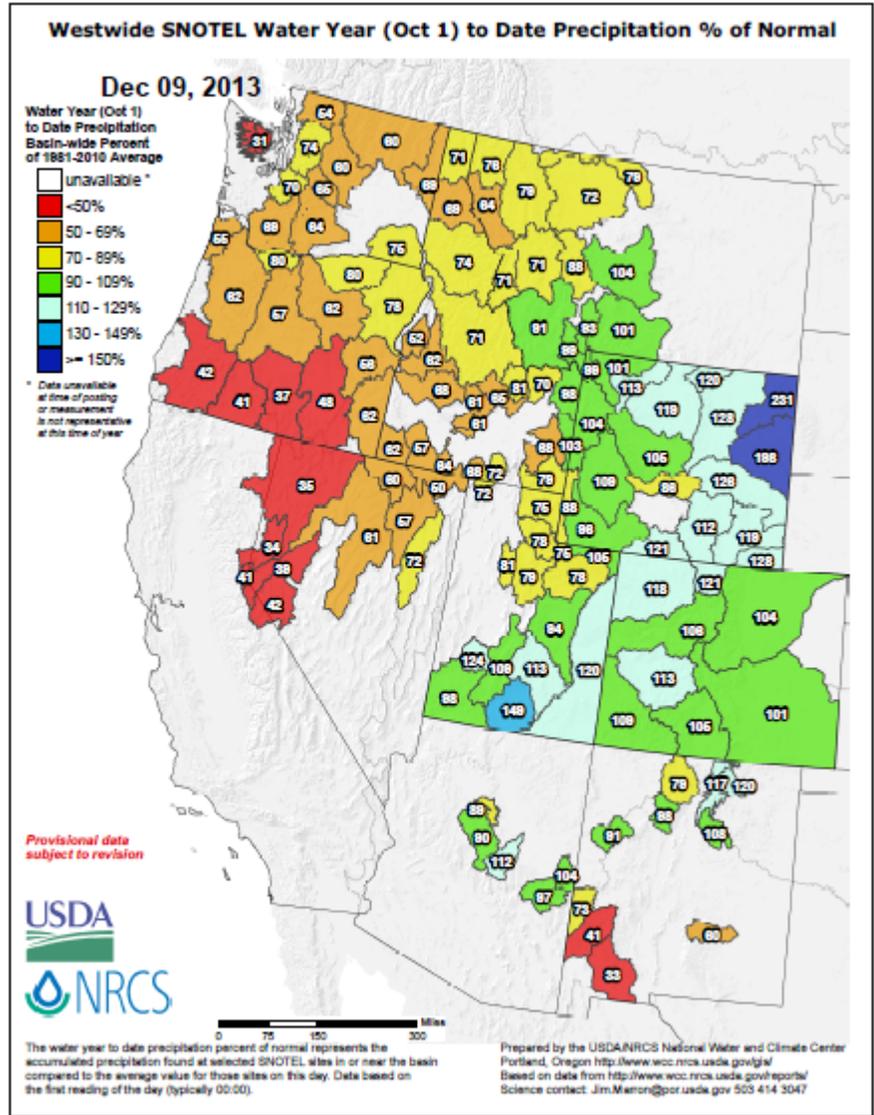
Generated 12/12/2013 at HPRCC using provisional data.

Regional Climate Centers

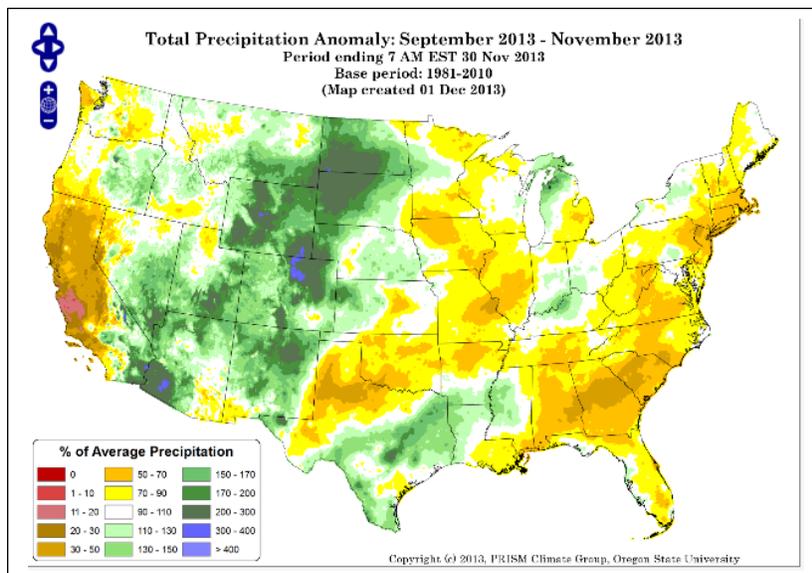
Weekly Snowpack and Drought Monitor Update Report

For the [2014 Water Year](#) that began on October 1, 2013, the ENSO pattern thus far is quite dry over the western half of the West. Areas east of the Continental Divide have fared better. Southern New Mexico is also showing significant deficits.

Today's map is currently not available. However, click on this image for the latest available update. →



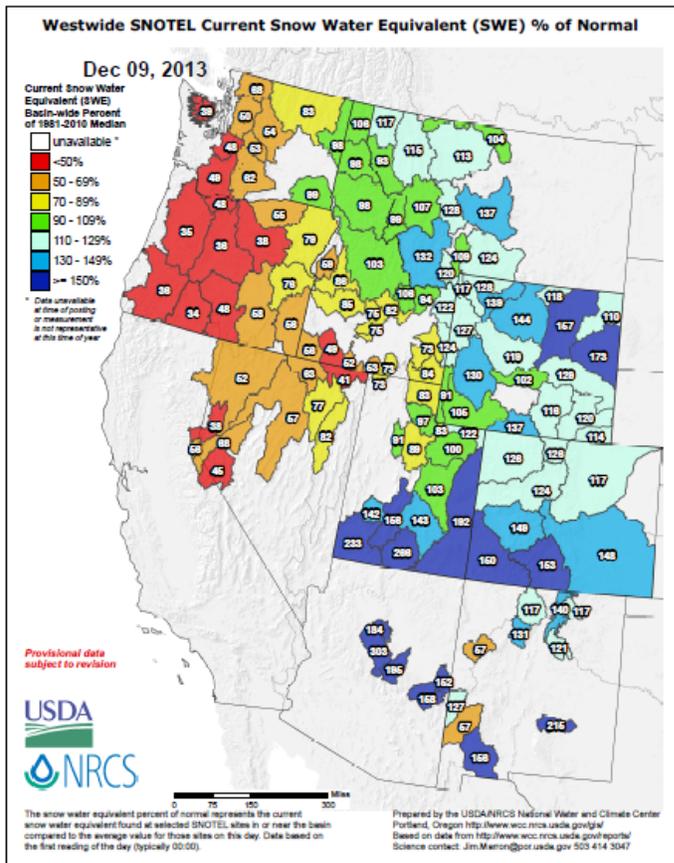
[Click image for latest available update](#)



To help put the current precipitation pattern into perspective, the September through [November](#) anomaly map is provided. It shows that a wetter pattern has persisted over much of the Rockies during the past 100 days. The Pacific Northwest continues to have less precipitation than the long-range climatology would [predict](#).

Weekly Snowpack and Drought Monitor Update Report

Snow



Snow Water Equivalent (SWE) values are off to a good start east of the Continental Divide and parts of Utah, Arizona, and New Mexico.

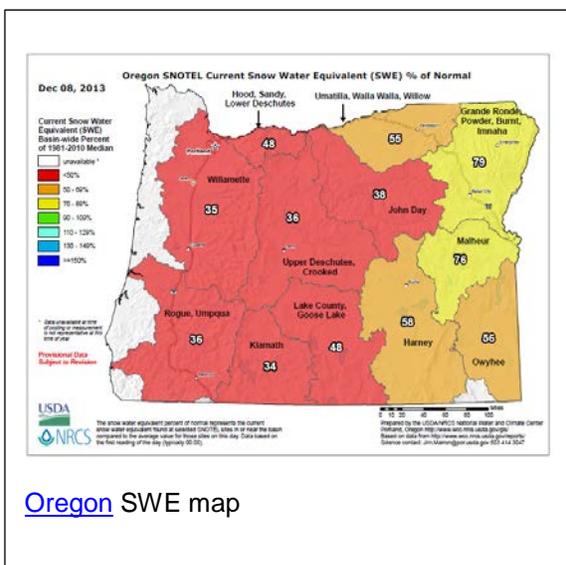
Note: Data are updated through December 9.

Conditions west of the Continental Divide are becoming drier. However, the snow accumulation season is still relatively young.

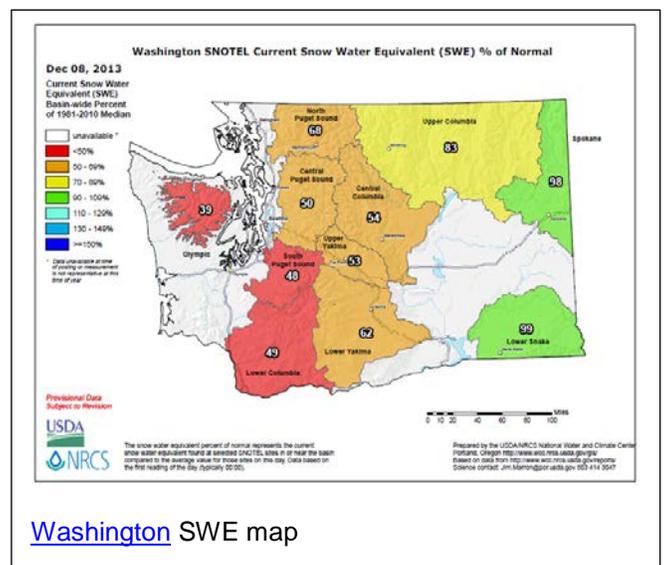
The all-important April 1 SWE date will best determine the water supply forecasts issued by the [National Water and Climate Center](#).

See latest [National Snow Analysis](#)

See a special update on National Snow Cover at the end of this week's report.



[Oregon SWE map](#)



[Washington SWE map](#)

SWE deficits (as of December 9) persist over the Northwest; especially over Oregon and Washington.

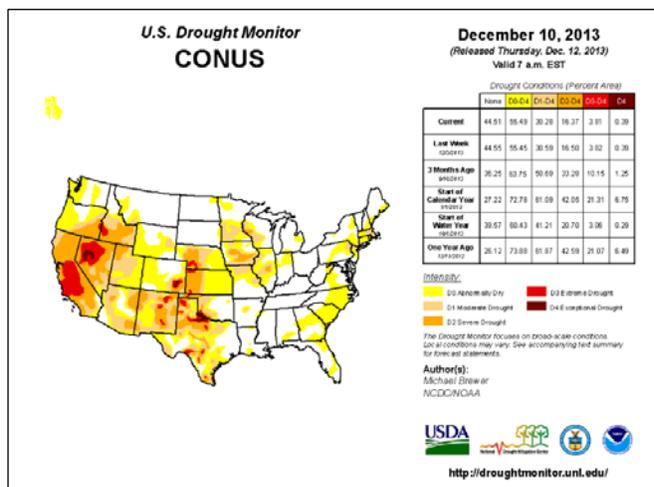
Weekly Snowpack and Drought Monitor Update Report

Weather and Drought Summary

National Drought Summary – December 10, 2013

The following **Weather and Drought Summary** is provided by this week's NDMC Drought Author, Michael Brewer, National Climatic Data Center, NOAA.

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



Latest Drought Related News:
[Tragic wildfire season had surprisingly few fires](#) - Nov 24

[Current Drought Monitor](#) weekly summary. The exceptional D4 levels of drought are scattered across 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](#)

U.S. Summary: "For the second straight week, a powerful storm moved across the country and into the eastern U.S. this US Drought Monitor week. This storm followed a similar track along the East Coast to the Thanksgiving Storm of last week. Snow accumulated from the Upper Midwest where Duluth gained over 10 inches from the storm, through the Mid-Atlantic, shutting down government offices in Washington DC, and into New York where Central Park received a trace. The Southern Plains experienced snow, sleet, and freezing rain from the event. The highest liquid precipitation totals fell through the Southeast and in the Tennessee Valley with rainfall in areas of central Alabama received over five inches in a day and well over six inches during the week. This weather caused thousands of commercial airline flights around the country to be cancelled and thousands more to be delayed. The major hubs of Dallas/Fort Worth and Chicago appear to have been most impacted. Highways ground to a halt in the Southern Plains and multi-car pileups were not uncommon."- Michael Brewer, National Climatic Data Center, NOAA

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 below, click [here](#).

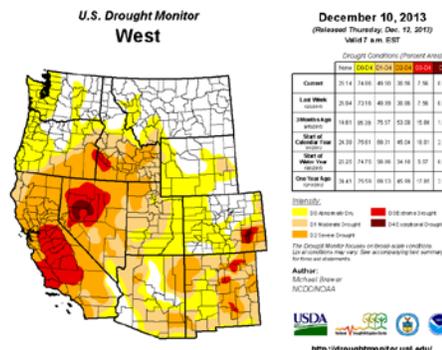
"During the past week, SNOTEL [temperatures](#) were well below normal over the interior West and closer to normal over the Southwest. [Snow Water Equivalent](#) (SWE) values are off to a good start over east of the Continental Divide including parts of Utah, Arizona, and New Mexico. For the [2014 Water Year](#) that began on October 1, 2013, the ENSO pattern thus far is quite dry over the western half of the West. Essentially areas east of the Continental Divide have fared better. Southern New Mexico is also showing significant deficits" – Jan Curtis, NRCS

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](#)

Western Drought News

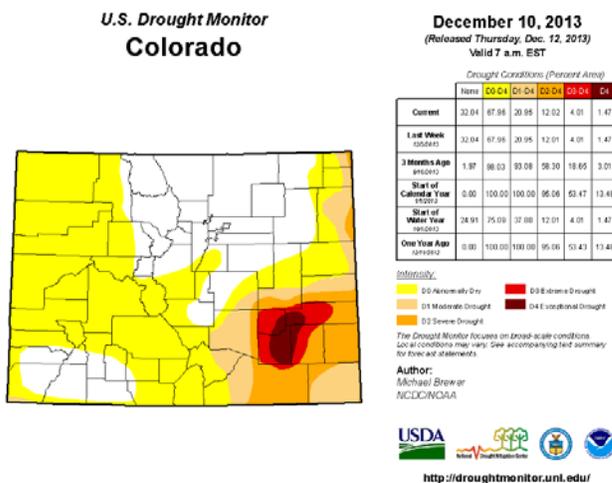
- [California water woes hit hard in driest year on record](#) - Nov 27, **California**.
- [Ongoing drought could leave ramps high and dry](#) - Dec 3, **Lake County, California**.
- [California ranchers weigh options as dry spell lingers](#) - Dec 4, **California**.
- [Struggling with one of the driest years on record](#) - Dec 2, **Sonoma County, California**.
- [Sandhill cranes are thriving in the San Joaquin Valley's wetlands](#) - Nov 24, **Merced County, California**



Note that there were no changes this week.
Click to enlarge

The West: "Abnormal Dryness (D0) expanded again this week in the northern Cascade Mountains in Oregon and Washington as well as on the Oregon Coast. These areas continue to miss most of the recent precipitation that has fallen around the Northwest and have significant deficits for the year. Beneficial precipitation has continued to accumulate in Utah. Severe (D2) and Moderate Drought (D1) improved in the central, southern, and eastern part of the state. Further improvements may be necessary in coming weeks through this area and in northern Arizona should precipitation continue. Southeast Montana also saw a decrease in Severe Drought (D2) resulting from the recent precipitation events. The rest of the West remains unchanged this week." - Michael Brewer, National Climatic Data Center, NOAA

U.S. Drought Monitor Colorado



No changes have occurred during the past week.

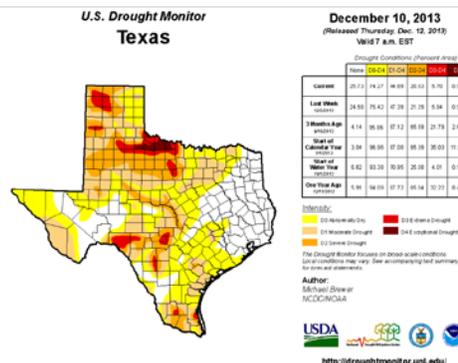
State with D-4 Exceptional Drought

- [Drought conditions persist in most of Colorado](#) - Dec 3, **Colorado**
- ✓ [NIDIS Upper Colorado River Regional Drought Early Warning System](#)

State with D-4 Exceptional Drought

- ✓ [Texas Drought Website](#).
- ✓ [Texas Reservoirs](#).
- [Drought that has plagued Texas has eased: western half still dry](#) - Dec 4, **Texas**.
- [Drought contributes to oyster shortage \(w/video\)](#) - Nov 25, **Gulf Coast of Texas**.
- [Fort Worth's bison herd marks 40 years at city's nature center](#) - Nov 26, **Fort Worth, Texas**.
- [Elgin Christmas Tree Farm rebounds from drought](#) Nov 24, **Texas**

U.S. Drought Monitor Texas

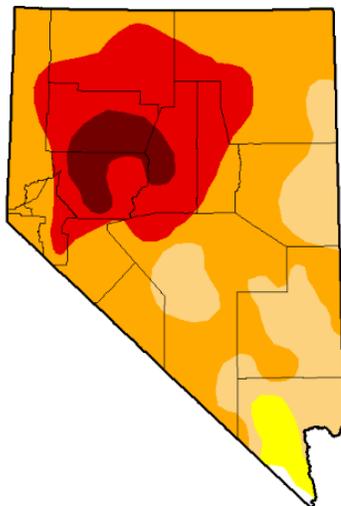


Note slight improvement in D2 to D3 categories during the past week.

Weekly Snowpack and Drought Monitor Update Report

State with D-4 Exceptional Drought

U.S. Drought Monitor Nevada



December 10, 2013
(Released Thursday, Dec. 12, 2013)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.39	99.61	96.81	77.66	28.55	5.37
Last Week 12/2/2013	0.39	99.61	96.81	77.66	28.55	5.37
3 Months Ago 9/10/2013	0.00	100.00	99.57	82.82	38.00	5.37
Start of Calendar Year 1/2/2013	0.00	100.00	94.13	62.22	16.46	0.00
Start of Water Year 10/1/2012	0.39	99.61	96.79	79.11	28.55	5.37
One Year Ago 12/11/2012	0.00	100.00	94.16	64.00	30.19	0.00

Note: No changes occurred this past week.

Intensity:

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

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

Author:
Michael Brewer
NCDC/NOAA

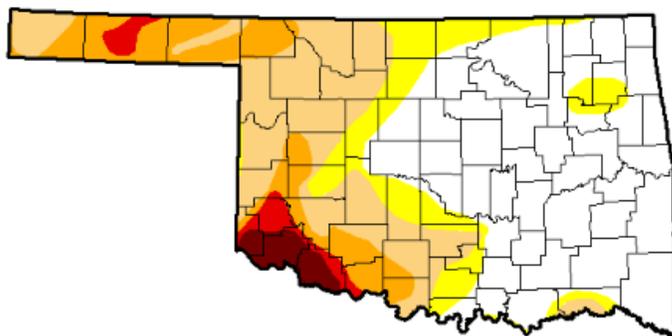


<http://droughtmonitor.unl.edu/>

State with D-4 Exceptional Drought

Oklahoma

Note: No changes occurred this past week.



December 10, 2013
(Released Thursday, Dec. 12, 2013)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	49.22	50.78	38.32	15.93	4.92	2.40
Last Week 12/2/2013	52.66	47.34	30.90	15.93	4.92	2.40
3 Months Ago 9/10/2013	0.00	100.00	50.45	23.13	10.34	1.46
Start of Calendar Year 1/2/2013	0.00	100.00	100.00	100.00	94.89	37.06
Start of Water Year 10/1/2012	21.74	78.26	43.00	17.62	4.42	1.45
One Year Ago 12/11/2012	0.00	100.00	100.00	99.92	90.92	34.56

Intensity:

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

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

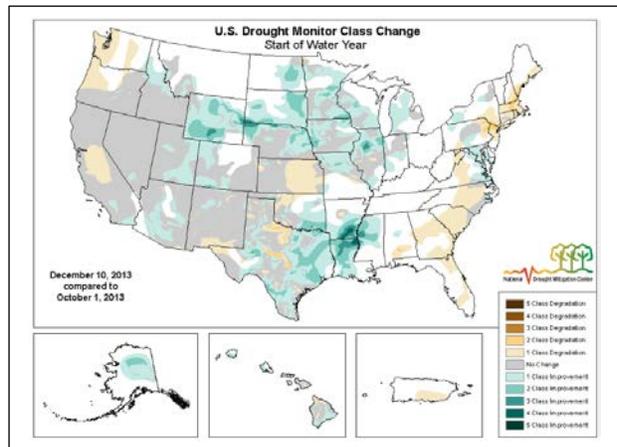
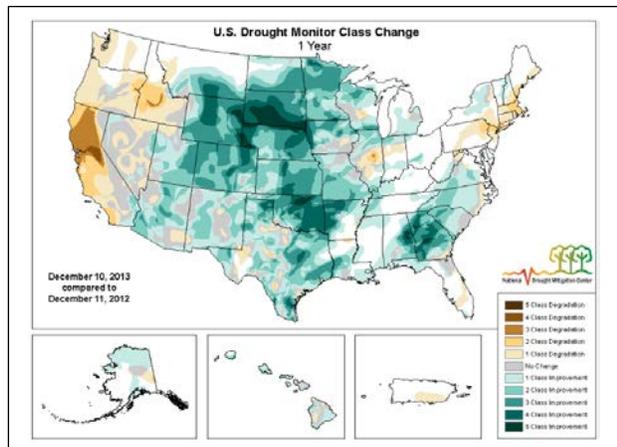
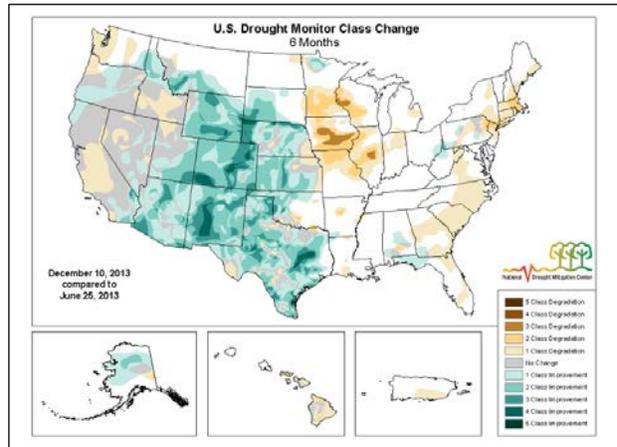
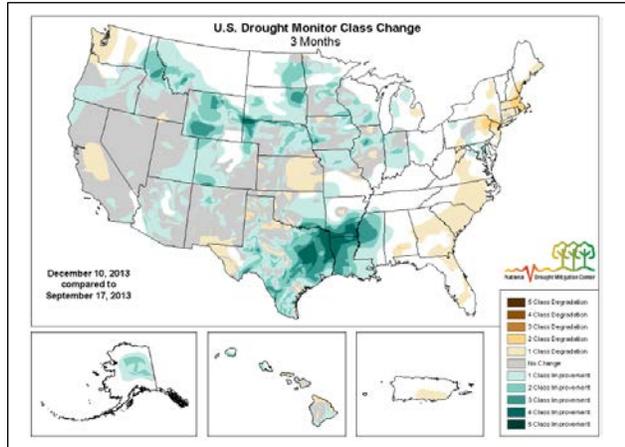
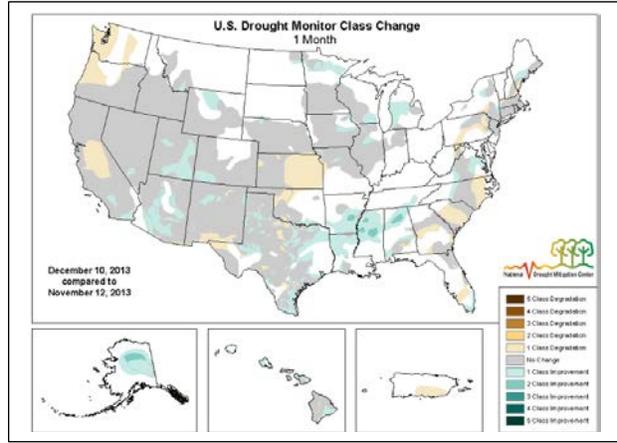
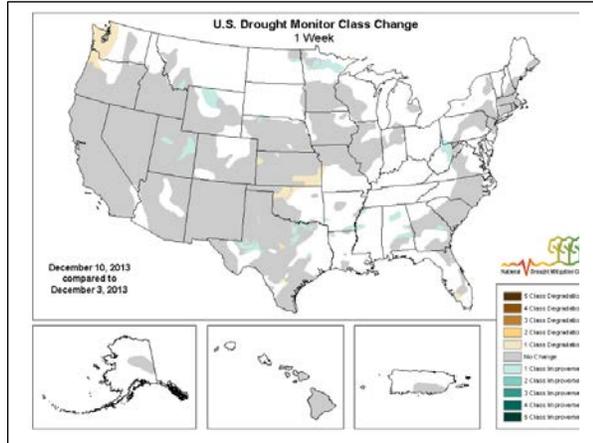
Author:
Michael Brewer
NCDC/NOAA



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

Weekly Snowpack and Drought Monitor Update Report

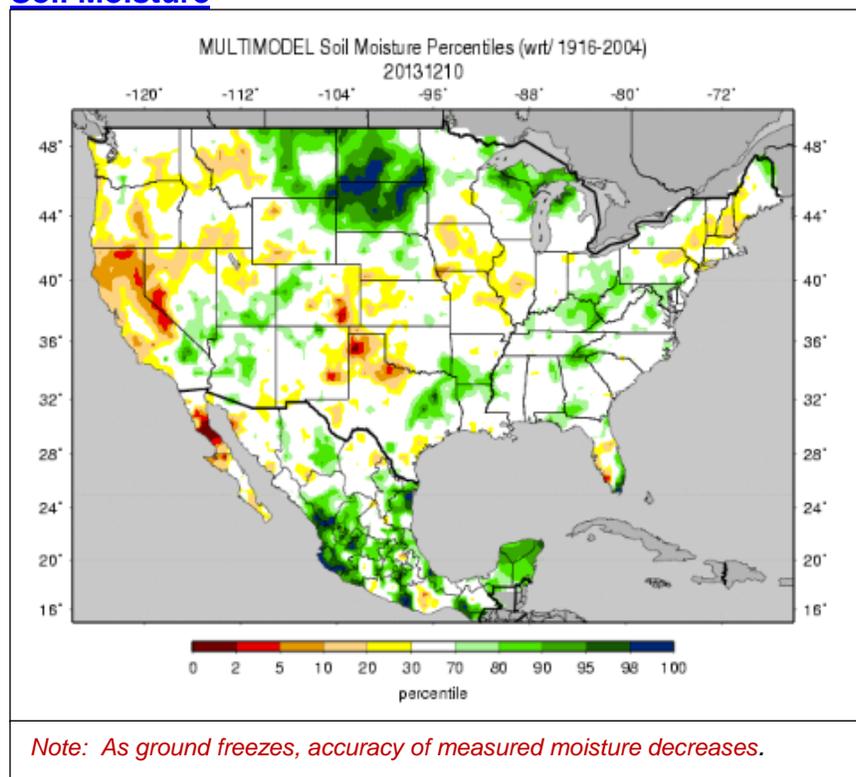
New Feature: [Changes in Drought Monitor Categories](#) (over various time periods)



Winter time changes to the drought monitor are usually minimal. However, over the past several months, drought conditions have improved significantly over a vast portion of the center of the U.S.

Weekly Snowpack and Drought Monitor Update Report

Soil Moisture



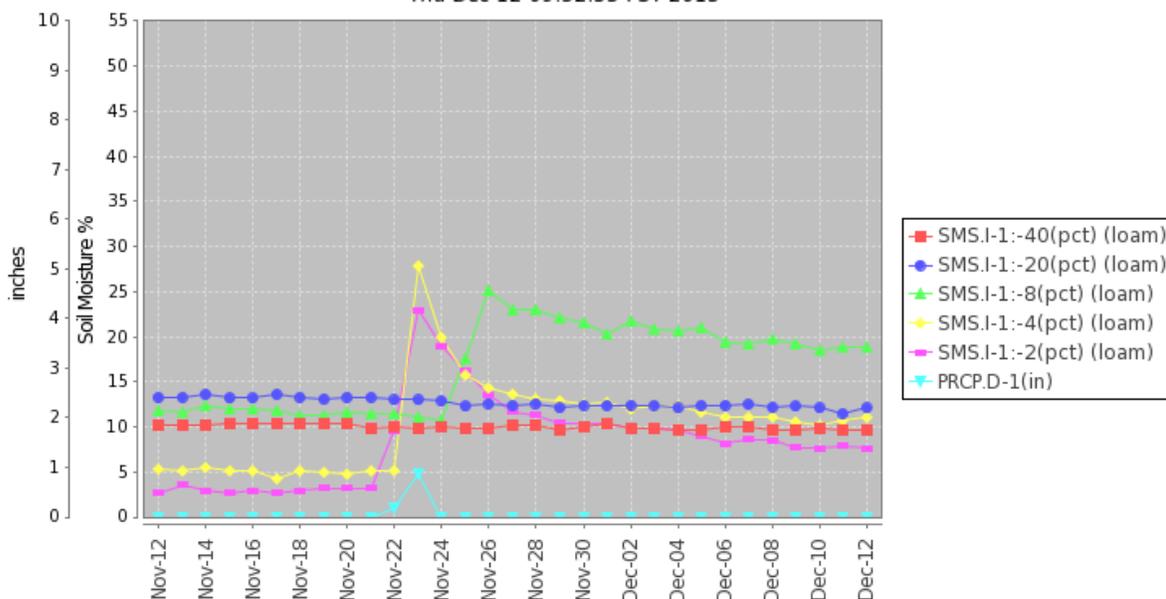
Soil moisture ranking in [percentile](#) as of December 10 shows considerable moisture over the northern Great Plains and northern Great Lakes. Dryness is noted over the panhandle of Texas, southeast Colorado, and southern New England.

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](#)

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

Station (2184) MONTH=2013-11-12 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision
Thu Dec 12 09:52:33 PST 2013



This NRCS resource shows a site over [southeastern California](#), briefly responding to an inch of rainfall on November 23. However, since then, soil moisture remains essentially unchanged.

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

Complete National Drought Summary

The following complete **Drought Summary** is provided by this week's NDMC Author: [Michael Brewer, National Climatic Data Center, NOAA](#)

The East: "The second intense storm in two weeks moved through the East over the weekend and into the early part of this week dropping rain throughout the Southeast and snow on many areas of the Mid-Atlantic. Philadelphia received over eight inches of snow. Other locations received beneficial precipitation that improved their drought status. Areas of West Virginia, Pennsylvania, Alabama, Mississippi, and Georgia all saw a reduction in Abnormal Dryness (D0).

The South and Southern Plains: Recent precipitation improved drought conditions in some parts of Texas. Northwest Texas saw an improvement in Extreme Drought (D3). Southwest Texas saw improvements in Severe (D2) and Moderate Drought (D1) and Abnormal Dryness (D0). Southeast Texas saw improvement in Moderate Drought (D1) and Abnormal Dryness (D0). Northeast Texas saw improvement in Severe Drought (D2). Likewise, Louisiana, Arkansas, and Oklahoma saw improvement in Abnormal Dryness (D0). Conversely, Abnormal Dryness (D0) expanded in southeast Kansas and into west-central Missouri where the last 30 days have been very dry. Abnormal Dryness (D0) expanded in southern Texas and Severe (D2) and Moderate Drought (D1) expanded in central Texas. Lake Brownwood in central Texas is below 58% full and has instituted stage 2 drought restrictions. Moderate Drought (D1) and Abnormal Dryness (D0) also expanded in northwest Oklahoma.

The Central and Northern Plains and Midwest: Snow that fell this week in northwest Nebraska alleviated some Severe Drought (D2) there. Nearby in southern South Dakota, the snow alleviated some Abnormal Dryness (D0). Large amounts of snow fell in select areas around the Midwest. This led to removal of Moderate Drought (D1) in northern Minnesota and improvements in Abnormal Dryness (D0) in the same areas and carrying over into North Dakota. Lingering drought impacts in northern Minnesota have been changed to "L" to represent their longer timescale impact given the short-term precipitation abundance.

Hawaii, Alaska and Puerto Rico: Beneficial rains continue to fall across Puerto Rico. However, it was not enough to improve the Abnormal Dryness (D0) there. Likewise, drought conditions remained steady across Alaska and the Hawaiian Islands this week.

Looking Ahead: During the December 12-16, 2013 time period, the probability of precipitation is above-normal for nearly the entire eastern U.S. and in the Northwest early in the period. A below-normal chance of precipitation is expected in the rest of the West and spreads to the entire country by the end of this time period. Below-normal temperatures are expected across most of the eastern U.S. with the exception of Florida. Above-normal temperatures are expected for from the Southern Plains extending into New England. An above normal chance of precipitation is also present across areas of the West, particularly in the Southwest. Temperatures are expected to be below-normal across the country, with the exception of the East Coast during this time.

For the ensuing 5 days (December 17-21, 2013), the odds favor normal to above-normal temperatures across the CONUS with the exception of a swath from North Dakota, through the Great Lakes, and into New England. Additionally, southern Alaska is likely to experience above-normal temperatures. Below-normal temperatures are forecast for the previously mentioned part of the North and Northeast as well as across most of Alaska. Above normal-precipitation is likely across the Northern tier of the country and along the East Coast. Most of southern Alaska is likely to experience above-normal precipitation. Below-normal precipitation is expected from throughout the Southwest and into the Southern Plains. Western Alaska is also likely to experience below-normal precipitation."

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](#)

Weekly Snowpack and Drought Monitor Update Report

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

More Information

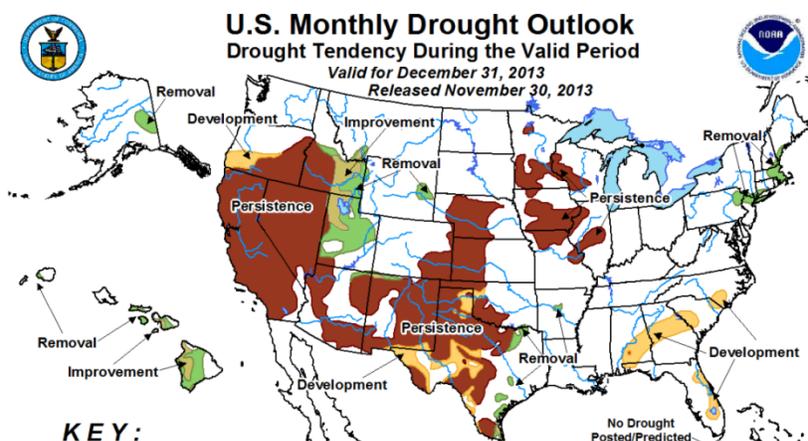
The National Water and Climate Center (NWCC) [Homepage](#) provides the latest available snowpack and water supply information. This document is available [weekly](#). CONUS Snowpack and Drought Reports from 2007 are available online. Reports from 2001-2006 are available on request.

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

/s/

Micheal L. Golden
Deputy Chief, Soil Science and Resource Assessment

Drought Outlook



Author: David Miskus, Climate Prediction Center, NOAA
http://www.cpc.ncep.noaa.gov/products/expert_assessment/mdo_summary.html

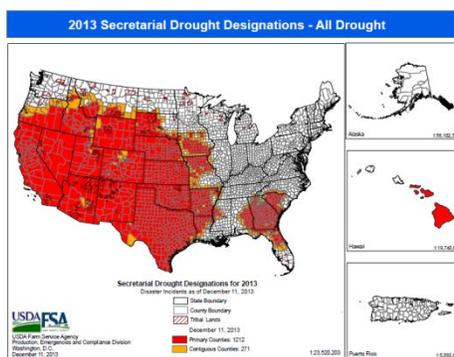
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 Intensity). For weekly drought updates, see the latest U.S. Drought Monitor.

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period although drought will remain. The green areas imply drought removal by the end of the period (D0 or none)

U.S. Seasonal Drought Outlook for December shows:

- Drought is expected to improve over parts of southeastern Idaho, northern and central Utah, eastern Texas, and southern New England. Elsewhere, drought is expected to persist over much of the Great Basin, Southwest, southern Rockies, the Upper Mississippi River Valley, and south-central Plains. Drought is expected to develop over part of the southeastern states.

- ✓ Also see: [National Significant Wildland Fire Potential Outlook](#) (updated on the 1st of each month) and contains a nice content summary of the previous month's conditions.



← Click to enlarge.

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

Weekly Snowpack and Drought Monitor Update Report

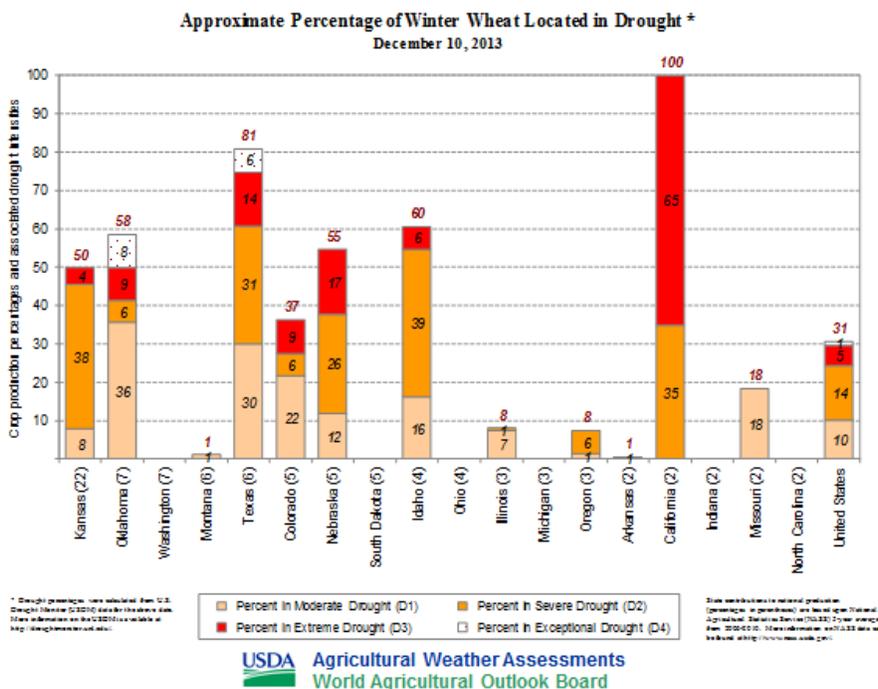
Supplemental Drought Information

The “Ag in Drought” file that had been previously posted each week by NDMC’s Brian Fuchs is now [available](#). Archived files are also [available](#).

“It is worth noting that serious drought persists in several parts of the country. Notably, California and the Great Basin are entering a potential third year of drought. On December 10, severe to exceptional drought (D2 to D4) covered 83% of California and 78% of Nevada. In addition, drought remains a threat to rangeland, pastures, and winter wheat on the southern High Plains.

- During the drought-monitoring period ending on December 10, U.S. drought coverage fell about one-third of a percentage point to 30.28%. This represents the smallest areal coverage of drought in the contiguous U.S. since December 27, 2011.

- Hay in drought (21% of the production area) and cattle in drought (34% of the U.S. inventory) were unchanged from week ago. The portion of the winter wheat production area in drought inched upward one percentage point to 31%.



- Weather outlook: During the next few days, a storm system will produce widespread precipitation across the eastern half of the U.S. Snow will develop across the middle Mississippi Valley on Friday and spread into the Northeast during the weekend. Some sleet and freezing rain may also occur, especially from the central Appalachians into the northern Mid-Atlantic States. Meanwhile, storm-total rainfall could reach 1 to 3 inches across the lower Southeast. The remainder of the U.S. will remain mostly dry, except for some precipitation later today across the southern Rockies and the Northwest. By early next week, above-normal temperatures can be expected from the Pacific Coast to the Plains, but cold conditions will linger in the eastern U.S.” - Provide by Brad Rippey, USDA

Noteworthy topics in the news this week:

Lack of rain in California

California may be headed for a third dry winter because fall rains have not materialized to get Central Valley pastures growing and producing winter grazing for livestock. Some ranchers were selling a few cattle, buying a little feed to get through the winter and wondering if they'll need to haul water soon.

Weekly Snowpack and Drought Monitor Update Report

Ocean life suffering from high salinity

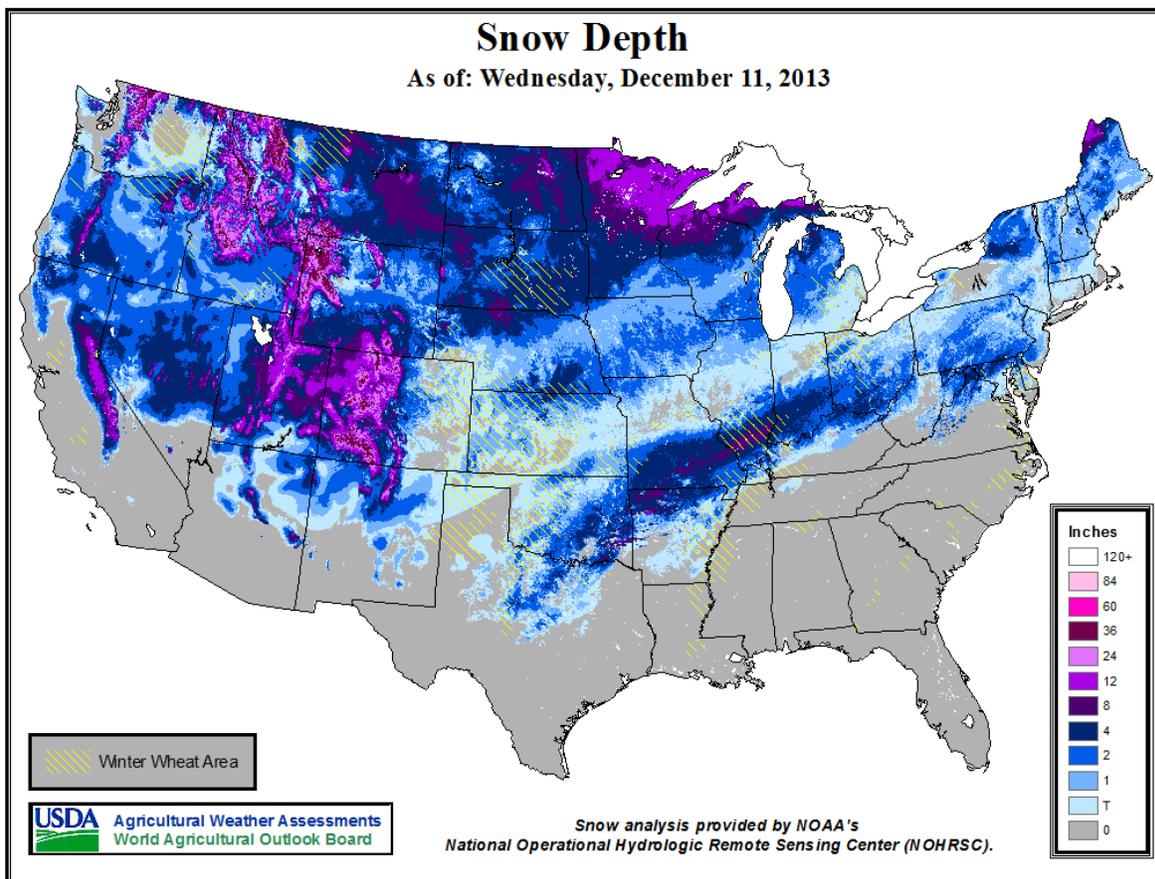
Drought and higher salinity in Lavaca and San Antonio bays on Texas' Gulf Coast have cut oyster harvests by half, according to a seafood merchant in Port Lavaca.

The Florida Fish and Wildlife Conservation Commission closed Apalachicola Bay to oyster harvesting starting on Nov. 23, due to drought and reduced freshwater inflows from the Chattahoochee and Flint rivers. The oyster population in the bay took a nosedive in the summer of 2012 and has not recovered. The bay will remain closed to oyster harvesting through May 31, 2014.

Moratorium on new well construction

The Lower Big Blue Natural Resources District in southeastern Nebraska announced a moratorium on new wells for 180 days as a new groundwater management study plan is carried out. The 2012 drought left several towns wondering if they would have enough water.

Other Drought Related News: [FWC closes Apalachicola Bay to weekend oyster harvesting](#) - Nov 22, Florida; [Lake Hopatcong Refilling Starts Dec. 1 Due to 'Moderate Drought'](#) - Nov 24, New Jersey; [Moratorium placed on new well construction](#) - Dec 3, Southeastern Nebraska; [Christmas Tree Growers Struggle Amid Harsh Conditions](#) - Nov 30, Iowa.



"While not a drought issue, I just noticed on the NOHRSC website (<http://www.nohrsc.noaa.gov/nsa/>) that 62.1% of the contiguous U.S. is covered by snow (assuming I have that stat right) as of December 11; so technically, there is more of the U.S. under snow than drought! Also, 62% also seems remarkably high for this time of year.

The figure above is our application of the NOHRSC product with winter wheat overlays."

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