



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

Weekly Report - Snowpack / Drought Monitor Update

Date: 4 January 2012

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Snow: [Snow Water-Equivalent](#): Several basins in the Northern Tier States experienced a marginal one category (bin) improvement this week while many basins in the Southern Tier States experienced significant deterioration as denoted by blue and red highlights (Fig. 1). [7-Day Snow Depth Change](#) ending this morning shows generally light accumulation over the northern half of the West and some loss of snow cover over the southern states (Fig. 1a).

Temperature: [SNOTEL](#) and ACIS 7-day temperature anomaly shows a rather mild to downright warm conditions across much of the West. Record high temperatures were experienced across the Northern Sierra (Fig. 2). [ACIS](#) 7-day average temperature anomalies show the greatest positive temperature departures over northern Montana (**>+20°F**); 2nd week in a row, and the greatest negative departures over parts of western New Mexico (**<-10°F**). This pattern of warmth is not typical and if it persists will not help build snow cover (Fig. 2a).

Precipitation: [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows the greatest amounts over western Washington and Oregon (Fig. 3). However, in terms of percent of normal, the classical La Niña precipitation pattern emerges (Fig 3a). Thus far, since the start of the [2012 Water-Year](#) that began on 1 October 2011, the seasonal moisture has favored the Southwest while the Great Basin, Cascades, and Western Slope of the Rockies have seen significant deficits. However, marginal one category (bin) improvements are noted over much of the Northwest basins this week (Fig. 3b).

Weekly Weather Summary: For much of the nation, 2011 ended on a mild, dry note. An exception was the Northwest, where heavy precipitation and high winds occurred during the closing days of 2011.

The Southwest: The drought depiction remained virtually unchanged in the Southwest, as the return of dry weather followed a period of beneficial rain and snow.

California, the Intermountain West, and the Northwest: Precipitation totals topped 8 inches in some locations from the Oregon coast to the Cascades. Moisture spread as far inland as the northern Rockies, where 2- to 4-inch totals were common. The heavy precipitation prevented further expansion of abnormal dryness (D0) into the Northwest. In contrast, California's key watershed and agricultural areas received little or no precipitation. Reservoir storage was not yet a concern in California, but the state's rangeland and pastures continued to suffer from the combination of December freezes and a lack of moisture. According to the U.S. Department of Agriculture, California's "rangeland conditions had started to deteriorate due to lack of rains; wetter weather was needed to sustain current conditions." Furthermore, "supplemental feeding of livestock continued [in California]. Abnormal dryness (D0) and moderate drought (D1) were broadly expanded in northern and central California and much of Nevada. Numerous locations, including Salinas and Fresno, California, and Reno and Elko, Nevada, set December records for dryness. Not a single drop of precipitation fell in Eureka, Nevada, and Fresno during December for the first time since 1989. Reno experienced its first completely dry December since 1883.

Weekly Snowpack and Drought Monitor Update Report

Salt Lake City, Utah, received monthly precipitation totaling just 0.03 inch, breaking a December record established in 1976. Farther east, short-term dryness (D0) was introduced in part of northern Colorado, west of the Continental Divide. Author: Brad Rippey, U.S. Department of Agriculture.

A comprehensive narrative describing drought conditions for the nation can be found at the end of this document.

Drought Impacts Definitions

The possible impacts associated with **D4 (H, A)** drought include widespread crop/pasture losses and shortages of water in reservoirs, streams, and wells creating water emergencies. The possible impacts associated with **D3 (H, A)** drought include major crop/pasture losses and widespread water shortages or restrictions. Possible impacts from **D2 (H, A)** drought are focused on water shortages common and water restrictions imposed and crop or pasture losses likely. The possible impacts associated with **D1 (H, A)** drought are focused on water shortages developing in streams, reservoirs, or wells, and some damage to crops and pastures (Figs. 4 through 4b).

Soil Moisture

Soil moisture (Figs. 5a and 5b), is simulated by the [VIC macroscale hydrologic model](#). The detailed, physically-based VIC model is driven by observed daily precipitation and temperature maxima and minima from approximately 2130 stations, selected for reporting reliably in real-time and for having records of longer than 45 years (and various other criteria). Another good resource can be found at: <http://www.emc.ncep.noaa.gov/mmb/nldas/drought/>.

Soil Climate Analysis Network (SCAN)

Figure 6 provides supplemental data on soil conditions (moisture and temperatures at various depths from 2 inches to 80 inches. For more information about SCAN see ([brochure](#)).

U.S. Historical Streamflow

This map, (Fig. 7) shows the 7-day average streamflow conditions in hydrologic units of the United States and Puerto Rico for the day of year. The colors represent 7-day average streamflow percentiles based on historical streamflow for the day of the year. Thus, the map shows conditions adjusted for this time of the year. Only stations having at least 30 years of record are used. Sub-regions shaded gray indicate that insufficient data were available to compute a reliable 7-day average streamflow value. During winter months, this situation frequently arises due to ice effects. The data used to produce this map are provisional and have not been reviewed or edited. They may be subject to significant change.

State Activities

State government drought activities can be tracked at the following URL: <http://drought.unl.edu/mitigate/mitigate.htm>. NRCS SS/WSF State Office personnel are participating in state drought committee meetings and providing the committees and media with appropriate SS/WSF information - <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>. Additional information describing the products available from the Drought Monitor can be found at the following URL: <http://drought.unl.edu/dm/> and <http://www.drought.gov>.

Weekly Snowpack and Drought Monitor Update Report

For More Information

The National Water and Climate Center Homepage provide the latest available snowpack and water supply information. Please visit us at <http://www.wcc.nrcs.usda.gov>. This document is available from the following location on the NWCC homepage - <http://www.wcc.nrcs.usda.gov/water/drought/wdr.pl>. Reports from 2007 are available on-line while ones from 2001-2006 can be acquired upon 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

Acting Deputy Chief, Soil Survey and Resource Assessment

Weekly Snowpack and Drought Monitor Update Report

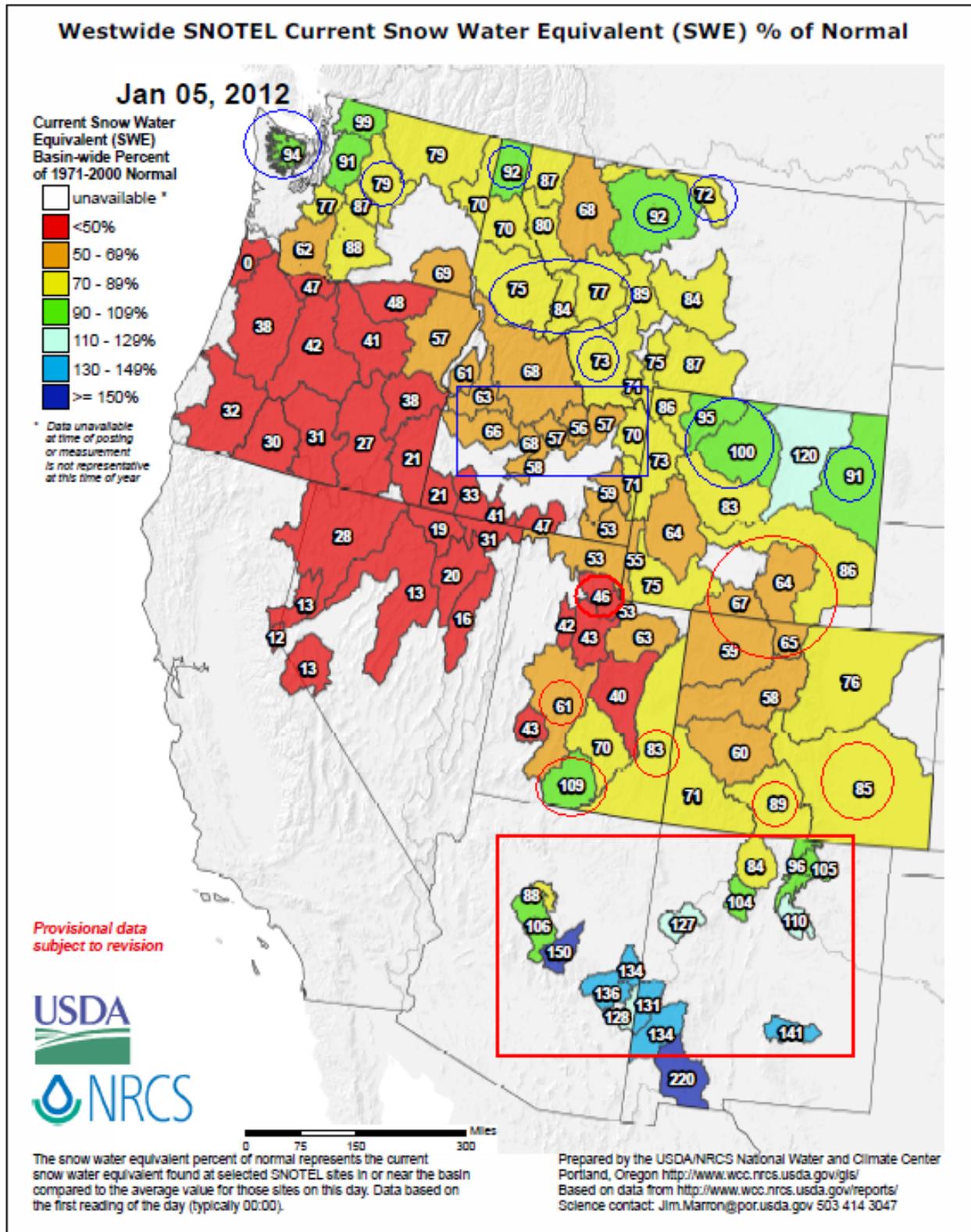


Fig. 1: **Snow Water-Equivalent**: Several basins in the Northern Tier States experienced a marginal one category (bin) improvement this week while many basins in the Southern Tier States experienced significant deterioration as denoted by blue and red highlights.

SNOTEL 7-Day Snow Depth Change (Inches)

Jan 05, 2012

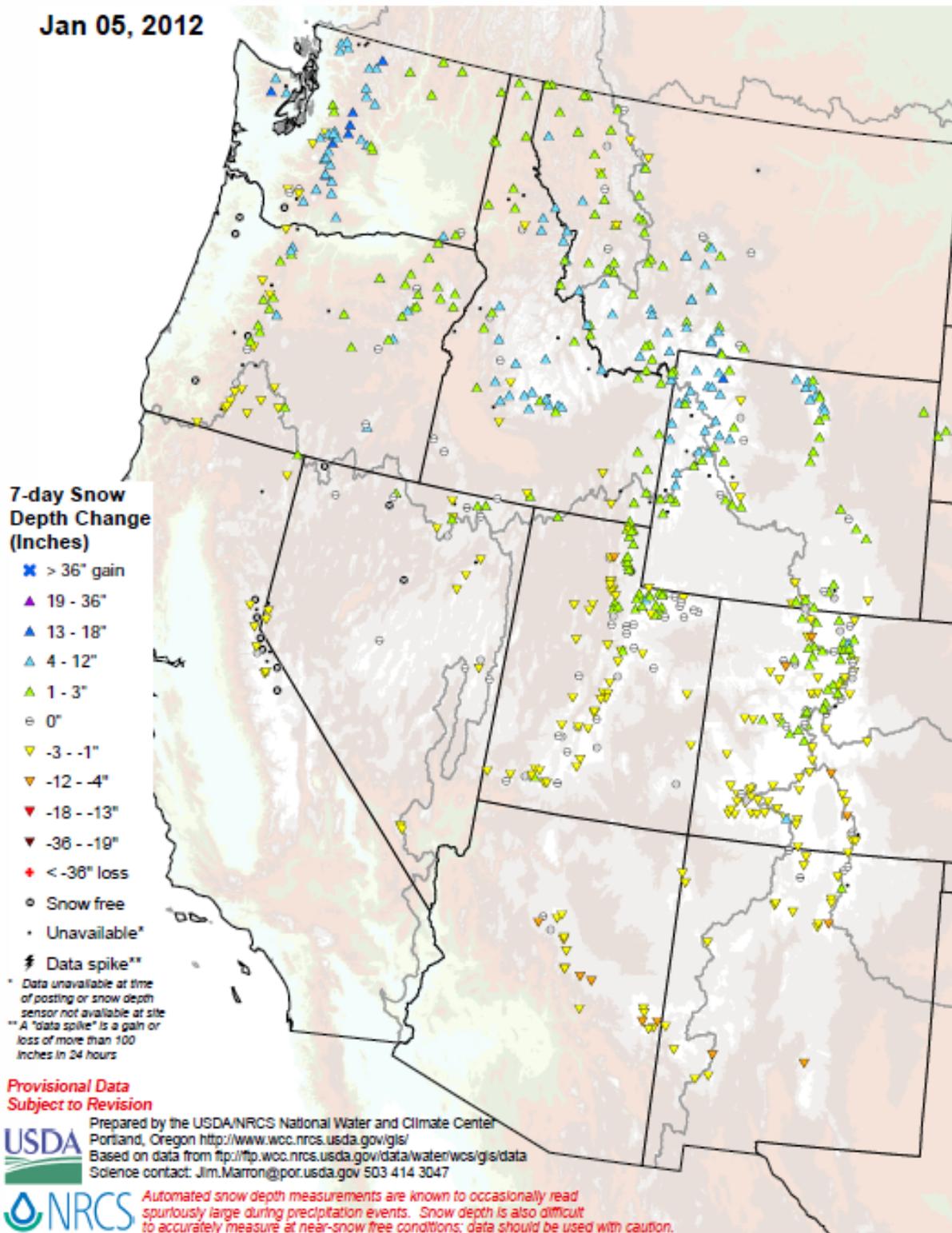


Fig. 1a: 7-Day Snow Depth Change ending this morning shows generally light accumulation over the northern half of the West and some loss of snow cover over the southern states.

Weekly Snowpack and Drought Monitor Update Report

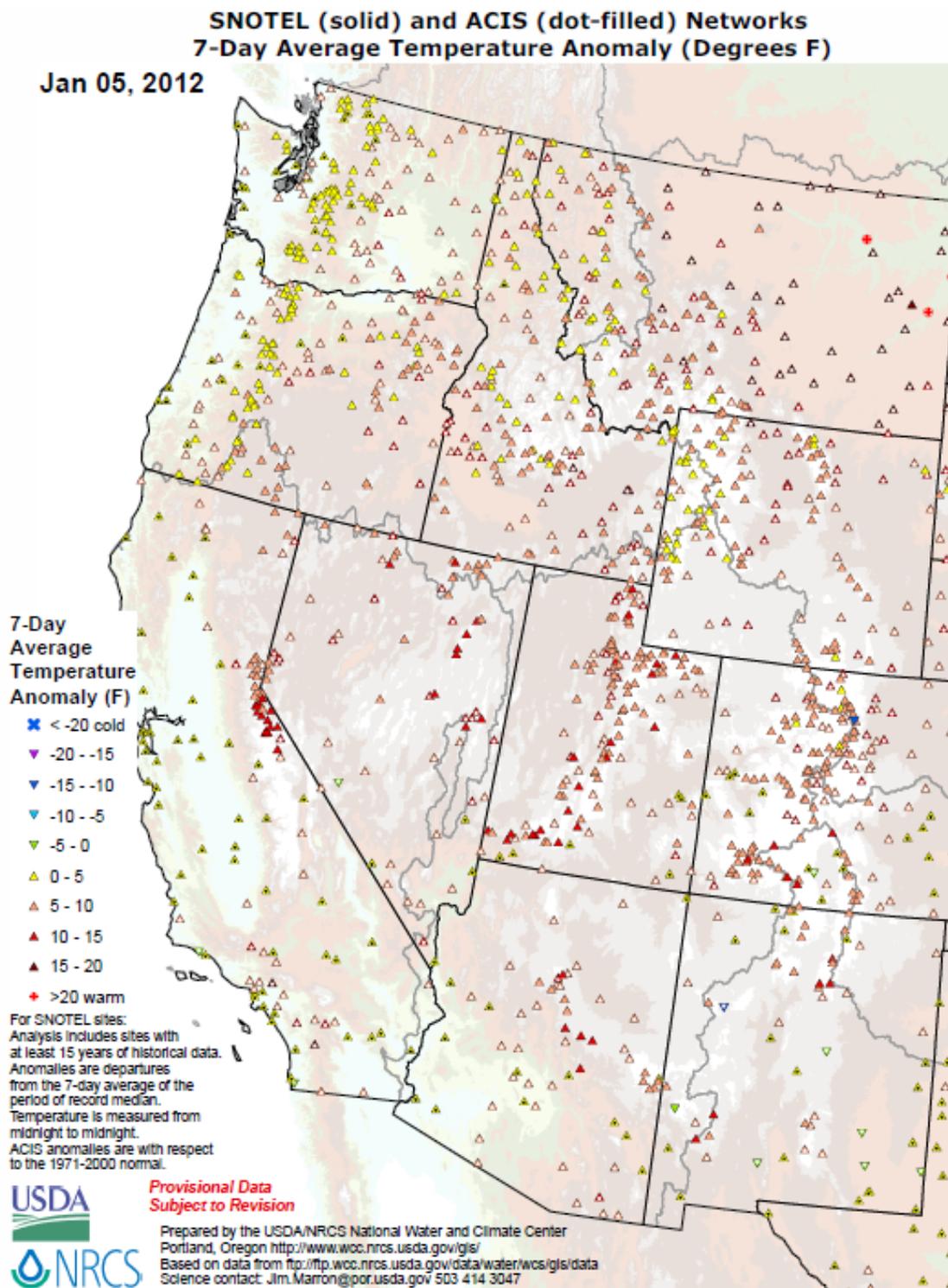
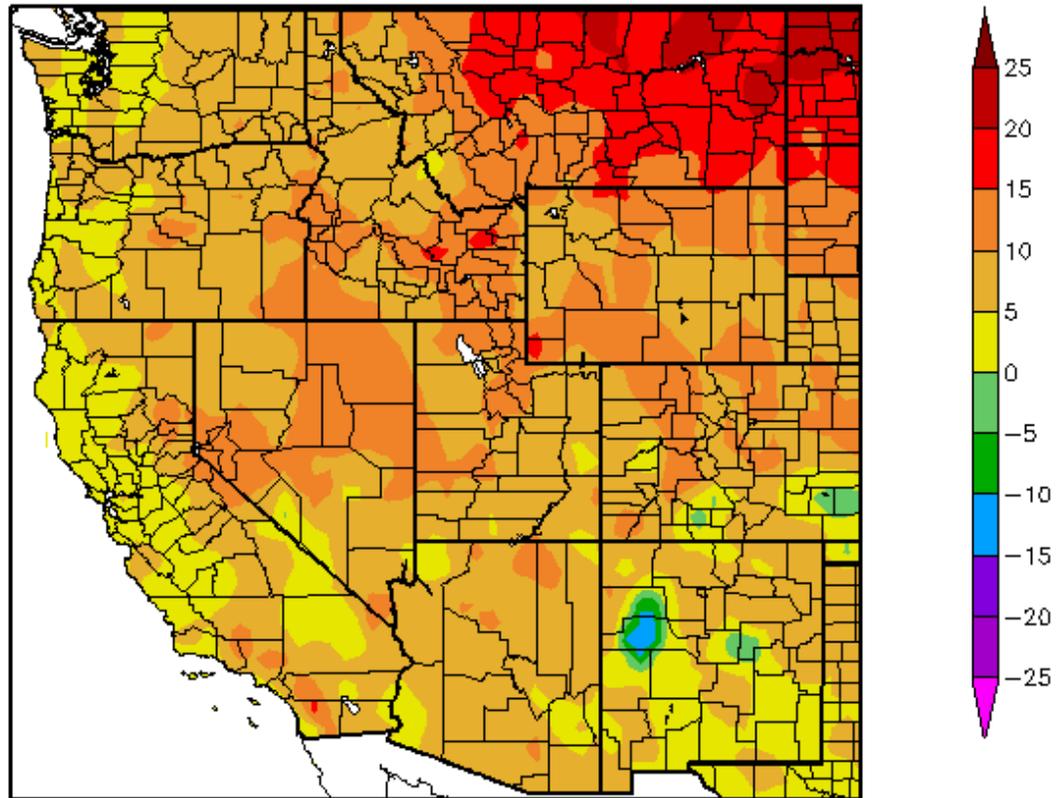


Fig. 2: [SNOTEL](#) and ACIS 7-day temperature anomaly shows a rather mild to downright warm conditions across much of the West. Record high temperatures were experienced across the Northern Sierra.

Departure from Normal Temperature (F)
12/29/2011 - 1/4/2012



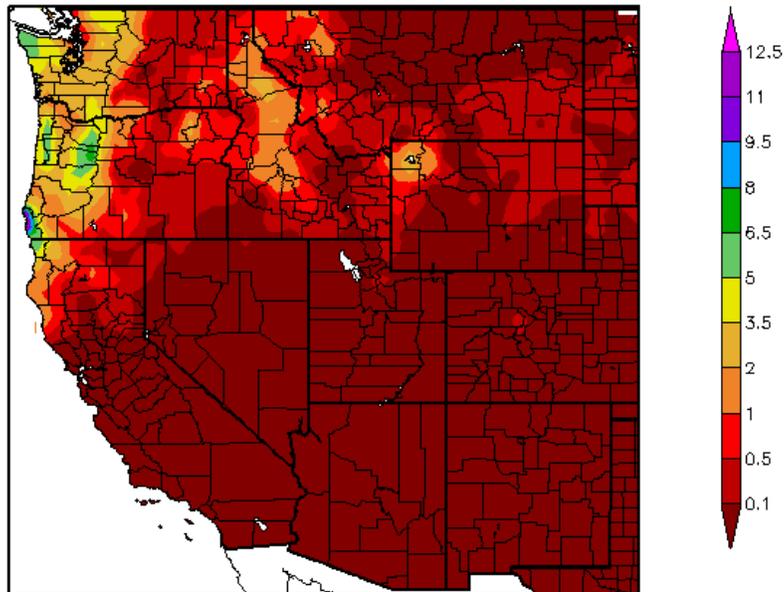
Generated 1/5/2012 at HPRCC using provisional data.

Regional Climate Centers

Fig. 2a: [ACIS](#) 7-day average temperature anomalies show the greatest positive temperature departures over northern Montana ($>+20^{\circ}\text{F}$); 2nd week in a row, and the greatest negative departures over parts of western New Mexico ($<-10^{\circ}\text{F}$). This pattern of warmth is not typical and if it persists will not help build snow cover.

Weekly Snowpack and Drought Monitor Update Report

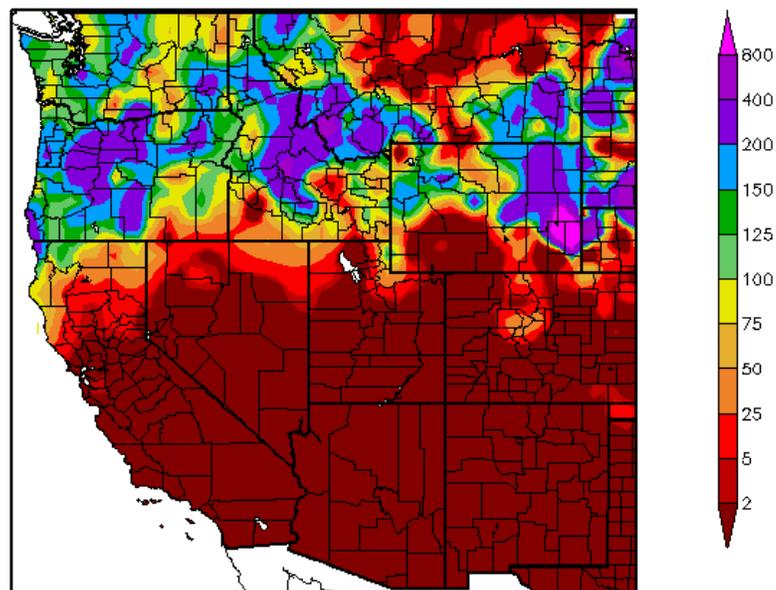
Precipitation (in)
12/29/2011 - 1/4/2012



Generated 1/5/2012 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)
12/29/2011 - 1/4/2012



Generated 1/5/2012 at HPRCC using provisional data.

Regional Climate Centers

Fig. 3 and 3a: [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows the greatest amounts over western Washington and Oregon (Fig. 3). However, in terms of percent of normal, the classical La Niña precipitation pattern emerges (Fig 3a).

Weekly Snowpack and Drought Monitor Update Report

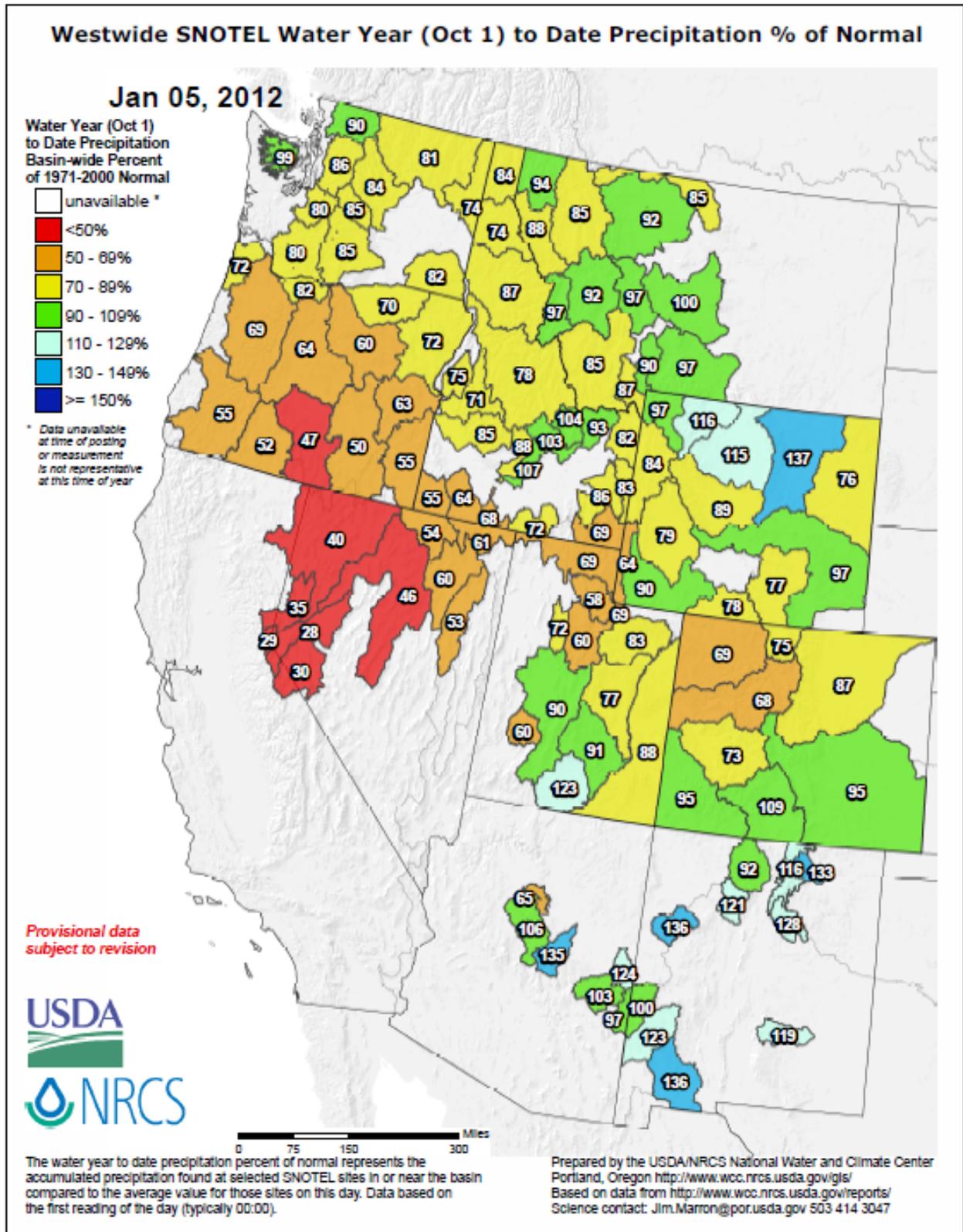


Fig 3b: Thus far, since the start of the [2012 Water-Year](#) that began on 1 October 2011, the seasonal moisture has favored the Southwest while the Great Basin, Cascades, and Western Slope of the Rockies have seen significant deficits. However, marginal one category (bin) improvements are noted over much of the Northwest basins this week.

U.S. Drought Monitor

January 3, 2012
Valid 7 a.m. EST

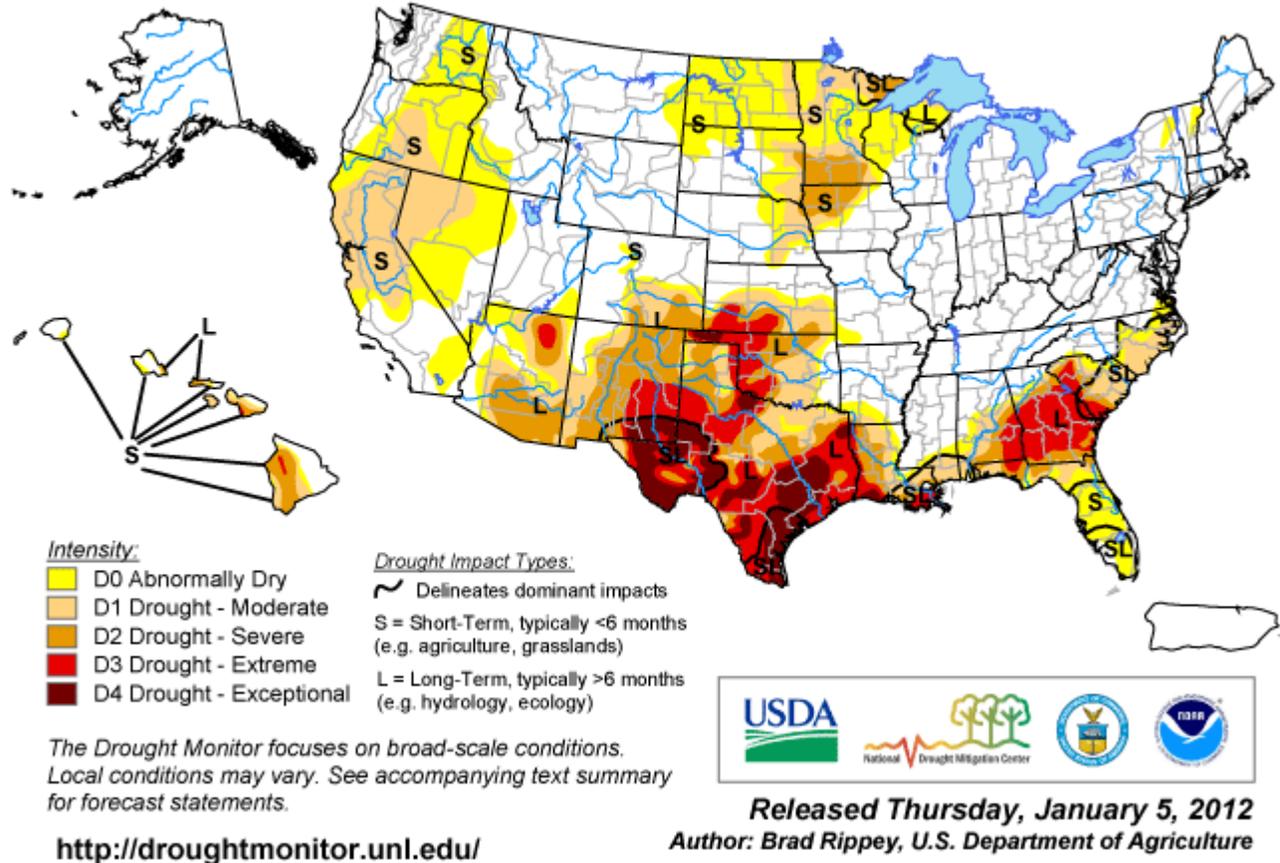


Fig. 4: Current [Drought Monitor](#) weekly summary. The exceptional D4 levels of drought are found over southeastern New Mexico, mostly southern Texas, the Panhandle of Oklahoma, and southwestern & northwestern Louisiana. For more drought news see: [Drought Impact Reporter](#).

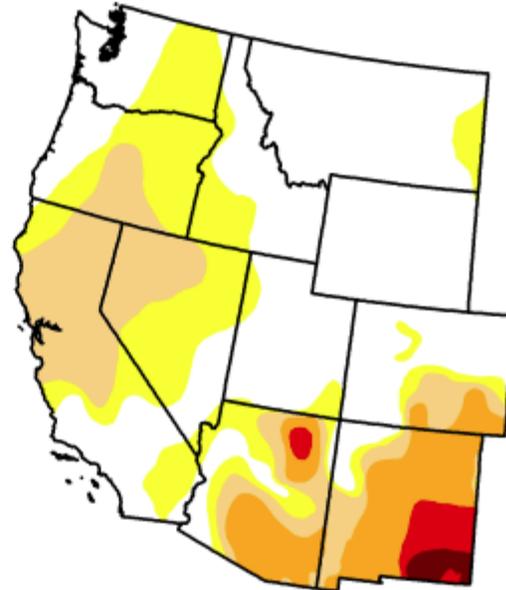
U.S. Drought Monitor

West

January 3, 2012
Valid 7 a.m. EST

Drought Conditions (Percent Area)

| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
|---|-------|-------|-------|-------|-------|------|
| Current | 50.20 | 49.80 | 28.05 | 11.84 | 2.67 | 0.78 |
| Last Week (12/27/2011 map) | 48.49 | 51.51 | 20.05 | 12.22 | 2.67 | 0.78 |
| 3 Months Ago (10/04/2011 map) | 66.39 | 33.61 | 19.04 | 14.99 | 9.30 | 3.90 |
| Start of Calendar Year (12/27/2011 map) | 48.49 | 51.51 | 20.05 | 12.22 | 2.67 | 0.78 |
| Start of Water Year (09/27/2011 map) | 66.72 | 33.28 | 19.04 | 14.99 | 9.30 | 3.81 |
| One Year Ago (12/28/2010 map) | 73.26 | 26.74 | 11.98 | 0.89 | 0.00 | 0.00 |



Intensity:

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

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



Released Thursday, January 5, 2012
Brad Rippey, U.S. Department of Agriculture

<http://droughtmonitor.unl.edu>

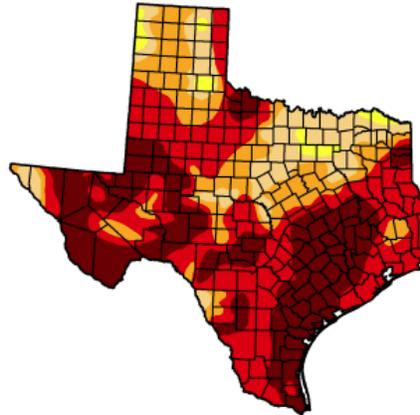
Fig. 4a: Drought Monitor for the [Western States](#) with statistics over various time periods. Regionally there was significant deterioration in D1 as the West continues to dry out this week. **With a ridge of high pressure expected to establish over the West in the coming weeks, continued drying is anticipated.**

Weekly Snowpack and Drought Monitor Update Report

U.S. Drought Monitor
Texas

January 3, 2012
Valid 7 a.m. EST

| | Drought Conditions (Percent Area) | | | | | |
|---|-----------------------------------|--------|--------|-------|-------|-------|
| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
| Current | 0.01 | 99.99 | 97.83 | 84.81 | 67.32 | 32.40 |
| Last Week (12/27/2011 map) | 0.01 | 99.99 | 97.83 | 84.81 | 67.32 | 32.36 |
| 3 Months Ago (10/04/2011 map) | 0.00 | 100.00 | 100.00 | 99.16 | 96.99 | 87.99 |
| Start of Calendar Year (12/27/2011 map) | 0.01 | 99.99 | 97.83 | 84.81 | 67.32 | 32.36 |
| Start of Water Year (09/27/2011 map) | 0.00 | 100.00 | 100.00 | 99.16 | 96.65 | 85.75 |
| One Year Ago (12/28/2010 map) | 7.89 | 92.11 | 69.43 | 37.46 | 9.59 | 0.00 |

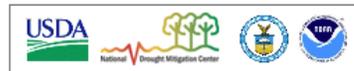


Intensity:

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

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<http://droughtmonitor.unl.edu>



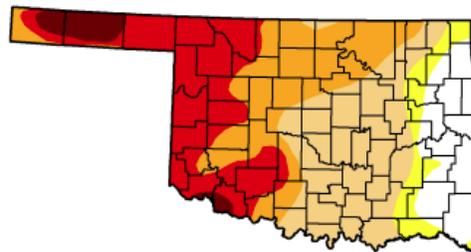
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Fig. 4b(1): Currently, ~32% of [Texas](#) is experiencing “Exceptional” D4 drought. 67% of the state is in D3 and D4 drought! Overall, this represents no change this week.

U.S. Drought Monitor
Oklahoma

January 3, 2012
Valid 7 a.m. EST

| | Drought Conditions (Percent Area) | | | | | |
|---|-----------------------------------|--------|--------|--------|-------|-------|
| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
| Current | 14.83 | 85.17 | 78.76 | 50.55 | 27.48 | 3.78 |
| Last Week (12/27/2011 map) | 14.83 | 85.17 | 78.76 | 50.55 | 27.48 | 3.33 |
| 3 Months Ago (10/04/2011 map) | 0.00 | 100.00 | 100.00 | 100.00 | 78.97 | 69.82 |
| Start of Calendar Year (12/27/2011 map) | 14.83 | 85.17 | 78.76 | 50.55 | 27.48 | 3.33 |
| Start of Water Year (09/27/2011 map) | 0.00 | 100.00 | 100.00 | 100.00 | 78.97 | 66.42 |
| One Year Ago (12/28/2010 map) | 13.82 | 86.18 | 47.90 | 1.50 | 0.00 | 0.00 |



Intensity:

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

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<http://droughtmonitor.unl.edu>



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Fig. 4b(2): Currently, over ~4% of [Oklahoma](#) is experiencing “Exceptional” D4 drought. Over 27% of the state is in D3 and D4 drought! This week saw no change.

Weekly Snowpack and Drought Monitor Update Report

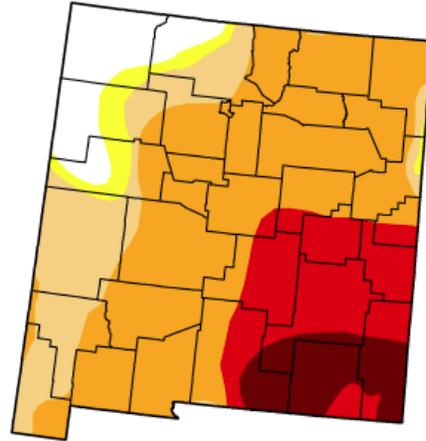
U.S. Drought Monitor
New Mexico

January 3, 2012
Valid 7 a.m. EST

| | Drought Conditions (Percent Area) | | | | | |
|---|-----------------------------------|--------|-------|-------|-------|-------|
| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
| Current | 8.63 | 91.37 | 87.60 | 72.13 | 23.37 | 7.57 |
| Last Week (12/27/2011 map) | 8.63 | 91.37 | 87.60 | 72.15 | 23.37 | 7.57 |
| 3 Months Ago (10/04/2011 map) | 0.00 | 100.00 | 96.40 | 88.99 | 69.61 | 36.04 |
| Start of Calendar Year (12/27/2011 map) | 8.63 | 91.37 | 87.60 | 72.15 | 23.37 | 7.57 |
| Start of Water Year (09/27/2011 map) | 0.00 | 100.00 | 96.40 | 88.99 | 69.61 | 35.13 |
| One Year Ago (12/28/2010 map) | 6.16 | 93.84 | 40.40 | 0.00 | 0.00 | 0.00 |

Intensity:

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



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

<http://droughtmonitor.unl.edu>



Released Thursday, January 5, 2012
Brad Rippey, U.S. Department of Agriculture

Fig. 4b(3): Currently, ~7% of [New Mexico](#) is experiencing “Exceptional” D4 drought. 23% of the state is in D3 and D4 drought. Overall, this represents no change this week.

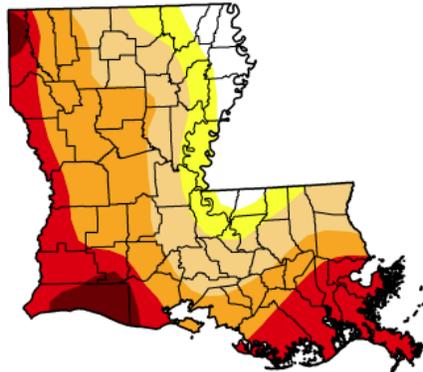
U.S. Drought Monitor
Louisiana

January 3, 2012
Valid 7 a.m. EST

| | Drought Conditions (Percent Area) | | | | | |
|---|-----------------------------------|--------|-------|-------|-------|-------|
| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
| Current | 5.57 | 94.43 | 83.40 | 58.92 | 26.55 | 4.10 |
| Last Week (12/27/2011 map) | 5.57 | 94.43 | 83.40 | 57.47 | 15.98 | 4.10 |
| 3 Months Ago (10/04/2011 map) | 43.13 | 56.87 | 44.57 | 34.46 | 27.36 | 16.60 |
| Start of Calendar Year (12/27/2011 map) | 5.57 | 94.43 | 83.40 | 57.47 | 15.98 | 4.10 |
| Start of Water Year (09/27/2011 map) | 45.37 | 54.63 | 44.43 | 35.94 | 27.14 | 16.37 |
| One Year Ago (12/28/2010 map) | 0.00 | 100.00 | 87.22 | 59.72 | 40.99 | 0.00 |

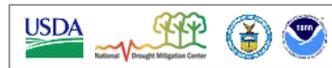
Intensity:

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



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

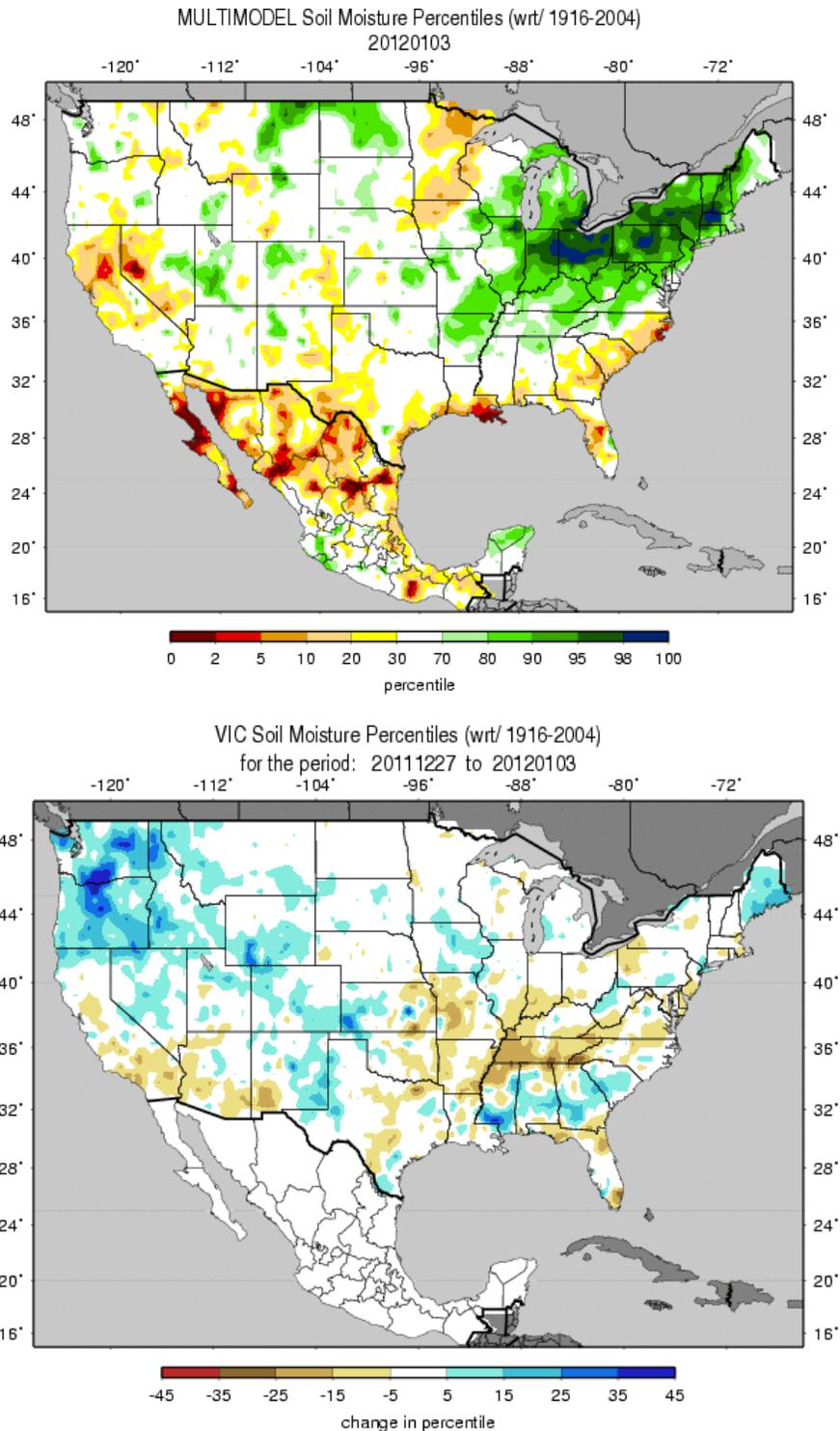
<http://droughtmonitor.unl.edu>



Released Thursday, January 5, 2012
Brad Rippey, U.S. Department of Agriculture

Fig. 4b(4): Currently, 4% of [Louisiana](#) is experiencing “Exceptional” D4 drought. Over 26% of the state is in D3 and D4 drought. Overall, this represents 10% deterioration in D3 the week.

Weekly Snowpack and Drought Monitor Update Report



Figs. 5a and 5b: Soil Moisture ranking in [percentile](#) as of 3 January (top) shows a wet Ohio Valley to New England pattern continuing. Dryness is noted northern California and western Nevada. [During the week](#), moisture increased over the Pacific Northwest (bottom). Drying is noted over Tennessee and northern Mississippi. Note: Soil moisture measurements become more suspect in winter with frozen ground.

Weekly Snowpack and Drought Monitor Update Report

Soil Climate Analysis Network (SCAN)

Station (2034) MONTH=2011-12-06 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision
Thu Jan 05 08:31:26 PST 2012

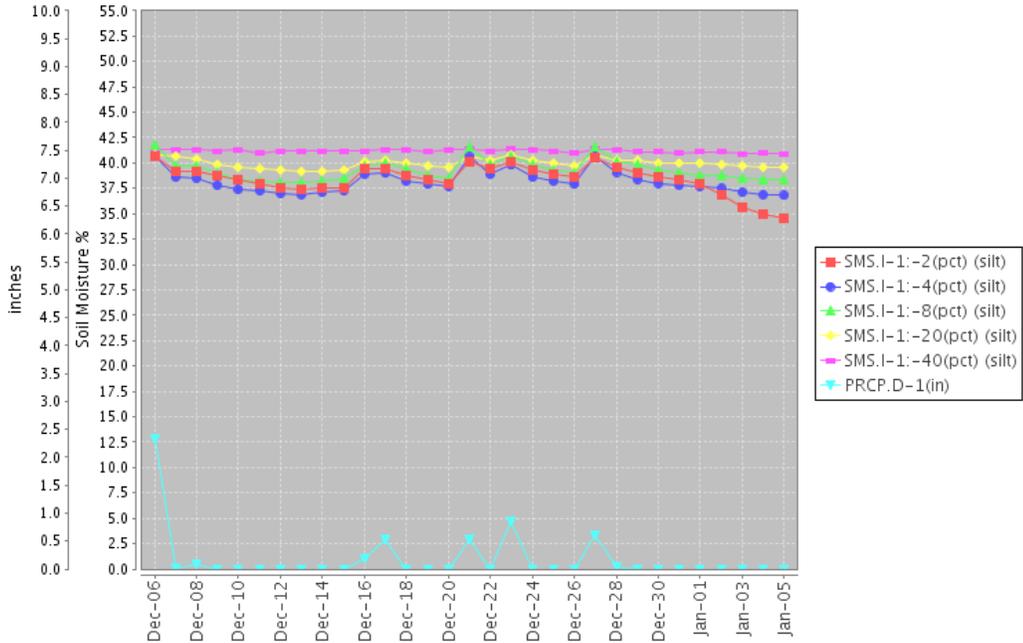


Fig. 6a: This NRCS resource shows a site over [northwestern Mississippi](#) moist conditions with a slow drying trend.

Station (2021) MONTH=2011-12-06 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision
Thu Jan 05 08:33:21 PST 2012

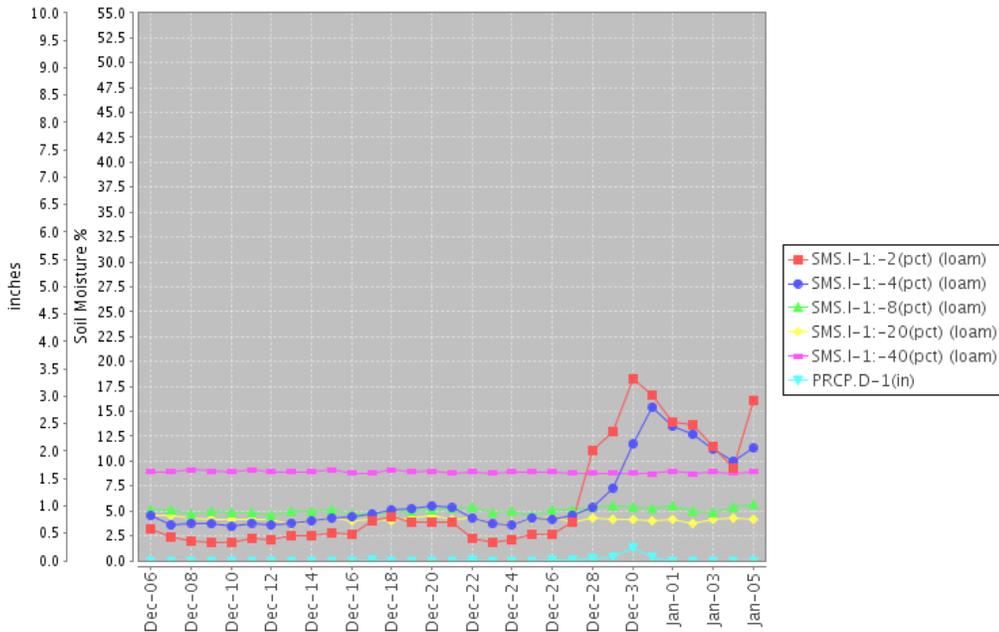


Fig. 6b: This SCAN station is located in [southeast Washington](#) shows increasing moisture near the surface.

Weekly Snowpack and Drought Monitor Update Report

Wednesday, January 04, 2012

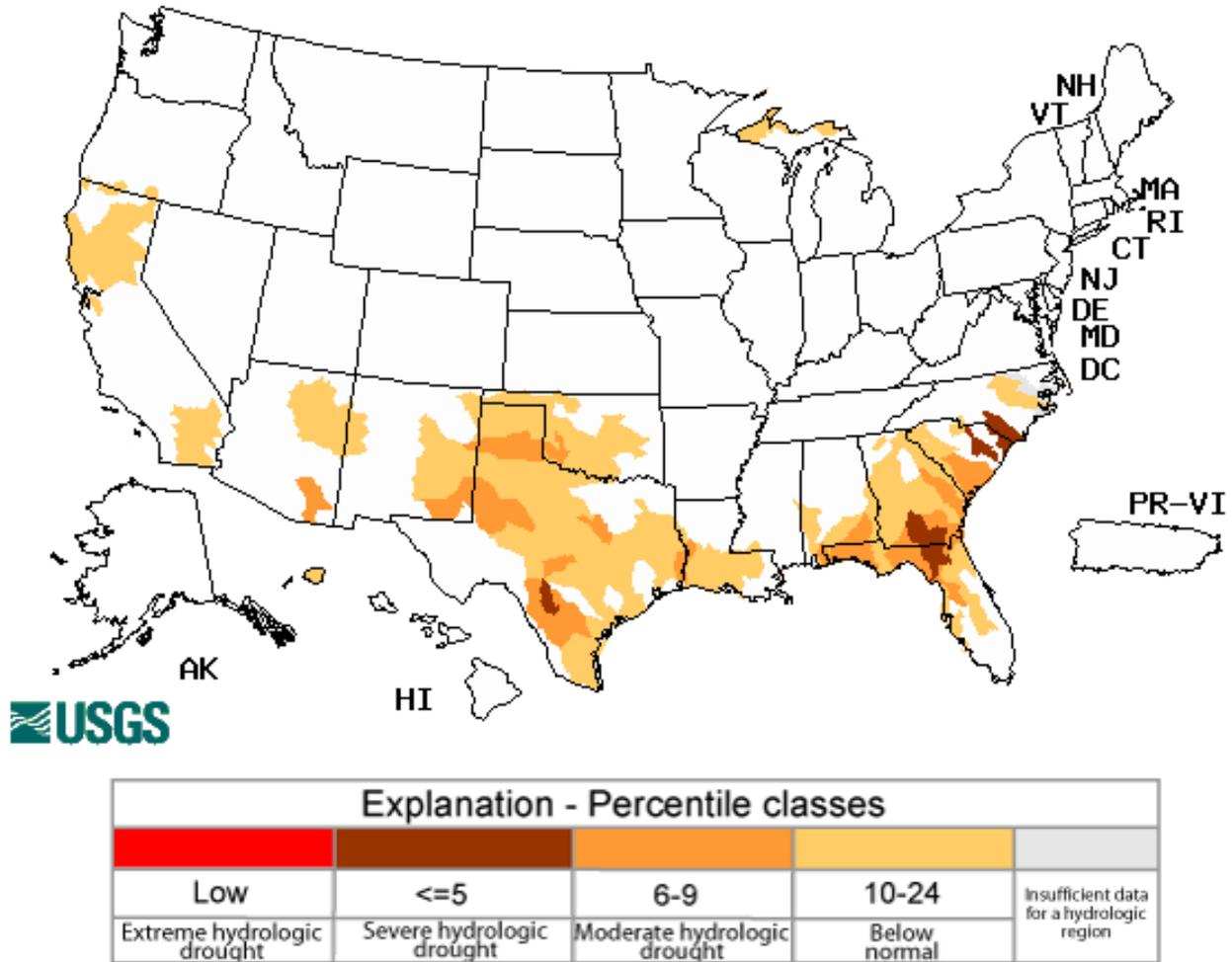


Fig. 7: Map of below normal 7-day average [streamflow](#) compared to historical streamflow for the day of year. Severe conditions exist over the Florida Panhandle, South and North Carolina, and southern Georgia.

Weekly Snowpack and Drought Monitor Update Report

National Drought Summary -- January 3, 2012

The discussion in the Looking Ahead section is simply a description of what the official national guidance from the National Weather Service (NWS) National Centers for Environmental Prediction is depicting for current areas of dryness and drought. The NWS forecast products utilized include the HPC 5-day QPF and 5-day Mean Temperature progs, the 6-10 Day Outlooks of Temperature and Precipitation Probability, and the 8-14 Day Outlooks of Temperature and Precipitation Probability, valid as of late Wednesday afternoon of the USDM release week. The NWS forecast web page used for this section is: <http://www.cpc.ncep.noaa.gov/products/forecasts/>.

Weekly Weather Summary: For much of the nation, 2011 ended on a mild, dry note. An exception was the Northwest, where heavy precipitation and high winds occurred during the closing days of 2011. The early days of the New Year featured additional mild, dry weather in many areas, although sharply colder air invaded the Great Lakes and Eastern States.

The Southeast: Dry weather returned at the end of 2011, followed by a wintry blast early in the New Year. Significant precipitation continued to bypass the central Gulf Coast region, where some extreme drought (D3) was introduced, and the southern Atlantic region, where abnormal dryness (D0) and moderate drought (D1) was expanded slightly. Peninsular Florida's first significant freeze of the season struck on the night of January 3-4, aggravating the effects of short-term dryness for some types of vegetation. Moderate drought crept northward in eastern North Carolina, while short-term dryness developed as far north as the Delmarva Peninsula.

Southern and Central Plains: Mild, dry weather on the Plains melted any remaining snow cover. In fact, a winter "heat wave" arrived on New Year's Eve across the central and southern Plains, where record highs for December 31 included 83°F in Childress, Texas, and 66°F in Topeka, Kansas. Following a relatively wet finish to 2011, the return of warm, dry weather to the nation's southern tier could be suggestive of an increasingly La Niña-driven atmospheric regime. If true, a return to dryness would not be favorable for the south-central U.S., where long-term drought retains a grip. For example, 80% of the rangeland and pastures in Texas remain in very poor to poor condition, according to an early-January report by the U.S. Department of Agriculture.

Northern Plains and Midwest: Unseasonably mild weather continued into the New Year. Enough precipitation fell in some areas to stave off further expansion of drought, but more abnormal dryness (D0) was introduced in western North Dakota. High temperatures remained at record-setting levels in the north-central U.S., with Bismarck, North Dakota (55°F on January 3), among a large number of stations reporting daily-record highs in early 2012.

The Southwest: The drought depiction remained virtually unchanged in the Southwest, as the return of dry weather followed a period of beneficial rain and snow.

California, the Intermountain West, and the Northwest: Precipitation totals topped 8 inches in some locations from the Oregon coast to the Cascades. Moisture spread as far inland as the northern Rockies, where 2- to 4-inch totals were common. The heavy precipitation prevented further expansion of abnormal dryness (D0) into the Northwest. In contrast, California's key watershed and agricultural areas received little or no precipitation. Reservoir storage was not yet a concern in California, but the state's rangeland and pastures continued to suffer from the

Weekly Snowpack and Drought Monitor Update Report

combination of December freezes and a lack of moisture. According to the U.S. Department of Agriculture, California's "rangeland conditions had started to deteriorate due to lack of rains; wetter weather was needed to sustain current conditions." Furthermore, "supplemental feeding of livestock continued [in California]. Abnormal dryness (D0) and moderate drought (D1) were broadly expanded in northern and central California and much of Nevada. Numerous locations, including Salinas and Fresno, California, and Reno and Elko, Nevada, set December records for dryness. Not a single drop of precipitation fell in Eureka, Nevada, and Fresno during December for the first time since 1989. Reno experienced its first completely dry December since 1883. Salt Lake City, Utah, received monthly precipitation totaling just 0.03 inch, breaking a December record established in 1976. Farther east, short-term dryness (D0) was introduced in part of northern Colorado, west of the Continental Divide.

Hawaii: Quiet weather returned by the end of 2011, following a relatively wet December. As a result, no changes were introduced. On the Big Island, Hilo's December rainfall totaled 20.26 inches (175% of normal).

Looking Ahead: During the next 5 days (January 5-9), warmth expanding eastward from the western and central U.S. will gradually displace cold air in the East. Some light precipitation will fall across the Southeast and from the Great Lakes region into northern New England. Elsewhere, significant precipitation will be limited to the Pacific Northwest and the northern Rockies. Some light precipitation may occur toward the end of the period in the Great Basin and the Southwest.

The CPC 6- to 10-day outlook for January 10-14 calls for near- to above-normal temperatures across the contiguous U.S., except for cooler-than-normal conditions in the southern Atlantic region. Meanwhile, below-normal precipitation from California to the central and southern Plains will contrast with wetter-than-normal weather in parts of the Southeast and across the nation's northern tier.

Author: [Brad Rippey, U.S. Department of Agriculture](#)

Dryness Categories

D0 ... Abnormally Dry ... used for areas showing dryness but not yet in drought, or for areas recovering from drought.

Drought Intensity Categories

D1 ... Moderate Drought

D2 ... Severe Drought

D3 ... Extreme Drought

D4 ... Exceptional Drought

Drought or Dryness Types

S ... Short-Term, typically <6 months (e.g. agricultural, grasslands)

L ... Long-Term, typically >6 months (e.g. hydrology, ecology)

Updated January 4, 2012

Weekly Snowpack and Drought Monitor Update Report