



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

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## Weekly Report - Snowpack / Drought Monitor Update

Date: 1 December 2011

### SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

**Snow:** [Snow Water-Equivalent](#) After a rather active La Niña precipitation period last week over the Pacific NW, high pressure off the Pacific Coast has resulted in a decrease in total SWE this week. An upper level low and surface high producing upslope over the 4-Corners area is expected to bump up the SWE over the Southwest today and tomorrow (Fig. 1). [7-Day Snow Depth Change](#) ending this morning shows 1 foot increase in snowpack over Northern Rockies and lesser amounts elsewhere. Exceptions (small losses) are noted over the Sierra and Northern Wasatch (Fig. 1a).

**Temperature:** [SNOTEL](#) and ACIS 7-day temperature anomaly shows temperatures considerably warmer than normal over much of the West although the Cascades had nearer to normal temperatures. [ACIS](#) 7-day average temperature anomalies show the greatest positive temperature departures over parts of the Northern High Plains of Montana (>+15°F) and the greatest negative departures over northwest Washington and the Center Valley of California (<-2°F).

**Precipitation:** [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows the greatest totals over the Coastal Mountains and Cascades of Washington (Fig. 3). However, in terms of percent of normal, northern Montana and southwestern and northeast New Mexico experienced abundant moisture (Fig 3a). With the start of the [2012 Water-Year](#) that began on 1 October 2011, shows an early season snow pattern that favors the northernmost Tier States. The red circled areas reflect a decreasing moisture trend since last week (Fig. 3b).

**Weekly Weather Summary:** With cooler temperatures and greatly reduced evapotranspiration, this is normally the time of the year when precipitation greatly aids with the recharging of soil moisture and hydrologic conditions (as long as the ground or streams are not frozen). As the week commenced, a storm system in the middle Mississippi Valley quickly tracked northeastward off the New England Coast, but not before bringing light to moderate precipitation to the eastern third of the nation. Farther west, a strong storm system brought moderate to heavy precipitation to the Pacific Northwest. By the weekend, the western system had rapidly traversed to the Mississippi Valley but then stalled as a large dome of high pressure was entrenched over the East. As the period ended, the stalled system, now with an intense area of low pressure, slowly tracked northward from the South toward the eastern Great Lakes region, dumping widespread moderate to heavy precipitation on much of the eastern third of the U.S. Between the two storm systems, many stations from southeastern Texas to the Florida Panhandle and northward to the eastern Great Lakes region reported 2 or more inches of precipitation for the week. In contrast, it was mostly dry from southern California and the Great Basin northeastward into the northern Plains and upper Midwest. Temperatures averaged above to well above normal for most of the lower 48 States. In Hawaii, light to moderate showers were limited to the windward sides.

**The Southwest:** While most of the region saw little or no precipitation, a small band of moderate precipitation (0.5 to 1.5 inches) fell on extreme southeastern Arizona northeastward

## Weekly Snowpack and Drought Monitor Update Report

into south-central New Mexico. Consequently, most of the D4 area in southwestern New Mexico was improved to D3, with only a small portion left as D4 where the rains missed. In south-central New Mexico, the D4 line was pulled eastward in Lincoln County (0.2 to 0.7 inches) to focus the extreme drought on the NM southeast plains instead of the south-central mountains where conditions are a bit better. In extreme southeastern Colorado (Baca County), D4 was slightly trimmed away in response to recent rains (about 0.5 inches). Although no degradation was made this week, concerns remained in the Southwest due to long-term precipitation deficiencies accumulated during past critical seasons (winter/spring and most of the summer monsoon).

**The Northwest:** Although heavy precipitation (2 to 6 inches, locally to 12 inches) drenched the Pacific Northwest coastal areas (from northern California northward) and the northern Rockies in northern Idaho and northwestern Montana (2 to 4 inches), interior Northwest areas saw much less, including sections of east-central Washington and eastern Oregon where little or no precipitation occurred. Accordingly, D0 was expanded southward into Adams County of interior Washington. Although the winter wheat crop is mostly good, soil moisture is in short supply and precipitation will be needed soon. Farther south in Oregon, the D0 was extended into northwestern Nevada as short-term (30-, 60-, and 90-days) and long-term (180-days) conditions were similar. In contrast, however, some parts of the two D0 areas (northeastern Washington and southwestern Oregon) measured 1 to 2 inches, and D0 was trimmed there. Author: David Miskus, NOAA/NWS/NCEP/Climate Prediction Center

***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

## Weekly Snowpack and Drought Monitor Update Report

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/cqibin/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>.

### 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/

Douglas Lawrence  
Deputy Chief, Soil Survey and Resource Assessment

Weekly Snowpack and Drought Monitor Update Report

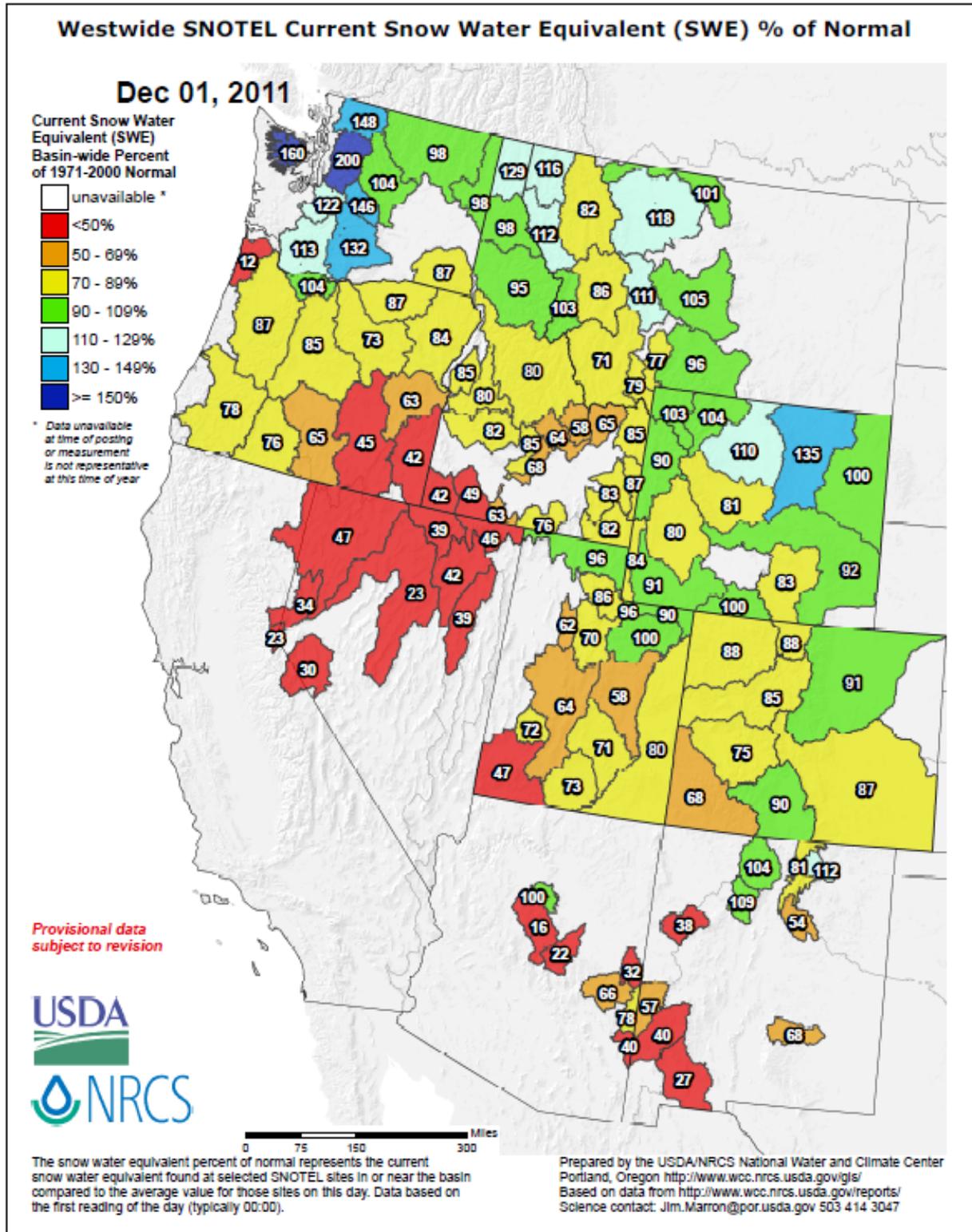


Fig. 1: Snow Water-Equivalent After a rather active La Niña precipitation period last week over the Pacific NW, high pressure off the Pacific Coast has resulted in a decrease in total SWE this week. An upper level low and surface high producing upslope over the 4-Corners area is expected to bump up the SWE over the Southwest today and tomorrow.

# Weekly Snowpack and Drought Monitor Update Report

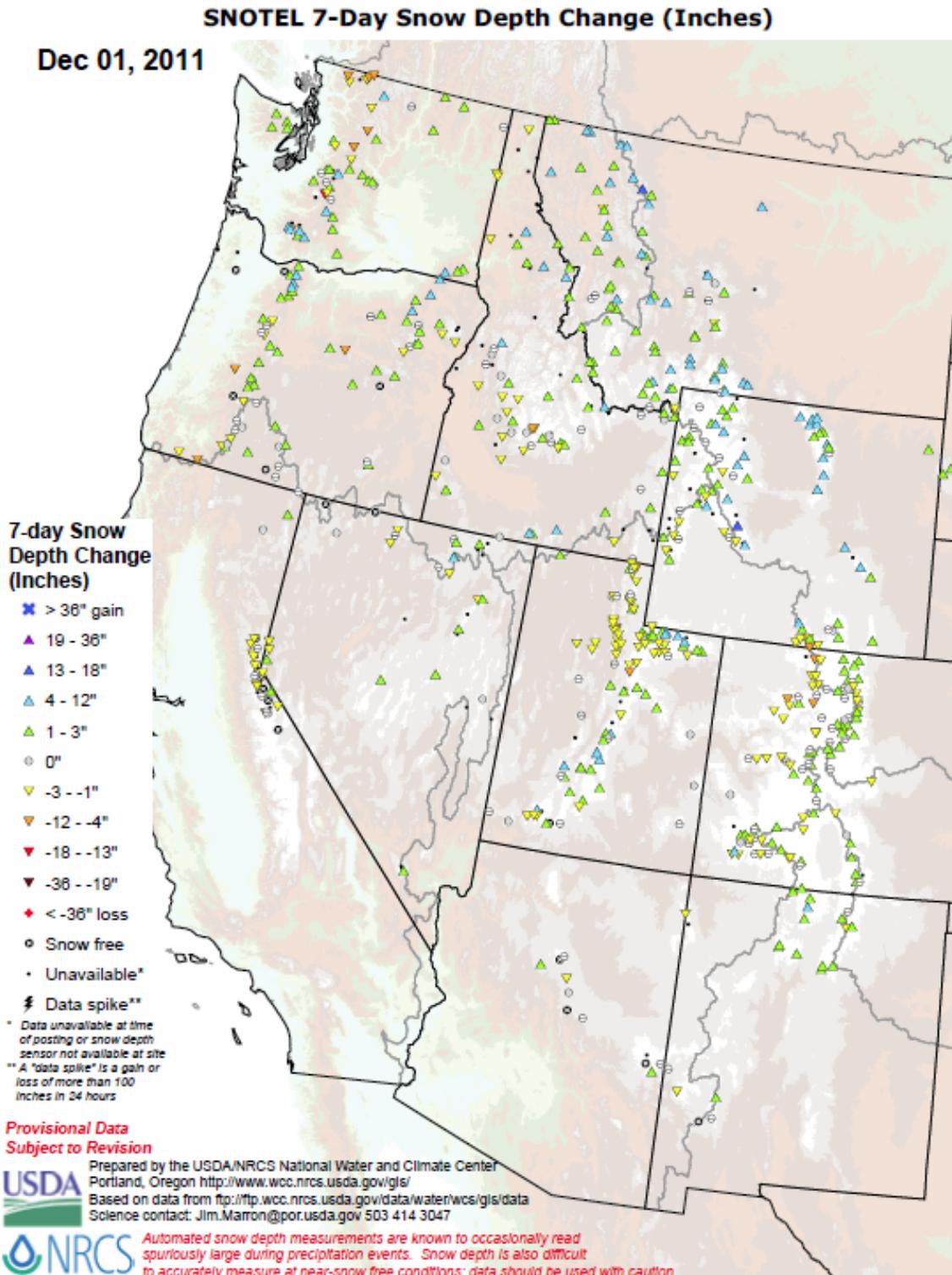


Fig. 1a: [7-Day Snow Depth Change](#) ending this morning shows 1 foot increase in snowpack over Northern Rockies and lesser amounts elsewhere. Exceptions (small losses) are noted over the Sierra and Northern Wasatch.

# Weekly Snowpack and Drought Monitor Update Report

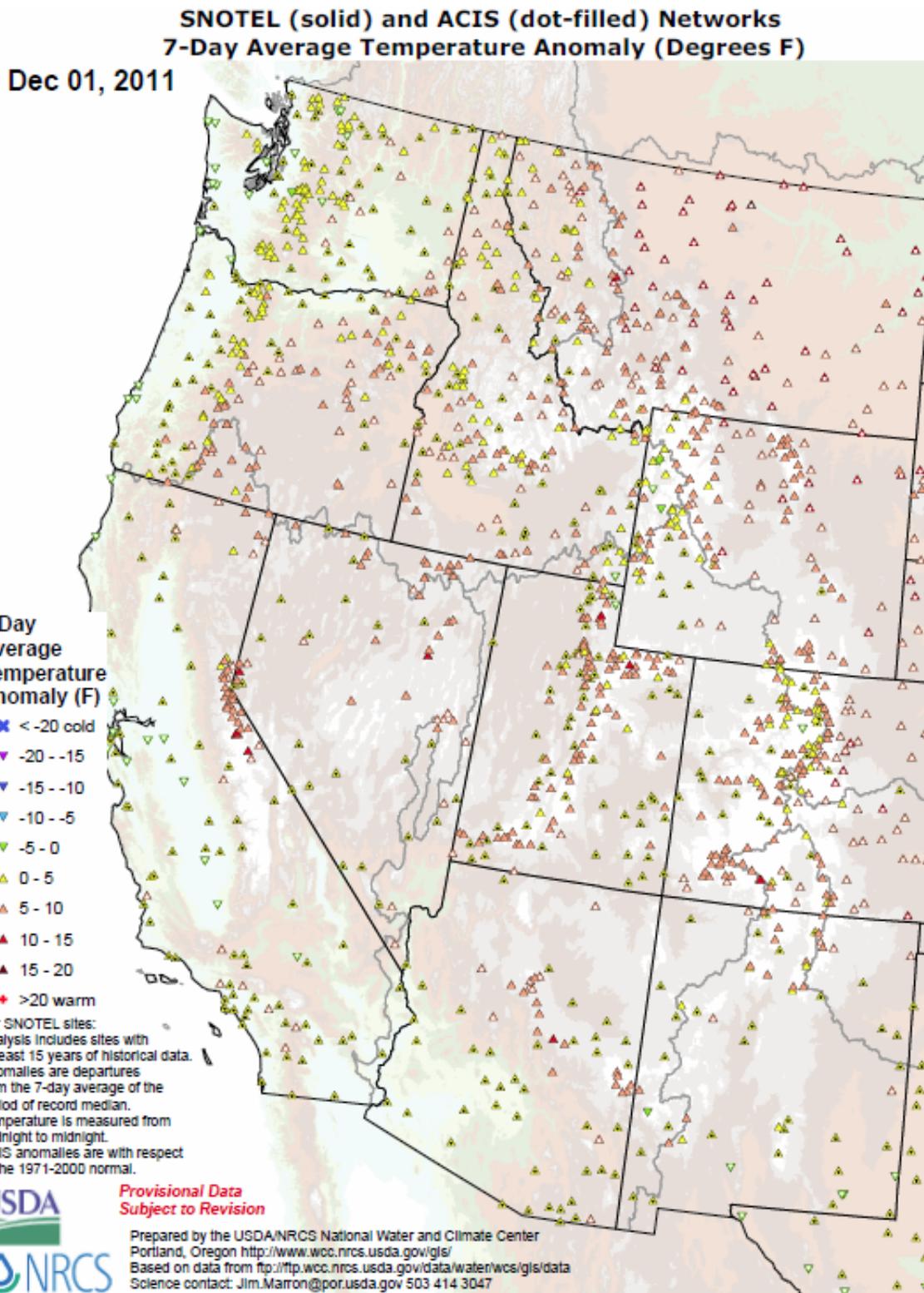
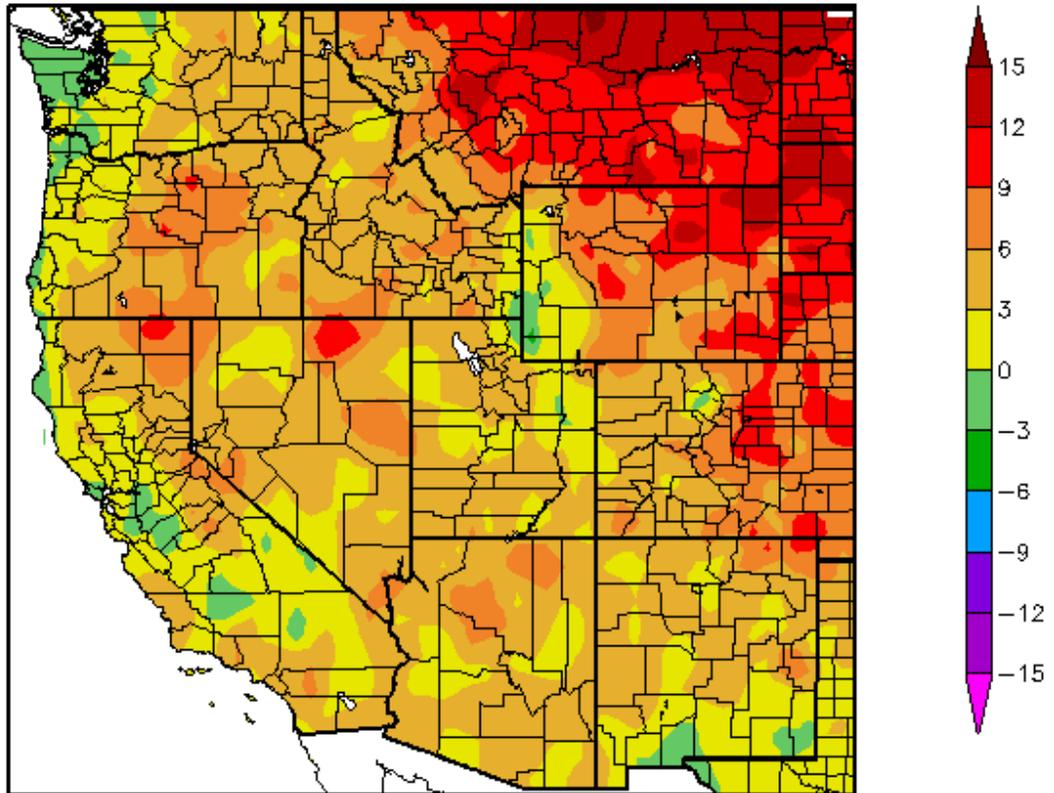


Fig. 2: **SNOTEL** and ACIS 7-day temperature anomaly shows temperatures considerably warmer than normal over much of the West. The Cascades had nearer normal temperatures for the week.

Weekly Snowpack and Drought Monitor Update Report

Departure from Normal Temperature (F)  
11/24/2011 – 11/30/2011



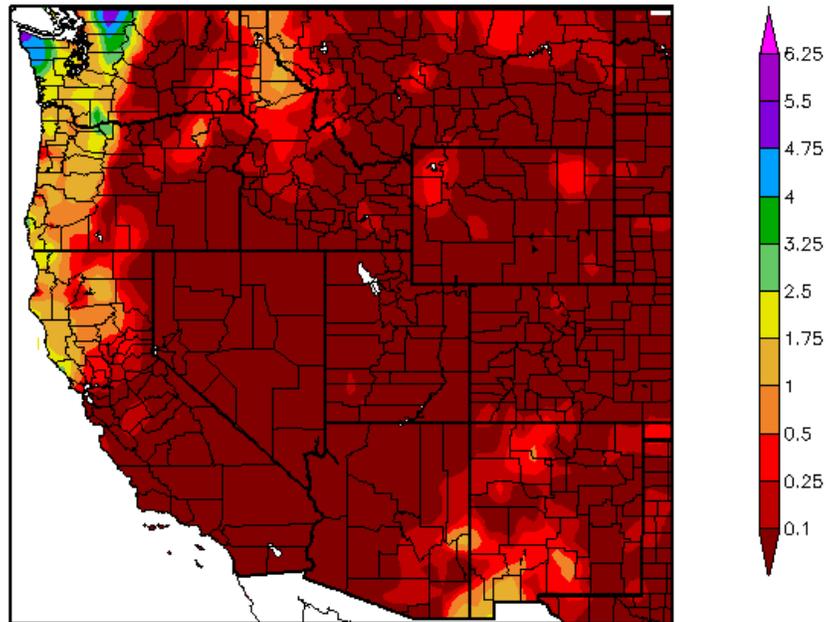
Generated 12/1/2011 at HPRCC using provisional data.

Regional Climate Centers

**Fig. 2a:** [ACIS](#) 7-day average temperature anomalies show the greatest positive temperature departures over parts of the Northern High Plains of Montana (>+15°F) and the greatest negative departures over northwest Washington and the Center Valley of California (<-2°F).

## Weekly Snowpack and Drought Monitor Update Report

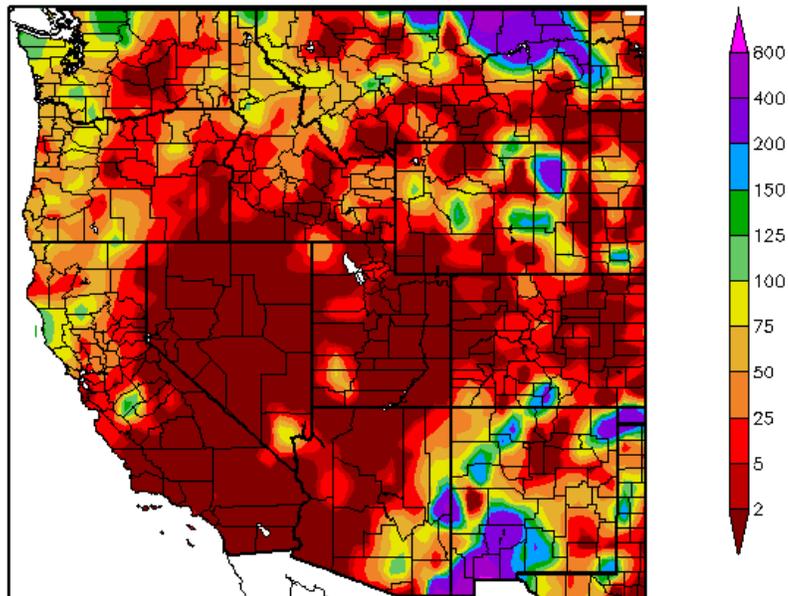
Precipitation (in)  
11/24/2011 - 11/30/2011



Generated 12/1/2011 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)  
11/24/2011 - 11/30/2011



Generated 12/1/2011 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 totals over the Coastal Mountains and Cascades of Washington (Fig. 3). However, in terms of percent of normal, northern Montana and southwestern and northeast New Mexico had abundant moisture (Fig 3a).

Weekly Snowpack and Drought Monitor Update Report

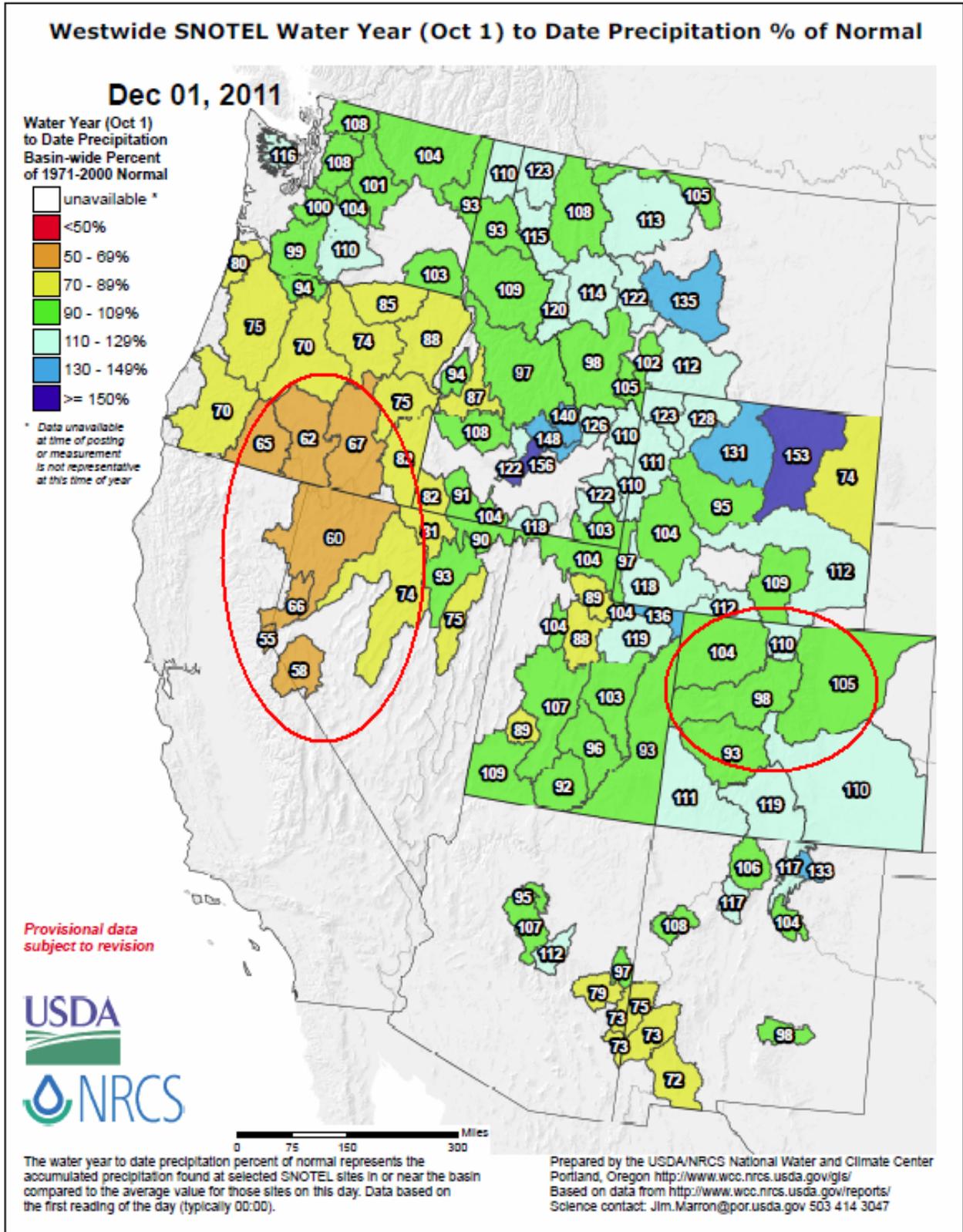


Fig 3b: With the start of the [2012 Water-Year](#) that began on 1 October 2011, shows an early season snow pattern that favors the northernmost Tier States. The red circled areas reflect a decreasing moisture trend since last week.

# U.S. Drought Monitor

November 29, 2011  
Valid 7 a.m. EST

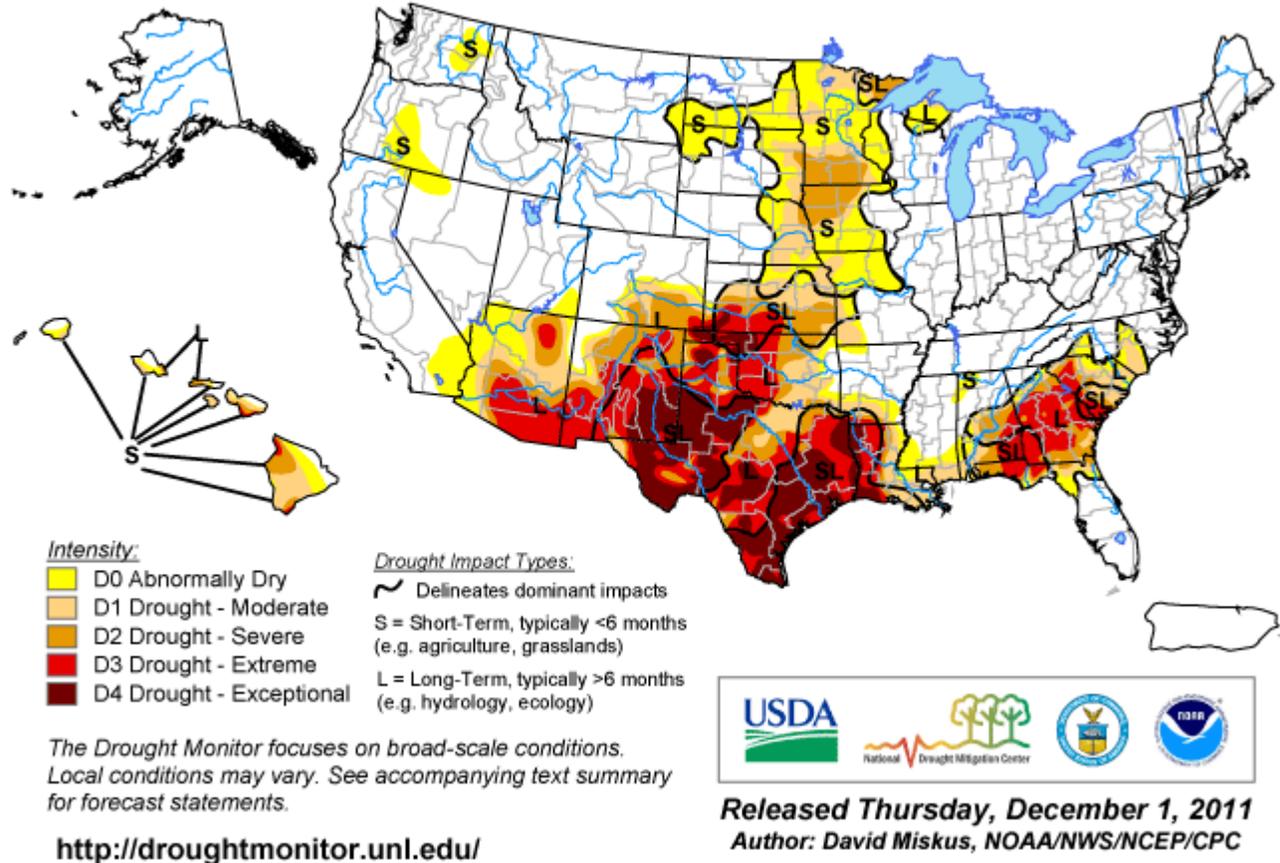


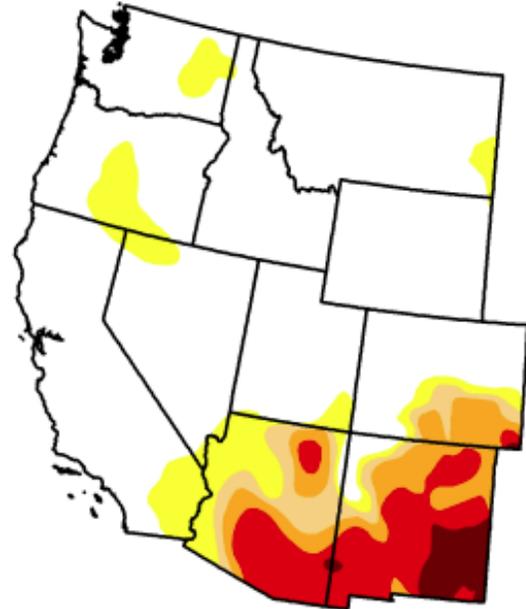
Fig. 4: Current [Drought Monitor](#) weekly summary. The exceptional D4 levels of drought are found over New Mexico, Texas, Oklahoma, extreme SW Kansas, and western Louisiana. For more drought news see: [Drought Impact Reporter](#).

# U.S. Drought Monitor

## West

November 29, 2011  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	72.29	27.71	18.55	14.99	9.48	1.96
Last Week (11/22/2011 map)	72.72	27.28	18.57	15.00	9.51	2.85
3 Months Ago (08/30/2011 map)	74.10	25.90	19.67	14.88	9.24	3.43
Start of Calendar Year (12/28/2010 map)	73.26	26.74	11.98	0.89	0.00	0.00
Start of Water Year (09/27/2011 map)	66.72	33.28	19.04	14.99	9.30	3.81
One Year Ago (11/23/2010 map)	71.90	28.10	5.75	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.



Released Thursday, December 1, 2011

David Miskus, NOAA/NWS/NCEP/Climate Prediction Center

<http://droughtmonitor.unl.edu>

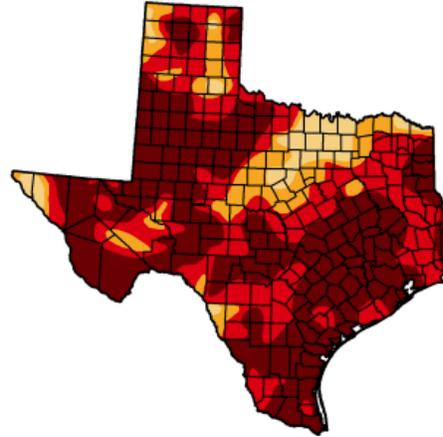
Fig. 4a: Drought Monitor for the [Western States](#) with statistics over various time periods. Regionally there was a slight improvement in D4 drought condition this week.

Weekly Snowpack and Drought Monitor Update Report

**U.S. Drought Monitor**  
Texas

November 29, 2011  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	94.23	82.66	52.67
Last Week (11/22/2011 map)	0.00	100.00	100.00	97.44	86.75	62.97
3 Months Ago (08/30/2011 map)	0.00	100.00	99.92	99.01	95.04	81.08
Start of Calendar Year (12/28/2010 map)	7.89	92.11	69.43	37.46	9.59	0.00
Start of Water Year (09/27/2011 map)	0.00	100.00	100.00	99.16	96.65	85.75
One Year Ago (11/23/2010 map)	43.84	56.16	25.09	5.54	0.00	0.00



*Intensity:*

<span style="display:inline-block; width:10px; height:10px; background-color:yellow; border:1px solid black;"></span> D0 Abnormally Dry	<span style="display:inline-block; width:10px; height:10px; background-color:darkred; border:1px solid black;"></span> D3 Drought - Extreme
<span style="display:inline-block; width:10px; height:10px; background-color:orange; border:1px solid black;"></span> D1 Drought - Moderate	<span style="display:inline-block; width:10px; height:10px; background-color:firebrick; border:1px solid black;"></span> D4 Drought - Exceptional
<span style="display:inline-block; width:10px; height:10px; background-color:gold; border:1px solid black;"></span> D2 Drought - Severe	

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<http://droughtmonitor.unl.edu>



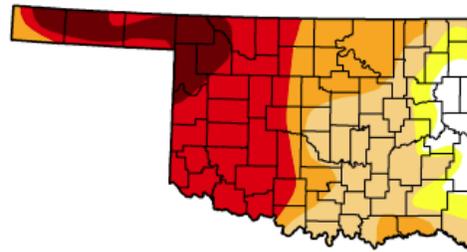
Released Thursday, December 1, 2011  
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Fig. 4b(1): Currently, ~52% of [Texas](#) is experiencing “Exceptional” D4 drought. ~82% of the state is in D3 and D4 drought! Overall, this represents a 10% improvement in D4 this week.

**U.S. Drought Monitor**  
Oklahoma

November 29, 2011  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	7.33	92.67	85.70	59.58	39.92	10.27
Last Week (11/22/2011 map)	5.10	94.90	88.74	63.43	42.33	14.43
3 Months Ago (08/30/2011 map)	0.00	100.00	100.00	96.64	85.37	69.15
Start of Calendar Year (12/28/2010 map)	13.82	86.18	47.90	1.50	0.00	0.00
Start of Water Year (09/27/2011 map)	0.00	100.00	100.00	100.00	78.97	66.42
One Year Ago (11/23/2010 map)	47.48	52.52	3.13	0.00	0.00	0.00



*Intensity:*

<span style="display:inline-block; width:10px; height:10px; background-color:yellow; border:1px solid black;"></span> D0 Abnormally Dry	<span style="display:inline-block; width:10px; height:10px; background-color:darkred; border:1px solid black;"></span> D3 Drought - Extreme
<span style="display:inline-block; width:10px; height:10px; background-color:orange; border:1px solid black;"></span> D1 Drought - Moderate	<span style="display:inline-block; width:10px; height:10px; background-color:firebrick; border:1px solid black;"></span> D4 Drought - Exceptional
<span style="display:inline-block; width:10px; height:10px; background-color:gold; border:1px solid black;"></span> D2 Drought - Severe	

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

<http://droughtmonitor.unl.edu>



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Fig. 4b(2): Currently, over 10% of [Oklahoma](#) is experiencing “Exceptional” D4 drought. Over 40% of the state is in D3 and D4 drought! This week saw a 4% improvement in D4.

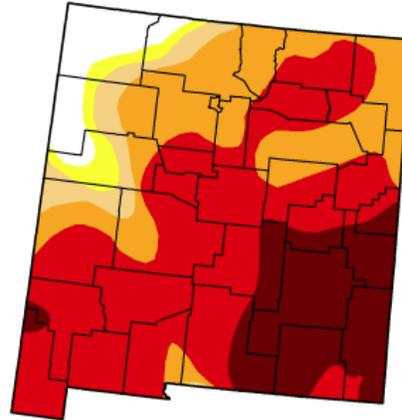
Weekly Snowpack and Drought Monitor Update Report

**U.S. Drought Monitor**

November 29, 2011  
Valid 7 a.m. EST

**New Mexico**

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	6.28	93.72	90.69	85.60	62.97	18.39
Last Week (11/22/2011 map)	6.28	93.72	90.69	85.60	63.04	26.11
3 Months Ago (08/30/2011 map)	0.00	100.00	100.00	88.63	64.88	30.90
Start of Calendar Year (12/28/2010 map)	6.16	93.84	40.40	0.00	0.00	0.00
Start of Water Year (09/27/2011 map)	0.00	100.00	96.40	88.99	69.61	35.13
One Year Ago (11/23/2010 map)	68.73	31.27	0.00	0.00	0.00	0.00



*Intensity:*

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

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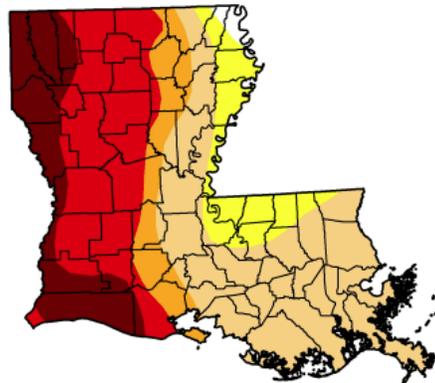
Fig. 4b(3): Currently, 18% of New Mexico is experiencing “Exceptional” D4 drought. Nearly 63% of the state is in D3 and D4 drought. Overall, this represents an 8% improvement in D4 this week.

**U.S. Drought Monitor**

November 29, 2011  
Valid 7 a.m. EST

**Louisiana**

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.91	99.09	89.40	51.92	42.44	15.76
Last Week (11/22/2011 map)	0.00	100.00	99.11	63.64	50.10	40.67
3 Months Ago (08/30/2011 map)	0.00	100.00	94.46	86.03	59.50	37.65
Start of Calendar Year (12/28/2010 map)	0.00	100.00	87.22	59.72	40.99	0.00
Start of Water Year (09/27/2011 map)	45.37	54.63	44.43	35.94	27.14	16.37
One Year Ago (11/23/2010 map)	27.12	72.88	56.61	49.94	25.09	0.00



*Intensity:*

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

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Fig. 4b(4): Currently, 15% of Louisiana is experiencing “Exceptional” D4 drought. Over 42% of the state is in D3 and D4 drought. Overall, this represents a 25% improvement in D4 the week.

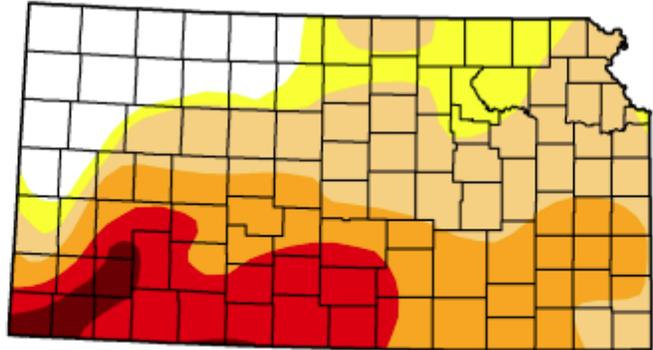
# U.S. Drought Monitor

## Kansas

November 29, 2011  
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	15.33	84.67	73.42	42.16	17.61	2.78
Last Week (11/22/2011 map)	14.25	85.75	76.21	57.22	36.47	15.46
3 Months Ago (08/30/2011 map)	27.92	72.08	62.31	49.78	31.86	17.46
Start of Calendar Year (12/28/2010 map)	17.82	82.18	43.85	3.48	0.00	0.00
Start of Water Year (09/27/2011 map)	16.39	83.61	66.03	48.78	28.54	17.63
One Year Ago (11/23/2010 map)	59.39	40.61	11.33	0.00	0.00	0.00



Intensity:

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

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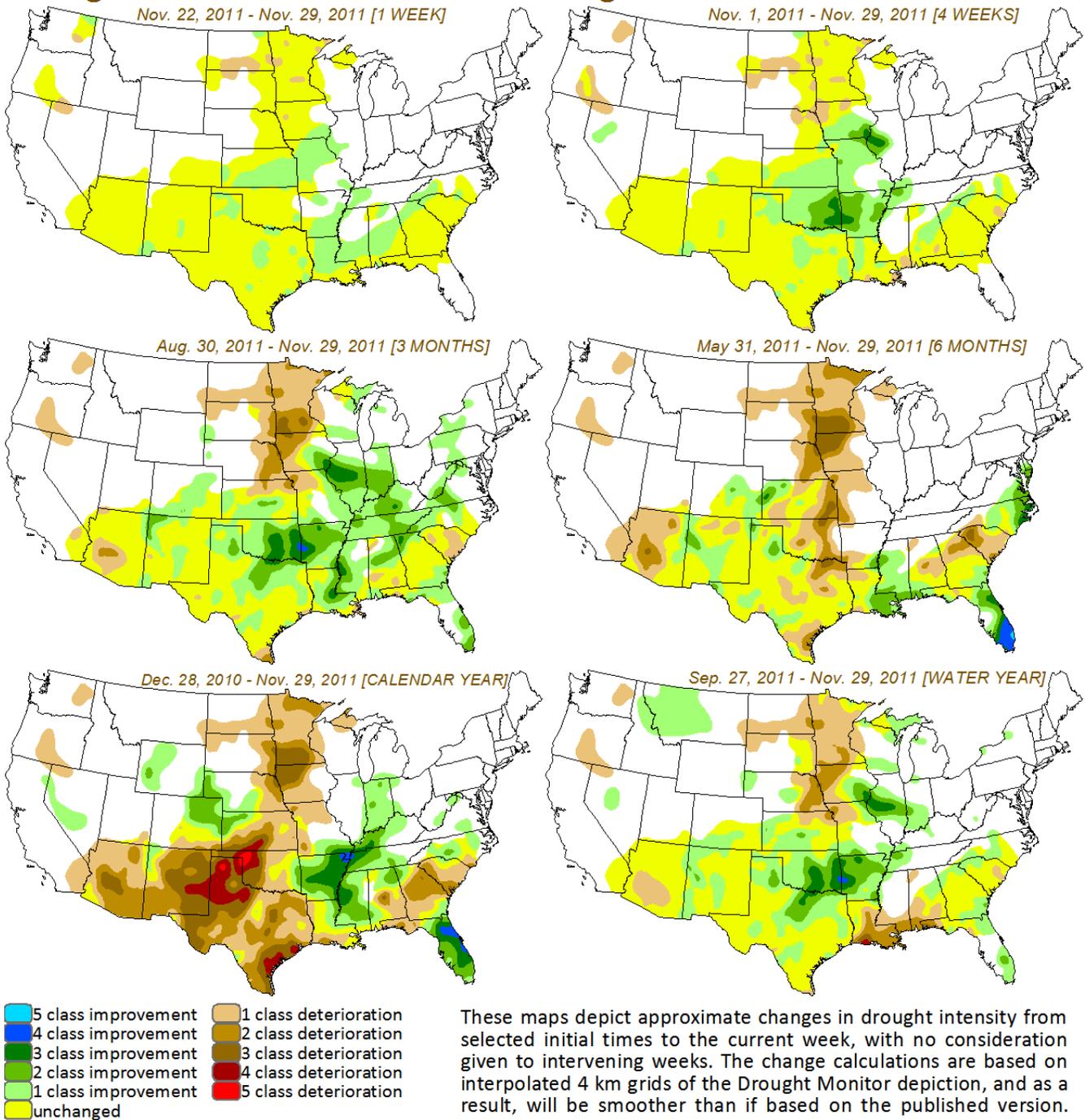


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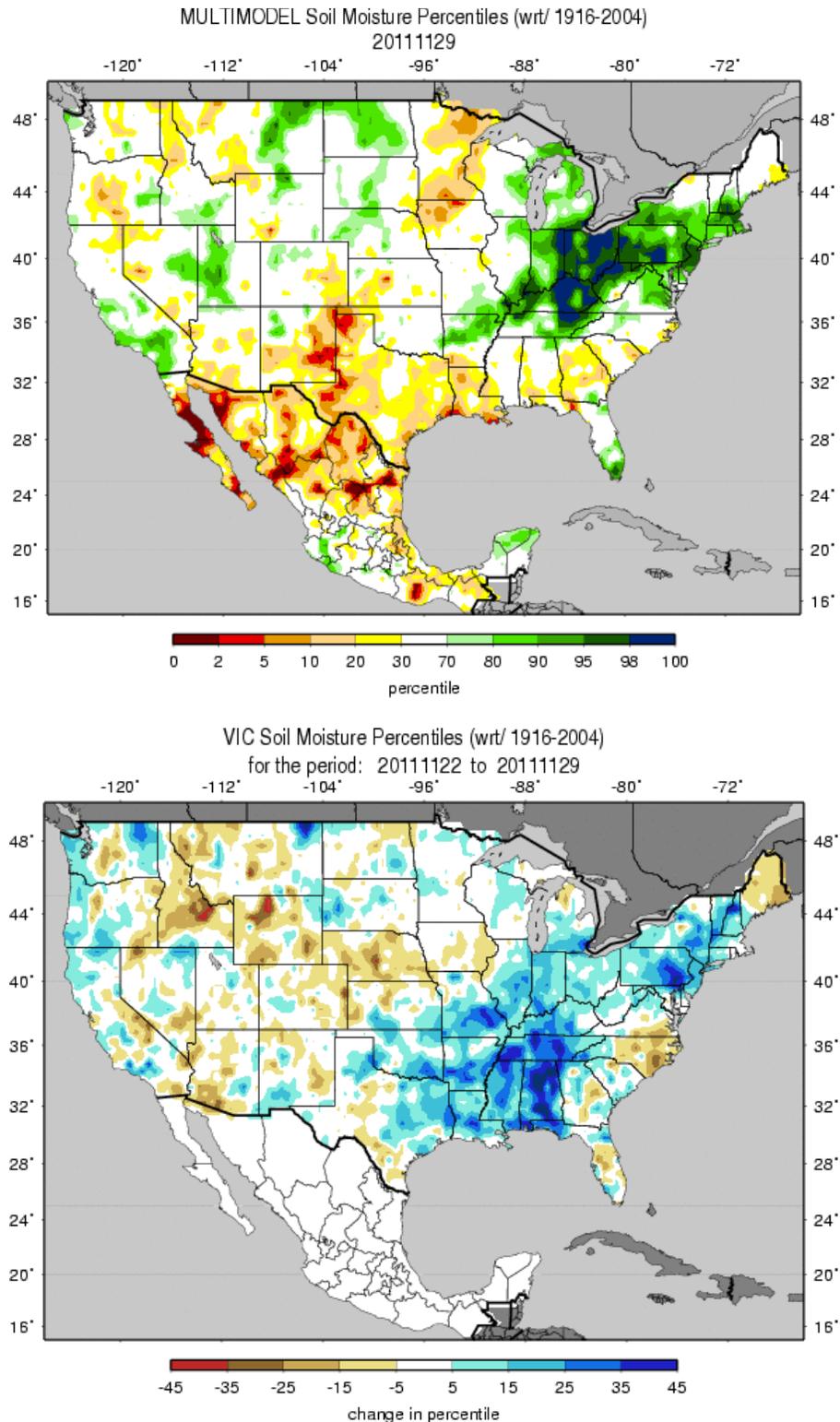
Fig. 4b(5): Currently, ~3% of Kansas is experiencing “Exceptional” D4 drought and 17% of the state is in D3 and D4 drought. Overall, this represents a 12% improvement in D4 this week.

### Drought Monitor Classification Changes for Selected Time Periods



**Fig. 4c: [Drought Monitor Category Changes](#) over several time periods. Some recent precipitation over northern Texas, southern Oklahoma, and western Arkansas since the start of the Water Year is noted in the lower right map. However, during this same period, the Central Gulf Coast has deteriorated significantly. For more information, see [percentile](#) changes table.**

## Weekly Snowpack and Drought Monitor Update Report



**Figs. 5a and 5b:** Soil Moisture ranking in [percentile](#) as of 29 November (top) shows moist conditions over the Ohio Valley while northern Texas and eastern New Mexico has the greatest deficits. [During the week](#), significant increases in moisture is noted over eastern half of the Nation (excluding Maine and North Carolina) while the Interior West reflects an opposite trend (Bottom).

# Weekly Snowpack and Drought Monitor Update Report

## Soil Climate Analysis Network (SCAN)

Station (2054) MONTH=2011-11-01 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision  
Thu Dec 01 08:19:21 PST 2011

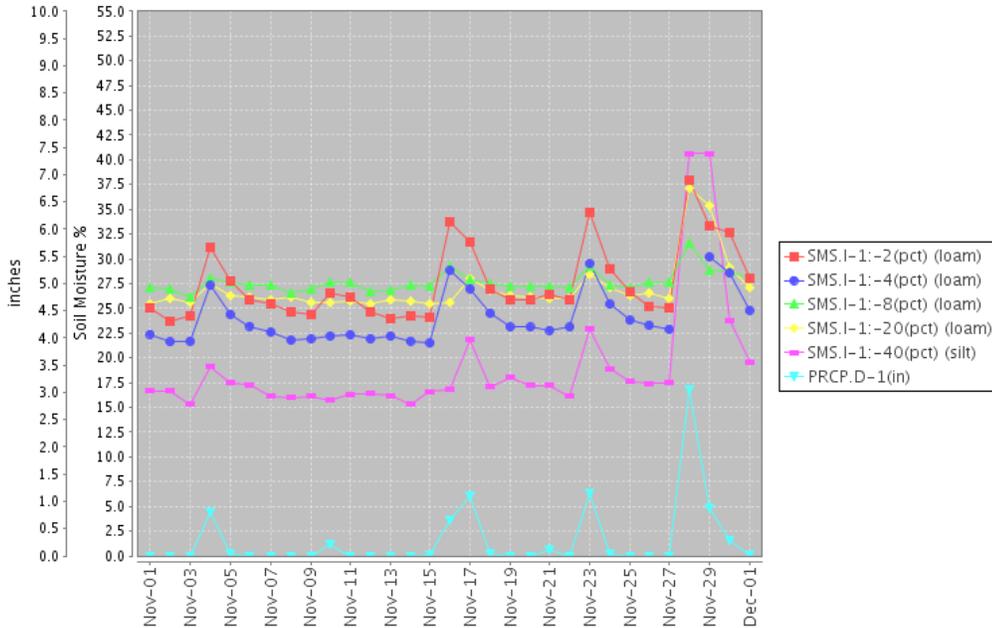


Fig. 6a: This NRCS resource shows a site over [northern Alabama](#) with an increase moisture trend at all depths.

Station (2145) MONTH=2011-11-01 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision  
Thu Dec 01 08:22:41 PST 2011

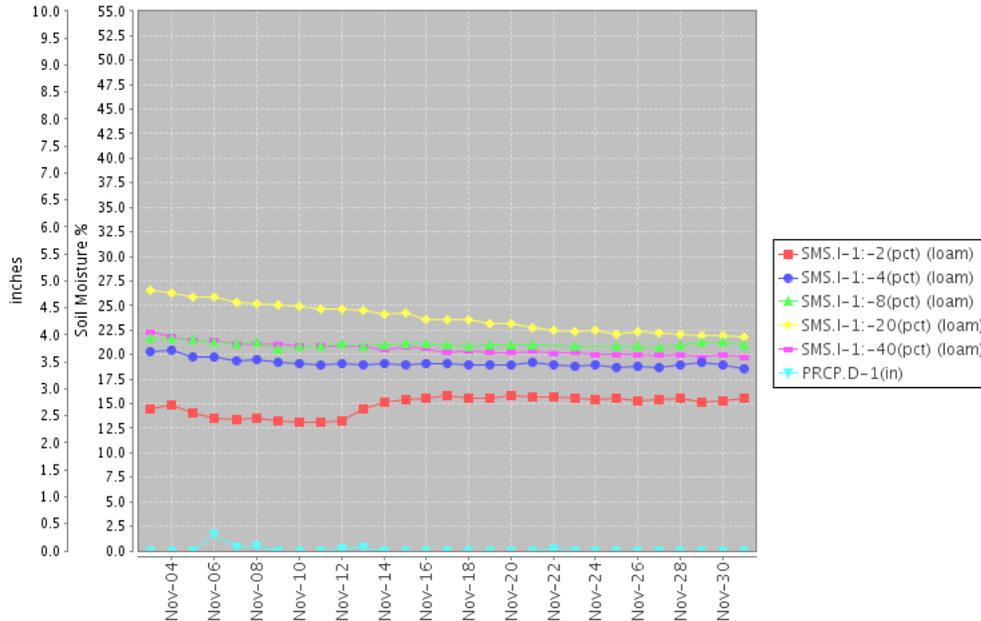
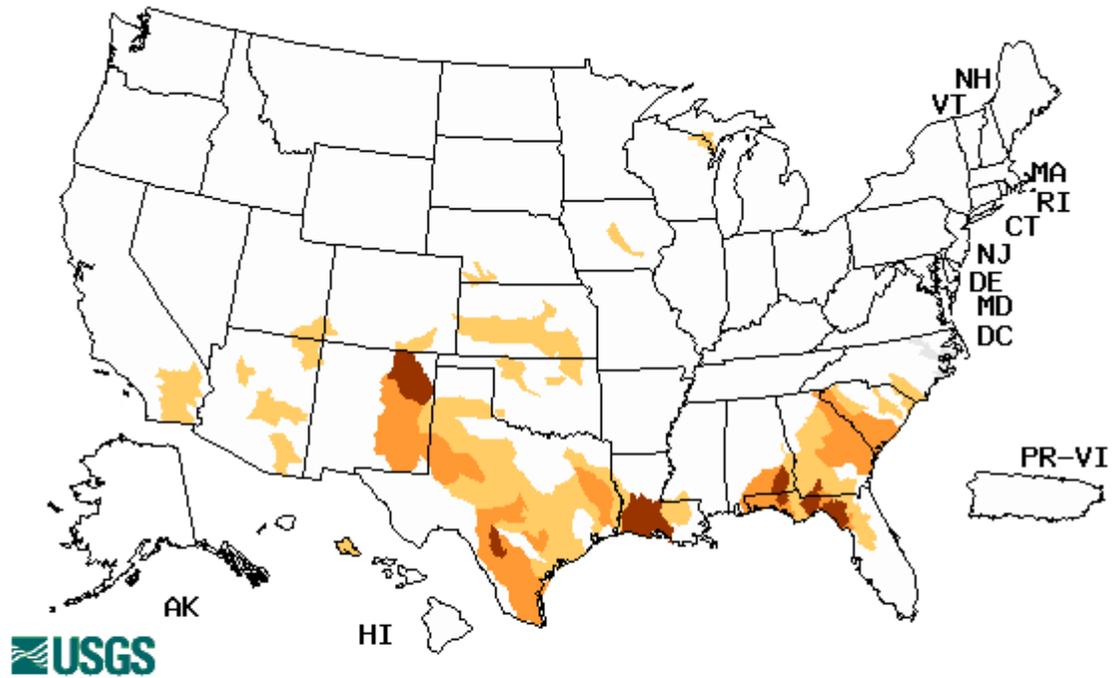


Fig. 6b: This SCAN station is located in [southern Nevada](#) shows a slow decreasing trend due to a lack of precipitation.

# Weekly Snowpack and Drought Monitor Update Report

Hednesday, November 30, 2011



Explanation - Percentile classes				
Low	≤5	6-9	10-24	Insufficient data for a hydrologic region
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	

Fig. 7: Map of below normal 7-day average [streamflow](#) compared to historical streamflow for the day of year. Severe conditions continue over parts of northern Florida, southern Alabama, Louisiana, and northeast New Mexico.

## Weekly Snowpack and Drought Monitor Update Report

### National Drought Summary -- November 29, 2011

*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:** With cooler temperatures and greatly reduced evapotranspiration, this is normally the time of the year when precipitation greatly aids with the recharging of soil moisture and hydrologic conditions (as long as the ground or streams are not frozen). As the week commenced, a storm system in the middle Mississippi Valley quickly tracked northeastward off the New England Coast, but not before bringing light to moderate precipitation to the eastern third of the nation. Farther west, a strong storm system brought moderate to heavy precipitation to the Pacific Northwest. By the weekend, the western system had rapidly traversed to the Mississippi Valley but then stalled as a large dome of high pressure was entrenched over the East. As the period ended, the stalled system, now with an intense area of low pressure, slowly tracked northward from the South toward the eastern Great Lakes region, dumping widespread moderate to heavy precipitation on much of the eastern third of the U.S. Between the two storm systems, many stations from southeastern Texas to the Florida Panhandle and northward to the eastern Great Lakes region reported 2 or more inches of precipitation for the week. In contrast, it was mostly dry from southern California and the Great Basin northeastward into the northern Plains and upper Midwest. Temperatures averaged above to well above normal for most of the lower 48 States. In Hawaii, light to moderate showers were limited to the windward sides.

**Southeast:** Widespread moderate to heavy showers and thunderstorms (more than 2 inches, locally to 10 inches) provided at least a 1-category improvement of drought in much of the region. This included most of Louisiana (except the extreme northwestern and southeastern sections where an inch or less fell); Mississippi (except along the Gulf Coast); Alabama (but not in the southeast where about an inch fell and in the northwest where 30- and 60-day percentages remained between 50-75%); northern Georgia and small areas in the southeast; western and eastern South Carolina; and parts of southwestern and south-central North Carolina. Heaviest rains (4 to 10 inches) fell from northeastern Alabama and northwestern Georgia into east-central Tennessee and on the southern Appalachians in western North Carolina. In Arkansas, another wet week (0.5 to 1.5 inches, locally 1.5 to 3 inches in the extreme eastern sections) was enough to remove the lingering short-term D0, while 2 to 3 inches in western Tennessee alleviated D0 there. USGS 7-day average stream flows (ending Nov. 29) were generally at or above-normal levels where 2 or more inches of rain occurred. With a relatively wet Fall season across the region, short-term departures were relegated to western Louisiana and the east-central Gulf and southern Atlantic Coasts, although long-term deficits remained throughout the Southeast. In contrast, only the southern two-thirds of Florida and southeastern Louisiana escaped this week's rains. Although November has been relatively dry in Florida, a very wet September and October has kept most of the state drought free.

## Weekly Snowpack and Drought Monitor Update Report

**Southern and Central Plains:** Another round of light to moderate precipitation fell on most of the southern and central Plains, continuing a pattern of near to above normal precipitation that started in mid-September. This was good news after Texas recorded the driest October-September period (12-months) on record (since 1895) in 2010-2011, with Oklahoma and New Mexico experiencing their second driest such period, Louisiana their third driest, and Kansas their tenth driest. In Texas, 1 to 3 inches of rain was recorded in southeastern sections, while 0.5 to 1 inch fell on east-central and northeastern sections. Farther north, 0.5 to 1.5 inches of precipitation occurred along the Kansas and Oklahoma border, while 0.3 to an inch was measured in the rest of Oklahoma and central and eastern Kansas. Combined with lower temperatures and declining evapotranspiration rates, a thorough reappraisal of Texas was made (courtesy of Texas A&M, Professor Neilsen-Gammon, and the short and long-term SPI blends), along with surrounding states. Accordingly, some 1-category improvements were made in eastern, south-central, southeastern, north-central, and northern Panhandle of Texas, in eastern Oklahoma, and along the Kansas-Oklahoma border. The Impact Lines were modified to reflect more of the impacts from long-term drought as short-term impacts have lessened recently. In Oklahoma, the runoff from recent rains has filled Lakes Hugo (Choctaw County), Broken Bow (McCurtain County), and Wister (Leflore County). USGS stream flows bordering Arkansas are averaging 80 percent of normal or better. In contrast, lake levels remained essentially unchanged from last week elsewhere. Major soil moisture issues below the topsoil remained in west-central and northwestern areas. Lakes at Great Salt Plains (Alfalfa County), Fort Supply (Woodward County), Canton (Blaine County), Altus (Greer County), Tom Steed (Kiowa County), and Skiatook (Osage/Washington Counties) are down 40-80 percent with almost no recharge in the past month. Therefore, D3 and D4 remained in western and central Oklahoma.

**Midwest and Northern Plains:** A swath of moderate precipitation (1 to 2 inches) fell across north-central Missouri and into northwestern Illinois (and even larger totals to the east), effectively easing short-term drought (D1 and D0) by a category in this region. Most of northern Missouri is experiencing a top 10 historical wet November (150 to 200 percent of normal precipitation), resulting in adequate top soil moisture and no major impacts. The 30- and 60-day AHPS precipitation are now close to or above normal, with only some minor 90-day deficits left in the D0 of northern Missouri. In southeastern Missouri, 2 to 3 inches of rain erased the small area of D0. In southwestern sections of the state, the D1 edges were trimmed away, but kept where weekly precipitation was less than 0.5 inches. In western Illinois, although D0 was removed after 1 to 2 inches of rain, Lake Decatur in Macon County remained a concern as it was still below normal levels. In Iowa, 0.5 to 1 inch of precipitation in southeastern portions was enough to improve drought (D0 and D1) by a category, but drier weather over the rest of the state kept conditions status-quo. November has been a month of contrasts in Iowa, with Keokuk (in the southeast) recording 6.23 inches (third highest November total among 140 years of record), while Sioux Center (in the northwest) measuring only 0.03 inches (fourth lowest November in 105 years of records). In Minnesota and the Dakotas, an unseasonably dry autumn continued, with many areas of southern Minnesota (and bordering areas of South Dakota) ranking below the first percentile for precipitation. As a result, any area in this percentile was made at least D1. Farther north, D1 was added by the North Dakota and Minnesota border for the same reason, while D2 was expanded in northeastern Minnesota where 18 week departures exceeded 7 inches. The separate D0 area of southwestern North Dakota and northwestern South Dakota was expanded eastward and merged with the large D0 area as short-term conditions (at 30-, 60-, and 90-days) were essentially the same across southern North Dakota. Fortunately, the spring and summer months were relatively wet or conditions would be much worse now.

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**The Southwest:** While most of the region saw little or no precipitation, a small band of moderate precipitation (0.5 to 1.5 inches) fell on extreme southeastern Arizona northeastward into south-central New Mexico. Consequently, most of the D4 area in southwestern New Mexico was improved to D3, with only a small portion left as D4 where the rains missed. In south-central New Mexico, the D4 line was pulled eastward in Lincoln County (0.2 to 0.7 inches) to focus the extreme drought on the NM southeast plains instead of the south-central mountains where conditions are a bit better. In extreme southeastern Colorado (Baca County), D4 was slightly trimmed away in response to recent rains (about 0.5 inches). Although no degradation was made this week, concerns remained in the Southwest due to long-term precipitation deficiencies accumulated during past critical seasons (winter/spring and most of the summer monsoon).

**The Northwest:** Although heavy precipitation (2 to 6 inches, locally to 12 inches) drenched the Pacific Northwest coastal areas (from northern California northward) and the northern Rockies in northern Idaho and northwestern Montana (2 to 4 inches), interior Northwest areas saw much less, including sections of east-central Washington and eastern Oregon where little or no precipitation occurred. Accordingly, D0 was expanded southward into Adams County of interior Washington. Although the winter wheat crop is mostly good, soil moisture is in short supply and precipitation will be needed soon. Farther south in Oregon, the D0 was extended into northwestern Nevada as short-term (30-, 60-, and 90-days) and long-term (180-days) conditions were similar. In contrast, however, some parts of the two D0 areas (northeastern Washington and southwestern Oregon) measured 1 to 2 inches, and D0 was trimmed there.

**Hawaii:** Scattered showers were generally limited to windward sides of the islands (1 to 2 inches, locally up to 6.89 inches at Puu Kukui, Maui) during the week. Meanwhile tranquil weather occurred on the leeward sides as little or no rain occurred. No changes were made this week as D0-D3 persisted, especially on the leeward sides.

**Looking Ahead:** For the ensuing 5 days (December 1-5), a storm system is expected to develop and strengthen in the Southwest. This system will slowly track eastward, bringing welcome precipitation to the Southwest and eventually to the southern and central Plains. Largest 5-day precipitation totals (2 to 3 inches) are expected in Texas, northern Louisiana, and Arkansas. Meanwhile, little or no precipitation is forecast for both coasts. 5-day average temperatures should be subnormal in the Intermountain West, Rockies, and Plains, and above-normal in the eastern third of the nation.

The CPC 6-10 day outlook (December 6-10) indicates enhanced odds for above normal precipitation east of the Mississippi River (except Florida), along the western Gulf Coast, in the extreme northern Plains, and throughout Alaska. Below normal precipitation is expected in the Pacific Northwest and Great Basin, central Plains, and southern Florida. Subnormal temperatures are predicted in the western half of the nation, especially in the Southwest, with above normal readings limited to New England, southern Florida, and western Alaska.

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### Dryness Categories

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

## Weekly Snowpack and Drought Monitor Update Report

### **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 November 30, 2011*