



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

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## Weekly Report - Snowpack / Drought Monitor Update

Date: 23 November 2011

### SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

**Snow:** [Snow Water-Equivalent](#) La Niña's precipitation, which is often delayed over the Pacific NW in the fall, has finally emerged with significant moisture (see special report near the end of this weekly report for details) (Fig. 1). [7-Day Snow Depth Change](#) ending yesterday shows 2 to 3 foot increases in snowpack over parts of the Cascades (Fig. 1a)

**Temperature:** [SNOTEL](#) and ACIS 7-day temperature anomaly shows temperatures considerably cooler than normal over the Northern Rockies and somewhat warmer over the Southern Tier States (Fig. 2). [ACIS](#) 7-day average temperature anomalies show the greatest positive temperature departures over parts of the Southwest ( $+6^{\circ}\text{F}$ ) and the greatest negative departures over Montana and northern Wyoming ( $-12^{\circ}\text{F}$ ) (Fig. 2a).

**Precipitation:** [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows the greatest totals over Coastal Ranges and Cascades of Washington and Oregon (Fig. 3). However, in terms of percent of normal, much of the Northern Tier States and southern California had abundant moisture (Fig 3a). With the start of the [2012 Water-Year](#) that began on 1 October 2011, a pattern of wetter and drier areas across the West is emerging. The typical slow onset of La Niña moisture for the Northwest (Washington and Oregon) is beginning with this week's strongest storm of the season (Fig. 3b).

The West: Although precipitation has been heavy (2 inches or greater, liquid equivalent) in the Cascades and Coastal Ranges of Washington and Oregon, precipitation in the interior Pacific Northwest has generally been under an inch. No changes in the drought depiction were made this week to the area. In the Southwest, Arizona and southeastern California experienced temperatures within a few degrees of normal and fairly light precipitation. No improvements or degradations were made to the drought depiction this week. Author: Anthony Artusa, NOAA/NWS/CPC.

***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).

## Weekly Snowpack and Drought Monitor Update Report

### 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>.

### **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.

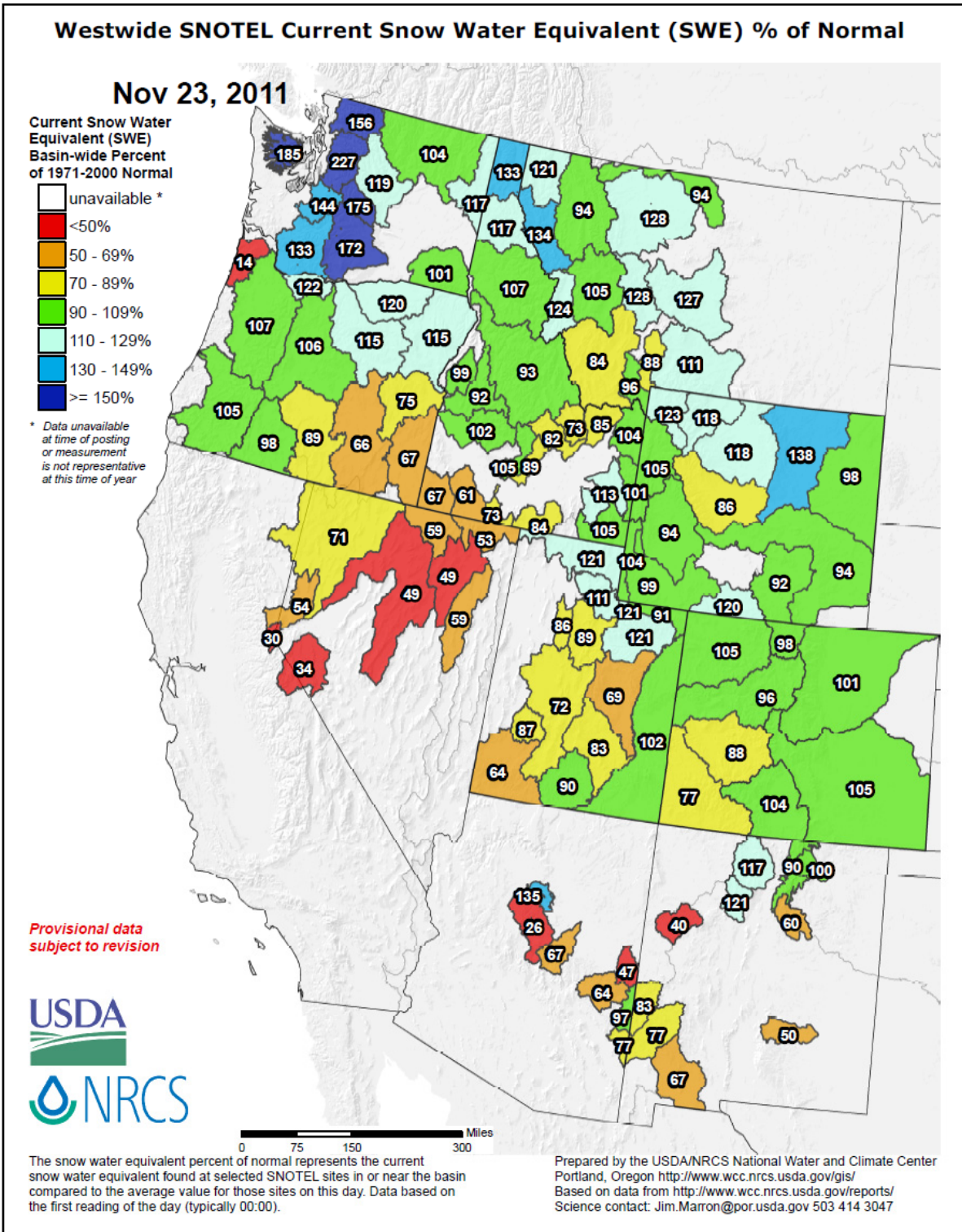
This report uses data and products provided by the Interagency Drought Monitor Consortium members and the National Interagency Fire Center.

/s/

Douglas Lawrence

Deputy Chief, Soil Survey and Resource Assessment

## Weekly Snowpack and Drought Monitor Update Report



**Fig. 1: Snow Water-Equivalent** La Niña's precipitation, which is often delayed over the Pacific NW in the fall, has finally emerged with significant moisture (see special report near the end of this weekly report for details).



# SNOTEL 7-Day Snow Depth Change (Inches)

Nov 22, 2011

## 7-day Snow Depth Change (Inches)

- ✕ > 36" gain
- ▲ 19 - 36"
- ▲ 13 - 18"
- ▲ 4 - 12"
- ▲ 1 - 3"
- 0"
- ▼ -3 - -1"
- ▼ -12 - -4"
- ▼ -18 - -13"
- ▼ -36 - -19"
- ✕ < -36" loss
- Snow free
- Unavailable\*
- ⚡ Data spike\*\*

\* Data unavailable at time of posting or snow depth sensor not available at site  
 \*\* A "data spike" is a gain or loss of more than 100 inches in 24 hours

**Provisional Data**  
**Subject to Revision**



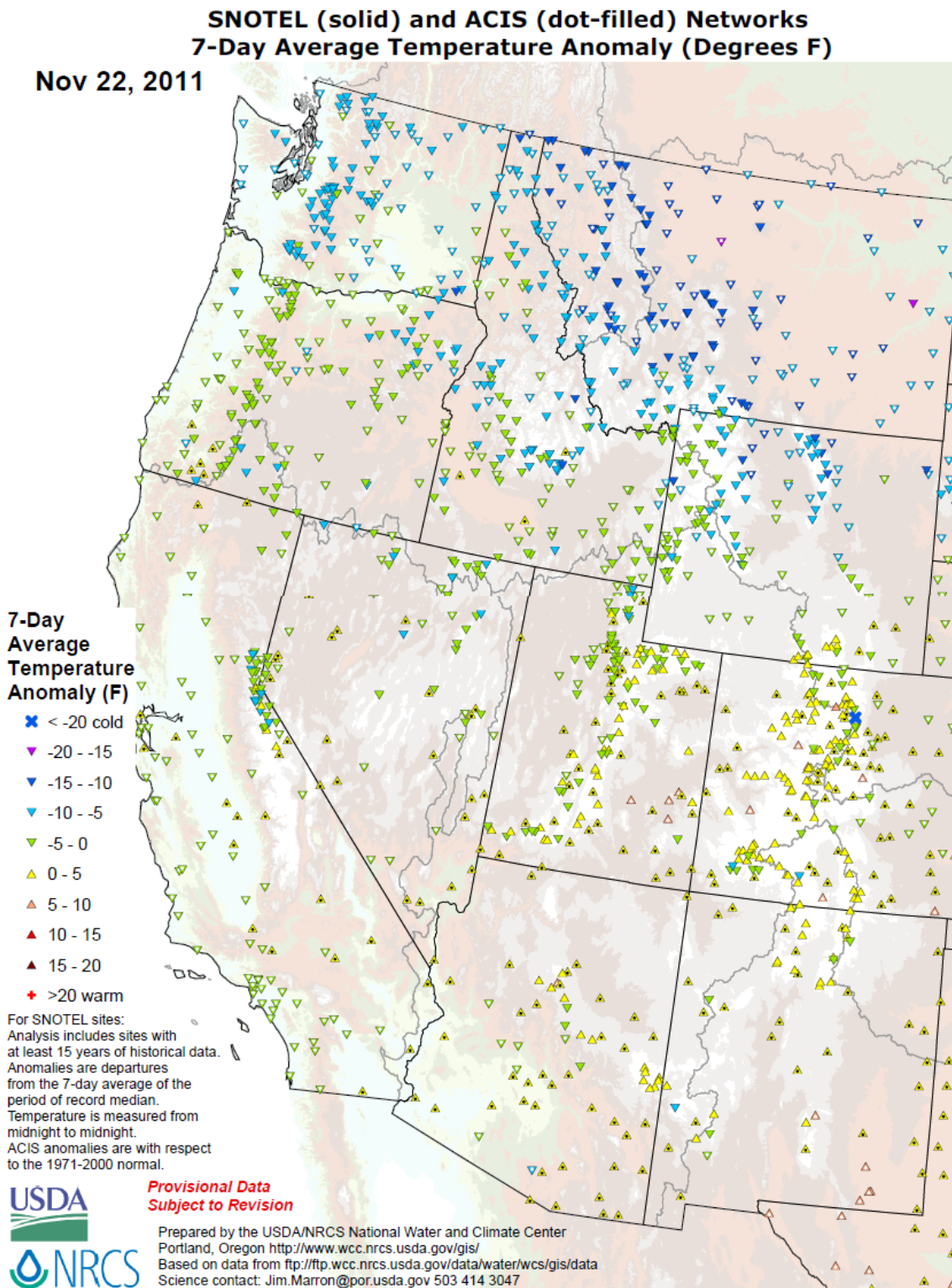
Prepared by the USDA/NRCS National Water and Climate Center  
 Portland, Oregon <http://www.wcc.nrcs.usda.gov/gis/>  
 Based on data from <ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/data>  
 Science contact: Jim.Marron@por.usda.gov 503 414 3047



Automated snow depth measurements are known to occasionally read spuriously large during precipitation events. Snow depth is also difficult to accurately measure at near-snow free conditions; data should be used with caution.

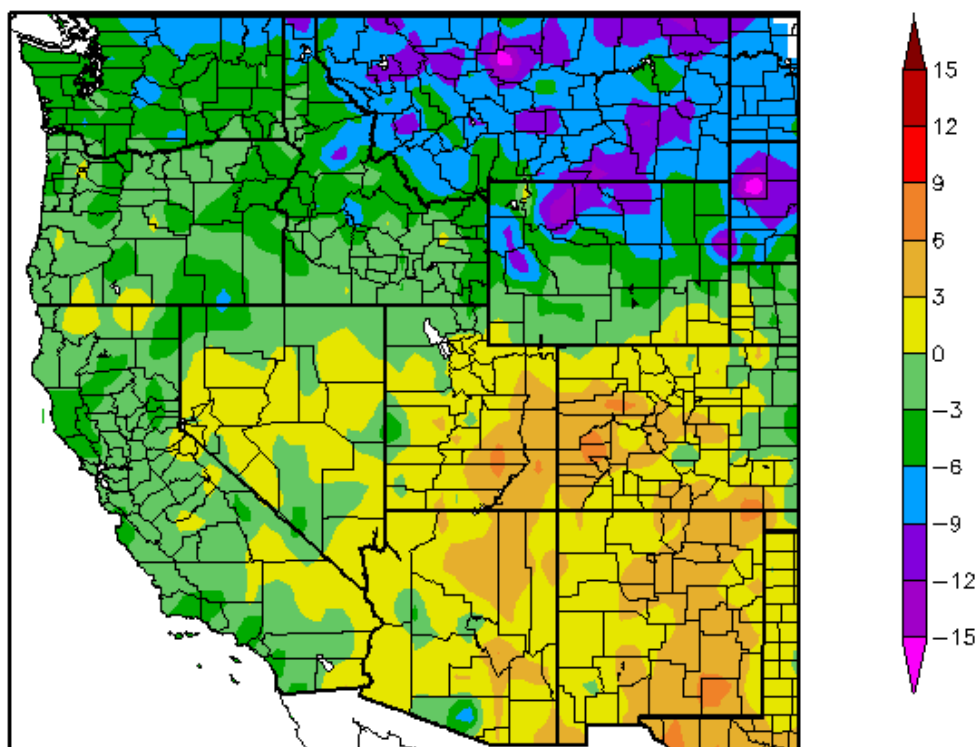
Fig. 1a: 7-Day Snow Depth Change ending yesterday shows 2 to 3 foot increases in snowpack over parts of the Cascades.

## Weekly Snowpack and Drought Monitor Update Report



**Fig. 2: SNOTEL and ACIS 7-day temperature anomaly shows temperatures considerably cooler than normal over the Northern Rockies and somewhat warmer over the Southern Tier States.**

Departure from Normal Temperature (F)  
11/16/2011 – 11/22/2011



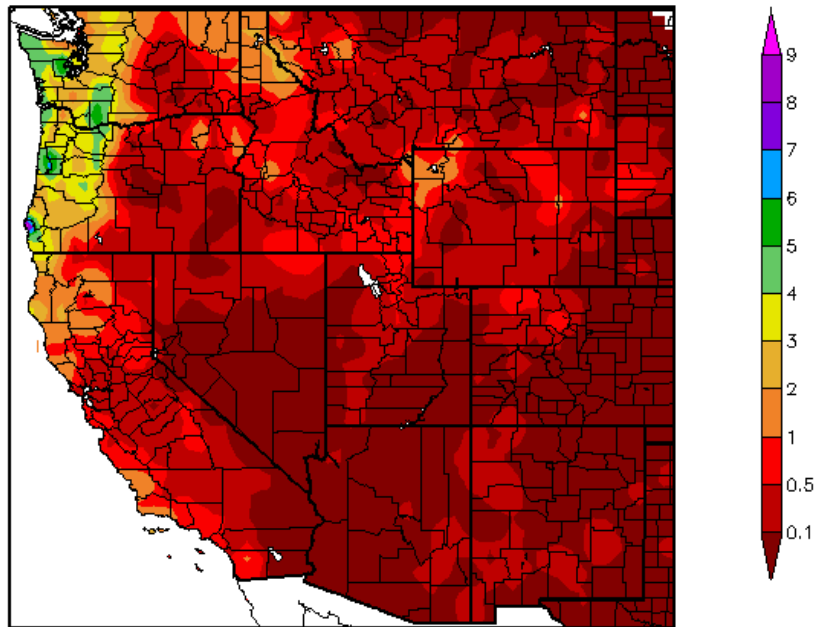
Generated 11/23/2011 at HPRCC using provisional data.

Regional Climate Centers

**Fig. 2a:** **ACIS** 7-day average temperature anomalies show the greatest positive temperature departures over parts of the Southwest (**>+6°F**) and the greatest negative departures over Montana and northern Wyoming (**<-12°F**).

## Weekly Snowpack and Drought Monitor Update Report

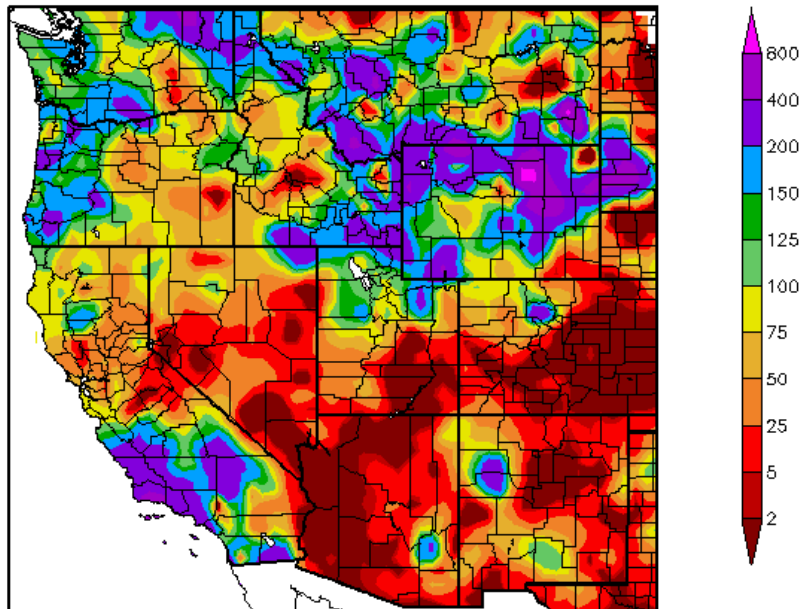
Precipitation (in)  
11/16/2011 – 11/22/2011



Generated 11/23/2011 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)  
11/16/2011 – 11/22/2011



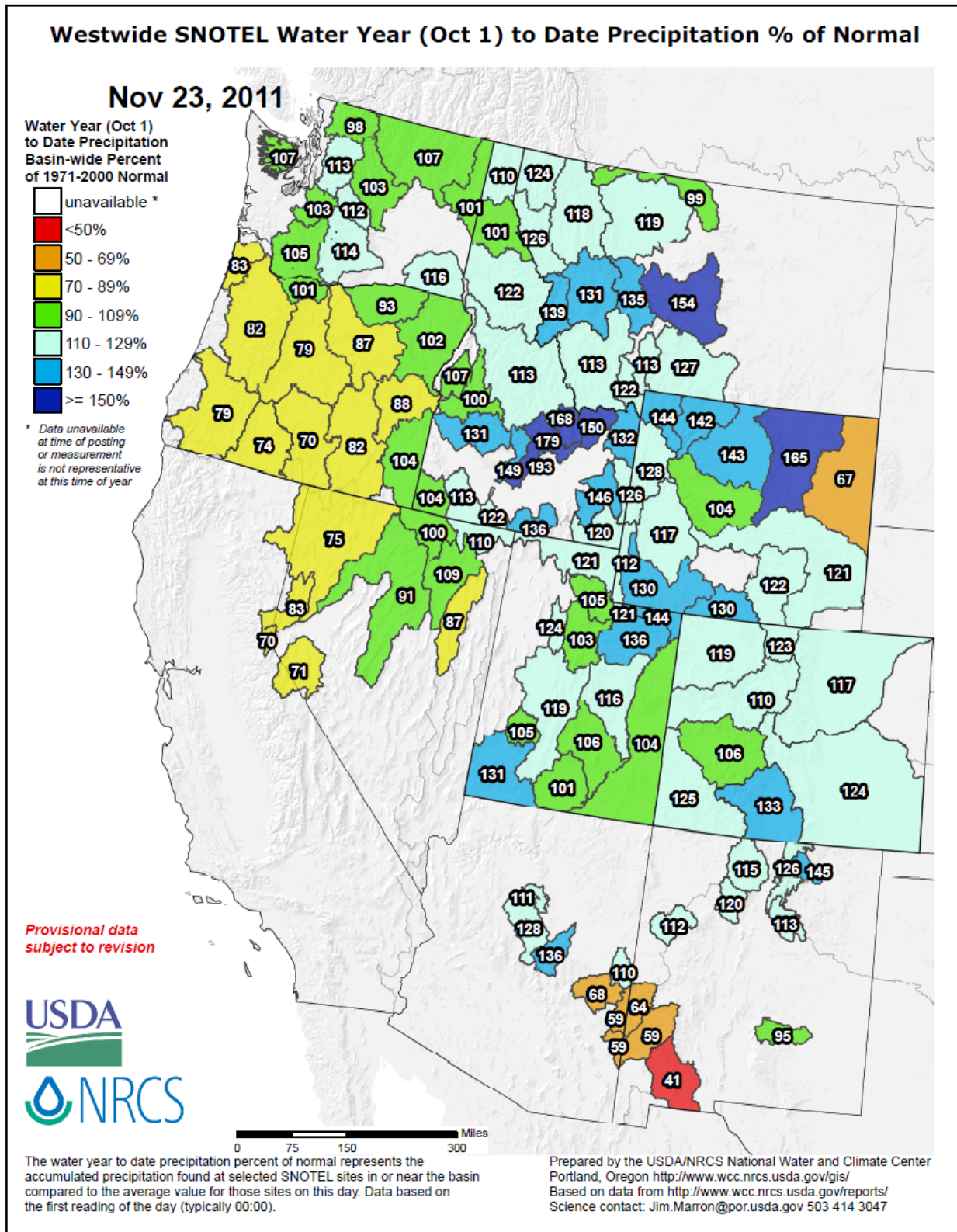
Generated 11/23/2011 at HPRCC using provisional data.

Regional Climate Centers

**Fig. 3 and 3a:** **ACIS** 7-day average precipitation amounts for the period ending yesterday shows the greatest totals over Coastal Ranges and Cascades of Washington and Oregon (Fig. 3). However, in terms of percent of normal, much of the Northern Tier States and southern California 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, a pattern of wetter and drier areas across the West is emerging. The typical slow onset of La Niña moisture for the Northwest (Washington and Oregon) is beginning with this week's strongest storm of the season.



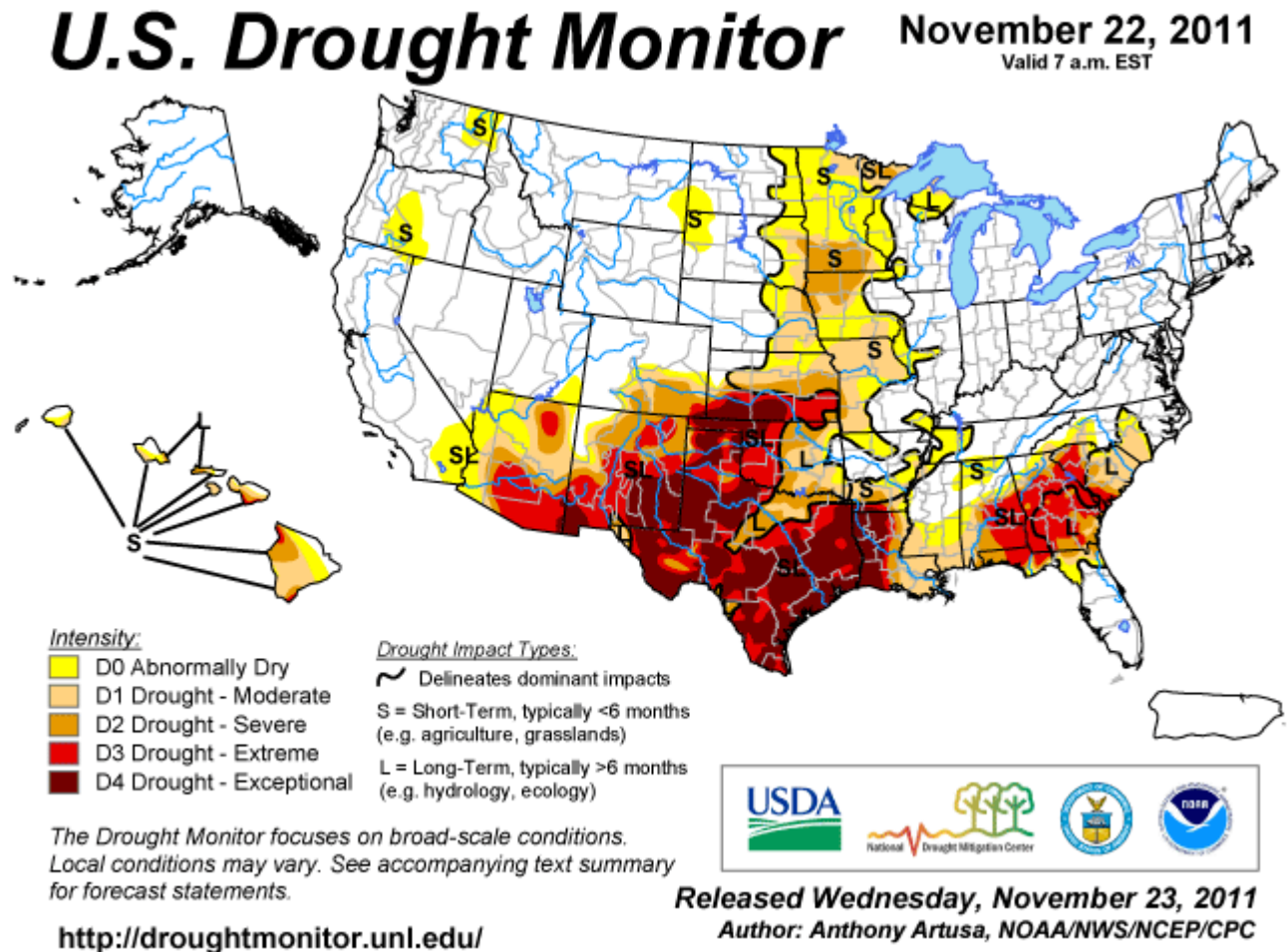


Fig. 4: Current [Drought Monitor](#) weekly summary. The exceptional D4 levels of drought are found over extreme southeast Arizona, New Mexico, Texas, Oklahoma, Kansas, and western Louisiana.

[Drought Impact Reporter:](#)

## Agriculture

### [Cotton farmers see bright future in Kansas](#)

Nov 13, Kansas. Cotton, which requires one-half to one-third of the water that corn needs, did well under irrigation in southwestern Kansas this summer. Dryland cotton, however, did not germinate.

### [Crop losses due to drought reach \\$1.8 billion](#)

Nov 15, Kansas. Agricultural losses in Kansas reached \$1.8 billion for 2011, according to the Kansas Department of Agriculture. A report from the Hutchinson News stated that the loss in corn production amounted to \$1 billion, while damage to the wheat crop reached \$269 million.

### [CROP, WEATHER REPORT: Nov. 15, 2011](#)

Nov 15, Texas. This article offers a breakdown of agricultural activities and drought impacts across the state.

### [Drought continues to cause problems for farmers, ranchers as weather cools](#)

Nov 13, Kansas, Missouri. Drought-stressed plants can produce high levels of nitrates, which can poison livestock or cause pregnant cows to abort.

### [Drought tolerant sesame hurt by lack of rain](#)

Nov 14, Coastal Bend of Texas. Drought limited the growth of sesame, a drought-tolerant crop grown in the Coastal Bend region of Texas. The plant often grows to 3 to 5 feet in height and produces 500 to 1,200 pounds per acre in non-irrigated fields. Some plants in test plots were just 2.2 feet tall and yielded only 255 pounds per acre on average.

# U.S. Drought Monitor

## West

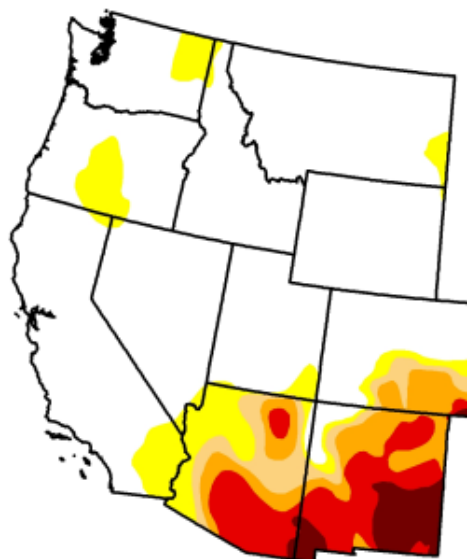
November 22, 2011

Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	72.72	27.28	18.57	15.00	9.51	2.85
Last Week (11/15/2011 map)	72.72	27.28	18.57	15.00	9.51	2.85
3 Months Ago (08/23/2011 map)	74.62	25.38	18.81	14.75	9.89	4.70
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 (11/16/2010 map)	68.49	31.51	6.54	0.19	0.00	0.00

Intensity:

 D0 Abnormally Dry	 D3 Drought - Extreme
 D1 Drought - Moderate	 D4 Drought - Exceptional
 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>



Released Wednesday, November 23, 2011  
Anthony Artusa, NOAA/NWS/CPC

Fig. 4a: Drought Monitor for the [Western States](#) with statistics over various time periods. Regionally there was no change in drought condition this week.

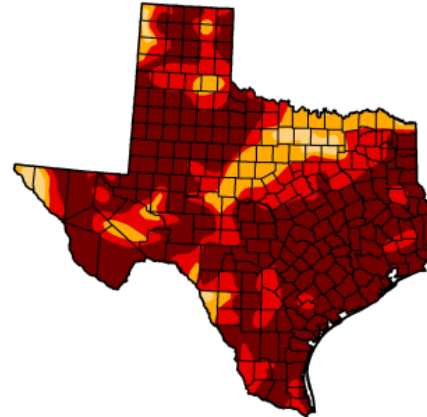
# Weekly Snowpack and Drought Monitor Update Report

## U.S. Drought Monitor Texas

November 22, 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	97.44	86.75	62.97
Last Week (11/15/2011 map)	0.00	100.00	100.00	97.57	88.76	65.11
3 Months Ago (08/23/2011 map)	0.00	100.00	99.93	99.01	94.42	77.80
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 (11/16/2010 map)	43.84	56.16	25.09	4.83	0.00	0.00

### Intensity:



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Local conditions may vary. See accompanying text summary  
for forecast statements.

<http://droughtmonitor.unl.edu>



Released Wednesday, November 23, 2011  
Anthony Artusa, NOAA/NWS/CPC

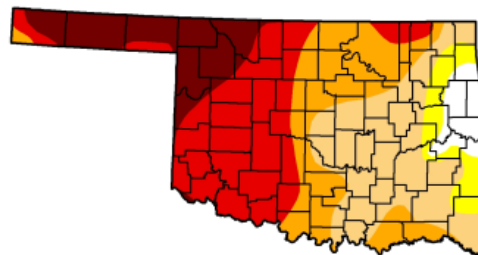
Fig. 4b(1): Currently, ~63% of [Texas](#) is experiencing “Exceptional” D4 drought. ~89% of the state is in D3 and D4 drought! Overall, this represents slight improvement in D4 this week.

## U.S. Drought Monitor Oklahoma

November 22, 2011  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	5.10	94.90	88.74	63.43	42.33	14.43
Last Week (11/15/2011 map)	0.00	100.00	97.33	85.25	55.39	31.77
3 Months Ago (08/23/2011 map)	0.00	100.00	100.00	96.63	85.37	66.87
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 (11/16/2010 map)	51.65	48.35	3.13	0.00	0.00	0.00

### Intensity:



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

<http://droughtmonitor.unl.edu>



Released Wednesday, November 23, 2011  
Anthony Artusa, NOAA/NWS/CPC

Fig. 4b(2): Currently, over 14% of [Oklahoma](#) is experiencing “Exceptional” D4 drought. Over 42% of the state is in D3 and D4 drought! This week saw significant improvements in D3 and D4.

## Weekly Snowpack and Drought Monitor Update Report

# U.S. Drought Monitor

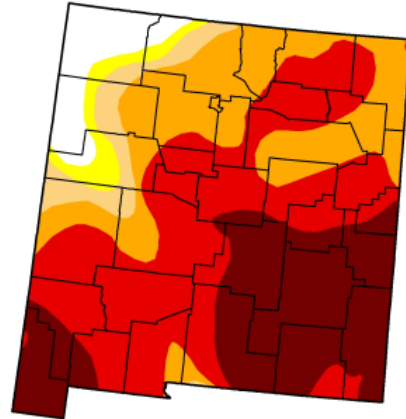
## New Mexico

November 22, 2011  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	6.28	93.72	90.69	85.60	63.04	26.11
Last Week (11/15/2011 map)	6.28	93.72	90.69	85.60	63.04	26.11
3 Months Ago (08/23/2011 map)	0.00	100.00	100.00	92.57	74.10	42.88
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 (11/16/2010 map)	69.49	30.51	0.00	0.00	0.00	0.00

### Intensity:

■ D0 Abnormally Dry      ■ D3 Drought - Extreme  
■ D1 Drought - Moderate      ■ D4 Drought - Exceptional  
■ 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>



Released Wednesday, November 23, 2011  
Anthony Artusa, NOAA/NWS/CPC

Fig. 4b(3): Currently, 26% of New Mexico is experiencing “Exceptional” D4 drought. Over 63% of the state is in D3 and D4 drought. Overall, this represents no change this week.

# U.S. Drought Monitor

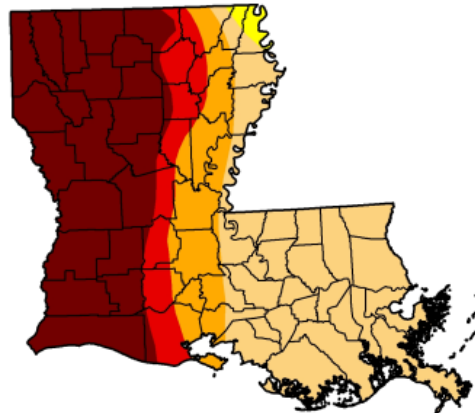
## Louisiana

November 22, 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	99.11	63.64	50.10	40.67
Last Week (11/15/2011 map)	0.00	100.00	99.11	63.55	50.11	40.67
3 Months Ago (08/23/2011 map)	0.00	100.00	94.41	80.68	55.97	28.19
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 (11/16/2010 map)	27.12	72.88	56.61	49.94	25.09	0.00

### Intensity:

■ D0 Abnormally Dry      ■ D3 Drought - Extreme  
■ D1 Drought - Moderate      ■ D4 Drought - Exceptional  
■ 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>



Released Wednesday, November 23, 2011  
Anthony Artusa, NOAA/NWS/CPC

Fig. 4b(4): Currently, 40% of Louisiana is experiencing “Exceptional” D4 drought. Over 50% of the state is in D3 and D4 drought. Overall, this represents no change during the week.

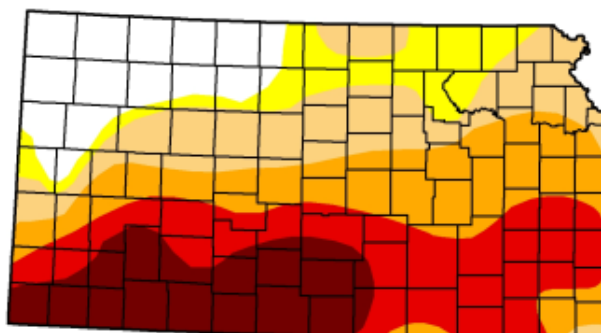


# U.S. Drought Monitor

## Kansas

November 22, 2011  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	14.25	85.75	76.21	57.22	36.47	15.46
Last Week (11/15/2011 map)	14.39	85.61	76.21	57.21	36.47	15.39
3 Months Ago (08/23/2011 map)	28.77	71.23	62.24	49.07	23.54	14.55
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 (11/16/2010 map)	60.19	39.81	11.33	0.00	0.00	0.00



Intensity:



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

<http://droughtmonitor.unl.edu>



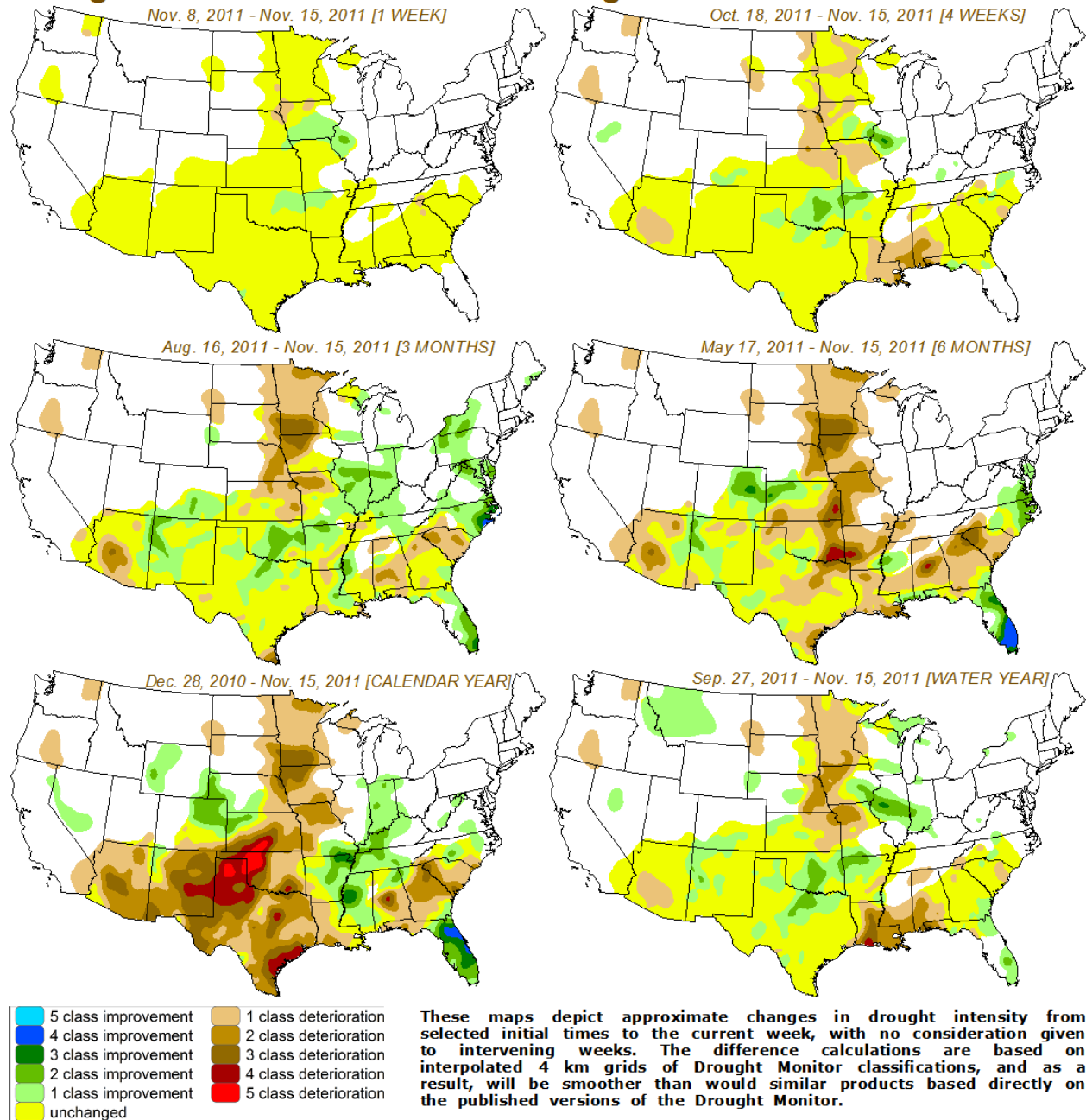
Released Wednesday, November 23, 2011  
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Fig. 4b(5): Currently, 15% of Kansas is experiencing "Exceptional" D4 drought and 36% of the state is in D3 and D4 drought. Overall, this represents no change this week.

## Weekly Snowpack and Drought Monitor Update Report

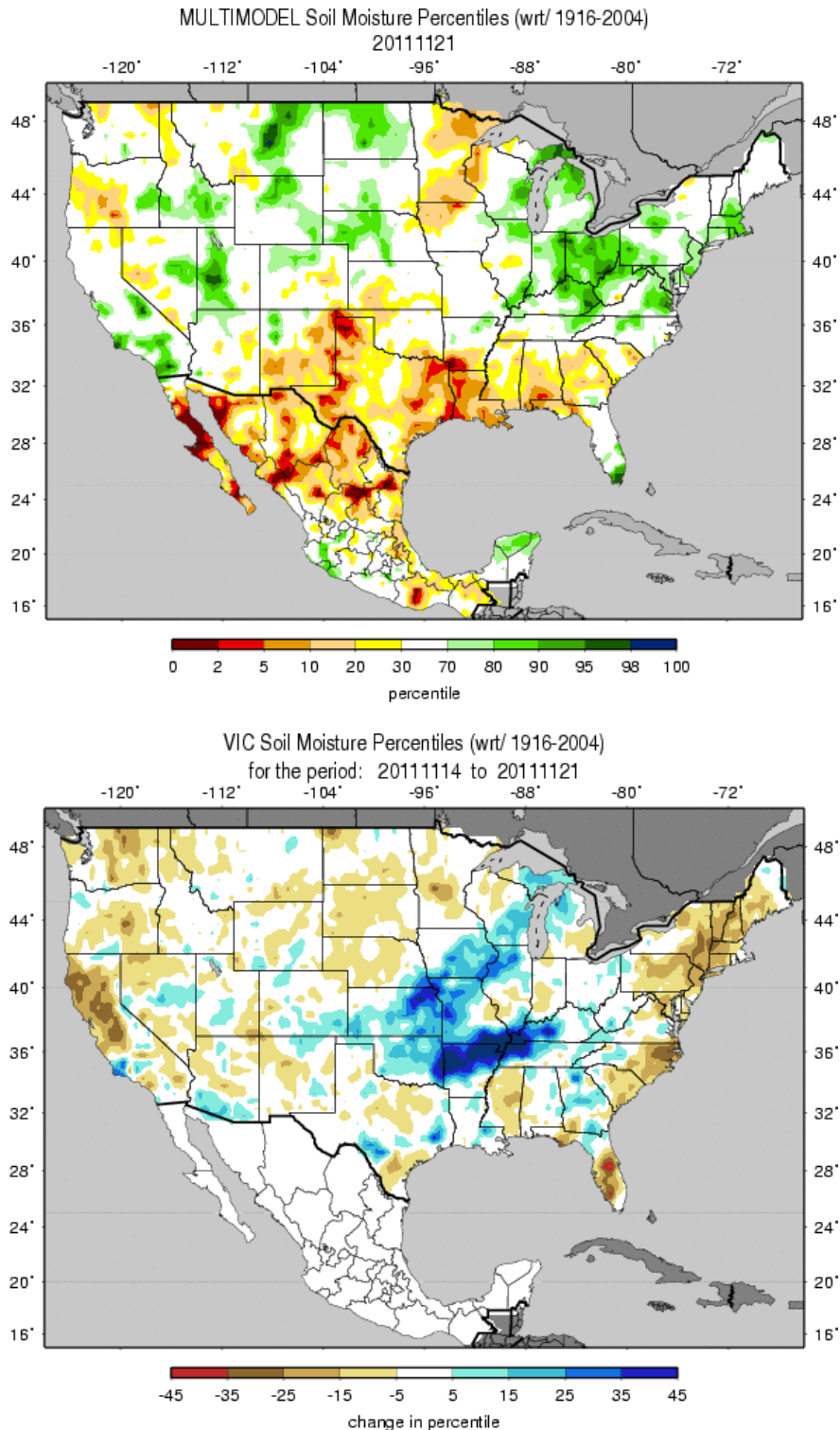
Fig

### Drought Monitor Classification Changes for Selected Time Periods



**Fig. 4c: Drought Monitor Category Changes** over several time periods. Some recent precipitation over northern Texas and southern Oklahoma since the start of the Water Year is noted in the lower right map. However, during this same period, Louisiana 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 21 November (top) shows moist conditions over the Ohio Valley, and scattered across the Western States while the Northeastern and Southern Plains and the Coastal Gulf States have the greatest deficits. During the week, significant increases in moisture is noted over Central Mississippi River Valley while a drying trend is seen over much of the East and West Coast (Bottom).

# Weekly Snowpack and Drought Monitor Update Report

## Soil Climate Analysis Network (SCAN)

Station (2042) MONTH=2011-10-24 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision  
Wed Nov 23 07:03:30 PST 2011

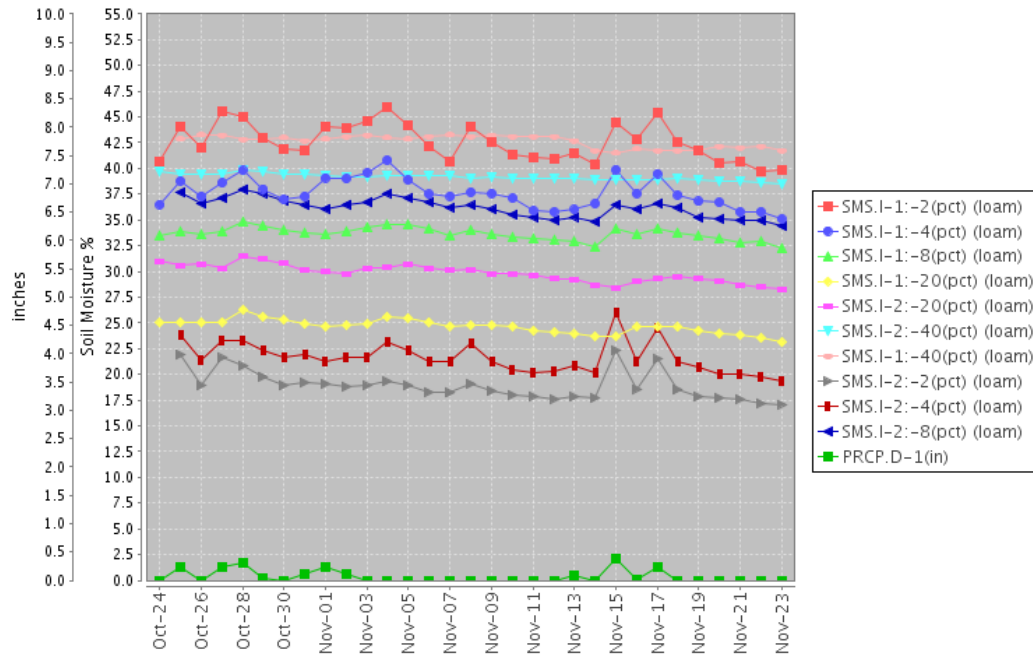


Fig. 6a: This NRCS resource shows a site over [southern Vermont](#) with a decreasing moisture trend at all depths.

Station (2084) MONTH=2011-10-24 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision  
Wed Nov 23 07:05:30 PST 2011

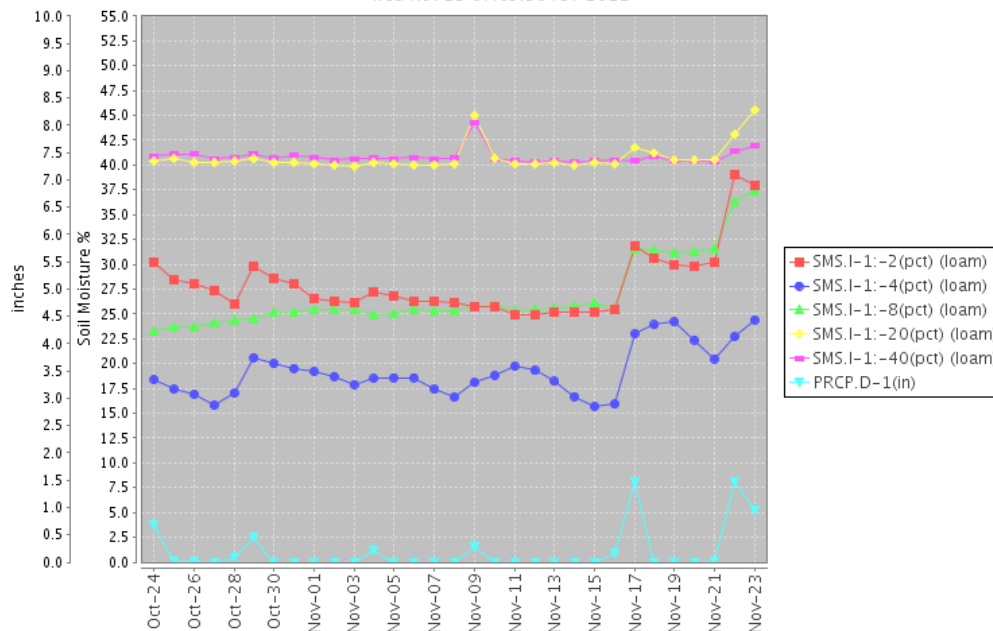
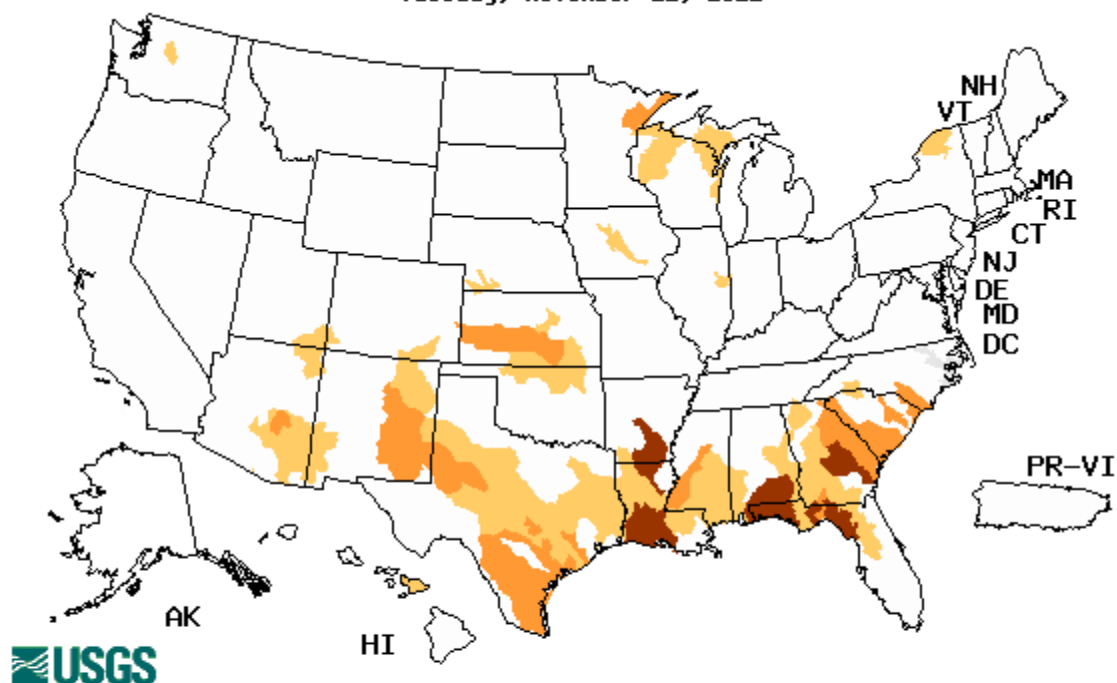


Fig. 6b: This SCAN station is located in [eastern Arkansas](#) shows significant improvement of soil moisture due to recent significant rains. Note moisture has finally reached the 20" and 40" depth.



## Weekly Snowpack and Drought Monitor Update Report

Tuesday, November 22, 2011



Explanation - Percentile classes				
Low	$\leq 5$	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, Georgia, Louisiana, and Arkansas.

## Weekly Snowpack and Drought Monitor Update Report

### Special Report

**Vancouver, Washington (November 22nd 2011 - 3:45pm PST)** - "The strongest storm of the fall season is bringing heavy in rainfall, flooding, power outages and strong winds to locations across Oregon and Washington. Here are the peak wind gusts and highest rainfall totals from around the Pacific Northwest for the 24 hours ending at 3pm PST."

#### 24 hour peak wind gusts ending at 3pm PST

Station	Elev	MAX 24 Hr Gust
<u>Rattlesnake Moun</u>	3560 ft	100
<u>Mt. Hebo HEBOWX</u>	3160 ft	97
<u>HOZOMEEN</u>	1700 ft	95
<u>Gable Mountain</u>	1086 ft	87
<u>Mission Ridge-to</u>	6739 ft	85
<u>Crystal Mtn-top</u>	6870 ft	83
<u>SQUAW PEAK</u>	4964 ft	83
<u>Mt Howard HOWARD</u>	8150 ft	81
<u>ONION MOUNTAIN L</u>	4438 ft	78
<u>HUMPTULLIPS</u>	2400 ft	75
<u>Timberline Lodge</u>	7001 ft	75
<u>Ferndale CW3375</u>	106 ft	74
<u>Lincoln C LINCON</u>	187 ft	74
<u>ROCKHOUSE 1</u>	1797 ft	74
<u>Mount Identifier</u>	3480 ft	74
<u>Cape Mear MEARES</u>	1421 ft	72
<u>White Pass-top</u>	5909 ft	72
<u>North Ben DW1832</u>	971 ft	71
<u>FLYNN PRAIRIE</u>	1543 ft	71
<u>ZIM</u>	4089 ft	70
<u>Mount Baker-Pano</u>	5000 ft	69
<u>Garibaldi</u>	0 ft	69
<u>PATJENS</u>	2170 ft	69
<u>SUMMER LAKE</u>	5085 ft	69
<u>Yaquina Bridge W</u>	120 ft	68
<u>Yaquina Bridge W</u>	120 ft	68
<u>TIDEWATER</u>	2035 ft	67
<u>Florence/Siuslaw</u>	26 ft	67
<u>Yachats YACHTS</u>	74 ft	67
<u>Cape Disappointm</u>	120 ft	66
<u>Cape Foul NEWPRT</u>	1024 ft	66
<u>Pacific PACCTY-2</u>	28 ft	66
<u>Edna</u>	410 ft	66
<u>Hurricane Ridge</u>	5151 ft	64
<u>Rattlesnake Spri</u>	679 ft	64
<u>ALDER RIDGE</u>	4500 ft	64
<u>Port Orford</u>	0 ft	62
<u>Condon CW7527</u>	2838 ft	62

## Weekly Snowpack and Drought Monitor Update Report

<u>LITTLE MCCOY CRE</u>	5080 ft	62
<u>Clatsop Spit</u>	30 ft	61
<u>NORTH POLE RIDGE</u>	3480 ft	61
<u>Bellingham Inter</u>	157 ft	60
<u>SUGARLOAF</u>	4328 ft	60
<u>Hanford Emergenc</u>	1240 ft	60
<u>WAGONTIRE</u>	6420 ft	60

### 24 hour rainfall totals ending at 3pm PST (partial list)

<b>Station</b>	<b>Elev</b>	<b>24 HR Precip</b>
<u>DRY CRK</u>	2700 ft	6.61
<u>SWIFT CREEK</u>	3770 ft	6.10
<u>JEFFERSON CREEK</u>	2200 ft	5.94
<u>JUNE LAKE</u>	3340 ft	5.60
<u>Mt. Hebo HEBOWX</u>	3160 ft	5.15
<u>CEDAR</u>	2220 ft	4.74
<u>SHEEP CANYON</u>	4030 ft	4.60
<u>NEHALEM RIVER NE</u>	40 ft	4.56
<u>SPENCER MEADOW</u>	3400 ft	4.40
<u>Swift Dam</u>	1010 ft	4.33
<u>LOG CREEK</u>	2800 ft	4.31
<u>LEES CAMP RAIN G</u>	655 ft	4.30
<u>NORTH FORK</u>	762 ft	4.25
<u>SKOKO</u>		
<u>Camas DW4130</u>	246 ft	4.18
<u>CALAMITY</u>	2500 ft	4.10
<u>ORR CREEK</u>	3000 ft	4.02
<u>LONE PINE</u>	3800 ft	4.00
<u>NORTH FORK</u>	3120 ft	4.00
<u>SOUTH FORK</u>	2257 ft	3.95
<u>Bremerton KB2SKP</u>	459 ft	3.85
<u>Frances</u>	231 ft	3.80

## Weekly Snowpack and Drought Monitor Update Report

### National Drought Summary -- November 22, 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/>.

**The Northeast and Mid-Atlantic:** Light to moderate rains (up to 2 inches) fell across much of the Northeast and Mid-Atlantic regions, with a few locations in southern Virginia reporting heavy rainfall (2-3 inches). With adequate precipitation during the past few weeks, and near to above-normal stream flows, no changes were made to the regional drought depiction for this week.

**Southeast:** Precipitation was on the light to moderate side (up to 2 inches) across most of the region during this past week, with heavy rains (2 to 3 inches) observed over the higher terrain of the southern Appalachians and Piedmont area. The Southeast has experienced mainly long-term (6 months or greater) impacts. In the past 2 months, the largest rainfall deficits (5 to 10 inches below normal) have been in the southern portions of the Central Gulf Coast region. In Alabama, recent rainfall boosted soil moisture and helped offset further deterioration. Up to an inch of rain has recently fallen across most of South Carolina, in addition to the 2-inch or greater amounts in the upstate area. Groundwater and reservoir levels continue to slowly decline, potentially justifying some degradation in the state's drought depiction next week. Stream flow percentiles in the lowest quarter of the historical distribution are common throughout the Southeast.

**Lower Mississippi/Ohio/Tennessee Valleys:** Widespread heavy rains (2-6 inches, locally heavier) were reported from southeastern Oklahoma through central and northeastern Arkansas through much of Kentucky and Tennessee. A one to two category improvement was made across this region. Much of this area has seen at least 110 percent of normal precipitation in the past 60 days, with substantial coverage of 150 to 200 percent of normal precipitation. Lingering dryness (D0) over western Kentucky was eliminated due to this past week's precipitation. Current stream flows across Arkansas, the lower Tennessee Valley, and the lower Ohio Valley are near to above normal. The wetness in this region has been remarkably persistent for at least the past 3-months.

**Midwest:** Although this past week has been mostly dry across the Midwest, abundant antecedent precipitation significantly replenished surface water supplies across this region, and has also helped to recharge soil moisture after the recent harvesting. With significant changes made in the regional drought depiction last week, and much less water demand now that the harvest is completed, it was decided to go with status quo this week.

**The Central and Southern Plains:** As mentioned earlier, southeastern Oklahoma received very heavy precipitation amounts (generally 2 to 6 inches, with isolated amounts of 10 inches in southern LeFlore and Pushmataha Counties) during the past 7-days, and several lakes in the region have recovered up to 7 feet as a result. Widespread one to two category improvements were made in this area's drought depiction. In central and western Oklahoma, several inches of



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rain resulted in 1-category improvements, primarily from exceptional drought (D4) to extreme drought (D3) conditions. In extreme northeastern Texas, 2-3 inch rains resulted in 1-2 category improvements from Cooke County eastward into Bowie County. Elsewhere in Texas, relatively minor adjustments were made.

**The West:** Although precipitation has been heavy (2 inches or greater, liquid equivalent) in the Cascades and Coastal Ranges of Washington and Oregon, precipitation in the interior Pacific Northwest has generally been under an inch. No changes in the drought depiction were made this week to the area. In the Southwest, Arizona and southeastern California experienced temperatures within a few degrees of normal and fairly light precipitation. No improvements or degradations were made to the drought depiction this week.

**Alaska, Hawaii and Puerto Rico:** Most of Alaska received little if any precipitation during the last 7 days, and even the typically wet Panhandle received maximum amounts near 2 inches. Stream flows across the state are primarily near to above normal, including the northern Panhandle region. From about Glacier Bay southward however, stream flows are running below the 30-year average. At this time, there is little justification for indicating abnormal dryness (D0) anywhere in the state. In Hawaii, rainfall amounts were generally light (up to 0.5 inch), except for northeast facing (windward) slopes, where moderate to heavy rains fell (1.0-4.5 inches). The only alterations to the Hawaiian drought depiction were made in Kauai, where rains over the past 2 to 3 weeks warrant a one-category upgrade across the island. Puerto Rico reported mostly light to moderate rains (up to 1.5 inches) during the week. No changes are deemed necessary for the drought depiction in Puerto Rico.

**Looking Ahead:** Over the next five days (November 23-27), temperatures are expected to be as much as 15-20 degrees above normal across the Central U.S., spreading westward into the Rockies and Great Basin towards the end of the period. Near normal temperatures are forecast elsewhere, with below normal temperatures expected to dominate the lower Mississippi Valley and adjacent portions of the southern Plains and Southeast late in the period. A band of heavy precipitation (2 to 3.5 inches) is anticipated from eastern Texas to central Illinois, and then eastward to southern New England. Very heavy precipitation (5 to 8 inches, liquid equivalent) is predicted for the Cascades and Coastal Ranges of Washington and Oregon, extending into northern California.

The CPC 6-10 day forecast (November 28 - December 2) predicts relatively mild Pacific air and zonal flow will prevail across the western and central CONUS, and a trough in the eastern CONUS. Temperatures are predicted to be above normal for most of the northern and western lower 48 states, with the best chances of below normal temperatures across the Southeast. The best chances for above-median precipitation are in the East, while most remaining areas are predicted to have below-median precipitation.

**Author:** [Anthony Artusa, NOAA/NWS/CPC](#)

### 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

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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 22, 2011*