



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

Weekly Report - Snowpack / Drought Monitor Update

Date: 3 November 2011

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Temperature: [SNOTEL](#) and ACIS 7-day temperature anomaly shows temperatures within 5 degrees of normal except somewhat colder over Colorado (Fig. 1). [ACIS](#) 7-day average temperature anomalies show the greatest positive temperature departures over eastern Montana (>+4°F) and the greatest negative departures over northwest New Mexico and central Utah (<-4°F) (Fig. 1a).

Precipitation: [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows the greatest totals over NW Washington (Fig. 2). In terms of percent of normal, another early winter snow storm over the Central and Montana Rockies dominated for the 2nd straight week (Fig 2a). With the start of the [2012 Water-Year](#) that began on 1 October 2011, any precipitation that falls will skew the statistics since any precipitation that falls is somewhat unusual this time of year over the West. However, a pattern of wetter and drier areas across the West are beginning to emerge (Fig. 2b).

The West: Good rains and some upper elevation snow over much of the state has allowed for reduction in D3 conditions in southern and southeastern Colorado. After a dry and very hot late summer and early autumn period, conditions in Arizona diminished and a categorical shift of the drought intensities was made, moving the intensity levels to the west and bringing D3 into much of southern Arizona. Author: Brian Fuchs, National Drought Mitigation 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. 3 through 3b).

Soil Moisture

Soil moisture (Figs. 4a and 4b), 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/>.

Weekly Snowpack and Drought Monitor Update Report

Soil Climate Analysis Network (SCAN)

Figure 5 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. 6) 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

SNOTEL (solid) and ACIS (dot-filled) Networks 7-Day Average Temperature Anomaly (Degrees F)

Nov 02, 2011

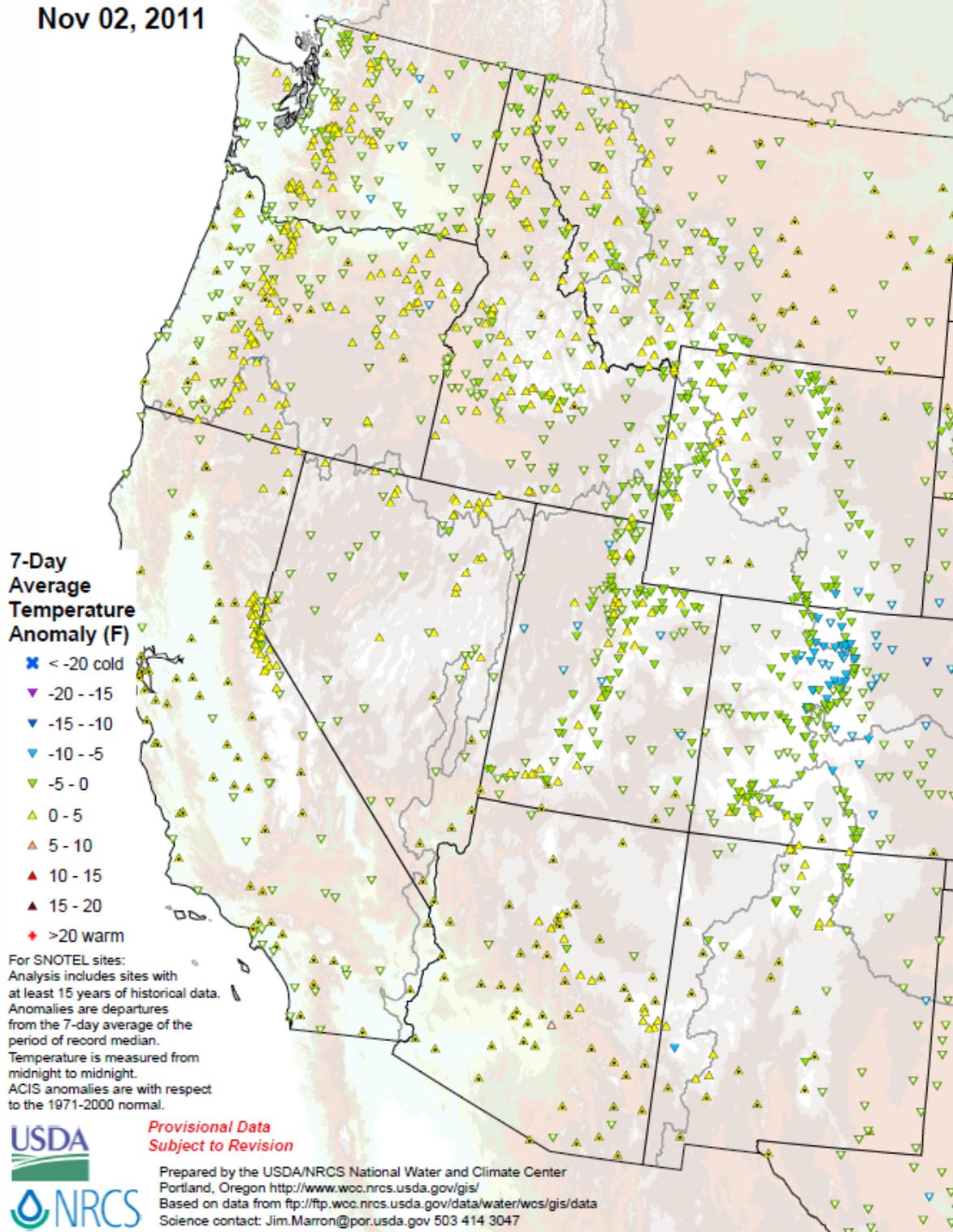
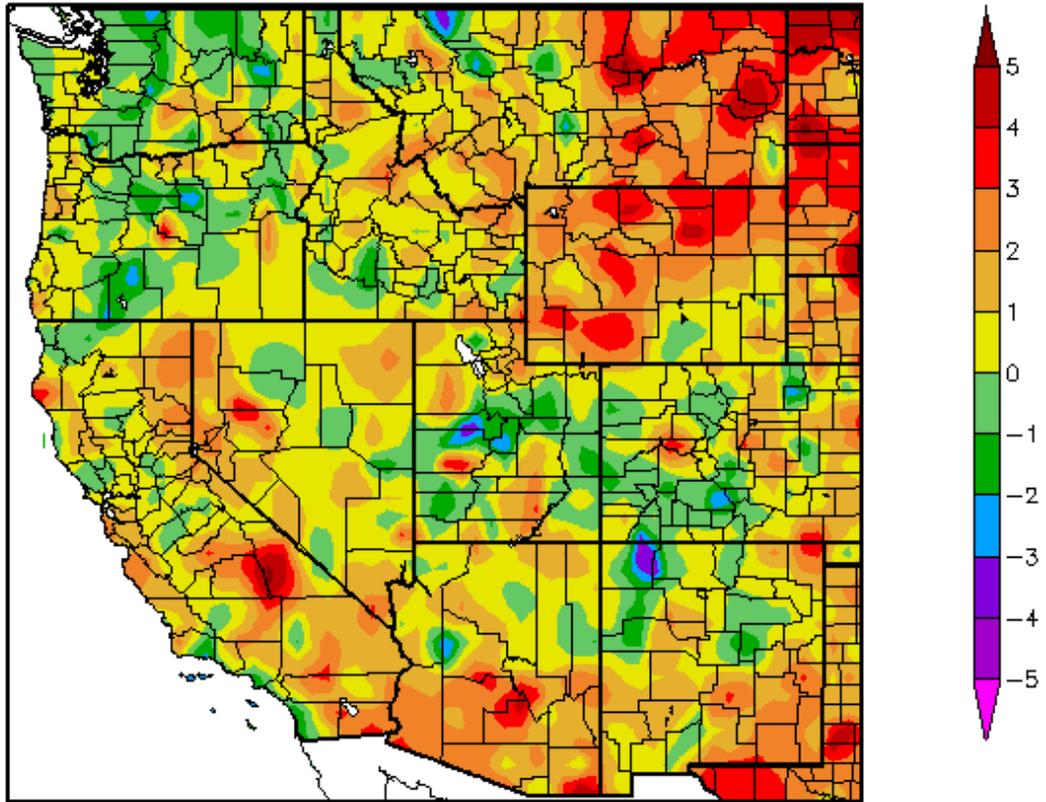


Fig. 1: **SNOTEL** and ACIS 7-day temperature anomaly shows temperatures within 5 degrees of normal except somewhat colder over Colorado.

Departure from Normal Temperature (F)
10/3/2011 - 11/1/2011



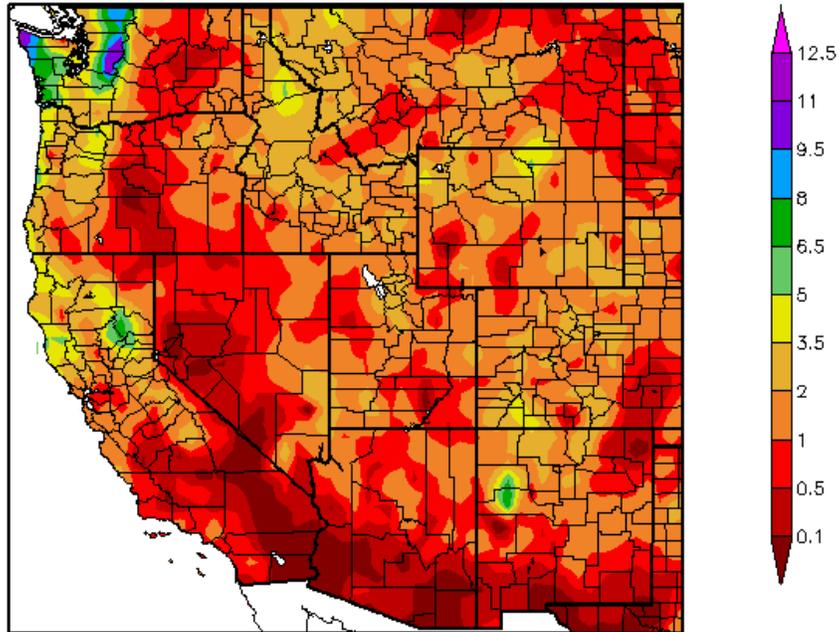
Generated 11/2/2011 at HPRCC using provisional data.

Regional Climate Centers

Fig. 1a: **ACIS** 7-day average temperature anomalies show the greatest positive temperature departures over eastern Montana ($>+4^{\circ}\text{F}$) and the greatest negative departures over northwest New Mexico and central Utah ($<-4^{\circ}\text{F}$).

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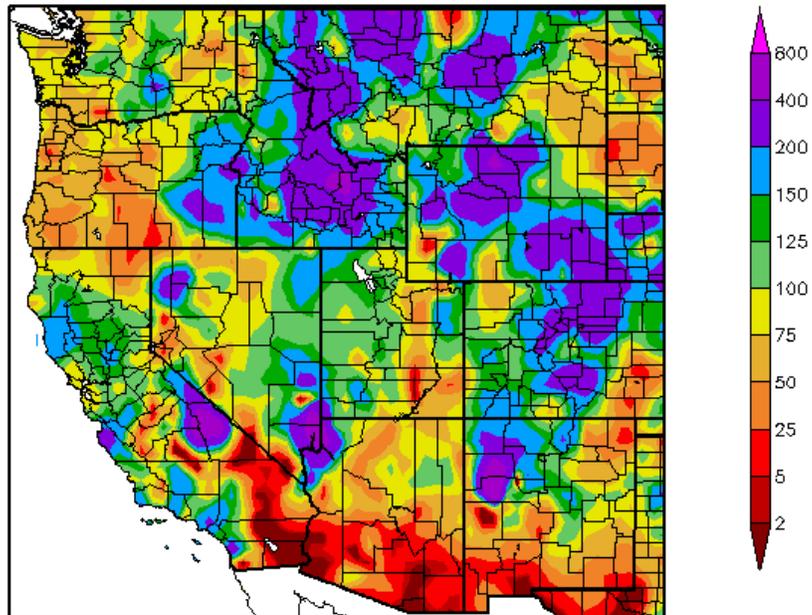
Precipitation (in)
10/4/2011 - 11/2/2011



Generated 11/3/2011 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)
10/4/2011 - 11/2/2011



Generated 11/3/2011 at HPRCC using provisional data.

Regional Climate Centers

Fig. 2 and 2a: [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows the greatest totals over NW Washington (Fig. 2). In terms of percent of normal, another early winter snow storm over the Central and Montana Rockies dominated for the 2nd straight week (Fig 2a).

Weekly Snowpack and Drought Monitor Update Report

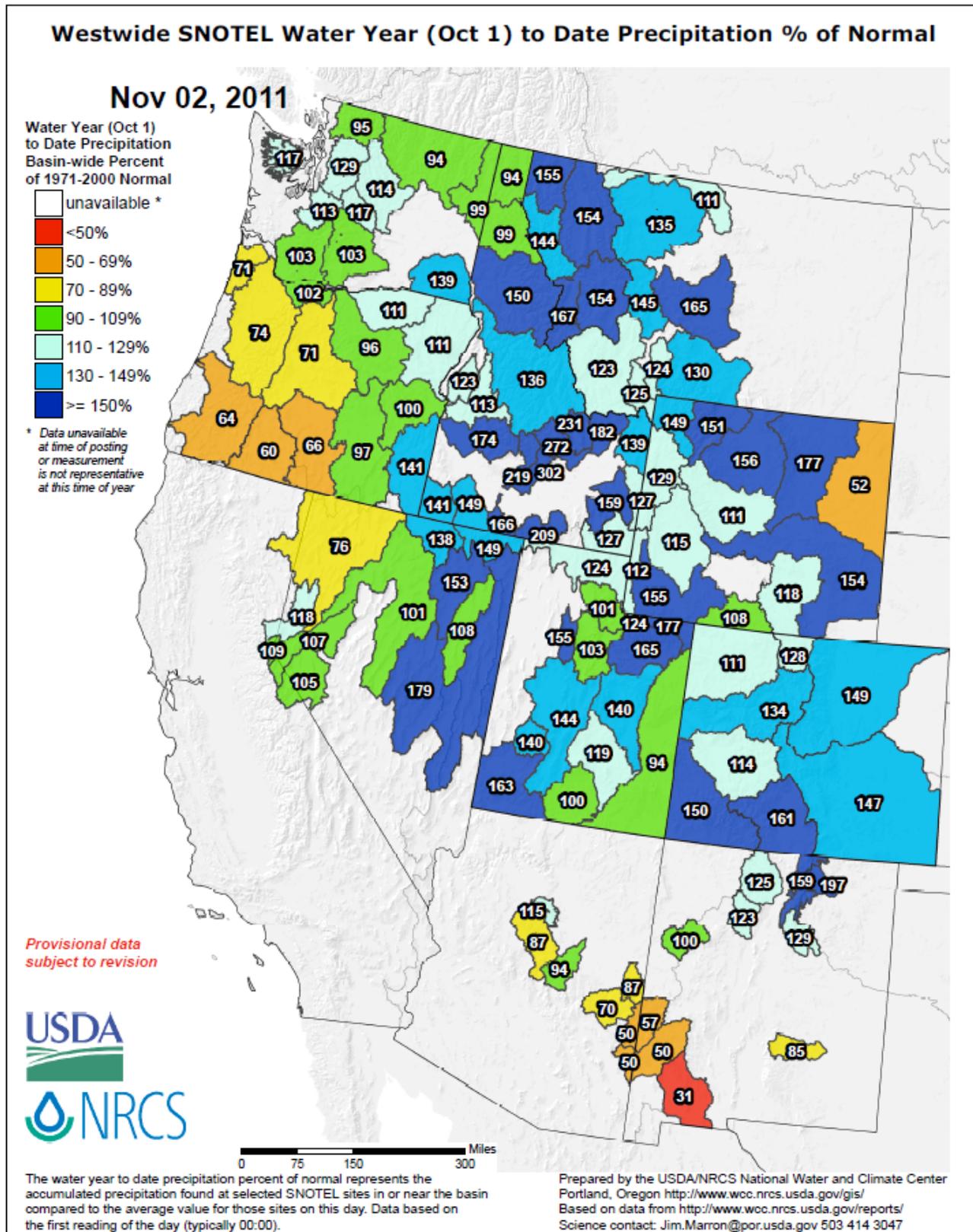


Fig 2b: With the start of the 2012 Water-Year that began on 1 October 2011, any precipitation that falls will skew the statistics since any precipitation that falls is somewhat unusual this time of year over the West. However, a pattern of wetter and drier areas across the West are beginning to emerge.

U.S. Drought Monitor

November 1, 2011
Valid 8 a.m. EDT

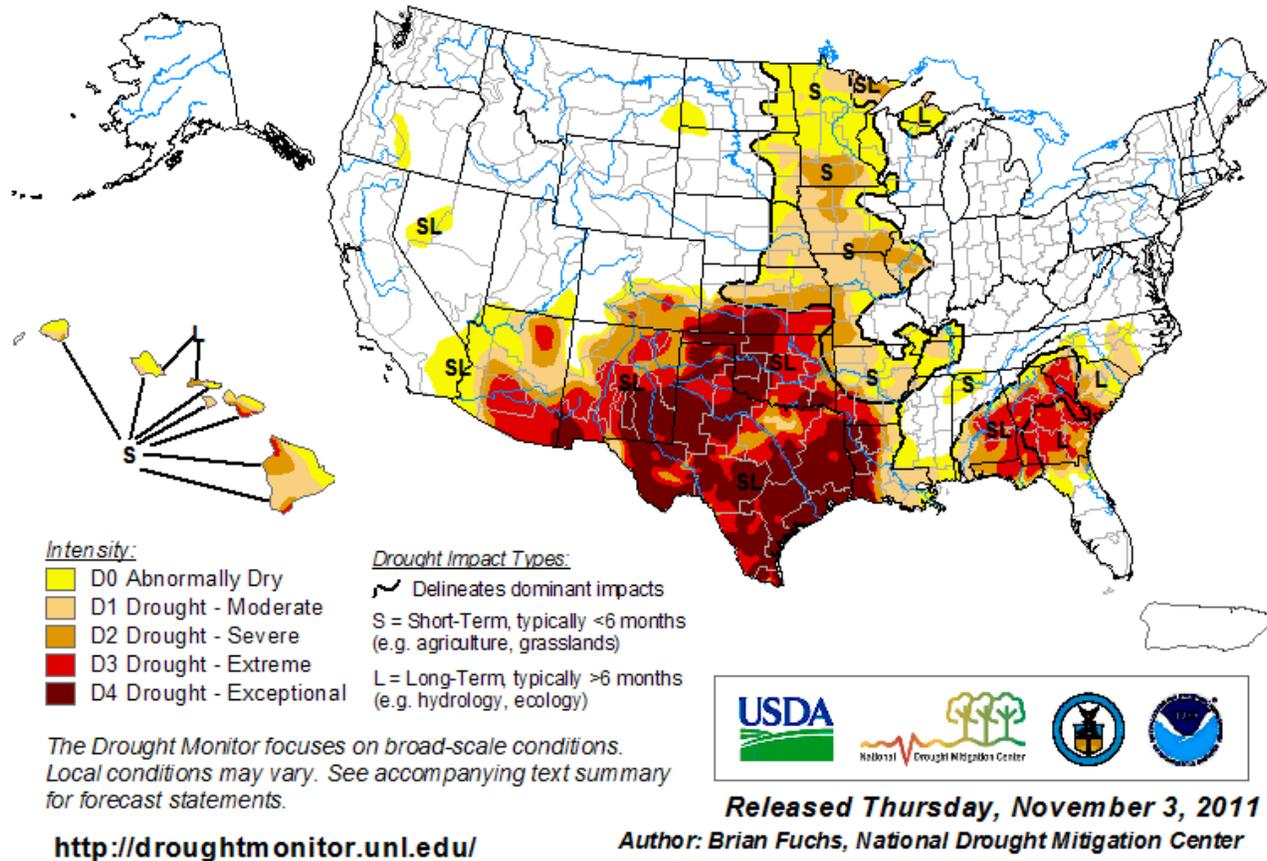


Fig. 3: Current **Drought Monitor** weekly summary. The exceptional D4 levels of drought are found over extreme southeast Arizona, New Mexico, Texas, Oklahoma, Kansas, and western Louisiana.

Drought Impact Reporter

Drought conditions hurting local farmers

Oct 25, Kansas. Hay production was decreased by 30 to 40 percent in many areas, leading to a potential forage shortage this winter. Ranchers began feeding hay three months early because there was no grass, but have less hay for the winter.

Drought impacts may be slowing down

Oct 25, Oklahoma. The beef cow slaughter in federal region 6, encompassing Arkansas, Louisiana, New Mexico, Oklahoma and Texas, was still high, but tapering off for the past three weeks. Last week's figure was still 19 percent above this time last year.

Drought, more corn acres create hay shortage for cattle

Oct 27, Northeastern Missouri. Beef cattle producers had to begin feeding hay more than a month ago, which means that they will need more hay than usual to get through the winter. Unfortunately, hay production was down, due to drought.

Forecasters: NM gets some rain, but not enough

Oct 25, New Mexico. Production losses for a wide range of crops were in the tens of millions of dollars, according to a range specialist with the New Mexico Department of Agriculture. The estimated number of harvested acres of wheat fell to 95,000 in New Mexico, the first time in 57 years that the harvested acres fell below 100,000.

Oklahoma Pecan Harvest Looks Dismal

Oct 23, Oklahoma. The pecan crop is smaller in nut size and overall quantity, thanks to the blistering summer of 2011.

Crucial surface-water shortage by spring could mean Burnet seeks new supply

Oct 25, Burnet, Texas. Burnet is considering alternate water supplies since its supplier, the Lower Colorado River Authority, was implementing water restrictions as its water sources were quickly becoming depleted. Lakes Travis and Buchanan were at 39 percent of capacity on October 25.

U.S. Drought Monitor

West

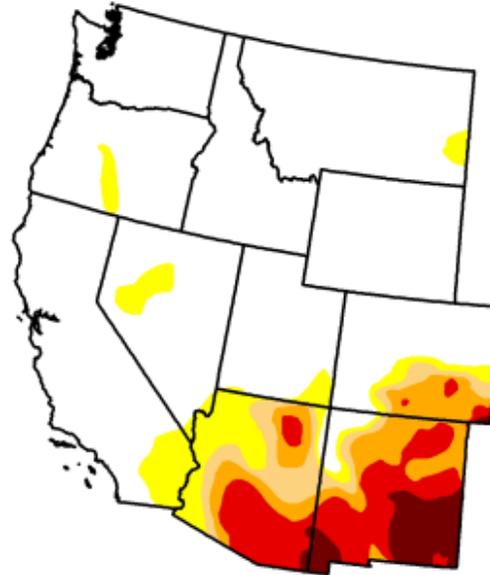
November 1, 2011
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	74.16	25.84	18.67	15.19	9.60	2.87
Last Week (10/25/2011 map)	74.12	25.88	18.32	14.67	8.48	2.87
3 Months Ago (08/02/2011 map)	74.90	25.10	18.98	15.44	11.10	5.52
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 (10/26/2010 map)	69.02	30.98	5.39	0.19	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>



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Fig. 3a: Drought Monitor for the [Western States](#) with statistics over various time periods. Regionally there was little change in drought condition this week.

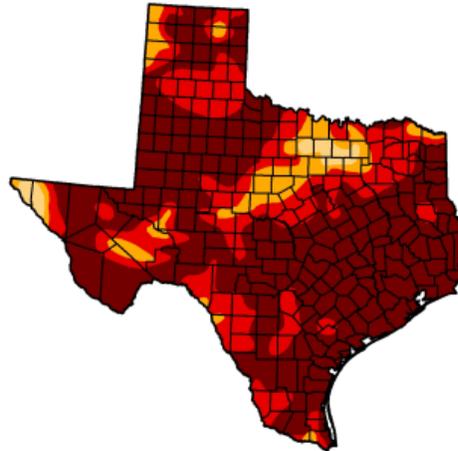
Weekly Snowpack and Drought Monitor Update Report

U.S. Drought Monitor

Texas

November 1, 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	98.18	90.42	64.95
Last Week (10/25/2011 map)	0.00	100.00	100.00	98.34	90.87	69.61
3 Months Ago (08/02/2011 map)	0.07	99.93	99.48	98.67	91.73	73.49
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 (10/26/2010 map)	57.82	42.18	20.47	3.15	0.08	0.00



Intensity:



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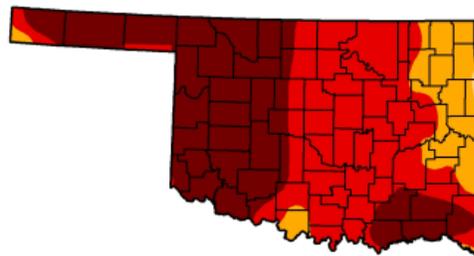
Fig. 3b(1): Currently, ~65% of [Texas](#) is experiencing “Exceptional” D4 drought. ~91% of the state is in D3 and D4 drought! Overall, there was a 4% improvement in D4 this week.

U.S. Drought Monitor

Oklahoma

November 1, 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	99.28	85.48	42.87
Last Week (10/25/2011 map)	0.00	100.00	100.00	99.89	86.26	54.84
3 Months Ago (08/02/2011 map)	0.00	100.00	100.00	100.00	88.10	64.30
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 (10/26/2010 map)	72.01	27.99	0.00	0.00	0.00	0.00



Intensity:



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Fig. 3b(2) Currently, over ~55% of [Oklahoma](#) is experiencing “Exceptional” D4 drought. Over 86% of the state is in D3 and D4 drought! This week D4 improved by 4 percent.

Weekly Snowpack and Drought Monitor Update Report

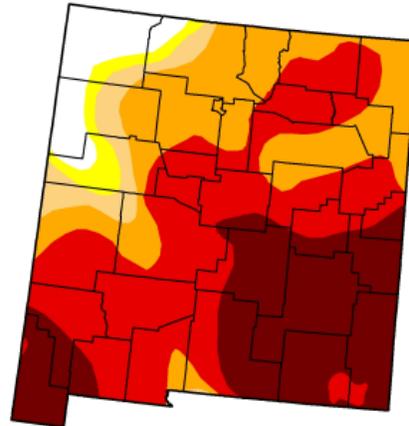
U.S. Drought Monitor New Mexico

November 1, 2011
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	6.27	93.73	90.77	85.85	63.02	26.35
Last Week (10/25/2011 map)	6.24	93.76	90.71	85.90	63.02	26.35
3 Months Ago (08/02/2011 map)	0.00	100.00	100.00	93.24	79.05	47.47
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 (10/26/2010 map)	76.52	23.48	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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<http://droughtmonitor.unl.edu>



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Fig. 3b(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.

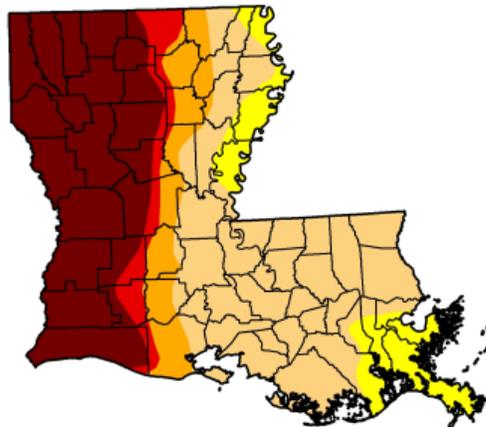
U.S. Drought Monitor Louisiana

November 1, 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	89.85	50.50	40.63	35.36
Last Week (10/25/2011 map)	6.18	93.82	69.80	50.49	40.63	35.36
3 Months Ago (08/02/2011 map)	0.00	100.00	100.00	94.18	57.29	18.38
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 (10/26/2010 map)	2.39	97.61	85.30	61.22	33.60	0.00

Intensity:

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



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Brian Fuchs, National Drought Mitigation Center

Fig. 3b(4): **Currently**, 35% of **Louisiana** is experiencing “Exceptional” D4 drought. Over 40% of the state is in D3 and D4 drought. Overall, this represents no change this week.

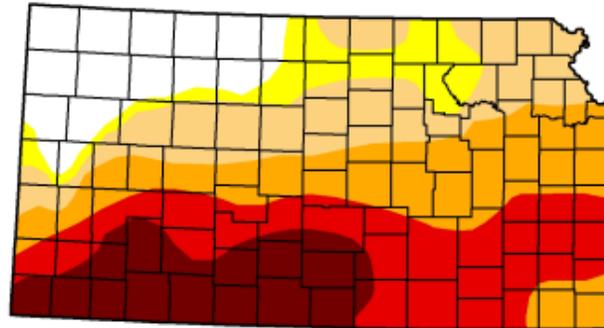
U.S. Drought Monitor

Kansas

November 1, 2011
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	14.39	85.61	77.39	58.19	36.82	15.16
Last Week (10/25/2011 map)	20.45	79.55	66.24	54.87	34.06	15.16
3 Months Ago (08/02/2011 map)	24.54	75.46	66.43	44.81	22.66	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 (10/26/2010 map)	73.28	26.72	0.00	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.

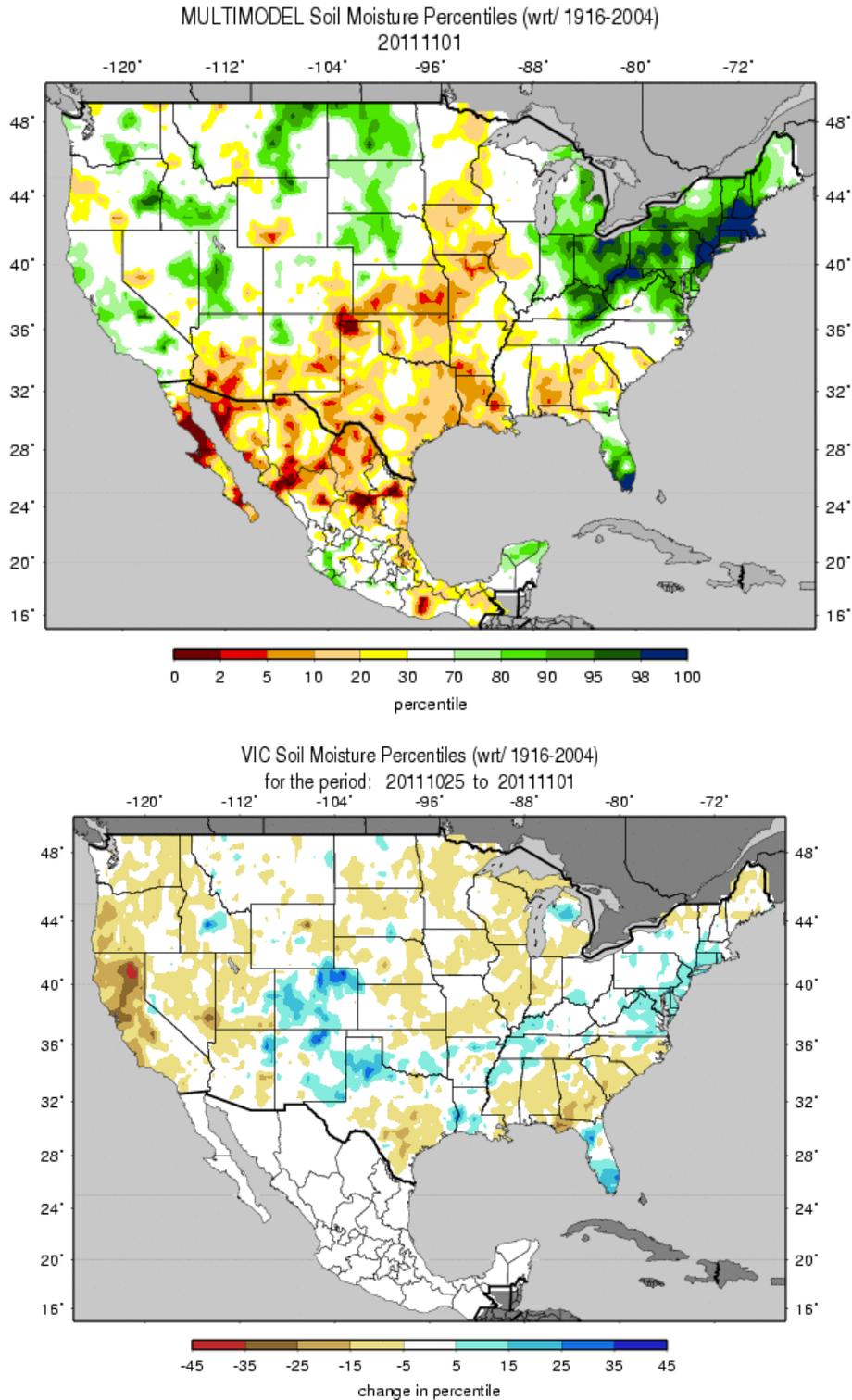
<http://droughtmonitor.unl.edu>



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Brian Fuchs, National Drought Mitigation Center

Fig. 3b(5): Currently, 15% of Kansas is experiencing “Exceptional” D4 drought 34% of the state is in D3 and D4 drought. Overall, this represents no change this week.

Weekly Snowpack and Drought Monitor Update Report



Figs. 4a and 4b: Soil Moisture ranking in **percentile** as of 1 November (top) shows moist conditions continuing over of New England Ohio Valley while the Panhandle area of Texas continues to have the greatest deficits. **During the week**, significant increases in moisture is noted over Colorado while a drying trend is seen over much of northern California.

Weekly Snowpack and Drought Monitor Update Report

Soil Climate Analysis Network (SCAN)

Station (2029) MONTH=2011-10-03 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision
Wed Nov 02 20:54:16 PDT 2011

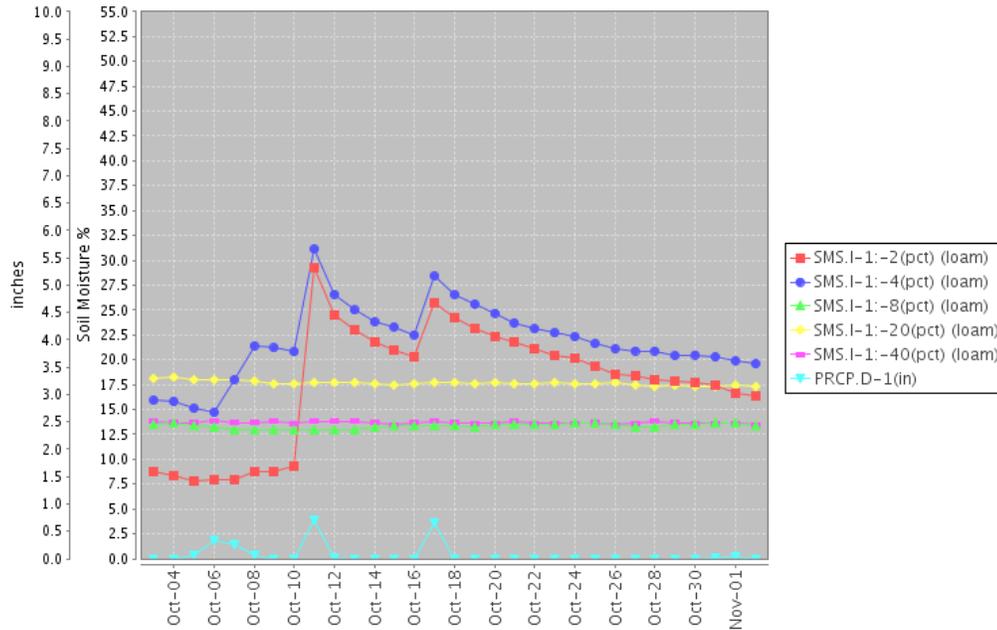


Fig. 5a: This NRCS resource shows a site over [western Idaho](#) with a decreasing moisture trend due to a lack of rains.

Station (2012) MONTH=2011-10-03 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision
Wed Nov 02 20:57:03 PDT 2011

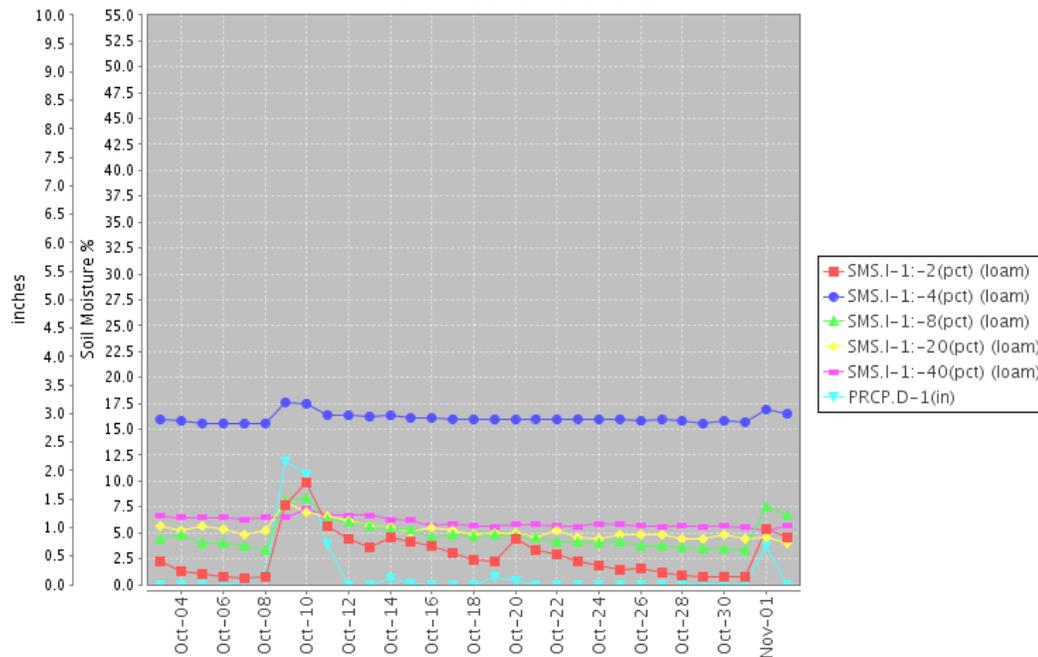


Fig. 5b: This SCAN station is located in [central Florida](#) shows steady levels of soil moisture.

Weekly Snowpack and Drought Monitor Update Report

Tuesday, November 01, 2011

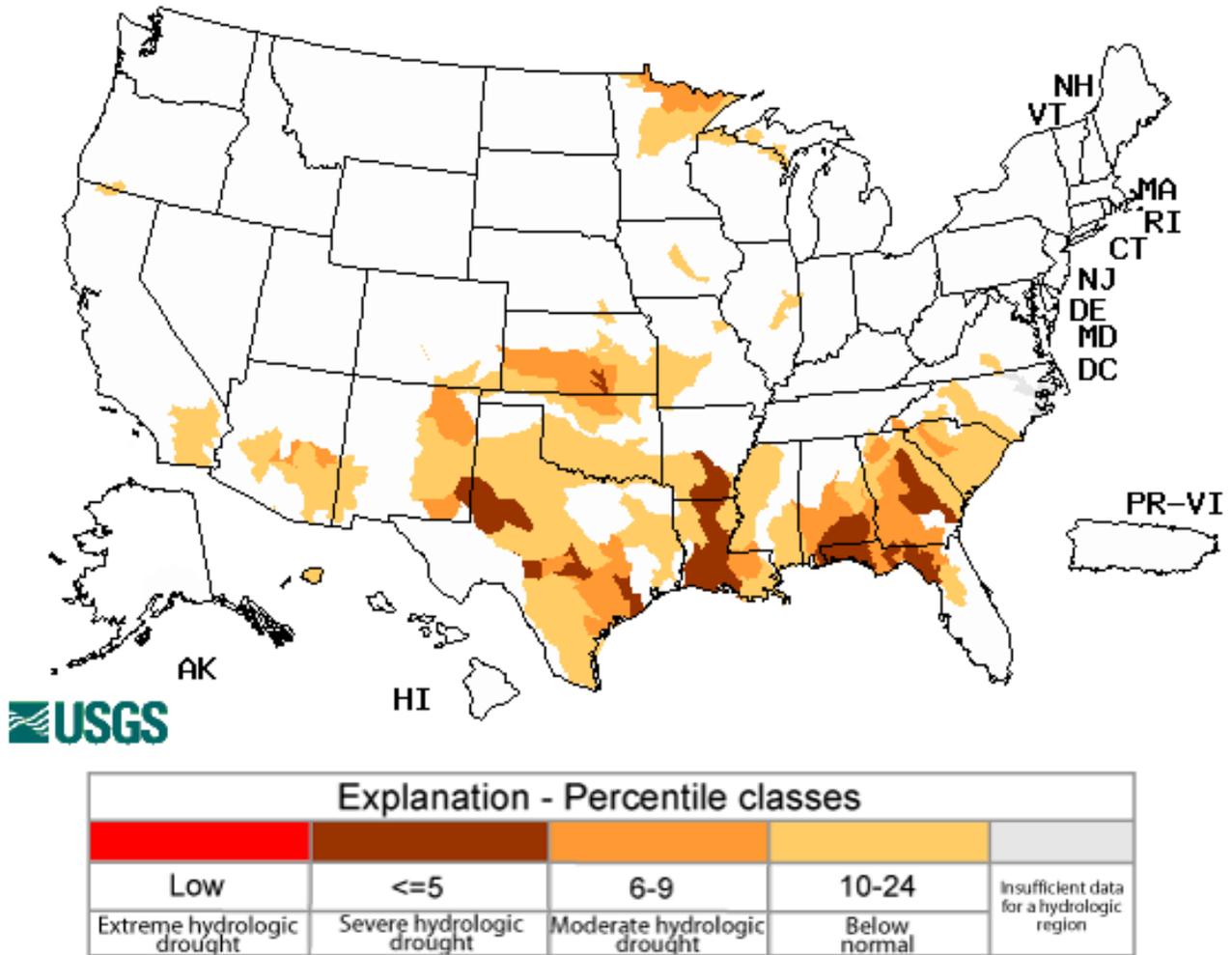


Fig. 6: Map of below normal 7-day average streamflow compared to historical streamflow for the day of year. Severe conditions continue over parts of northern Florida, southern Alabama, Georgia, Louisiana, Arkansas, Texas, south-central Kansas, and southeast New Mexico.

Weekly Snowpack and Drought Monitor Update Report

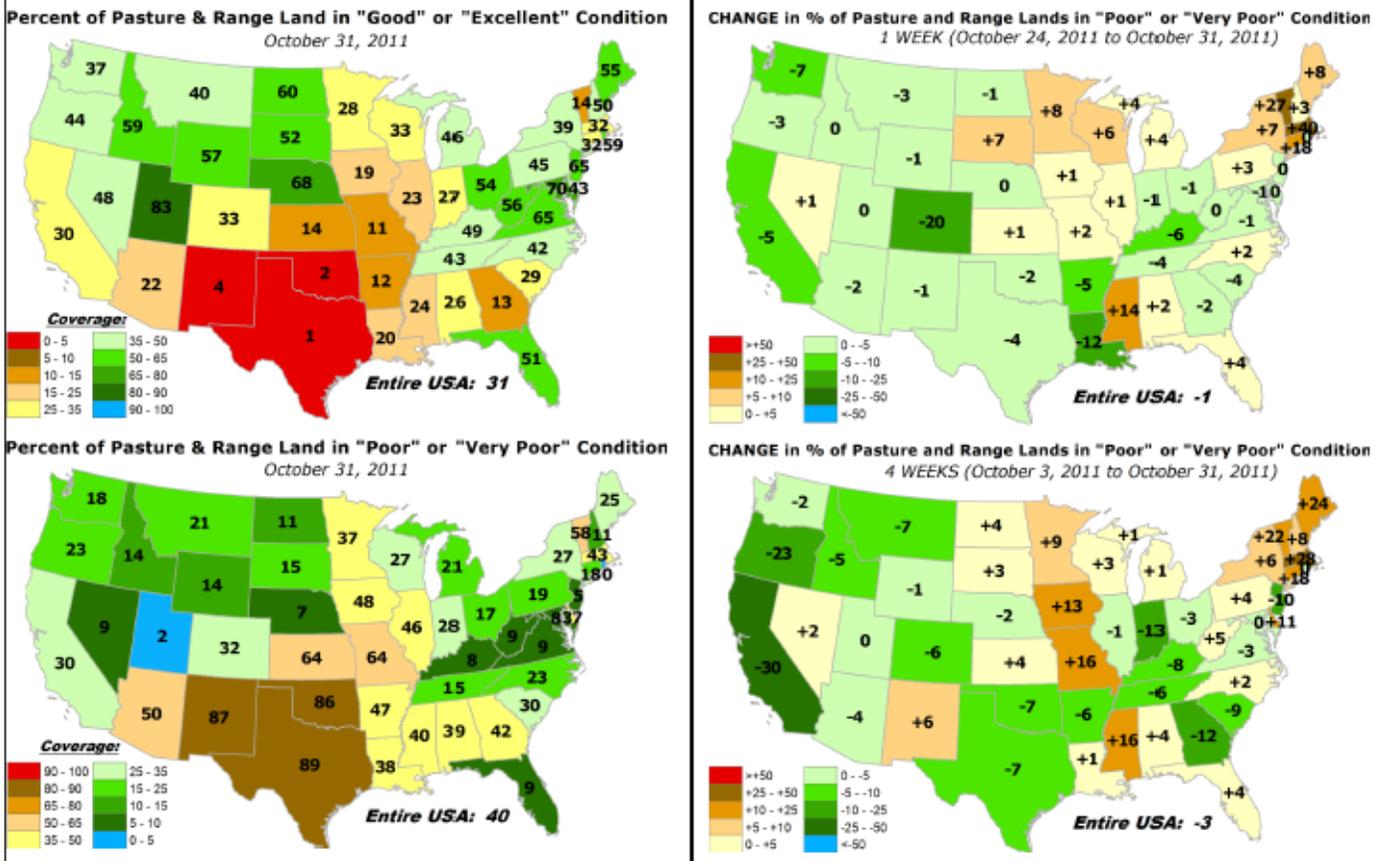


Fig. 7: [Current pasture and rangeland conditions](#) and recent changes. For the week, Colorado had the greatest improvement in the West (upper right map). Utah has the best conditions (upper left)

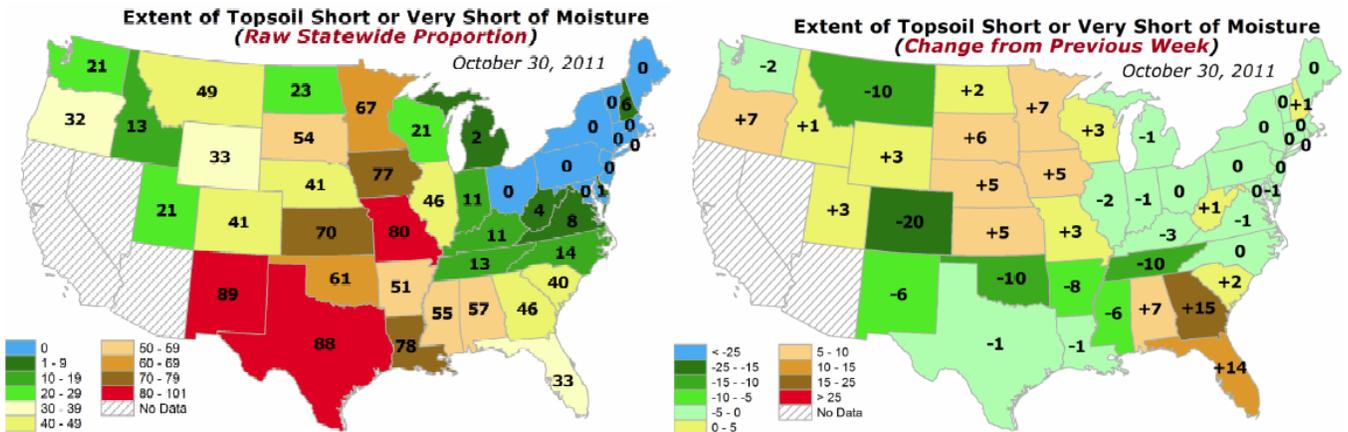


Fig. 7a: [Current top soil](#) condition and changes for the past week. Clearly Texas, Missouri, and New Mexico have extreme soil moisture deficits (upper left).

Note: These charts are the last of the season.

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National Drought Summary – November 1, 2011

The Northeast and Mid-Atlantic: An early season winter storm impacted much of the northeast, with several locations recording more than a foot of very wet snow. To the south, temperatures were warm enough that snow was not an issue, but significant rain was recorded. No drought concerns are evident throughout this region at this time.

Southeast: Wet conditions through the Tennessee and Ohio valley regions allowed for the removal of a small area of D0 in Kentucky. Dry conditions continued along the Gulf Coast, where the impact of the rain associated with earlier tropical storms is beginning to fade. In southern Alabama, D1 was expanded to the west and to the south into the Florida panhandle. In Mississippi, D0 was introduced in the southern portions of the state, connecting the D0 regions in Alabama and Louisiana. The D1 region in northwestern South Carolina along the border with North Carolina was expanded as well as D0 in western North Carolina. Even with frequent storm systems passing through over the last few weeks, they have not accounted for enough rain to improve conditions in the region.

South: As with other locations along the Gulf Coast, the southern portions of Louisiana have remained dry, with many agricultural producers lacking adequate forage. With the continued dryness, D0 was introduced into the southeast part of the state while D1 was expanded as well. Arkansas continued a pattern of rainfall over the northwest portions of the state last week where many locations recorded more than 1 inch of rain. Over the last 90 days, this region has received multiple rain events that have continued to improve conditions. With the regular rain events, D2 conditions were improved to D1 this week for all of northwestern Arkansas.

Significant rains over portions of Oklahoma and the Texas panhandle allowed for improvements to the overall drought situation this week. The D4 conditions in eastern Oklahoma were improved to D3. In southern Oklahoma, Jefferson County was improved to D2 this week, while Clay, Jack, Wichita and Archer counties in Texas also saw a categorical improvement in response to recent rains. In the Texas panhandle, D4 conditions were improved to D3 where the most significant rain has been recorded over the last 60 days. Improvements will be slow in both Oklahoma and Texas as 86 percent of Oklahoma's and 89 percent of Texas' pasture and range lands are in poor to very poor condition. In Texas, 88 percent of the topsoil is rated short to very short this week as well.

Midwest: Autumn remained dry over the Midwest, helping harvest to proceed rapidly, but also not providing much soil moisture replenishment before winter. Much of the region has experienced very dry conditions over the last 60-90 days and this week was no different. In Iowa, D2 was expanded in the south central and north central portions of the state. Southwest Iowa saw D1 introduced and D0 was expanded in the northeast part of the state. Minnesota continued to be dry, especially along the northern border where D1 was expanded to the west this week. Southern Minnesota had D2 conditions expand and the area in central Minnesota that was drought free had D0 introduced this week as the remnants of heavy rains in August have diminished. In Missouri, D1 was expanded to all of the northwest part of the state while D0 conditions were introduced in central Missouri.

The Plains: The dryness over the Midwest has also extended into much of the Plains as well during the last few months. In eastern Nebraska, D1 was introduced, while D0 was shifted to

Weekly Snowpack and Drought Monitor Update Report

the west. Kansas had D0 conditions spread into most of the northeastern part of the state while a categorical degradation was present over much of eastern Kansas. In North Dakota, D0 was shifted further to the west to include most of the eastern part of the state.

The West: Good rains and some upper elevation snow over much of the state has allowed for reduction in D3 conditions in southern and southeastern Colorado. After a dry and very hot late summer and early autumn period, conditions in Arizona diminished and a categorical shift of the drought intensities was made, moving the intensity levels to the west and bringing D3 into much of southern Arizona.

Hawaii, Alaska and Puerto Rico: Dry conditions and lack of forage on Maui allowed for the introduction of D3 conditions this week along the southern reaches of the Island. For northern Maui, D0 was introduced to areas that were previously drought free while D1 and D2 conditions also shifted to the north. No changes were made in Alaska or Puerto Rico this week.

Looking Ahead: Over the next five days (November 2-6), it looks to be a very active weather pattern with precipitation chances over most of the United States. The greatest amounts are forecast over the Midwest, Pacific Northwest, and North Carolina. Temperatures are expected to be well below normal over the western U.S., where departures are expected to be 6-9 degrees Fahrenheit below normal. Warmer than normal temperatures are forecast over the Great Lakes, where departures are 3-6 degrees Fahrenheit above normal.

The CPC 6-10 day forecast (November 7-11), Temperatures are expected to stay below normal over the western United States and above normal over the eastern part of the country with the best chances of above normal temperatures over the Ohio River Valley. Conditions are expected to remain dry over the southwest and Atlantic Coast, with the best chances of above normal precipitation over the Midwest and Pacific Northwest.

Author: Brian Fuchs, National Drought Mitigation Center

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 November 2, 2011