



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

Weekly Report - Snowpack / Drought Monitor Update

Date: 12 November 2010

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Snow: SNOTEL Snow-Water Equivalent percent of normal values for 12 November 2010 shows quite a bit of variation across the West as would be expected so early in the snow accumulation season (Fig 1).

Temperature: SNOTEL temperature anomalies for the week ending 12 November reveal the largest positive departures over the Northern and Central Rockies and the largest negative departures over the Sierra (Fig. 2). ACIS 7-day average temperature anomalies show that the greatest positive temperature departures were over the Northern High Plains ($+12^{\circ}\text{F}$) and the greatest negative departures occurred over Coastal California (-2°F) (Fig. 2a).

Precipitation: ACIS 7-day average precipitation amounts for the period ending 11 November shows the bulk of the heaviest precipitation confined to the Cascades, Coastal Range of Northern California, and the Northern Sierra (Fig. 3). In terms of percent of normal, a very wet week dominated over much of the western half of the West less the Southwestern States and extreme Northwest Washington (Fig. 3a). For the new 2011 Water-Year that began on 1 October 2010, statistics are skewed to the extreme as noted by exceptionally large and small percentages. These values will be more meaningful in the coming weeks although a pattern is starting to emerge (Fig. 3b).

WESTERN DROUGHT STATUS

The West: It was another relatively warm and dry week for all but the coastal ranges along the Pacific Ocean from California up to Washington State. The only relevant change on the map this week is found in Colorado, where seasonal dryness on the order of 90 days or so is quite impressive, leading to an expansion of D0 and D1 across more of the eastern and southern counties. Author: Mark Svoboda, 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 (<http://drought.unl.edu/dm/classify.htm>)

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 and 4a).

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/>.

U.S. HISTORICAL STREAMFLOW

http://water.usgs.gov/cgi-bin/waterwatch?state=us&map_type=dryw&web_type=map.

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://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>

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

/s/ JEFF GOEBEL
Acting Director, Resource Inventory Division

Weekly Snowpack and Drought Monitor Update Report

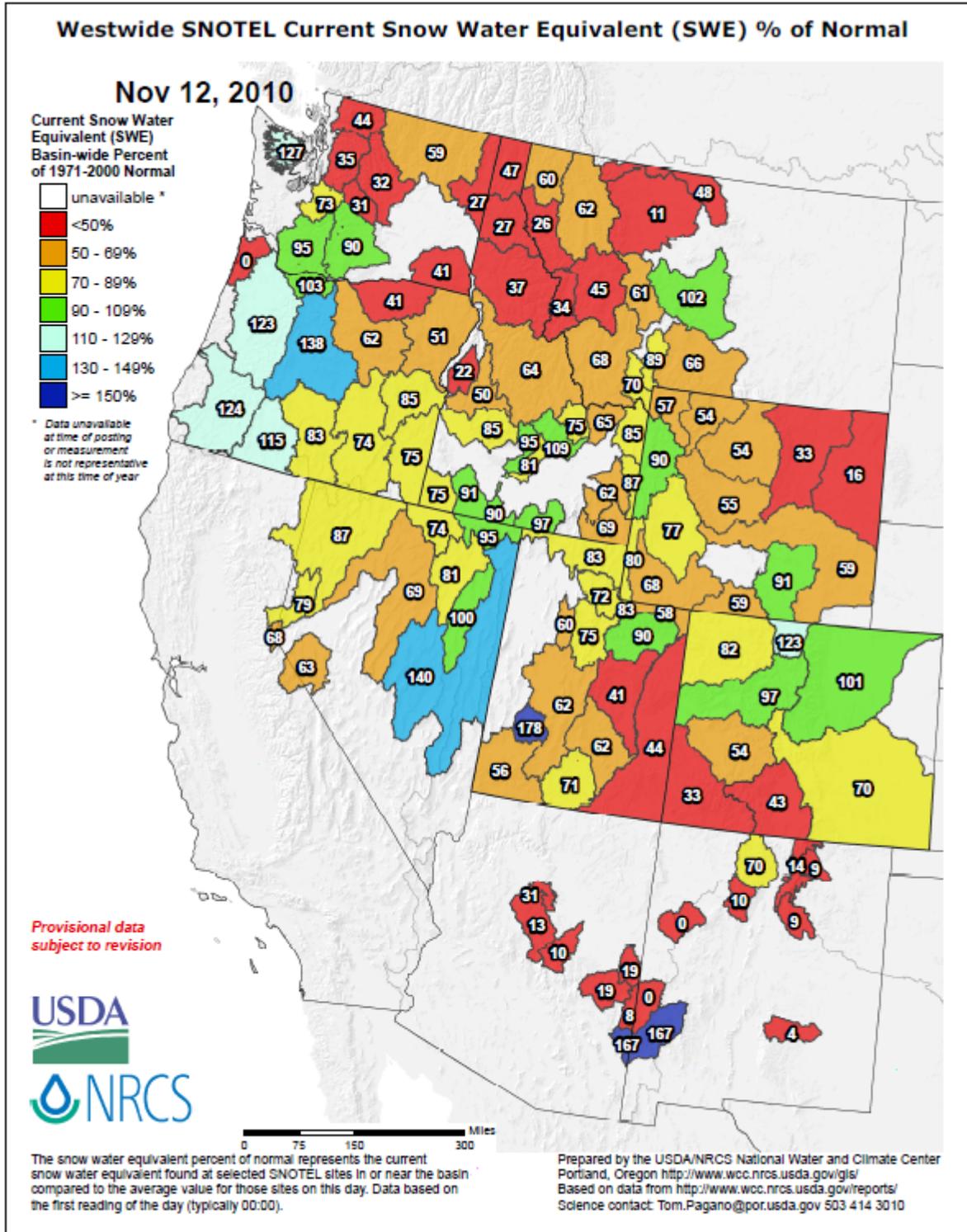


Fig 1. SNOTEL Snow-Water Equivalent percent of normal values for 12 November 2010 shows quite a bit of variation across the West as would be expected so early in the snow accumulation season.

Ref: ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west_swepctnormal_update.pdf

Weekly Snowpack and Drought Monitor Update Report

SNOTEL (solid) 7-Day Average Temperature Anomaly (Degrees F) Nov 12, 2010

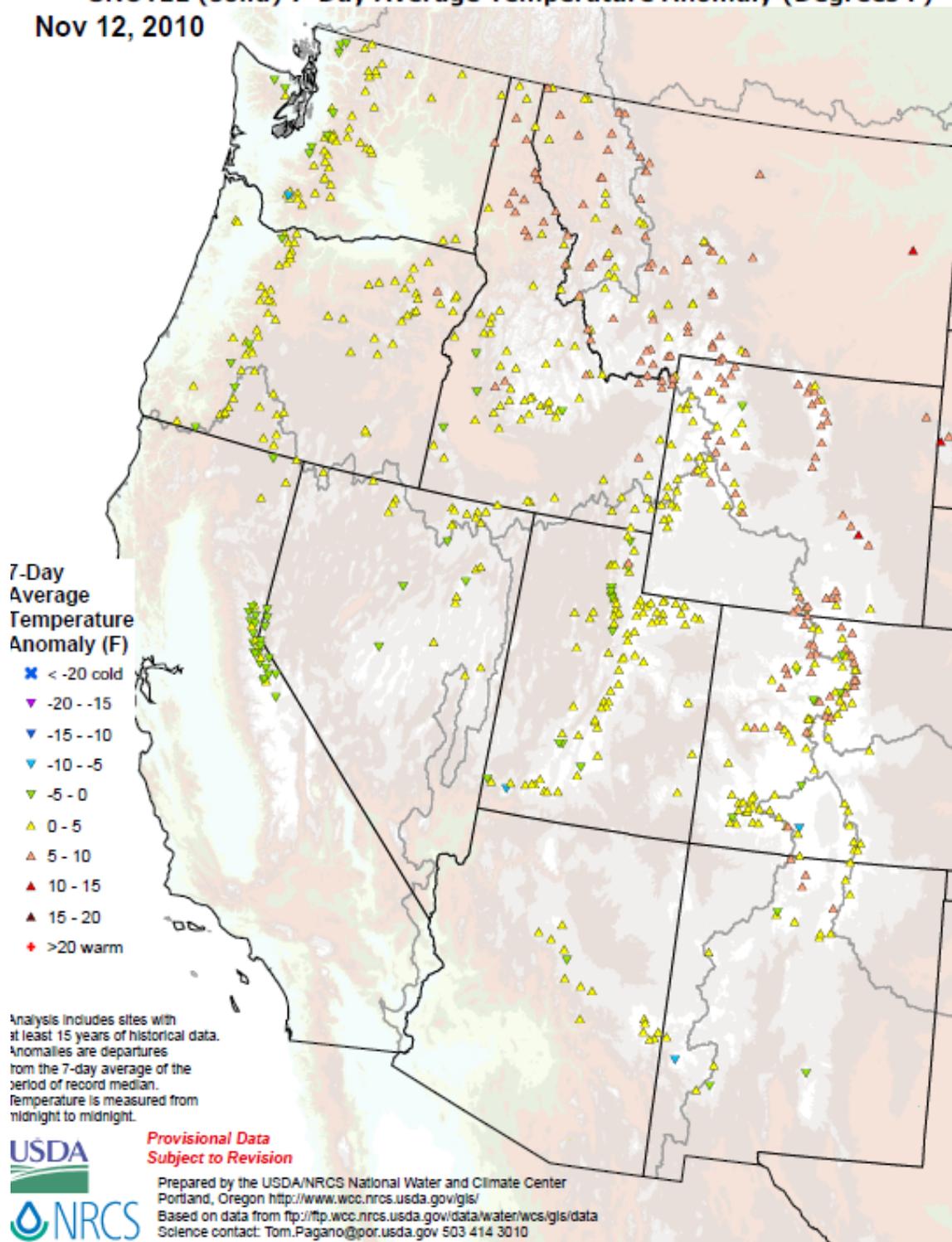
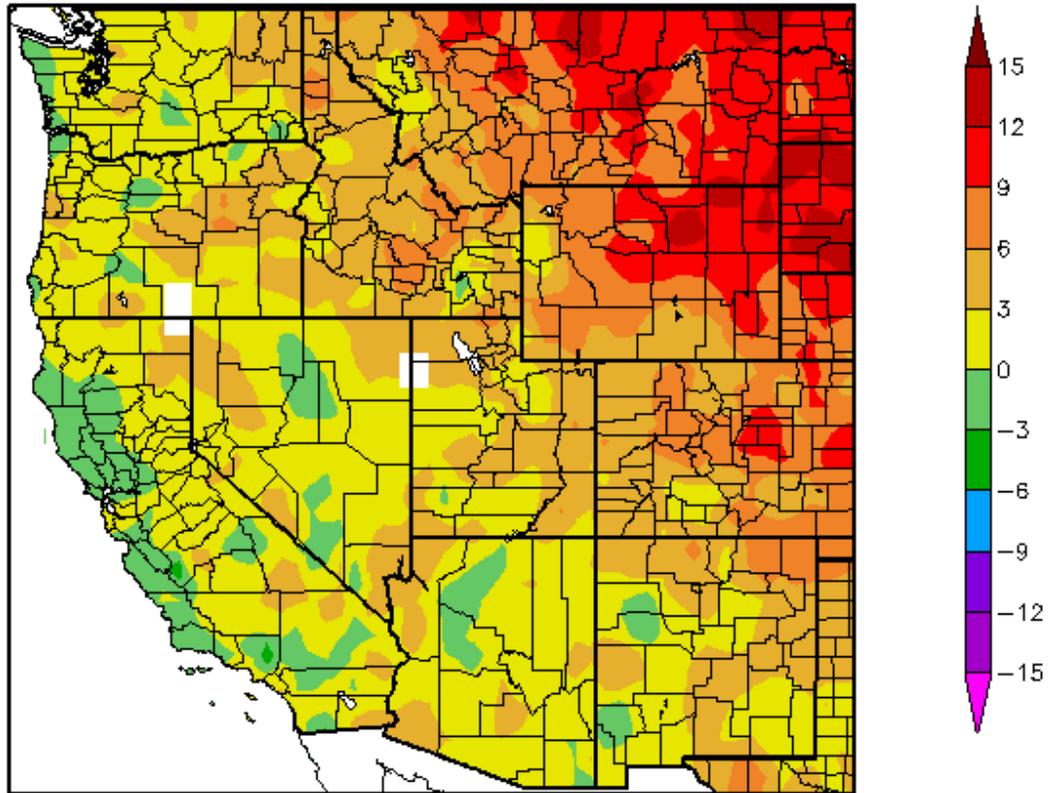


Fig. 2: SNOTEL temperature anomalies for the week ending 12 November reveal the largest positive departures over the Northern and Central Rockies and the largest negative departures over the Sierra.

Ref: <http://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/WestwideTavg7dAnomaly.pdf>

Weekly Snowpack and Drought Monitor Update Report

Departure from Normal Temperature (F)
11/5/2010 – 11/11/2010



Generated 11/12/2010 at HPRCC using provisional data.

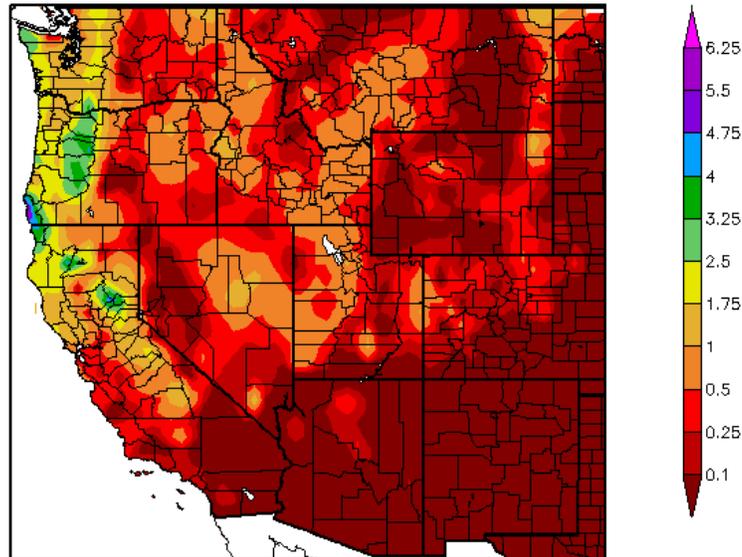
Regional Climate Centers

Fig. 2a: ACIS 7-day average temperature anomalies show that the greatest positive temperature departures were over the Northern High Plains (>+12°F) and the greatest negative departures occurred over Coastal California (<-2°F).

Ref: http://www.hprcc.unl.edu/maps/current/index.php?action=update_daterange&daterange=7d

Weekly Snowpack and Drought Monitor Update Report

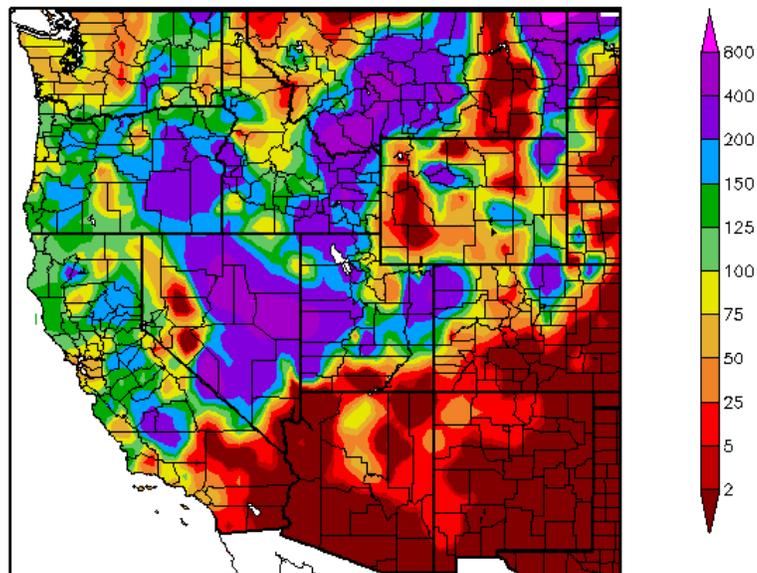
Precipitation (in)
11/5/2010 - 11/11/2010



Generated 11/12/2010 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)
11/5/2010 - 11/11/2010



Generated 11/12/2010 at HPRCC using provisional data.

Regional Climate Centers

Fig. 3 and 3a: ACIS 7-day average precipitation amounts for the period ending 11 November shows the bulk of the heaviest precipitation confined to the Cascades, Coastal Range of Northern California, and the Northern Sierra (Fig. 3). In terms of percent of normal, a very wet week dominated over much of the western half of the West less the Southwestern States and extreme Northwest Washington (Fig. 3a).

Ref: <http://www.hprcc.unl.edu/maps/current/>

Weekly Snowpack and Drought Monitor Update Report

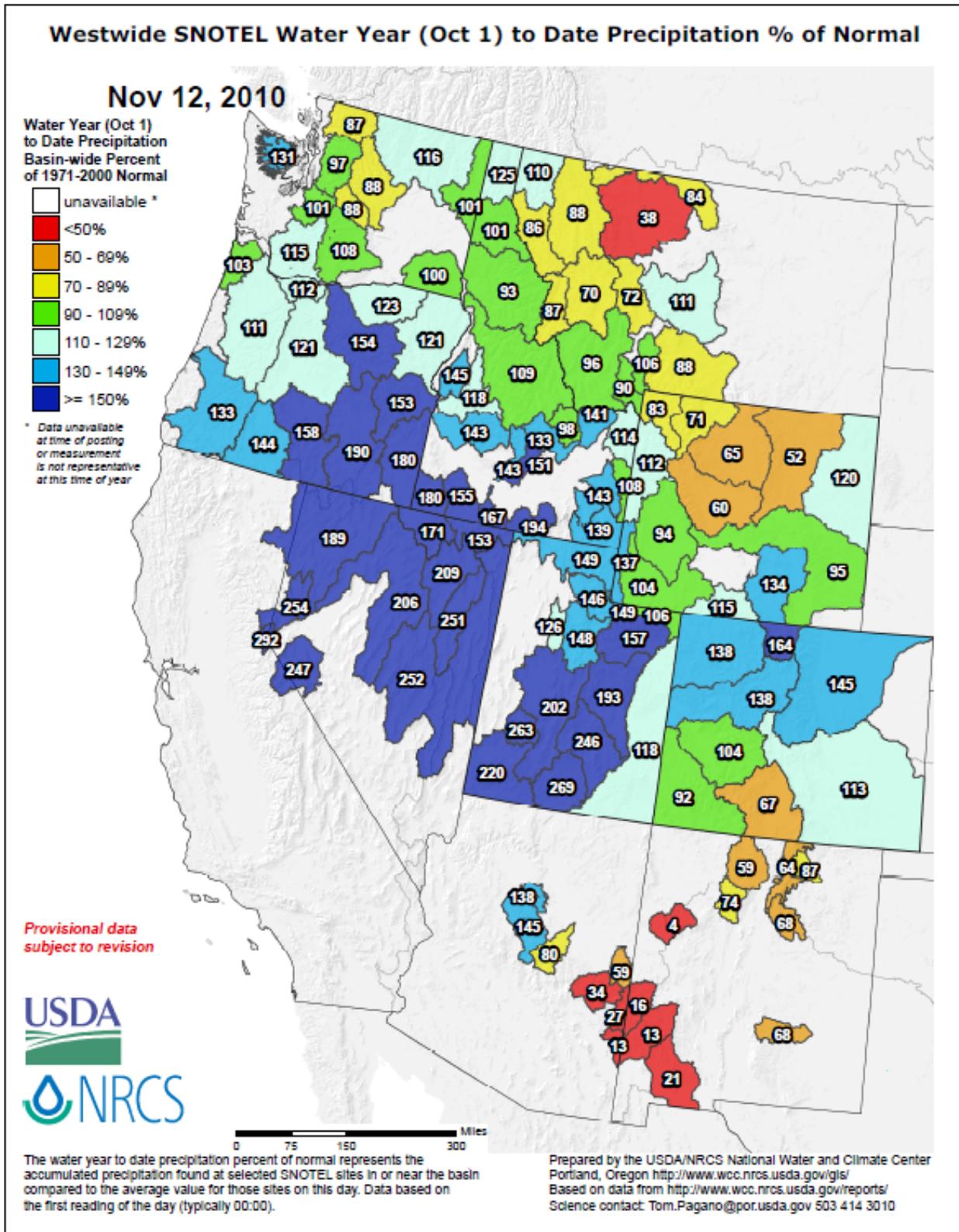
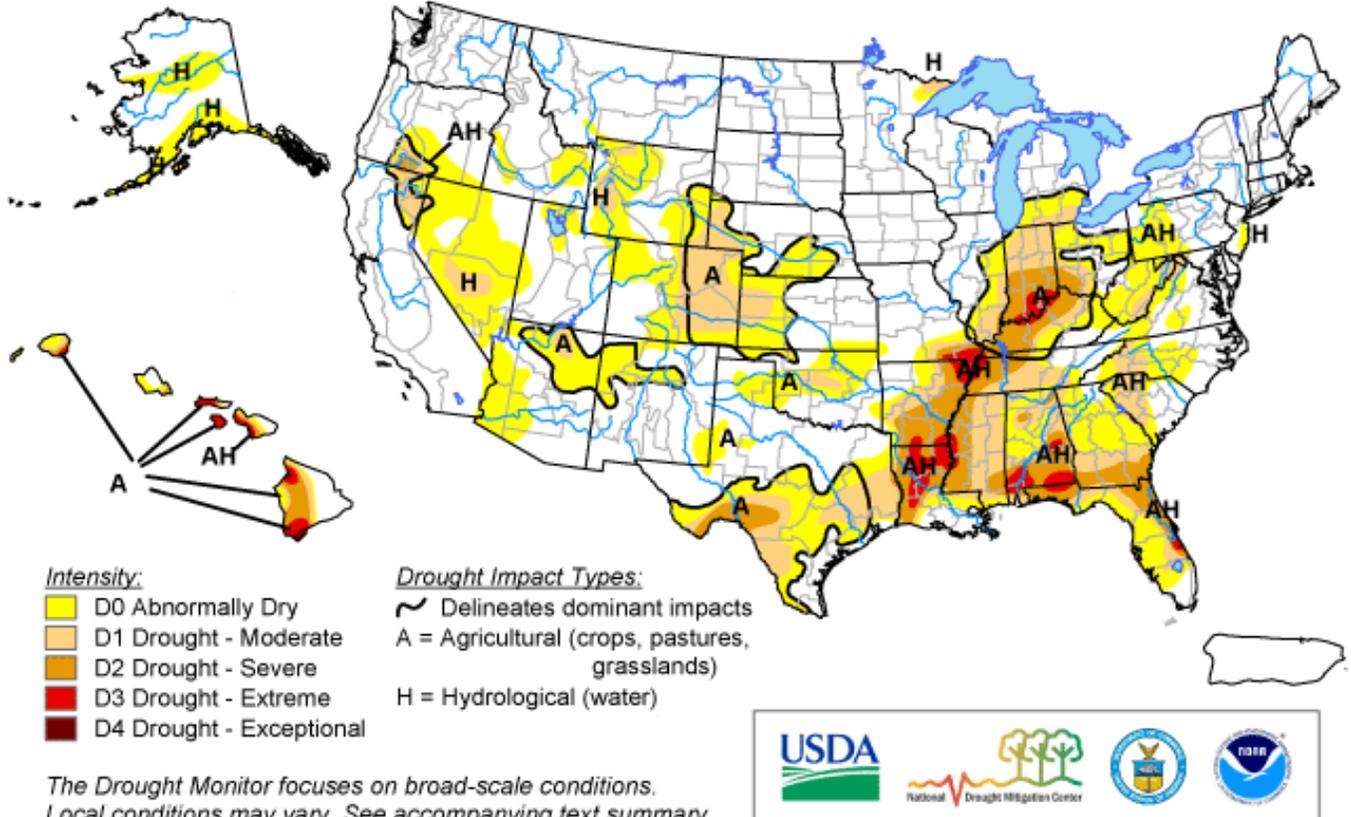


Fig 3b: For the new 2011 Water-Year that began on 1 October 2010, statistics are skewed to the extreme as noted by exceptionally large and small percentages. These values will be more meaningful in the coming weeks although a pattern is starting to emerge. **Use this figure with caution!**

Ref: ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west_wytdprecpcnormal_update.pdf

U.S. Drought Monitor

November 9, 2010
Valid 8 a.m. EST



<http://drought.unl.edu/dm>

Released Thursday, November 11, 2010
Author: Mark Svoboda, National Drought Mitigation Center

Fig. 4: Current Drought Monitor weekly summary. The severest D3 levels of drought dominate Hawaii, northern Louisiana, western Tennessee, and southeastern Alabama.

Ref: <http://www.drought.unl.edu/dm/monitor.html>

U.S. Drought Monitor West

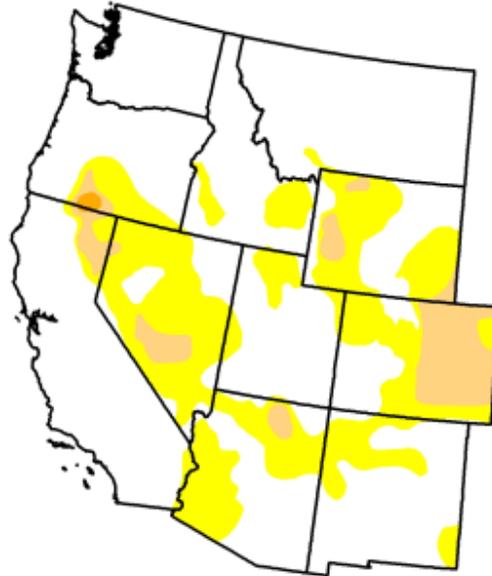
November 9, 2010
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	68.5	31.5	6.3	0.2	0.0	0.0
Last Week (11/02/2010 map)	69.0	31.0	5.4	0.2	0.0	0.0
3 Months Ago (08/17/2010 map)	74.6	25.4	6.3	0.5	0.0	0.0
Start of Calendar Year (01/05/2010 map)	40.1	59.9	30.6	9.9	0.5	0.0
Start of Water Year (10/05/2010 map)	62.5	37.5	8.4	0.6	0.0	0.0
One Year Ago (11/10/2009 map)	50.6	49.4	26.0	9.0	0.0	0.0

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://drought.unl.edu/dm>

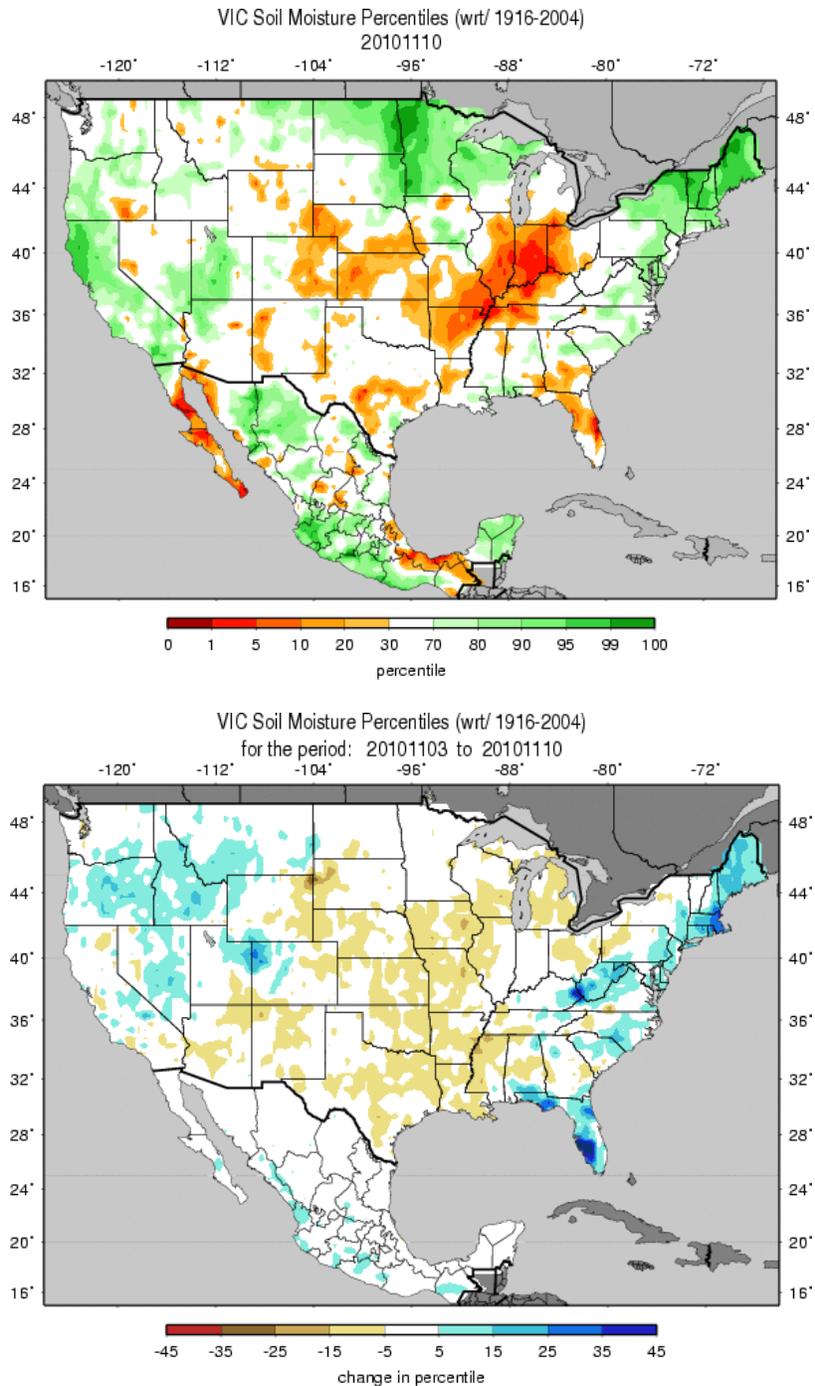


Released Thursday, November 11, 2010
Author: Mark Svoboda, National Drought Mitigation Center

Fig. 4a: Drought Monitor for the Western States with statistics over various time periods. Regionally there were no significant changes during the past week.

Ref: http://www.drought.unl.edu/dm/DM_west.htm

Weekly Snowpack and Drought Monitor Update Report

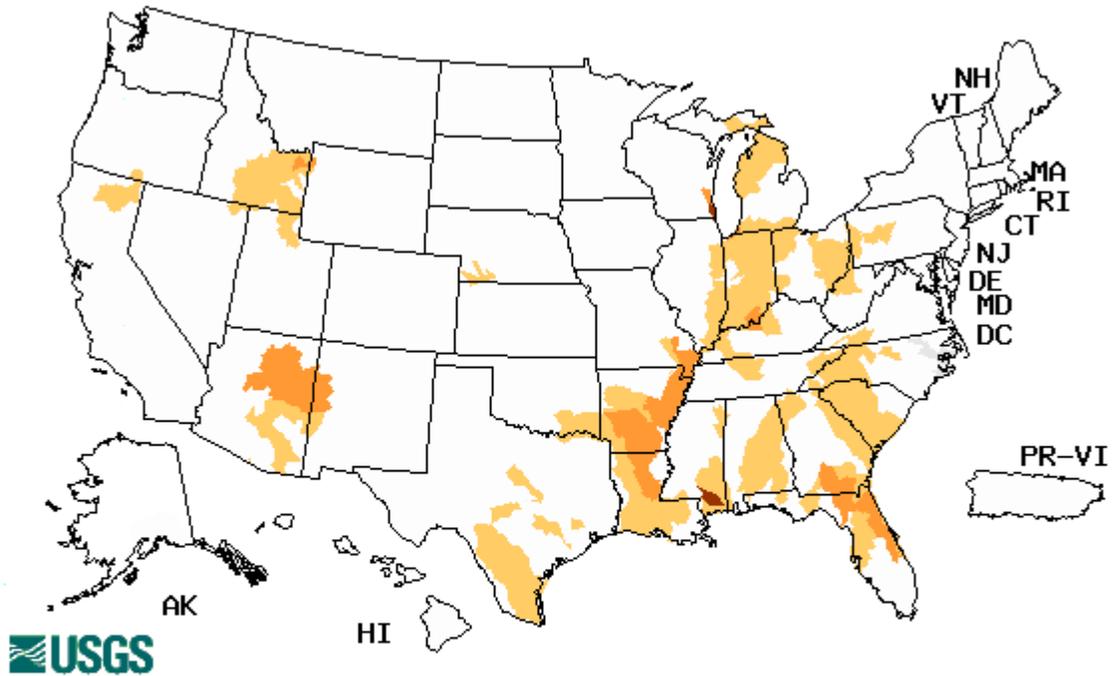


Figs. 5a and 5b: Soil Moisture ranking in percentile based on 1916-2004 climatology as of 10 November. Excessive moisture dominates over the Northern High Plains, New England, and Northern California. Dry soils dominate over the Ohio Valley, Middle Mississippi River Valley, and central Florida (Fig. 5a). During the past week, excessive moisture has increased over the Eastern Seaboard and southwest West Virginia with a general drying over the Central US (Fig. 5b).

Ref: http://www.hydro.washington.edu/forecast/monitor/curr/conus.mexico/main_sm.multimodel.shtml

Weekly Snowpack and Drought Monitor Update Report

Thursday, November 11, 2010



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. 6: Map of below normal 7-day average streamflow compared to historical streamflow for the day of year. Clearly, the Lower Mississippi River Valley and Arizona are experiencing the severest flows this week. Ref: <http://waterwatch.usgs.gov/?m=dryw&r>

Weekly Snowpack and Drought Monitor Update Report

National Drought Summary -- November 9, 2010

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: Cooler than normal temperatures and some beneficial precipitation fell across the region this past week, leading to some changes on the current map. The D0 has been removed in Massachusetts, Connecticut and Rhode Island, but the rains stayed away from New Jersey for the most part, leaving D0 intact there. The Allegheny and Shenandoah Mountains along the West Virginia and Virginia border saw decent rains this past week, leading to some minor reduction of D0-D1 and a removal of the D2 that was in place across the West Virginia Panhandle as short- and long-term deficits begin to ease somewhat. Much cooler weather (5-10 degrees below-normal) and little in the way of rains leaves the Carolinas unchanged this week.

The Southeast and Gulf Coast: Southern Alabama and Georgia remained on the short end of any significant rainfall over the past week, leading to a slight push northward of D1-D2 in southeast Georgia in and around Savannah. The rest of Georgia remains unchanged this week. To the west in Alabama, the southern portion of the state continues to miss out on the rains they are seeing to the north, leading to further deterioration of the D2-D3 in southeastern Alabama. D1 continues to be eroded away in north and east-central Alabama after a more favorable weather pattern the past couple of weeks. Eastern and northern Mississippi reported their best rainfall totals during the past seven days, with beneficial totals ranging from 1 to 4 inches. This has helped reduce the D3, D2 and D1 conditions found in most eastern and northern counties of the state. On the heels of last week's heavy rains across southern Louisiana, more rains this week bring more reductions of D0-D3 in the southern parishes of the state. On November 3, the state lifted a statewide burn ban that had been in place over the past month.

The Midwest and Great Lakes: A quieter pattern ensued this past week, with generally cooler temperatures and little rainfall leading to status quo across Indiana, Ohio, Michigan, Kentucky, Tennessee and Illinois. One region that continues to fall behind is in the Bootheel region of Missouri and northeastern Arkansas. An expansion of D1-D3 is noted here as the dryness has been entrenched for at least 6 months now, leading to severely drawn down or empty stock ponds and very little in the way of forage on pastures in this region.

The Plains: The high and dry pattern across the central Plains led to some expansion of D0 across central Nebraska, spreading into more of central Kansas as well. In addition, the severe dryness felt across west-central Kansas over the past 90 days has led to expansion of D1 out of east-central Colorado and into Kansas. The rest of the region remains unchanged this week.

Texas & Oklahoma: Aside from northeast Texas, it was a dry week across most of Oklahoma and the rest of Texas. Areas that received anywhere from 1.5 to 3 inches of rain in northeast Texas were reduced from D0 to all clear this week. Some other areas of Texas saw some expansion this past week as the dryness now stretches back past 90 days to 6 months or so. In

Weekly Snowpack and Drought Monitor Update Report

southeast Texas, the D1 has begun to push both west and south into the Austin region. Pasture and range conditions along with top soil moisture are also affected in this region. In western Texas, an expansion of D0-D2 is seen as a push from the Big Bend area to the east, north and south into more of central Texas.

The West: It was another relatively warm and dry week for all but the coastal ranges along the Pacific Ocean from California up to Washington State. The only relevant change on the map this week is found in Colorado, where seasonal dryness on the order of 90 days or so is quite impressive, leading to an expansion of D0 and D1 across more of the eastern and southern counties.

Hawaii, Alaska and Puerto Rico: After some good trade rains and improvements over the past couple of weeks, Hawaii remains unchanged this week.

Alaska saw some decent rains (3-5 inches) along the eastern half of the Alexander Archipelago chain, leading to some reduction of D0 there (although the D0 remains along the western flank of the Archipelago). Continued dryness over the past three to four months leads to some expansion of D0 along the entire southern Gulf of Alaska coastal region (45-70 % of normal over the past 90 days) as well as some expansion of D0 in central Alaska to the south and west over to the Norton Sound as totals fall behind by 1-2 + inches (55-70% of normal) over the past 90 days.

Puerto Rico remains free and clear of D0-D4 at this time, unchanged from last week.

Looking Ahead: The forecast for the next five days (through November 15) is showing the potential for beneficial precipitation across central and eastern Kansas, Oklahoma and eastern Texas. The rest of the country looks to remain relatively dry over that period. As far as temperatures go, readings are expected to well below normal across the western half of the country, including the western and high Plains. For those of you east of the Mississippi River, temperatures are expected to be much warmer than last week, with the forecast calling for above-normal readings (3-6 degrees).

The CPC 6-10 day forecast (November 16-20) calls for at least better odds of below-normal temperatures for virtually the entire country as a large trough may set up in the country's mid-section, ushering in cooler Canadian air as far as the Gulf Coast states. The best bet for these cooler readings is in the central and northern Plains along with the front range of the Rockies and the Midwest/Great Lakes region. Most of Alaska looks to be below normal as well. Precipitation is more of a mixed bag, with below-normal amounts predicted for eastern Alaska, the Pacific Coast, parts of the Southwest and the southern high Plains centered on west Texas. Above-normal precipitation is more likely in the northern Plains and across most of the Southeast, Mid-Atlantic and southern New England.

Author: [Mark Svoboda, 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

Weekly Snowpack and Drought Monitor Update Report

D1 ... Moderate Drought
D2 ... Severe Drought
D3 ... Extreme Drought
D4 ... Exceptional Drought

Drought or Dryness Types

A ... Agricultural
H ... Hydrological

Updated November 10, 2010