



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

Weekly Report - Snowpack / Drought Monitor Update

Date: 18 November 2010

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Snow: SNOTEL Snow-Water Equivalent percent of normal values for 18 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: ACIS 7-day average temperature anomalies show that the greatest positive temperature departures were over Northern California and the Northern Cascades in Washington ($>+6^{\circ}\text{F}$) and the greatest negative departures occurred over northwestern New Mexico ($<-8^{\circ}\text{F}$).

Precipitation: ACIS 7-day average precipitation amounts for the period ending 17 November shows the bulk of the heaviest precipitation confined to northwestern Washington and northwestern Montana (Fig. 3). In terms of percent of normal, a very wet week dominated over much of Montana and southward to northern Colorado (Fig. 3a). For the new 2011 Water-Year that began on 1 October 2010, precipitation has been much greater than the long term average over the middle section of the West while nearer normal conditions exist over the Cascades and much below normal averages dominate most of Arizona and New Mexico. These values are in flux since we are still earlier into the Water Year (Fig. 3b).



Mount Hood on 9 November 2010. Photo by: Jim Marron, NRCS

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WESTERN DROUGHT STATUS

The West: Precipitation fell in select areas from Oregon, through northern Nevada, across central Utah, and into Colorado and Wyoming. The precipitation was generally not sufficient to change drought conditions with the exception of the snows across northwest and central Colorado reducing abnormal dryness (D). In the Southwest, Abnormal Dryness (D0) and Moderate Drought (D1) expanded in eastern Arizona and western New Mexico. Author: Michael Brewer, National Climatic Data Center, NOAA.

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).

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/cqibin/bor.pl>. Additional

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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

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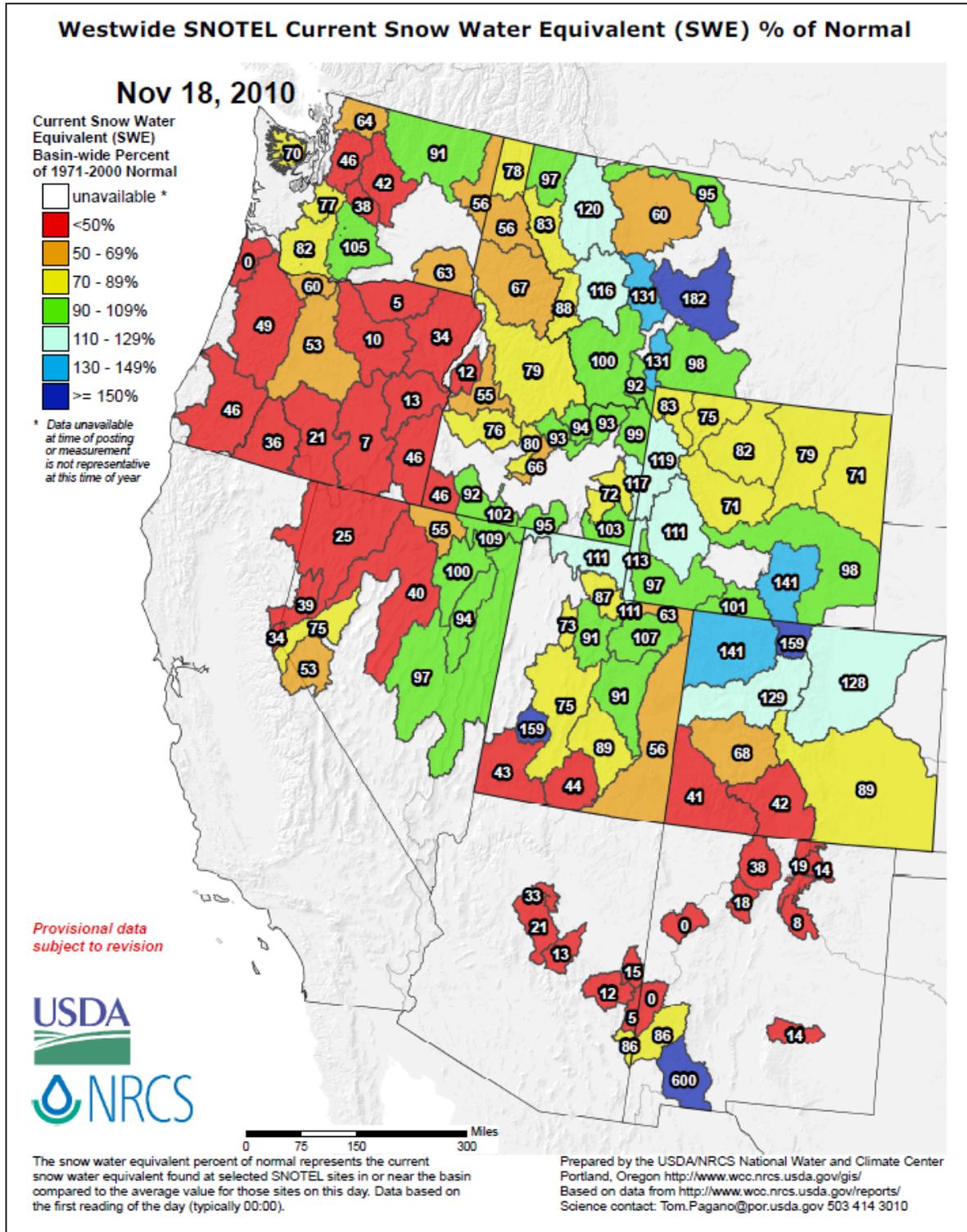
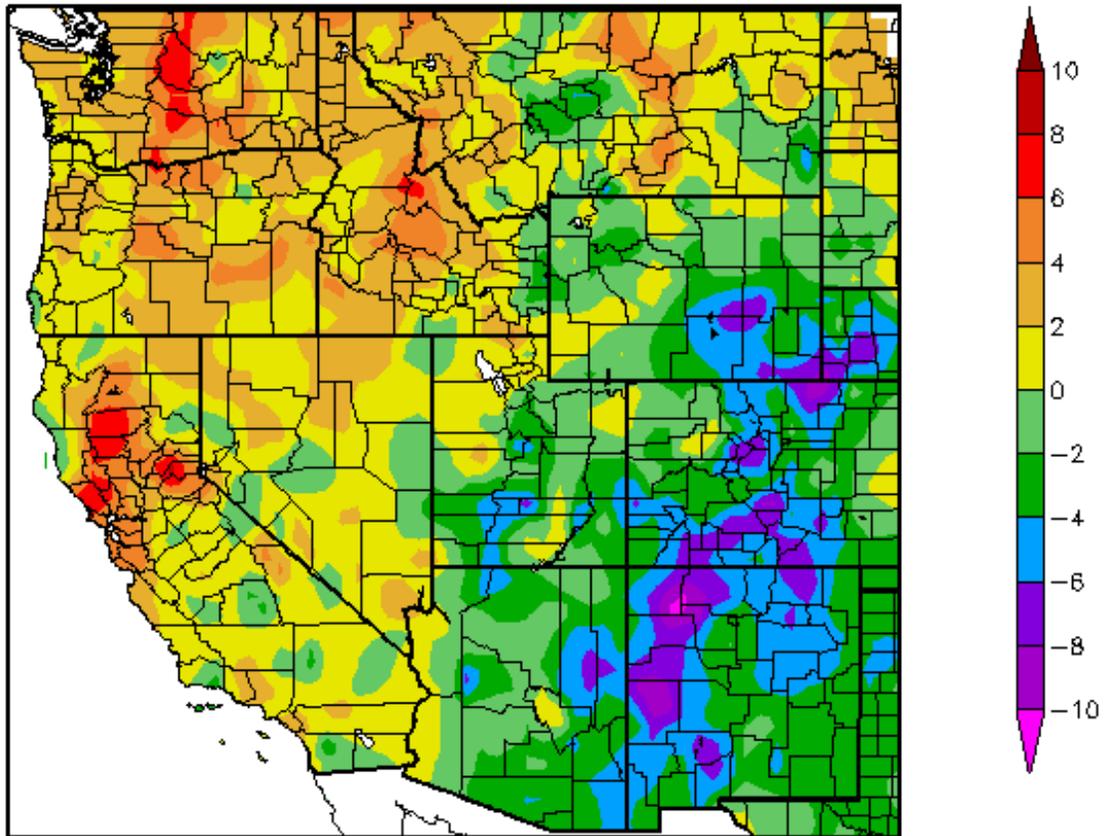


Fig 1. SNOTEL Snow-Water Equivalent percent of normal values for 18 November 2010 shows quite a bit of variation across the West as would be expected so early in the snow accumulation season.

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

Departure from Normal Temperature (F)
11/11/2010 – 11/17/2010



Generated 11/18/2010 at HPRCC using provisional data.

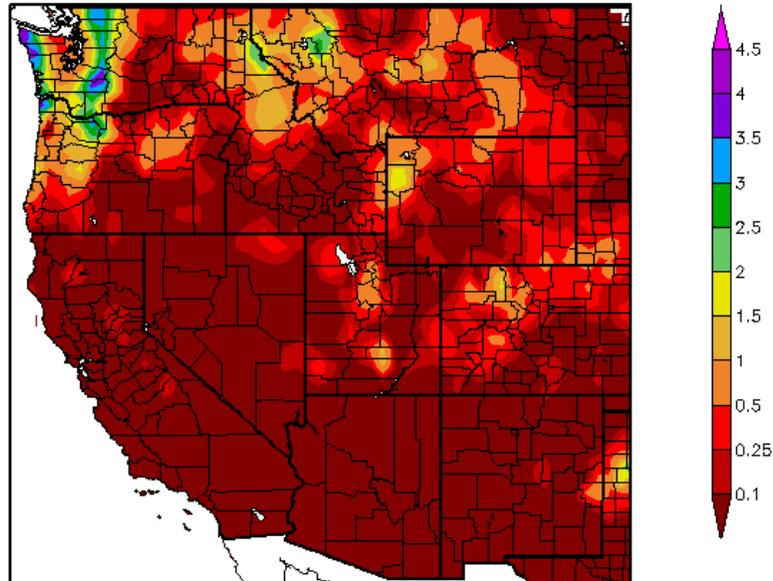
Regional Climate Centers

Fig. 2: ACIS 7-day average temperature anomalies show that the greatest positive temperature departures were over Northern California and the Northern Cascades in Washington ($>+6^{\circ}\text{F}$) and the greatest negative departures occurred over northwestern New Mexico ($<-8^{\circ}\text{F}$).

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

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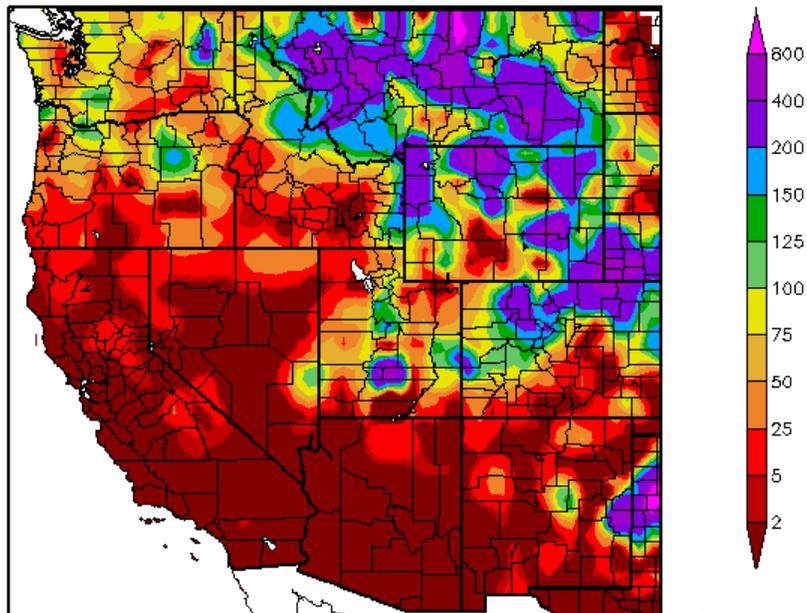
Precipitation (in)
11/11/2010 - 11/17/2010



Generated 11/18/2010 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)
11/11/2010 - 11/17/2010



Generated 11/18/2010 at HPRCC using provisional data.

Regional Climate Centers

Fig. 3 and 3a: ACIS 7-day average precipitation amounts for the period ending 17 November shows the bulk of the heaviest precipitation confined to northwestern Washington and northwestern Montana (Fig. 3). In terms of percent of normal, a very wet week dominated over much of Montana and southward to northern Colorado (Fig. 3a). Ref: <http://www.hprcc.unl.edu/maps/current/>

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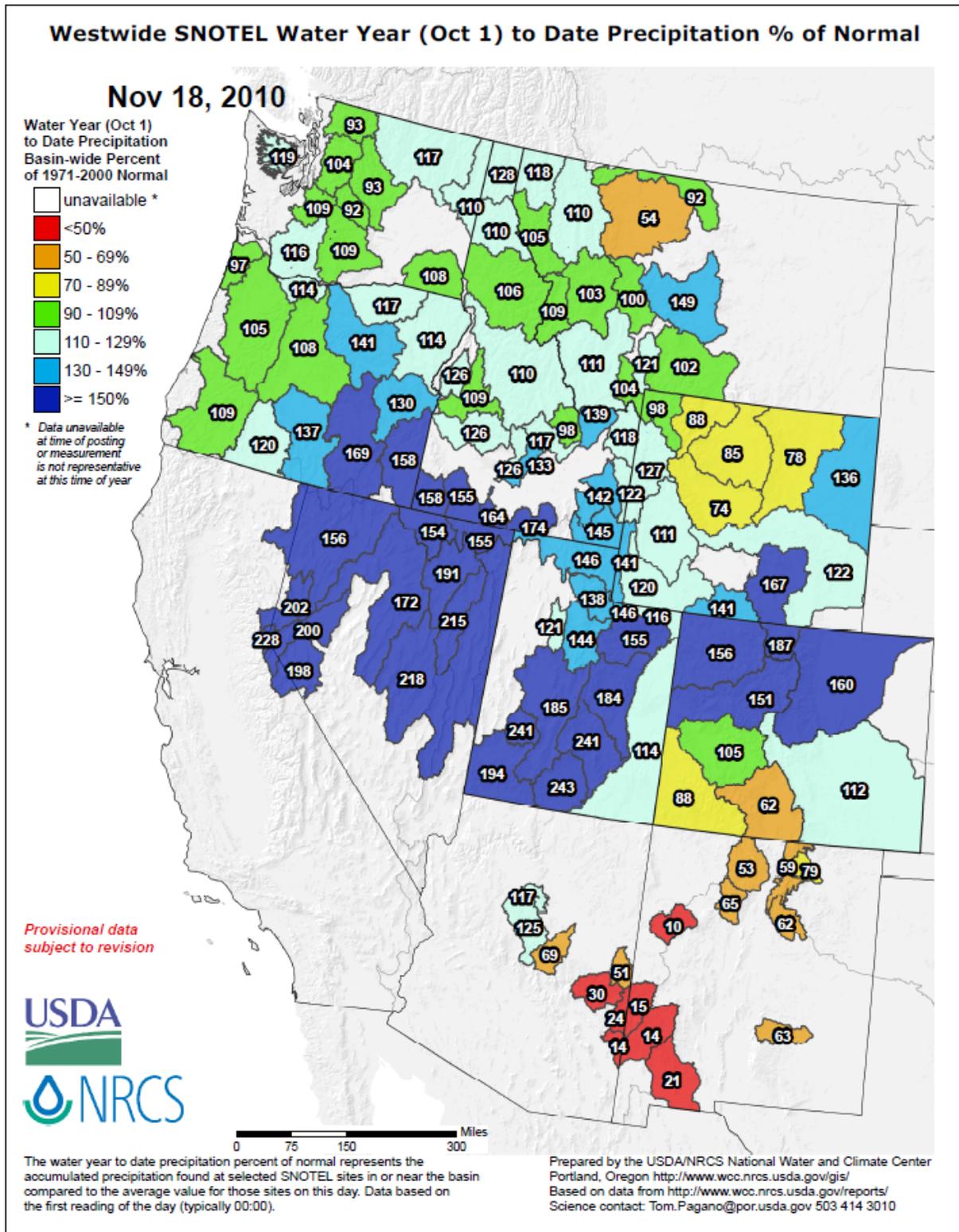
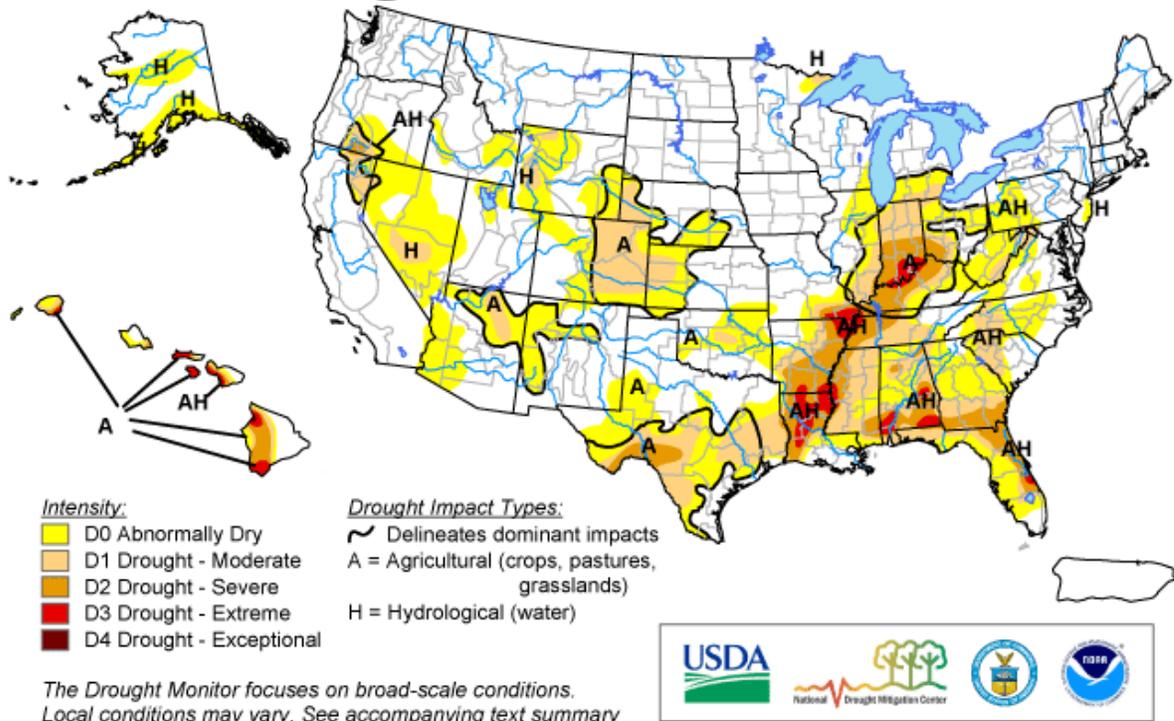


Fig 3b: For the new 2011 Water-Year that began on 1 October 2010, precipitation has been much greater than the long term average over the middle section of the West while nearer normal conditions exist over the Cascades and much below normal averages dominate most of Arizona and New Mexico. These values are in flux since we are still earlier into the Water Year.

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

U.S. Drought Monitor

November 16, 2010
Valid 7 a.m. EST



Released Thursday, November 18, 2010

Author: Michael Brewer/Liz Love-Brotak, NOAA/NESDIS/NCDC

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

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

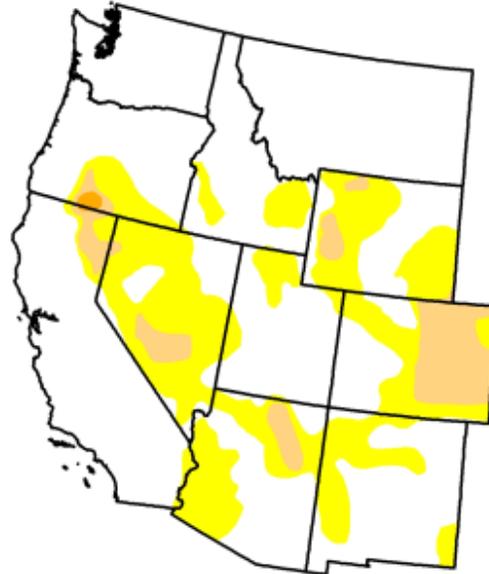
Ref: <http://www.drought.unl.edu/dm/monitor.html>

U.S. Drought Monitor West

November 16, 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	6.5	0.2	0.0	0.0
Last Week (11/09/2010 map)	68.5	31.5	6.3	0.2	0.0	0.0
3 Months Ago (08/24/2010 map)	75.1	25.0	6.3	0.6	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 (11/17/2009 map)	52.0	48.0	27.1	9.9	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>

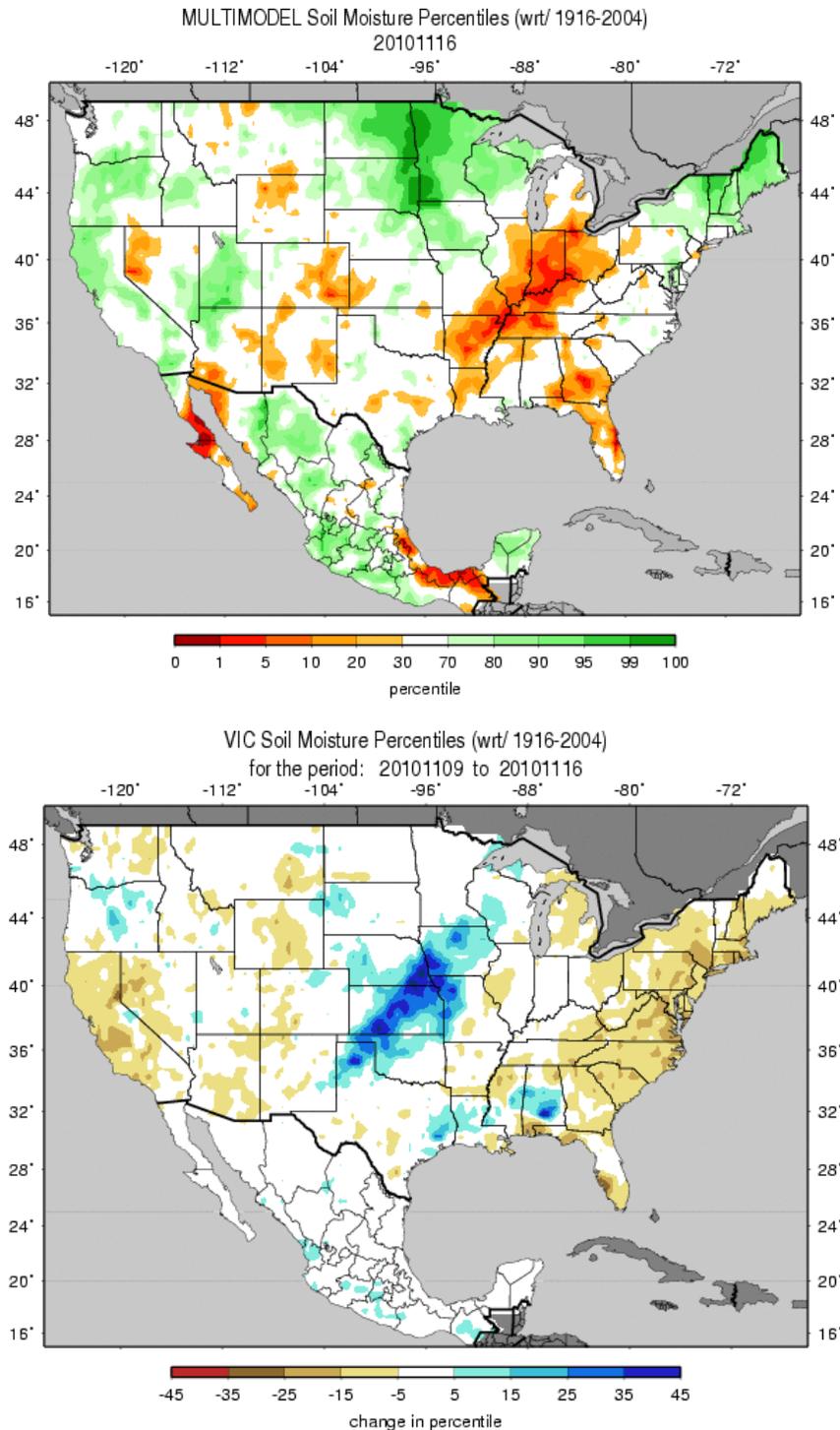


Released Thursday, November 18, 2010
Author: M. Brewer, NOAA/NCDC

Fig. 4a: Drought Monitor for the Western States with statistics over various time periods. Regionally there was no net change during the past week.

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

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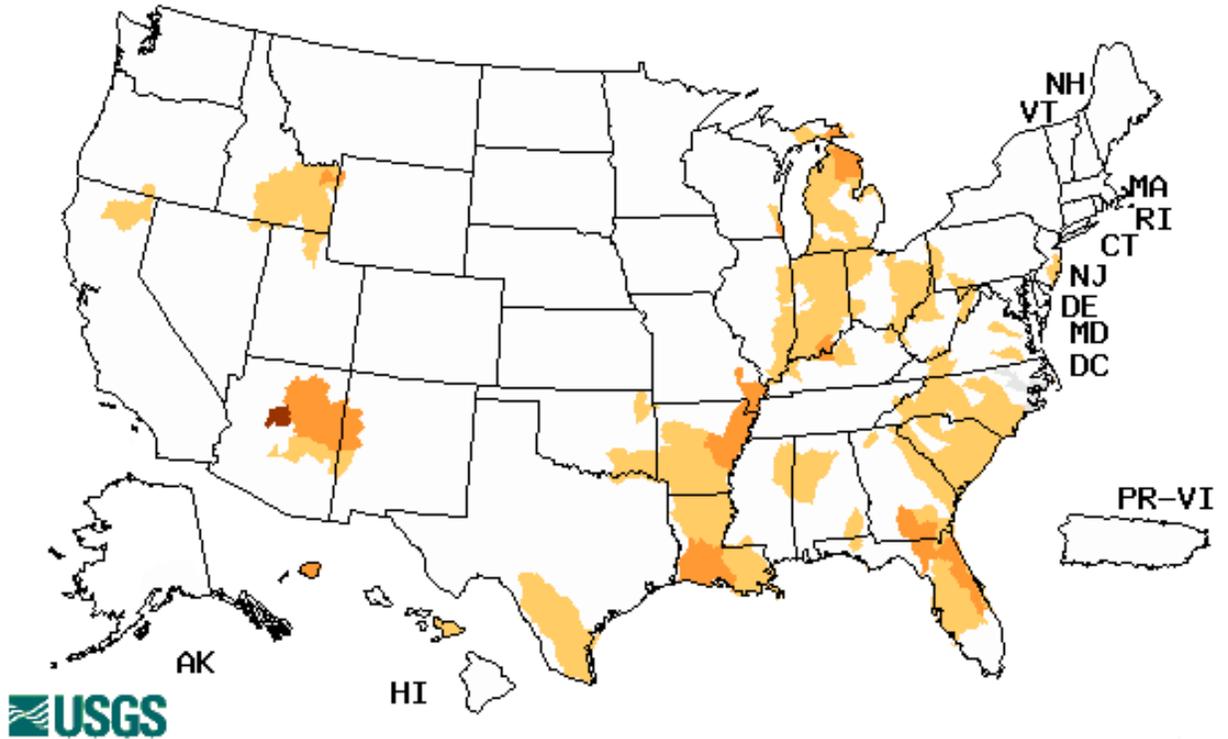


Figs. 5a and 5b: Soil Moisture ranking in percentile based on 1916-2004 climatology as of 16 November. Excessive moisture dominates over the Northern High Plains and northern New England. Dry soils dominate over the Ohio Valley, Middle Mississippi River Valley, and southern Georgia (Fig. 5a). During the past week, excessive moisture has increased the Central High Plains while dryness has settled into the eastern Seaboard and California (Fig. 5b).

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

Weekly Snowpack and Drought Monitor Update Report

Wednesday, November 17, 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. As winter approaches, northern site gauges will become less accurate as rivers and streams freeze. Ref: <http://waterwatch.usgs.gov/?m=dryw&r>

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National Drought Summary -- November 16, 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/>.

Precipitation this week fell mainly through the central High Plains and through the Southeast. This storm also dumped large amounts of snow in and around Minneapolis – St. Paul, with 8 inches falling at MSP airport on Saturday, November 13. As of Sunday morning, Minnesota State Police responded to 500 automobile accidents and another 600 reports of cars off the road. Hundreds of people were left without electricity.

The East: Little precipitation fell in the East from the Mid-Atlantic up through the Northeast during this Drought Monitor week, with the exception of central Maine. Combined with the cooler autumn temperatures, no change in drought categories was experienced.

In the Southeast, Moderate drought expanded in north-central North Carolina into the northern extents of the Tar and Neuse River Basins. Further degradation in and around the Cape Fear Basin are possible in the near future without some significant precipitation. In Alabama, the central and northern parts of the state saw some beneficial precipitation. Small improvements in Extreme (D3), Severe (D2), and Moderate (D1) Drought were experienced. Mississippi saw improvements in the D0 to D2 categories, mostly in the center and western parts of the state. Improvement in drought designation was also experienced in the Panhandle of Florida. Recent rains generally led to a one category improvement in conditions west of Tallahassee. In southern Florida, Abnormal Dryness (D0), Moderate (D1) and Severe (D2) Drought expanded along the East Coast and around Lake Okeechobee.

The Great Lakes and Ohio Valley: Recent snow eased Moderate Drought (D1) slightly in northern Minnesota. Severe (D2) and Moderate (D1) Drought and Abnormal Dryness (D0) expanded westward across Illinois and in southern Missouri. Abnormal Dryness began to be experienced again in southeast Wisconsin.

The Plains: Abnormal Dryness (D0) and Moderate Drought (D1) continue to be experienced through the Central Plains. The storm that moved through this area this week did drop beneficial precipitation and conditions improved slightly in Nebraska and Kansas. This storm also brought rain to parts of the Southern Plains with Abnormal Dryness (D0) and Moderate Drought (D1) easing from central Oklahoma through northern Texas. Moderate Drought (D1) and Abnormal Dryness (D0) increased across central Texas.

The West: Precipitation fell in select areas from Oregon, through northern Nevada, across central Utah, and into Colorado and Wyoming. The precipitation was generally not sufficient to change drought conditions with the exception of the snows across northwest and central Colorado reducing abnormal dryness (D). In the Southwest, Abnormal Dryness (D0) and Moderate Drought (D1) expanded in eastern Arizona and western New Mexico.

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Hawaii, Alaska and Puerto Rico: Drought conditions remained unchanged across Alaska and Puerto Rico this week. While little rain fell across Alaska deficits were not sufficient to degrade the existing drought status. Changes in Hawaii are limited to the south end of the Big Island and include elimination of Exceptional Drought (D4) and slight improvement in all other drought categories in that area.

Looking Ahead: Precipitation is expected across the Southeast, up through the Ohio Valley, and into the Northeast and in the northern Plains early in the November 18-22, 2010 time period. Later in the period, chances of precipitation are highest in the Northwest and along the Pacific Coast. Above normal temperatures will dominate much of the central part of the country from the South and Southeast, through the Midwest and Central Plains, and into much of the Southwest. Below normal temperatures are expected from the Pacific Coast, through the Northwest and into the northern Plains. Hawaii can expect a mostly dry period with the exception of some light windward showers.

For the ensuing 5 days (November 23-27, 2010), the odds favor cooler-than-normal conditions from the upper Midwest to the Pacific Northwest, as well as for the Southwest. Warmer-than-normal conditions are expected across the Gulf States and into the Mid-Atlantic. The odds of above-normal precipitation extend from the Southwest through the Upper Midwest and the Great Lakes. Odds favor below-normal precipitation in the southern Plains, along the Gulf Coast, and into the Southeast. Odds favor normal to below normal temperatures and normal to below normal precipitation in eastern Alaska. Odds favor above normal temperatures and above normal precipitation in the western part of the state.

Author: [Michael Brewer, National Climatic Data Center, NOAA](#)

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

A ... Agricultural

H ... Hydrological

Updated November 17, 2010

For the latest Seasonal Outlook released today by the NOAA CPC, see:

<http://www.cpc.noaa.gov/products/predictions/30day/>