



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

Weekly Report - Snowpack / Drought Monitor Update

Date: 7 October 2010

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Temperature: SNOTEL 7-day average temperature departure from normal map shows temperatures well above normal over the Northern Rockies while more moderate temperatures were experienced over the Cascades, Sierra, and Southwest (Fig. 1). ACIS 7-day average temperature anomalies show that the greatest positive temperature departures were over parts eastern Oregon and southern Idaho ($>+12^{\circ}\text{F}$) and the greatest negative departures occurred over parts of coastal California ($<-3^{\circ}\text{F}$) (Fig. 1a).

Precipitation: ACIS 7-day average precipitation amounts for the period ending 6 October shows the bulk of the heaviest precipitation confined to parts of Arizona and southern Utah as an upper level low created unusually severe weather (e.g. tornadoes and flash flooding) yesterday (Fig. 2). In terms of percent of normal, unusually heavy precipitation fell over the Interior West as a result of this weather feature that persisted throughout this week (Fig. 2a). 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. Use this figure with caution (Fig. 2b).

WESTERN DROUGHT STATUS

The West: Most of this region remained unchanged from last week. A small area of moderate drought, D1, was expanded in northeastern Colorado to reflect rainfall deficits over the last two months. Reports of poor rangeland conditions around the area were a factor as well. This area has been slowly degrading recently, with scattered convective storms that have helped keep local areas in an abnormally dry state. *Note: Yesterday's heavy rain over Arizona occurred after the cutoff time for this Drought Monitor report and is not reflected in this narrative.* Author: Laura Edwards, Western Regional Climate 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. 3 and 3a).

Weekly Snowpack and Drought Monitor Update Report

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/>.

U.S. HISTORICAL STREAMFLOW

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

This map, (Fig. 5) 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

SNOTEL (solid) 7-Day Average Temperature Anomaly (Degrees F) Oct 06, 2010

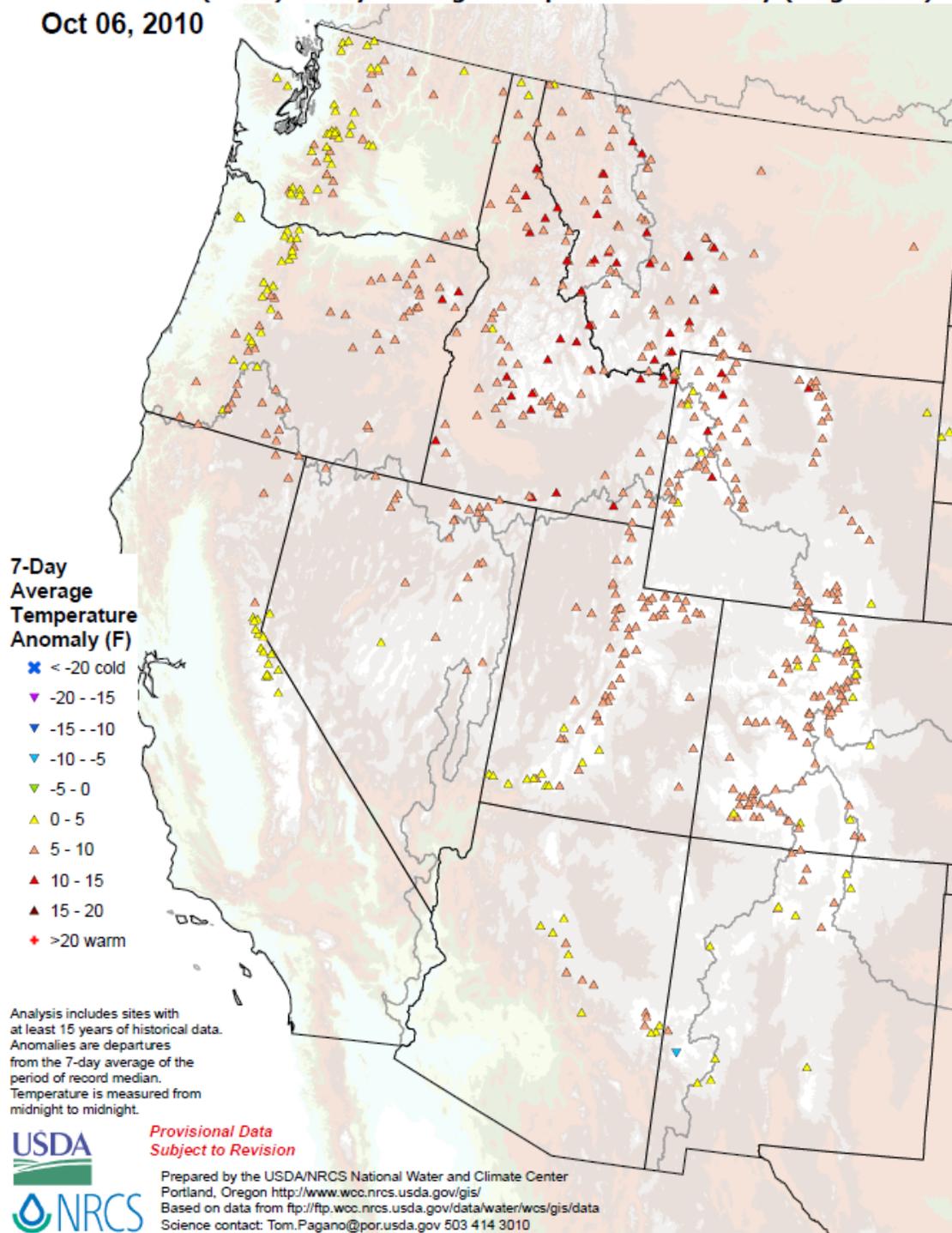
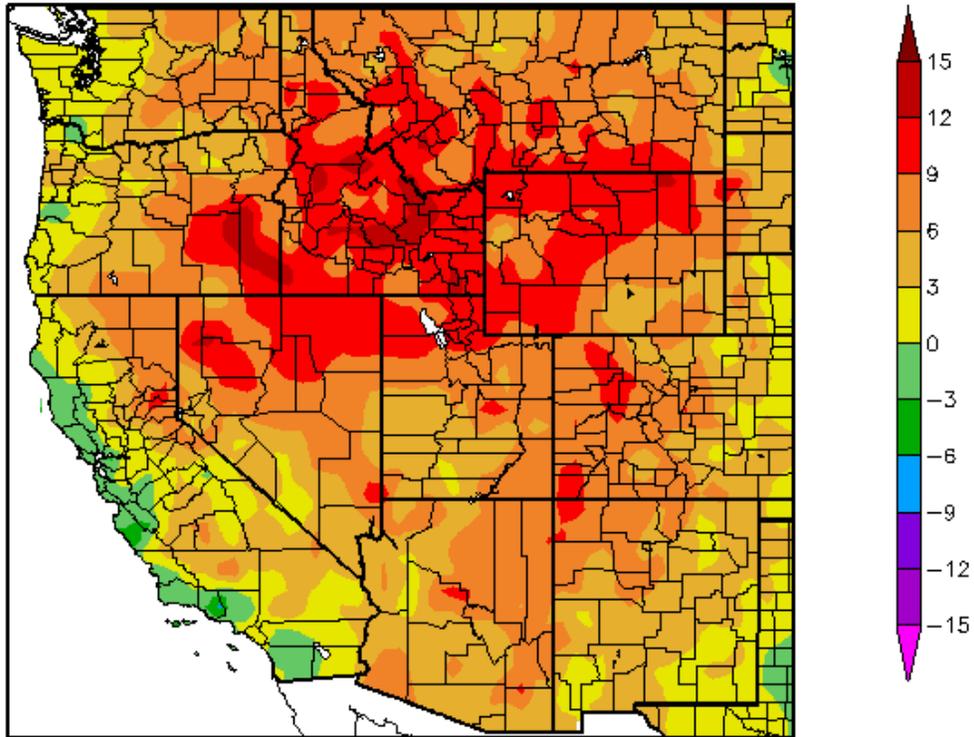


Fig. 1: SNOTEL 7-day average temperature departure from normal map shows temperatures well above normal over the Northern Rockies while more moderate temperatures were experienced over the Cascades, Sierra, and Southwest.

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

Departure from Normal Temperature (F)
9/30/2010 – 10/6/2010



Generated 10/7/2010 at HPRCC using provisional data.

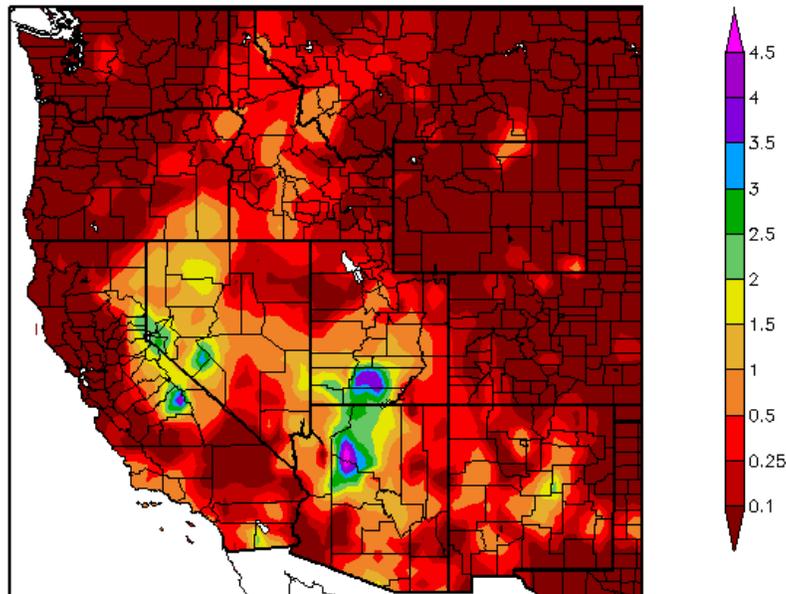
Regional Climate Centers

Fig. 1a: ACIS 7-day average temperature anomalies show that the greatest positive temperature departures were over parts eastern Oregon and southern Idaho (>+12°F) and the greatest negative departures occurred over parts of coastal California (<-3°F).

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

Weekly Snowpack and Drought Monitor Update Report

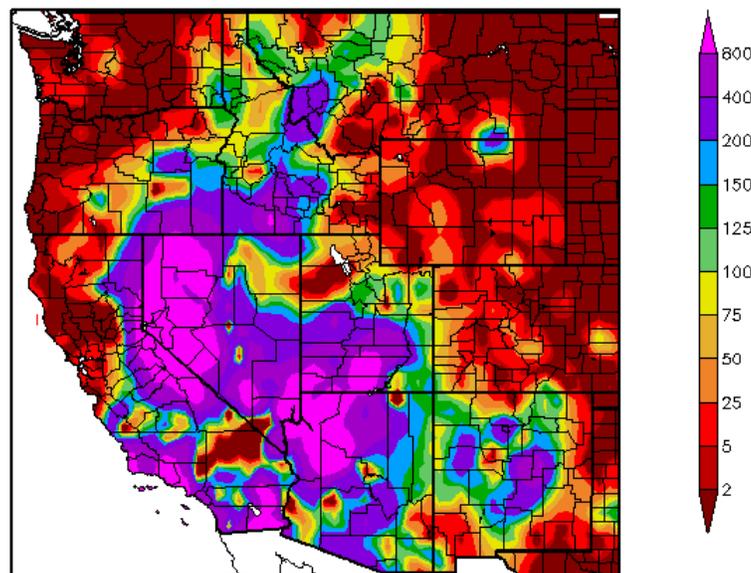
Precipitation (in)
9/30/2010 - 10/6/2010



Generated 10/7/2010 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)
9/30/2010 - 10/6/2010



Generated 10/7/2010 at HPRCC using provisional data.

Regional Climate Centers

Fig. 2 and 2a: ACIS 7-day average precipitation amounts for the period ending 6 October shows the bulk of the heaviest precipitation confined to parts of Arizona and southern Utah as an upper level low created unusually severe weather (e.g. tornadoes and flash flooding) yesterday (Fig. 2). In terms of percent of normal, unusually heavy precipitation fell over the Interior West as a result of this weather feature that persisted throughout this week (Fig. 2a).

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

Weekly Snowpack and Drought Monitor Update Report

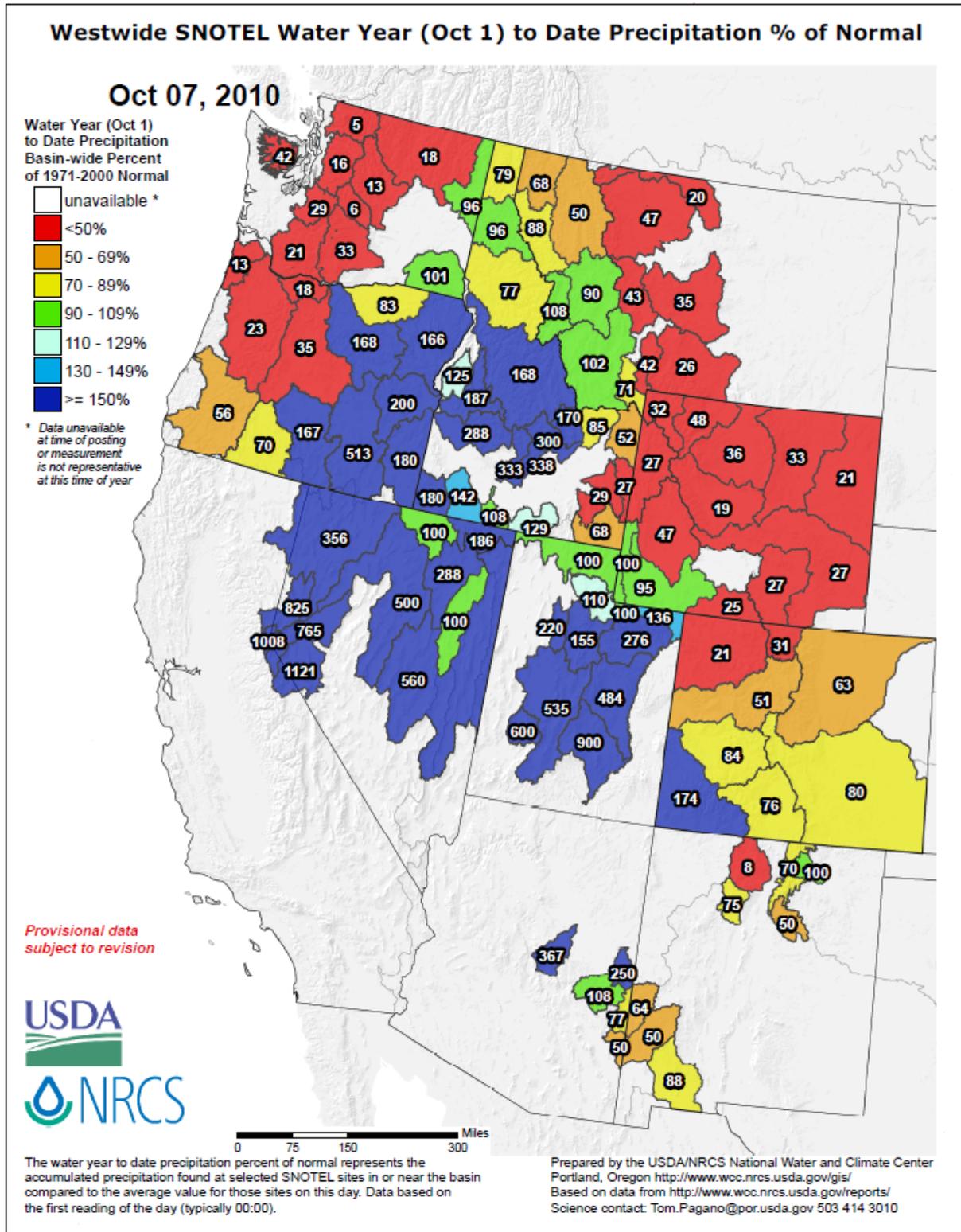


Fig 2b: For the new 2011 Water-Year that began on 1 October 2010, statistics are skewed to the extreme as noted by exceptionally large and small percentages. These values will be more meaningful in the coming weeks. Use this figure with caution!

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

U.S. Drought Monitor

October 5, 2010
Valid 8 a.m. EDT

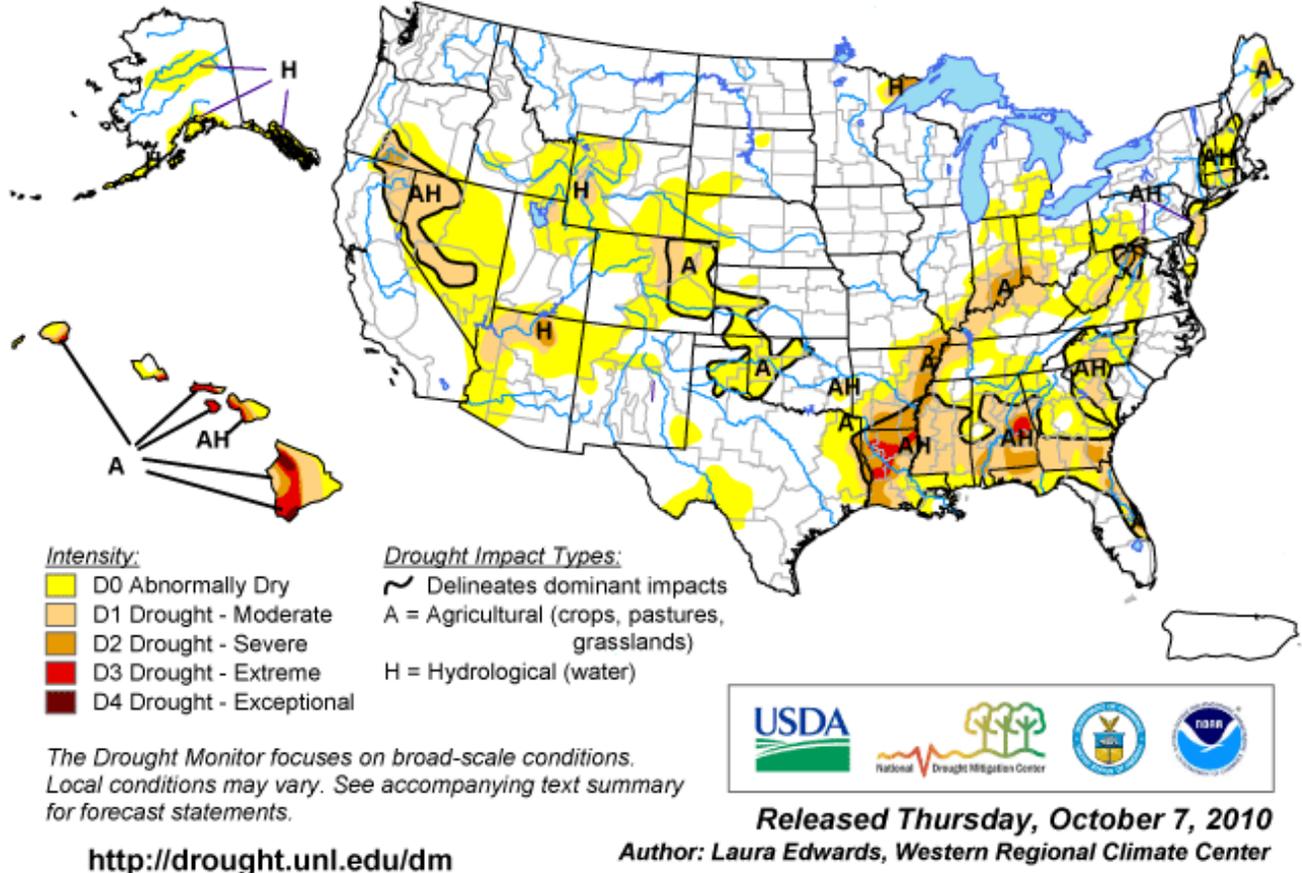


Fig. 3: Current Drought Monitor weekly summary. Hawaii is only state that has a D4 drought level. D3 levels dominate northern Louisiana and southeastern Alabama.
Ref: <http://www.drought.unl.edu/dm/monitor.html>

U.S. Drought Monitor

West

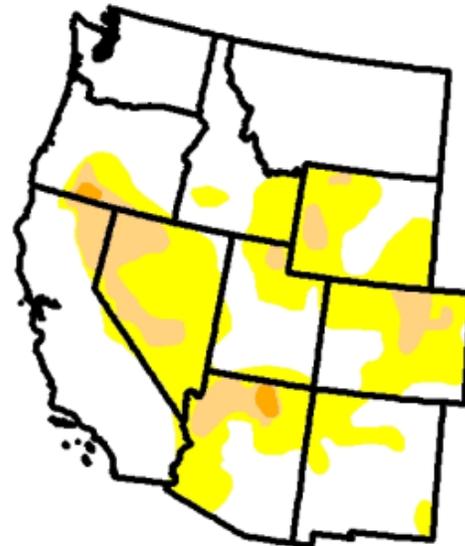
October 5, 2010
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	62.5	37.5	8.4	0.6	0.0	0.0
Last Week (09/28/2010 map)	62.5	37.5	8.1	0.6	0.0	0.0
3 Months Ago (07/13/2010 map)	71.3	28.7	8.4	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 (10/06/2009 map)	42.1	57.9	25.4	8.5	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>



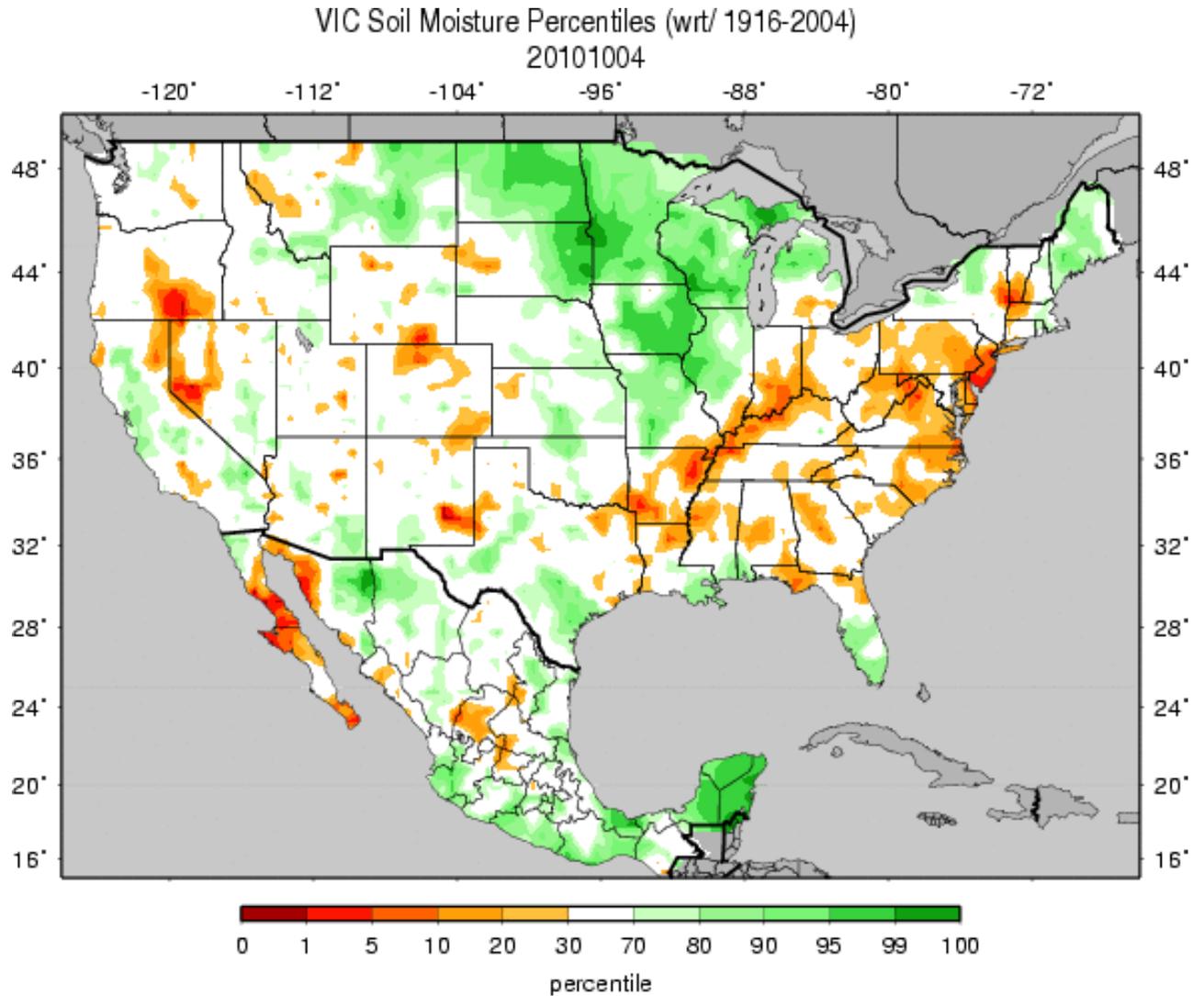
Released Thursday, October 7, 2010

Author: Laura Edwards, Western Regional Climate Center

Fig. 3a: Drought Monitor for the Western States with statistics over various time periods. Regionally there was very little change this week.

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

Weekly Snowpack and Drought Monitor Update Report

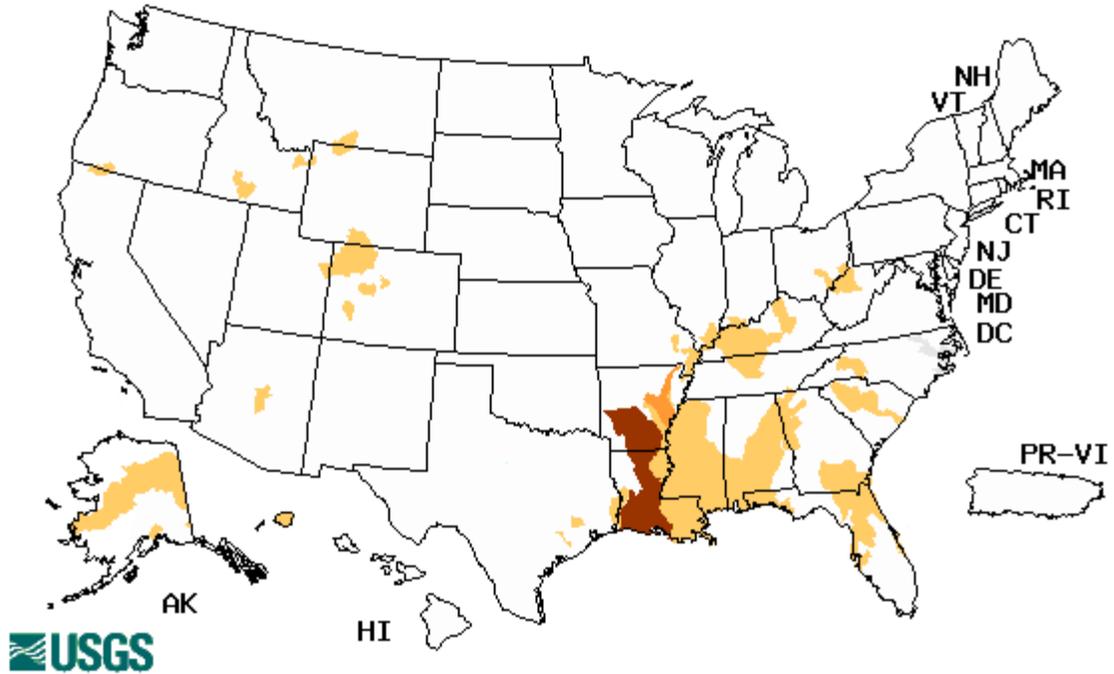


Figs. 4a: Soil Moisture ranking in percentile based on 1916-2004 climatology as of 4 October. Excessive moisture dominates over the Northern High Plains. Dry soils are scattered across the eastern third of the nation and Western Great Basin (OR, NV).

Ref: http://www.hydro.washington.edu/forecast/monitor/curr/conus.mexico/CONUS.MEXICO.vic.sm_qnt.gif

Weekly Snowpack and Drought Monitor Update Report

Wednesday, October 06, 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. 5: Map of below normal 7-day average streamflow compared to historical streamflow for the day of year. Clearly, the Lower Mississippi River region is experiencing the severest flows this week. Ref: <http://waterwatch.usgs.gov/?m=dryw&r>

Weekly Snowpack and Drought Monitor Update Report

National Drought Summary -- October 5, 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/>.

Summary: The combination of Tropical Storm Nicole and a slow moving cold front brought significant drought relief along the Eastern Seaboard, from South Carolina to Maine. Locally intense precipitation totals for the week amounted to 15 to 20 or more inches in North Carolina and Virginia. The heaviest rainfall was measured from the Chesapeake Bay south through eastern North Carolina, and a tight gradient developed between the coast and inland areas that received more rainfall. Major flooding caused several deaths in North Carolina, as well as damage to agricultural fields.

Northeast and Mid-Atlantic: Widespread and significant improvements across the region due to Tropical Storm Nicole resulted in one to two category changes in the drought depiction this week. A large north to south swath of no drought now exists from the Vermont and New Hampshire to the Chesapeake Bay. The storm track brought the heaviest rains inland, so some areas of abnormally dry and moderate drought remain in New Jersey, Connecticut and Maine. Hydrological and agricultural impacts are still being felt, despite the recent precipitation, and impact lines are depicted accordingly. Storm totals of two to four inches were common in Pennsylvania, with locally higher rainfall in the four to seven inch range.

Two category improvements, from severe drought to no drought, were made on the map this week from Maryland southward to North Carolina. The relatively narrow band of heavy rainfall left coastal areas in lingering drought, as well as the Appalachian Mountains to the west. Many observations of four to eight inches of rain in the Washington, DC area were reported. Portneys Overlook in St. Mary's county on the Eastern Shore had as much as 14 inches of rain over the two-day period of September 30 to October 1. Further south, Trent Woods, NC reported 20.26 inches of rain over the two days, and most other observers in Craven and Pitt counties measured more than 15 inches.

Southeast: Precipitation deficits and increasing wildland fire risk were contributing factors in expanding areas of severe drought in Florida and Alabama. In addition, agricultural impacts are being noted in the region due to the extended dry period this growing season. Along the Atlantic coast of Florida, moderate drought, D1, was expanded from the Georgia border to Orange County. A new area of severe drought (D2) was introduced on the map in northeastern Florida, where impacts on water resources and agriculture have been particularly acute.

In the Florida panhandle, concern is mounting with each week of dry conditions. Areas of D1 and D2 were expanded to reflect long-term deficits in precipitation, which has also been reflected in other drought indices. Nearby counties in Alabama are also included in severe drought. Agriculture reports of a potentially poor peanut harvest have supported this depiction. Lines designating these and areas hydrological impacts in the region are depicted on the map.

Weekly Snowpack and Drought Monitor Update Report

Southwestern Louisiana has been lagging behind normal precipitation for several weeks. In the last 30 to 60 days, rainfall deficits have been steadily increasing. This week, extreme drought is shown in this region to reflect the impacts and low stream flow measurements of five to ten percentile for the last week and month. Lake Charles is about 19 inches below normal precipitation for the year so far, and Alexandria airport had its driest September on record.

Great Lakes: Areas of northern and central Ohio received some beneficial rains that sufficiently improved their region to drought-free conditions. Local reports indicate that along the Ohio shoreline of Lake Erie, weekly rainfall totals of three to five inches were common. Additionally, a lack of reported impacts and positive observations of field conditions contributed to an increased area of no drought in the Buckeye State.

The West: Most of this region remained unchanged from last week. A small area of moderate drought, D1, was expanded in northeastern Colorado to reflect rainfall deficits over the last two months. Reports of poor rangeland conditions around the area were a factor as well. This area has been slowly degrading recently, with scattered convective storms that have helped keep local areas in an abnormally dry state.

Hawaii, Alaska and Puerto Rico: In Hawaii, a refinement of the depiction in Kauai led to much of the higher elevations being upgraded to D0 or D1. The lower elevations in the southeastern part of the island remain in extreme drought. On the Big Island, there were some modest improvements in the west due to September rainfall. And on Oahu, the last two weeks have brought beneficial wetness to remove any abnormally dry conditions on the northeastern slopes. Kappapala Ranch in the southeast is still in the midst of exceptional drought, being on track for their driest year on record.

Alaska and Puerto Rico had no change in drought conditions this week.

Looking Ahead: In the near term, lingering remnants of the western US trough will continue to bring scattered showers across the Great Basin. The Pacific Northwest is projected to have a rainmaker system come onshore around October 8. As the cold front in the east moves offshore, dry conditions will take over, and may help in any flood recovery efforts. In the extended outlook for the next six to ten days, cooler temperatures are projected to prevail in the Atlantic states from Massachusetts to Florida. Warmer temperatures than normal will settle in California and the northern states from Washington to Wisconsin. Across the contiguous US, below average precipitation is expected for the bulk of the states, with some exceptions for northern Montana and the Northeast.

Author: [Laura Edwards, Western Regional Climate 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

Weekly Snowpack and Drought Monitor Update Report

Drought or Dryness Types

A ... Agricultural
H ... Hydrological

Updated October 6, 2010