



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

Weekly Report - Snowpack / Drought Monitor Update

Date: 19 August 2010

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Temperature: SNOTEL 7-day average temperature departures from normal map show that temperatures were warmest over the Cascades and coolest over the Northern Rockies (Fig. 1). ACIS 7-day average temperature anomalies show that the greatest positive temperature departure was over the Washington Cascades ($+9^{\circ}\text{F}$) and the greatest negative departures occurred over western Montana and western Wyoming (-6°F) (Fig. 1a).

Precipitation: ACIS 7-day average precipitation amounts for the period ending 18 August shows the bulk of the heaviest precipitation confined to the Montana Rockies and southern New Mexico (Fig. 2). In terms of percent of normal, widely scattered thunderstorms across the eastern half of the Western States dominated and resulted in two to four times the weekly expected average precipitation (Fig. 2a). For the 2010 Water-Year that began on 1 October 2009, Arizona, southern New Mexico, eastern Nevada, southeast & southwest Utah, central Montana, and south-central and eastern Wyoming have the largest surpluses while much of northern Idaho, Upper Snake River, and Northern Wasatch (UT) have the greatest deficits. By this late period in the Water Year, significant changes to the overall percentages on week to week bases become very rare (Fig. 2b).

WESTERN DROUGHT STATUS

The West: The monsoon season continues over the southwest, with the rains associated with it helping to improve drought conditions. In Colorado, the D0 was removed from the San Juan River basin this week and some D1 was removed in northern 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 (<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.

RANGELAND CONDITIONS

The maps in Figure 6 show the general (inferred) soil conditions by state over the past one and four weeks.

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

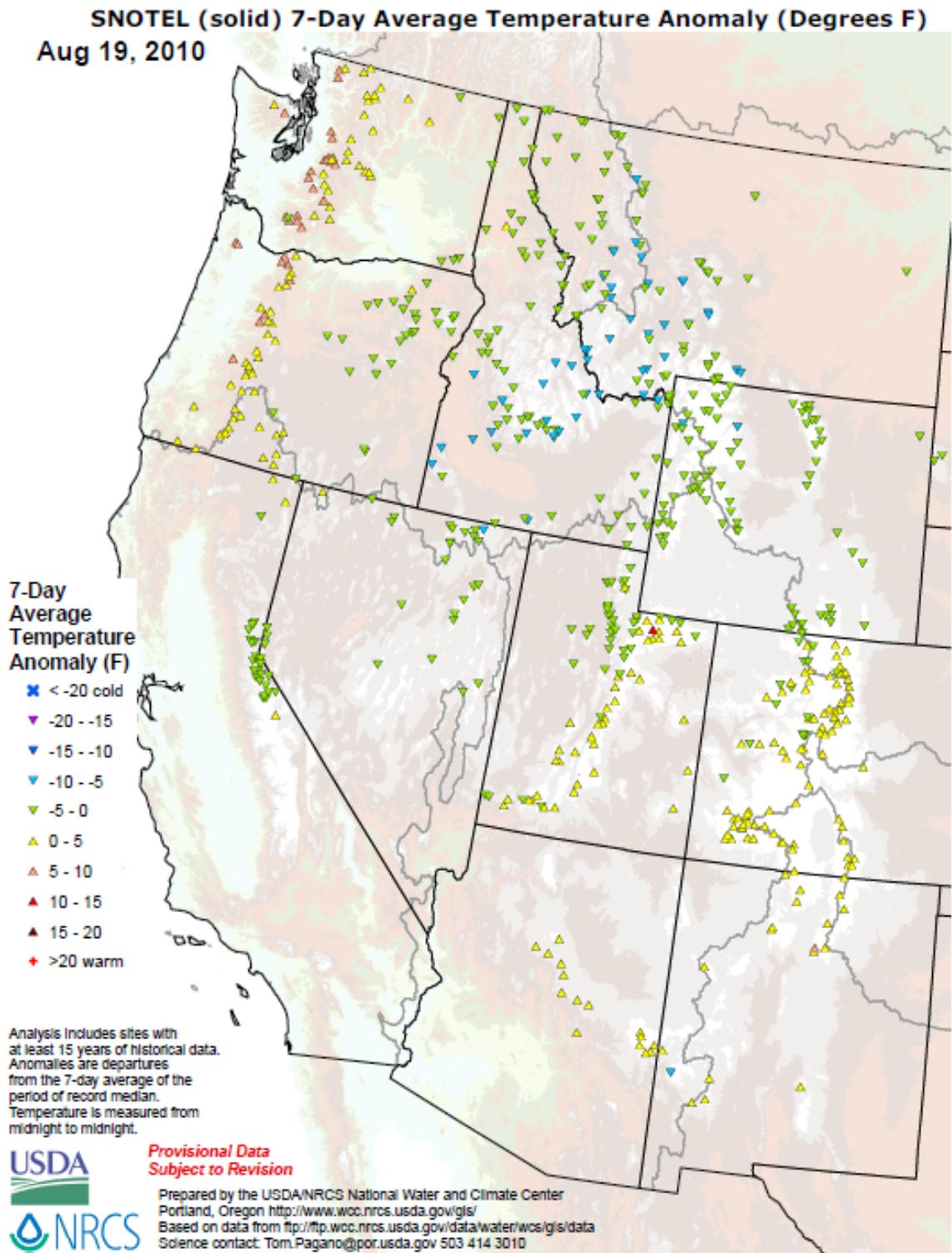
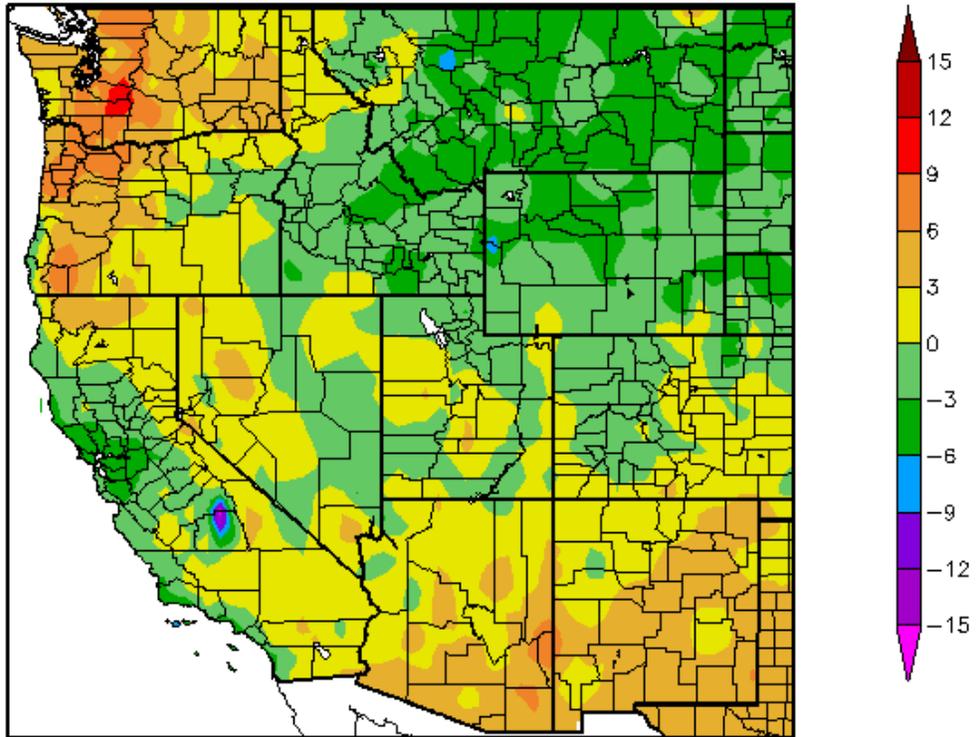


Fig. 1: SNOTEL 7-day average temperature departures from normal map show that temperatures were warmest over the Cascades and coolest over the Northern Rockies.

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

Departure from Normal Temperature (F)
8/12/2010 – 8/18/2010



Generated 8/19/2010 at HPRCC using provisional data.

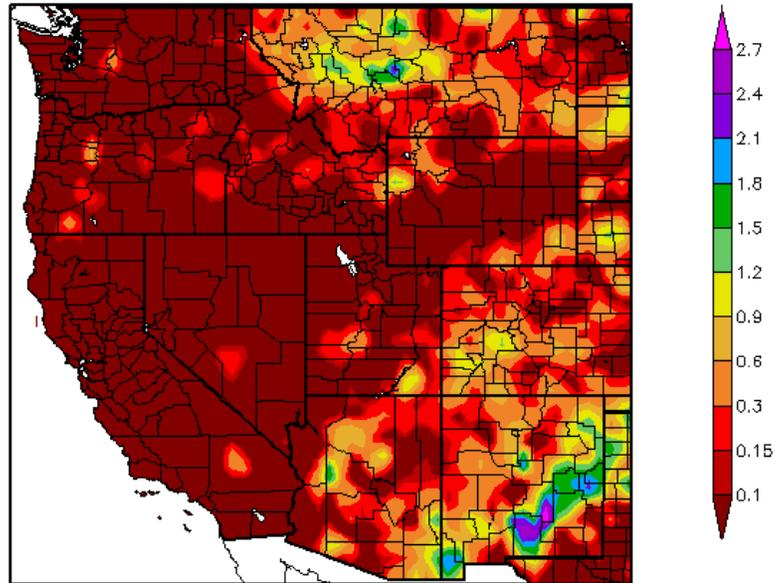
NOAA Regional Climate Centers

Fig. 1a: ACIS 7-day average temperature anomalies show that the greatest positive temperature departure was over the Washington Cascades (>+9°F) and the greatest negative departures occurred over western Montana and western Wyoming (<-6F).

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

Weekly Snowpack and Drought Monitor Update Report

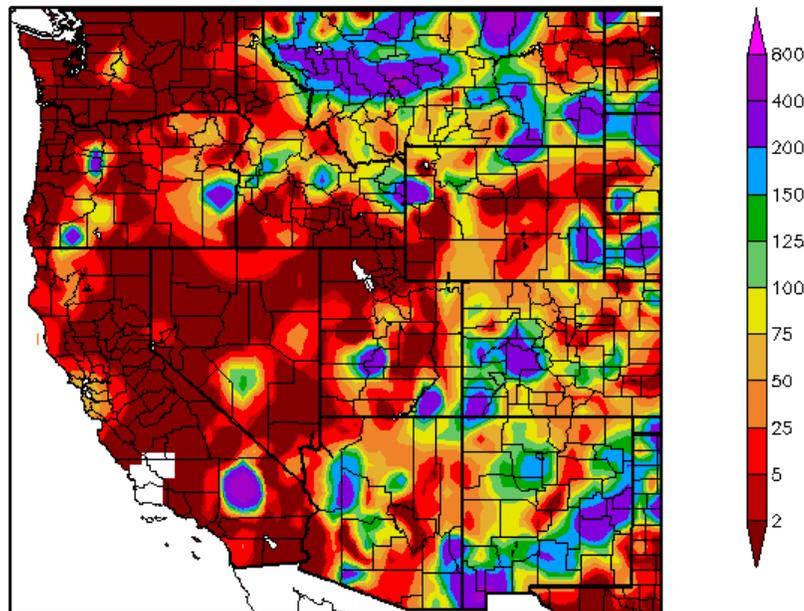
Precipitation (in)
8/12/2010 – 8/18/2010



Generated 8/19/2010 at HPRCC using provisional data.

NOAA Regional Climate Centers

Percent of Normal Precipitation (%)
8/12/2010 – 8/18/2010



Generated 8/19/2010 at HPRCC using provisional data.

NOAA Regional Climate Centers

Fig. 2 and 2a: ACIS 7-day average precipitation amounts for the period ending 18 August shows the bulk of the heaviest precipitation confined to the Montana Rockies and southern New Mexico (Fig. 2). In terms of percent of normal, widely scattered thunderstorms across the eastern half of the Western States dominated and resulted in two to four times the weekly expected average precipitation (Fig. 2a).

Weekly Snowpack and Drought Monitor Update Report

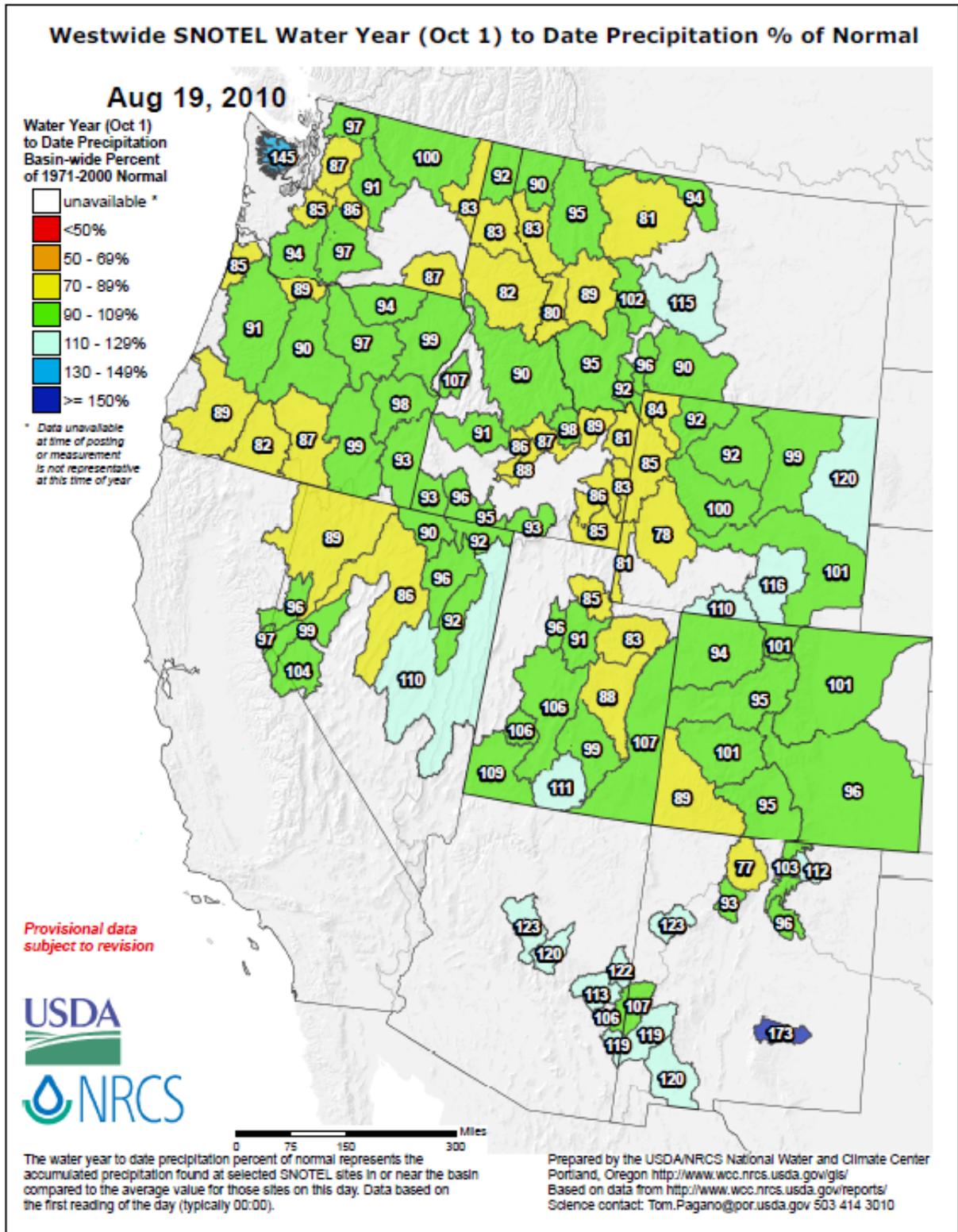


Fig 2b: For the 2010 Water-Year that began on 1 October 2009, Arizona, southern New Mexico, eastern Nevada, southeast & southwest Utah, central Montana, and south-central and eastern Wyoming have the largest surpluses while much of northern Idaho, Upper Snake River, and Northern Wasatch (UT) have the greatest deficits. By this late period in the Water Year, significant changes to the overall percentages on week to week bases become very rare.

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

U.S. Drought Monitor

August 17, 2010
Valid 8 a.m. EDT

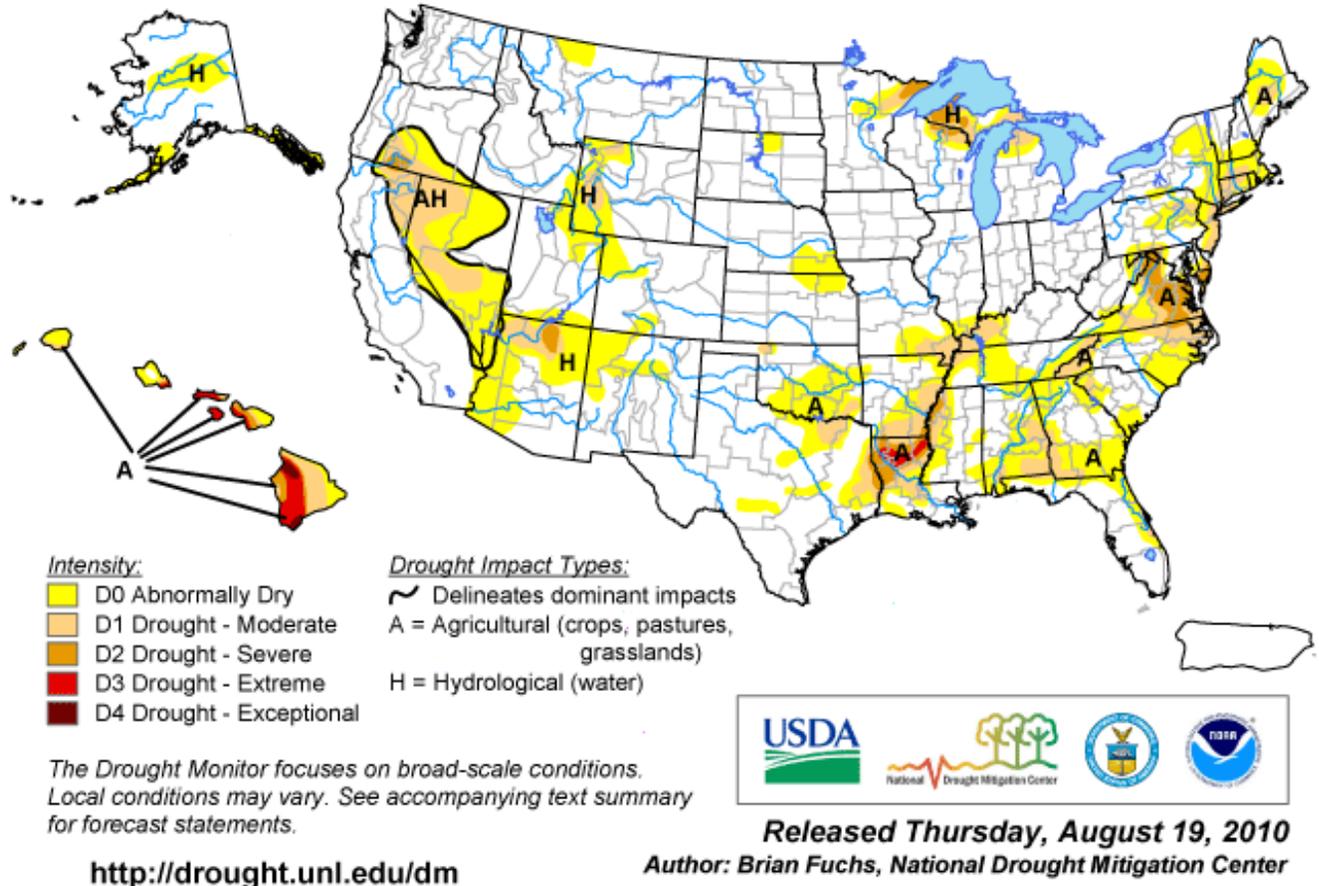


Fig. 3: Current Drought Monitor weekly summary. Hawaii is only state that has a D4 drought level. D3 levels dominate northern Louisiana. The Southwest Monsoon has improved conditions slightly over Arizona and Colorado.

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

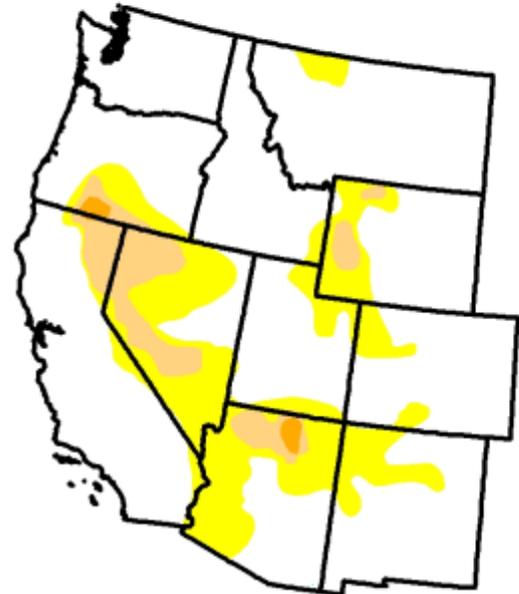
U.S. Drought Monitor

West

August 17, 2010
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	74.6	25.4	6.3	0.5	0.0	0.0
Last Week (08/10/2010 map)	73.9	26.1	6.4	0.5	0.0	0.0
3 Months Ago (05/25/2010 map)	60.0	40.0	15.1	4.1	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 (10/06/2009 map)	42.1	57.9	25.4	8.5	0.0	0.0
One Year Ago (08/18/2009 map)	57.5	42.5	17.0	7.2	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>



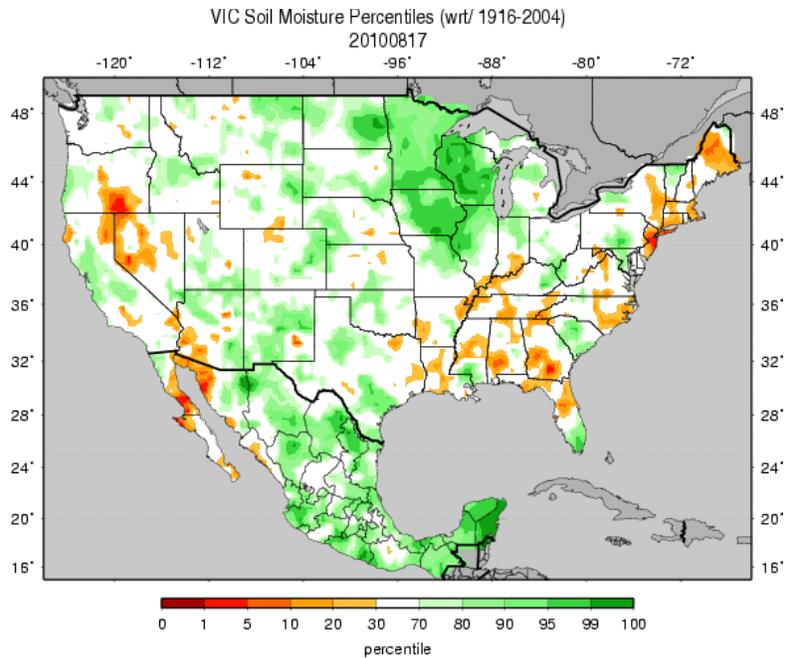
Released Thursday, August 19, 2010

Author: Brian Fuchs, National Drought Mitigation Center

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

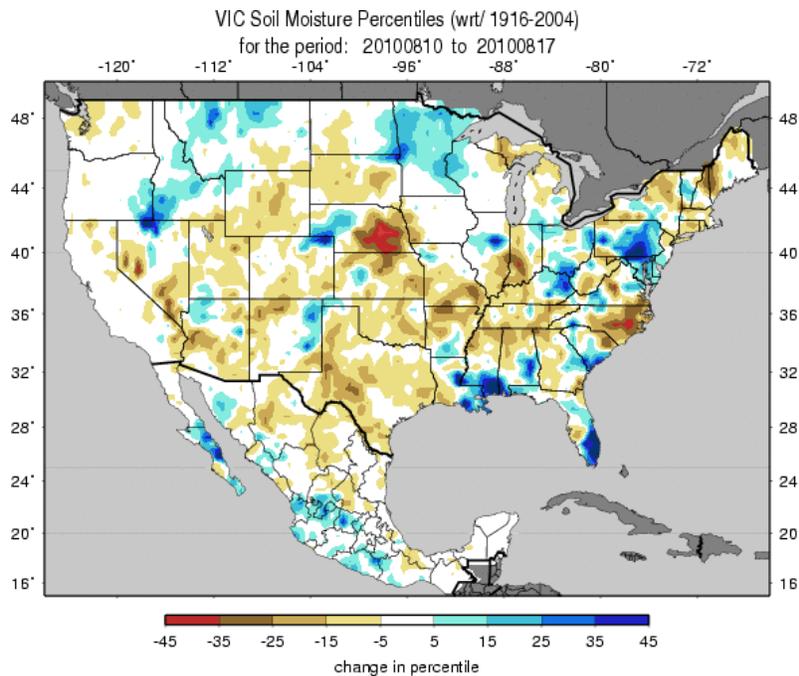
Ref: http://www.drought.unl.edu/dm/DM_west.htm

Weekly Snowpack and Drought Monitor Update Report



Figs. 4a: Soil Moisture ranking in percentile based on 1916-2004 climatology as of 17 August. Excessive moisture dominates over the western Great Lakes. Dry soils are scattered across the eastern Gulf Coast, New Jersey, and the upper Great Basin.

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

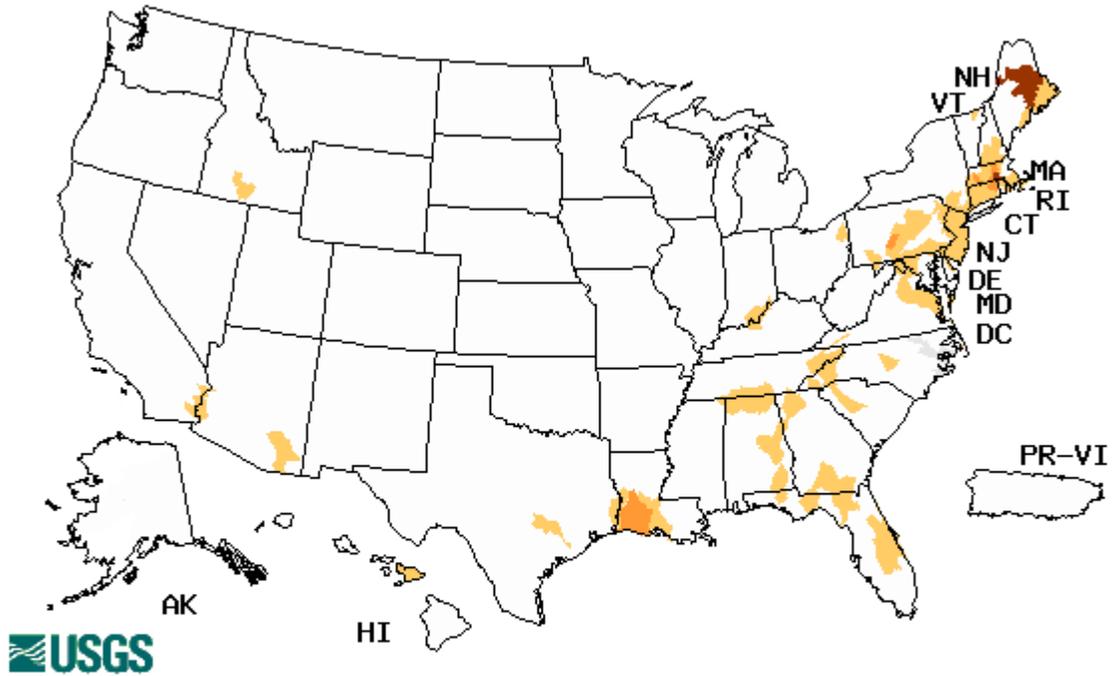


Figs. 4b: Soil Moisture change in percentile based on 1916-2004 climatology for the week shows significant moistening from northern Nevada to the Northern Rockies, and scattered across the Gulf of Mexico region and Pennsylvania. Some excessive drying is noted over Nebraska and North Carolina.

Ref: <http://www.emc.ncep.noaa.gov/mmb/nldas/drought/> (very useful resource) and http://www.hydro.washington.edu/forecast/monitor/curr/conus.mexico/CONUS.MEXICO.vic.sm_qnt.1wk.gif

Weekly Snowpack and Drought Monitor Update Report

Wednesday, August 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. 5: Map of below normal 7-day average streamflow compared to historical streamflow for the day of year. Very few regions are showing below normal flows. Maine has the largest stream flow deficits this week. Ref: <http://waterwatch.usgs.gov/?m=dryw&r>

Weekly Snowpack and Drought Monitor Update Report

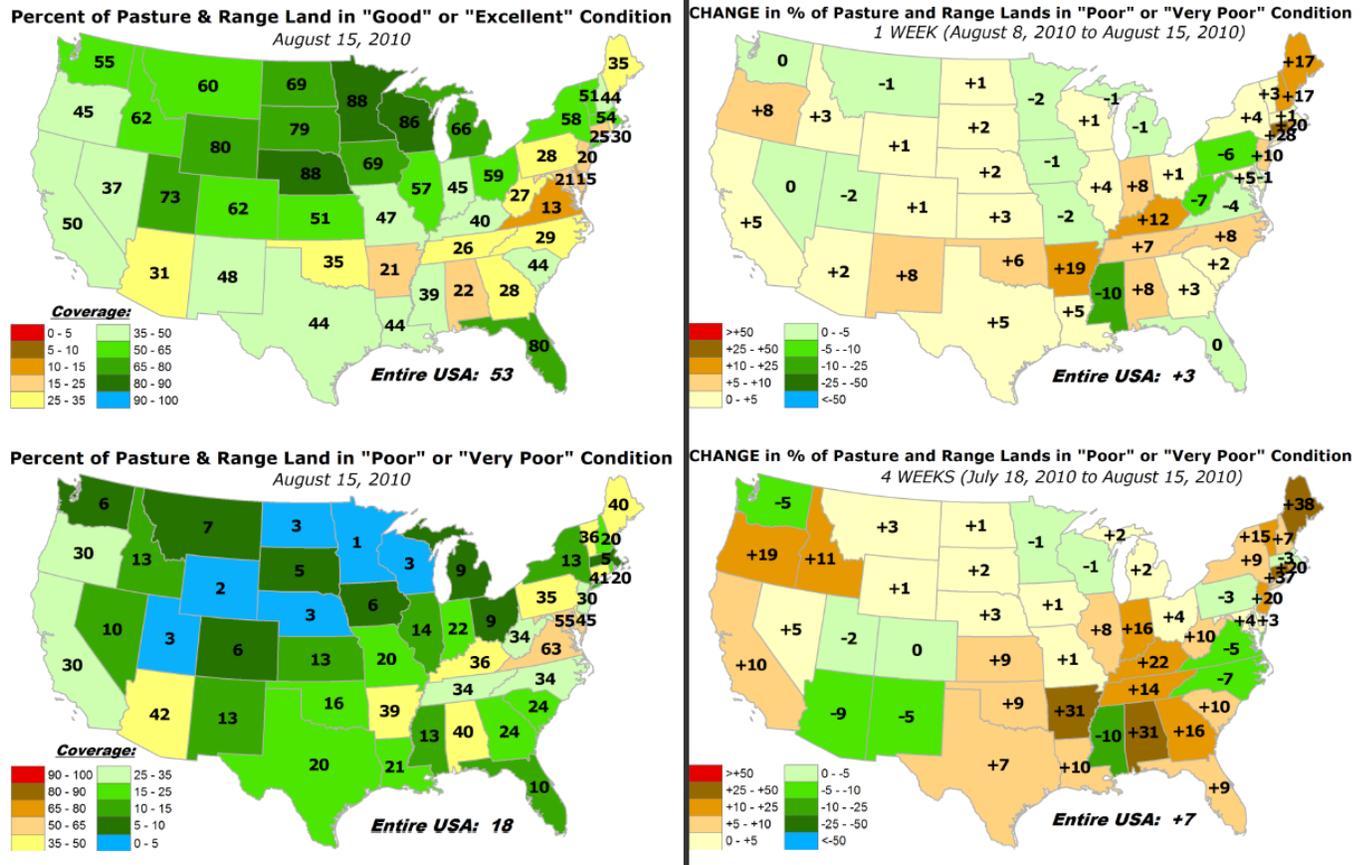


Fig. 6: These maps show the overall pasture and rangeland conditions by state. Note that Arizona has the least amount of good or excellent condition (upper left panel) in the West. However, during the past week (upper right panel), conditions deteriorated the most over New Mexico and Oregon.

Ref: <http://www.cpc.ncep.noaa.gov/products/predictions/experimental/edb/pasture-range-statewide-conditions.pdf>

Weekly Snowpack and Drought Monitor Update Report

National Drought Summary -- August 17, 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: Locally heavy rains helped to improve conditions in northeast Pennsylvania, where D0 and D1 conditions improved. D0 was also removed from most of western Pennsylvania as recent rains have diminished the abnormally dry conditions that were there. D0 was extended into extreme southern New York as well as up the Hudson Valley. D0 was expanded in Massachusetts and Connecticut, and D1 was also brought up the coast out of New Jersey and into Long Island, Massachusetts and Connecticut.

Improvements were made in portions of Maryland and Virginia as locally heavy rain brought relief to the D0 and D1 areas. Up to 4 inches of rain were associated with these isolated thunderstorms.

Southern Plains and Gulf Coast: The recent heat coupled with rains in some areas led to improvements for some and degradation for others. Even with drought indicators fairly dry over the last 6 months, recent precipitation in Louisiana has brought improvements to the drought categories in the state as D3 and D2 were reduced. Improvements were made to the D0 and D1 in western Mississippi while a shift in D0 was made in eastern Mississippi. Alabama had slight improvements to the D0 in the northwest and D1 in the east. The D1 in the southern part of the state was also split up and the western lobe stretched farther to the south than in the previous weeks.

Texas had expansion of D0 in the north and central portions of the state while D0 was eliminated in the panhandle. In east Texas a general shift of the D0-D2 categories was made to the west, as this area continues to miss out on precipitation and temperatures have been well above normal. D0 was expanded along the Red River and into much of central and southern Oklahoma. Over the last several weeks, precipitation has been well below normal and temperatures have regularly been at or above 100 degrees Fahrenheit. Agricultural impacts have developed rapidly and losses are being documented. In the Oklahoma panhandle, very heavy rains brought relief as a full category improvement was made. As the impact of this rain is assessed in the coming weeks, further improvements may be needed.

Southeast: Dry conditions continued over western Kentucky and into portions of Tennessee. D1 was expanded in Kentucky while D0 was introduced into much of central Tennessee. After flooding rains in May, the lack of precipitation and heat has started to impact the area, especially in the agricultural sector. Rains over portions of central North Carolina and western South Carolina allowed for improvements to the D0 there. D0 was expanded to the west in eastern North Carolina as well this week.

High Plains: Coupled with spotty dryness and high temperatures over the last few weeks, D0 was introduced into portions of southeast Nebraska and northeast Kansas. As several crop

Weekly Snowpack and Drought Monitor Update Report

tours are making their way through this region, losses are mounting up for both the corn and soybean crops. Soils have rapidly dried out in the top layers of the profile as well.

The West: The monsoon season continues over the southwest, with the rains associated with it helping to improve drought conditions. In Colorado, the D0 was removed from the San Juan River basin this week and some D1 was removed in northern Arizona.

Hawaii, Alaska and Puerto Rico: No changes for Alaska or Puerto Rico this week. In Hawaii, on the island of Kauai, D2 was introduced as pastures and rangelands continue to worsen, causing impacts to the ranching industry there.

Looking Ahead: Over the next 5 days (August 19-23), precipitation should be impacting some of the drought areas, as maxima of precipitation are centered over the Gulf Coast and upper Midwest. The Plains and Mid Atlantic have fairly good chances of precipitation as well. The monsoon season looks to continue, with widespread precipitation over the southwest. Temperatures are projected to be above normal for almost the entire United States, with the greatest departures over the High Plains and Ohio River Valley (6-9 degrees Fahrenheit above normal). Cool temperatures will again take place over the west coast.

The CPC 6-10 day forecast (August 24-28) continues to show the best chances for above normal temperatures over the Ohio River Valley and below normal temperatures from Alaska down through the west coast. Precipitation chances are greatest over the northern High Plains and along the Gulf Coast. The best chance for below normal precipitation is from Arkansas up through West Virginia and into New England.

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

A ... Agricultural

H ... Hydrological

Updated August 18, 2010