



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

Weekly Report - Snowpack / Drought Monitor Update

Date: 26 August 2010

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Temperature: SNOTEL 7-day average temperature departures from normal map show that temperatures are within 5°F of the long term average with the warmest temperatures over the Rockies (Fig. 1). ACIS 7-day average temperature anomalies show that the greatest positive temperature departures were over parts of southern California and southwest Arizona (>+8°F) and the greatest negative departures occurred over parts of Oregon and Washington (<-4°F) (Fig. 1a).

Precipitation: ACIS 7-day average precipitation amounts for the period ending 25 August shows the bulk of the heaviest precipitation confined to Montana and the Southern Rockies (Fig. 2). In terms of percent of normal, widely scattered thunderstorms across much of the 4-Corners States and Montana dominated; 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, south-central Utah, central Montana, the Olympics (WA), and south-central and eastern Wyoming have the largest surpluses while much of northern Idaho, Upper Snake River, Northern Wasatch (UT), and central Nevada 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: Few changes occurred in the West, where widespread showers were confined to the Four Corners region. The erratic Southwestern monsoon continued to produce heavy rain in some areas and largely bypass regions affected by dryness or drought. For example, Flagstaff, Arizona—in a non-drought area—experienced its fourth-wettest June 15 – August 24 period on record, with 9.54 inches of rain. Flagstaff's only wetter such periods occurred in 1904 (9.97 inches), 1919 (10.33 inches), and 1986 (14.25 inches). Flagstaff received at least an inch of rain on July 18, 26, 30, and August 7 and 23, nearing its 1986 standard of six monsoon days with precipitation totaling at least an inch. Meanwhile, several wildfires flourished in the Northwest, where the Long Butte fire charred more than 300,000 acres of brush and grass in the wilderness of southwestern Idaho. Author: Brad Rippey, U.S. Department of Agriculture.

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

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developing in streams, reservoirs, or wells, and some damage to crops and pastures (Figs. 3, 3a and 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/>.

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

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SNOTEL (solid) 7-Day Average Temperature Anomaly (Degrees F) Aug 26, 2010

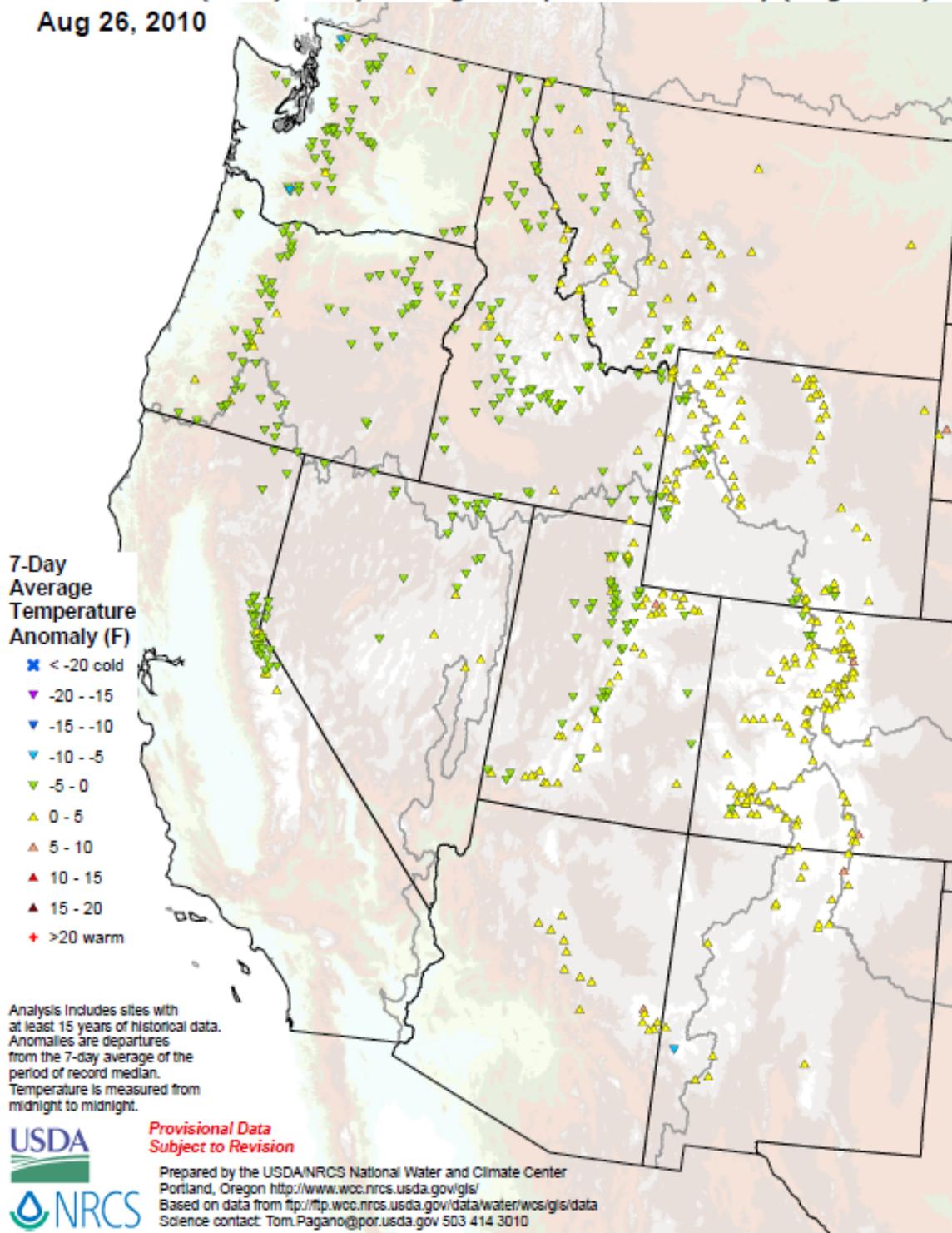
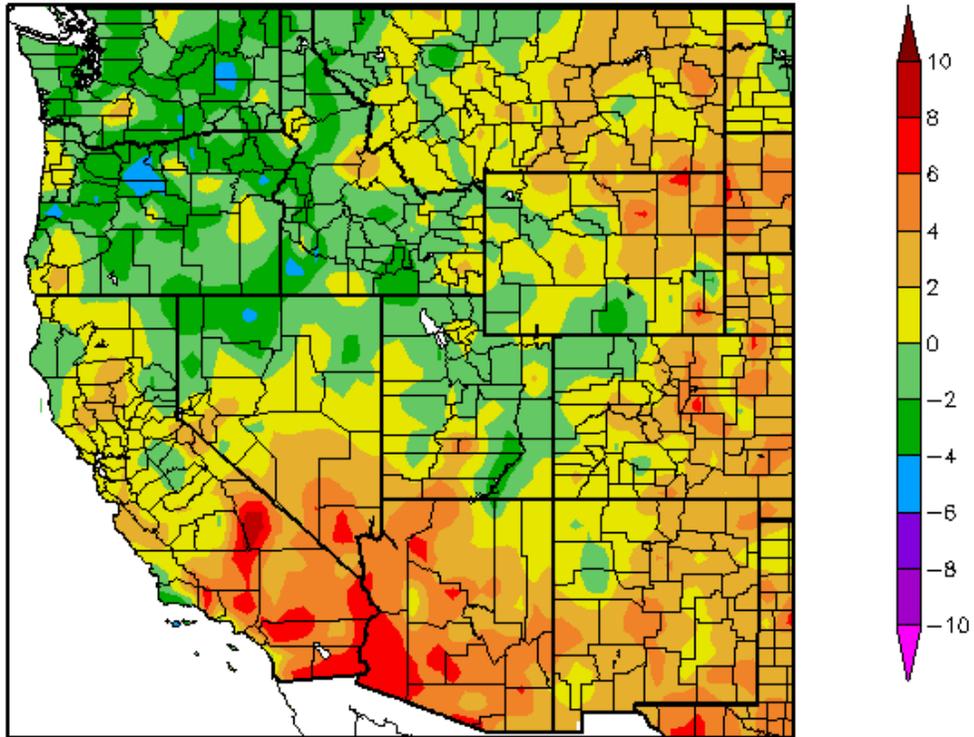


Fig. 1: SNOTEL 7-day average temperature departures from normal map show that temperatures are within 5°F of the long term average with the warmest temperatures over the Rockies.

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

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Departure from Normal Temperature (F) 8/19/2010 – 8/25/2010



Generated 8/26/2010 at HPRCC using provisional data.

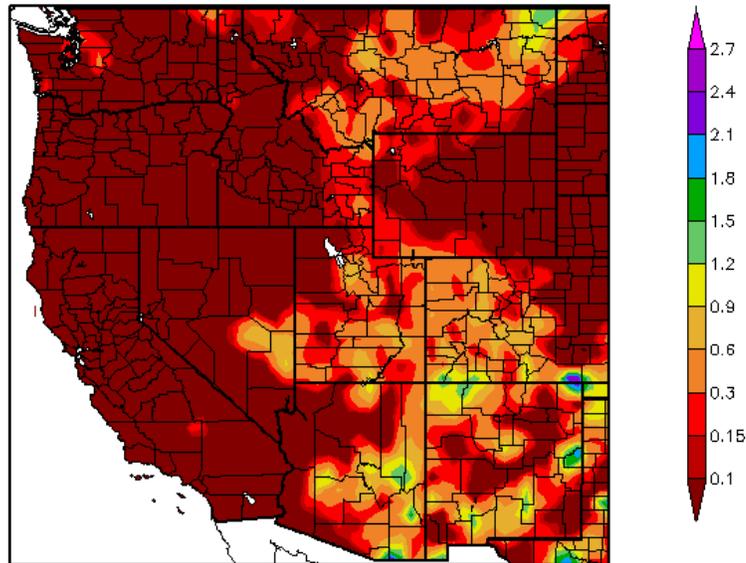
Regional Climate Centers

Fig. 1a: ACIS 7-day average temperature anomalies show that the greatest positive temperature departures were over parts of southern California and southwest Arizona (>+8°F) and the greatest negative departures occurred over parts of Oregon and Washington (<-4°F).

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

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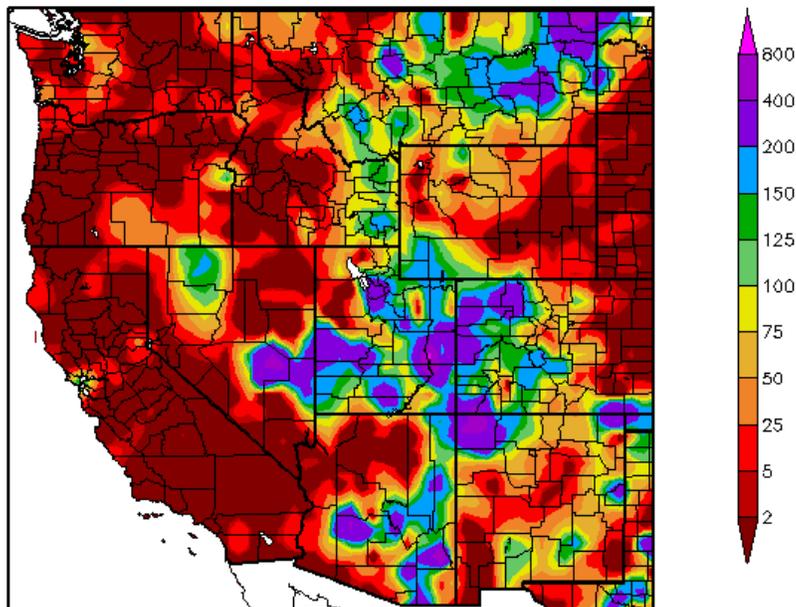
Precipitation (in)
8/19/2010 – 8/25/2010



Generated 8/26/2010 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)
8/19/2010 – 8/25/2010



Generated 8/26/2010 at HPRCC using provisional data.

Regional Climate Centers

Fig. 2 and 2a: ACIS 7-day average precipitation amounts for the period ending 25 August shows the bulk of the heaviest precipitation confined to Montana and the Southern Rockies (Fig. 2). In terms of percent of normal, widely scattered thunderstorms across much of the 4-Corners States and Montana dominated; resulted in two to four times the weekly expected average precipitation (Fig. 2a). Ref: <http://www.hprcc.unl.edu/maps/current/>

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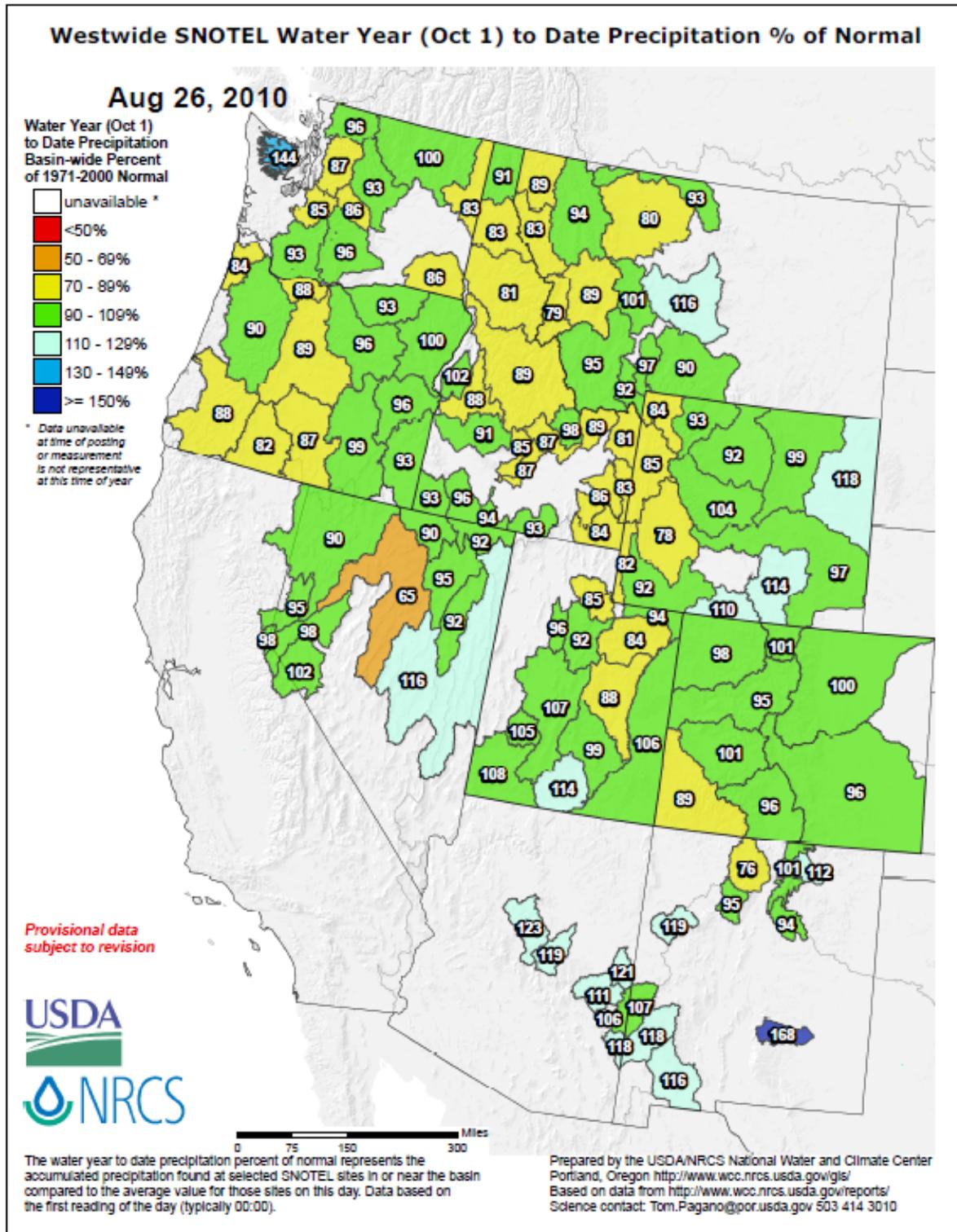
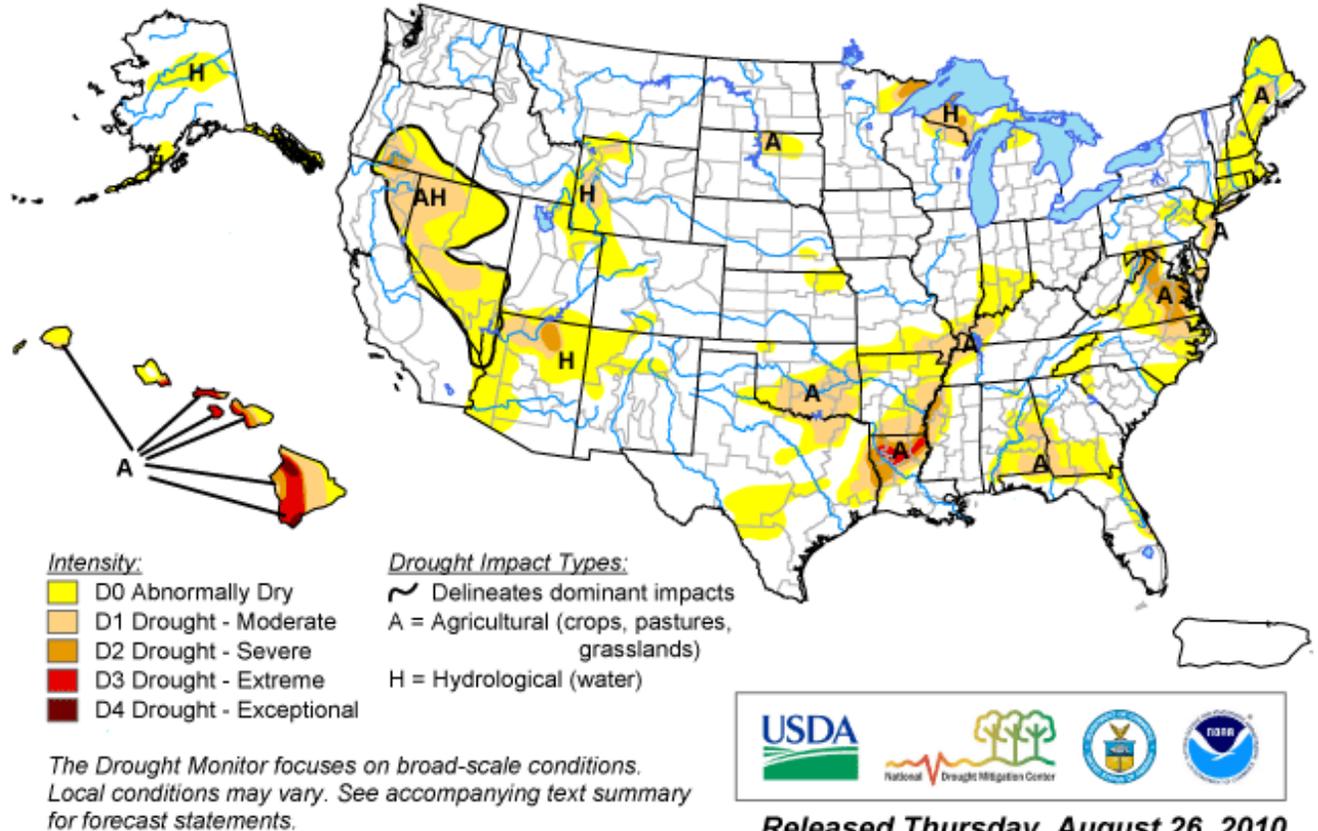


Fig 2b: For the 2010 Water-Year that began on 1 October 2009, Arizona, southern New Mexico, eastern Nevada, south-central Utah, central Montana, the Olympics (WA), and south-central and eastern Wyoming have the largest surpluses while much of northern Idaho, Upper Snake River, Northern Wasatch (UT), and central Nevada 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: ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west_wytdprecptnormal_update.pdf

U.S. Drought Monitor

August 24, 2010
Valid 8 a.m. EDT



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

Released Thursday, August 26, 2010
Author: Brad Rippey, U.S. Department of Agriculture

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

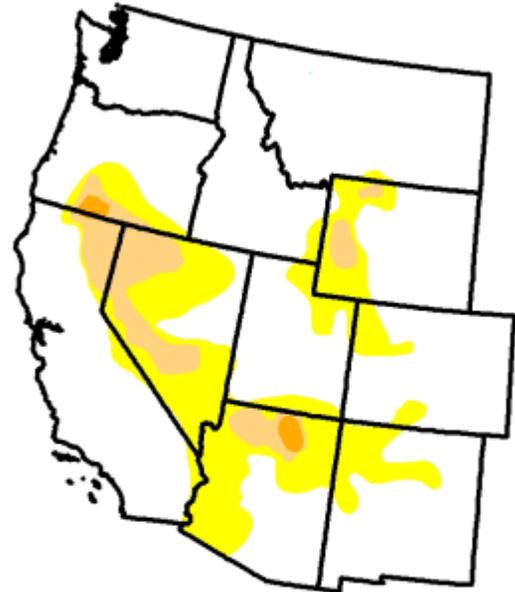
U.S. Drought Monitor

West

August 24, 2010
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	75.1	25.0	6.3	0.6	0.0	0.0
Last Week (08/17/2010 map)	74.6	25.4	6.3	0.5	0.0	0.0
3 Months Ago (06/01/2010 map)	61.2	38.8	14.1	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 (08/25/2009 map)	54.9	45.1	22.1	7.6	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 26, 2010
Author: Brad Rippey, U.S. Department of Agriculture

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

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Drought Monitor Classification Changes for Selected Time Periods

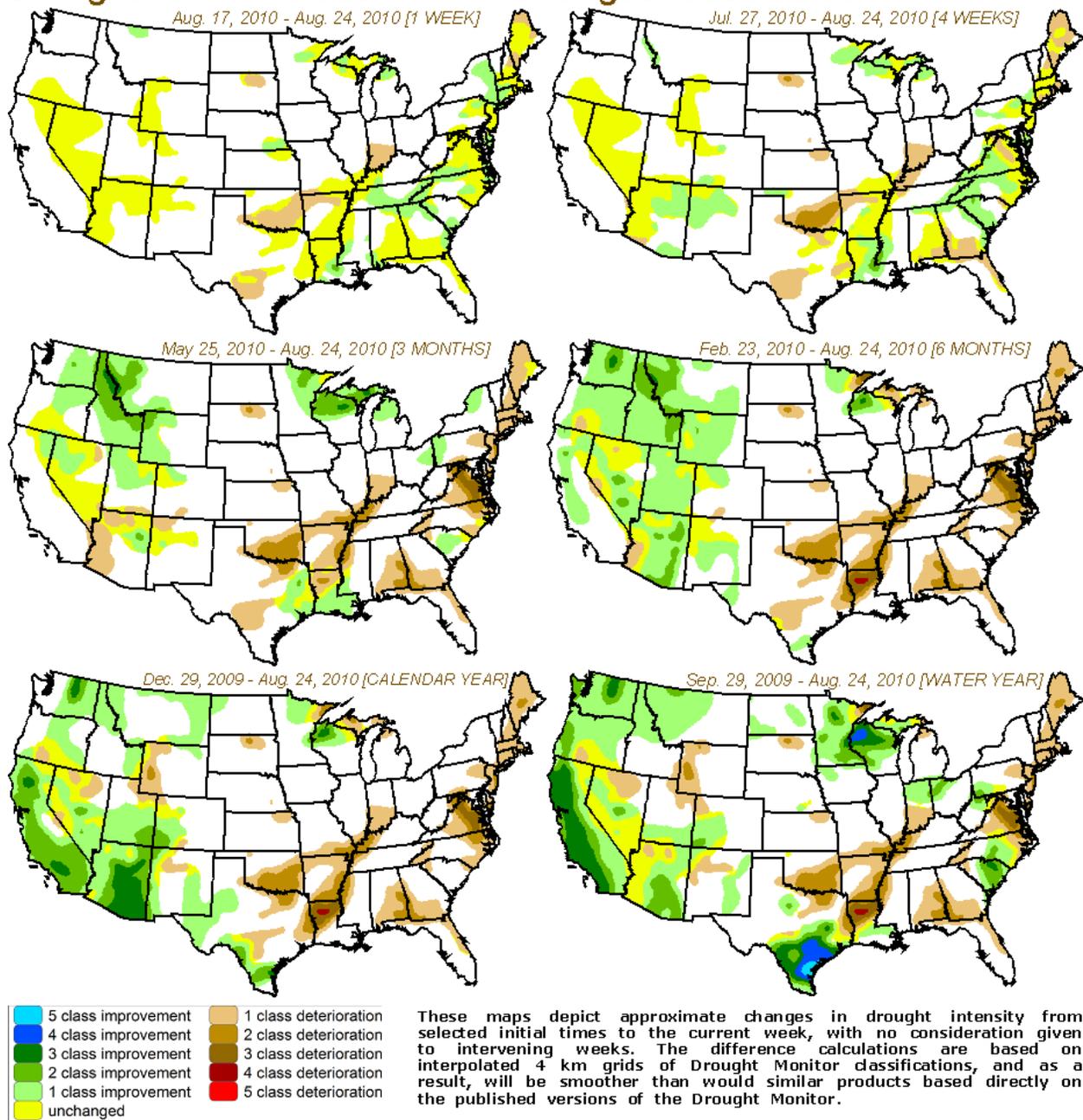
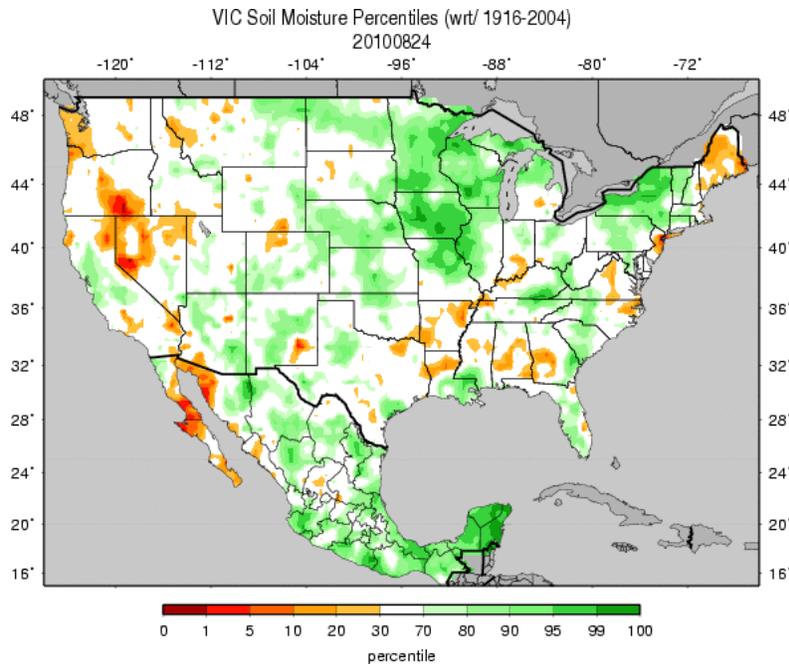


Fig. 3b: Drought Monitor Classification Changes for various time periods shows a drying trend over the past few weeks over the mid-section of the nation.

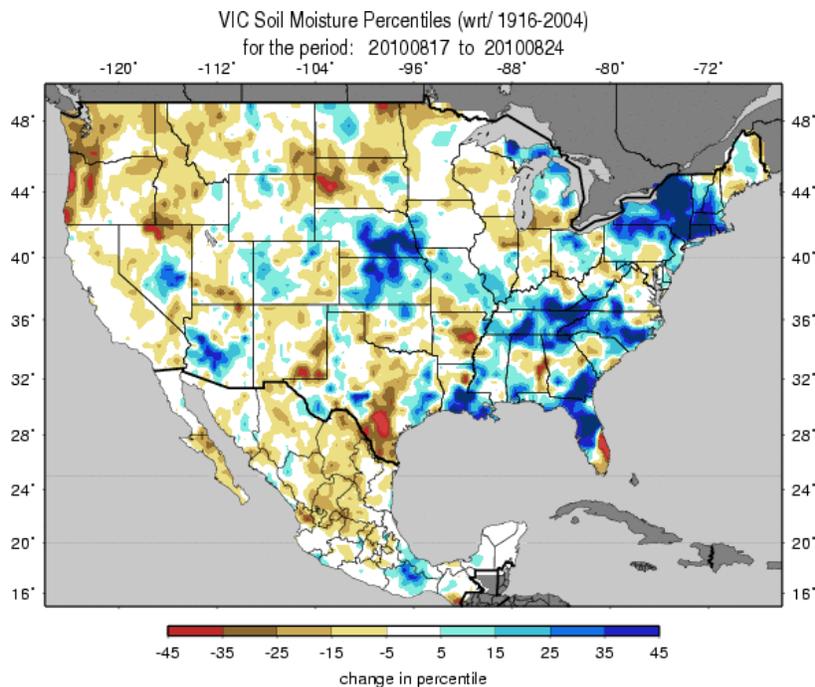
Ref: <http://www.cpc.ncep.noaa.gov/products/predictions/experimental/edb/dm-change-4maps.png>

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Figs. 4a: Soil Moisture ranking in percentile based on 1916-2004 climatology as of 24 August. Excessive moisture dominates over the western Great Lakes and New York. Dry soils are scattered across the Upper Great Basin.

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

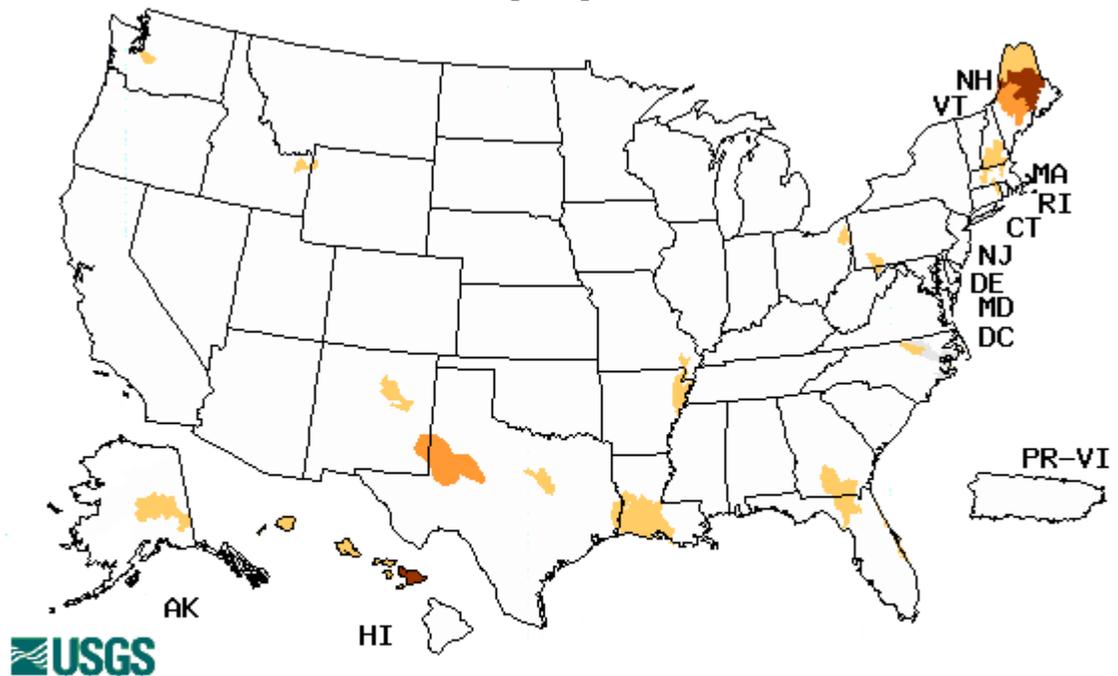


Figs. 4b: Soil Moisture change in percentile based on 1916-2004 climatology for the week shows significant moistening over New England, Tennessee River Valley, Florida, the Central High Plains, and southwest Arizona. Some excessive drying is noted southern Texas, Coastal Oregon and Washington, and the Northern Tier States of the West.

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

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Wednesday, August 25, 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 continues to have the largest stream deficits flow in the U.S. this week. Ref: <http://waterwatch.usgs.gov/?m=dryw&r>

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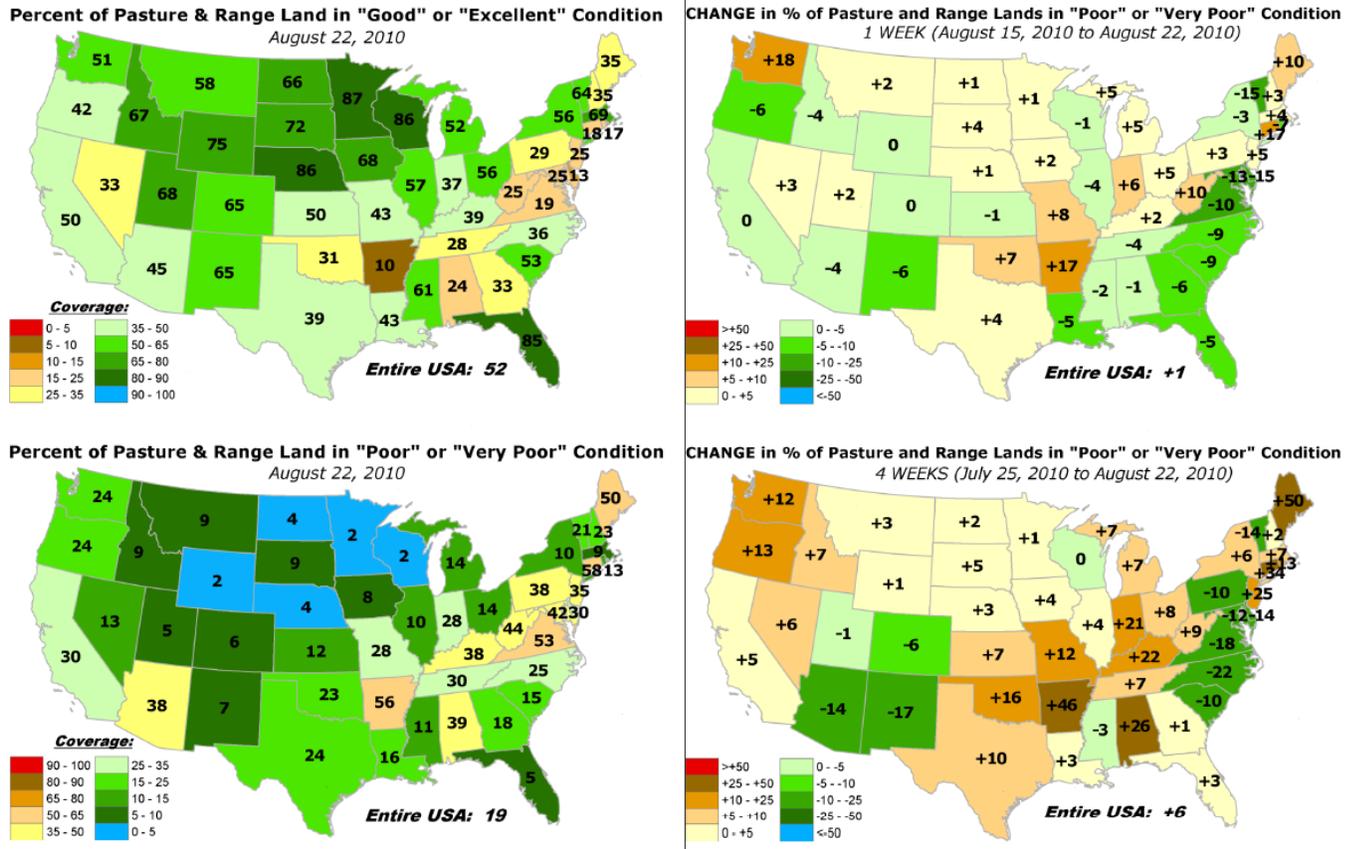


Fig. 6: These maps show the overall pasture and rangeland conditions by state. Note that Nevada has the least amount of good or excellent condition (upper left panel) in the West. However, during the past week (upper right panel), conditions deteriorated the most over Washington.

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

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National Drought Summary -- August 24, 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: A coastal low-pressure system contributed to a very wet weather pattern in the Northeast. Rainfall totals of 2 to 6 inches, with locally higher totals, were observed in much of New York, southern New England, and northern portions of Pennsylvania and New Jersey. As a result, the coverage of moderate drought (D1) was reduced in the northern Mid-Atlantic States and southern New England, while abnormal dryness (D0) was largely eliminated from New York (excluding Long Island) and neighboring areas. However, rain mostly bypassed northern New England, where abnormal dryness (D0) was significantly expanded in Maine. In addition's Maine's coverage of moderate drought (D1) increased slightly. By August 22, USDA reported that half of Maine's pastureland was rated in very poor to poor condition. Farther south, hit-or-miss showers affected the southern Mid-Atlantic region, leaving a core severe drought (D2) area intact in a broad region centered on northern and eastern Virginia. On August 22, 62% of Virginia's corn was rated in very poor to poor condition, along with 53% of the pastureland and 35% of the cotton.

The Southeast: The remnants of Tropical Depression Five produced some extreme rainfall totals from the central Gulf Coast region into the interior Southeast. A small area of south-central Louisiana experienced a two-category improvement (from moderate drought to no drought designation) due to rainfall totals that locally exceeded 10 inches. Farther north, August 17-19 rainfall totals as high as 10 to 12 inches in Middle Tennessee caused widespread flooding and eradicated abnormal dryness (D0). In Nashville, Tennessee, the rain helped to end the second-longest stretch of 90-degree weather on record at 31 days (July 18 – August 17). The only longer such streak in Nashville's history occurred in 2007 (34 days from July 26 - August 28). Meanwhile, rainfall amounts (2 to 4 inches, with locally higher totals) were also quite impressive from the southern Appalachians to the southern Atlantic Coast. As a result, there were widespread reductions in the coverage of abnormal dryness and moderate drought (D0 and D1) in the Southeast. Although the rain arrived too late to help corn and many other commodities, pastures and immature crops benefited from the boost in soil moisture. Some areas missed most of the rain, however, leaving pockets of moderate drought (D1). A core region of severe to extreme drought (D2 to D3) persisted from the Texas-Louisiana border to the Delta. In fact, year-to-date rainfall deficits of 12 to 20 inches were still noted in several locations, including Bastrop, Louisiana, and Greenville, Mississippi.

The Mid-South and the Lower Midwest: Rainfall managed to bypass an area stretching from the southeastern Plains into the lower Ohio Valley, resulting in some expansion or introduction of abnormal dryness and moderate drought (D0 and D1). In some cases, heat aggravated the effects of short-term dryness. From July 19 – August 24, Paducah, Kentucky recorded highs of 90 degrees F or greater on 37 consecutive days, narrowly missing its 1993 standard of 38 days. In Arkansas, the percentage of pastureland rated in very poor to poor condition reached 56% by August 22, up from 10% on July 25. Effects of the developing dryness were felt as far

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north as Indiana, where 28% of the pastureland was rated in very poor to poor condition on August 22. At the same time, Indiana's topsoil moisture was rated 60% very short to short, up from 49% the previous week.

The Plains: A few pockets of late-season dryness and moderate drought (D0 and D1) persisted or developed across the nation's mid-section. Drought (D1) expansion was most impressive in south-central and southeastern Oklahoma, where very hot, dry conditions have persisted in August. Hot, dry conditions have been even more impressive in central and south-central Texas, where abnormal dryness (D0) was broadly expanded. High temperatures in San Angelo, Texas, reached or exceeded 100 degrees F on 26 consecutive days from July 30 – August 24, easily breaking its 1969 record of 18 days. Elsewhere in Texas, Waco's string of 25 consecutive 100-degree day from July 31 – August 24 was its longest such streak since a 29-day spell of triple-digit heat from July 6 – August 3, 1998. Farther south, August 1-24 rainfall totaled just a trace in San Antonio, Texas, where the last measurable precipitation occurred on July 28. Meanwhile, a patch of moderate drought (D1) was introduced in northern South Dakota, where little rain has fallen during the last month and some longer-term precipitation deficits also exist.

The West: Few changes occurred in the West, where widespread showers were confined to the Four Corners region. The erratic Southwestern monsoon continued to produce heavy rain in some areas and largely bypass regions affected by dryness or drought. For example, Flagstaff, Arizona—in a non-drought area—experienced its fourth-wettest June 15 – August 24 period on record, with 9.54 inches of rain. Flagstaff's only wetter such periods occurred in 1904 (9.97 inches), 1919 (10.33 inches), and 1986 (14.25 inches). Flagstaff received at least an inch of rain on July 18, 26, 30, and August 7 and 23, nearing its 1986 standard of six monsoon days with precipitation totaling at least an inch. Meanwhile, several wildfires flourished in the Northwest, where the Long Butte fire charred more than 300,000 acres of brush and grass in the wilderness of southwestern Idaho.

Hawaii and Alaska: The drought depiction was unchanged in Hawaii, where drought persisted across the majority of the island chain. Mandatory water conservation measures remained in effect for Maui and Honolulu Counties. In addition, a large wildfire on the Big Island burned at least 1,200 acres of brush in the mountains southeast of Waikoloa. Farther north, frequent showers continued to dampen parts of Alaska. In Anchorage, a record-setting streak with at least a trace of rain ended at 31 days (July 18 - August 17). Abnormal dryness (D0) persisted, however, in a few areas, including the upper Aleutian Islands, the Alexander Archipelago, and the northern interior.

Looking Ahead: During the next 5 days (August 26-30), dry weather will prevail nearly nationwide. Exceptions will include occasional showers in the Gulf Coast region and a surge of monsoon moisture from the Four Corners States into the northern Plains and the upper Midwest. Markedly cooler air will arrive in the West, while late-season warmth will develop across the Midwest and the Northeast. The National Weather Service's 6- to 10-day outlook for August 31 – September 4 calls for near- to above-normal temperatures across the eastern two-thirds of the nation, while cooler-than-normal weather will prevail in the Northwest. Meanwhile, below-normal rainfall from the southern Rockies into the Southeast will contrast with wetter-than-normal conditions in the western Gulf Coast region and across the nation's northern tier from the Pacific Northwest to the upper Great Lakes States.

Author: [Brad Rippey, U.S. Department of Agriculture](#)

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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 25, 2010