



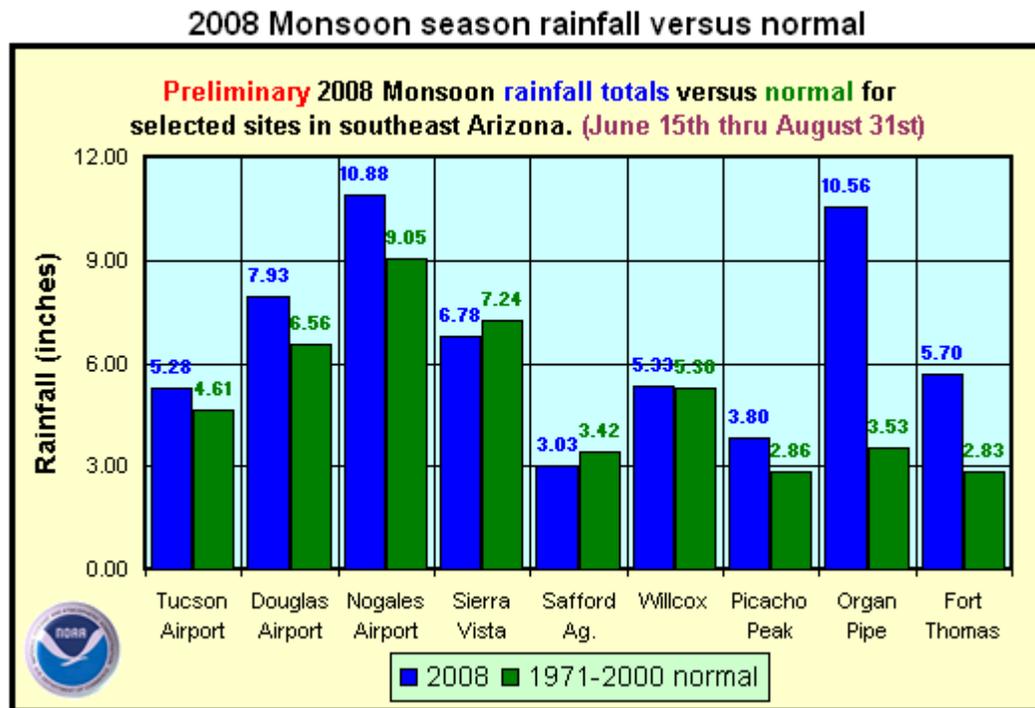
Natural Resources Conservation Service
 P.O. Box 2890
 Washington, D.C. 20013

Weekly Report - Snowpack / Drought Monitor Update **Date: 4 September, 2008**

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Temperature: SNOTEL and ACIS-day station average temperature anomalies were highest (positive departures) were located in California and lowest (negative departures) over the Pacific Northwest (Fig. 1). Specifically, the greatest negative temperature departures occurred over Oregon (<-8F) and the greatest positive departures occurred over California (>+6F) (Fig. 1a).

Precipitation: Preliminary precipitation totals for the 7-day period ending 3 September shows areas of heavy precipitation over portions of the Rockies while the Southwest Monsoon is continuing over southern Arizona and New Mexico. Otherwise, typical dry conditions prevail over the much of California and the interior West (Fig. 2). For the latest information on the status of the Southwest Monsoon, see: http://www.wrh.noaa.gov/twc/monsoon/monsoon_tracker.php:



Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2008 Water Year that began on October 1, 2007 (Fig. 2a) shows above normal totals over northeastern Wyoming, parts of the Snake and Columbia River Basins in Washington, Oregon, and Idaho, and over parts of Arizona, New Mexico and Colorado. Parts of Nevada are experiencing significant shortfalls and to a lesser extent in southern Idaho. For precipitation totals, departures, and percent of normal for several time periods see: <http://water.weather.gov/>.

Weekly Snowpack and Drought Monitor Update Report

WESTERN DROUGHT STATUS

The West: The far West was generally drier than average during the past week while widespread areas of near and above-average precipitation occurred from the Southwest to parts of the northern Rockies. Drought designations across most areas of the West remained unchanged, but drought severity worsened in southwestern Utah and northern California. Moderate (D1A) drought expanded to the Oregon border in northern California's Del Norte County, where rainfall since February has been less than 50% of average. The lack of rainfall has resulted in sharp losses in non-irrigated crops and pasture land for livestock. The area of severe (D2H) drought near the northern California/Nevada border also grew to cover all of Lassen County. In southwestern Utah, an area of abnormally dry (D0) and moderate (D1AH) drought was extended eastward where 6-month precipitation deficits reflect below average precipitation during the critical spring and early summer seasons and impacts to agriculture have been widespread. Author: Jay Lawrimore, NOAA's National Climatic Data 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, 3a, and 3b).

SOIL MOISTURE

Soil moisture (Figs. 4 and 4a), 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).

OBSERVED FIRE DANGER CLASS

The National Interagency Coordination Center provides a variety of products that describe the current wildfire status for the U.S. - http://activefiremaps.fs.fed.us/lq_fire2.php. The latest Observed Fire Danger Class is shown in Figs. 5 shows the current active wildfires across the West - <http://geomac.usgs.gov/>.

U.S. HISTORICAL STREAMFLOW

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

Weekly Snowpack and Drought Monitor Update Report

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/>

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/ NOLLER HERBERT
Director, Conservation Engineering Division

Weekly Snowpack and Drought Monitor Update Report

SNOTEL (solid) and ACIS (dot-filled) Networks 7-Day Average Temperature Anomaly (Degrees F)

Sep 04, 2008

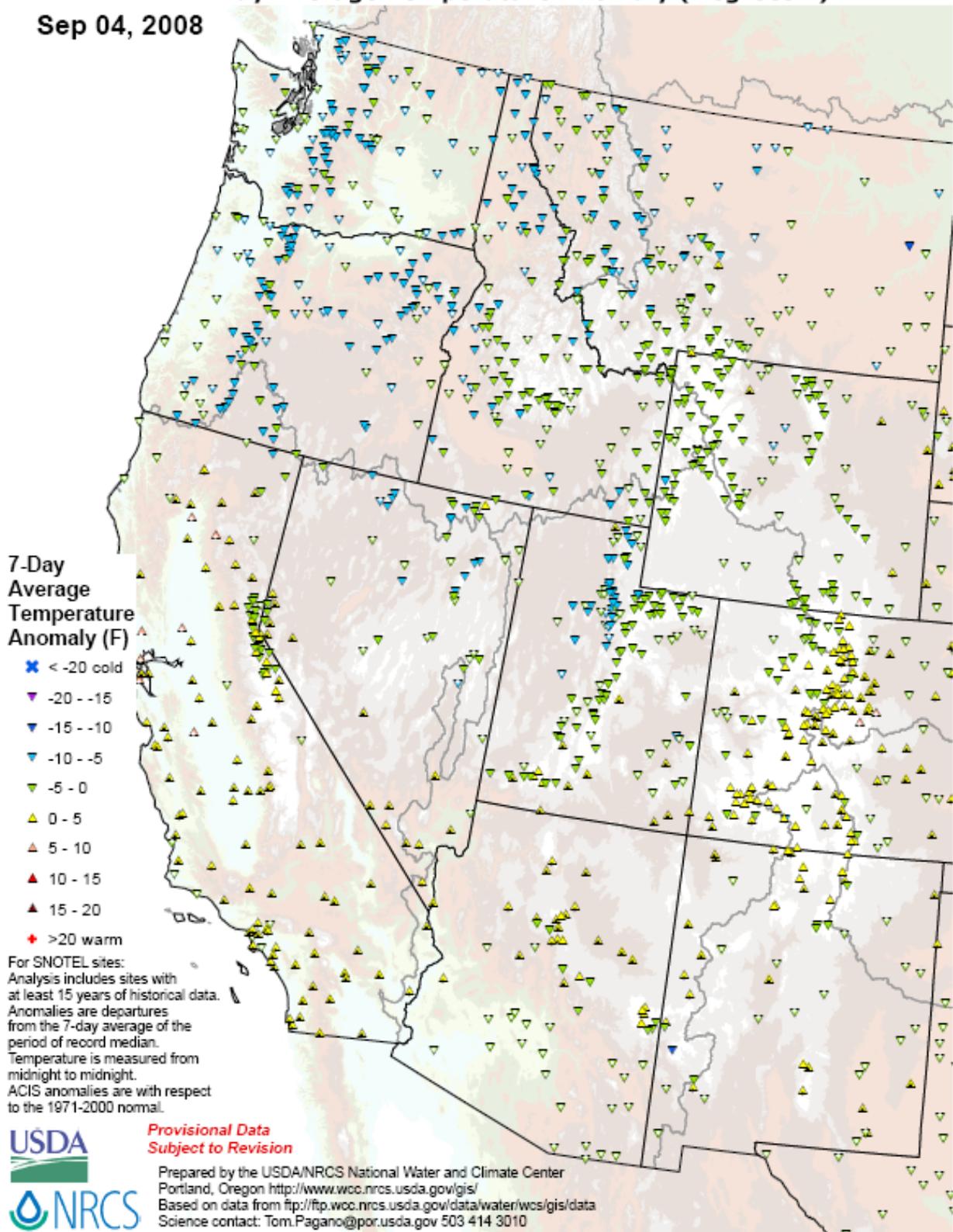
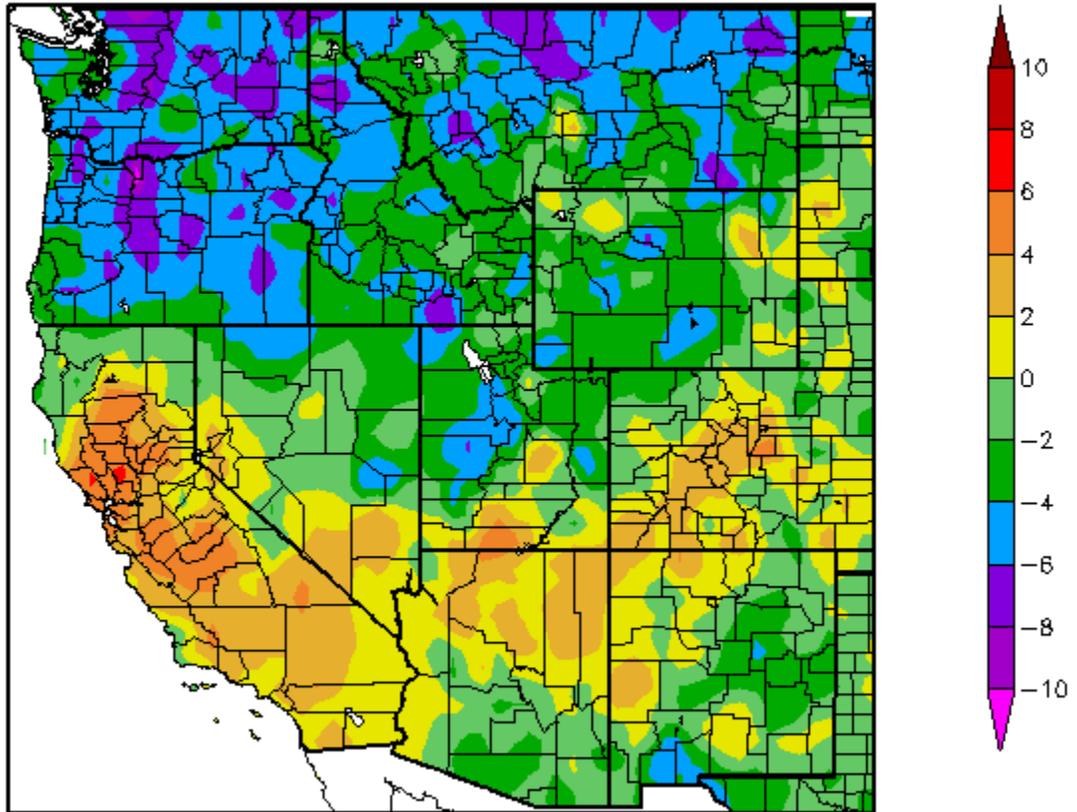


Fig. 1. SNOTEL and ACIS-day station average temperature anomalies were highest (positive departures) were located in California and lowest (negative departures) over the Pacific Northwest.

Ref: <ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideTavg7dAnomalyAcis.pdf>

Departure from Normal Temperature (F)
8/28/2008 – 9/3/2008



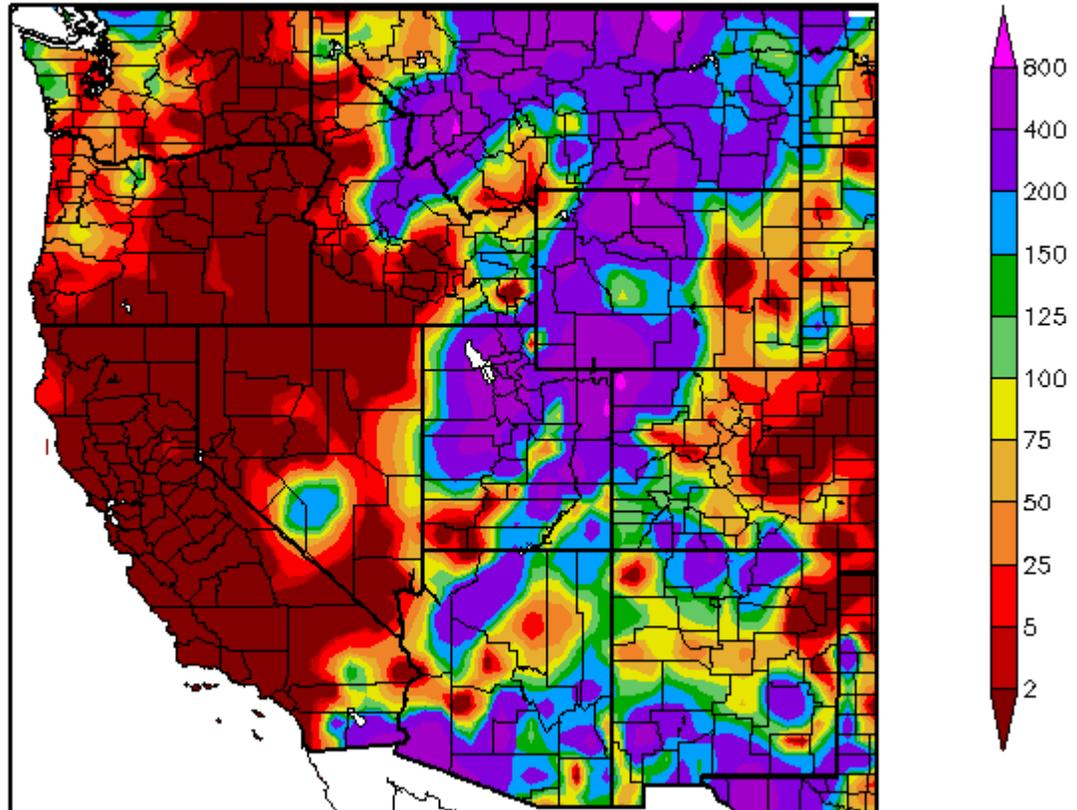
Generated 9/4/2008 at HPRCC using provisional data.

NOAA Regional Climate Centers

Fig. 1a. ACIS 7-day average temperature anomalies: Greatest negative temperature departures occurred over Oregon (<-8F) and greatest positive departures occurred over California (>+6F).

Ref: http://www.hprcc.unl.edu/maps/current/index.php?action=update_product&product=TDept

Percent of Normal Precipitation (%)
8/28/2008 – 9/3/2008



Generated 9/4/2008 at HPRCC using provisional data.

NOAA Regional Climate Centers

**Fig. 2. ACIS 7-day average precipitation anomaly: Preliminary precipitation totals for the 7-day period ending 3 September shows areas of heavy precipitation over portions of the Rockies while the Southwest Monsoon is continuing over southern Arizona and New Mexico. Otherwise, typical dry conditions prevail over the much of California and the interior West. For information on the status of the Southwest Monsoon, see: Ref: http://www.wrh.noaa.gov/twc/monsoon/monsoon_tracker.php
http://www.hprcc.unl.edu/maps/index.php?action=update_product&product=PNorm**

Weekly Snowpack and Drought Monitor Update Report

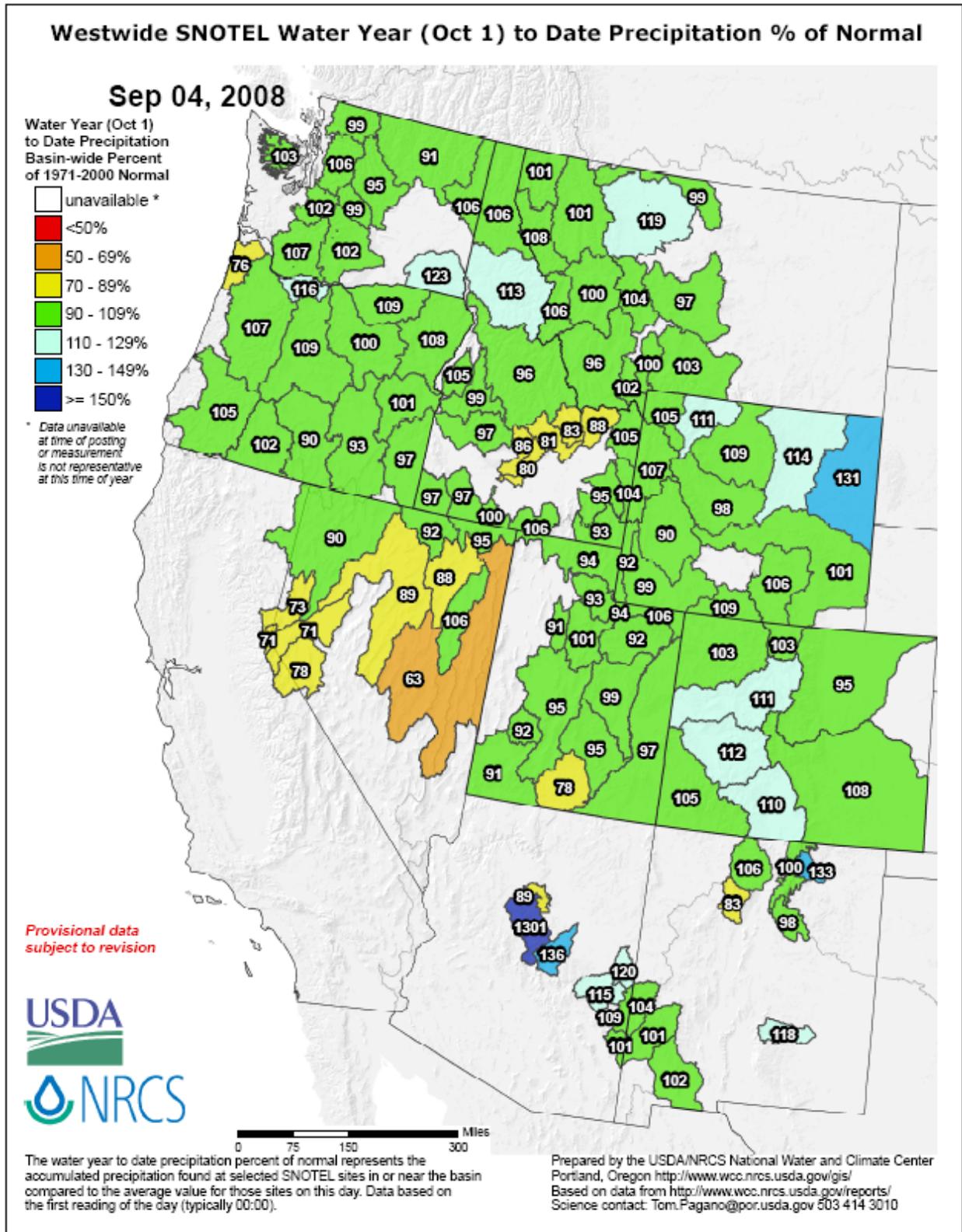
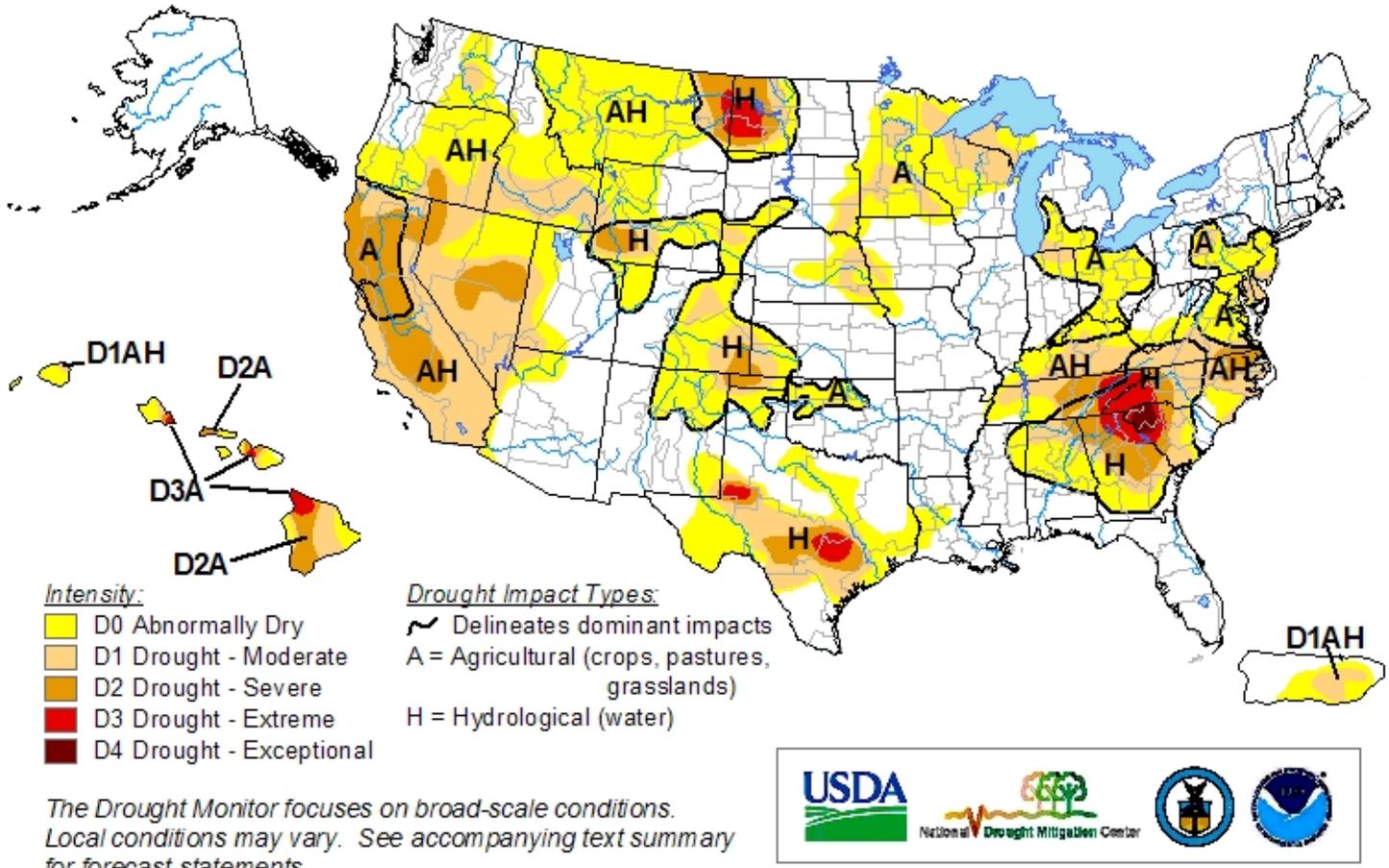


Fig 2a. Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2008 Water Year that began on October 1, 2007 shows above normal totals over northeastern Wyoming, parts of the Snake and Columbia River Basins in Washington, Oregon, and Idaho, and over parts of Arizona, New Mexico and Colorado. Parts of Nevada are experiencing significant shortfalls and to a lesser extent in southern Idaho.

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

U.S. Drought Monitor

September 2, 2008
Valid 8 a.m. EDT



Released Thursday, September 4, 2008

<http://drought.unl.edu/dm> Authors: Jay Lawrimore/Liz Love-Brotak NOAA/NESDIS/NCDC

Fig. 3. Current Drought Monitor weekly summary.

Ref: National Drought Mitigation Center (NDMC) - <http://www.drought.unl.edu/dm/monitor.html>

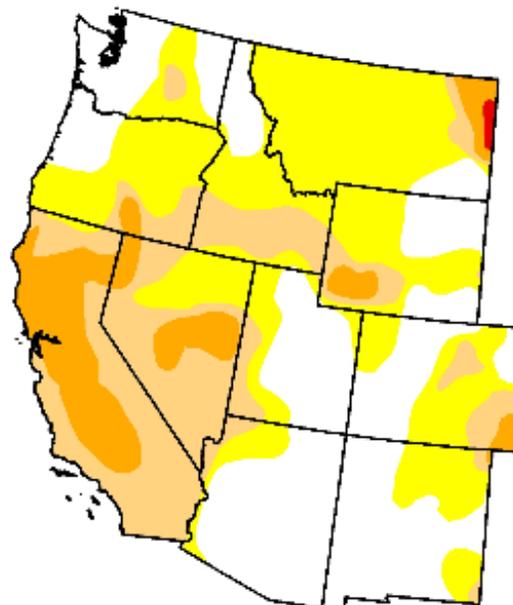
U.S. Drought Monitor

West

September 2, 2008
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	34.2	65.8	31.1	10.1	0.2	0.0
Last Week (08/26/2008 map)	34.7	65.3	29.9	9.9	0.2	0.0
3 Months Ago (06/10/2008 map)	42.2	57.8	28.2	5.5	0.2	0.0
Start of Calendar Year (01/01/2008 map)	26.3	73.7	54.7	33.1	2.7	0.0
Start of Water Year (10/02/2007 map)	22.0	78.0	62.3	44.7	12.4	0.0
One Year Ago (09/04/2007 map)	21.1	78.9	63.9	49.4	12.5	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, September 4, 2008

Author: J. Lawrimore/L. Love-Brotak, NOAA/NESDIS/NCDC

Fig. 3a. Drought Monitor for the Western States with statistics over various time periods. Note no significant change since last week. Ref: http://www.drought.unl.edu/dm/DM_west.htm

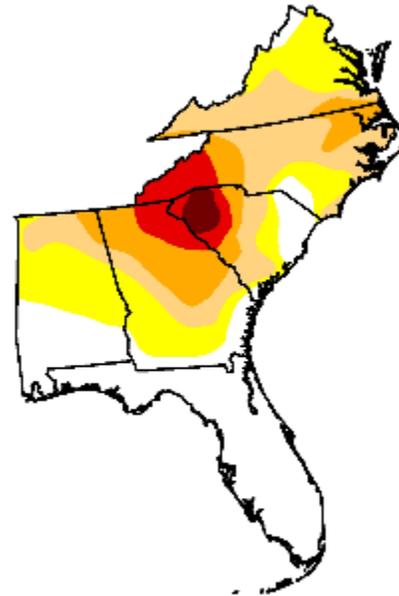
U.S. Drought Monitor

Southeast

September 2, 2008
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	34.5	65.5	42.6	20.0	7.6	1.5
Last Week (08/26/2008 map)	34.3	65.7	45.3	26.7	10.9	1.5
3 Months Ago (06/10/2008 map)	12.6	87.4	54.6	24.6	8.2	0.0
Start of Calendar Year (01/01/2008 map)	9.6	90.4	74.3	58.5	41.0	22.0
Start of Water Year (10/02/2007 map)	10.1	89.9	77.9	63.8	45.2	24.0
One Year Ago (09/04/2007 map)	6.1	93.9	75.9	54.5	34.7	15.8



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>

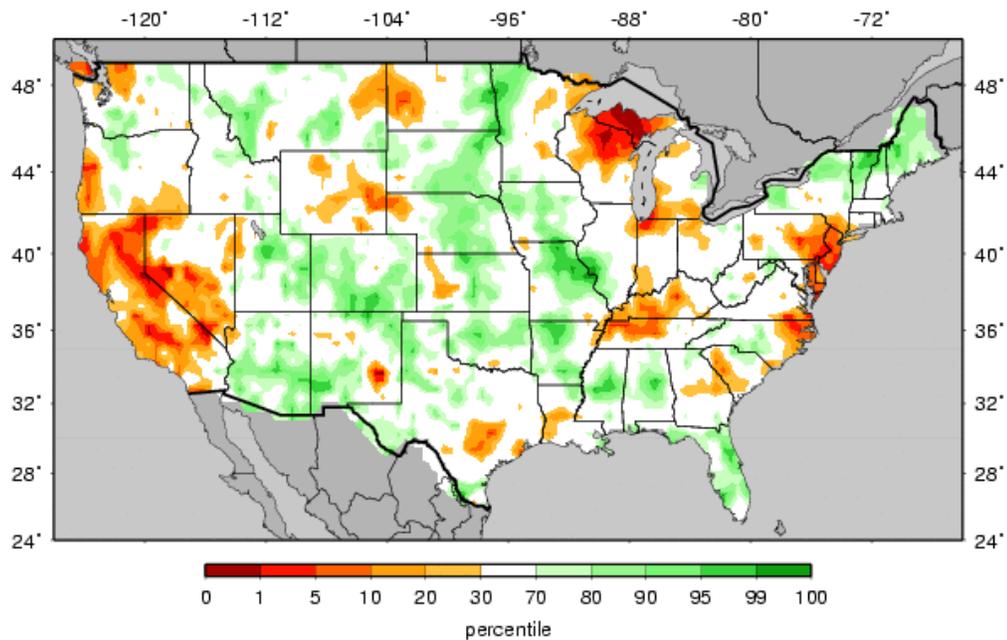


Released Thursday, September 4, 2008
Author: J. Lawrimore/L. Love-Brotak, NOAA/NESDIS/NCDC

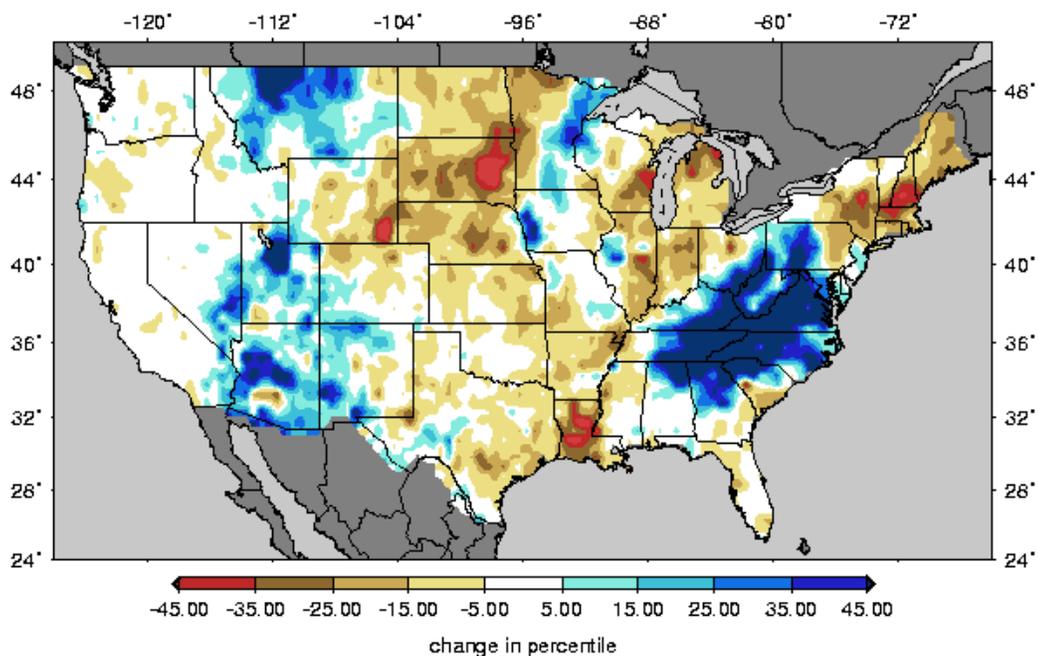
Fig. 3b: Drought Monitor for the Southeastern shows significant improvement (D2 and D3) since last week.
Ref: http://www.drought.unl.edu/dm/DM_southeast.htm

Weekly Snowpack and Drought Monitor Update Report

MULTIMODEL Soil Moisture Percentiles (wrt/ 1920-2003)
20080902



Change in Soil Moisture Percentiles (wrt/ 1915-2003)
for the week 20080826 to 20080902



Figs. 4 & 4a: Soil Moisture Ranking and change in percentile based on 1915-2003 climatology for this past week. Some worsening is noted over Michigan, western Oregon, and northwest Washington, while improvement has occurred over the Mid-Atlantic States, Montana, and North Dakota (Fig. 5). Last week saw a significant increase in soil moisture over the Middle Eastern States, Montana, and from Arizona to Utah. Significant decreases in soil moisture over New England, Louisiana (before Hurricane Gustav), and over eastern South Dakota.

Ref: http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.multimodel.sm_qnt.gif
http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.vic.sm_qnt.1wk.gif

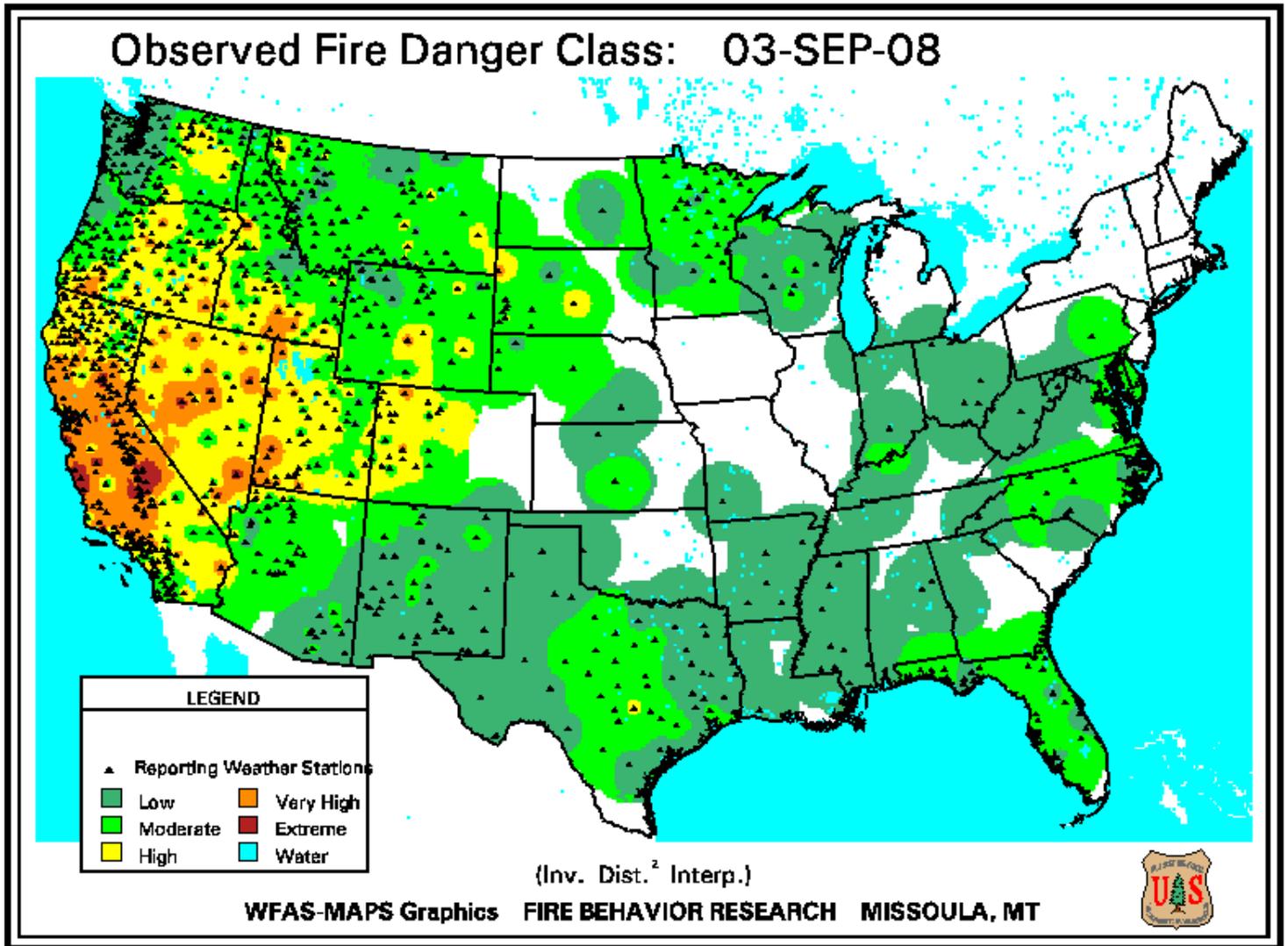


Fig. 5. Observed Fire Danger Class. Note some improvement in fire threat from Montana to eastern Oregon since last week. Source: Forest Service Fire Behavior Research – Missoula, MT.

Ref: http://www.fs.fed.us/land/wfas/fd_class.gif

Weekly Snowpack and Drought Monitor Update Report

Wednesday, August 27, 2008

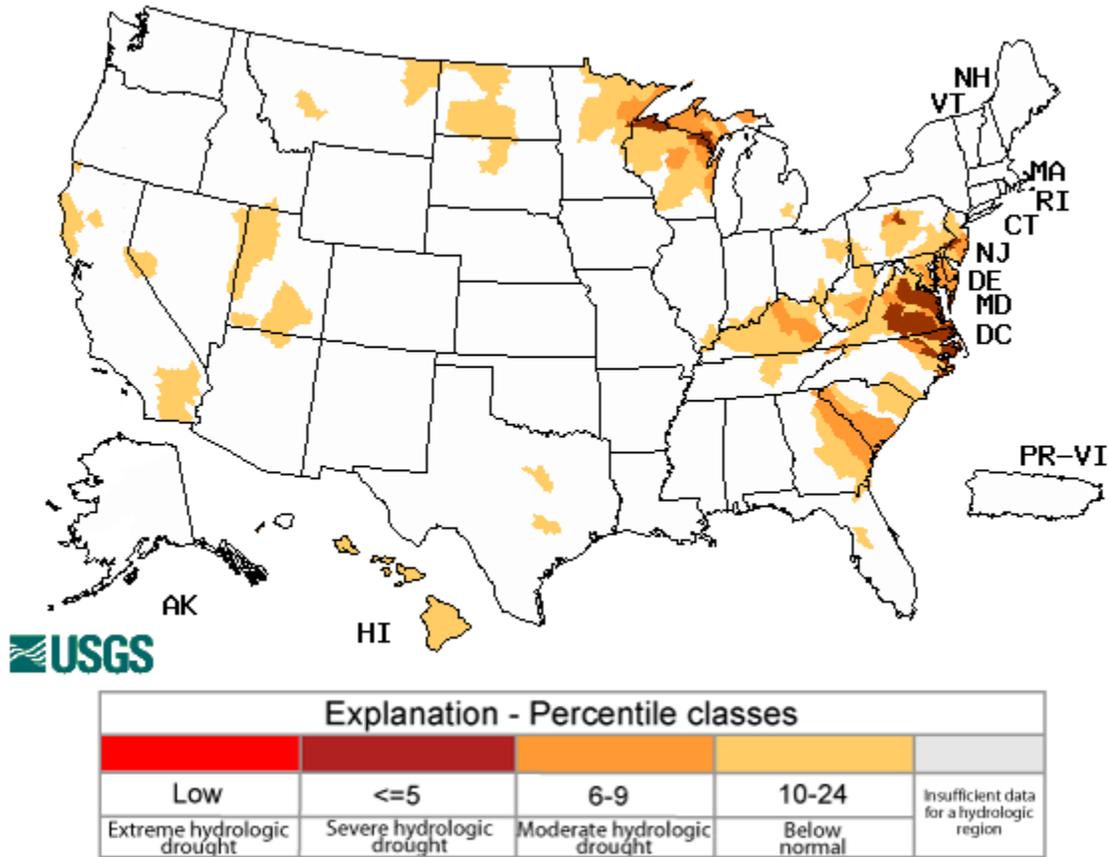


Fig. 6. This week's map shows much improved flows over parts of the Mid-Atlantic States since last week.

Ref: <http://water.usgs.gov/waterwatch/?m=dryw&w=map&r=us>

Weekly Snowpack and Drought Monitor Update Report

National Drought Summary – September 2, 2008

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/>.

Following a week in which Tropical Storm Fay brought widespread improvements to the Deep South and Southeast, the continued slow northeastward track of the remnants of Fay brought additional widespread reductions in drought severity to areas of eastern Tennessee, the western Carolinas, and Virginia. A northwestward moving Hurricane Gustav made landfall along the coast of Louisiana as a Category 2 storm on September 1, bringing heavy rainfall to Louisiana as the DM period came to an end.

The Northeast and Mid-Atlantic: The week was generally drier than average from coastal mid-Atlantic to New England and interior New York, while the remnants of Tropical Storm Fay brought more than 3 inches of rain to central and southern Virginia and widespread amounts of 1 to 2 inches northward through western Maryland and central and western Pennsylvania. Abnormally dry (D0) conditions expanded northward from southeastern to northeastern Pennsylvania and all but the northernmost counties of New Jersey. An area of moderate (D1A) drought developed in southern New Jersey, Delaware, and the Eastern Shore of Maryland where the deteriorating conditions are reflected by USGS 7- to 28-day streamflow values below the 10th percentile. Abnormally dry conditions also expanded westward to cover much of the eastern half of Pennsylvania, and the areal coverage of moderate (D1A) drought in central Pennsylvania expanded eastward where 30- and 60-day precipitation amounts were generally less than 50% and 70% of average, respectively.

Midwest: Precipitation fell in parts of eastern Kentucky and eastern Ohio as remnants of Tropical Storm Fay moved northeastward. Totals were generally not sufficient for improvements in widespread abnormally dry and moderate drought conditions. But in southeastern Ohio totals from 1 to 2 inches brought an end to abnormally dry conditions. In central and western Kentucky a continued lack of rainfall and growing 30 to 90-day deficits led to the northward expansion of abnormal dryness (D0) and moderate (D1AH) drought.

A continued lack of rainfall in northern Indiana and southwestern Michigan led to the introduction of moderate (D1A) drought from the southeastern shores of Lake Michigan to northeastern Indiana. With rainfall totals less than 25% of average during the past 30 to 45 days, there have been widespread reports of rapidly deteriorating crop conditions. Moderate (D1A) drought also expanded across the western third of the Upper Peninsula of Michigan and areas of northeastern Wisconsin where 30 to 45-day precipitation totals are less than 50 percent of average, modeled soil moisture indicates deteriorating conditions, and USGS 7- to 28-day streamflows are well below the 10th percentile.

Localized rainfall amounts of 2 to 4 inches brought an end to abnormally dry conditions in west central parts of Iowa, while worsening 30 to 45 day precipitation deficits led to a southeastward expansion of moderate (D1A) drought from eastern Nebraska to southwestern parts of Iowa. Abnormal dryness (D0A) also expanded southwestward from southwest Wisconsin into northeast Iowa.

Weekly Snowpack and Drought Monitor Update Report

Southeast: More than 5 inches of rain associated with the remnants of Tropical Storm Fay brought widespread 1-category improvements from the central Piedmont of South Carolina to northwestern North Carolina, and southern and central areas of Virginia. These improvements left a transition from moderate (D1H) drought in the central Piedmont of North Carolina to extreme (D3H) drought in southwestern areas of the state. A 1-category improvement to moderate (D1H) drought in southwestern and south-central Virginia and an improvement to abnormally dry conditions from central to northern Virginia reflect the effects of widespread rainfall amounts exceeding 2 to 3 inches and scattered totals exceeding 5 to 6 inches. Totals generally less than 1 inch fell in southeastern Virginia where severe (D2H) drought conditions remain. There were small reductions in the coverage of abnormally dry (D0) and moderate (D1H) drought in northeastern South Carolina, while exceptional (D4H) drought remained in much of the Upstate, where lower rainfall totals from Tropical Storm Fay (2 to 3 inches) left larger long-term deficits and persistent severe impacts.

Rainfall was again below average in northeastern North Carolina and severe (D2H) drought expanded southward across Halifax, Edgecombe, and Wilson counties where USGS 7- to 28-day streamflows below the 5th percentile were widespread. Moderate (D1AH) drought also expanded southward along coastal areas of southeastern North Carolina where 30 to 90-day precipitation totals were generally below 70 percent.

A reduction from severe (D2H) to moderate (D1H) drought was made in Tennessee where more than 5 inches of rainfall from Tropical Storm Fay brought 30 to 180-day precipitation totals to near and above average. Moderate (D1AH) drought expanded in northwestern Tennessee where 60- and 90-day precipitation totals were generally less than 50% of average and multi-model soil moisture estimates below the 10th percentile reflected deteriorating conditions.

The Delta: A northwestward moving Hurricane Gustav made landfall along the coast of southeastern Louisiana as a Category 2 storm on September 1, and brought more than 6 inches of rain to the most severely drought-affected areas of the state. At the U.S. Climate Reference Network station in Lafayette, 5.82 inches of rain fell prior to the 12Z cutoff on Sept 2, with almost 2.5 inches falling in the succeeding 24 hours. To the north in Monroe, Louisiana, 3.01 inches fell before the 12Z cutoff and more than 8 additional inches before noon the next day. Two-category improvements occurred in areas that had been in moderate (D1H) and severe (D2H) drought in central Louisiana, while a sharp westward gradient of decreasing rainfall totals resulted in 1-category reductions in southwestern areas of the state. Abnormally dry hydrologic conditions (D0) were present from southwestern to central Louisiana at the end of the DM period.

The Plains: In Del Rio more than 6 inches of rain on August 29th helped push its monthly total to more than 11 inches and produced the 2nd wettest August since records began in 1905. More than 2 inches fell north of Del Rio and more than 1 inch of rain was widespread along and east of the Rio Grande in areas where 30-day totals have been generally more than 150% of average. The heavy rains brought an end to drought and abnormally dry conditions in the Del Rio area, and broad 1-category reductions occurred eastward to the San Antonio area. Abnormally dry and moderate (D1A) drought conditions are now present in areas that were impacted by severe (D2H) to extreme (D3H) drought in early August.

Areas of western Oklahoma, the eastern Panhandle of Texas, and southwestern Kansas received more than an inch of rain and isolated amounts greater than 2 to 3 inches fell within the past week, bringing about a reduction in the areal coverage of abnormal dryness. A small reduction in moderate (D1H) drought was also made in southwestern Kansas.

Weekly Snowpack and Drought Monitor Update Report

Short-term conditions continued to deteriorate in eastern South Dakota and southwestern Minnesota leading to an expansion of moderate (D1A) drought conditions where summer rainfall was less than 70% of climatological norms. An expansion of moderate (D1A) drought also occurred in southeastern Nebraska, while 1 to 3 inches of rain from northwestern Nebraska to northeastern South Dakota resulted in a reduction of abnormal dryness in areas of south-central and northeastern South Dakota, and northwestern Nebraska.

A persistent pattern of showers in eastern North Dakota brought 1 to 2 inches of rain during the past two to three weeks and helped end abnormally dry conditions in much of the eastern half of the state. Areas of moderate (D1H) drought in north-central North Dakota also decreased. Moderate (D1H) to extreme (D3H) conditions persist in western areas of the state where the Vegetation Drought Response Index and long-term precipitation deficits reflect continuing poor conditions.

The West: The far West was generally drier than average during the past week while widespread areas of near and above-average precipitation occurred from the Southwest to parts of the northern Rockies. Drought designations across most areas of the West remained unchanged, but drought severity worsened in southwestern Utah and northern California. Moderate (D1A) drought expanded to the Oregon border in northern California's Del Norte County, where rainfall since February has been less than 50% of average. The lack of rainfall has resulted in sharp losses in non-irrigated crops and pasture land for livestock. The area of severe (D2H) drought near the northern California/Nevada border also grew to cover all of Lassen County. In southwestern Utah, an area of abnormally dry (D0) and moderate (D1AH) drought was extended eastward where 6-month precipitation deficits reflect below average precipitation during the critical spring and early summer seasons and impacts to agriculture have been widespread.

Hawaii, Alaska and Puerto Rico: In Hawaii, moderate (D1A) drought expanded on the northeast slopes of the island of Oahu where deteriorating conditions led to requests for voluntary reductions in public water consumption. The remainder of the state remained status quo. No changes were made in Puerto Rico where rainfall in central and western areas was generally average to above average while precipitation in drought-affected and abnormally dry areas on the eastern side of the island was generally average to below average.

Looking Ahead: During the next 5 days (through September 8) tropical activity will remain a dominant feature affecting the eastern half of the U.S. Remnants of Hurricane Gustav are expected to remain over the central U.S. through the weekend with moisture from these remnants expected to flow northeastward along a frontal boundary extending from the Southern Plains northeastward. The greatest potential for heavy rainfall from this system is the mid-Mississippi Valley to the Great Lakes. In the Atlantic, Hurricane Hanna is expected to reach the Southeastern U.S. before moving northeastward along the eastern seaboard. There is potential for heavy rainfall in the Carolinas and along the path of Hanna through the eastern-most areas of the mid-Atlantic and Northeast. Scattered showers are expected in the north-central U.S., while much of the western U.S. with the exception of the northern Rockies is expected to experience generally dry and warmer-than-average conditions.

The CPC 6-10 day forecast (September 9-13) calls for moisture from Hurricane Hanna to move off the East Coast by the start of the forecast period, but above-average precipitation is expected to continue in the eastern half of the nation as a result of an active upper-level pattern. NOAA's National Hurricane Center expects Tropical Storm Ike to develop into a hurricane with the possibility that this storm could bring additional rainfall to parts of Florida and Gulf Coast states. Temperatures are expected to be below normal over the central U.S. while large parts of the West experience above normal temperatures and drier-than-average conditions.

Weekly Snowpack and Drought Monitor Update Report

Author: Jay Lawrimore, NOAA's National Climatic Data 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: September 3, 2008