



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

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**Weekly Report - Snowpack / Drought Monitor Update**      **Date: 28 August, 2008**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Temperature:** SNOTEL and ACIS-day station average temperature anomalies were highest (positive departures) were located south of 41N latitude and lowest (negative departures) over the Cascades and Northern Rockies (Fig. 1). Specifically, the greatest negative temperature departures occurred over Washington (<-6F) and the greatest positive departures occurred over Nevada (>+8F) (Fig. 1a).

**Precipitation:** Preliminary precipitation totals for the 7-day period ending 27 August shows areas of heavy precipitation over portions of the Pacific Northwest and Northern Rockies while the Southwest Monsoon is continuing over southern Arizona. 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](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 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 (Fig. 2a).

## **WESTERN DROUGHT STATUS**

**The West:** Conditions were generally warmer and drier-than-average across the West with the exception of the Pacific Northwest from coastal Oregon and Washington to northwestern Montana where precipitation was generally above climatological norms and temperatures were below average. Generally light amounts of monsoon-related precipitation fell in Arizona, New Mexico, and Colorado. Conditions across all parts of the West remained unchanged with the exception of coastal northwest California, where D2A and D1A expanded northward to cover much of Humboldt County. Reported impacts include a loss of 60-65 percent of rangeland production capacity due to the lack of rain during the past six months. 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).

## Weekly Snowpack and Drought Monitor Update Report

### 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://www.nifc.gov/information.html>. 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](http://water.usgs.gov/cgi-bin/waterwatch?state=us&map_type=dryw&web_type=map).

### 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 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>

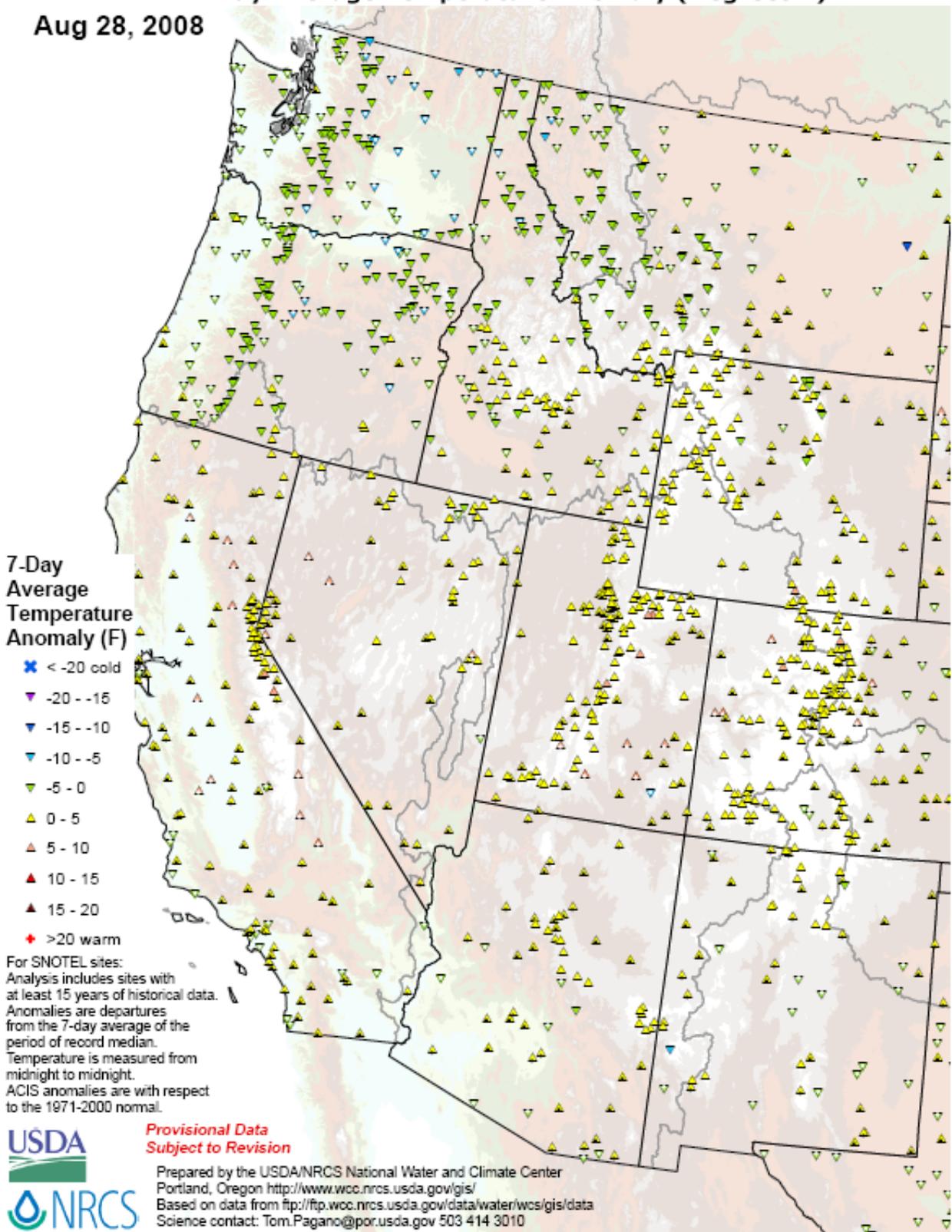
This report uses data and products provided by the Interagency Drought Monitor Consortium members and the National Interagency Fire Center.

/s/ NOLLER HERBERT  
Director, Conservation Engineering Division

# Weekly Snowpack and Drought Monitor Update Report

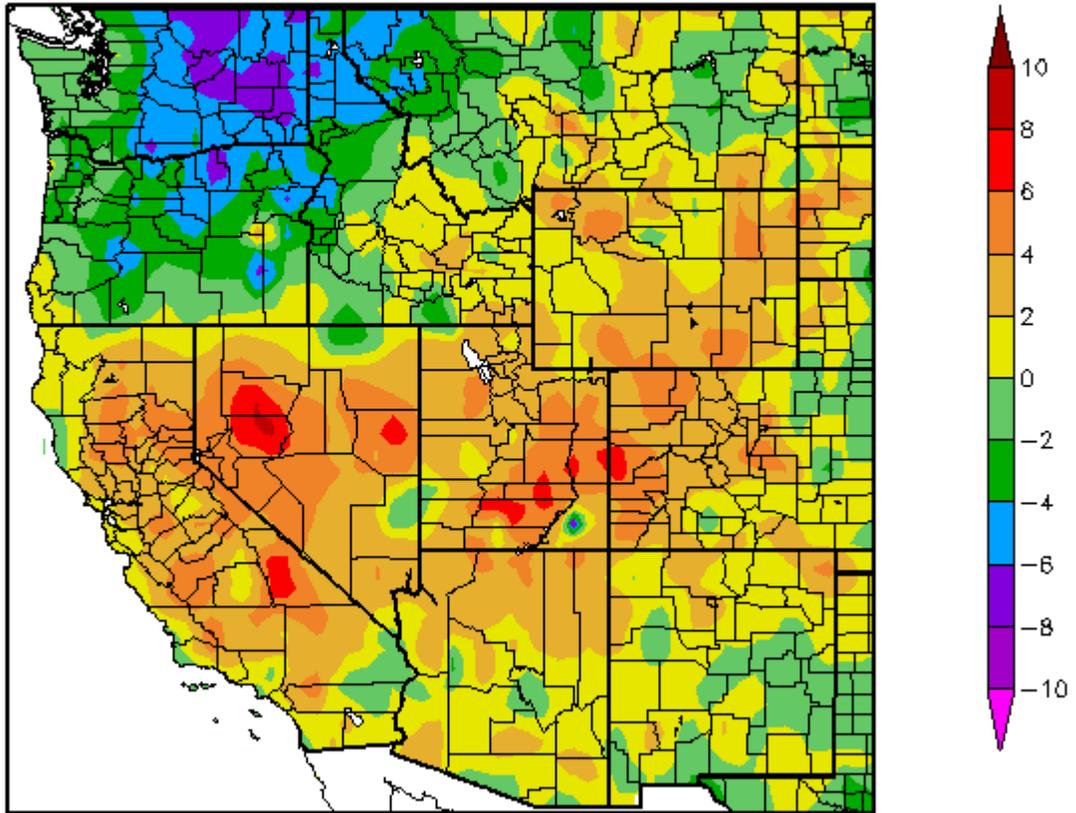
## SNOTEL (solid) and ACIS (dot-filled) Networks 7-Day Average Temperature Anomaly (Degrees F)

Aug 28, 2008



**Fig. 1. SNOTEL and ACIS-day station average temperature anomalies were highest (positive departures) were located south of 41N latitude and lowest (negative departures) over the Cascades and Northern Rockies. Ref: <ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideTavg7dAnomalyAcis.pdf>**

Departure from Normal Temperature (F)  
8/21/2008 – 8/27/2008



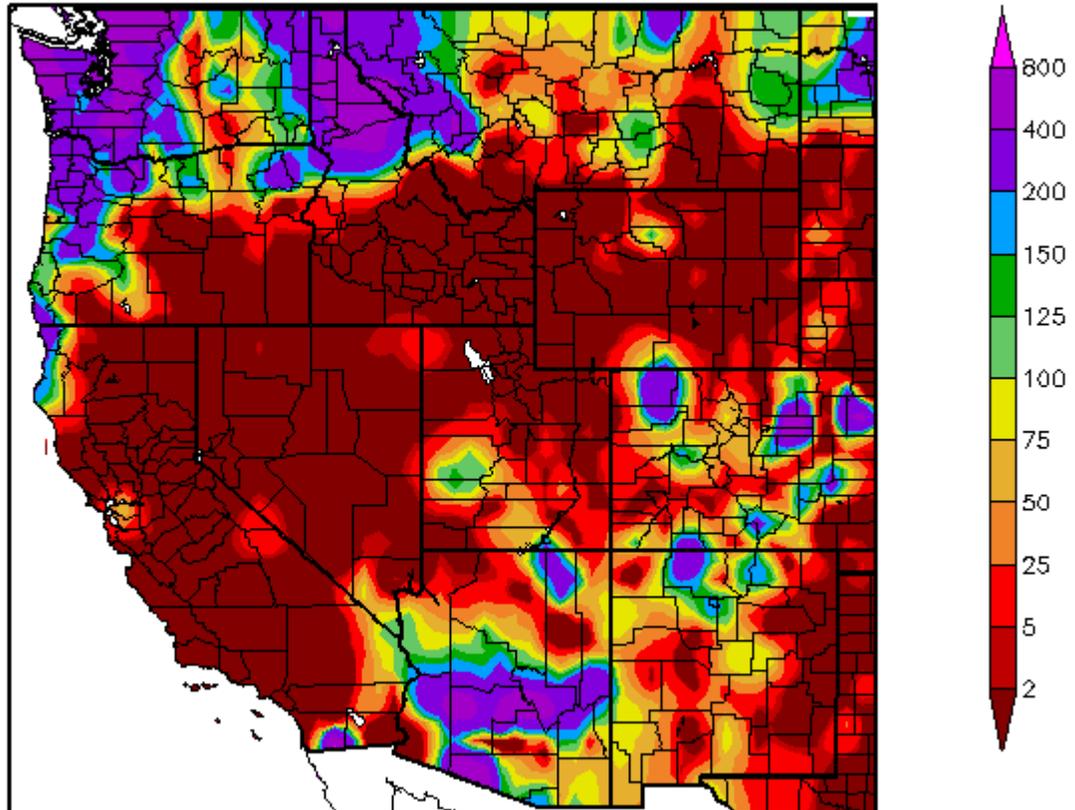
Generated 8/28/2008 at HPRCC using provisional data.

NOAA Regional Climate Centers

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

Ref: [http://www.hprcc.unl.edu/maps/current/index.php?action=update\\_product&product=TDept](http://www.hprcc.unl.edu/maps/current/index.php?action=update_product&product=TDept)

Percent of Normal Precipitation (%)  
8/21/2008 – 8/27/2008



Generated 8/28/2008 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 27 August shows areas of heavy precipitation over portions of the Pacific Northwest and Northern Rockies while the Southwest Monsoon is continuing over southern Arizona. 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.wrh.noaa.gov/twc/monsoon/monsoon_tracker.php)  
[http://www.hprcc.unl.edu/maps/index.php?action=update\\_product&product=PNorm](http://www.hprcc.unl.edu/maps/index.php?action=update_product&product=PNorm)

Weekly Snowpack and Drought Monitor Update Report

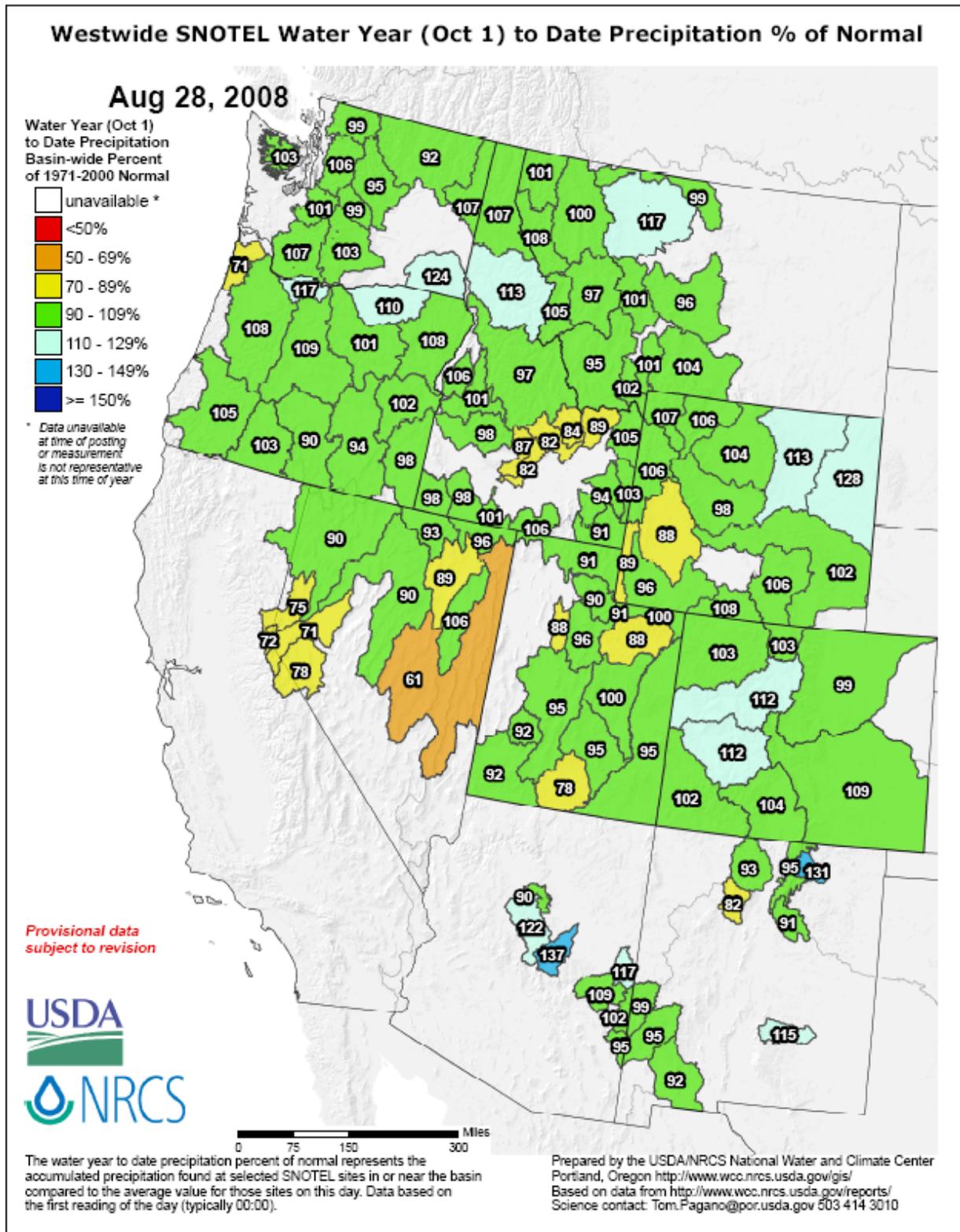
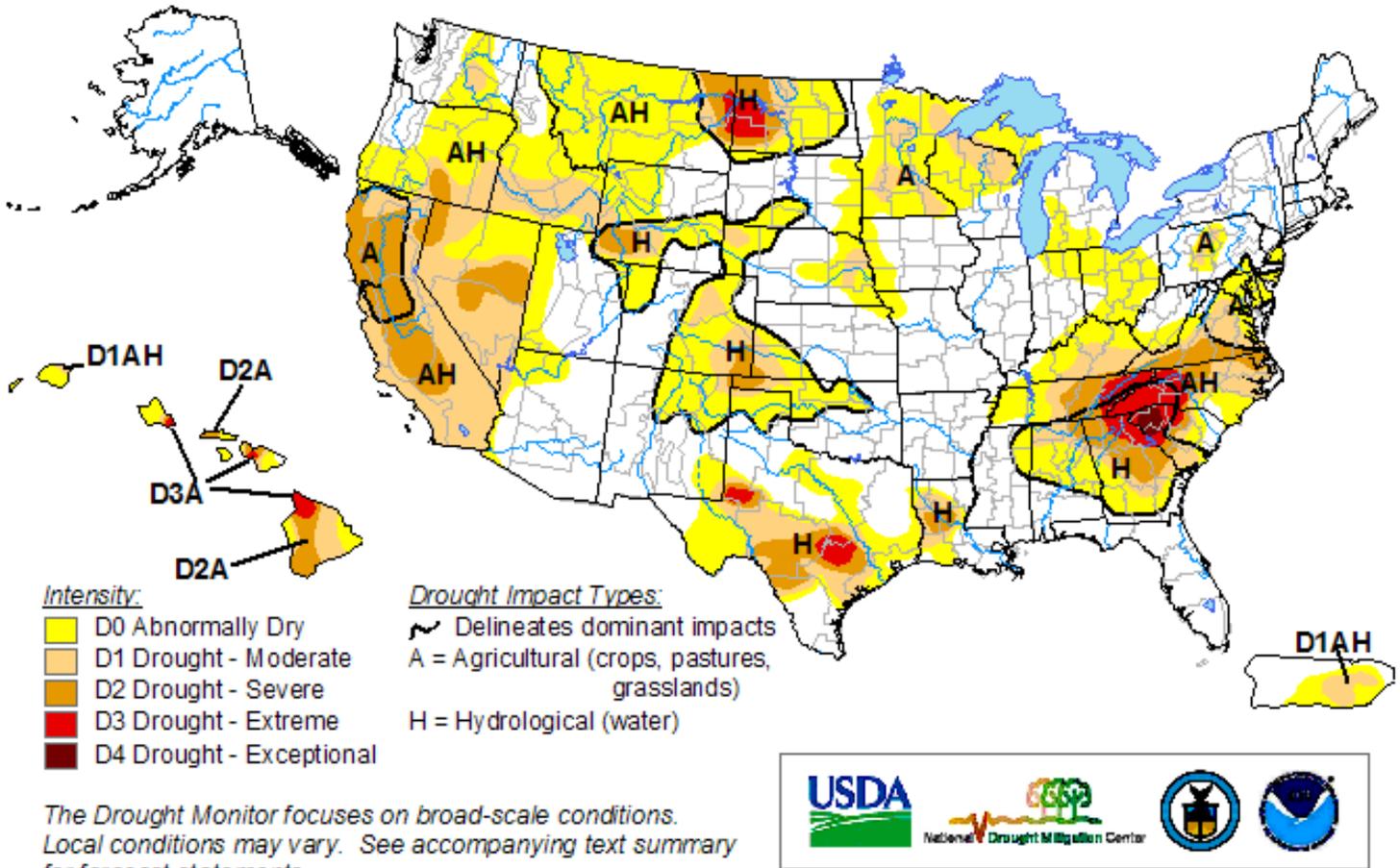


Fig 2a. Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2008 Water Year that began on October 1, 2007 shows above normal totals over northeastern Wyoming, parts of the Snake and Columbia River Basins in Washington, Oregon, and Idaho, and over parts of Arizona, New 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](ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west_wytdprecpcnormal_update.pdf)

# U.S. Drought Monitor

August 26, 2008  
Valid 8 a.m. EDT



Released Thursday, August 28, 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>

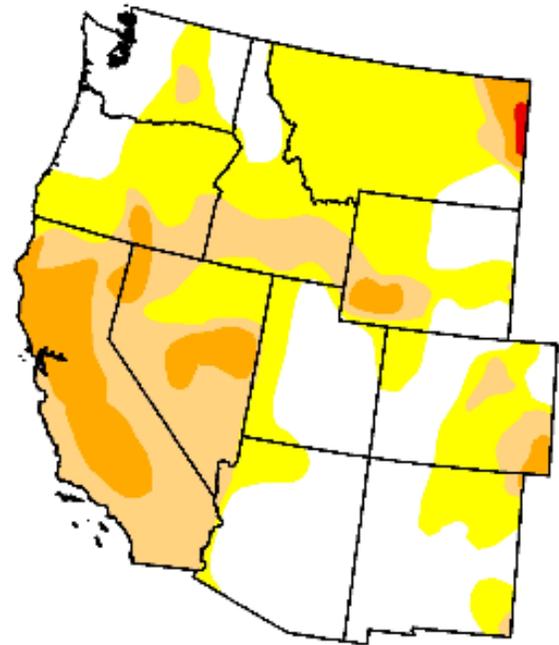
# U.S. Drought Monitor

## West

August 26, 2008  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	34.7	65.3	29.9	9.9	0.2	0.0
Last Week (08/19/2008 map)	34.7	65.3	29.8	9.7	0.2	0.0
3 Months Ago (06/03/2008 map)	43.0	57.0	29.2	5.3	0.1	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 (08/28/2007 map)	20.8	79.2	63.9	50.0	12.8	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 28, 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 change since last week. Ref: [http://www.drought.unl.edu/dm/DM\\_west.htm](http://www.drought.unl.edu/dm/DM_west.htm)**

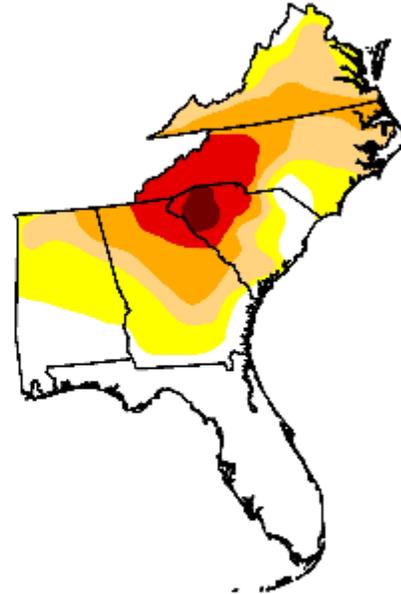
# U.S. Drought Monitor

## Southeast

August 26, 2008  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	34.3	65.7	45.3	26.7	10.9	1.5
Last Week (08/19/2008 map)	22.8	77.2	61.2	41.5	15.5	7.5
3 Months Ago (06/03/2008 map)	20.3	79.7	43.7	21.9	5.2	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 (08/28/2007 map)	2.7	97.3	82.6	60.0	40.7	22.6



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>



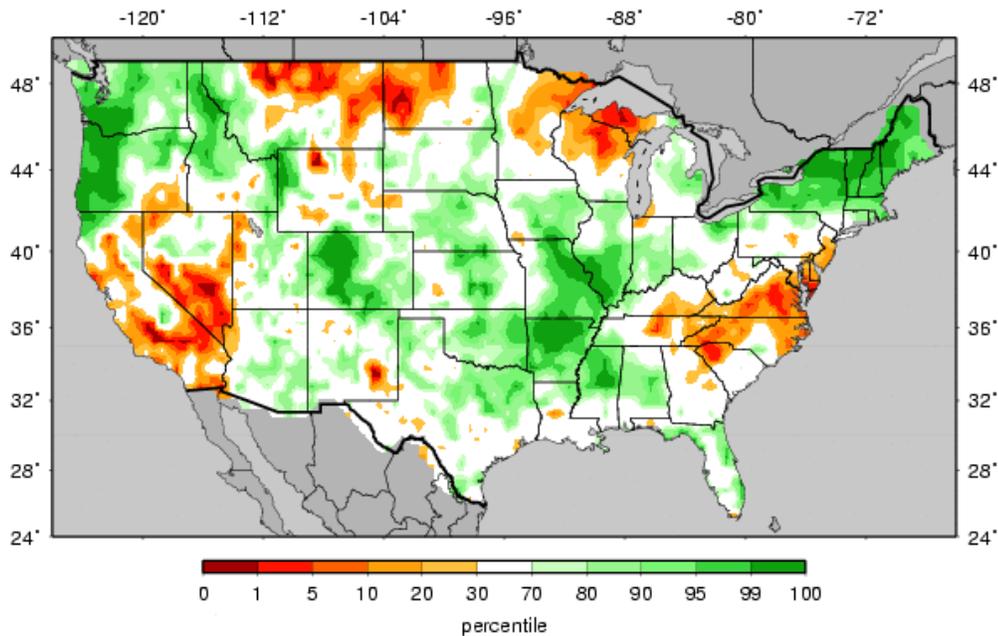
**Released Thursday, August 28, 2008**

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

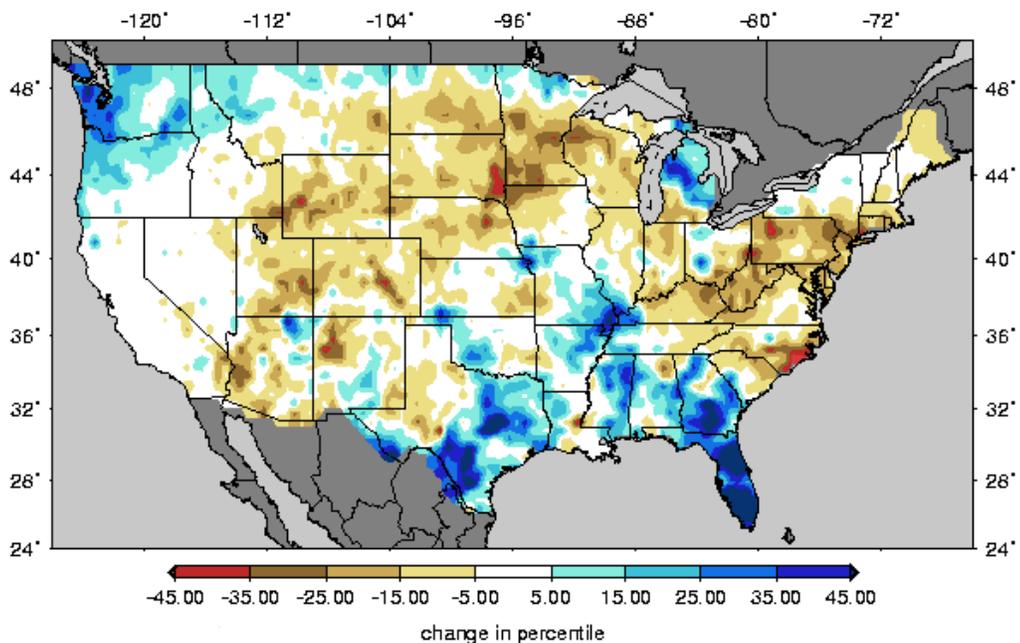
**Fig. 3b: Drought Monitor for the Southeastern shows significant improvement since last week as a result of tropical storm (depression) Fay. Ref: [http://www.drought.unl.edu/dm/DM\\_southeast.htm](http://www.drought.unl.edu/dm/DM_southeast.htm)**

## Weekly Snowpack and Drought Monitor Update Report

MULTIMODEL Soil Moisture Percentiles (wrt/ 1920-2003)  
20080825



Change in Soil Moisture Percentiles (wrt/ 1915-2003)  
for the week 20080819 to 20080826



**Figs. 4 & 4a: Soil Moisture Ranking and change in percentile based on 1915-2003 climatology for this past week. Excessive moisture dominates the mid Mississippi River Valley, New England, and the Coastal Pacific Northwest but dryness persisted across Southern California, Nevada, and over the Mid-Atlantic States (Fig. 5). Last week saw a significant increase in soil moisture over the Florida-Georgia-Louisiana (Fay), eastern Texas, southeast Missouri, northern Michigan, and western Washington.**

Ref: [http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.multimodel.sm\\_qnt.gif](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](http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.vic.sm_qnt.1wk.gif)

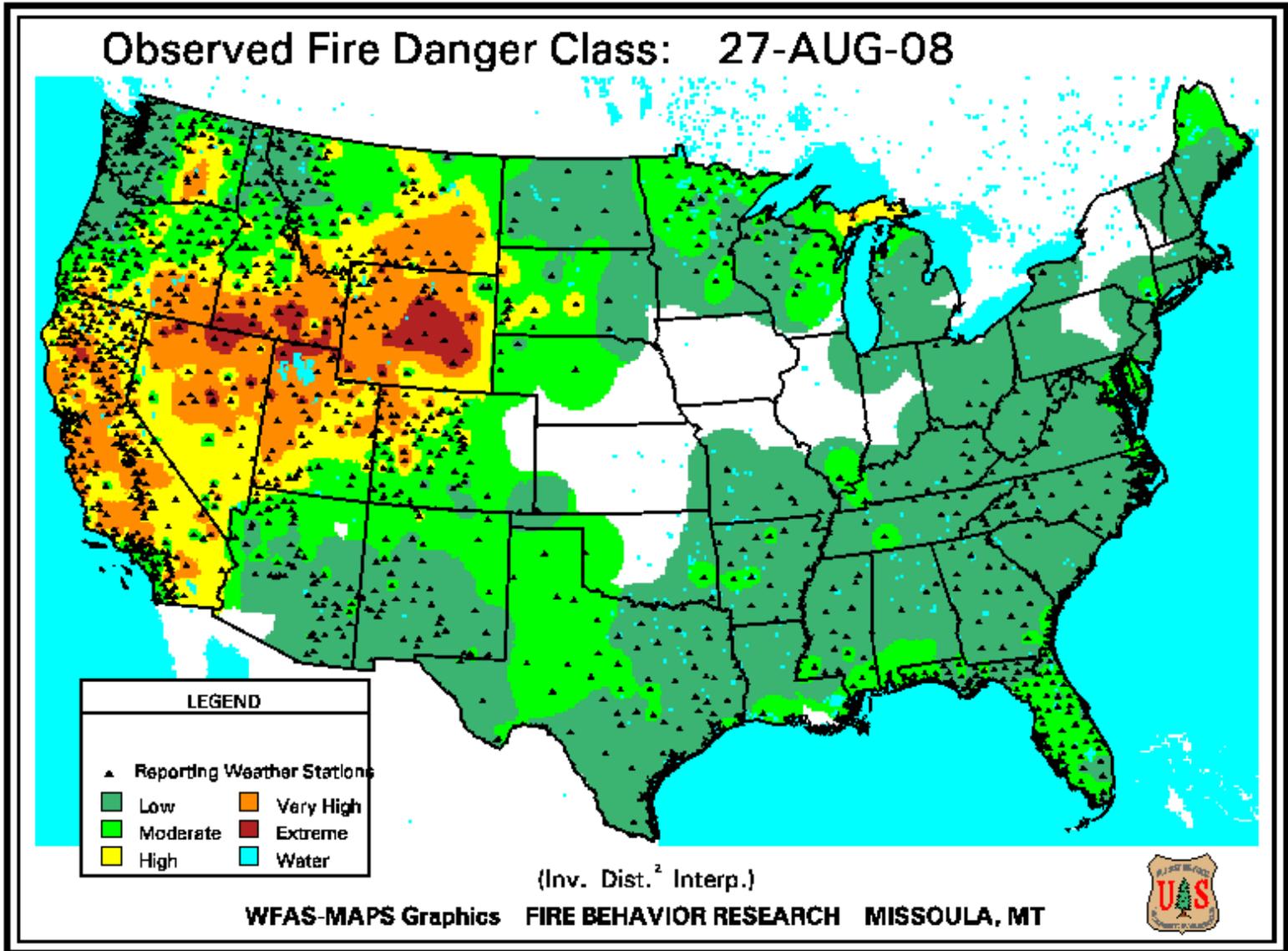


Fig. 5. Observed Fire Danger Class. Note some improvement in fire threat across Washington and worsening over Wyoming, southern Idaho and northern Nevada since last week. Source: Forest Service Fire Behavior Research – Missoula, MT. Ref: [http://www.fs.fed.us/land/wfas/fd\\_class.gif](http://www.fs.fed.us/land/wfas/fd_class.gif)

# Weekly Snowpack and Drought Monitor Update Report

Wednesday, August 27, 2008

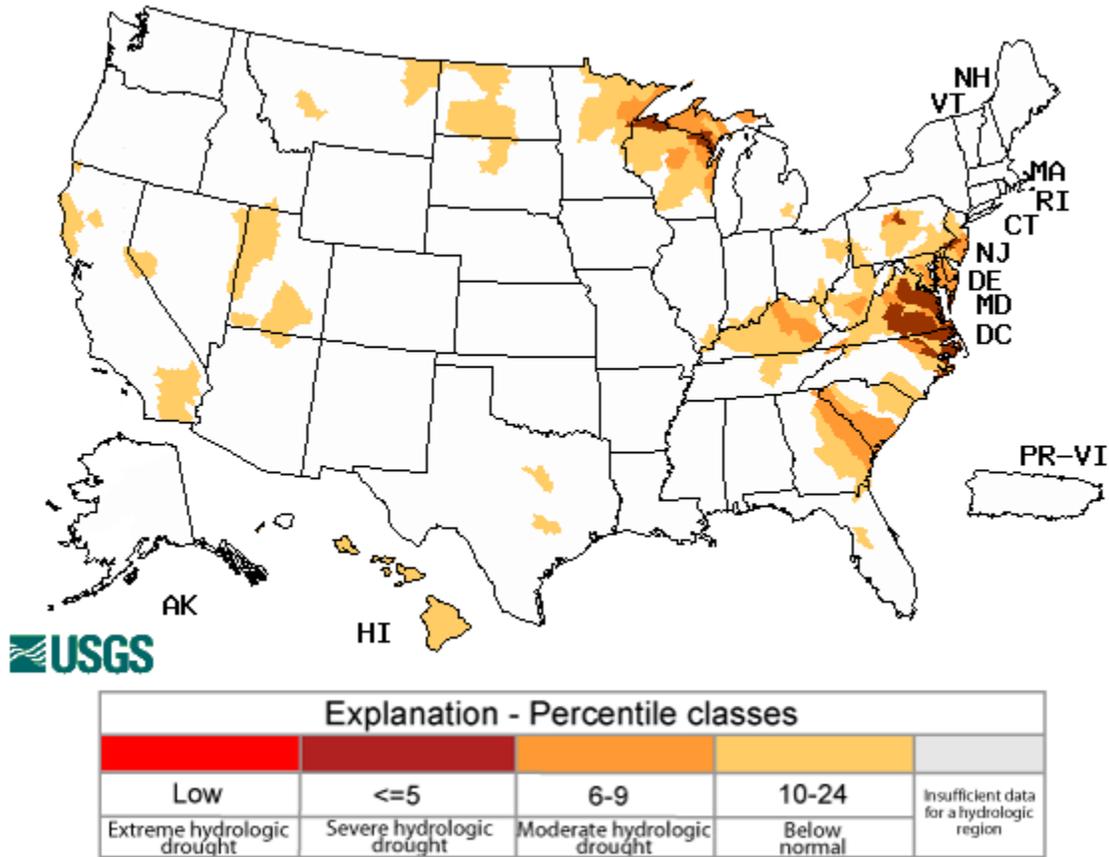


Fig. 6. This week's map shows continued low stream flow over parts of the Mid-Atlantic States and northern Wisconsin. Ref: <http://water.usgs.gov/waterwatch/?m=dryw&w=map&r=us>

## Weekly Snowpack and Drought Monitor Update Report

National Drought Summary -- August 26, 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/>.

**The Northeast and Mid-Atlantic:** Persistent high pressure brought generally drier-than-average conditions to much of the region during the past week. This continued a near-term pattern of below-average rainfall and led to a northward expansion of D0 dryness in northern Virginia, eastern Maryland, Delaware and southeastern Pennsylvania and moderate (D1A) drought in northern Virginia. Accumulated precipitation totals over the past 30 days were generally less than 50% of average and USGS 7 to 28-day streamflows well below the 20th percentile reflect the anomalously dry conditions. Moderate drought conditions also developed in central Pennsylvania within a growing area of abnormally dry (D0) conditions. One to three-month precipitation totals less than 70% of average and deteriorating streamflow conditions reflect the worsening conditions.

**Midwest:** A lack of widespread rainfall boosted 30 to 45-day precipitation deficits in northern Indiana, central and southern Ohio, northern Kentucky and southern parts of West Virginia and led to an expansion of D0 dryness across the region. Although hydrological conditions remain good due to generally wetter-than-average conditions during the past year, with 30- to 45-day precipitation totals less than 50 percent of average across this region, emerging impacts included stressed crops, dormant lawns and premature change in leaf color.

Short-term precipitation deficits (as much as 6 inches over the past 60 days) also continued to grow across large parts of Minnesota and Wisconsin. Thirty-day precipitation totals less than 25% of average and 7 to 28-day USGS streamflow below the 10th percentile led to an expansion of D0 and D1A conditions. Reflecting the deteriorating conditions, an area of moderate (D1A) drought was established in northeastern Wisconsin and along the border of the Upper Peninsula of Michigan and the Arrowhead of Minnesota. Areas affected by moderate (D1A) drought also expanded southeastward from the Twin Cities and in northern Minnesota in the area of the headwaters of the Mississippi River.

**Southeast:** Heavy rainfall from Tropical Storm Fay and its remnants brought extensive drought relief to the region. Fay moved westward across the Florida Panhandle and eventually stalled as a Tropical Depression in southern Mississippi before turning northeastward near the end of the period as dominant high pressure to the north moved eastward in advance of an approaching front. Rainfall totals exceeding 10 inches were widespread in northern Florida and southern Georgia, and amounts greater than 5 inches covered large parts of Alabama and east-central Mississippi. As the remnants of Fay moved northeastward heavy rains fell throughout northern Georgia, eastern Tennessee and the western Carolinas. One and two-category improvements left northern Florida, southern and coastal counties of Georgia and southern Alabama free of drought and abnormally dry conditions. Moderate (D1H) and severe (D2H) hydrological drought persisted from northern Alabama to central Georgia, while extreme drought (D3H) was confined to northeastern counties of Georgia, eastern Tennessee and the western Carolinas. Exceptional drought (D4AH) improved to D3H (extreme) in areas where rainfall totals were generally greater

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than 5 inches in the Carolinas. In northeastern South Carolina and neighboring areas of southeastern North Carolina drought-free conditions were extended northward to encompass an area where short- and long-term conditions are near normal. In coastal areas of northeastern North Carolina below-average rainfall added to 90-day precipitation deficits and moderate (D1AH) and severe (D2AH) drought were pulled eastward to the coast to reflect the worsening severity.

**The Delta:** Precipitation from TD Fay brought a 1-category improvement to eastern Louisiana and bordering areas of Mississippi where rainfall amounts greater than 3 inches were widespread. In central Mississippi where rainfall totals were greater than 4 inches, moderate (D1H) drought ended and areas delineated by abnormally dry (D0) conditions were confined to northeastern areas of the state. A lack of rainfall in central and south-central coastal areas of Louisiana led to a small southward extension of moderate drought, and abnormally dry (D0) conditions expanded southward to the Gulf Coast in eastern Cameron and Vermilion counties.

**The Plains:** Widespread rainfall (totals exceeding 3 inches with local amounts exceeding 7 inches) fell in coastal areas of central and eastern Texas, resulting in 1- and 2-category improvements. Parts of Houston's Harris County received measureable precipitation on 11 straight days through August 23, and drought-free conditions were established from coastal southwestern Louisiana to Galveston Bay where totals during the past week generally exceeded 7 inches. In north-central Texas, rainfall amounts of 1 to 2 inches and similar amounts during the previous week led to an end to abnormally dry conditions and a reduction from D1H to D0 conditions from near Waco to the Dallas/Fort Worth area and northwestward along the Brazos river. In south-central Texas, extreme (D3H) drought persisted in Austin and surrounding counties where summer rainfall amounts have been generally less than 50% of average. A reduction from D3H to D2H occurred south of this area where 30-day totals have generally exceeded 5 inches. A reduction from D3H to D2H drought occurred in southwestern Texas from the Rio Grande to the San Antonio area where rainfall amounts during the past week were generally greater than 2 inches and 30-day totals of 3 to 5 inches were widespread.

Short-term conditions deteriorated in parts of South Dakota and Nebraska, resulting in the expansion of abnormal dryness (D0) in northwestern Nebraska and southwestern South Dakota where 30-day totals have been less than 50% and 60-day totals less than 70% of average. Areal coverage of abnormally dry conditions also expanded in southeastern South Dakota, eastern Nebraska, and western Iowa, and an area of moderate (D1A) drought was introduced in Nebraska where 30-day totals were generally less than 25% of average and widespread crop losses were reported.

Additional rainfall of 0.5 to 1.5 inches in North Dakota led to a 1-category reduction of severe (D2H) and moderate (D1H) drought in central areas of the state and a reduction from extreme (D3H) to severe (D2H) in northwestern North Dakota.

**The West:** Conditions were generally warmer and drier-than-average across the West with the exception of the Pacific Northwest from coastal Oregon and Washington to northwestern Montana where precipitation was generally above climatological norms and temperatures were below average. Generally light amounts of monsoon-related precipitation fell in Arizona, New Mexico, and Colorado. Conditions across all parts of the West remained unchanged with the exception of coastal northwest California, where D2A and D1A expanded northward to cover much of Humboldt County. Reported impacts include a loss of 60-65 percent of rangeland production capacity due to the lack of rain during the past six months.

**Hawaii, Alaska and Puerto Rico:** In Hawaii, on the island of Kauai, D1AH conditions returned to northeast areas of the island and reflect continuing stress to pastures and non-irrigated crops

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in the area. The remainder of the state remained status quo. There was no change to drought and abnormally dry conditions in Puerto Rico where rainfall patterns were more consistent and widespread.

**Looking Ahead:** During the next 5 days (through September 1) as the remnants of Tropical Storm Fay exit the northeastern U.S., Hurricane Gustav, which developed in the Caribbean and first made landfall in Haiti on the 26th, is expected to move into the Gulf of Mexico on a northwestward track. Depending on its speed and track, landfall somewhere along the Gulf Coast is possible near the end of this forecast period. Otherwise widespread precipitation is expected to be largely absent in the Southeast and southern Plains. In the Northeast, following rainfall from the remnants of Fay early in the period and the passage of a frontal system with only light precipitation, the forecast period is expected to end with high pressure and fair weather. A frontal system is expected to move through the northern Plains and Midwest, with rainfall totals generally less than 1 inch. Fair weather is expected to predominate in the West.

The CPC 6-10 day forecast (September 2-6) calls for a trough along the West Coast while a strong ridge of high pressure dominates the eastern 2/3rds of the nation. This pattern is expected to bring above-average temperatures and below-average precipitation from the north-central U.S. to the Northeast. Southerly flow of moist air into the Gulf Coast states, Southwest and Inter-Mountain West will increase chances of average to wetter-than-average conditions in those regions.

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 August 27, 2008