



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

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**Weekly Report - Snowpack / Drought Monitor Update**      **Date:**    **September 6, 2007**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Temperature:** During the past seven days, temperatures throughout the West above average. California, Nevada, Utah, Idaho, eastern Oregon and Washington, Arizona and western Colorado reported temperatures 5-10 degrees above average. Temperatures in Montana and northern Wyoming were 10 to 13 degrees above average (Fig. 1).

**Precipitation:** For the past week, isolated but heavy thunderstorms were experienced over central and southern New Mexico where Wesner Springs, McKnight and Silver Creek Divide received 1.4", 1.3" and 0.9" of precipitation respectively (Fig 2). Monsoon rains in Arizona were generally 0.50". The Oregon and Washington coasts received scattered showers generally in the 0.50" range.

For the Water Year (beginning October 1, 2006), total amounts have not changed appreciably since last week (Fig 2a). The Interior West (Great Basin and Intermountains) including the Sierra Nevada and the Arizona ranges continue to show significant deficits.

## **SOUTHEASTERN AND WESTERN DROUGHT STATUS**

**The Southeast:** A lingering cold front helped to focus widespread shower activity across the southeastern drought region, resulting in improvement over many areas. Temperatures also turned more seasonable following the previous week's record heat, although weekly average temperatures remained at least 4 degrees F above normal in Tennessee and Kentucky, where rainfall was spotty and improvement was minimal. Amounts of 1 to 2 inches, with locally over 3 inches, spread from Mississippi into Alabama and Georgia, resulting in shrinkage of D3 and D4 drought. Weekly average streamflows, responding to recent downpours, neared median levels at many locations in northern and western Alabama. In Mississippi, topsoil moisture ratings improved from 76 percent short or worse to 59 percent short in the past week. Very heavy rains exceeding 4 inches eliminated dryness in southeastern Georgia, where statewide topsoil ratings improved from 75 to 55 percent short. Beneficial rains of 1 to 2 inches or more also covered much of Florida, improving soil moisture, although water supply impacts continued due to remaining substantial long-term rainfall deficits. In contrast, hot, dry weather caused D3 drought to extend eastward across much of North Carolina (Figs. 3a) Author: Thomas Heddinghaus, Climate Prediction Center.

**The West:** Heat was the big story this week, as record-breaking triple digit temperatures seared California and other states, resulting in weekly readings averaging 4 to 8 degrees F above normal throughout the West, the only exception being parts of the Pacific Northwest. A few thunderstorms struck California, Arizona, and other scattered areas, but the moisture was generally not enough to offset the evaporation caused by the extreme temperatures. As a result, there was little change to the drought picture across the region (Fig. 3b).

***A comprehensive narrative describing drought conditions for the nation can be found at the end of this document.***

## Weekly Snowpack and Drought Monitor Update Report

### **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.

### **SOIL MOISTURE**

Soil moisture (Fig. 4), 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 Fig. 5. Fig. 5a 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).

### **VEGETATION HEALTH**

The images (Fig. 7) are color-coded maps of vegetation condition (health) estimated by the Vegetation and Temperature Condition Index (VT). The VT is a numerical index, which changes from 0 to 100 characterizing change in vegetation conditions from extremely poor (0) to excellent (100). Fair conditions are coded by green color (50), which changes to brown and red when conditions deteriorate and to blue when they improve.

<http://www.orbit.nesdis.noaa.gov/smcd/emb/vci/usa.html>.

### **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>

## **Weekly Snowpack and Drought Monitor Update Report**

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

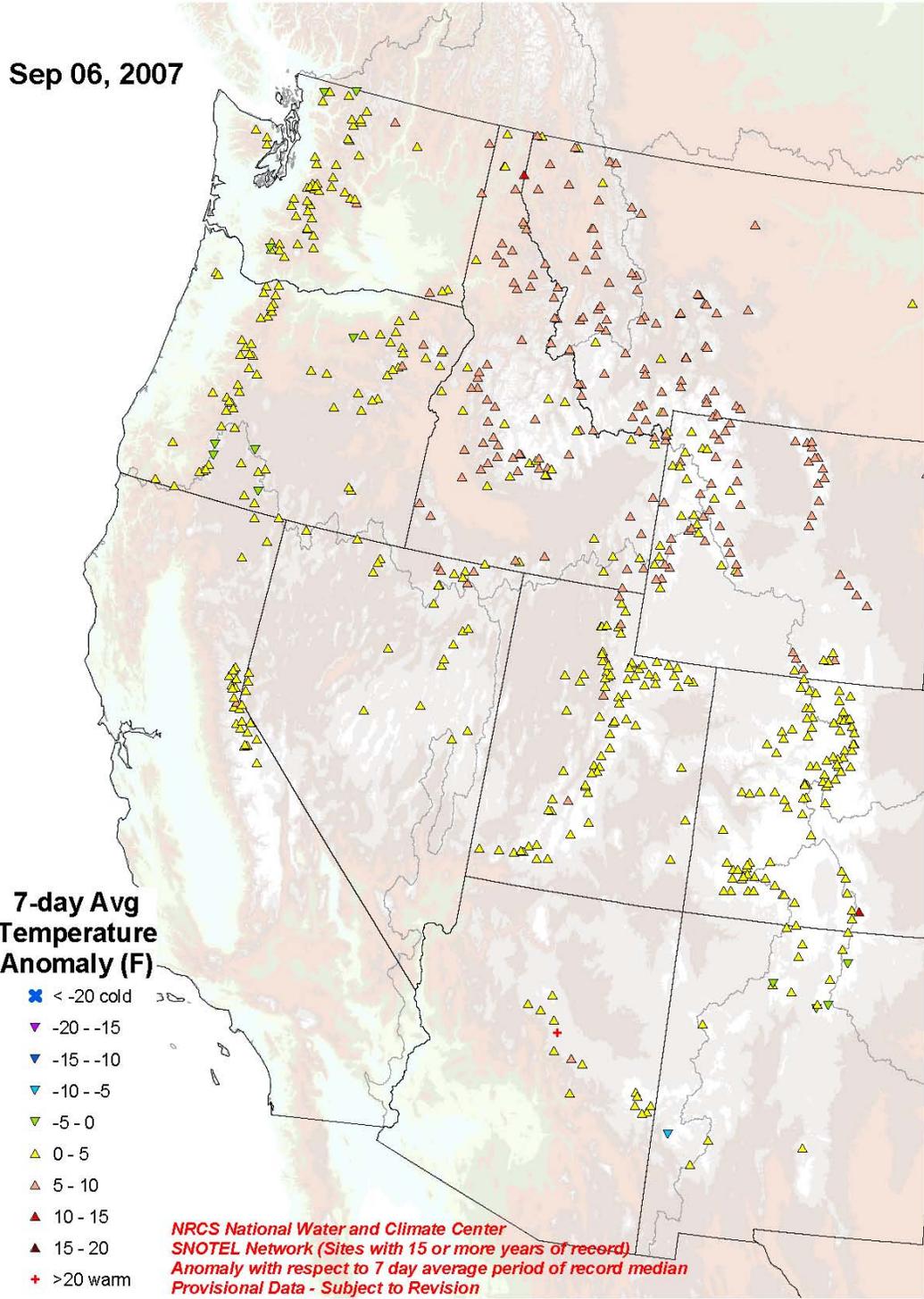
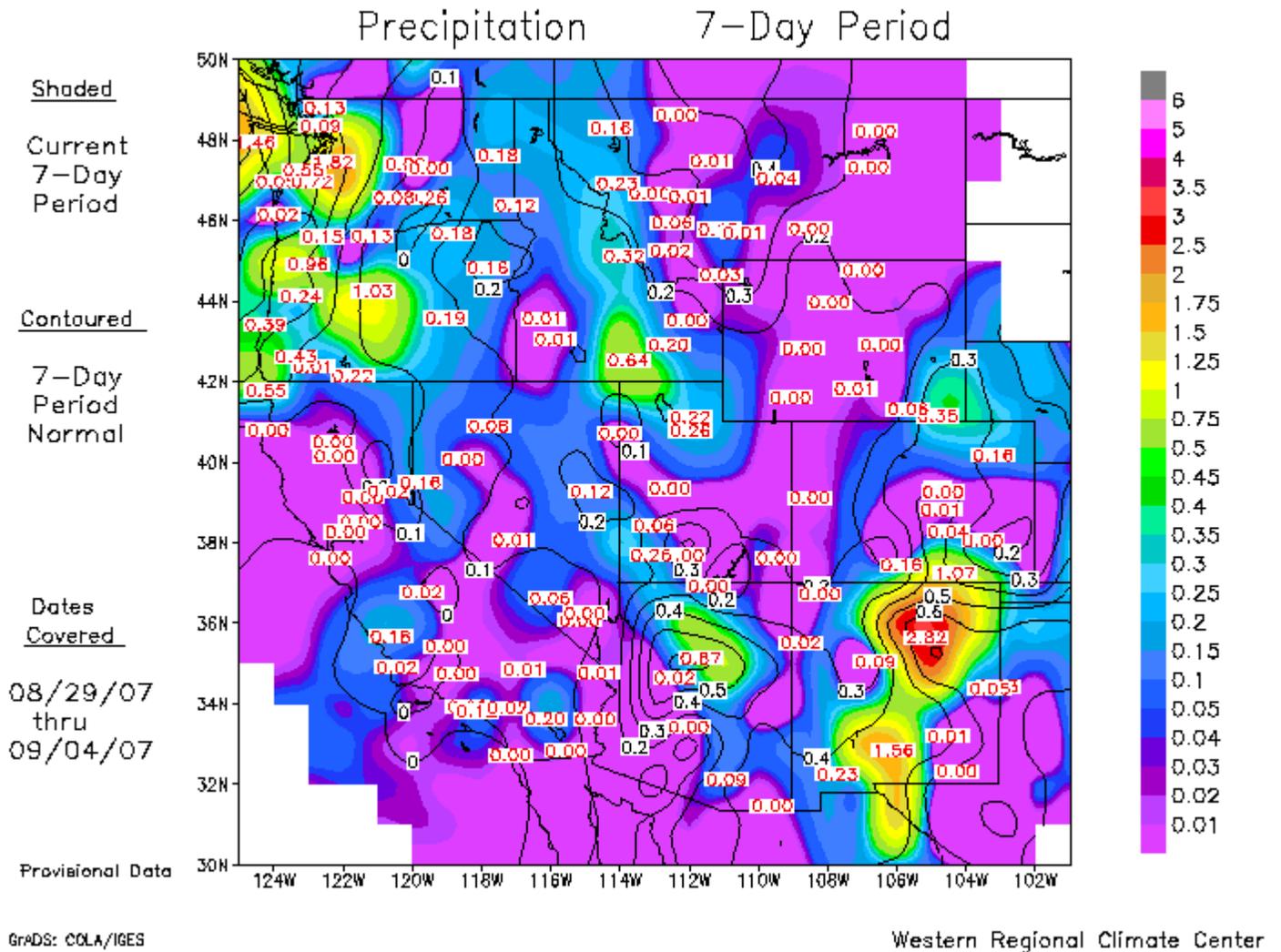


Fig. 1. SNOTEL 7-day average temperature anomaly.

# Weekly Snowpack and Drought Monitor Update Report



**Fig. 2. Observed precipitation, 7-day period ending September 6, 2007**  
 Ref: <http://www.wrcc.dri.edu/cacanom/images/p07.gif>

# Weekly Snowpack and Drought Monitor Update Report

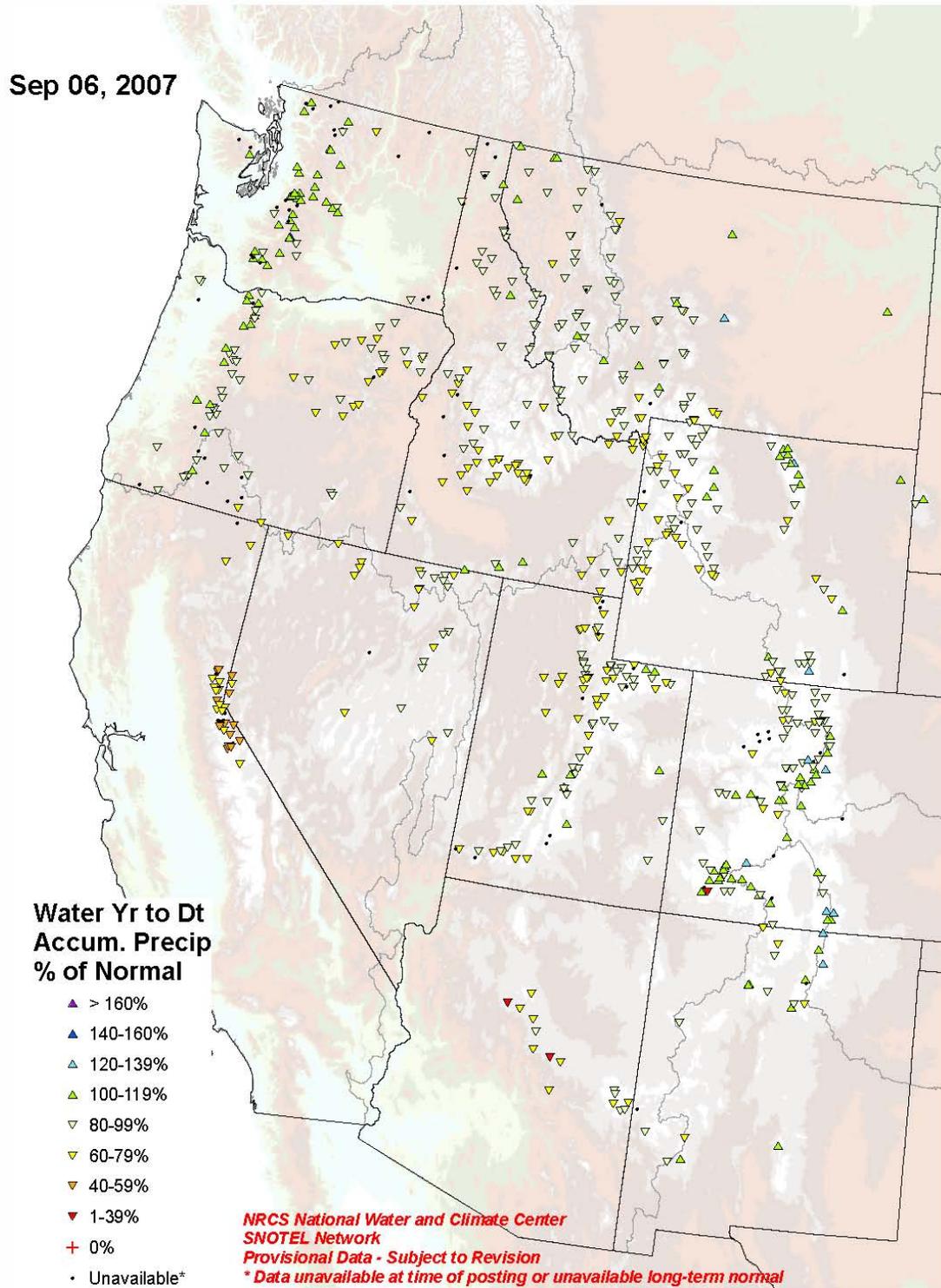


Fig. 2a. SNOTEL station water year (since October 1) precipitation as a percent of normal.  
Ref: <ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideWYTDPrecipPercent.pdf>

# U.S. Drought Monitor

September 4, 2007  
Valid 8 a.m. EDT

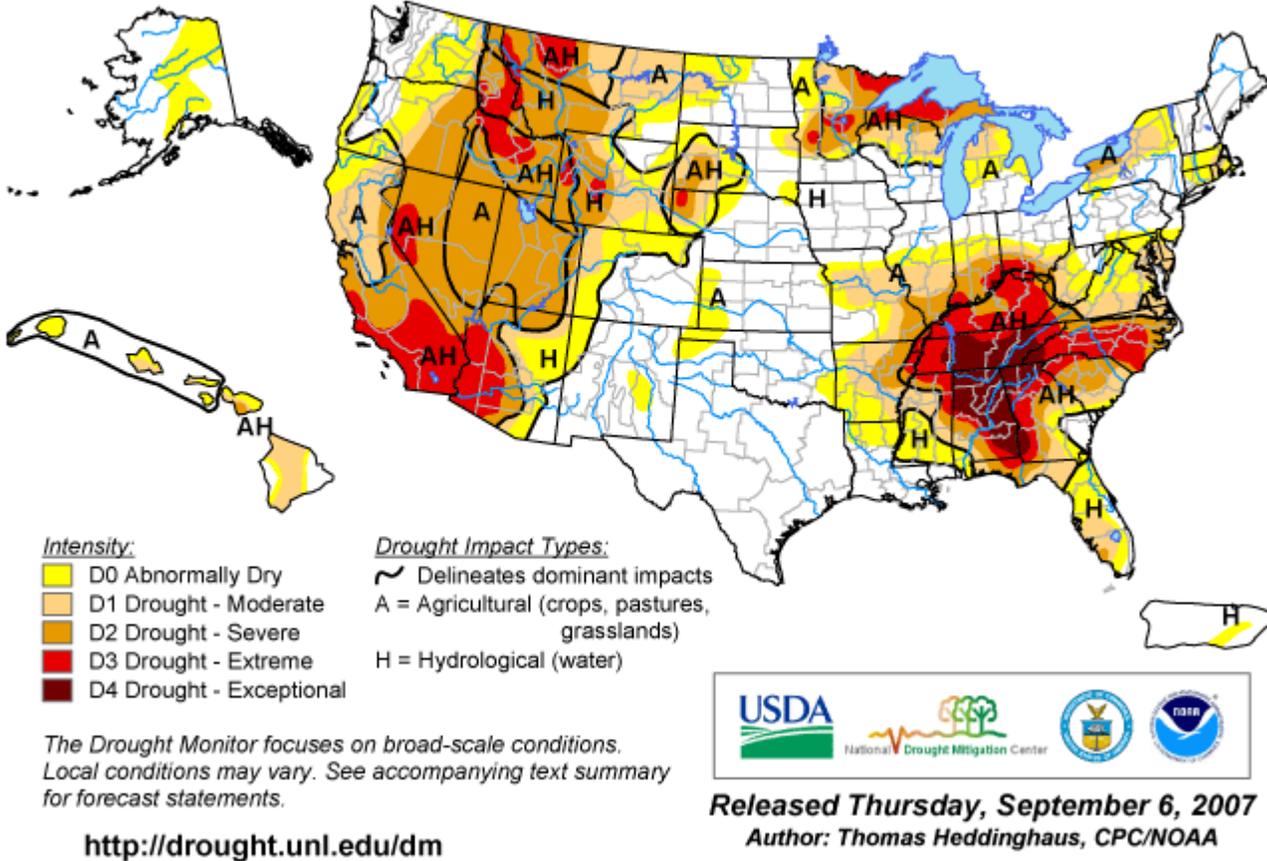


Fig. 3. Current Drought Monitor weekly summary.

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

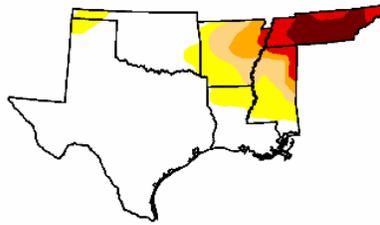
# Weekly Snowpack and Drought Monitor Update Report

## U.S. Drought Monitor South

September 4, 2007  
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	69.2	30.8	18.7	12.9	9.5	5.1
Last Week (08/28/2007 map)	67.1	32.9	19.6	13.8	9.8	3.6
3 Months Ago (06/12/2007 map)	66.4	33.6	19.1	13.6	6.7	1.2
Start of Calendar Year (01/02/2007 map)	39.8	60.2	33.3	22.3	12.1	1.9
Start of Water Year (10/03/2006 map)	22.6	77.4	48.4	28.6	13.0	0.8
One Year Ago (09/05/2006 map)	13.6	86.4	68.0	44.8	24.8	5.9



**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 6, 2007

Author: Thomas Heddinghaus, CPC/NOAA

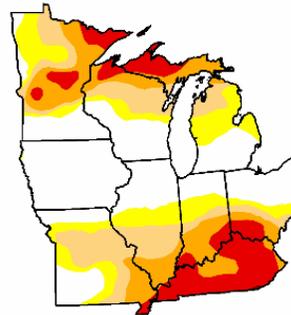
September 4, 2007

Valid 7 a.m. EST

## U.S. Drought Monitor Midwest

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	39.5	60.5	45.2	28.7	13.3	0.1
Last Week (08/28/2007 map)	39.1	60.9	45.3	28.8	12.4	0.0
3 Months Ago (06/12/2007 map)	53.3	46.7	23.4	6.7	0.0	0.0
Start of Calendar Year (01/02/2007 map)	57.8	42.2	18.0	11.1	7.1	0.0
Start of Water Year (10/03/2006 map)	63.5	36.5	21.9	10.3	7.7	0.0
One Year Ago (09/05/2006 map)	57.6	42.4	22.9	10.0	4.6	0.0



**Intensity:**

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

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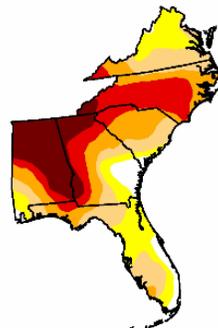
September 4, 2007

Valid 7 a.m. EST

## U.S. Drought Monitor Southeast

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	6.1	93.9	75.9	54.5	34.7	15.8
Last Week (08/28/2007 map)	2.7	97.3	82.6	60.0	40.7	22.6
3 Months Ago (06/12/2007 map)	10.9	89.1	66.5	47.0	23.2	7.1
Start of Calendar Year (01/02/2007 map)	52.2	47.8	10.2	1.5	0.0	0.0
Start of Water Year (10/03/2006 map)	47.0	53.0	33.2	0.0	0.0	0.0
One Year Ago (09/05/2006 map)	35.0	65.0	36.6	25.3	1.1	0.0



**Intensity:**

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

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



Released Thursday, September 6, 2007

Author: Thomas Heddinghaus, CPC/NOAA

Fig 3a. Drought Monitor for the Southeastern States with statistics over various time periods. Ref: [http://www.drought.unl.edu/dm/DM\\_west.htm](http://www.drought.unl.edu/dm/DM_west.htm)

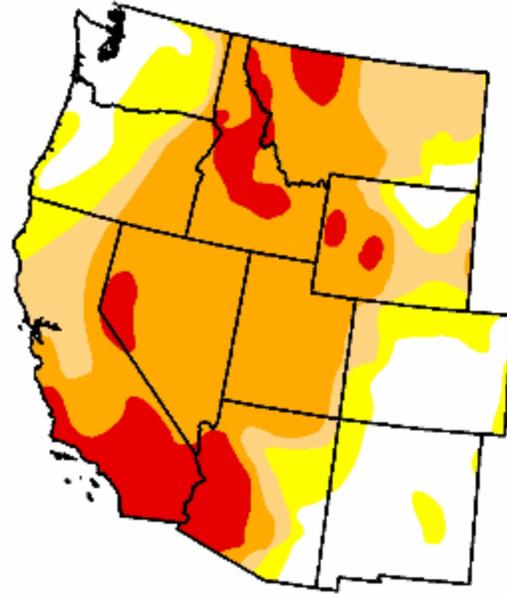
# U.S. Drought Monitor

## West

September 4, 2007  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	21.1	78.9	63.9	49.4	12.5	0.0
Last Week (08/28/2007 map)	20.8	79.2	63.9	50.0	12.8	0.0
3 Months Ago (06/12/2007 map)	34.2	65.8	48.9	25.5	7.8	0.0
Start of Calendar Year (01/02/2007 map)	51.2	48.8	25.8	9.4	4.0	0.0
Start of Water Year (10/03/2006 map)	43.5	56.5	33.5	16.9	5.2	0.0
One Year Ago (09/05/2006 map)	41.4	58.6	36.6	18.1	5.5	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*



**Released Thursday, September 6, 2007**  
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<http://drought.unl.edu/dm>

**Fig 3b. Drought Monitor for the Western States with statistics over various time periods.**  
Ref: [http://www.drought.unl.edu/dm/DM\\_west.htm](http://www.drought.unl.edu/dm/DM_west.htm)

Weekly Snowpack and Drought Monitor Update Report

Soil Moisture Percentiles (wrt/ 1915-2003)  
20070904

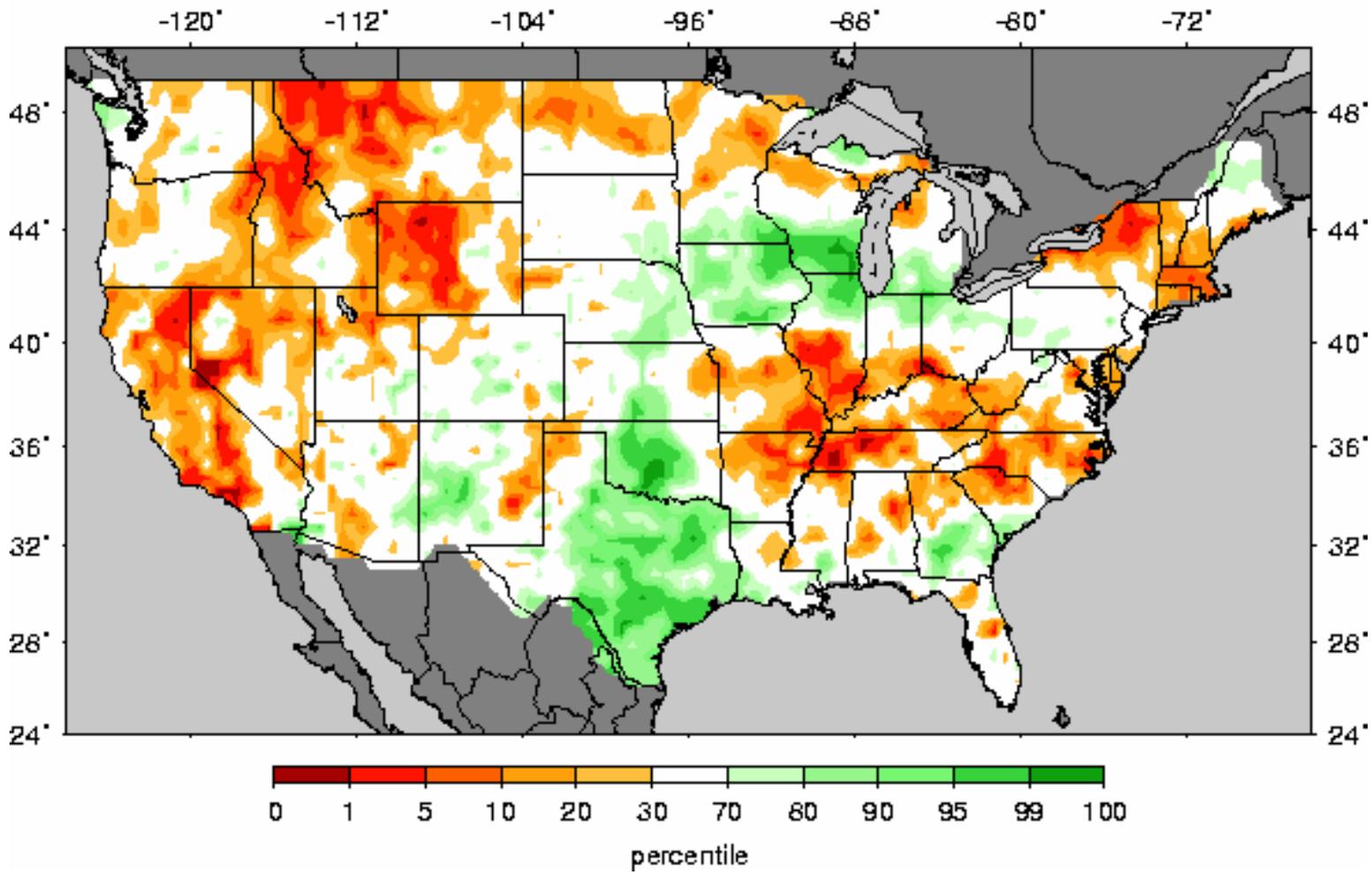


Fig. 4: Soil Moisture Ranking Percentile based on 1915-2003 climatology. (source: Univ. of Washington). Ref: [http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm\\_qnt.gif](http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm_qnt.gif)

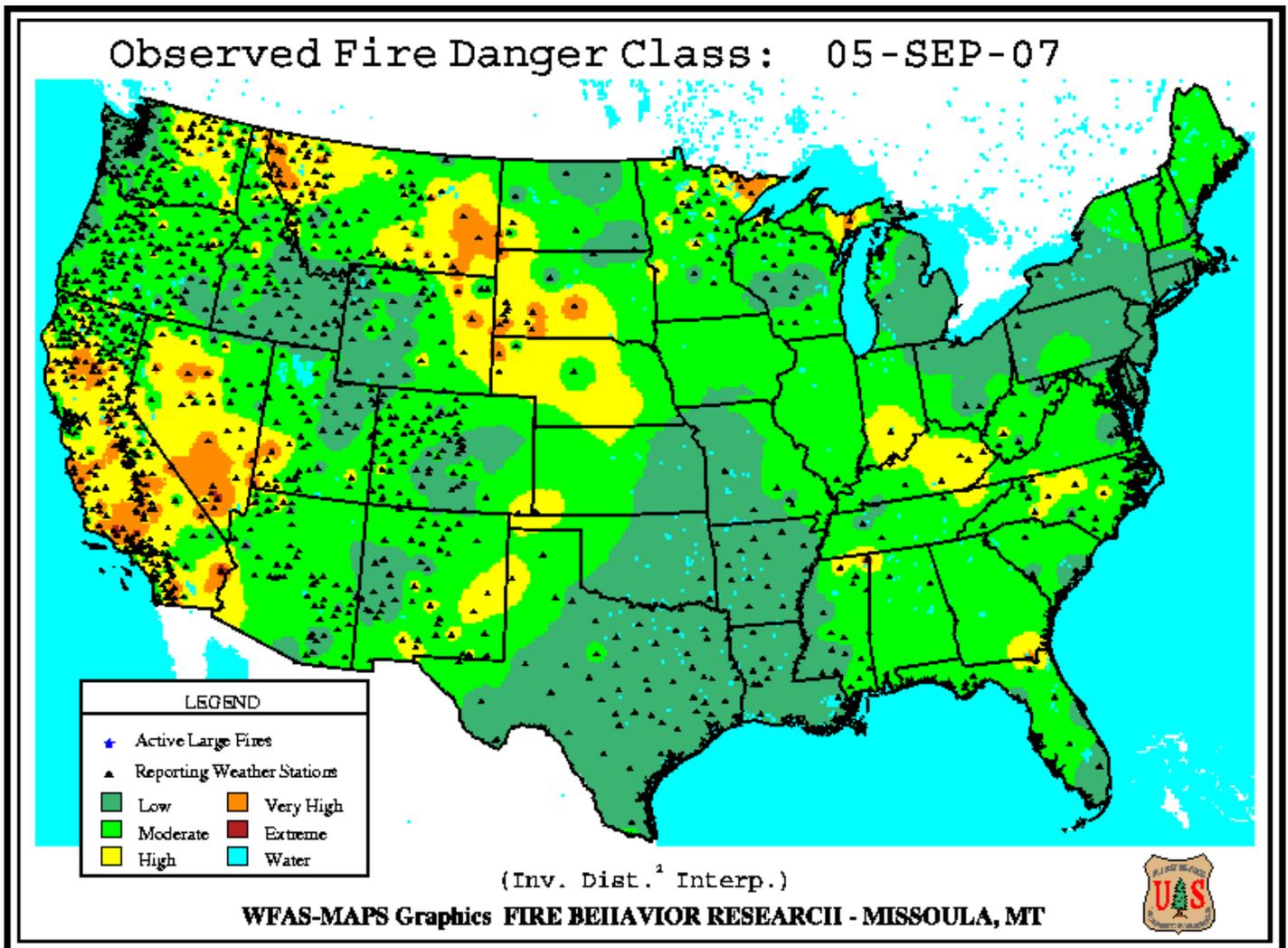


Fig. 5. Observed Fire Danger Class. Source: Forest Service Fire Behavior Research – Missoula, MT  
Ref: [http://www.fs.fed.us/land/wfas/fd\\_class.gif](http://www.fs.fed.us/land/wfas/fd_class.gif)

Weekly Snowpack and Drought Monitor Update Report

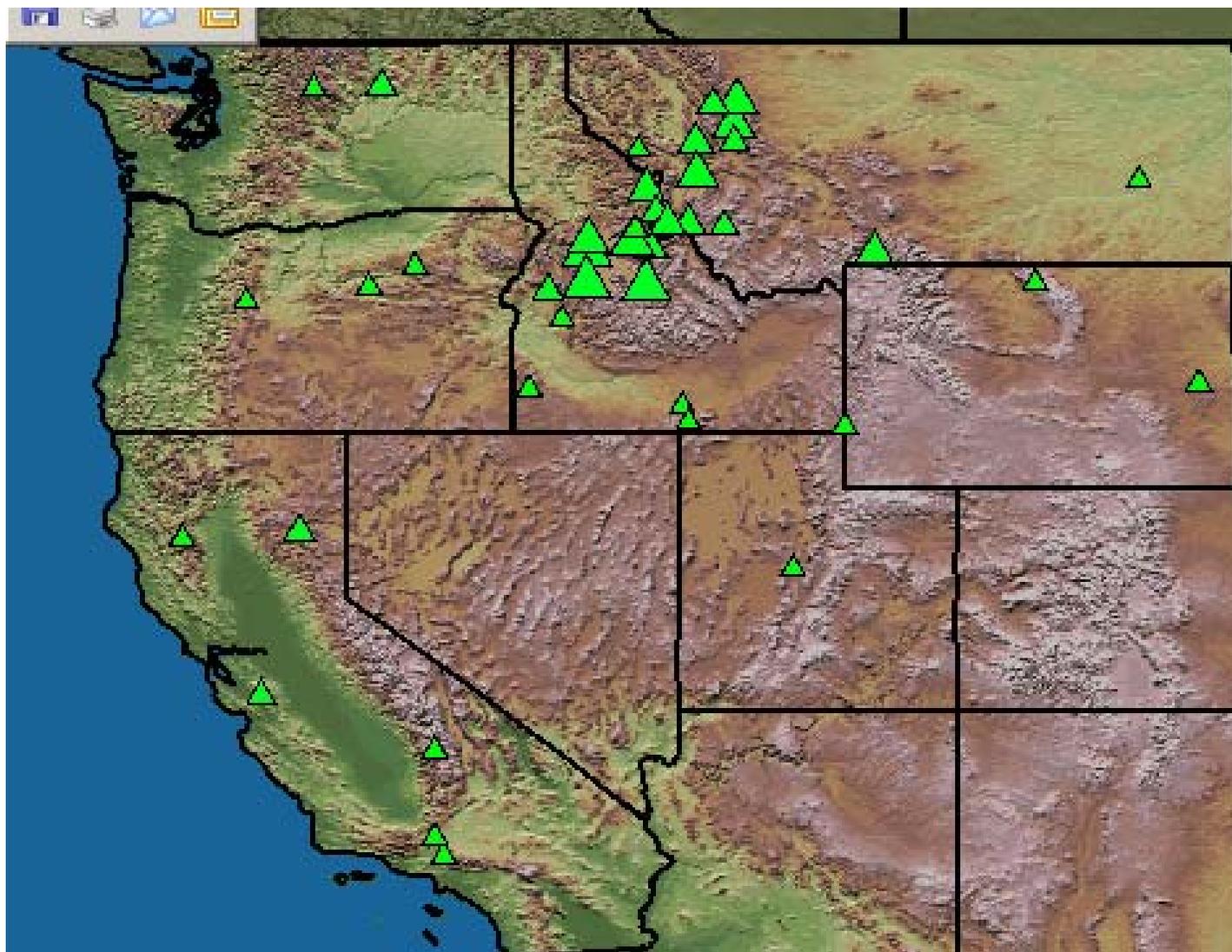
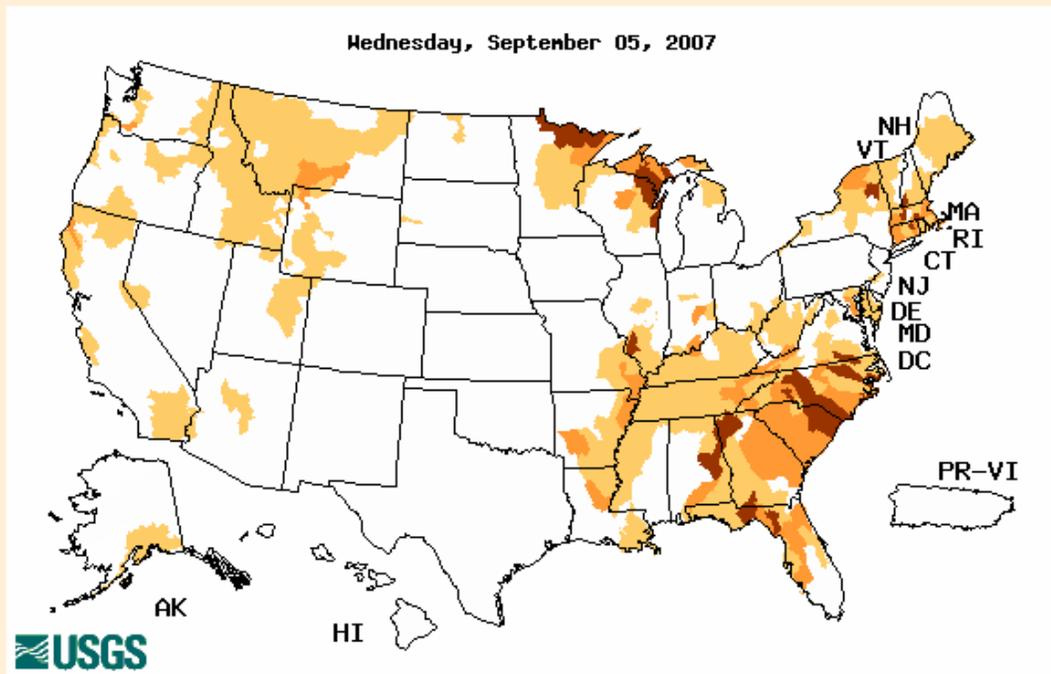


Fig. 5a. Location of active wildfires across the West (2007-09-06). Ref: <http://geomac.usgs.gov/>

Weekly Snowpack and Drought Monitor Update Report

Map of below normal 7-day average streamflow compared to historical streamflow for the day of year (United States)



Choose a data retrieval option and select a state on the map

State DroughtWatch,  State map

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. 6. Map of below normal 7-day average streamflow compared to historical stream flow for the day of the year. Ref: USGS <http://water.usgs.gov/waterwatch/?m=dryw&w=map&r=us>

## Weekly Snowpack and Drought Monitor Update Report

Vegetation Health: Red - stressed, Green - fair, Blue - favorable, White - Cold Surface

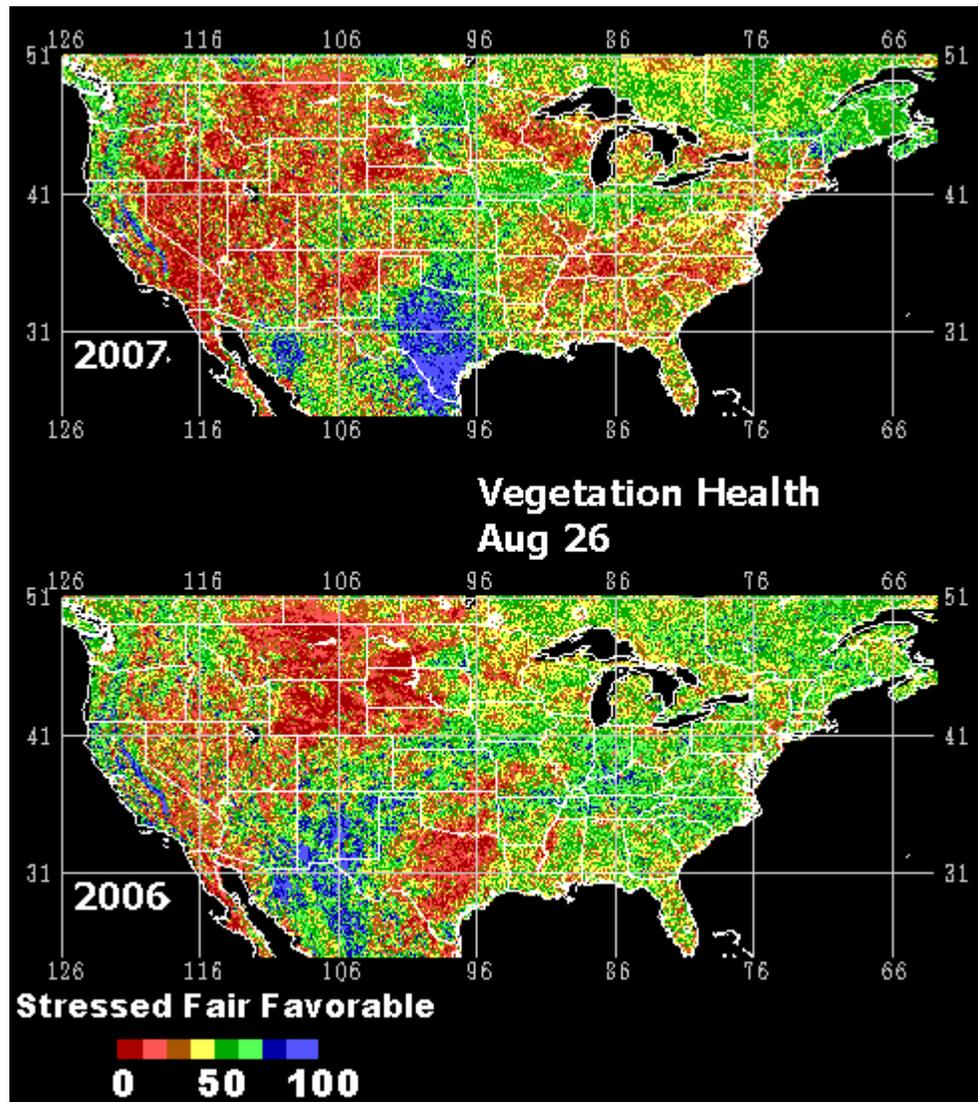


Fig. 7: This remote satellite AVHRR (<http://www.orbit.nesdis.noaa.gov/smcd/emb/vci/usa.html>) map shows very stressed vegetation over the Southwest and Wyoming.

## Weekly Snowpack and Drought Monitor Update Report

### National Drought Summary -- September 4, 2007

*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 West:** Heat was the big story this week, as record-breaking triple digit temperatures seared California and other states, resulting in weekly readings averaging 4 to 8 degrees F above normal throughout the West, the only exception being parts of the Pacific Northwest. A few thunderstorms struck California, Arizona, and other scattered areas, but the moisture was generally not enough to offset the evaporation caused by the extreme temperatures. As a result, there was little change to the drought picture across the region.

**The Plains and Midwest:** Heavy showers extended from southeastern Nebraska into Wisconsin, but most of the rains fell outside of ongoing dry areas, so there was minimal change to the existing severe to extreme drought situation over northern parts of Minnesota, Wisconsin, and Michigan. Mainly dry weather in the Ohio Valley allowed drought to creep northward in southern portions of Illinois, Indiana, and Ohio.

**The Southeast:** A lingering cold front helped to focus widespread shower activity across the southeastern drought region, resulting in improvement over many areas. Temperatures also turned more seasonable following the previous week's record heat, although weekly average temperatures remained at least 4 degrees F above normal in Tennessee and Kentucky, where rainfall was spotty and improvement was minimal. Amounts of 1 to 2 inches, with locally over 3 inches, spread from Mississippi into Alabama and Georgia, resulting in shrinkage of D3 and D4 drought. Weekly average streamflows, responding to recent downpours, neared median levels at many locations in northern and western Alabama. In Mississippi, topsoil moisture ratings improved from 76 percent short or worse to 59 percent short in the past week. Very heavy rains exceeding 4 inches eliminated dryness in southeastern Georgia, where statewide topsoil ratings improved from 75 to 55 percent short. Beneficial rains of 1 to 2 inches or more also covered much of Florida, improving soil moisture, although water supply impacts continued due to remaining substantial long-term rainfall deficits. In contrast, hot, dry weather caused D3 drought to extend eastward across much of North Carolina.

**The Mid-Atlantic and Northeast:** A return to drier weather resulted in declining streamflows over Maryland and northern Virginia, leading to slight expansion of D1 drought. Continued dry weather caused D2 to develop in upstate New York along the southern shores of Lake Ontario. Persistent dry weather resulted in reduced soil moisture and streamflows in Rhode Island and eastern Massachusetts, leading to D1 drought development. Boston has measured just 0.66 inches of rain since August 1, and a mere 0.01 inches since August 19.

**Alaska, Hawaii, and Puerto Rico:** Scattered showers failed to reduce drought in parts of Hawaii, while widespread rains further eased dryness in Puerto Rico, although D0 remained where long-term deficits persisted in the southeast. Rainfall was generally light in the D0 area of Alaska.

## Weekly Snowpack and Drought Monitor Update Report

**Looking Ahead:** Weather events that could affect dry areas over the next 2 weeks include: 1) the potential for heavy rains of 1-3 inches or more on September 8-10 along the East Coast from the Carolinas to southern New England, as a tropical storm possibly develops off the Southeast coast and heads northward from the Carolinas; 2) heavy rains of 1-3 inches on September 5-8 across Arkansas, Missouri, and Illinois; 3) heavy rains September 8-9 over Minnesota; 4) mainly dry weather and above-normal temperatures across the far West, the remnant rains from Hurricane Henriette falling mainly east of Arizona's drought areas.

Author: Thomas Heddinghaus, Climate Prediction 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 5, 2007