



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

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**Weekly Report - Snowpack / Drought Monitor Update**      **Date: July 12, 2007**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Temperature:** During the past seven days, temperatures ranged from 5°F to 10°F above normal over the Pacific NW, Sierra Nevada, and Great Basin (Fig. 1). Temperatures within +/- 5°F of normal dominated elsewhere. Record heat blanketed the West during the second half of this week as noted by the many new high night time temperature records that were set (Fig. 1a).

**Precipitation:** For the past week, isolated but heavy thunderstorms were experienced over northern California and southwest Oregon (Fig. 2). Other isolated activity was observed over the Rockies. The official start of the summer Southwest Monsoon occurred on the 8<sup>th</sup> (<http://www.wrh.noaa.gov/twc/monsoon/monsoon.php>). For the Water Year (began 1 October 2006), total amounts have not changed appreciably since last week. The Interior West (Great Basin and Intermountains) including the Sierra Nevada and the Arizona ranges continue to show large deficits.

## **WESTERN DROUGHT STATUS**

**The West and High Plains:** Heat was the big story this period, as a severe heat wave brought triple-digit temperatures from the arid Southwest northward to the Canadian border. The heat peaked in the Southwest around July 5, when the maximum temperature at Las Vegas, Nevada, reached 116 degrees F and Reno tied its all-time maximum with 108 degrees F. Temperatures averaged over 8 degrees F above normal over large portions of the interior West for the 7-day period. The sizzling high temperatures combined with little rainfall led to decreased soil moisture and some expansion of dryness and drought across the West, including D0 to D1 in western Montana west of the Divide, D1 over nearly all of Idaho, and expanded D0 across Washington and Oregon. D2 also expanded across northern Nevada into western Utah. One impact of the dryness was the sudden outbreak of wildfires across the region. By July 11, all 11 western states reported large wildfires, with approximately 46 such fires in the West plus a large fire in southwestern South Dakota. Author: Douglas Le Comte, Climate Prediction Center NCEP/NWS/NOAA

***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 (Fig. 3 and 3a).

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### 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>. Associated with vegetation health are pasture and rangeland conditions (Fig. 8) as noted at:

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

### 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

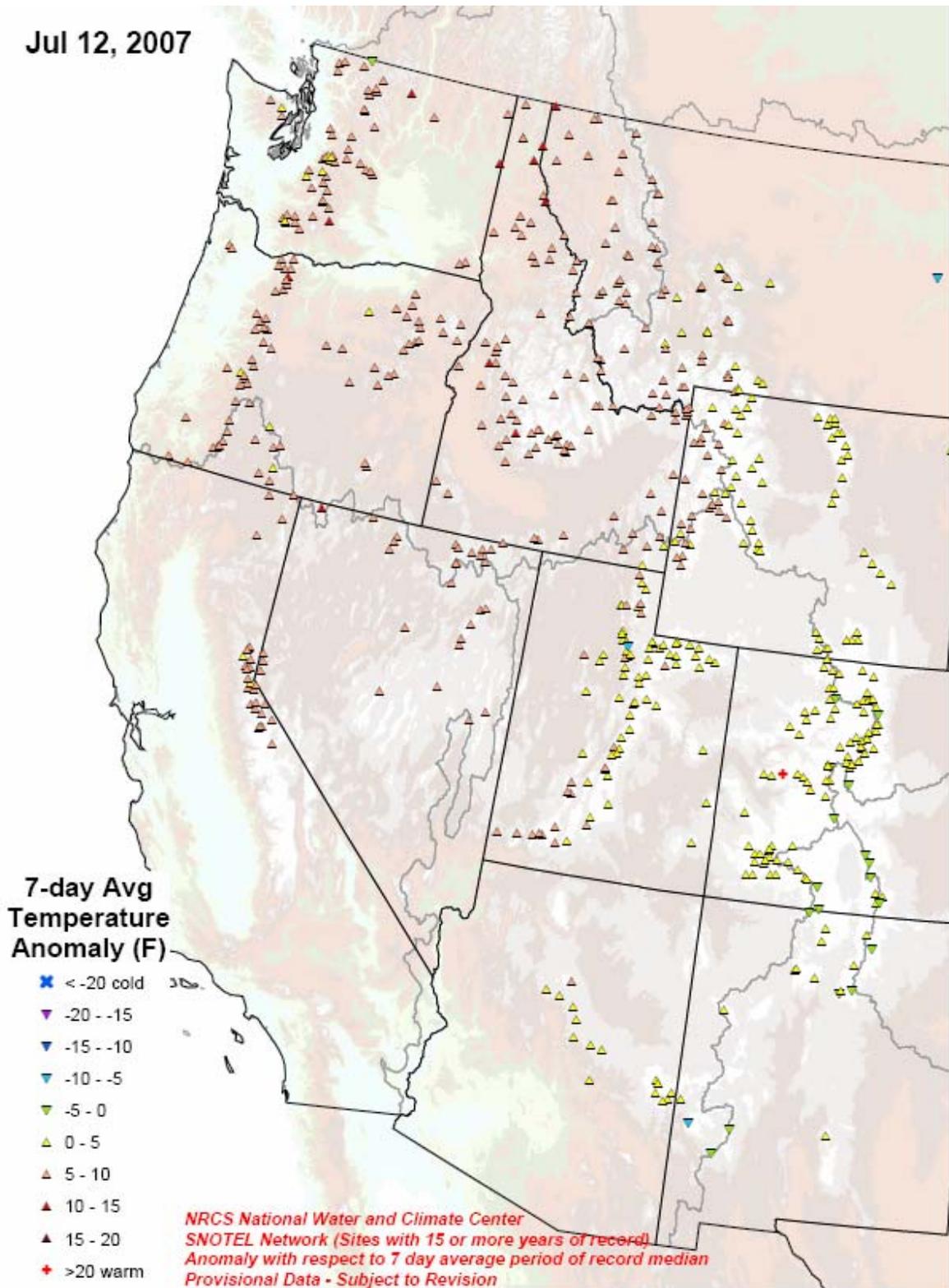
The National Water and Climate Center Homepage provide the latest available snowpack and water supply information. Please visit us at <http://www.wcc.nrcs.usda.gov>. This document is available from the following location on the NWCC homepage - <http://www.wcc.nrcs.usda.gov/water/drought/wdr.pl>

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

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

Ref: <ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideTavg7dAnomay.pdf>

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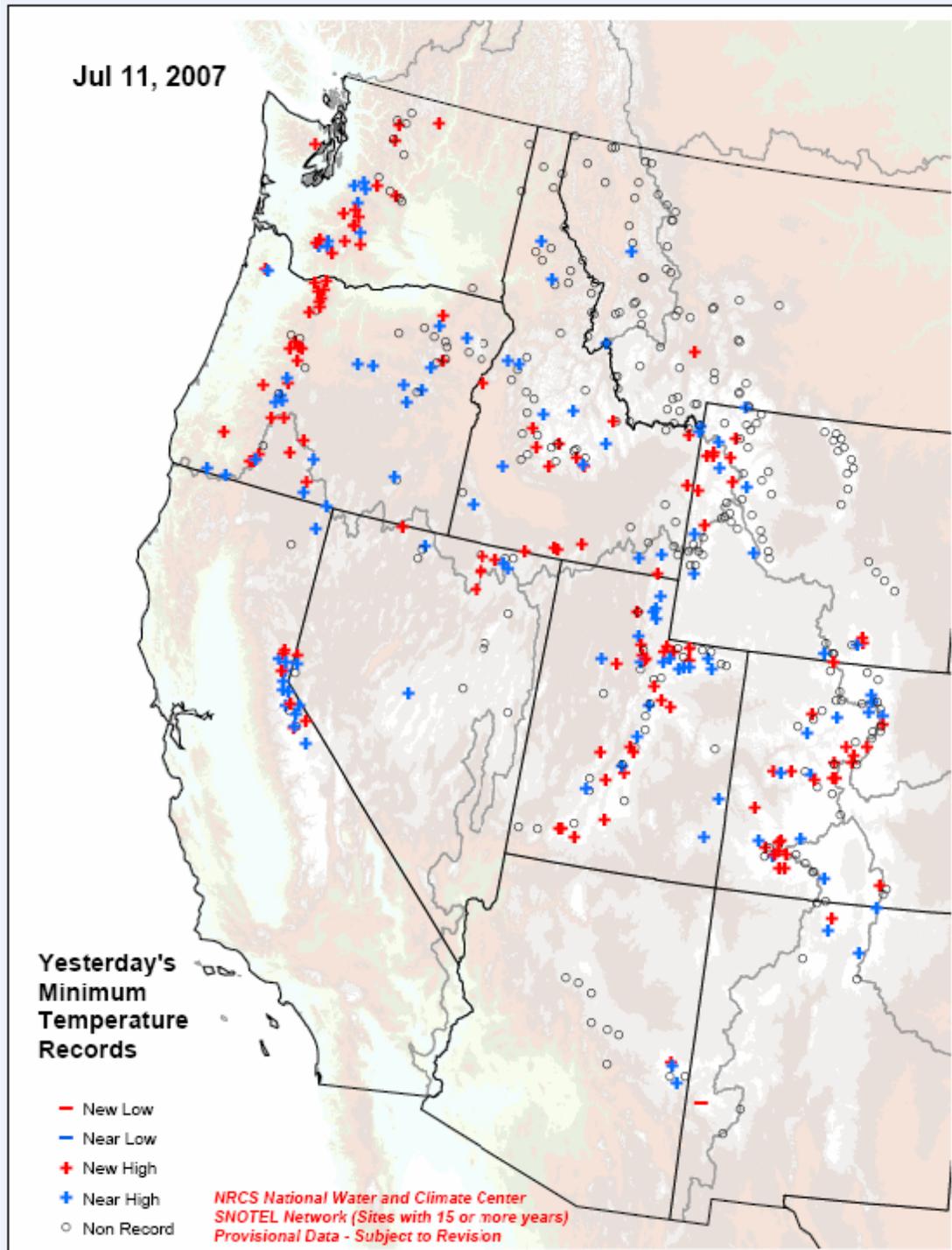
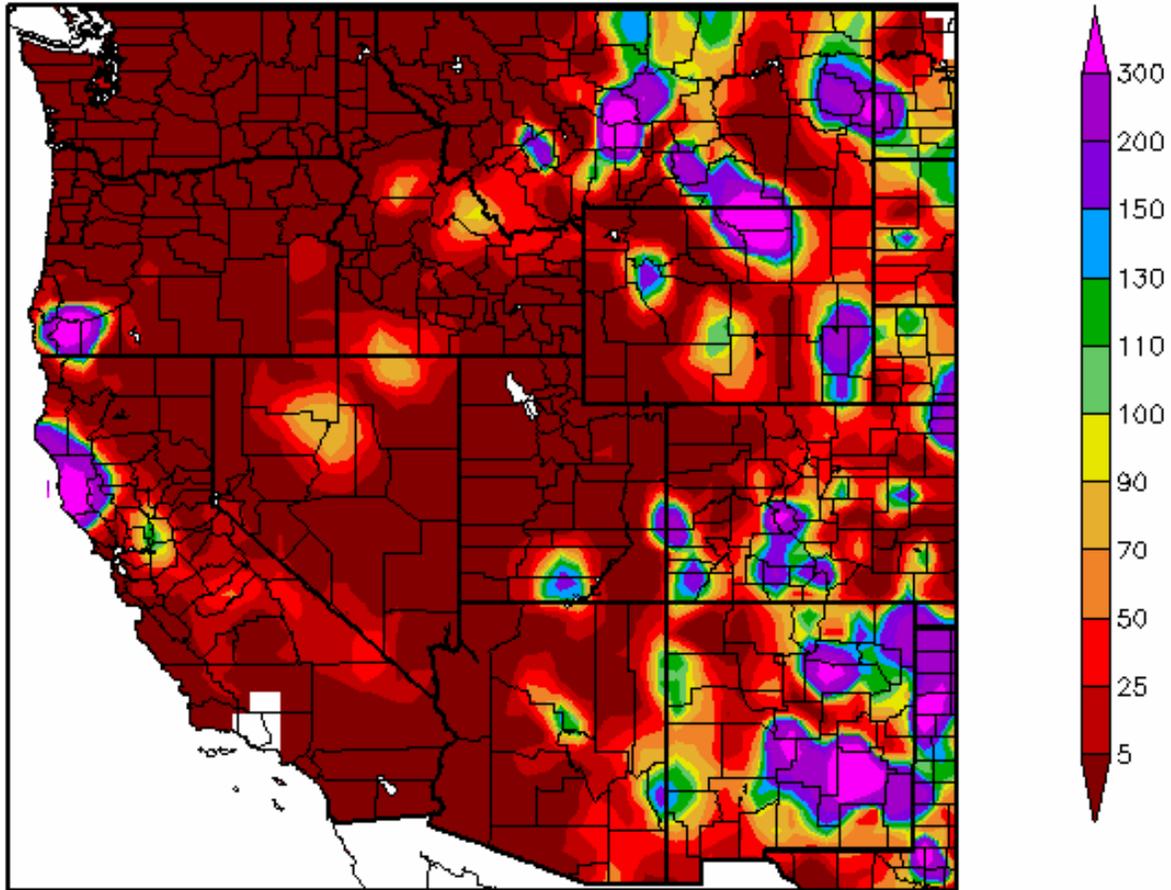


Fig. 1a. Record and near record SNOTEL minimum high temperatures during the past 24 hours from 11 July 2007. Ref: <ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideTminRecord.pdf>

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Percent of Normal Precipitation (%)  
7/5/2007 – 7/11/2007



Generated 7/12/2007 at HPRCC using provisional data.  
Updated Daily

NOAA Regional Climate Centers

**Fig. 2. Preliminary precipitation percent of normal for the 7-day period ending 11 July 2007.**

Ref: <http://www.hprcc.unl.edu/products/current.php>

# Weekly Snowpack and Drought Monitor Update Report

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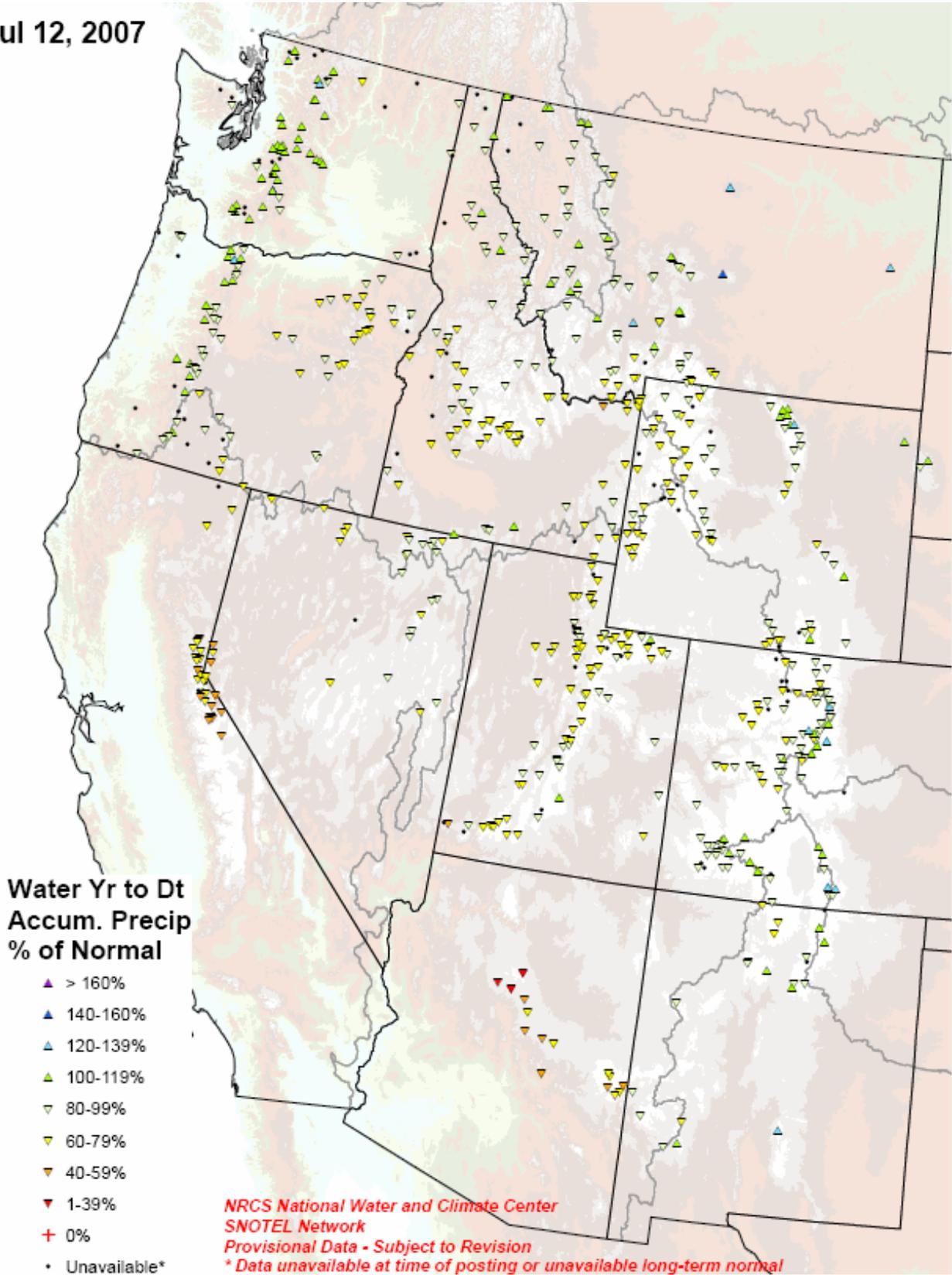


Fig. 2a. SNOTEL station water year (since October 1) precipitation as a percent of normal.  
Ref: <ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideWYTDPrecipPercent.pdf>

# U.S. Drought Monitor

July 10, 2007  
Valid 8 a.m. EDT

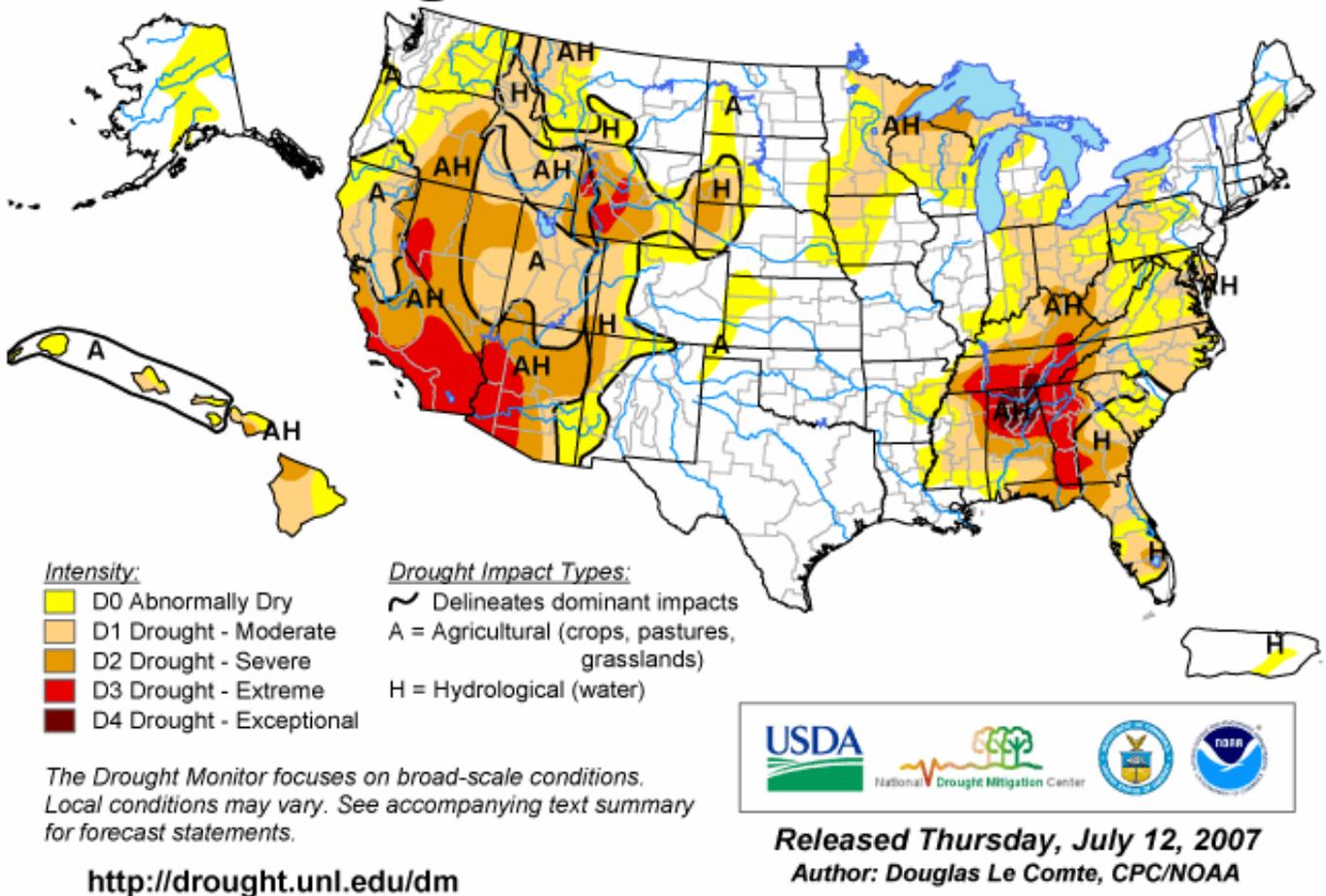


Fig. 3. Current Drought Monitor weekly summary.

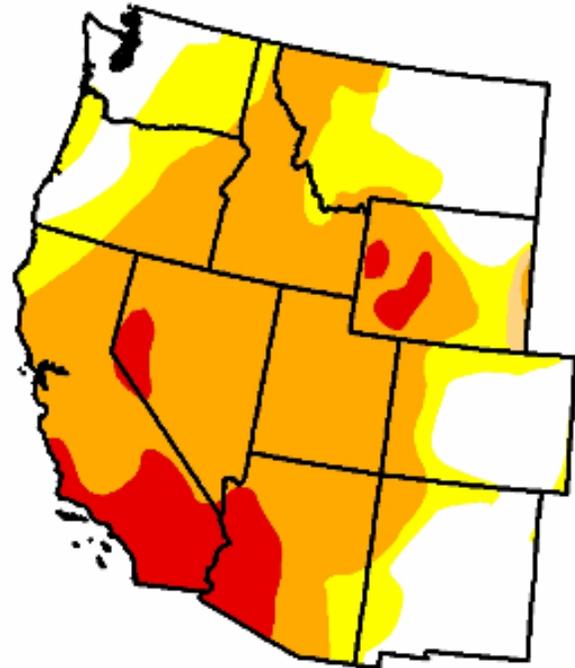
Ref: National Drought Mitigation Center (NDMC) - <http://www.drought.unl.edu/dm/monitor.html>

# U.S. Drought Monitor West

July 10, 2007  
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	24.9	75.1	57.6	57.1	9.4	0.0
Last Week (07/03/2007 map)	32.7	67.3	50.5	28.6	8.7	0.0
3 Months Ago (04/17/2007 map)	25.5	74.5	54.7	23.4	6.9	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 (07/11/2006 map)	52.3	47.7	35.0	17.5	5.3	0.6



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, July 12, 2007  
Author: Douglas Le Comte, CPC/NOAA

Fig 3a. 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)

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Soil Moisture Percentiles (wrt/ 1915-2003)  
20070710

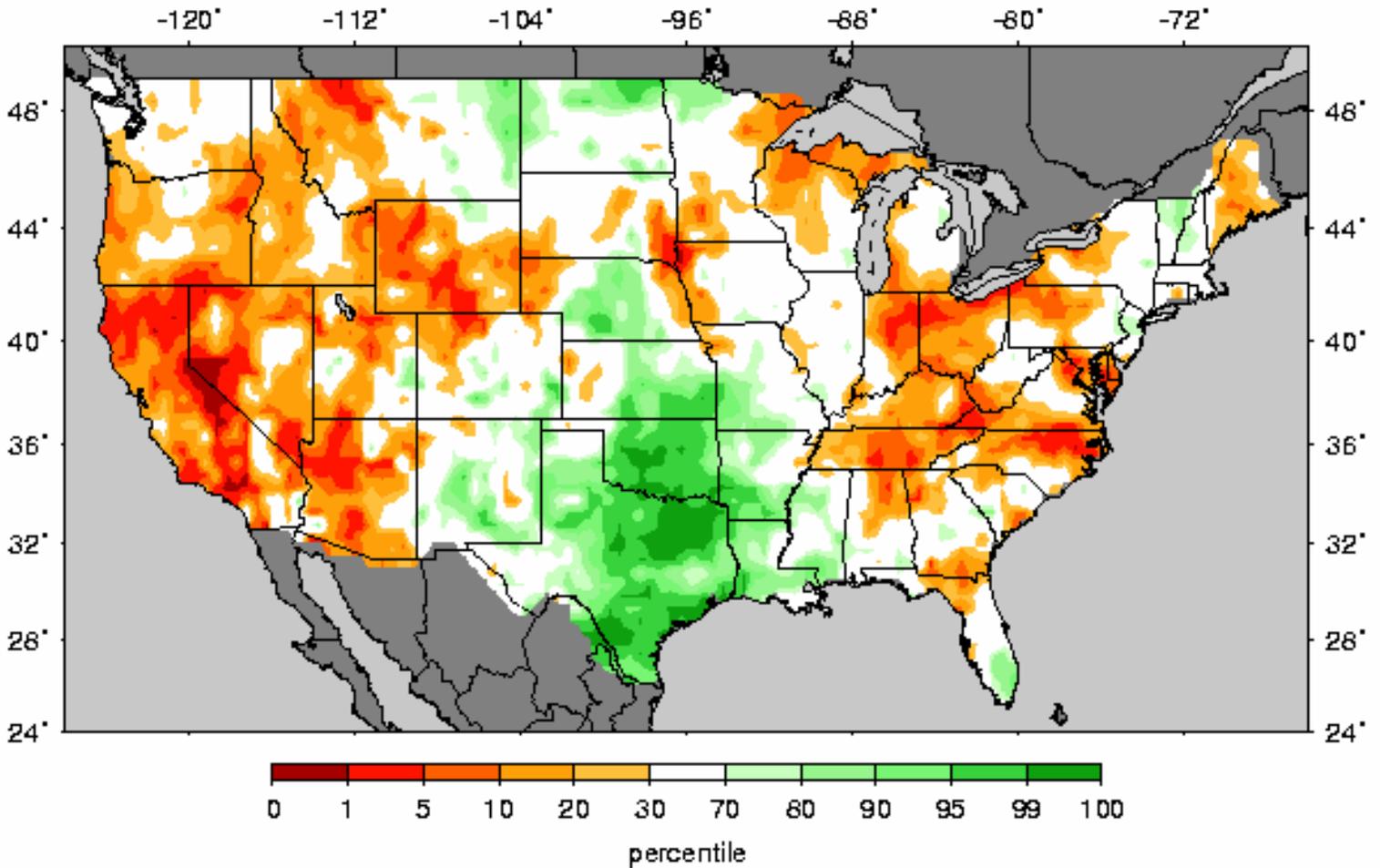


Fig. 4: Soil Moisture Ranking Percentile based on 1915-2003 climatology. (source: Univ. of Washington). Ref: [http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm\\_qnt.gif](http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm_qnt.gif)

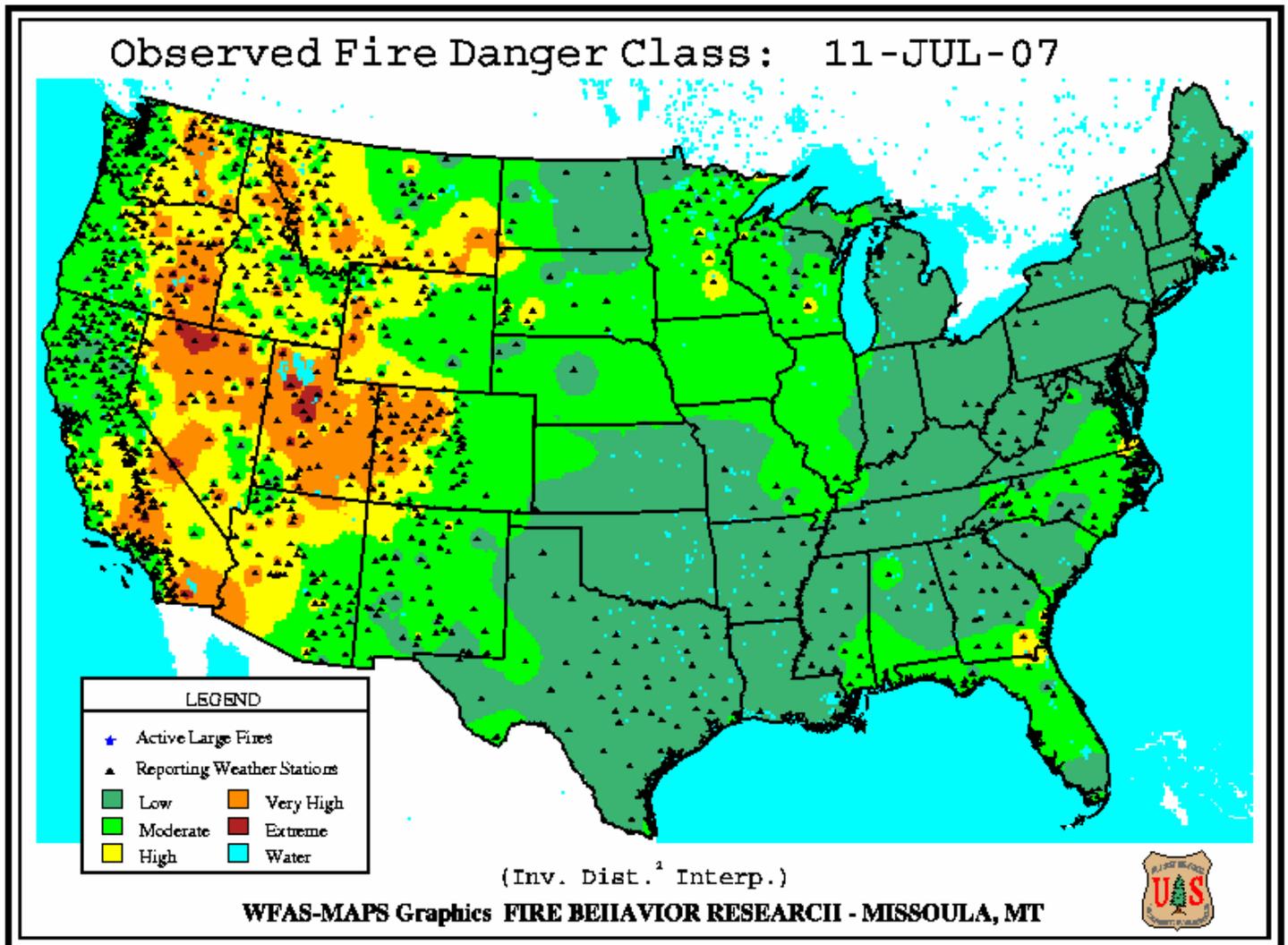


Fig. 5. Observed Fire Danger Class. Source: Forest Service Fire Behavior Research – Missoula, MT  
Ref: [http://www.fs.fed.us/land/wfas/fd\\_class.gif](http://www.fs.fed.us/land/wfas/fd_class.gif)

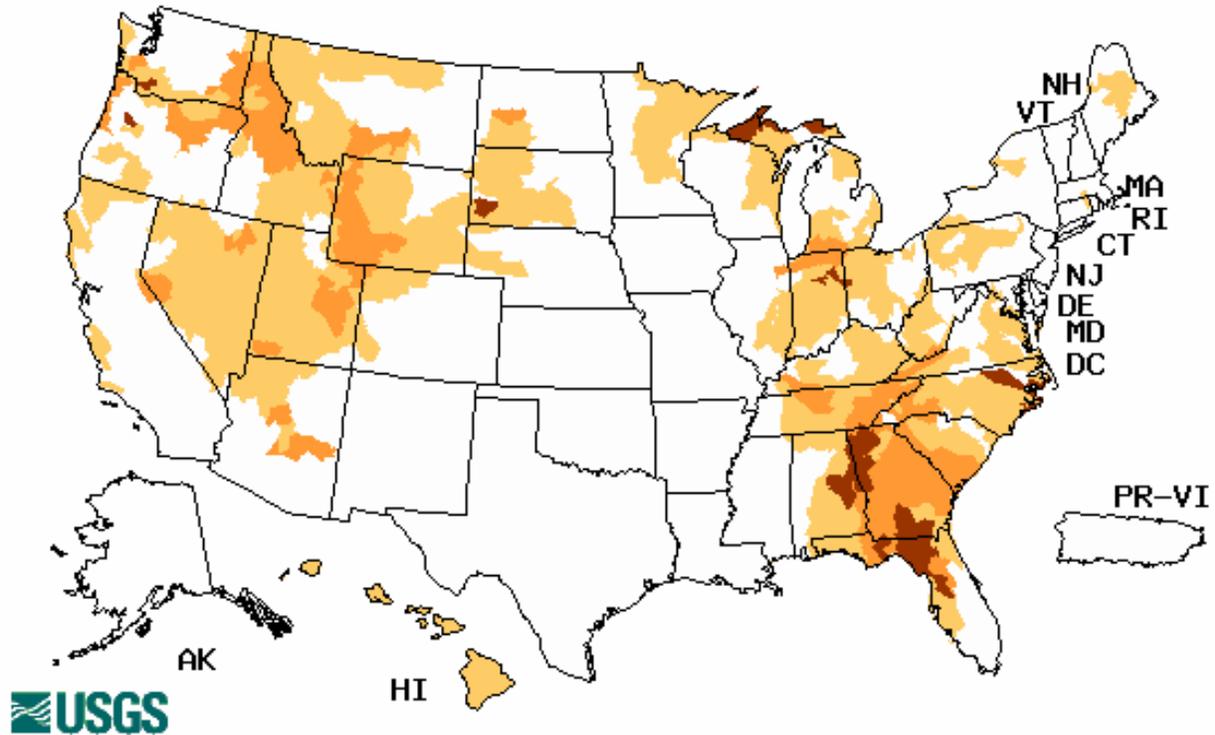
## Weekly Snowpack and Drought Monitor Update Report



Fig. 5a. Location of active wildfires across the West. Ref: <http://geomac.usgs.gov/>.

# Weekly Snowpack and Drought Monitor Update Report

Wednesday, July 11, 2007



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>

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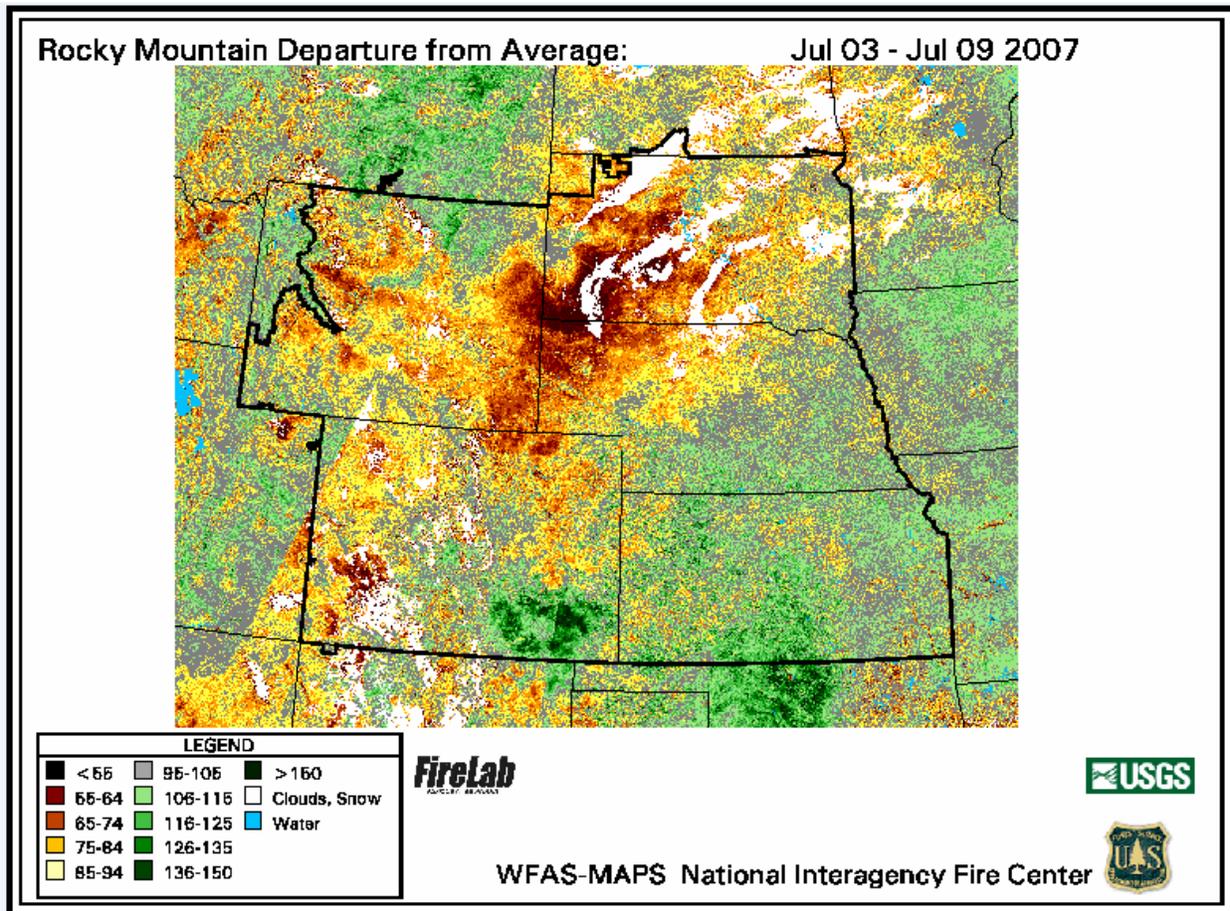
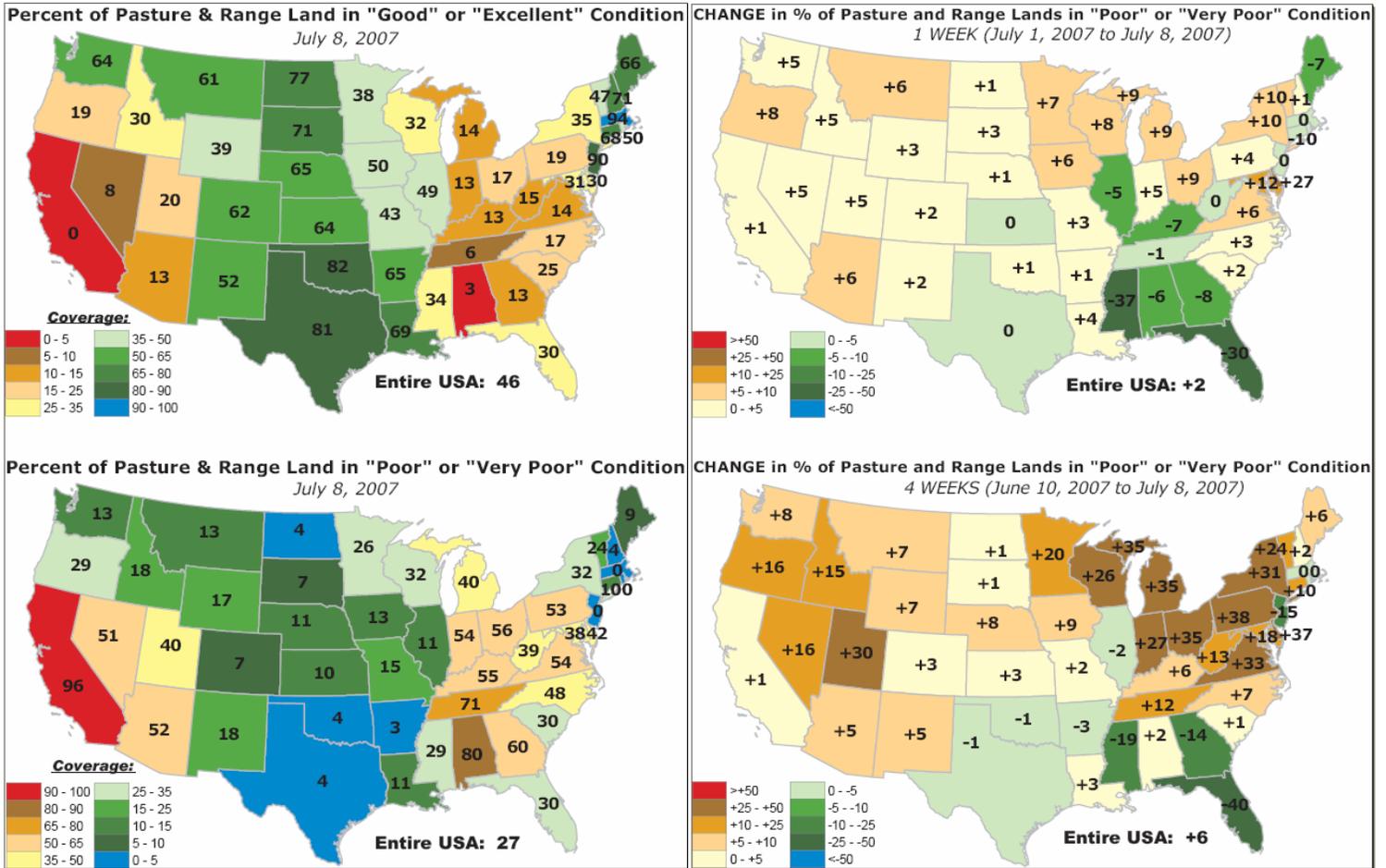


Fig. 7: This remote satellite AVHRR <http://noaasis.noaa.gov/NOAASIS/ml/avhrr.html>) map shows really miserable (dry) conditions from SW SD into W NE and adjacent WY as noted by the dark brown areas.

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**Fig. 8: Pasture and rangeland conditions for various periods. Conditions have worsened the most over Utah during the past four weeks. Oregon shows the largest increase in poor to very poor conditions during the past week.**

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

## Weekly Snowpack and Drought Monitor Update Report

### National Drought Summary -- July 10, 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 South:** The remnants of the upper air disturbance that had brought flooding rains to the southern Plains edged eastward and contributed to heavy rains from Texas into Mississippi. Weekly rainfall totals to July 10 ranged from 2 to 5 inches from west-central Alabama into northern and central Mississippi and southern Arkansas and northern Louisiana. Even the core of the D4 exceptional drought area in northern Alabama picked up 0.5 to 2.0 inches this week, although lesser amounts fell in northeast Alabama into southeast Tennessee. The rains had a major impact on the drought in Mississippi, D1 to D3 drought levels improving to D0 to D1, with parts of northwestern Mississippi seeing a removal of D0 dryness as streamflows continued high and soil moisture ratings improved markedly. USDA-reported topsoil moisture ratings improved from 85 percent short to very short statewide in Mississippi last week to 34 percent this week, close to the 10-year mean. To the east, the improvement was spotty in Alabama, where topsoil ratings went from 96 percent to 87 percent short, and 87 percent of the corn crop rated poor to very poor. D4 drought continued across much of northern Alabama and expanded into southeastern Tennessee. Despite picking up 2.65 inches of rain this month, Tuscaloosa, Alabama, has measured just 12.20 inches of rain so far this year, 20.56 inches below normal. Heavy rains continued to shrink the drought area in southern Florida, but D2 drought persisted near and north of Lake Okeechobee, where water levels remained near historical lows due to minimal stream inflows. To the north, lack of rain led to expansion of D1 drought across northern North Carolina into southeastern Virginia. Continued below-normal rainfall and soaring temperatures early this week led to D1 development across the Tidewater area of Virginia, southern Maryland, and into the Delmarva Peninsula. The drought also expanded into northern Virginia. The corn crop in parts of eastern Virginia began showing severe stress as soil moisture conditions deteriorated tremendously in the past week.

**The Midwest:** Moderate to heavy showers dropped 0.5 to 2.0 inches of rain on much of Wisconsin, with lower amounts across the rest of the region. Below-normal totals led to D1 drought expansion from southwestern Michigan into northern Indiana and northern Ohio. Topsoil moisture ratings dropped considerably in Michigan, where topsoil ratings rose from 71 percent short to 83 percent short. D2 drought also developed near the shores of Lake Superior in Minnesota, Wisconsin, and Michigan. D1 drought also expanded into southwestern Minnesota and northwestern Iowa.

**The Northeast:** Heavy showers led to improved moisture conditions across New England, but significant short-term rainfall deficits continued in Maine, where D0 dryness has developed. Short-term deficits led to D1 development from western Pennsylvania into central parts of the state.

**The West and High Plains:** Heat was the big story this period, as a severe heat wave brought triple-digit temperatures from the arid Southwest northward to the Canadian border. The heat

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peaked in the Southwest around July 5, when the maximum temperature at Las Vegas, Nevada, reached 116 degrees F and Reno tied its all-time maximum with 108 degrees F. Temperatures averaged over 8 degrees F above normal over large portions of the interior West for the 7-day period. The sizzling high temperatures combined with little rainfall led to decreased soil moisture and some expansion of dryness and drought across the West, including D0 to D1 in western Montana west of the Divide, D1 over nearly all of Idaho, and expanded D0 across Washington and Oregon. D2 also expanded across northern Nevada into western Utah. One impact of the dryness was the sudden outbreak of wildfires across the region. By July 11, all 11 western states reported large wildfires, with approximately 46 such fires in the West plus a large fire in southwestern South Dakota.

**Puerto Rico:** The heaviest rains missed the area of D0 dryness in the southeast, resulting in no change in the island's depiction.

**Alaska:** Some beneficial rains reduced the D0 area in the southwest and parts of the southeast interior basin, but D0 dryness persisted elsewhere. Numerous wildfires have broken out across the interior basin.

**Hawaii:** Many locations on the Big Island recorded over 0.5 inches of rain this period, but rainfall amounts were light over the other islands. There was no change to the overall drought picture this week. Honolulu has measured just 2.68 inches of rain this year, 29 percent of normal.

**Looking Ahead:** Weather that could have an impact on dry areas in the next 2 weeks: 1) a cold front will bring cool Canadian air to the Midwest and East and needed rain to eastern and southern drought areas during the first days of the period, with 1-inch or greater amounts of rain expected over much of the Eastern Seaboard and South during July 11-16; 2) the interior West will continue hot the first 5 days, but below-normal temperatures are indicated in the Pacific states on the 6-10 and 8-14 day forecasts; 3) the onset of the summer thunderstorm season will lead to above-normal rainfall from days 6 to 14, July 17-25, over much of the West; 4) above-normal temperatures will return to the Midwest and East for days 6-14, and below-normal rainfall is forecast for the Ohio Valley and the mid-Atlantic states.

**Author:** [Douglas Le Comte, Climate Prediction Center NCEP/NWS/NOAA](#)

### 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 July 12, 2007