



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

**Weekly Report - Snowpack / Drought Monitor Update**      **Date: May 31, 2007**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Snowpack:** Snowpacks continue their season decline helped by above average temperatures during the past week in western half of the region. Most middle and lower elevations have melted-out for the year and with snow water-equivalent (SWE) normal over isolated regions of the Northern Cascades (WA) and along the Front Range of Colorado. Across the West, several more SNOTEL stations have melted out since last week (Fig. 1). During the week, a trough of low pressure transited the West and helped and increased snowpacks over portions of the Rockies in Wyoming and western Montana (Fig. 1a).

**Temperature:** During the past seven days, temperatures were about 3 to 10 degrees above average in Arizona, California, Nevada, Oregon and western Washington. Temperatures were 3 to 6 degrees below normal in parts of western Montana, central Colorado and eastern New Mexico (Fig. 2).

**Precipitation:** A series of strong thunderstorms brought up to 2 inches of rain to the eastern slopes of the Rockies from Montana south to eastern New Mexico (Fig. 3). For the Water Year, the Cascades and portions of the Colorado Rockies are still maintaining near to above normal values. Totals over Arizona and the Sierras (CA and NV) are continuing to fall (Fig. 3a).

## **WESTERN DROUGHT STATUS**

**The West:** "High pressure through a deep layer of the atmosphere suppressed precipitation throughout the western states, maintaining a general status-quo as far as drought classification was concerned throughout the Southwest. A storm system traversing the Pacific Northwest and Northern Rockies did bring some rain and mountain snowfall to the northern sections of the region over the Memorial Day weekend. Some modest improvement was noted in eastern areas of Wyoming, while conditions worsened slightly in the southwestern part of the state. The more active northern storm track also benefited areas of western Montana. Farther to the west, the D2 area surged northward in eastern Oregon." Author: Scott Stephens, 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 (Fig. 4, 4a, and 4b).

## Weekly Snowpack and Drought Monitor Update Report

### SOIL MOISTURE

Soil moisture (Fig. 5), 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. 6.

### U.S. HISTORICAL STREAMFLOW

This map, (Fig. 7) 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).

### PASTURE & RANGE LANDS

These maps (Fig. 8) show good to excellent and poor to very poor grazing lands for various time periods. <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/>

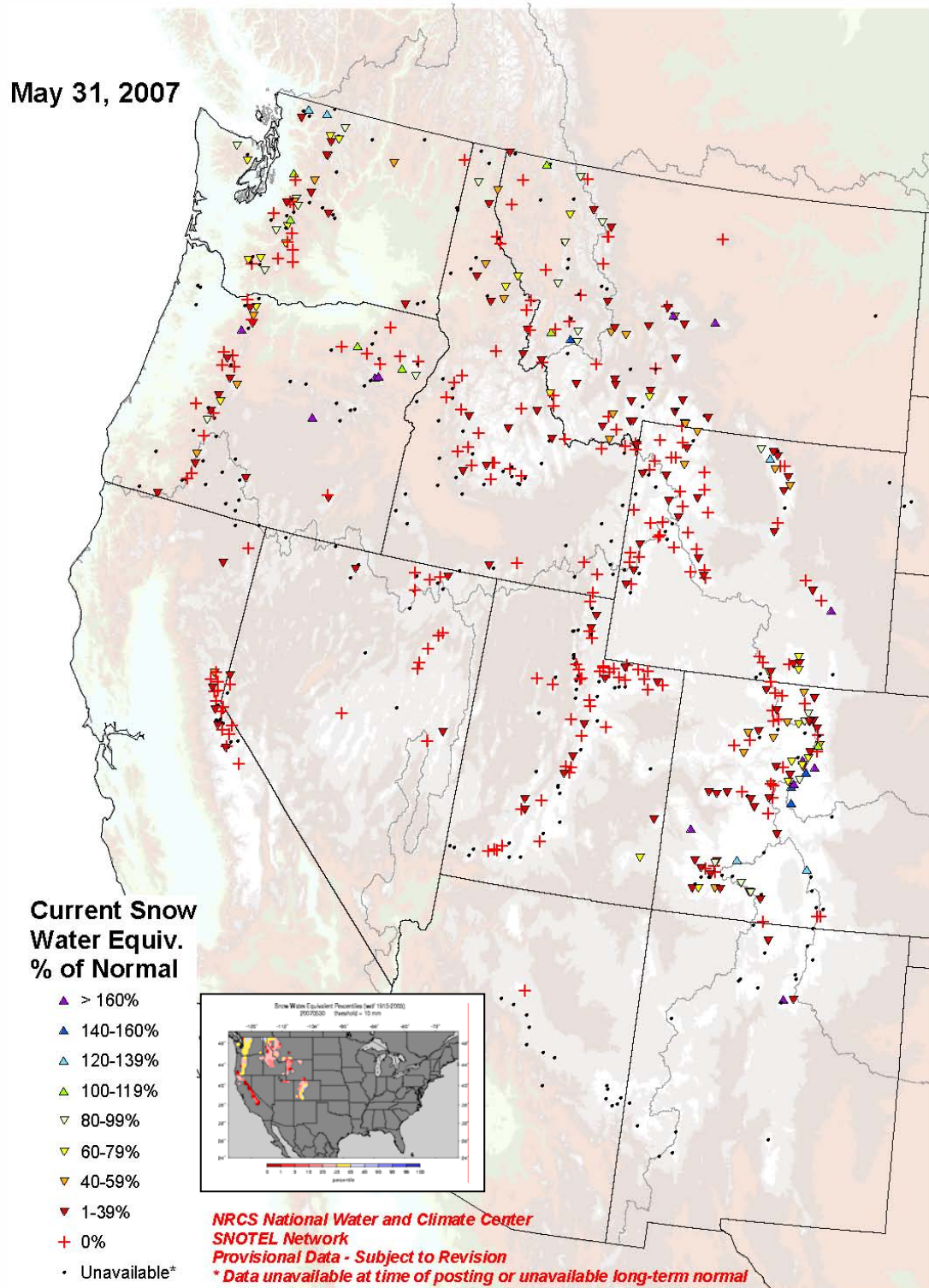
### FOR MORE INFORMATION

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.

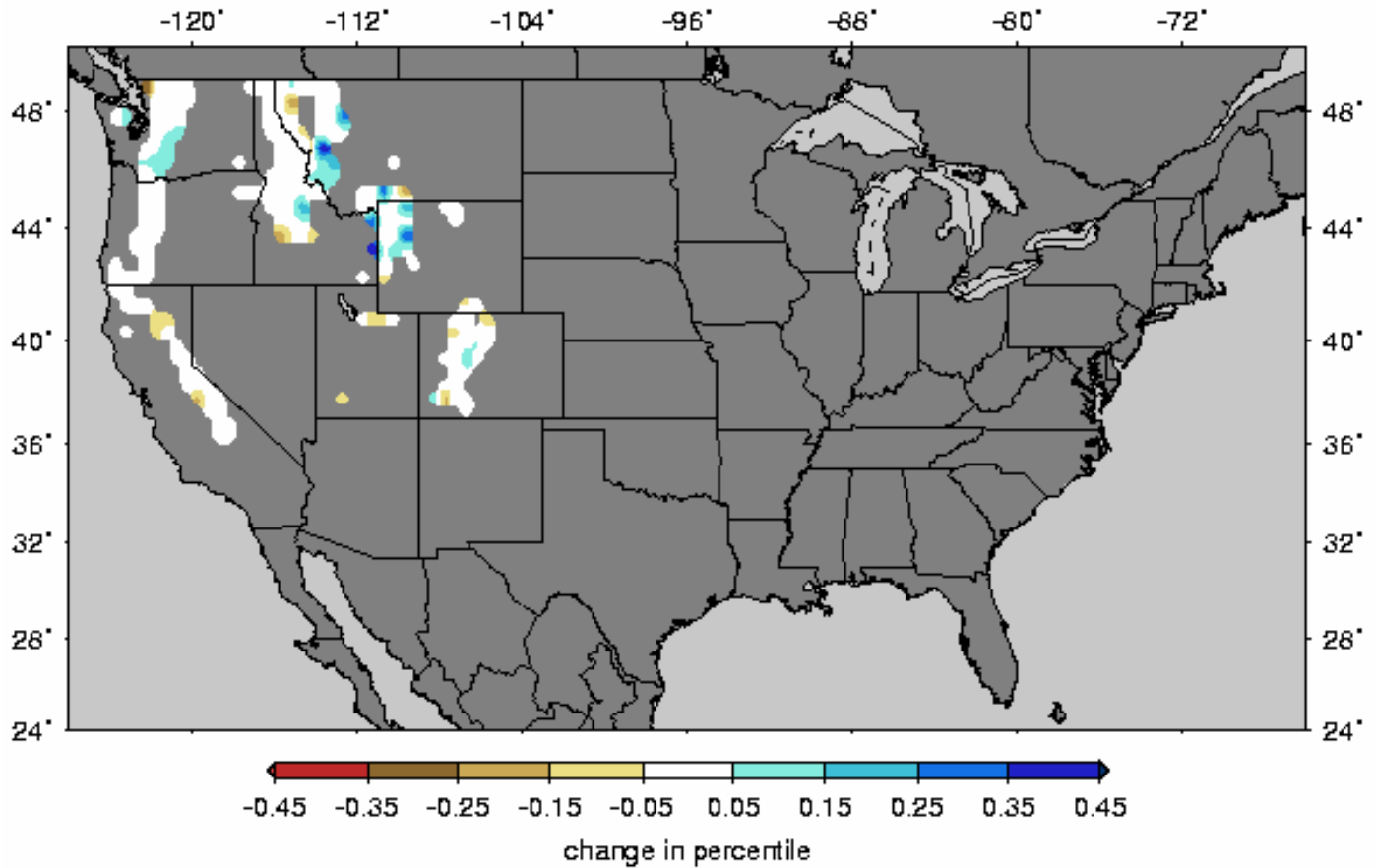
/s/ NOLLER HERBERT  
Acting Director, Conservation Engineering Division

## Weekly Snowpack and Drought Monitor Update Report



## Weekly SWE Change

Snow Water Equivalent: Change in Percentiles (wrt/ 1915-2003)  
for the week 20070515 to 20070522 threshold = 10 mm

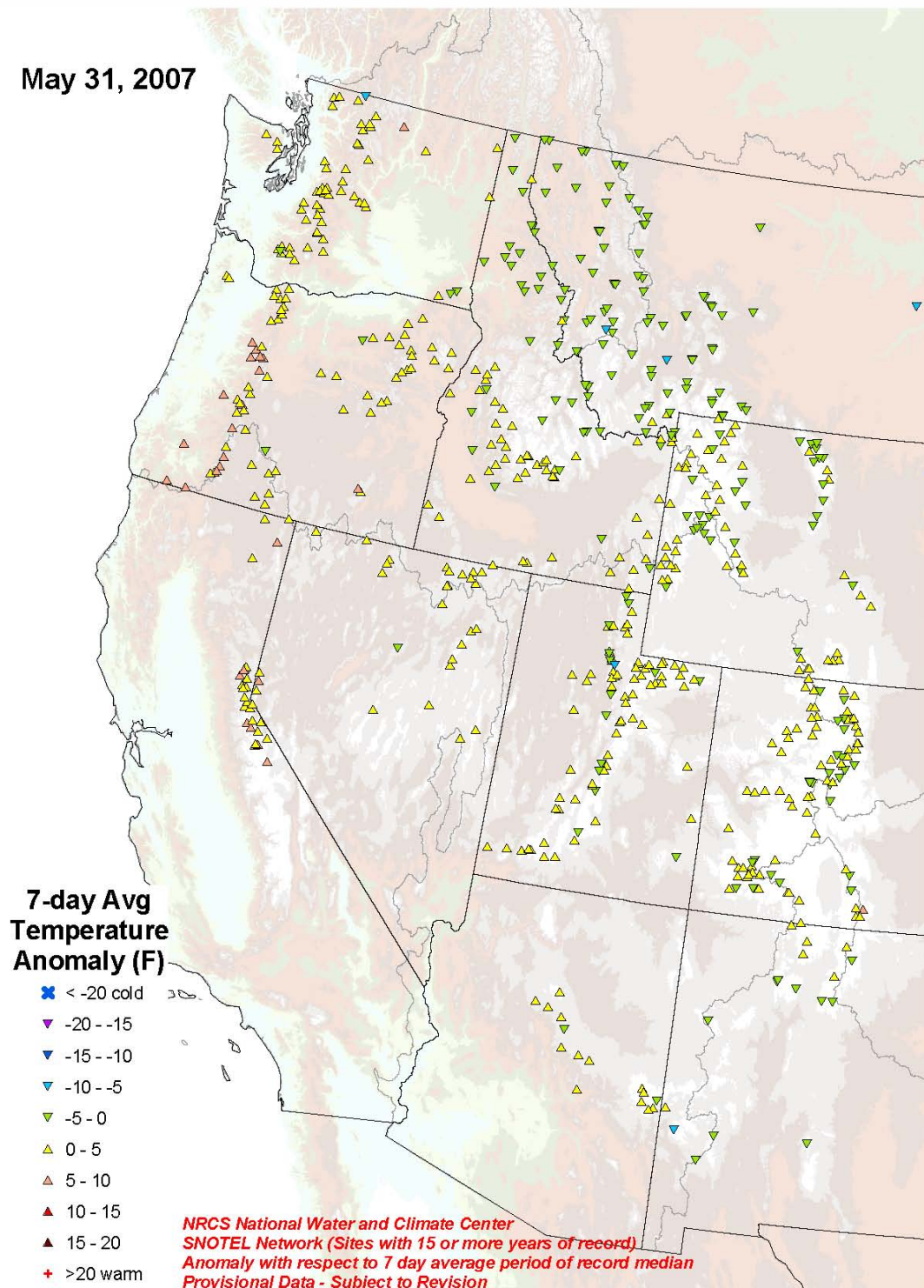


**Fig. 1a.** Snow Water-Equivalent changes as a percent during the period 15 to 22 May 2007 based on 1915-2003 climatology. Note the spotty increases in SWE over the Rockies and Northern Cascades. Ref: <http://www.hydro.washington.edu/forecast/monitor/index.shtml>



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**Fig. 2. SNOTEL 7-day average temperature anomaly.**

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

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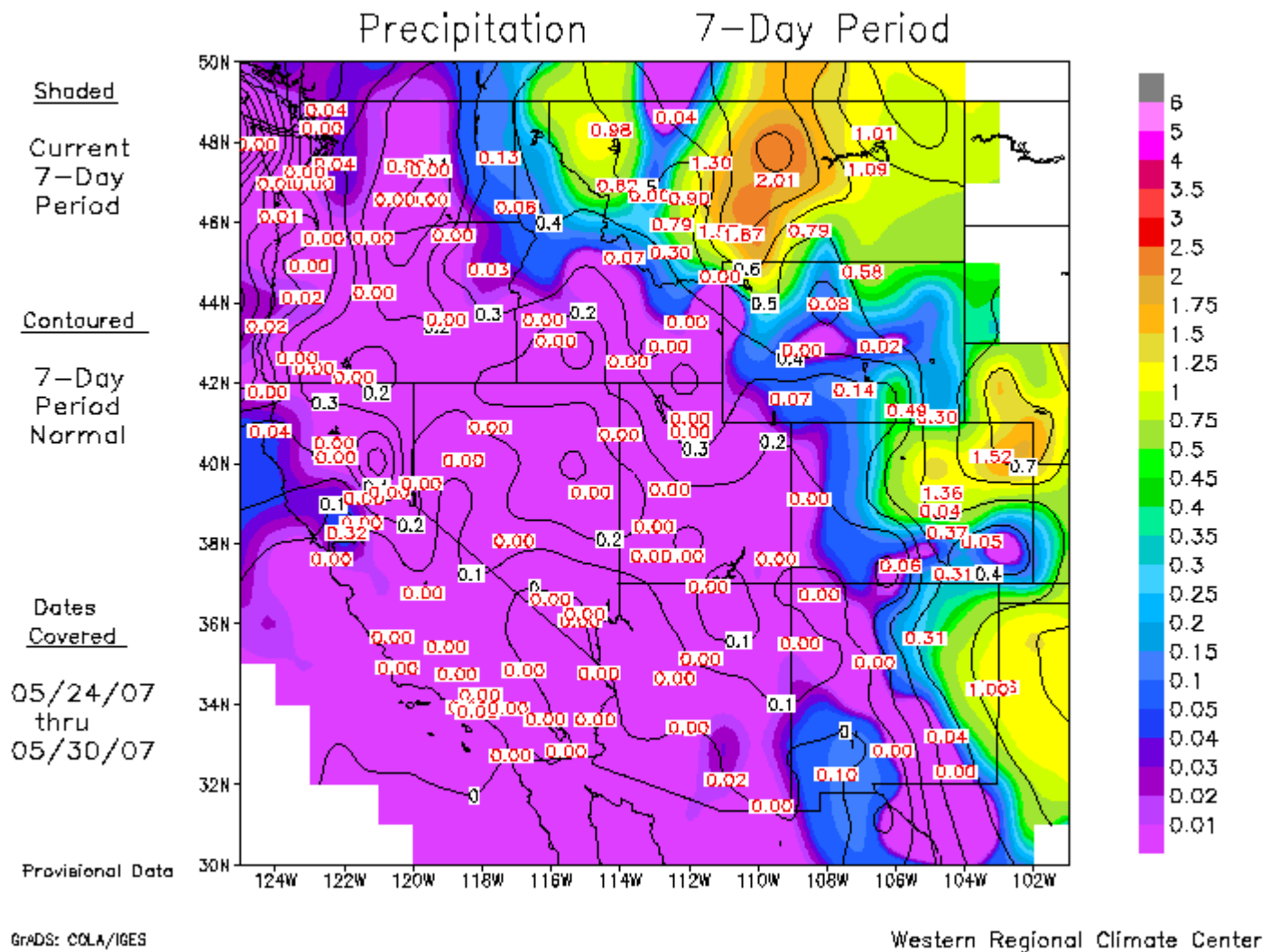
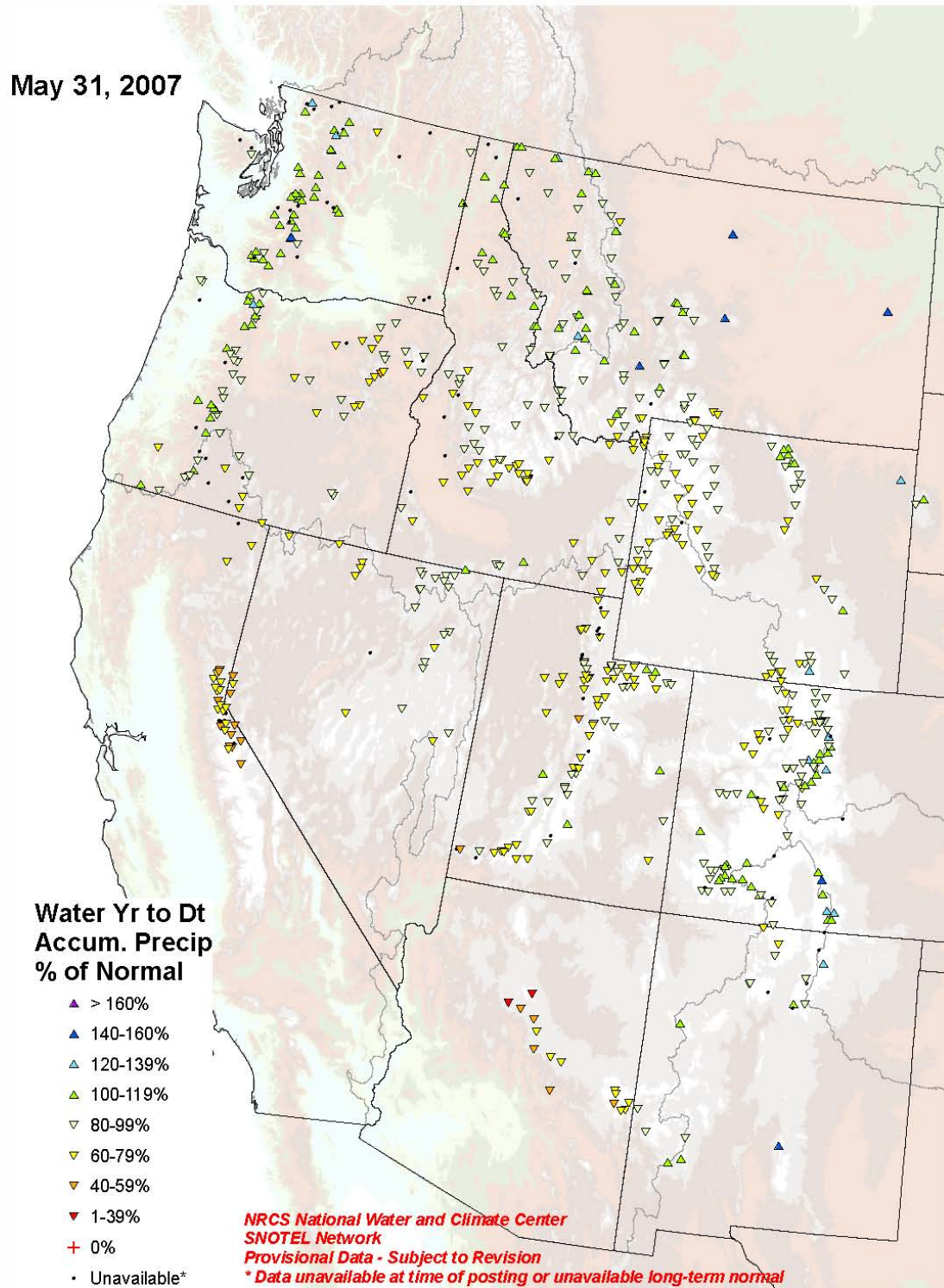


Fig. 3. Preliminary precipitation totals as a percent of normal for the 7-day period ending 30 May 2007.  
Ref: <http://www.wrcc.dri.edu/cacanom/images/p07.gif>

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**Fig. 3a. SNOTEL station water year (since October 1) precipitation as a percent of normal.**

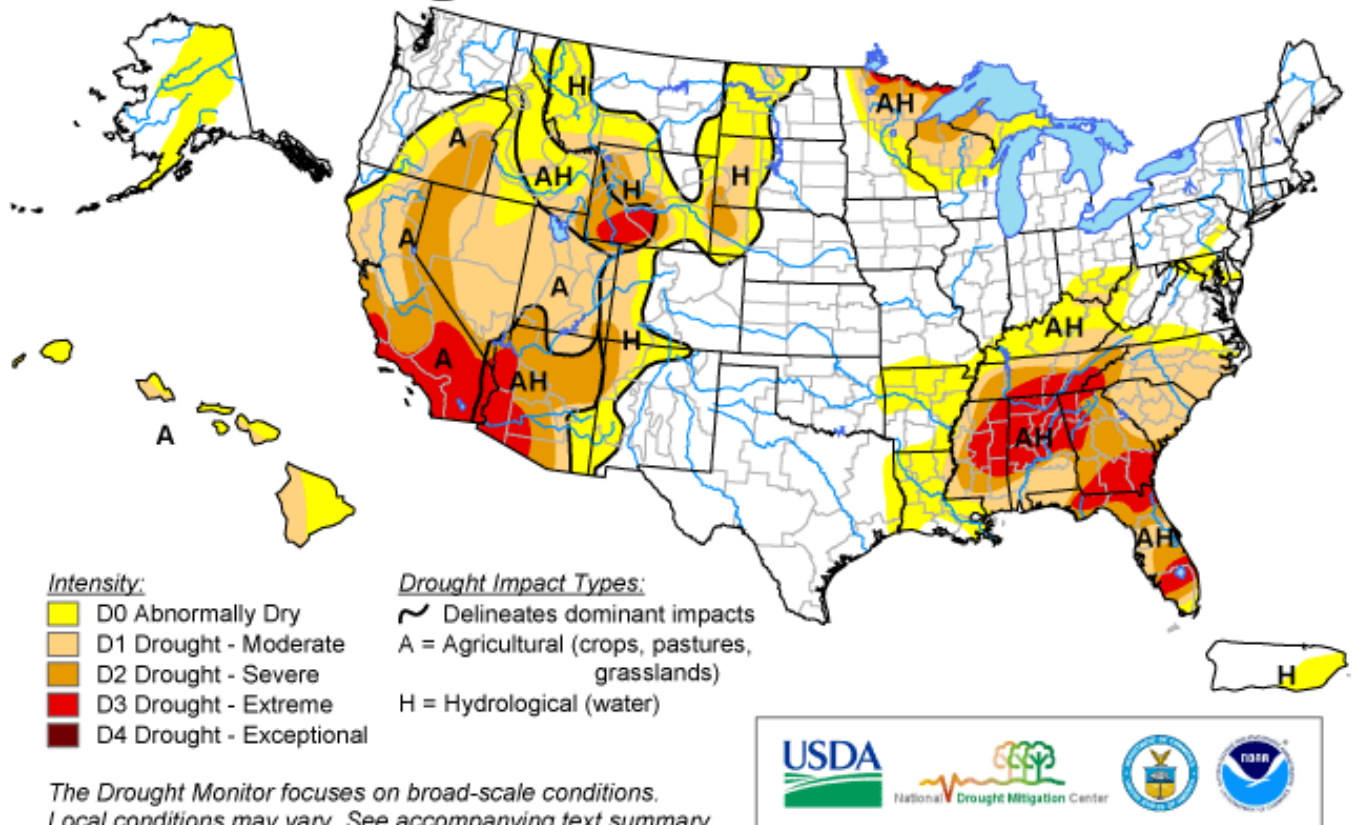
Ref: <ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideWYTDPrecipPercent.pdf>



# U.S. Drought Monitor

May 29, 2007

Valid 8 a.m. EDT



Released Thursday, May 31, 2007

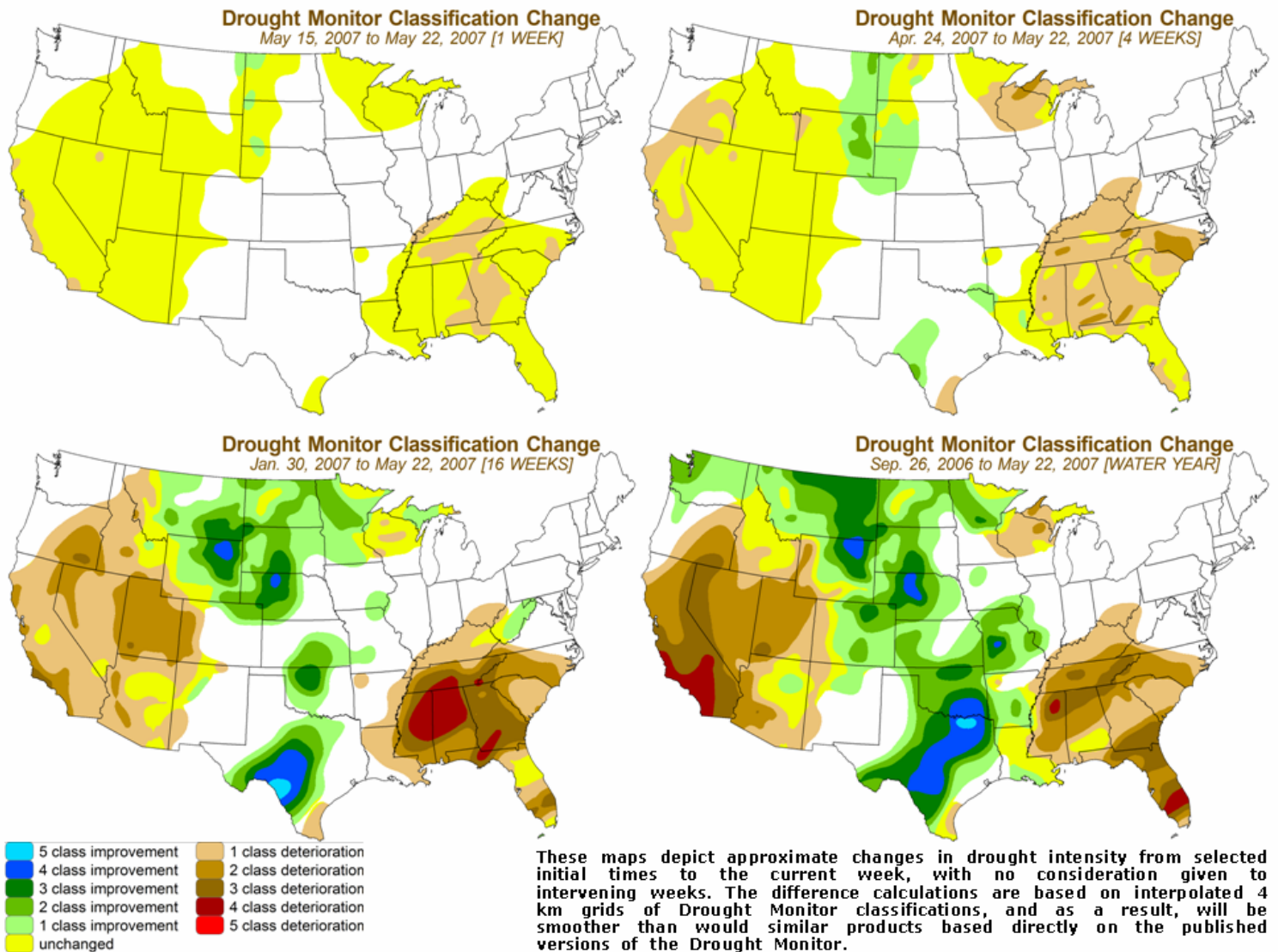
Author: Ned Guttman, NOAA/NESDIS/NCDC

Fig. 4. Current Drought Monitor weekly summary.

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



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**Fig. 4a. Drought Monitor classification changes over various time periods.**

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

# U.S. Drought Monitor

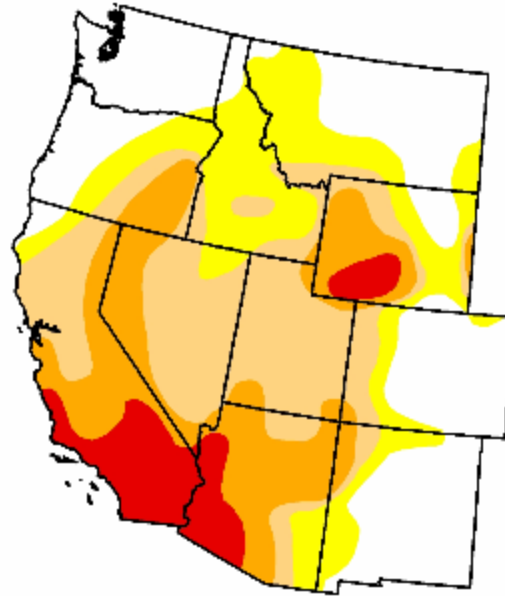
## West

May 29, 2007  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	31.4	68.6	49.6	25.6	7.8	0.0
Last Week (05/22/2007 map)	30.9	69.1	51.2	24.4	7.5	0.0
3 Months Ago (03/06/2007 map)	41.9	58.1	31.8	16.6	3.2	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 (05/30/2006 map)	60.0	40.0	29.4	20.1	12.1	1.7

### Intensity:

<span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> D0 Abnormally Dry	<span style="background-color: red; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> D3 Drought - Extreme
<span style="background-color: orange; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> D1 Drought - Moderate	<span style="background-color: darkred; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> D4 Drought - Exceptional
<span style="background-color: #ffcc00; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> D2 Drought - Severe	



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, May 31, 2007  
Author: Ned Guttman, NOAA/NESDIS/NCDC

Fig 4b. 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)  
20070529

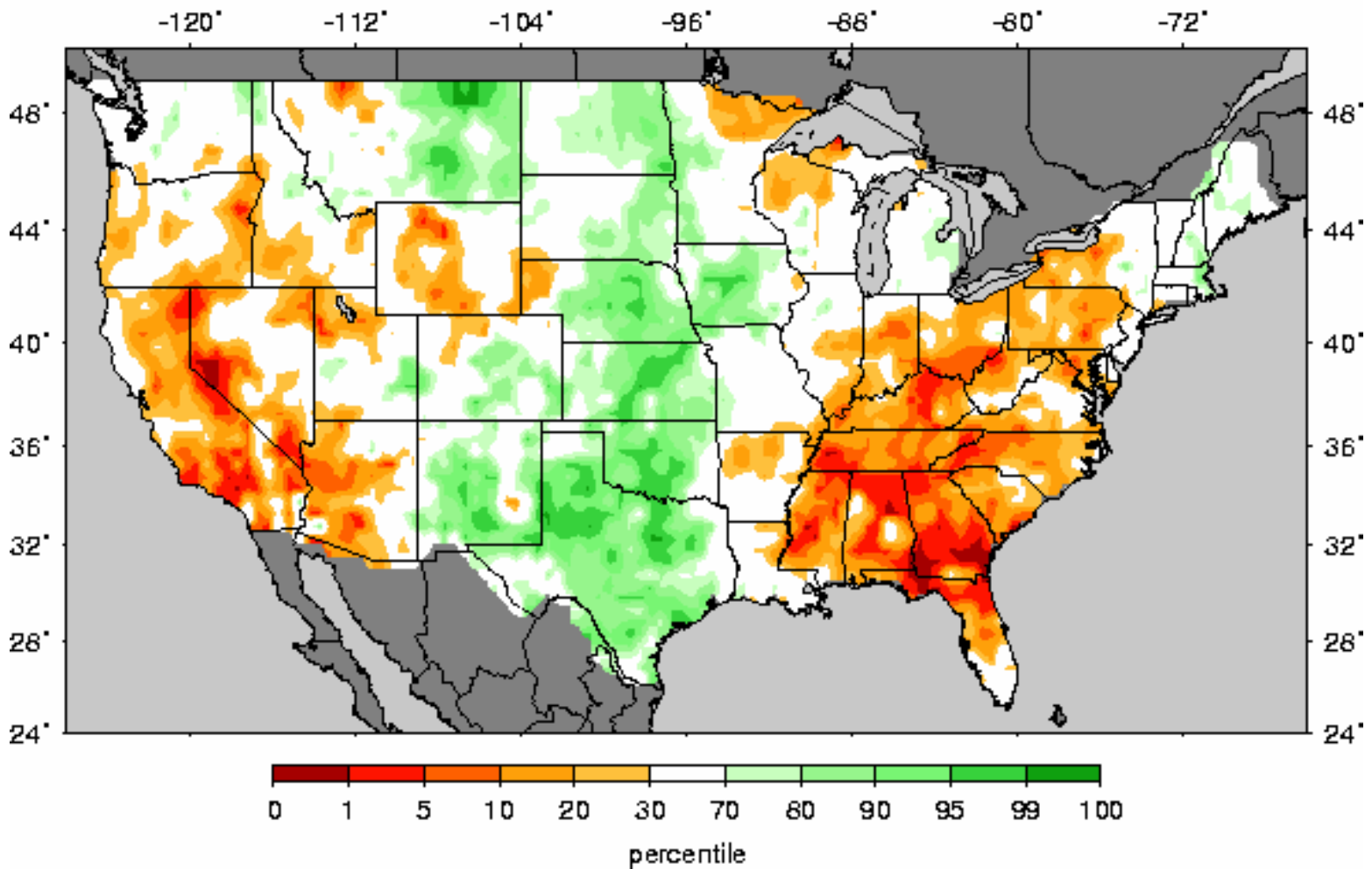


Fig. 5: Soil Moisture Ranking Percentile based on 1915-2003 climatology. (source: Univ. of Washington). Ref: [http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm\\_qnt.gif](http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm_qnt.gif)

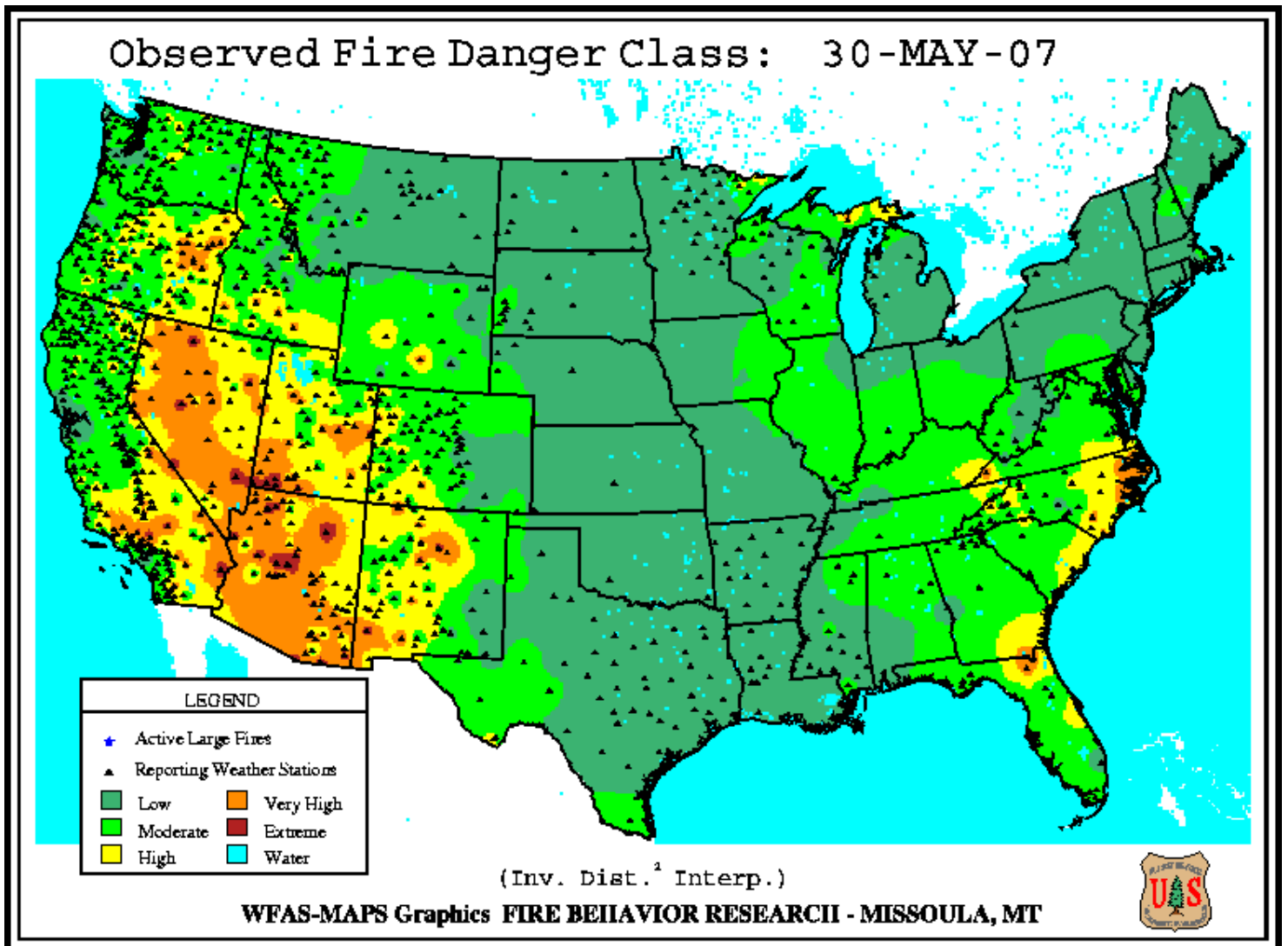
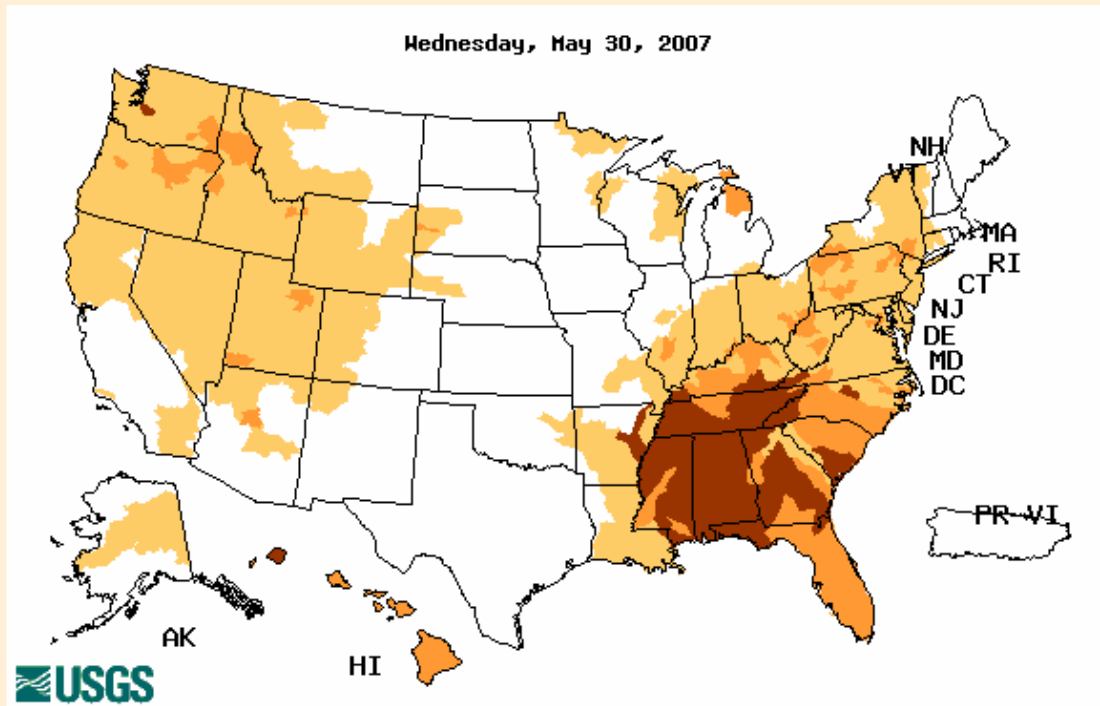


Fig. 6. Observed Fire Danger Class. Source: Forest Service Fire Behavior Research – Missoula, MT  
Ref: [http://www.fs.fed.us/land/wfas/fd\\_class.gif](http://www.fs.fed.us/land/wfas/fd_class.gif)



## 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	$\leq 5$	6-9	10-24	Insufficient data for a hydrologic region
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	

Fig. 7. Map of below normal 7-day average streamflow compared to historical stream flow for the day of the year. Note the extremely low streamflows over the Southeast.

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

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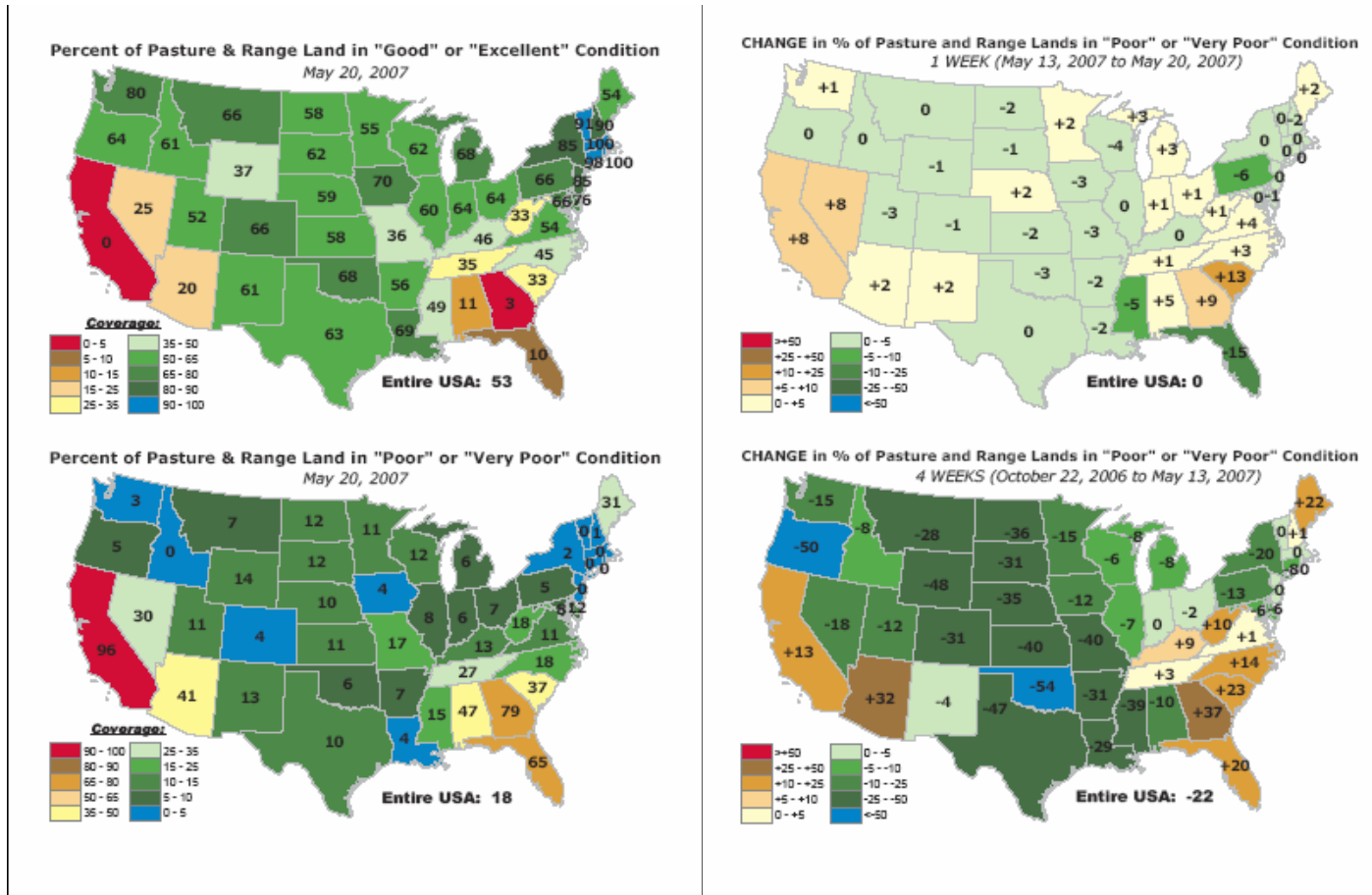


Fig. 8. Pasture and range land conditions for various time periods..

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 May 29 2007

**The West:** High pressure through a deep layer of the atmosphere suppressed precipitation throughout the western states, maintaining a general status-quo as far as drought classification was concerned throughout the Southwest. A storm system traversing the Pacific Northwest and Northern Rockies did bring some rain and mountain snowfall to the northern sections of the region over the Memorial Day weekend. Some modest improvement was noted in eastern areas of Wyoming, while conditions worsened slightly in the southwestern part of the state. The more active northern storm track also benefited areas of western Montana. Farther to the west, the D2 area surged northward in eastern Oregon.

**The Plains, Upper Midwest & Western Great Lakes:** Precipitation spilling out of the Rockies and into the Dakotas resulted in some improvement in western North and South Dakota during this period, as some of the D1 area was reduced to D0. Showers and thunderstorms also produced an erosion of D3 classification across northern sections of Minnesota. Heavy rainfall during the past week throughout a sizeable area of the central and southern Plains, including Deep South Texas, eradicated the remaining D0 in the Brownsville area.

**The Southeast, Mid-Atlantic & Ohio Valley:** An unseasonably strong ridge of high pressure continued another week of dry weather throughout this part of the country. Showers and thunderstorms, isolated at best, were ineffective at mitigating the perpetuation and expansion of drought this week. Specifically, D0 was expanded throughout a significant part of northern Arkansas, while farther to the east in North Carolina, an overall worsening of conditions was observed. In South Carolina, the remaining D0 region deteriorated into D1 drought classification. Acute short-term dryness encouraged the introduction of D0 in parts of northern Virginia, Maryland and the greater DC area. In South Florida, Lake Okeechobee equaled the lowest level ever by May 29th, tying the record 8.97 feet above sea level, previously recorded on May 24, 2001. Farther north, D1 was introduced along the Ohio River from east of Cincinnati to Huntington, WV.

**Alaska, Hawaii, and Puerto Rico:** Conditions remain unchanged in these areas this week.

**Looking Ahead:** During the next 5 days (May 31-June 4), badly needed rainfall is in the forecast for a large section of the Southeast and into the Mid-Atlantic region, courtesy of a slow-moving frontal system that will be impacting the area coupled with the influx of Gulf of Mexico moisture. The rain will be in the form of scattered to numerous showers and thunderstorms. Additional rainfall is also possible from areas of the western Great Lakes into the Dakotas, potentially allowing for additional improvement in dryness in this part of the country. Dry weather with above-normal temperatures will continue in the West, with the possible wetter exception of the Pacific Northwest.

The 6-10 day outlook (June 5-9) suggests a higher probability of above-normal rainfall will exist in the eastern third of the nation, extending into the southern Plains. Meanwhile in the West, warmer-than-normal temperatures will combine with generally dry conditions to exacerbate ongoing drought in this part of the country.

Author: Scott Stephens, National Climatic Data Center

*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*

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*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/>.*

### **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 May 30, 2007