



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

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**Weekly Report - Snowpack / Drought Monitor Update**      **Date: June 21, 2007**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Temperature:** During the past seven days, temperatures ranged from 5°F below normal over the northern most areas in the West to 10°F above normal over the Wyoming Rockies, Utah Uinta Mountains, and Colorado Front Range (Fig. 1).

**Precipitation:** For the past week, rain was confined to the North Cascades (Washington) and Central Rockies (Colorado) (Fig. 2). For the Water Year, serious deficits continue over the Sierra Mountain south of Lake Tahoe and in Arizona (Fig. 2a). Healthier surpluses exist over scattered areas in the Montana Rockies, Wyoming Bighorn Mountains, and Colorado-New Mexico Front Ranges. Slightly above normal totals persist over the Cascades and somewhat below normal values dominate the remainder of the West.

## **WESTERN DROUGHT STATUS**

**The West:** Scattered moderate rains fell on some of the dry areas in the central and northern High Plains, southern Montana, and western Colorado while little or no rain was reported across a vast majority of the region. Both the week's rainfall and a re-assessment of conditions led to changes in Wyoming, including a northward shift in the D3 area, some northeastward D2 expansion, and some reduction of D0 and D1 conditions in central and north-central parts of the state. Meanwhile, D0 was removed from northwestern South Dakota. Elsewhere, drought conditions persisted or worsened, with D2 expanding into central Nevada, D0 pulling into the Klamath Basin of northern California and adjacent Oregon, and D2A to D3A conditions re-classified as D2AH and D3AH across southern and portions of central California, where hydrologic concerns have been steadily increasing. Farther east, a small area of dryness during the last two months led to the introduction of D0A conditions across northeastern New Mexico (Figs. 3, 3a, and 3b). Author: Rich Tinker, 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. 3, 3a, and 3b).

## **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

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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.

### 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

Acting Director, Conservation Engineering Division

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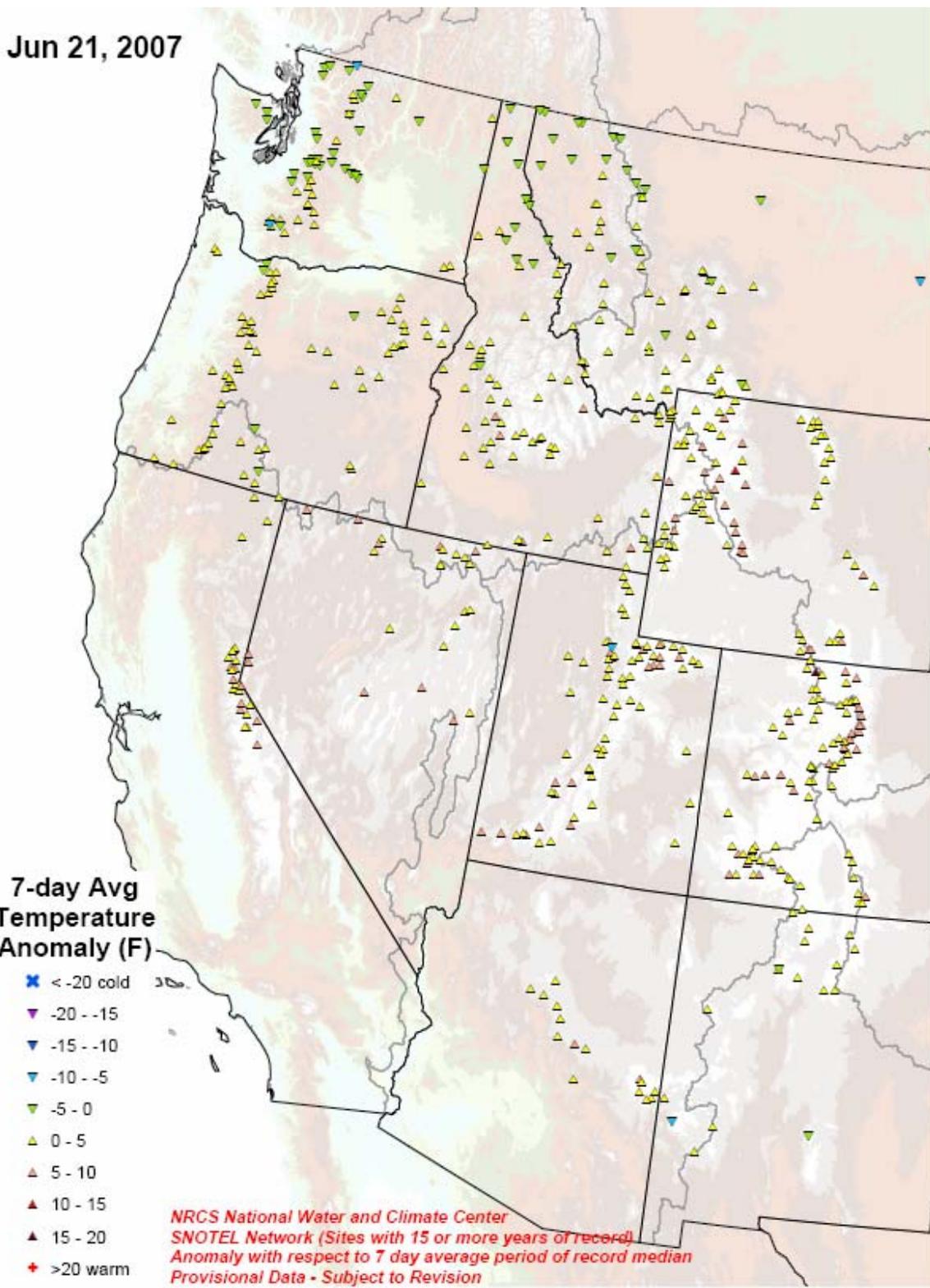


Fig. 1. SNOTEL 7-day average temperature anomaly.

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

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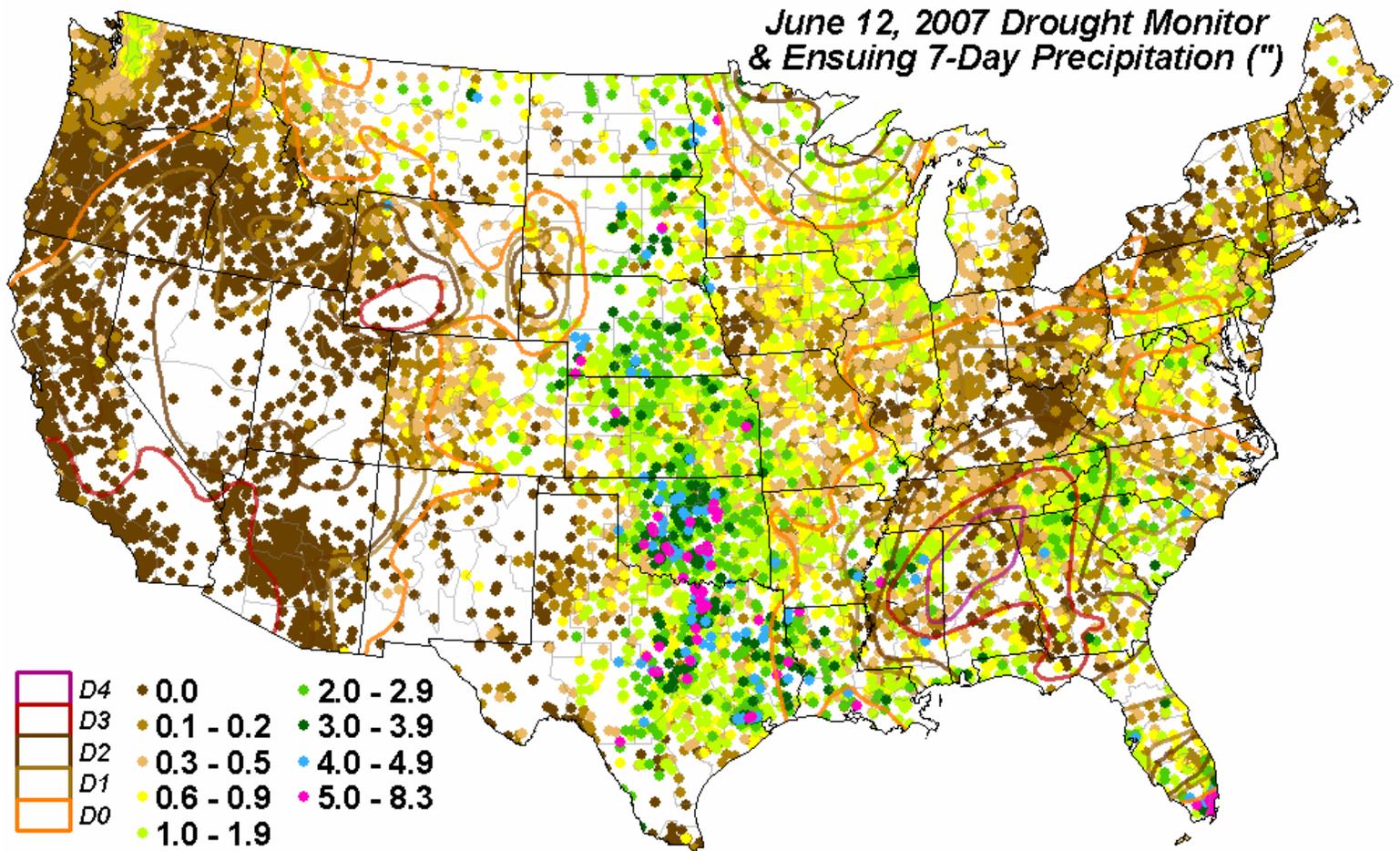
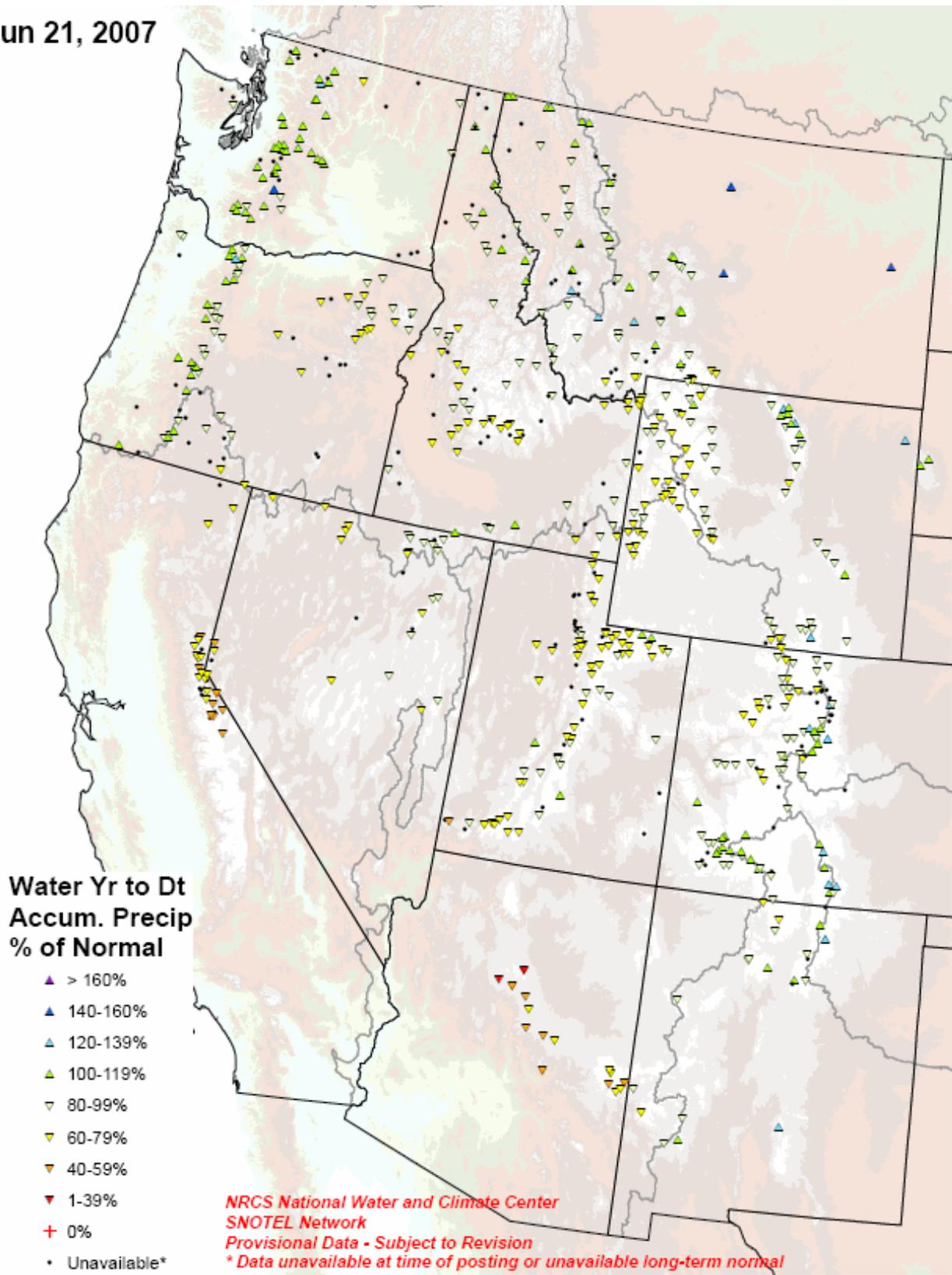


Fig. 2. Preliminary precipitation totals for the 7-day period ending 19 June 2007.

Ref: <http://www.cpc.ncep.noaa.gov/products/predictions/experimental/edb/usdm-precip-overlay.gif>

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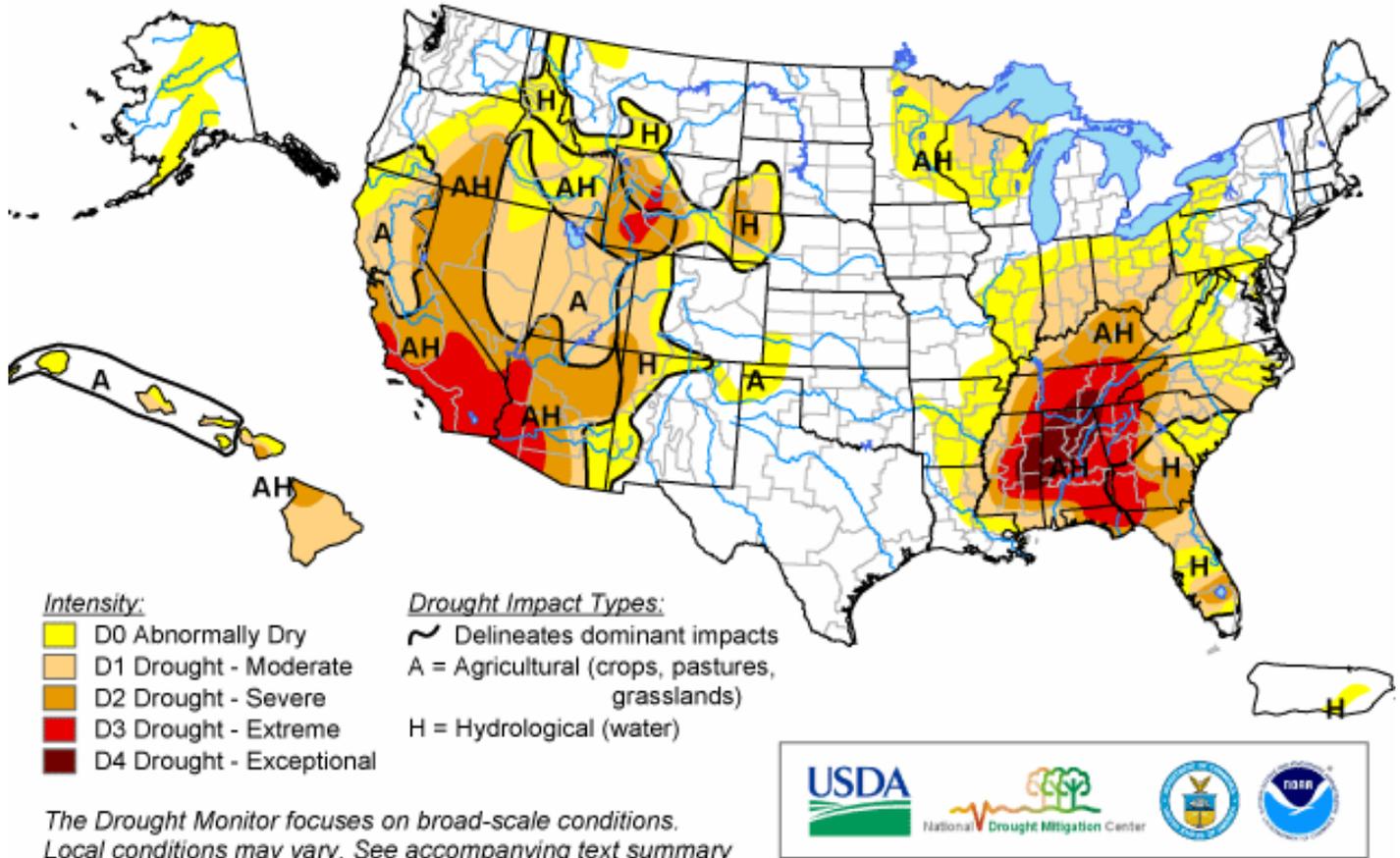
Jun 21, 2007



**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

June 19, 2007  
Valid 8 a.m. EDT



Released Thursday, June 21, 2007

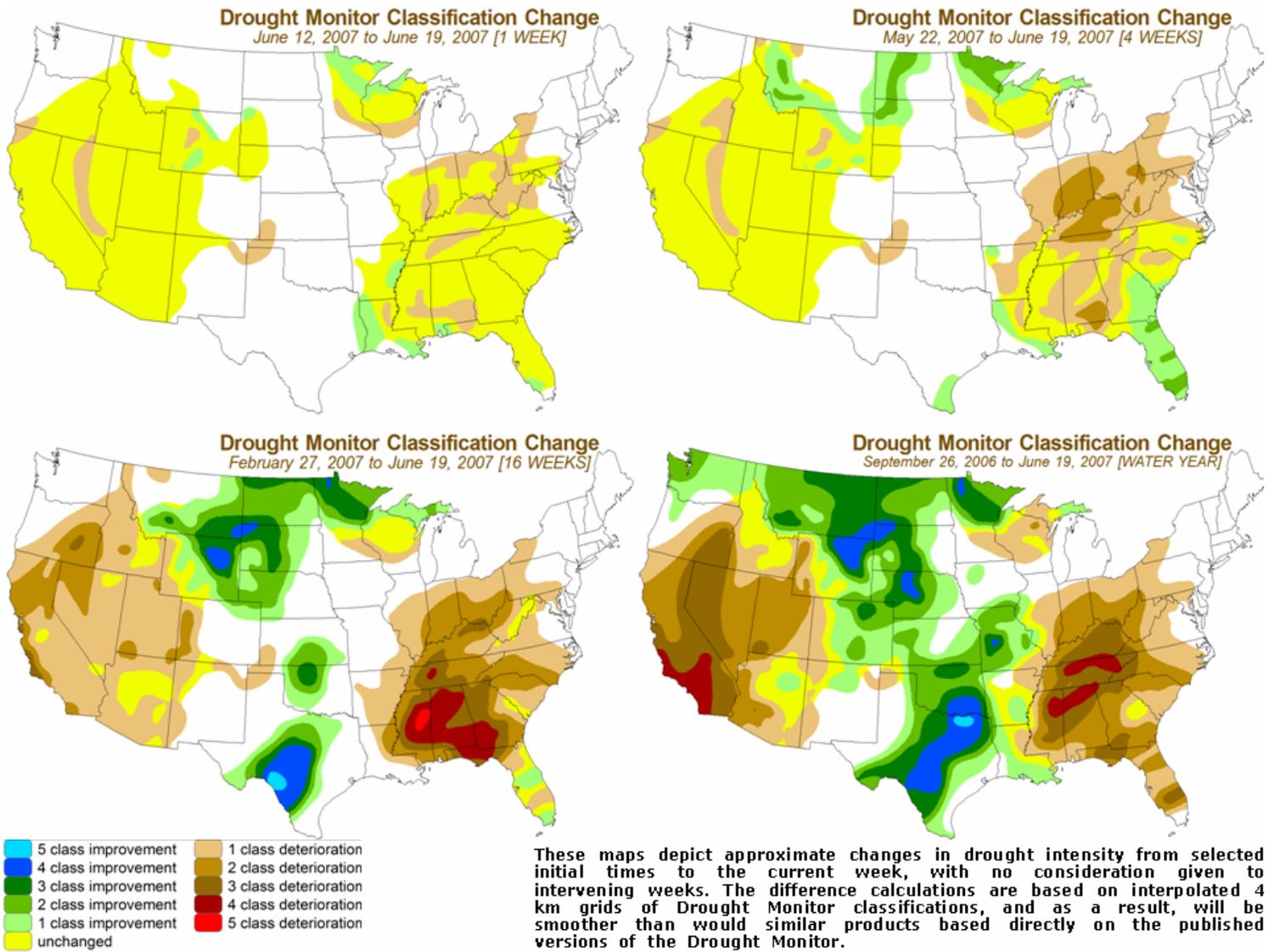
Author: Rich Tinker, Climate Prediction Center, NCEP/NWS//NOAA

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

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



**Fig. 3a. 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

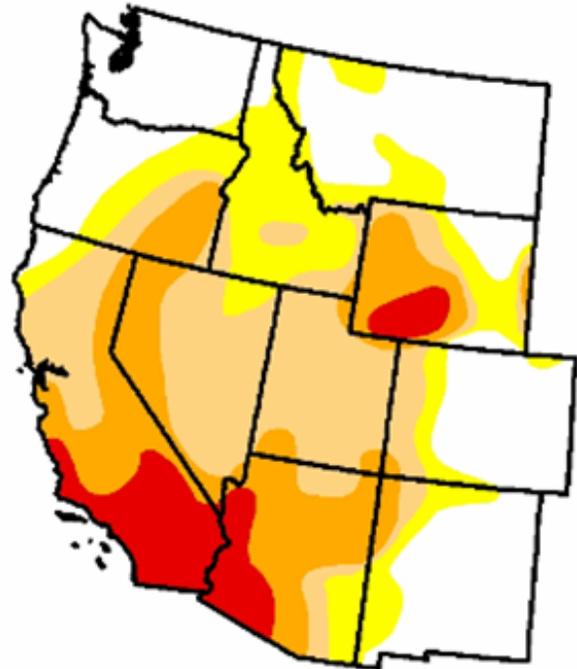
June 12, 2007  
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	34.2	65.8	48.9	25.5	7.8	0.0
Last Week (06/05/2007 map)	33.0	67.0	49.6	25.6	7.8	0.0
3 Months Ago (03/20/2007 map)	36.7	63.3	34.7	19.7	8.1	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 (06/13/2006 map)	59.7	40.3	32.8	23.1	13.4	1.7

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, June 14, 2007  
Author: Rich Tinker, CPC/NCEP/NWS/NOAA

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)

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Soil Moisture Percentiles (wrt/ 1915-2003)  
20070619

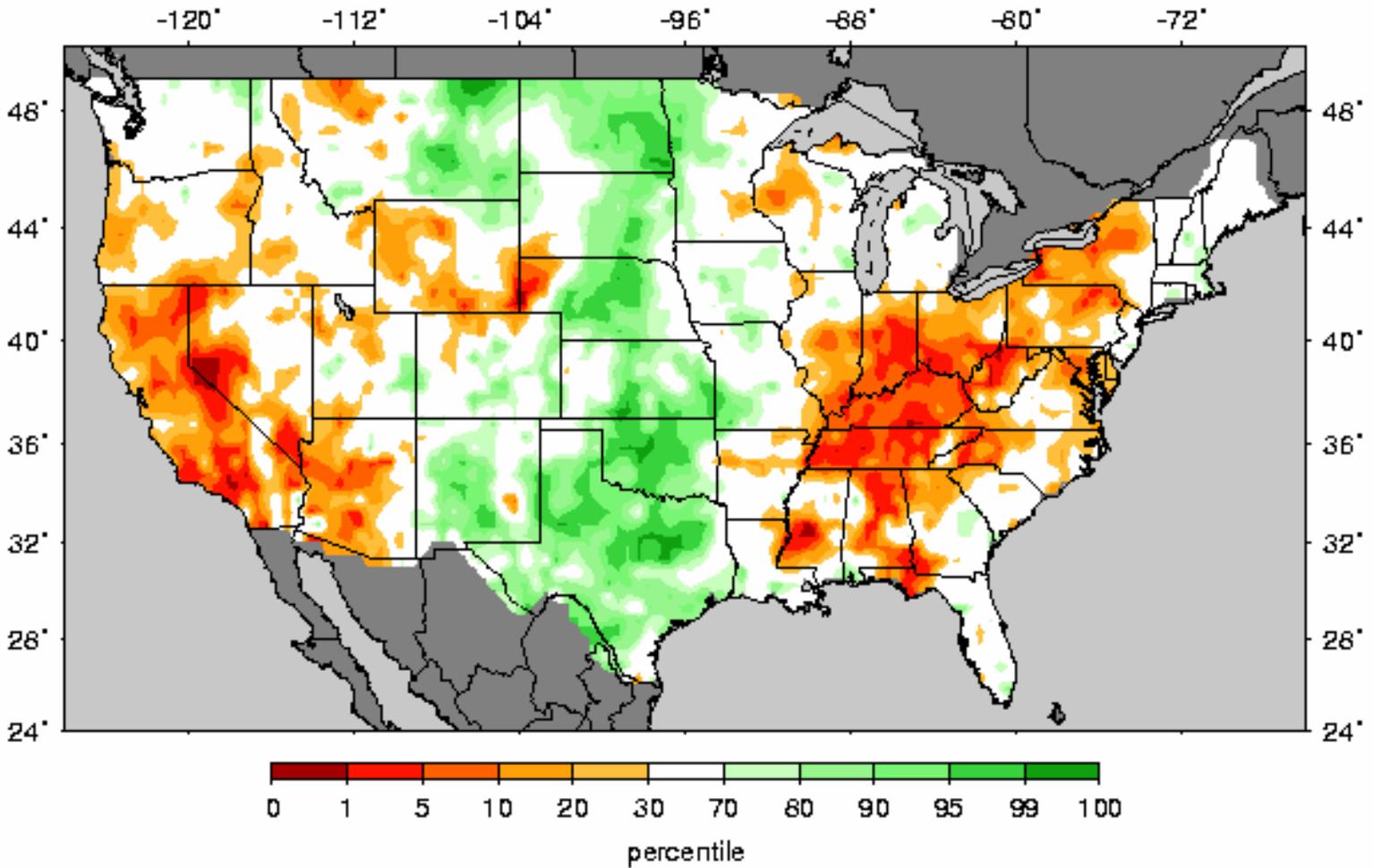


Fig. 4: Soil Moisture Ranking Percentile based on 1915-2003 climatology. (source: Univ. of Washington). Ref: [http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm\\_qnt.gif](http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm_qnt.gif)

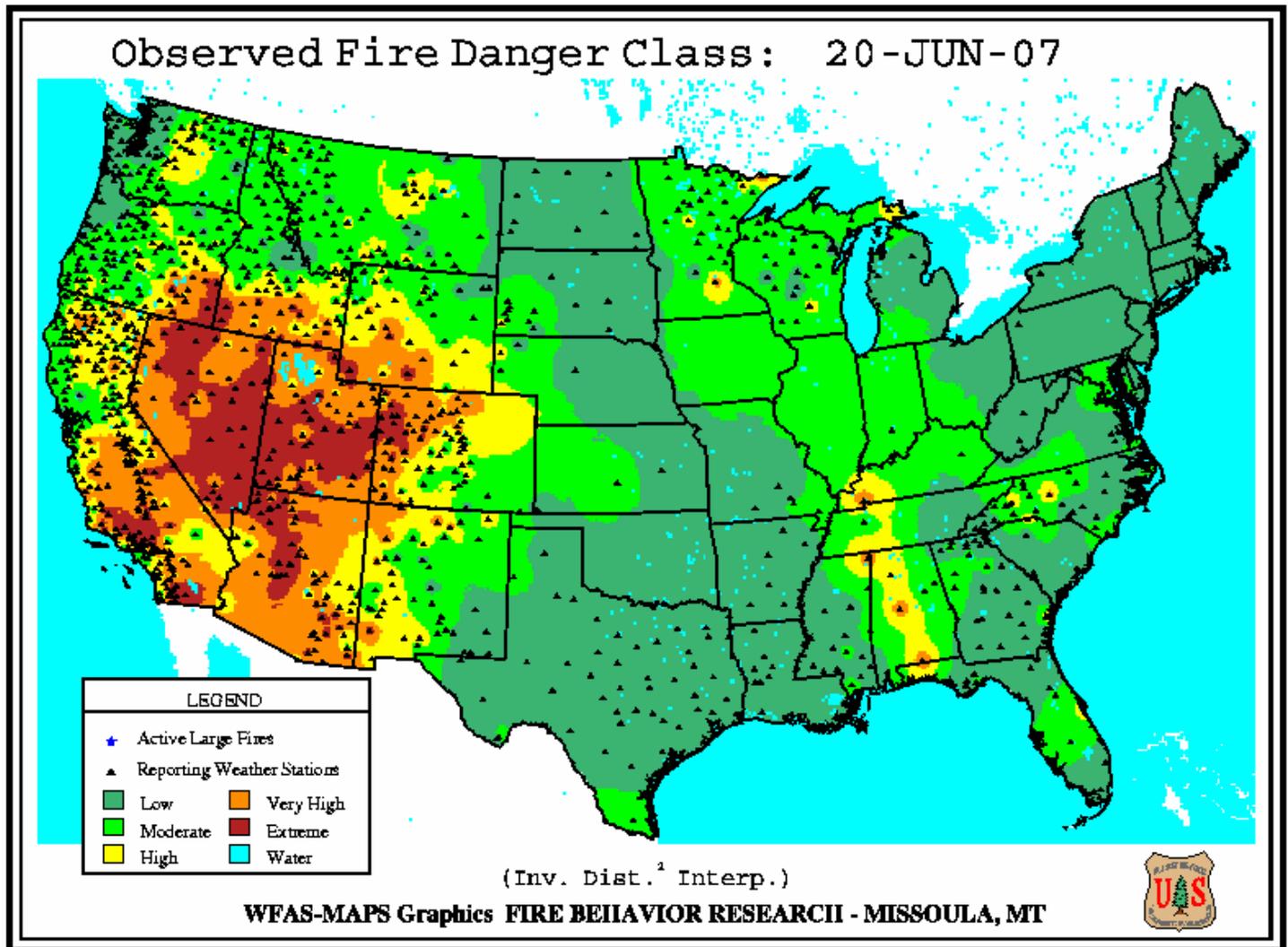
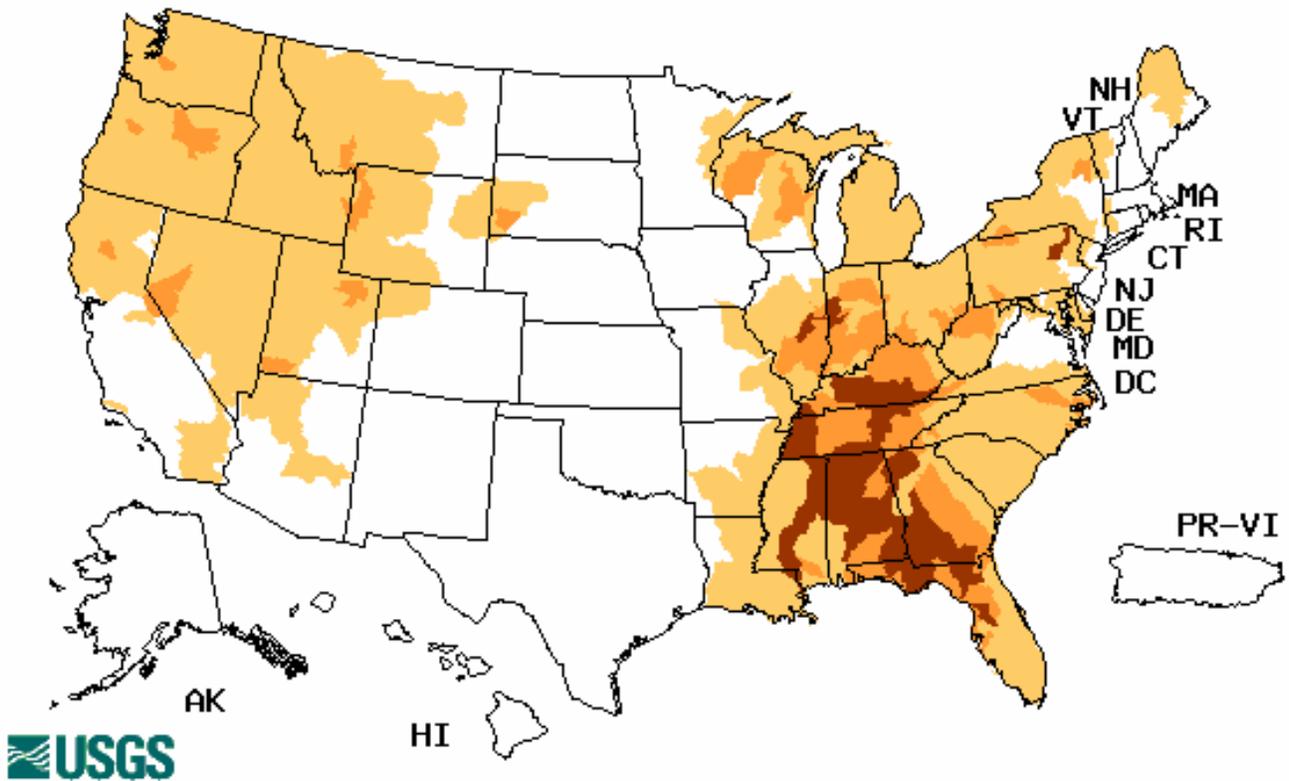


Fig. 5. Observed Fire Danger Class. Source: Forest Service Fire Behavior Research – Missoula, MT  
Note a marked increase in threat over the Southwest since last week.  
Ref: [http://www.fs.fed.us/land/wfas/fd\\_class.gif](http://www.fs.fed.us/land/wfas/fd_class.gif)

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Wednesday, June 20, 2007



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

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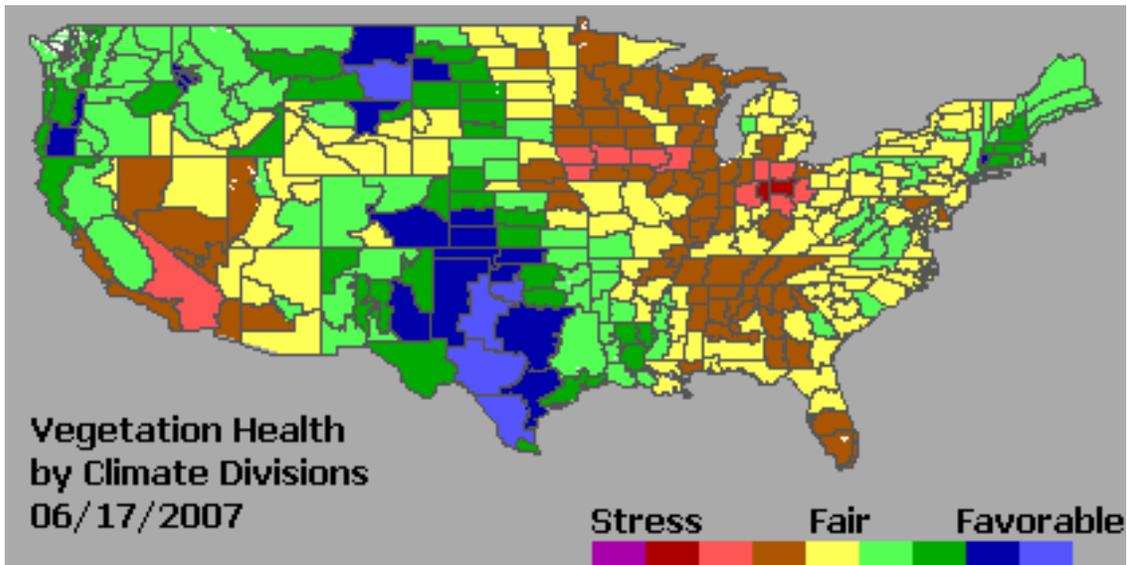
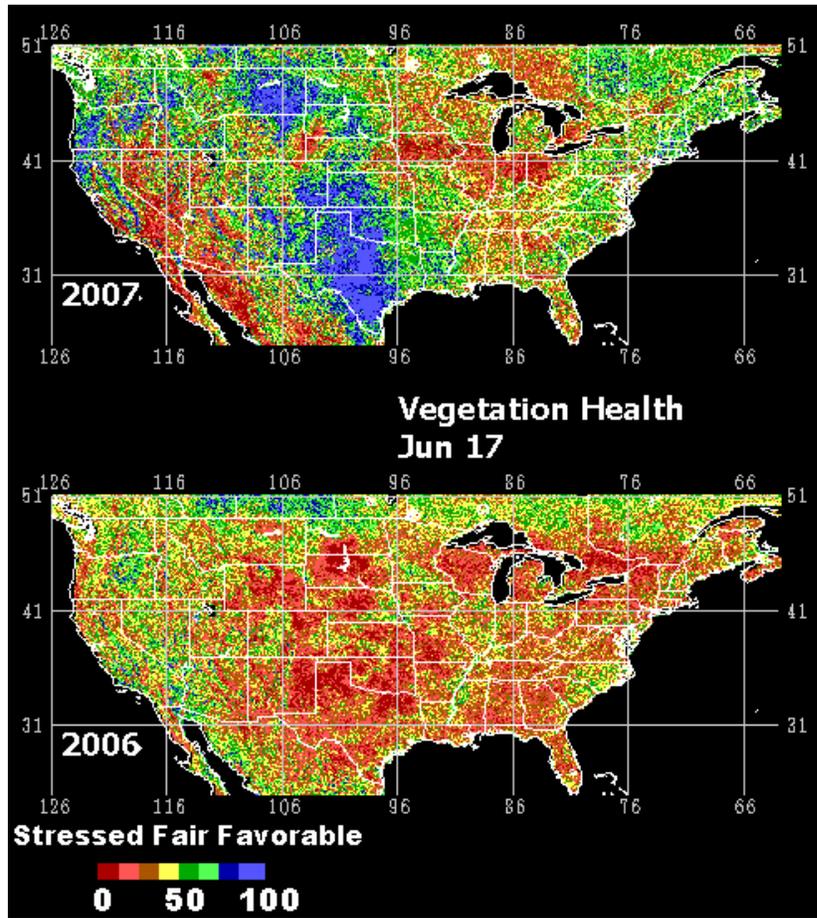


Fig. 7: Year to year comparison of vegetation health across the U.S. Note the vast improvement of vegetation from Texas to Montana and over Oregon and northern California over June 17, 2006.

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

# Weekly Snowpack and Drought Monitor Update Report

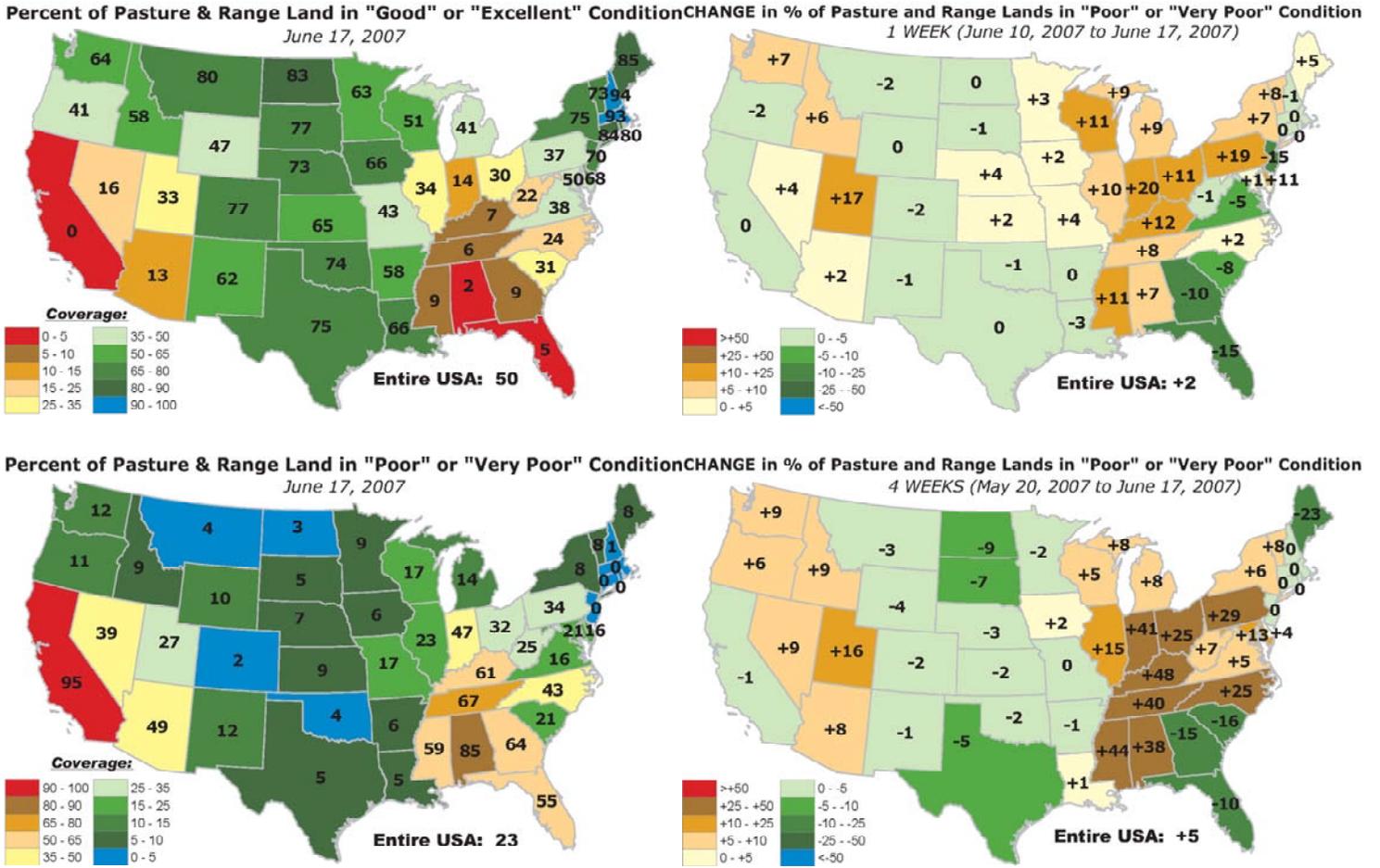


Fig. 8: Pasture and rangeland conditions for various periods.

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

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### National Drought Summary -- June 19, 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:** Scattered moderate rains fell on some of the dry areas in the central and northern High Plains, southern Montana, and western Colorado while little or no rain was reported across a vast majority of the region. Both the week's rainfall and a re-assessment of conditions led to changes in Wyoming, including a northward shift in the D3 area, some northeastward D2 expansion, and some reduction of D0 and D1 conditions in central and north-central parts of the state. Meanwhile, D0 was removed from northwestern South Dakota. Elsewhere, drought conditions persisted or worsened, with D2 expanding into central Nevada, D0 pulling into the Klamath Basin of northern California and adjacent Oregon, and D2A to D3A conditions re-classified as D2AH and D3AH across southern and portions of central California, where hydrologic concerns have been steadily increasing. Farther east, a small area of dryness during the last two months led to the introduction of D0A conditions across northeastern New Mexico, the western Oklahoma Panhandle, and southwestern Kansas. Most of these areas have received just over half of normal precipitation since mid-April.

**The Western Great Lakes:** Generally 1 to 3 inches of rain brought an end to D2 conditions and some retraction of the D0 and D1 area across central and northern Minnesota, northern Wisconsin, and the western Upper Peninsula of Michigan. Significant precipitation was more spotty in central and southern sections of Minnesota and Wisconsin, keeping D1 areas essentially unchanged and allowing for some expansion of D0 conditions southward in these regions.

**The Southern and Eastern United States:** Heavy rain fell on parts of the dry areas now extending from the Gulf Coast northward through the mid-Atlantic, the Ohio Valley, and upstate New York, but significant totals generally evaded the areas experiencing the most intense drought conditions, and even in areas where several stations reported multiple inches of precipitation for the week, those reports were interspersed with nearby reports of little or no rain. Specifically, scattered heavy precipitation totals ranging from 2 to 5 inches were reported in eastern Texas and much of Louisiana, northern Mississippi and adjacent Arkansas, southern and western North Carolina, much of South Carolina, northern Georgia, and southern and western Florida. Light to moderate rains fell on most other locations, with little or none observed in central and eastern North Carolina, much of southern Georgia and Alabama, from the west-central and northwestern Appalachians westward through most of the Ohio Valley, and in most of Tennessee and Kentucky.

The rains were sufficient to eliminate D0 in western and southern Louisiana and adjacent Texas, southern Florida, and a few pockets in the mid-Atlantic, but conditions persisted or intensified elsewhere, with D0 expanding northward through much of Ohio, Indiana, western Pennsylvania, and upstate New York. The D1 through D4 areas all expanded somewhat, primarily to the north and south or southwest, in areas between the Mississippi River and the Appalachians, except along the immediate Gulf Coast. Many locations from the south-central sections of Mississippi and Alabama northward through southern Tennessee have recorded 7 to

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12 inches less than normal precipitation during the last 90 days, with some of these areas more than 20 inches below normal since mid-June 2006.

**Puerto Rico:** D0H conditions persisted as little or no rain fell on the lingering area of hydrologic dryness in parts of southeastern Puerto Rico.

**Alaska:** Generally light precipitation allowed D0 conditions to persist.

**Hawaii:** A few locations recorded more than an inch of rain for the week, but rainfall was neither heavy nor widespread enough to alter the D0 to D2 conditions currently affecting the island chain.

**Looking Ahead:** June 20 – 25, 2007, is expected to bring moderate to heavy rainfall to the southern Great Lakes region, the middle and lower Ohio Valley, parts of the mid-Atlantic and Northeast, and the South Atlantic Coast. Unfortunately, other areas currently experiencing dryness and drought are expected to receive light to scattered moderate amounts at best. During the ensuing 5 days (June 26 – 30, 2007), warmer than normal weather is expected to dominate much of the country, with above-normal precipitation favored only in parts of Wyoming, the northwestern Plains, the northwestern Great Lakes region, and the lower Mississippi Delta. In contrast, the odds favor a return to drier than normal conditions in the southern Great Lakes region, the Ohio Valley, the Upper South, the mid-Atlantic, and the Northeast.

**Author:** [Rich Tinker, 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 June 21, 2007