



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

Weekly Report - Snowpack / Drought Monitor Update **Date:** **November 1, 2007**

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Snow: Although very early into this year's snowfall season, several higher locations over Wyoming and Montana received some snowfall during the week although much melted by the end of this report period (Fig 1).

Temperature: During the past seven days, above normal temperatures were experienced across much of the West at mountain SNOTEL sites. Temperatures ranged from about 5 degrees above normal over the Cascades to up to 15 degrees above normal over Utah (Fig.2). At lower elevation weather stations, below normal average temperatures occurred over Washington and northern Oregon as a result of clear nights and cold air drainage in valleys (Fig. 2a).

Precipitation: For the past week, rain and snow was limited to portions of central California, northern Nevada, southern Idaho, southwestern Montana, and central Wyoming (Fig. 3).

WESTERN DROUGHT STATUS

The West: The ending of the Santa Ana winds around Wednesday, October 24, helped fire fighters begin to gain control of the wildfires across southern California. Some light rains fell over central and northern California on October 28-30, with locally heavier amounts in the north and the Sierra. With 30- to 90-day totals above normal, there was some reduction of dryness and drought levels in northern California, and D2 shifted to D1 near San Francisco and north of Lake Tahoe. Recent precipitation also resulted in the reduction of D0 in east-central Montana.

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

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.4, 4a, 4b, and 4c).

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).

Weekly Snowpack and Drought Monitor Update Report

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. 6 and 6a shows the current active wildfires across the West - <http://geomac.usgs.gov/>.

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.

VEGETATION HEALTH

The images (Fig. 8) 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 -

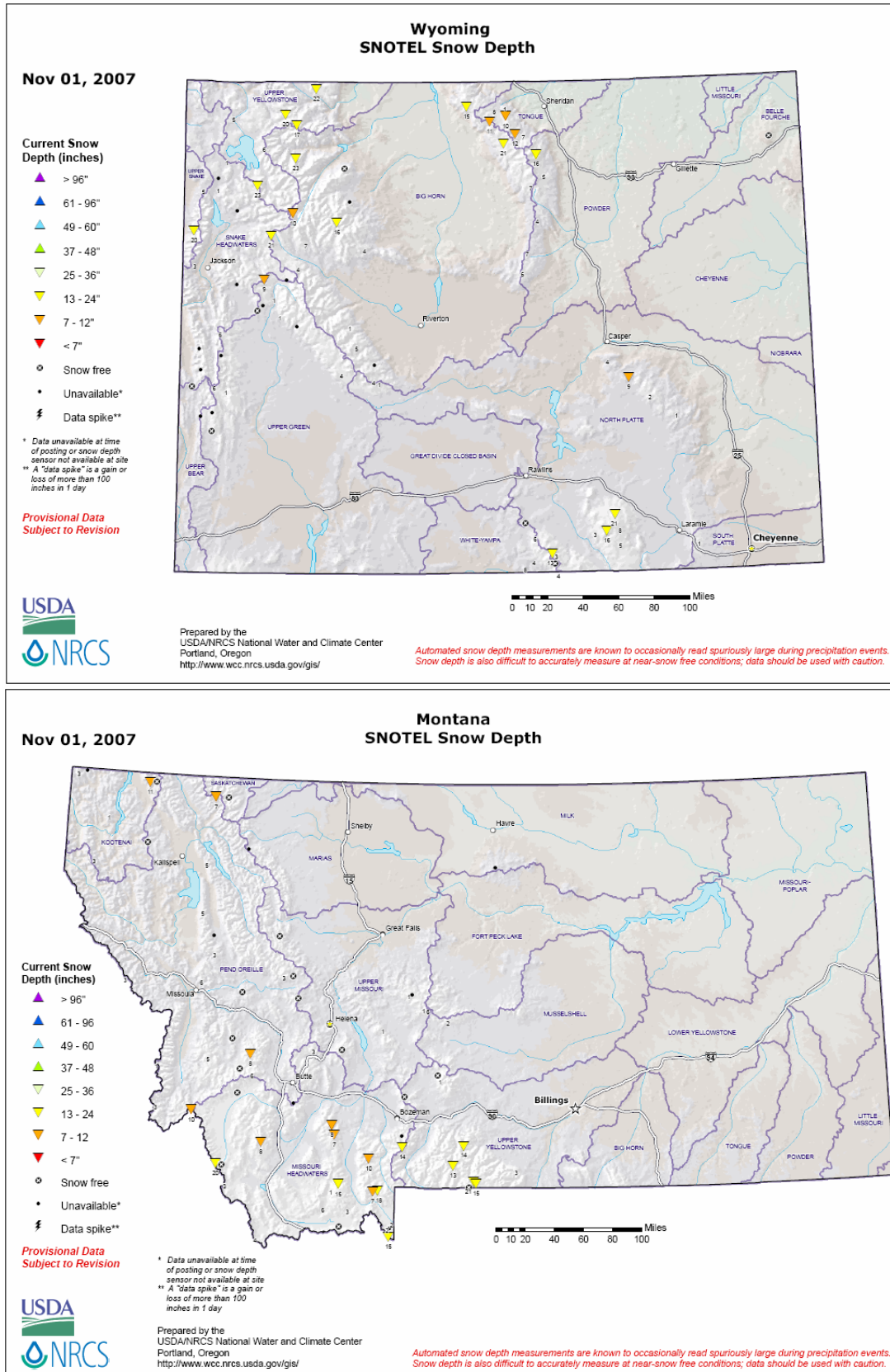
<http://www.wcc.nrcs.usda.gov/water/drought/wdr.pl>

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



Weekly Snowpack and Drought Monitor Update Report

Nov 01, 2007

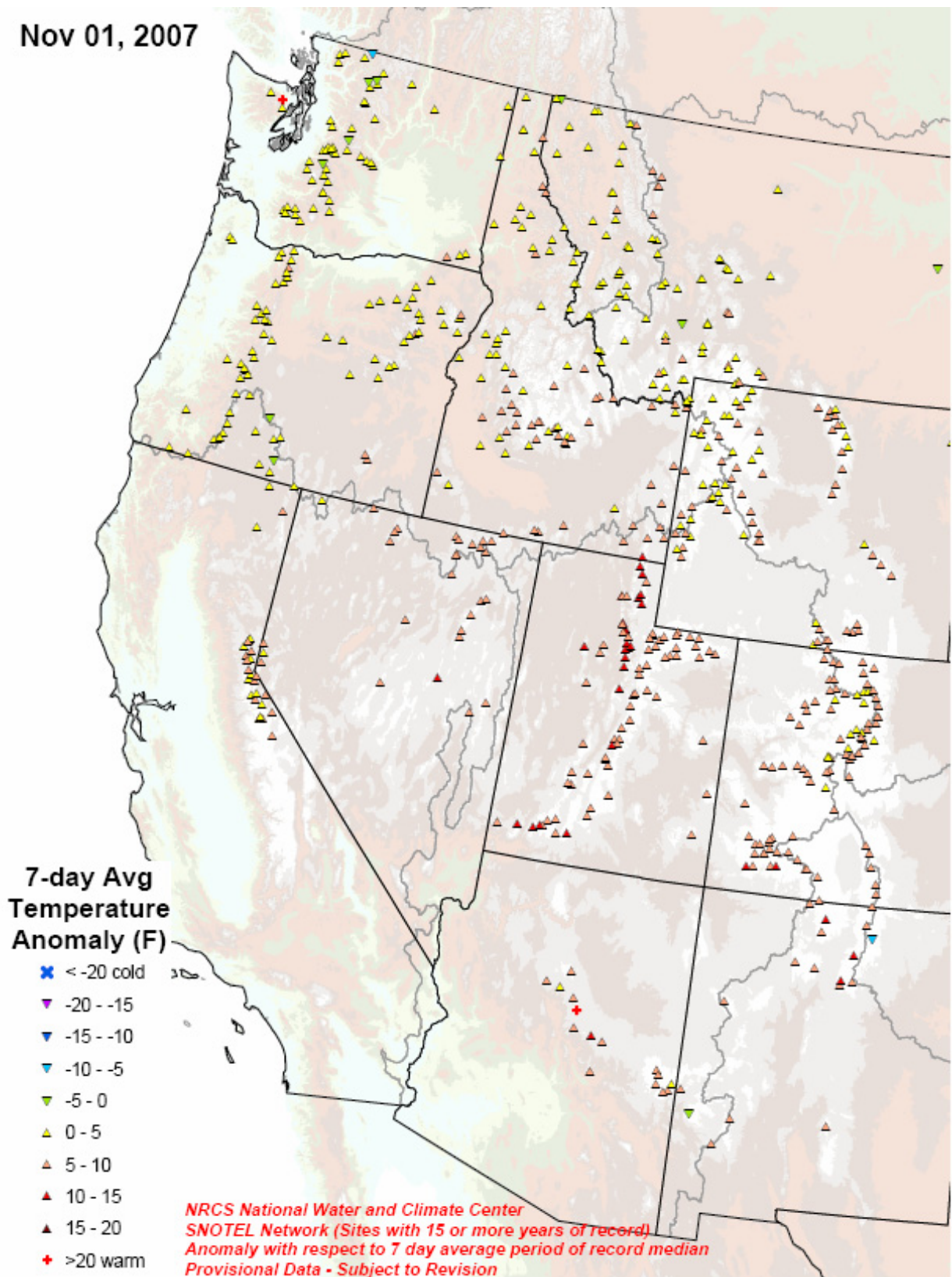
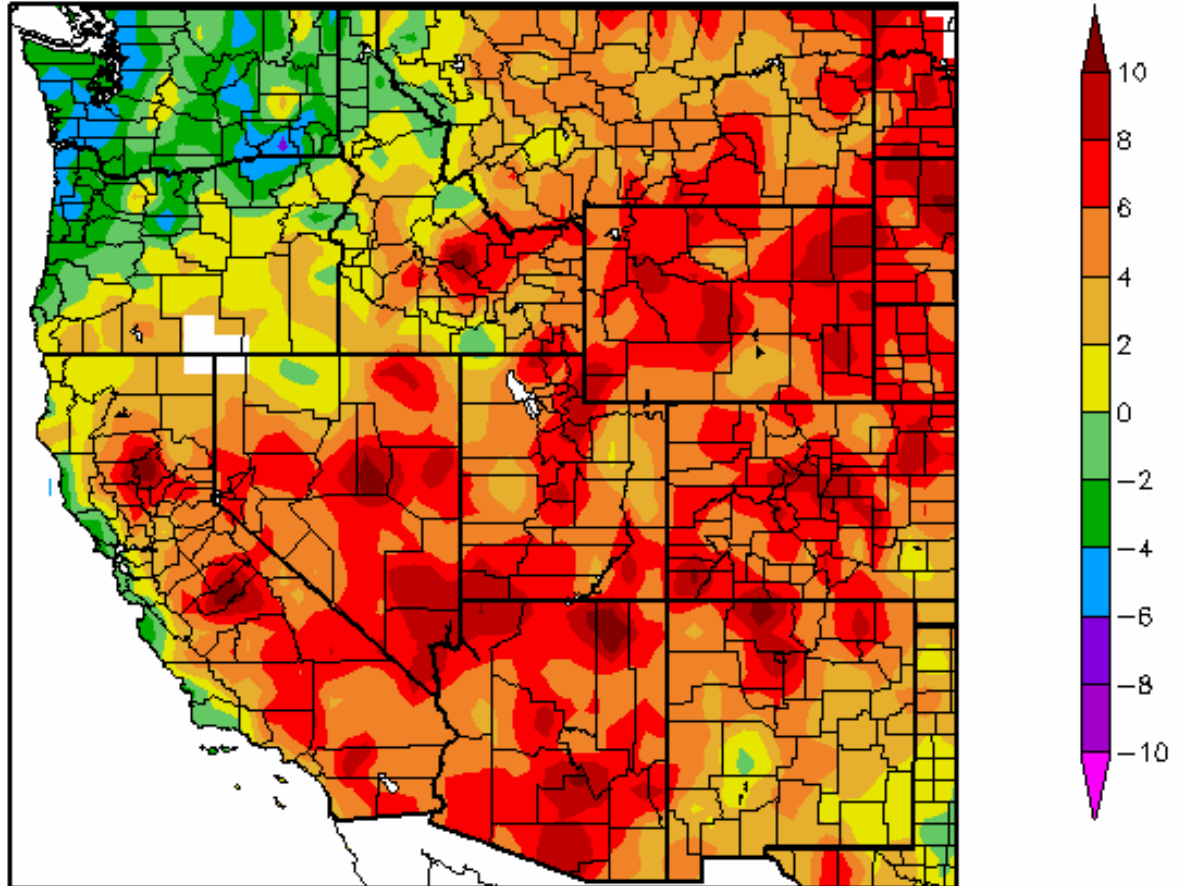


Fig.2. SNOTEL 7-day average temperature anomaly.

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

Departure from Normal Temperature (F)
10/25/2007 – 10/31/2007



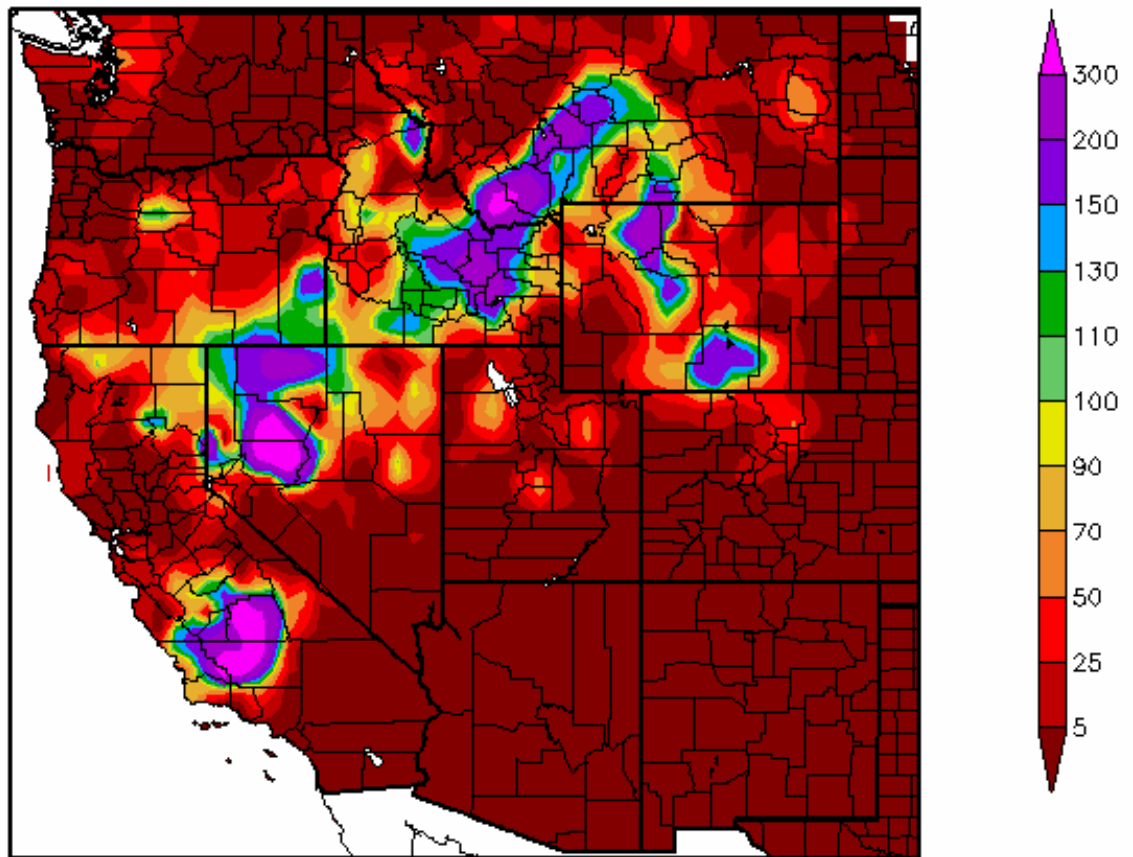
Generated 11/1/2007 at HPRCC using provisional data.

NOAA Regional Climate Centers

Fig. 2a. During the week of October 25-31, 2007, temperature departure from normal show warmer than normal temperatures over most of the West excluding Washington and northern Oregon.

Ref: http://www.hprcc.unl.edu/maps/index.php?action=update_region®ion=WRCC

Percent of Normal Precipitation (%)
10/25/2007 – 10/31/2007



Generated 11/1/2007 at HPRCC using provisional data.

NOAA Regional Climate Centers

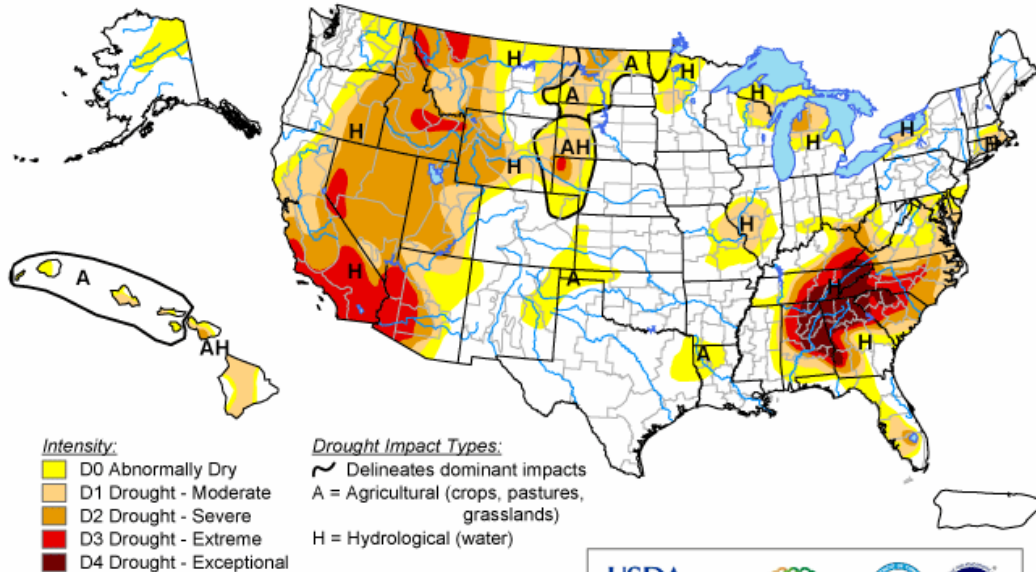
Fig. 3. Preliminary precipitation totals for the 7-day period ending 31 October 2007 shows rain and some snow falling across the portions of central California to central Montana. Dry elsewhere.

Ref: http://www.hprcc.unl.edu/maps/index.php?action=update_product&product=PNorm

U.S. Drought Monitor

October 30, 2007

Valid 8 a.m. EDT



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, November 1, 2007

Author: Douglas Le Comte, CPC/NOAA

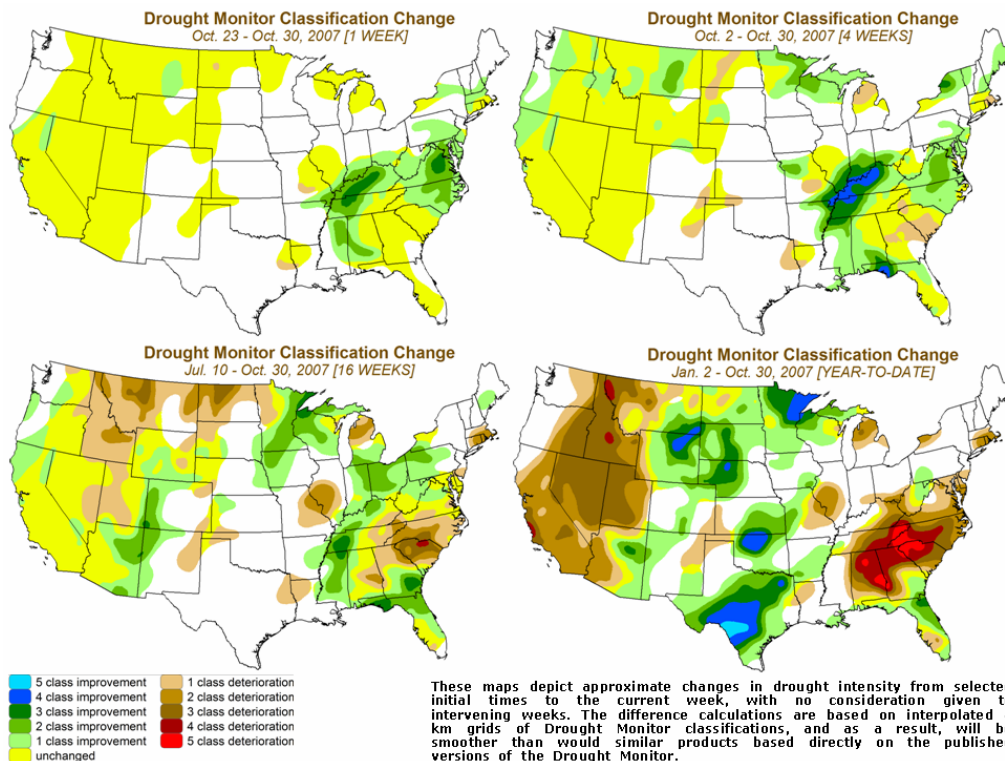


Fig. 4 and 4a. Current Drought Monitor weekly summary and classification changes over several time periods. Ref: National Drought Mitigation Center (NDMC) -

<http://www.drought.unl.edu/dm/monitor.html> &

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

U.S. Drought Monitor West

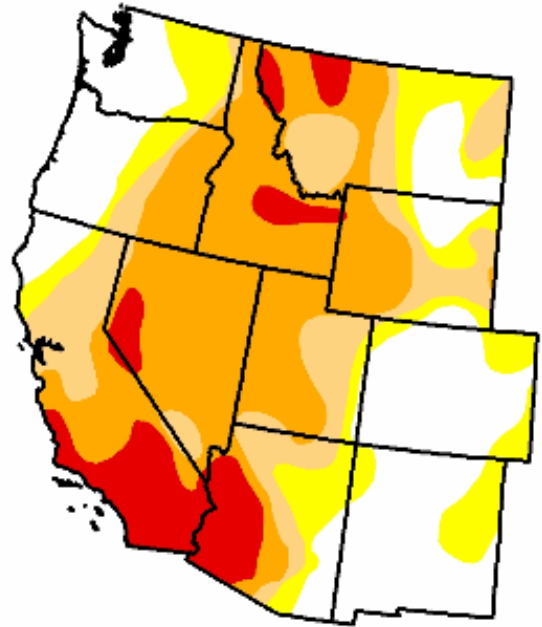
October 30, 2007

Valid 7 a.m. EST

| | Drought Conditions (Percent Area) | | | | | |
|---|-----------------------------------|-------|-------|-------|-------|-----|
| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
| Current | 28.4 | 71.6 | 57.4 | 41.5 | 10.0 | 0.0 |
| Last Week (10/23/2007 map) | 26.0 | 74.0 | 57.7 | 42.6 | 10.1 | 0.0 |
| 3 Months Ago (08/07/2007 map) | 19.7 | 80.3 | 63.3 | 49.7 | 11.2 | 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 (10/02/2007 map) | 22.0 | 78.0 | 62.3 | 44.7 | 12.4 | 0.0 |
| One Year Ago (10/31/2006 map) | 49.7 | 50.3 | 29.6 | 13.7 | 4.8 | 0.0 |

Intensity:

| | |
|---|--|
|  D0 Abnormally Dry |  D3 Drought - Extreme |
|  D1 Drought - Moderate |  D4 Drought - Exceptional |
|  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>



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Fig. 4b. Drought Monitor for the Western States with statistics over various time periods. Note no significant improvement since last week's map. Ref: http://www.drought.unl.edu/dm/DM_west.htm

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U.S. Drought Monitor Tennessee

October 30, 2007
Valid 7 a.m. EST

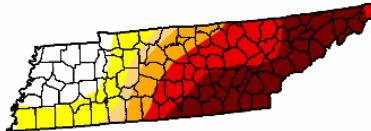
| Drought Conditions (Percent Area) | | | | | | |
|---|------|-------|-------|-------|-------|------|
| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
| Current | 17.7 | 82.3 | 66.3 | 61.2 | 50.4 | 29.6 |
| Last Week (10/23/2007 map) | 0.0 | 100.0 | 97.5 | 81.2 | 69.4 | 56.1 |
| 3 Months Ago (08/07/2007 map) | 0.0 | 100.0 | 100.0 | 95.9 | 65.6 | 13.3 |
| Start of Calendar Year (01/02/2007 map) | 37.7 | 62.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| Start of Water Year (10/02/2007 map) | 0.0 | 100.0 | 100.0 | 100.0 | 85.7 | 61.3 |
| One Year Ago (10/31/2006 map) | 57.5 | 42.5 | 0.0 | 0.0 | 0.0 | 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, November 1, 2007
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U.S. Drought Monitor Kentucky

October 30, 2007
Valid 7 a.m. EST

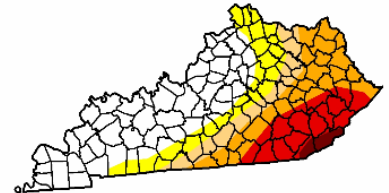
| Drought Conditions (Percent Area) | | | | | | |
|---|-------|-------|-------|-------|-------|------|
| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
| Current | 43.6 | 56.4 | 41.8 | 33.1 | 15.4 | 1.7 |
| Last Week (10/23/2007 map) | 0.0 | 100.0 | 100.0 | 76.0 | 50.1 | 14.2 |
| 3 Months Ago (08/07/2007 map) | 0.0 | 100.0 | 99.8 | 46.1 | 0.0 | 0.0 |
| Start of Calendar Year (01/02/2007 map) | 51.5 | 48.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| Start of Water Year (10/02/2007 map) | 0.0 | 100.0 | 100.0 | 100.0 | 88.7 | 14.7 |
| One Year Ago (10/31/2006 map) | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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>



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U.S. Drought Monitor Southeast

October 30, 2007
Valid 7 a.m. EST

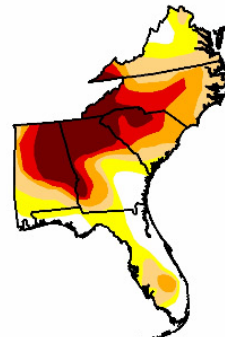
| Drought Conditions (Percent Area) | | | | | | |
|---|------|-------|-------|-------|-------|------|
| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
| Current | 14.8 | 85.2 | 66.7 | 46.3 | 31.3 | 18.5 |
| Last Week (10/23/2007 map) | 13.6 | 86.4 | 73.6 | 64.3 | 50.0 | 31.4 |
| 3 Months Ago (08/07/2007 map) | 2.4 | 97.6 | 78.1 | 42.9 | 26.4 | 14.1 |
| Start of Calendar Year (01/02/2007 map) | 52.2 | 47.8 | 10.2 | 1.5 | 0.0 | 0.0 |
| Start of Water Year (10/02/2007 map) | 10.1 | 89.9 | 77.9 | 63.8 | 45.2 | 24.0 |
| One Year Ago (10/31/2006 map) | 48.1 | 51.9 | 21.8 | 0.0 | 0.0 | 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

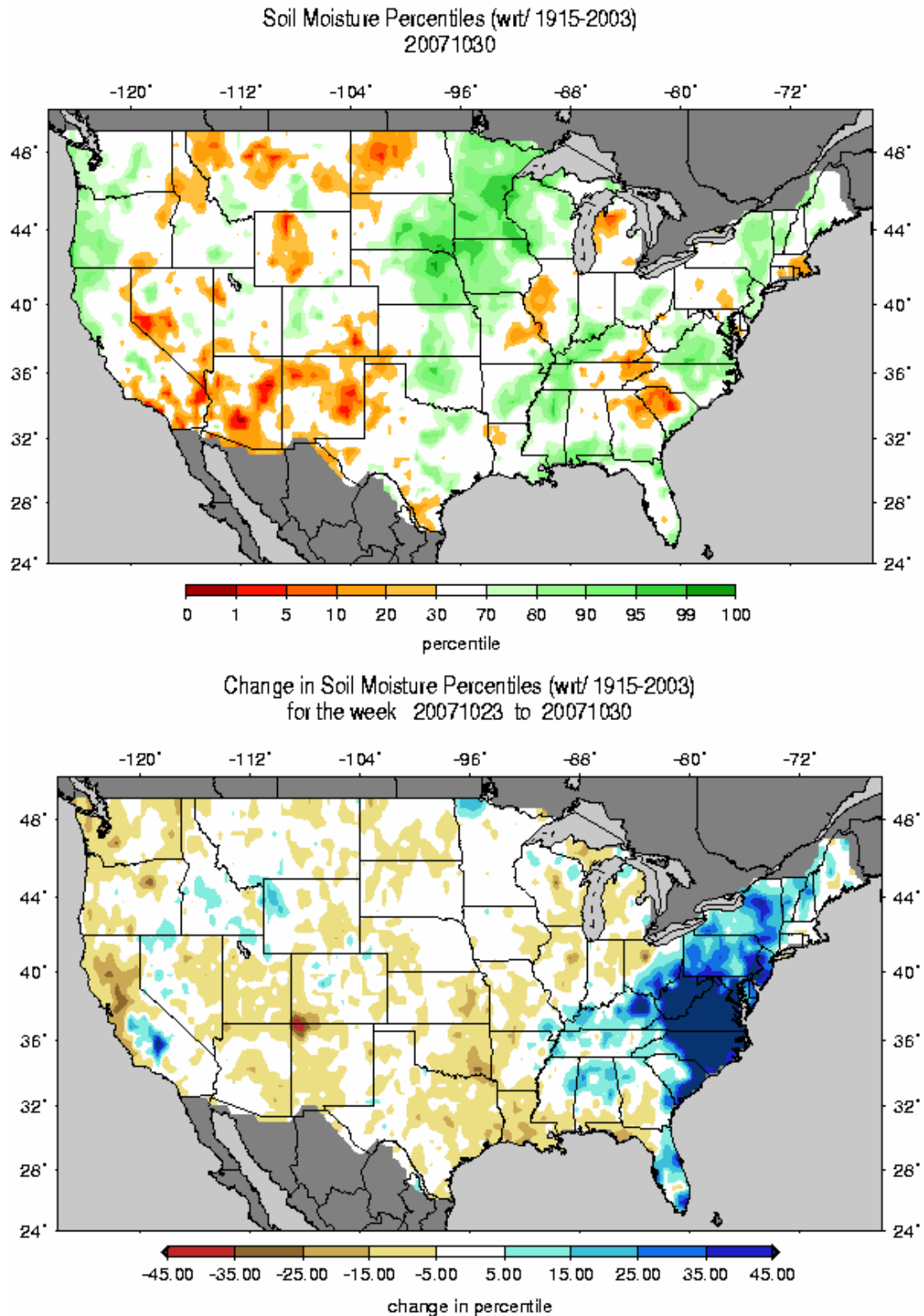
<http://drought.unl.edu/dm>



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Fig. 4c. Drought Monitor for Tennessee, Kentucky, and the Southeastern States with statistics over various time periods shows some of the severest drought conditions in the US. Note some improvement over Tennessee and Kentucky during the past week. The Southeast has also seen some improvement in the most intense drought regions.

Weekly Snowpack and Drought Monitor Update Report



Figs. 5 and 5a: Soil Moisture Ranking Percentile based on 1915-2003 climatology. Note major improvement over much of the mid Atlantic States. Ref:
http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm_qnt.gif &
http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm_qnt.1wk.gif.

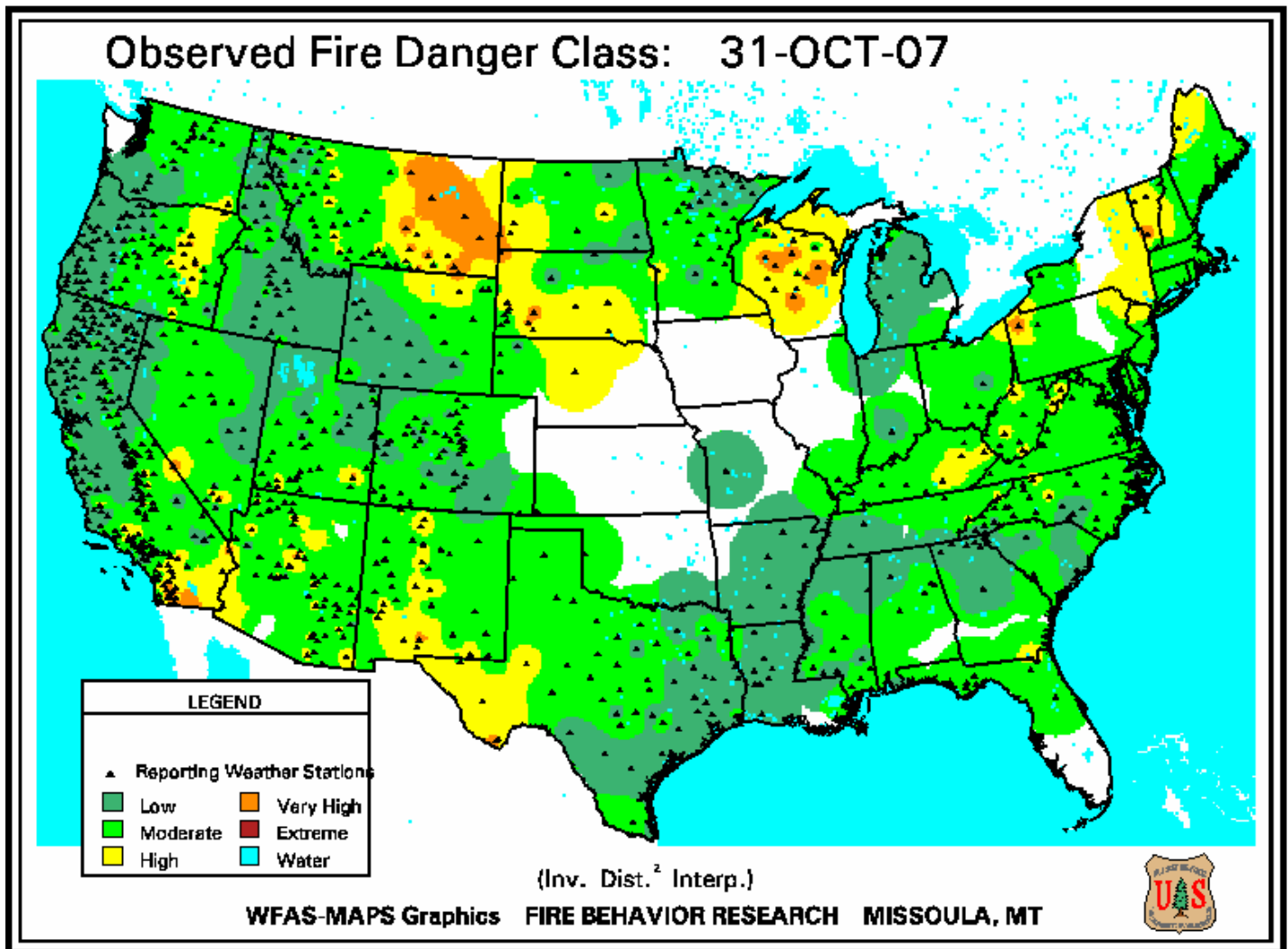


Fig.6. Observed Fire Danger Class. Conditions have greatly improved over southern California, Arizona, and Nevada and somewhat over the Montana prairies since last week. Source: Forest Service Fire Behavior Research – Missoula, MT. Ref: http://www.fs.fed.us/land/wfas/fd_class.gif

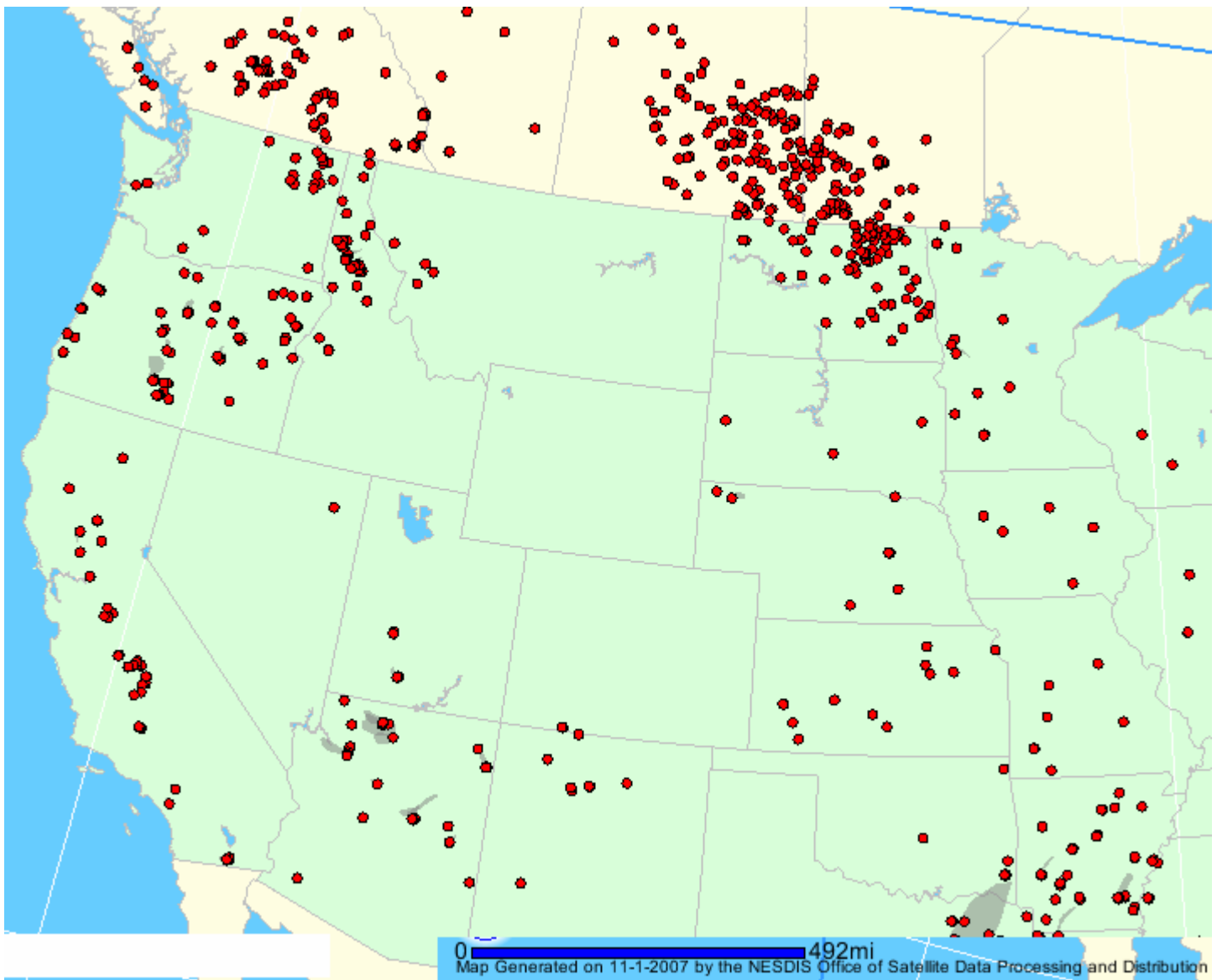


Fig. 6a. Location of active wildfires as detected from satellite across the West as of 1 November 2007. Gray areas depict smoke and blue areas depict fire potential.

Ref: <http://www.firedetect.noaa.gov/viewer.htm>

Weekly Snowpack and Drought Monitor Update Report

Wednesday, October 31, 2007

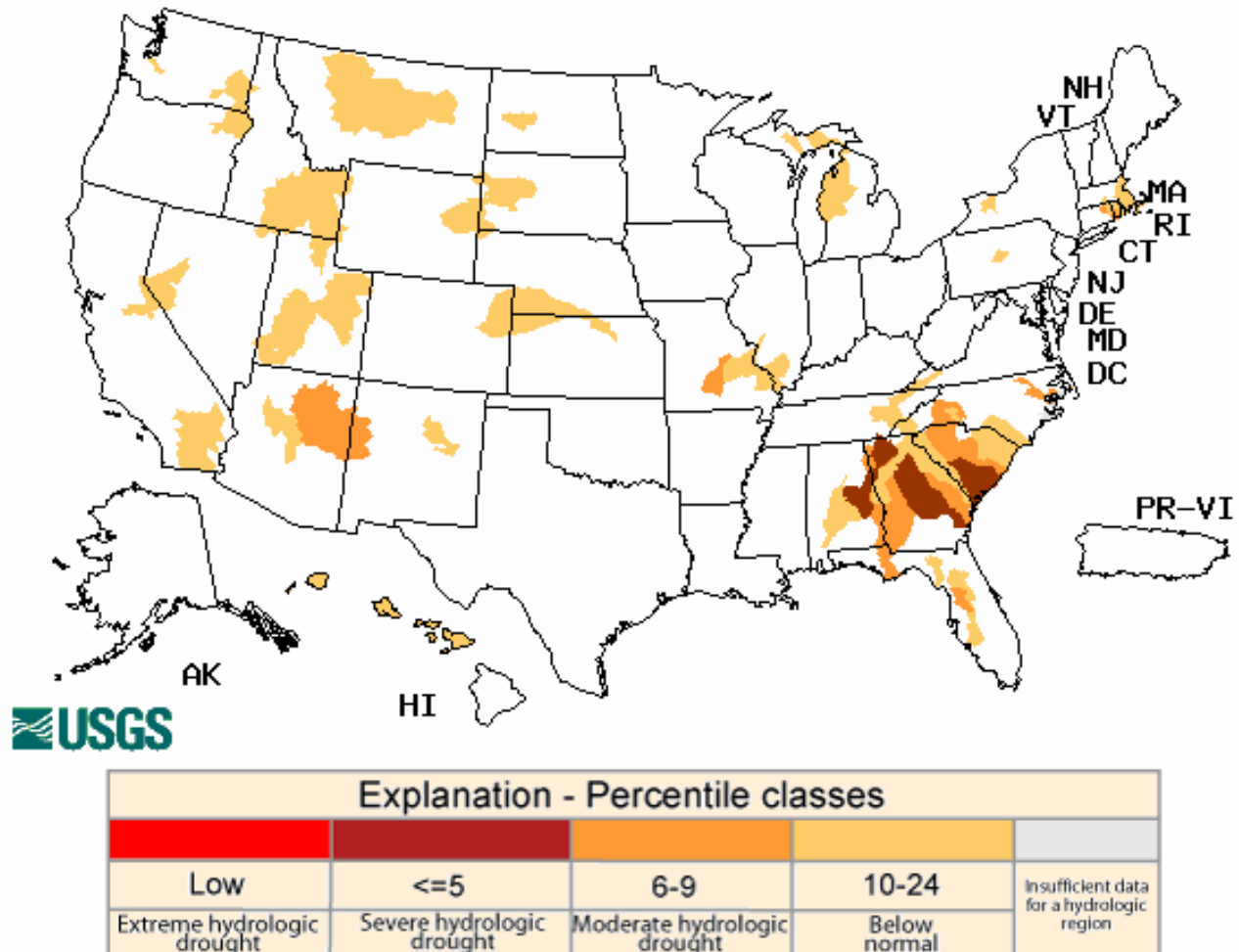


Fig. 7. This week's map shows near normal stream flows over much the West but severe conditions over portions of the Southeastern. This week's heavy precipitation over the Mid-Atlantic States has helped reduce the hydrologic drought somewhat.

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

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

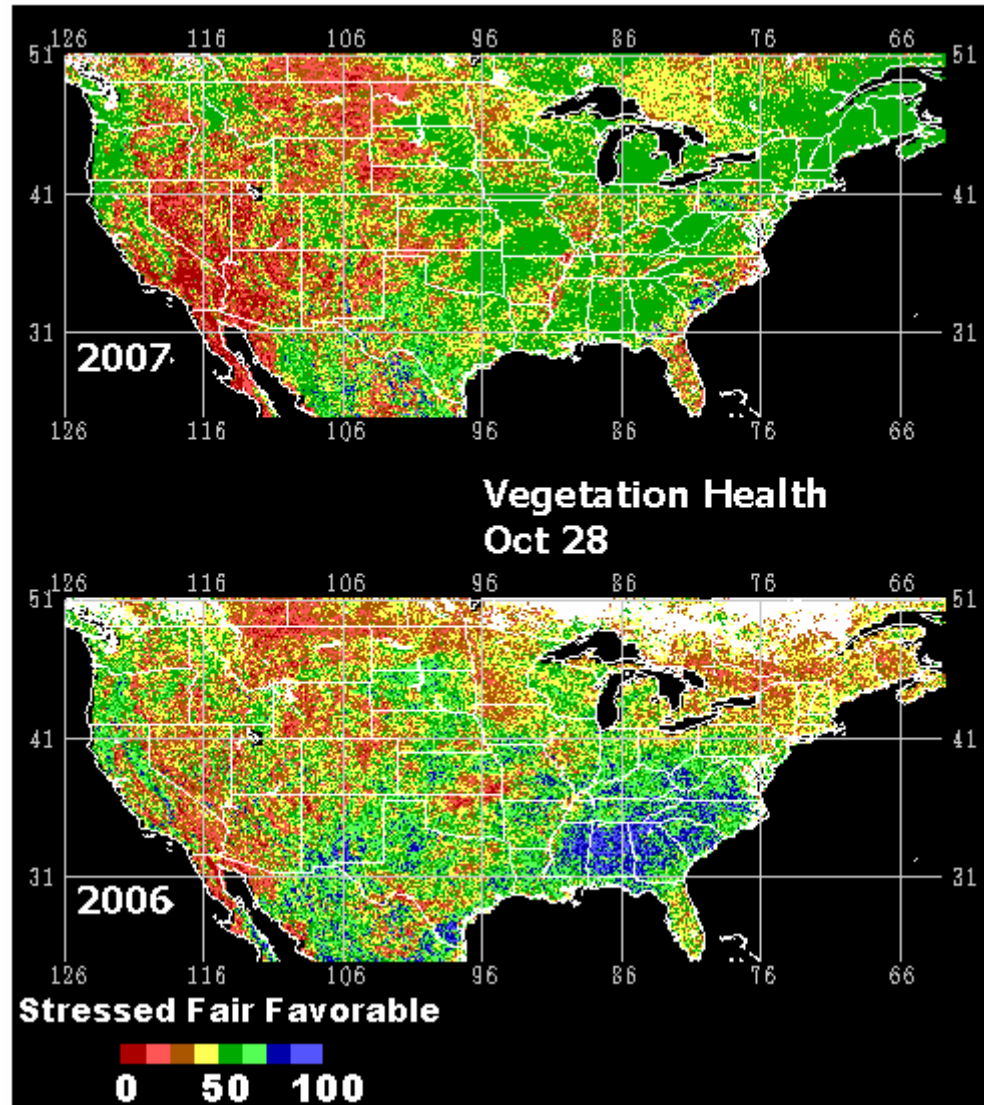


Fig. 8: This remote satellite AVHRR map shows stressed vegetation as compared to last year. Note worse conditions over the Interior West (especially over the Southwestern States) as compared to last October. Note: except for irrigated land, plants in the northern regions tend to show die-off as first freeze occurs. Ref: <http://www.orbit.nesdis.noaa.gov/smcd/emb/vci/usa.html>).

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National Drought Summary -- October 30, 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 Southeast, Mid-Atlantic, Ohio and lower Missouri valleys: The major storm system that brought heavy rains to the western portions of the drought affecting the Southeast and Ohio Valley starting around October 22 continued eastward, dropping impressive totals over a large area from the Ohio Valley to the mid-Atlantic region. From October 23 to 27, 4 to 6 inches of rain, with locally higher amounts, drenched the area from North Carolina into eastern Pennsylvania and parts of New Jersey. One to 3 inches fell over the southern Ohio Valley and the Tennessee Valley, and this was on top of the earlier heavy amounts. As a result, the area of drought diminished, with D4 giving way to D3 or better in western Alabama and much of North Carolina, and D3 reduced to D0 to D1 across the mid-Atlantic. D1 and D0 dryness ended over most of western Kentucky and western Tennessee. Although streamflows and soil moisture improved, reservoirs remained critically low in portions of the drought region, including northern Alabama. Due to lower rainfall amounts in Georgia, there was little change in the drought status in that state, with D4 persisting in the north. Long-term rainfall deficits remained a factor in the water supply situation in the Southeast, with year-to-date totals at least 16 inches below normal in much of Alabama, central and eastern Tennessee, northern Georgia, and western North Carolina, and exceeding 20 inches in northern and central Alabama. Short-term dry weather resulted in slight expansion of D0 in central Missouri.

The Northeast: Over 4 inches fell on upstate New York east of Lake Ontario. As a result, D1 drought ended near the eastern shores of Lake Ontario, and D0 dryness ended in Pennsylvania, eastern New York, and southern New Hampshire. D1 drought continued in portions of southern New England.

The Plains: With rainfall on the light side, there was little change on the Plains, although recent dry weather caused some expansion of D0 in northeastern Texas. Rainfall has been low in several other parts of Texas in the past 2 months, but earlier heavy rains have kept impacts from the dryness to a minimum.

The West: The ending of the Santa Ana winds around Wednesday, October 24, helped fire fighters begin to gain control of the wildfires across southern California. Some light rains fell over central and northern California on October 28-30, with locally heavier amounts in the north and the Sierra. With 30- to 90-day totals above normal, there was some reduction of dryness and drought levels in northern California, and D2 shifted to D1 near San Francisco and north of Lake Tahoe. Recent precipitation also resulted in the reduction of D0 in east-central Montana.

Alaska, Hawaii, and Puerto Rico: Heavy rains exceeding 5 inches from Tropical Storm Noel erased D0 dryness in Puerto Rico. Rainfall was light over the Hawaiian drought areas, as well as the D0 area in northern Alaska.

Weekly Snowpack and Drought Monitor Update Report

Looking Ahead: Weather that could affect dry or drought areas over the next 2 weeks includes: 1) below-normal precipitation and above-normal temperatures over the West; 2) a return to below-normal rainfall across the Southeast, except in Florida, which will see up to several inches of rain along the southeast coast from Tropical Storm Noel early in the period. For the longer period, the updated seasonal drought outlook indicates that drought will persist or even expand across the Southeast, Gulf Coast, and the Southwest by the end of January, but conditions will improve in the interior Northwest and northern Rockies. Most of Kentucky and Tennessee should see some improvement.

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

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 October 31, 2007