



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

Weekly Report - Snowpack / Drought Monitor Update **Date: February 21, 2008**

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Snow: During the past week, snowfall accumulations were down across much of the West (fig. 1). A preliminary forecast decrease in excess of 10% in spring-summer runoff occurred this week over much of Idaho, Utah, and New Mexico. Snow-water equivalent percent to date shows well above normal values over portions of the Cascades (WA & OR), Southern Rockies (CO & NM), Utah and the mountains of Arizona. Below normal values dominate in southern New Mexico. Little change occurred since last week (Fig. 1a).

Temperature: For the past seven days, average temperature anomaly for most stations in the West were within 5F of normal with warmest departures over the Cascades and coldest departures over the Wasatch (Fig. 2). The greatest negative temperature departures over southern Oregon and Idaho, northeast Nevada, central Utah, southern Wyoming, and the northeastern High Plains (<-9F) and greatest positive departures over central Montana (~+6F) (Fig. 2a).

Precipitation: Preliminary precipitation totals for the 7-day period ending 20 February shows significant precipitation scattered across the Rockies, Utah, and Arizona. Hardly any precipitation fell west of a line from western Montana to western Arizona (Fig. 3). Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2008 Water Year that began on October 1, 2007 shows well above normal totals over much of the West. Only a few river basins (one in: New Mexico, Oregon, and Washington, and two in the Lake Tahoe region) are lower than 90% of normal (Fig. 3a).

WESTERN DROUGHT STATUS

The West: The Western depiction was virtually unchanged this week, as widespread areas receiving more than 1 inch of precipitation were confined to non-drought areas of Arizona. Spring and summer runoff prospects are generally favorable in many Western basins due to heavy snow from December into February, but reservoir storage remains below-average for this time of year in all states except Colorado (near average) and Arizona (above average). Author: Brad Rippey, U.S. Department of Agriculture

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

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developing in streams, reservoirs, or wells, and some damage to crops and pastures (Figs. 4, 4a, 4b, 4c, and 4d).

SOIL MOISTURE

Soil moisture (Figs. 5 and 5a), 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 Figs. 6 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 the 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.

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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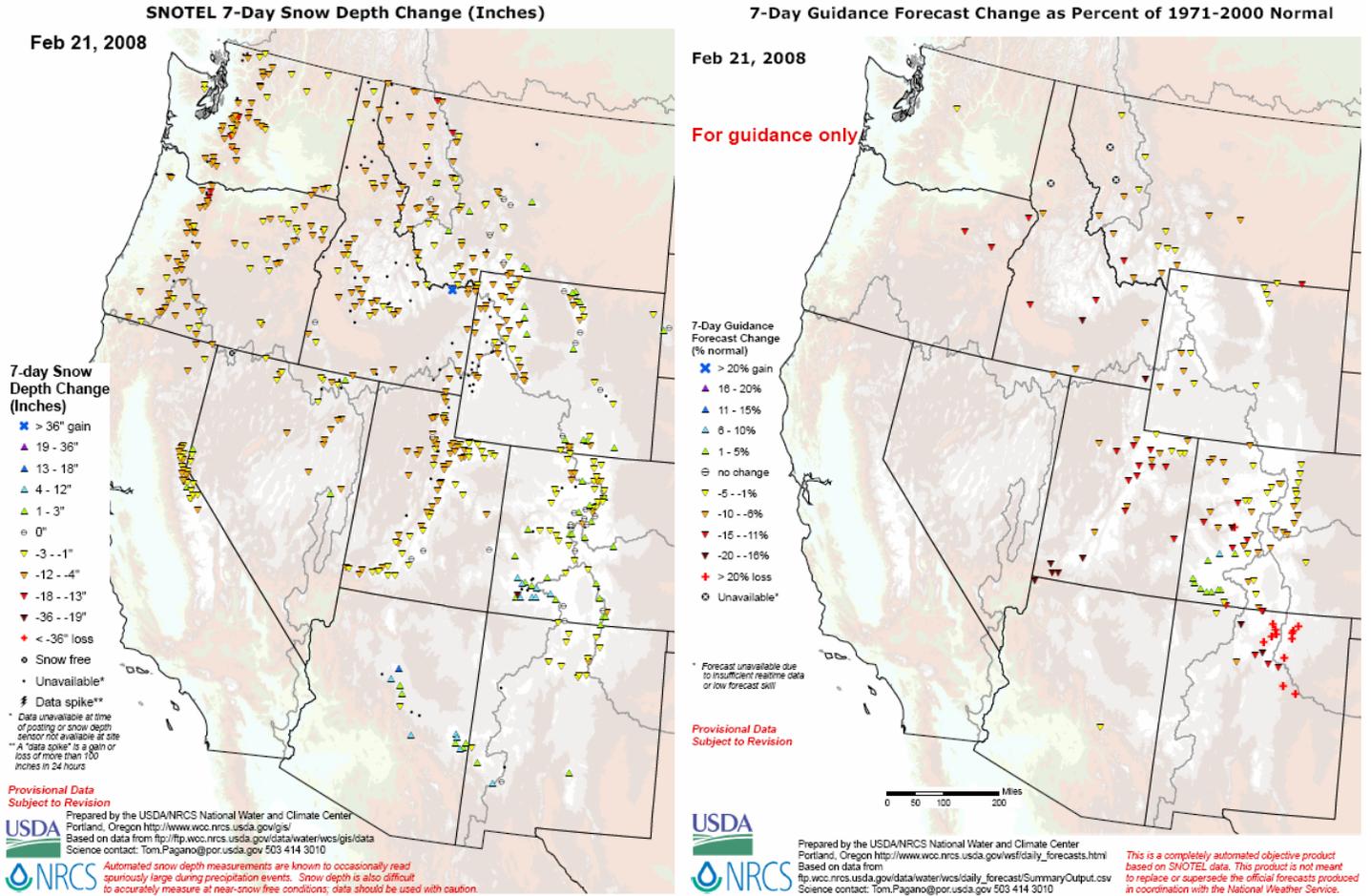


Fig. 1. During the past week, snowfall accumulations were down across much of the West (left figure). A preliminary forecast decrease in excess of 10% in spring-summer runoff occurred this week over much of Idaho, Utah, and New Mexico (right figure). Note: Forecast values for the Sierra and Cascades but are not shown.

Refs: ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west_snowdepth_7ddelta.pdf
ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/daily_forecast/maps/west_dailyfcst_7daych.pdf

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Westwide SNOTEL Current Snow Water Equivalent (SWE) % of Normal

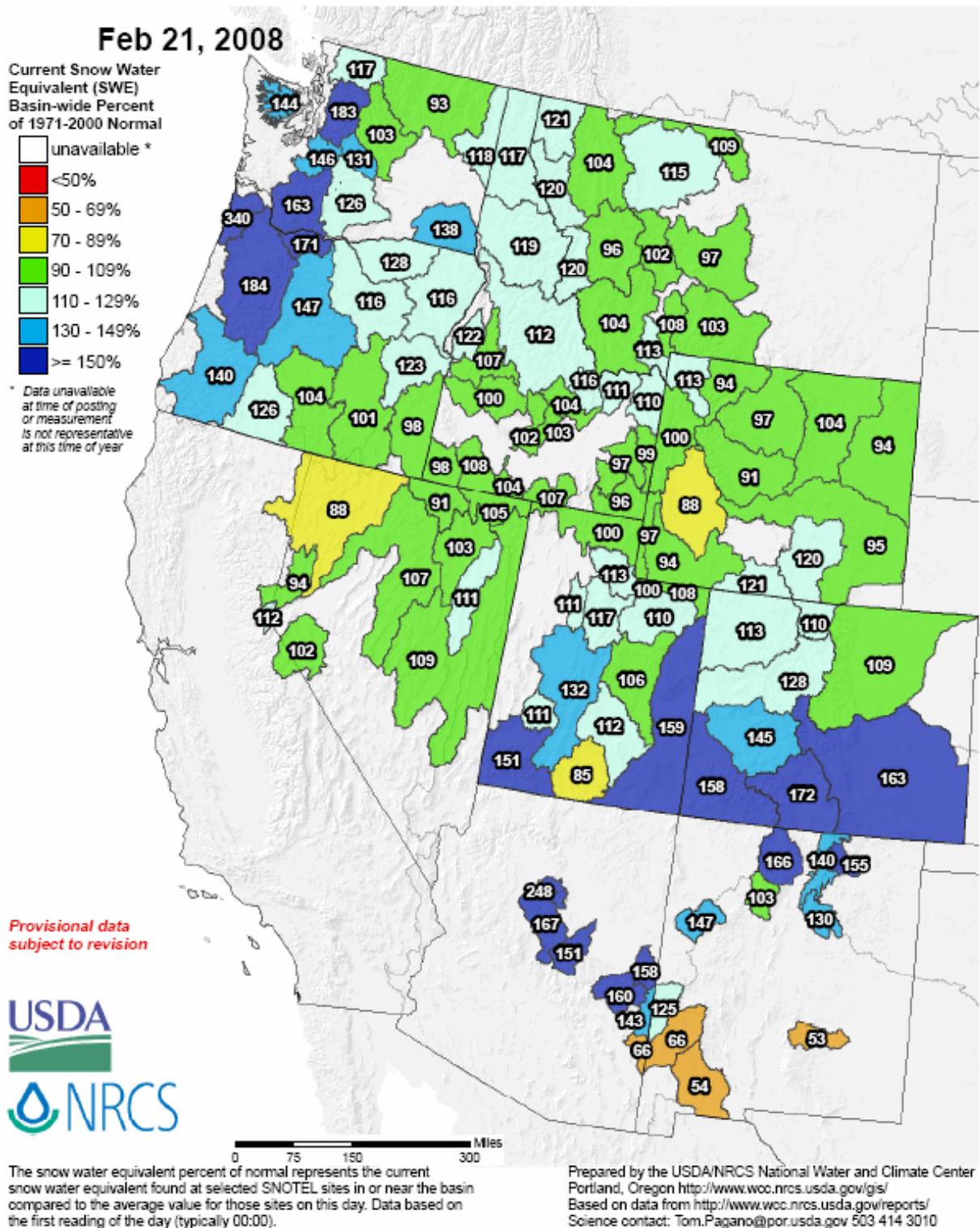


Fig. 1a. Snow-water equivalent percent to date shows well above normal values over portions of the Cascades (WA & OR), Southern Rockies (CO & NM), Utah and the mountains of Arizona. Below normal values dominate in southern New Mexico. Little change occurred since last week.

Ref: ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west_sweptcnorml_update.pdf.

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SNOTEL (solid) and ACIS (dot-filled) Networks 7-Day Average Temperature Anomaly (Degrees F)

Feb 21, 2008

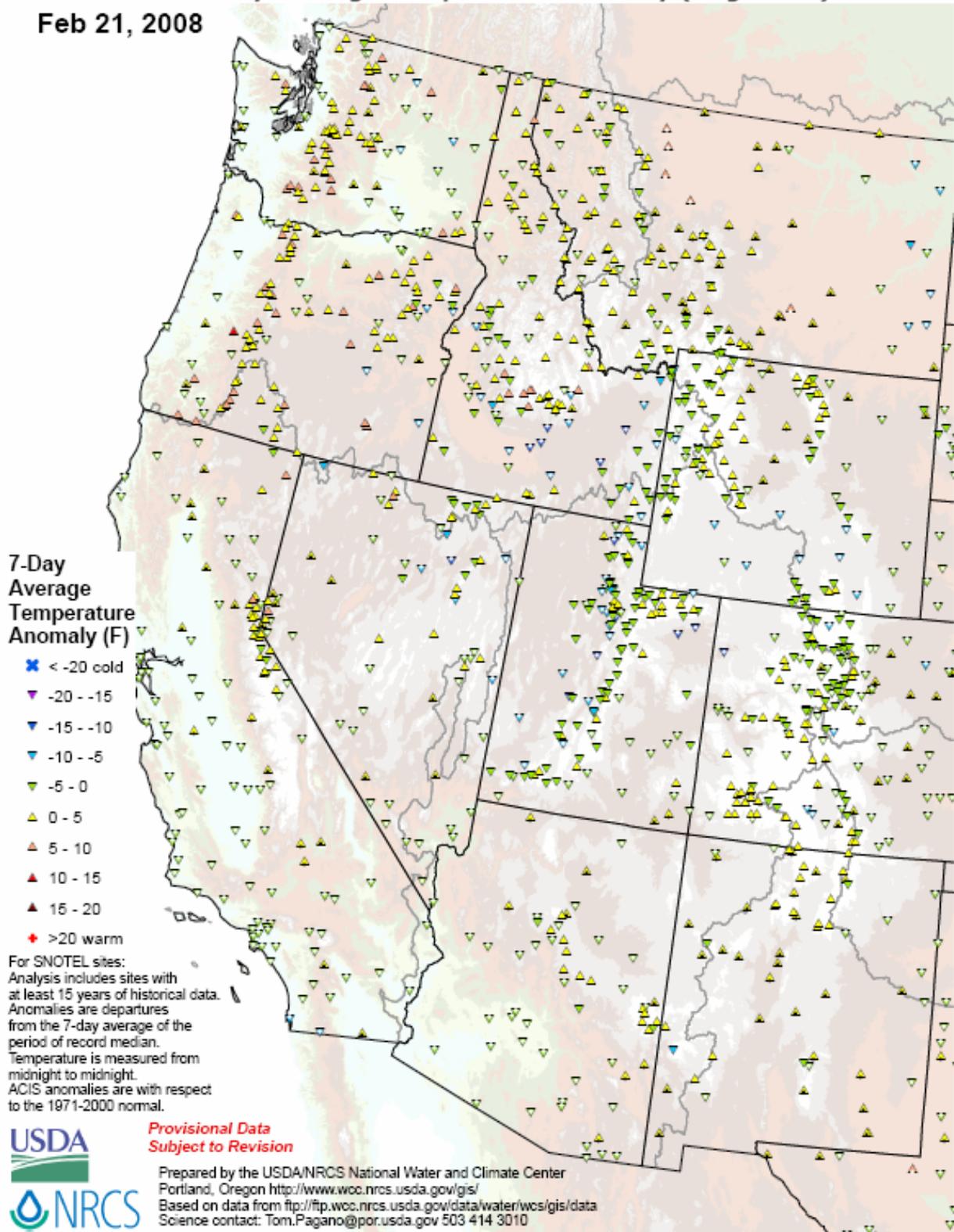
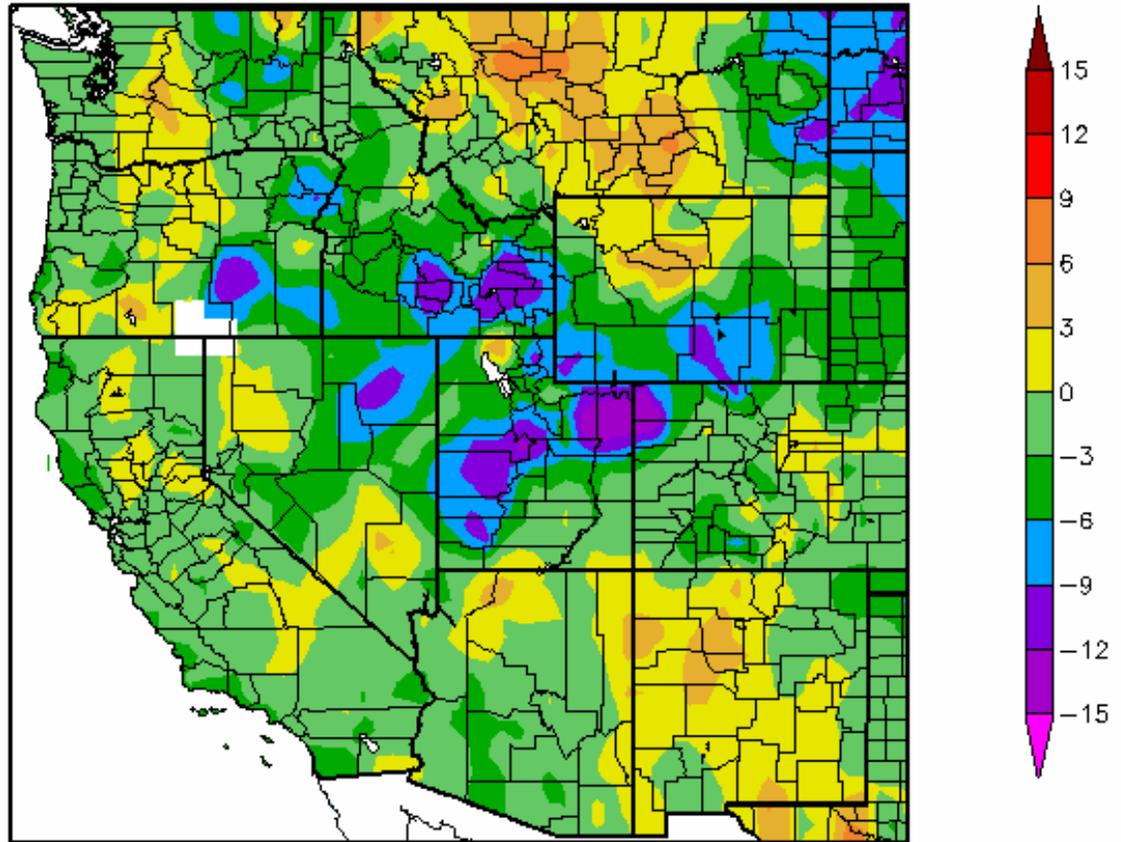


Fig. 2. SNOTEL & ACIS 7-day station average temperature anomaly for most stations in the West were within 5F of normal with warmest departures (~+10F) over the Cascades and coldest departures (~-10F) over the Wasatch.

Ref: <ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideTavg7dAnomalyAcis.pdf>.

Departure from Normal Temperature (F)
2/14/2008 – 2/20/2008



Generated 2/21/2008 at HPRCC using provisional data.

NOAA Regional Climate Centers

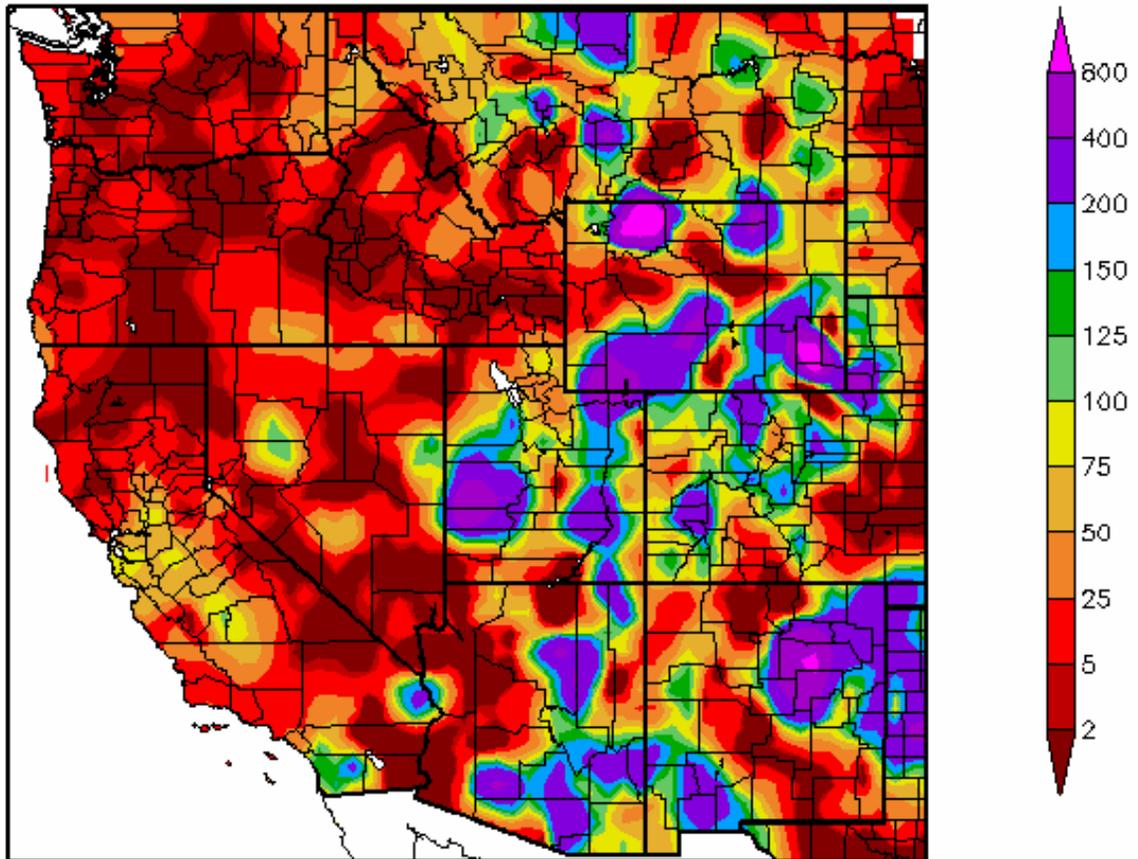
The Current Climate Summary Maps are produced daily using data from the Applied Climate Information System (ACIS). Stations used are from the National Weather Service Cooperative Observer Network (COOP), and the Automated Weather Data Network (AWDN). All near-real-time data are considered preliminary and should be used responsibly.



Normal refers to the 1971-2000 Climate Normal for the selected product.

Fig. 2a. ACIS 7-day average temperature anomaly: Greatest negative temperature departures over southern Oregon and Idaho, northeast Nevada, central Utah, southern Wyoming, and the northeastern High Plains (<-9F) and greatest positive departures over central Montana (~+6F). Ref: http://www.hprcc.unl.edu/maps/current/index.php?action=update_product&product=TDept.

Percent of Normal Precipitation (%)
2/14/2008 – 2/20/2008



Generated 2/21/2008 at HPRCC using provisional data.

NOAA Regional Climate Centers

The Current Climate Summary Maps are produced daily using data from the Applied Climate Information System (ACIS). Stations used are from the National Weather Service Cooperative Observer Network (COOP), and the Automated Weather Data Network (AWDN). All near-real-time data are considered preliminary and should be used responsibly.



Normal refers to the 1971-2000 Climate Normal for the selected product.

Fig. 3. ACIS 7-day average precipitation anomaly: Preliminary precipitation totals for the 7-day period ending 20 February shows significant precipitation scattered across the Rockies, Utah, and Arizona. Hardly any precipitation fell west of a line from western Montana to western Arizona.

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

Weekly Snowpack and Drought Monitor Update Report

Westwide SNOTEL Water Year (Oct 1) to Date Precipitation % of Normal

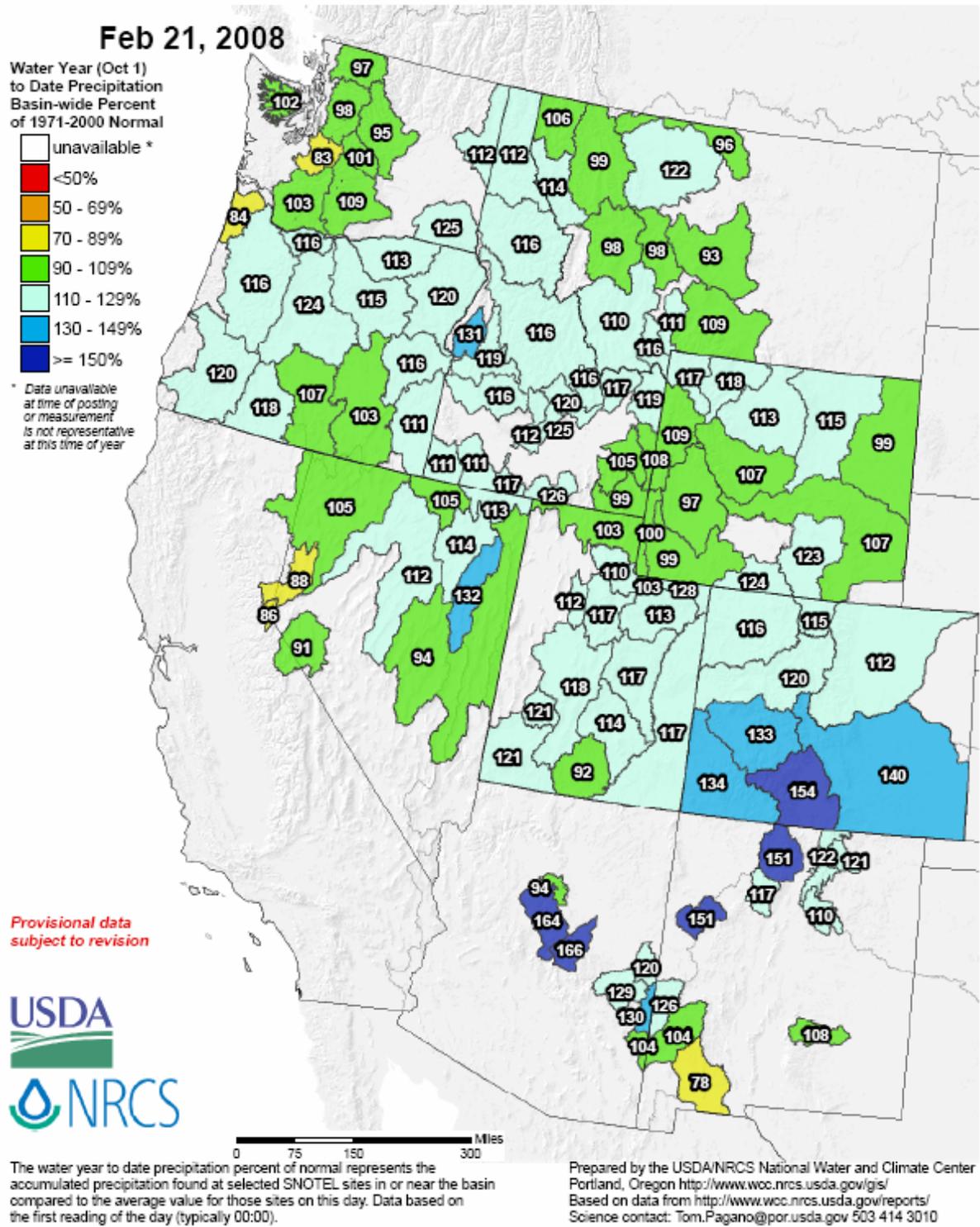


Fig 3a. Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2008 Water Year that began on October 1, 2007 shows well above normal totals over much of the West. Only a few river basins (one in: New Mexico, Oregon, and Washington, and two in the Lake Tahoe region) are lower than 90% of normal.

Ref:

ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west_wytdprecpcnormal_update.pdf.

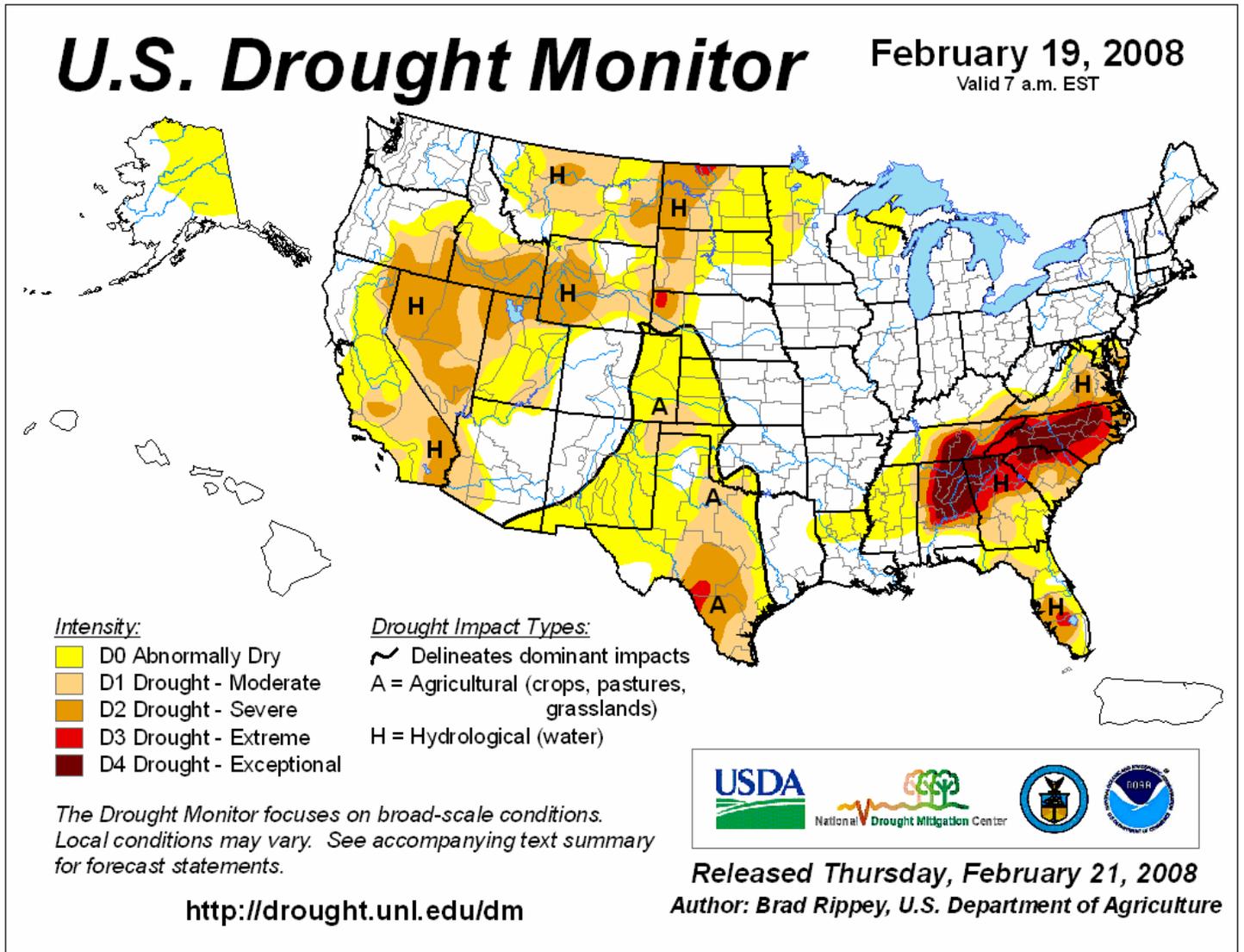


Fig. 4. Current Drought Monitor weekly summary.

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

Weekly Snowpack and Drought Monitor Update Report

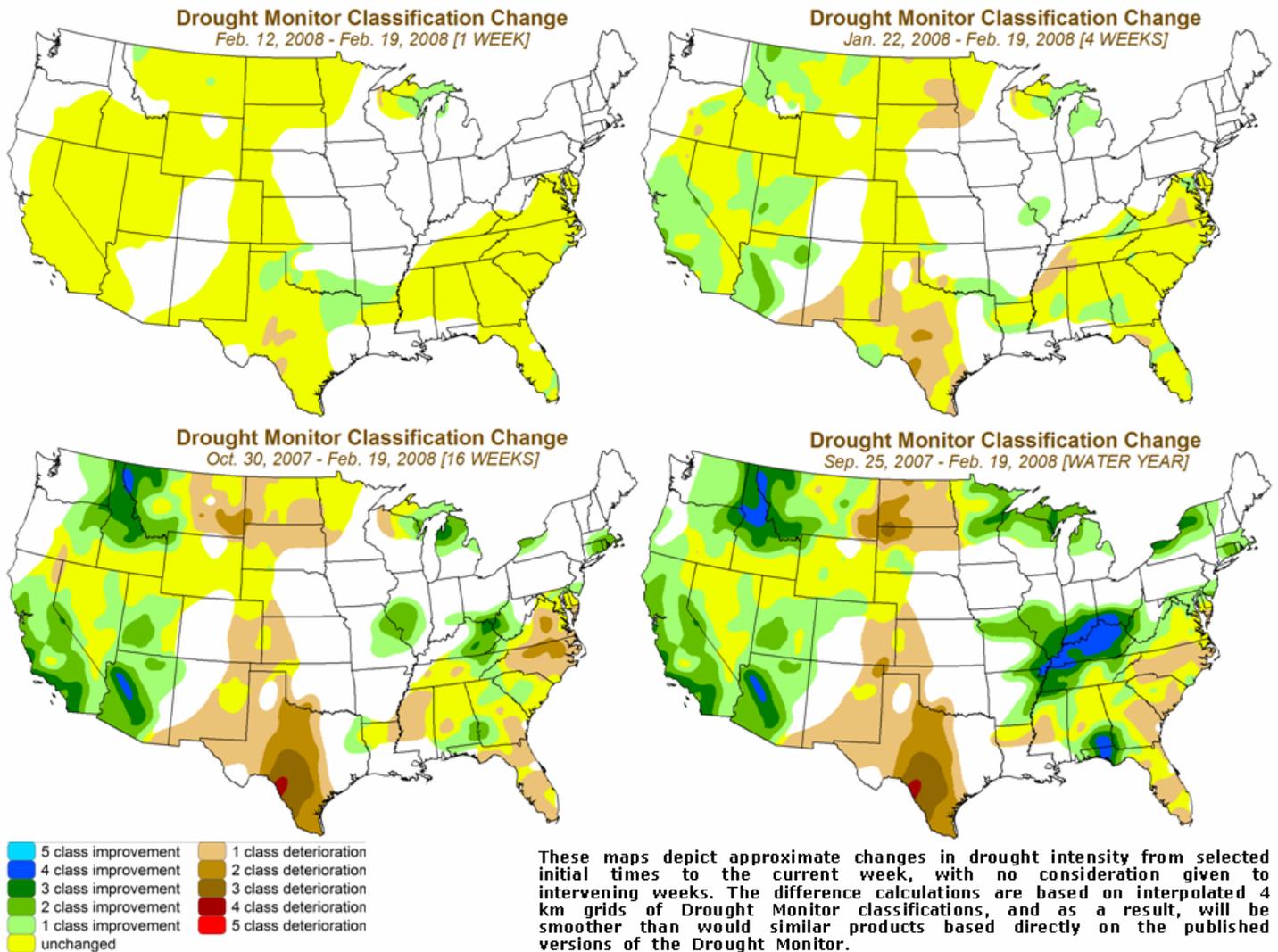


Fig. 4a. Drought Monitor classification changes during several time periods. Scattered improvement occurred across the US during the past week with longer term improvement over Kentucky, northwest Florida, northern Idaho, and southwestern Arizona but worsening conditions over central Texas, North Carolina, and the Northern Plains.

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

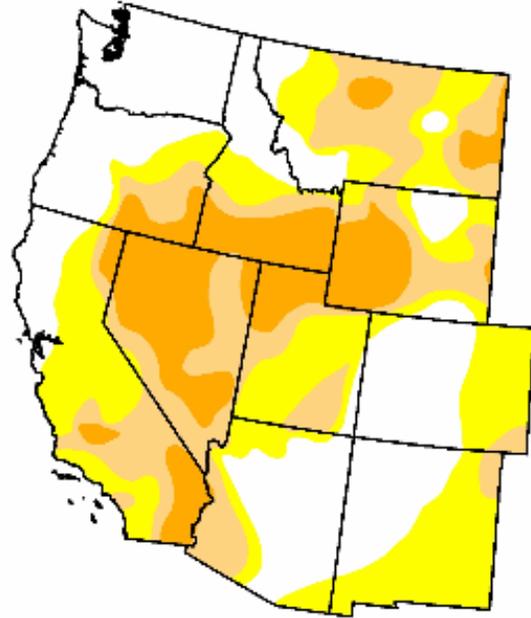
U.S. Drought Monitor

West

February 19, 2008
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	33.9	66.1	37.5	16.9	0.0	0.0
Last Week (02/12/2008 map)	33.2	66.8	37.7	16.9	0.0	0.0
3 Months Ago (11/27/2007 map)	25.4	74.6	58.4	38.1	7.9	0.0
Start of Calendar Year (01/01/2008 map)	26.3	73.7	54.7	33.1	2.7	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 (02/20/2007 map)	40.4	59.6	34.2	18.9	4.8	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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Author: Brad Rippey, U.S. Department of Agriculture

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

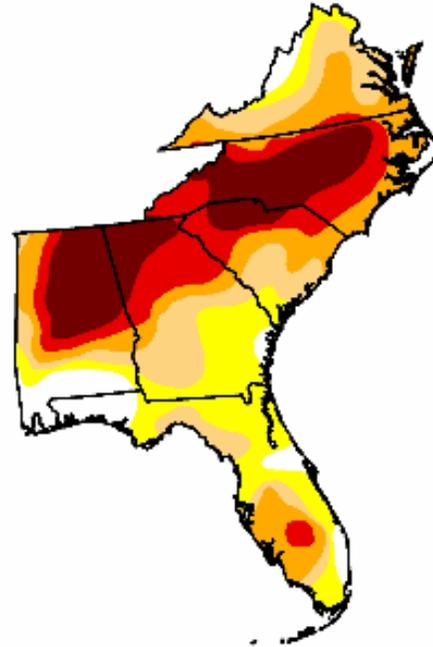
U.S. Drought Monitor

Southeast

February 19, 2008
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	8.6	91.4	72.4	54.4	34.5	18.9
Last Week (02/12/2008 map)	8.0	92.0	73.2	54.8	36.3	19.8
3 Months Ago (11/27/2007 map)	13.0	87.0	76.2	58.0	43.5	27.8
Start of Calendar Year (01/01/2008 map)	9.6	90.4	74.3	58.5	41.0	22.0
Start of Water Year (10/02/2007 map)	10.1	89.9	77.9	63.8	45.2	24.0
One Year Ago (02/20/2007 map)	54.5	45.5	10.7	0.0	0.0	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>

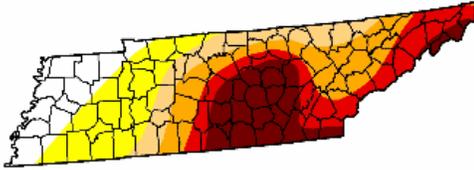
Fig. 4c: Drought Monitor for the Southeastern States with statistics over various time periods. Note slight improvement in the D3-D4 categories since last week.
Ref: http://www.drought.unl.edu/dm/DM_southeast.htm.

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U.S. Drought Monitor
Tennessee

February 19, 2008
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	14.3	85.7	66.2	54.1	35.7	18.6
Last Week (02/12/2008 map)	14.3	85.7	67.1	54.1	36.3	18.7
3 Months Ago (11/27/2007 map)	25.6	74.4	61.8	54.5	46.6	16.5
Start of Calendar Year (01/01/2008 map)	27.4	72.6	60.8	53.8	46.8	19.9
Start of Water Year (10/02/2007 map)	0.0	100.0	100.0	100.0	85.7	61.3
One Year Ago (02/20/2007 map)	33.4	66.6	52.8	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>

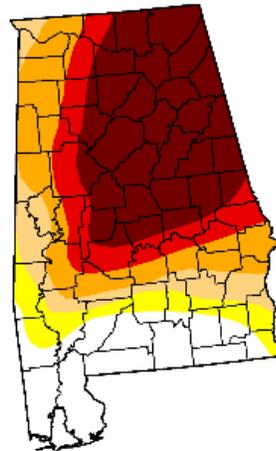


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Author: Brad Rippey, U.S. Department of Agriculture

U.S. Drought Monitor
Alabama

February 19, 2008
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	18.3	81.7	74.1	64.7	47.9	35.3
Last Week (02/12/2008 map)	18.3	81.7	74.2	65.0	49.8	36.7
3 Months Ago (11/27/2007 map)	6.0	94.0	85.4	71.1	60.5	48.9
Start of Calendar Year (01/01/2008 map)	9.5	90.5	80.8	66.9	56.5	38.9
Start of Water Year (10/02/2007 map)	0.0	100.0	95.4	83.7	76.1	52.0
One Year Ago (02/20/2007 map)	45.9	54.1	3.7	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>

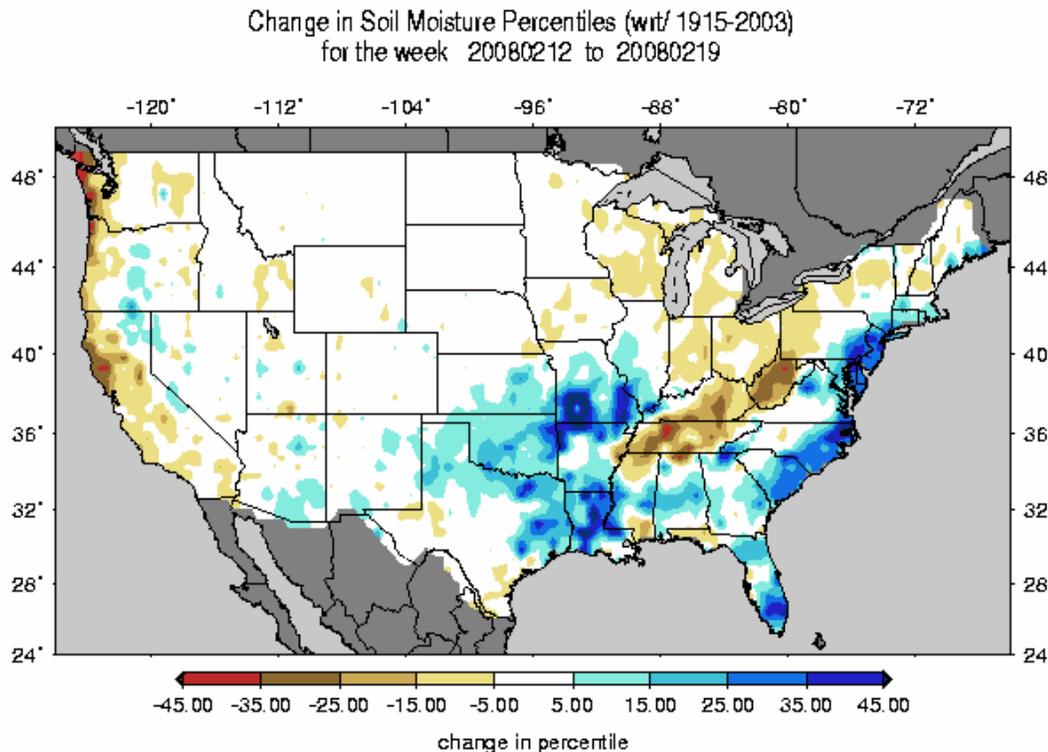
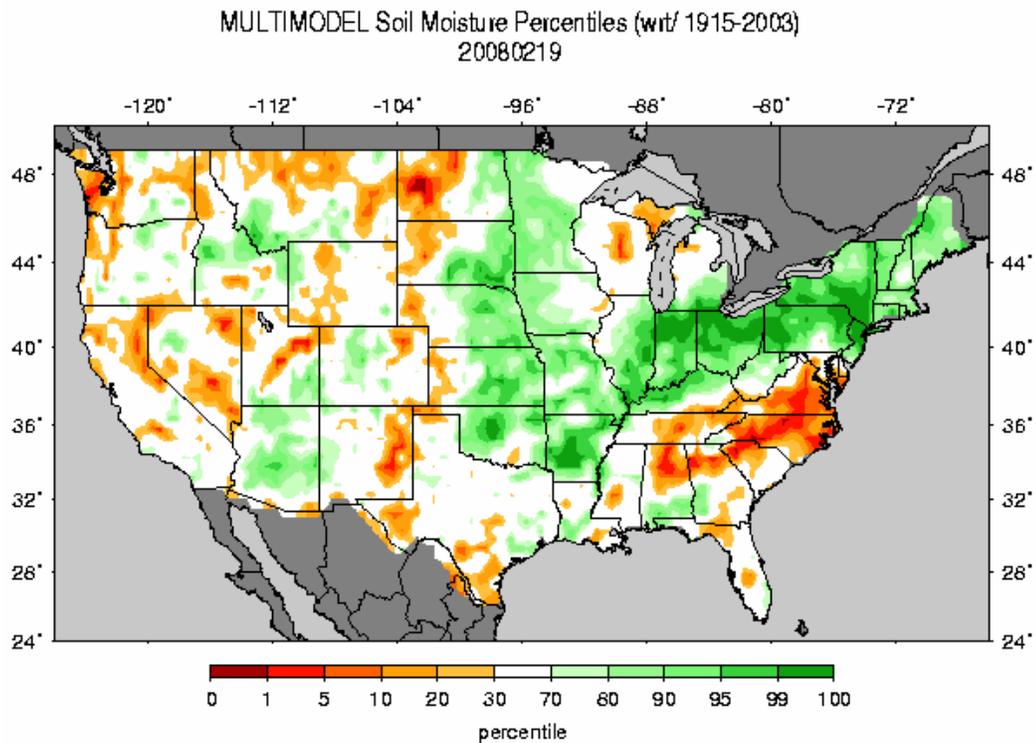


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Fig. 4d. Drought Monitor for Tennessee and Alabama with statistics over various time periods shows some of the severest drought conditions in the US. Note no significant change since last week for Tennessee and Alabama.

Ref: http://www.drought.unl.edu/dm/DM_state.htm?TN,S
http://www.drought.unl.edu/dm/DM_state.htm?AL,SE

Weekly Snowpack and Drought Monitor Update Report



Figs. 5 & 5a: Soil Moisture Ranking and change in percentile based on 1915-2003 climatology for this past week. Note significant moistening over the lower Mississippi River Valley and Eastern Seaboard but much drier over the Tennessee and Ohio River Valleys. Remark: In colder regions of the West, frozen ground suggests incorrect values or missing data.

Ref: http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.multimodel.sm_qnt.gif
http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm_qnt.1wk.gif.

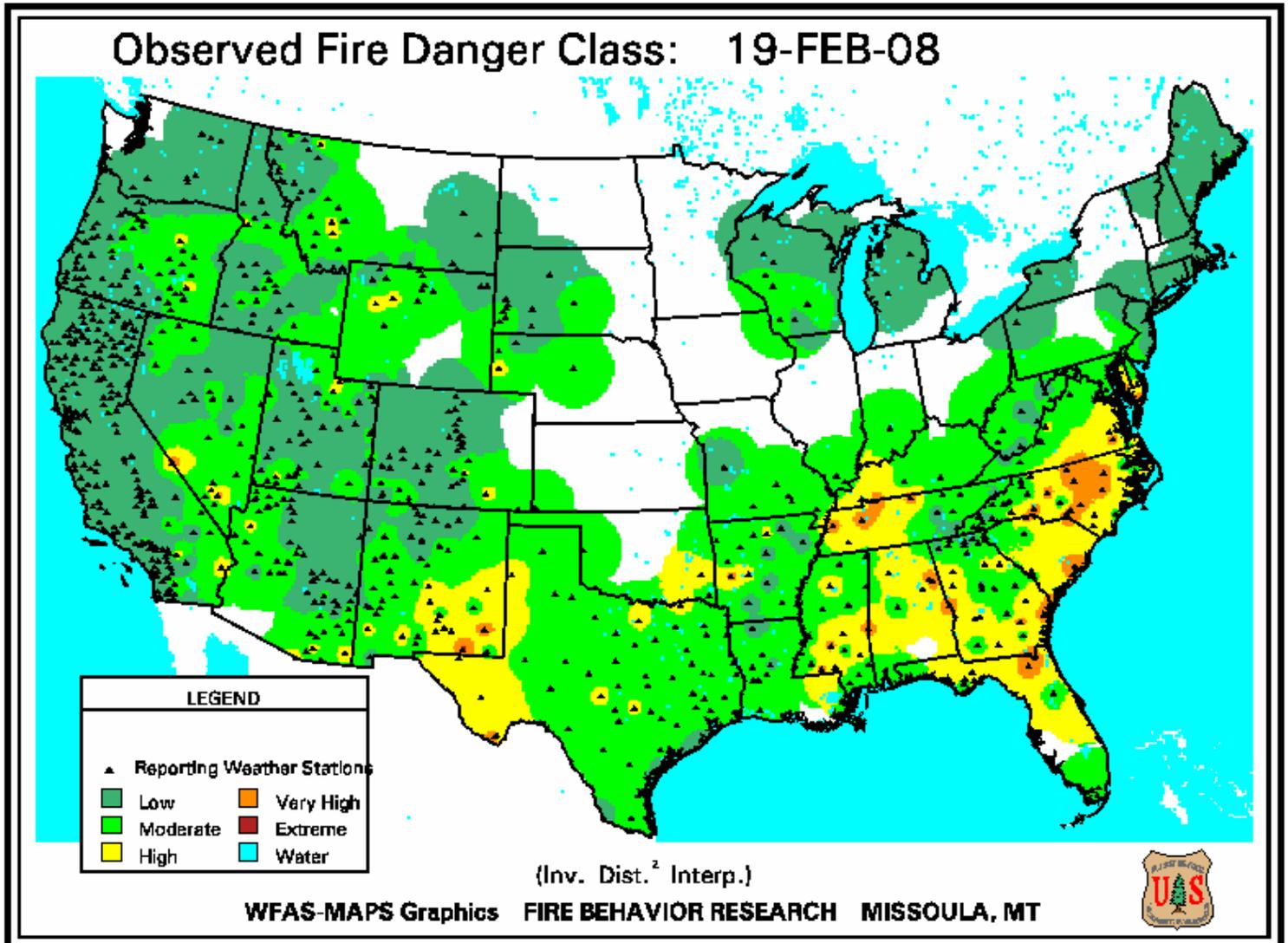
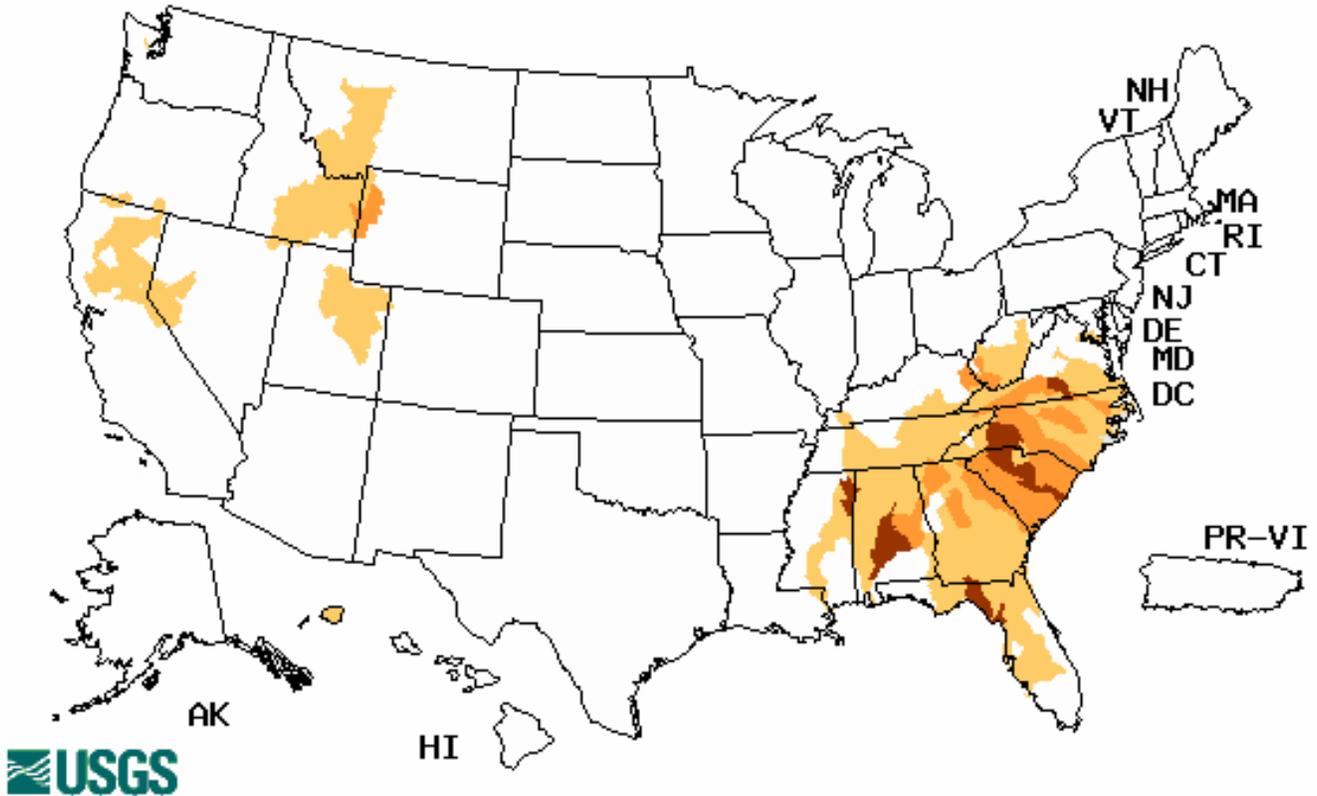


Fig. 6. Observed Fire Danger Class as of 19 February. Note increase risk of fire over North Carolina.
Source: Forest Service Fire Behavior Research – Missoula, MT.
Ref: http://www.fs.fed.us/land/wfas/fd_class.gif

Weekly Snowpack and Drought Monitor Update Report

Wednesday, February 20, 2008



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. 7. This week's map shows little change over the Southeast and Mid-Atlantic States since last week. Values over the colder regions of the West and northern states are probably missing or are in error due to river icing and freeze-up.

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

Weekly Snowpack and Drought Monitor Update Report

National Drought Summary – February 19, 2008

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 Southeastern and Mid-Atlantic States: Widespread precipitation fell across drought-affected areas of the Southeast, resulting in some slight reductions in the coverage and intensity of moderate to exceptional drought (D1 to D4). Seven-day totals in excess of 2 inches were common from central Alabama and Georgia into the coastal plain of the Carolinas. In northern Georgia, the surface elevation of Lake Lanier rose to 1052.84 feet by February 19, a little more than 2 feet above the all-time record-low level set in December 2007. Heavy rain also soaked parts of southern Florida, eliminating abnormal dryness along and near the Atlantic Coast and bringing a slight reduction in the coverage of moderate to severe drought (D1 to D2). However, the heaviest rain fell well south of southern Florida's Lake Okeechobee and its watershed. As of February 20, the average surface elevation of Lake Okeechobee stood at 10.10 feet, more than 4 feet below average for this time of year and just 1.28 feet above the all-time record-low level established in July 2007. Farther west, the areal extent of abnormal dryness (D0) was reduced by heavy rain across southern Arkansas and northern Louisiana.

The Great Lakes Region: Another round of heavy snow affected the Great Lakes region, eliminating moderate drought (D1) and reducing the coverage of abnormal dryness (D0) in the areas between Lakes Superior and Michigan. Lingering abnormal dryness was also eliminated from northern Lower Michigan. In Wisconsin, Green Bay's July 1 – February 19 snowfall of 73.9 inches represented its highest seasonal total since 1996-97, when 77.0 inches fell. Even more impressive snowfall totals have been observed in southern Wisconsin (and neighboring areas), where Madison's season-to-date sum of 86.7 inches has already surpassed its former record of 76.1 inches set from July 1, 1978 – June 30, 1979.

The Plains: Conditions were virtually unchanged across the northern half of the Plains, where mostly dry weather prevailed. A few minor improvements were noted in Montana due to re-assessment of previous weather events. On the southern Plains, significant changes for the better (reduction of abnormal dryness and moderate drought, or D0 and D1) occurred in Oklahoma (excluding the panhandle) and northern and eastern Texas due to widespread rainfall totals of 1 to 3 inches, with locally higher amounts. In stark contrast, little or no rain fell across much of southern and western Texas, where a small area of extreme drought (D3) was introduced. In addition, there was some expansion of moderate to extreme drought (D1 and D2) into southern, western, and central Texas. Improbably, San Antonio, Texas, followed its wettest January-August period on record (44.61 inches; previously, 38.64 inches in 1992) with its driest September 1 – February 15 period (3.14 inches; previously, 3.17 inches in 1917-18).

The West: The Western depiction was virtually unchanged this week, as widespread areas receiving more than 1 inch of precipitation were confined to non-drought areas of Arizona. Spring and summer runoff prospects are generally favorable in many Western basins due to heavy snow from December into February, but reservoir storage remains below-average for this time of year in all states except Colorado (near average) and Arizona (above average).

Weekly Snowpack and Drought Monitor Update Report

Alaska: Heavy precipitation returned to south-central and southeastern Alaska, but little or no snow fell across the abnormally dry (D0) areas of eastern Alaska. As a result, the depiction remained unchanged from last week.

Looking Ahead: During the next 5 days (through February 25), a trio of storms will provide several drought-affected areas with abundant precipitation. The first low-pressure system will move from the south-central U.S. to the southern Mid-Atlantic coast by February 22, generating a broad swath of frozen precipitation from the southern Plains into the Ohio Valley and Mid-Atlantic States. Meanwhile, showers and locally severe thunderstorms will sweep across the South. As the first system begins to depart, a second storm will arrive in the Pacific Coast States on February 21-22. Unlike the previous system, this storm will weaken after producing widespread rain and snow showers as far east as the Rockies. Farther west, a third storm will charge ashore along the Pacific Coast during the weekend. By early next week (February 25), snow will spread from the Rockies into the Midwest.

The NWS 6- to 10-day outlook for February 26 – March 1 calls for near- to above-normal precipitation east of the Mississippi River and across the nation's northern tier. In contrast, little or no precipitation will fall from California to the Mississippi River, including the Southwest and the central and southern Plains. Elsewhere, above-normal temperatures in the West will contrast with colder-than-normal weather across much of the eastern two-thirds of the U.S.

Author: Brad Rippey, U.S. Department of Agriculture

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 February 20, 2008