



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

Weekly Report - Snowpack / Drought Monitor Update **Date:** **February 28, 2008**

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Snow: During the past week, snowfall accumulations were up significantly over the Sierras and to a lesser extent over the Wasatch and Southern Rockies. Snowfall was down across the Cascades. A preliminary forecast increase in excess of 5% in the April-July runoff occurred this week over much of Utah and the Southern Rockies (fig. 1). Snow-water equivalent percent to date shows well above normal values over portions of the Cascades, Southern Rockies, Utah and the mountains of Arizona. Below normal values dominate in southern New Mexico (Fig. 1a).



View of Mt. Hood from the National Water and Climate Center, Portland, Oregon on 25 February 2008. (Photo by author)

Temperature: For the past seven days, average temperature anomaly for most stations in the West were within 5F of normal (Fig. 2). The greatest negative temperature departures occurred over the Sierras (<-10F) and the greatest positive departures occurred over the Northern Rockies, southern New Mexico, and Cascades (~+6F) (Fig. 2a).

Precipitation: Preliminary precipitation totals for the 7-day period ending 27 February shows significant precipitation across central California, Nevada, the Montana Rockies, and the 4-Corner States. Significantly lesser amounts fell over the Cascades and Eastern High Plains (Fig. 3). Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2008 Water

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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 and Oregon) are lower than 90% of normal (Fig. 3a).

WESTERN DROUGHT STATUS

The West: A series of storms moved into California and generally weakened while moving eastward across the West. Precipitation amounts of 2 to 5 inches, with locally higher totals, were common along and near the California coast and in the Sierra Nevada. Abnormal dryness (D0) was removed from much of the coastal region of central and southern California and the majority of California's Central Valley. Farther inland, the gradient from abnormal dryness to severe drought (D0 to D2) tightened along and near the California-Nevada border. However, abnormal dryness remained in place across much of the Sierra Nevada due to concerns about expectations for below-average spring and summer runoff in many key watersheds. Nevertheless, the average water content of the Sierra Nevada snow pack climbed to 29 inches (118% of average for the date) by February 27, up from 24 inches (103%) a week earlier, according to the California Department of Water Resources. 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 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 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.

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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

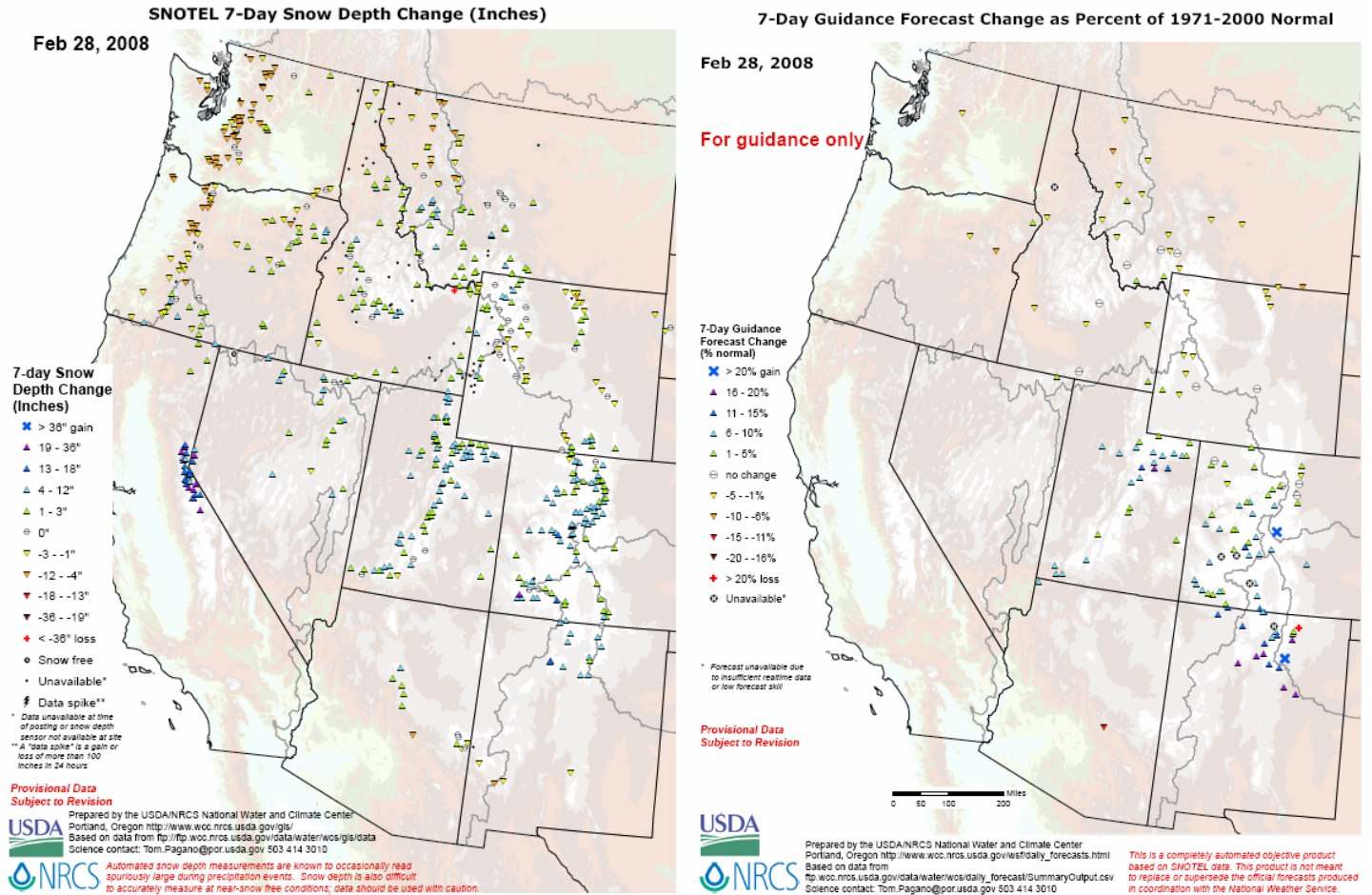


Fig. 1. During the past week, snowfall accumulations were up significantly over the Sierras and to a lesser extent over the Wasatch (UT) and Rockies (CO & NM) but was down across the Cascades (WA & OR) (left figure). A preliminary forecast increase in excess of 5% in spring-summer runoff occurred this week over much of Utah and the Southern Rockies (CO & NM) (right figure). Note: Forecast values for the Sierra and Cascades 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

Weekly Snowpack and Drought Monitor Update Report

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

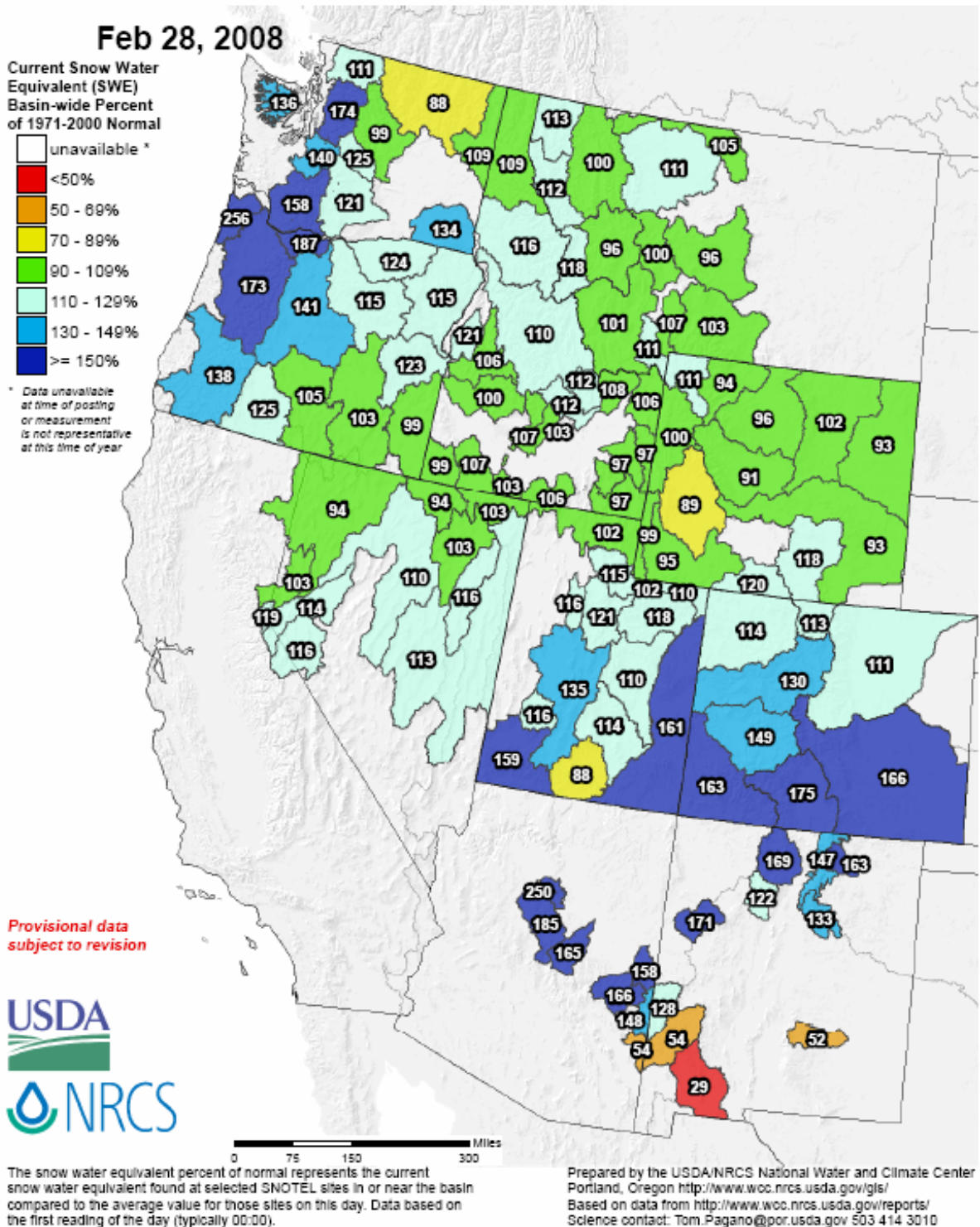


Fig. 1a. Snow-water equivalent percent to date shows well above normal values over portions of the Cascades (WA & OR), Southern Rockies (CO & NM), Utah and the mountains of Arizona. Below normal values dominate in southern New Mexico. Overall, across the West, little change has occurred since last.

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

Weekly Snowpack and Drought Monitor Update Report

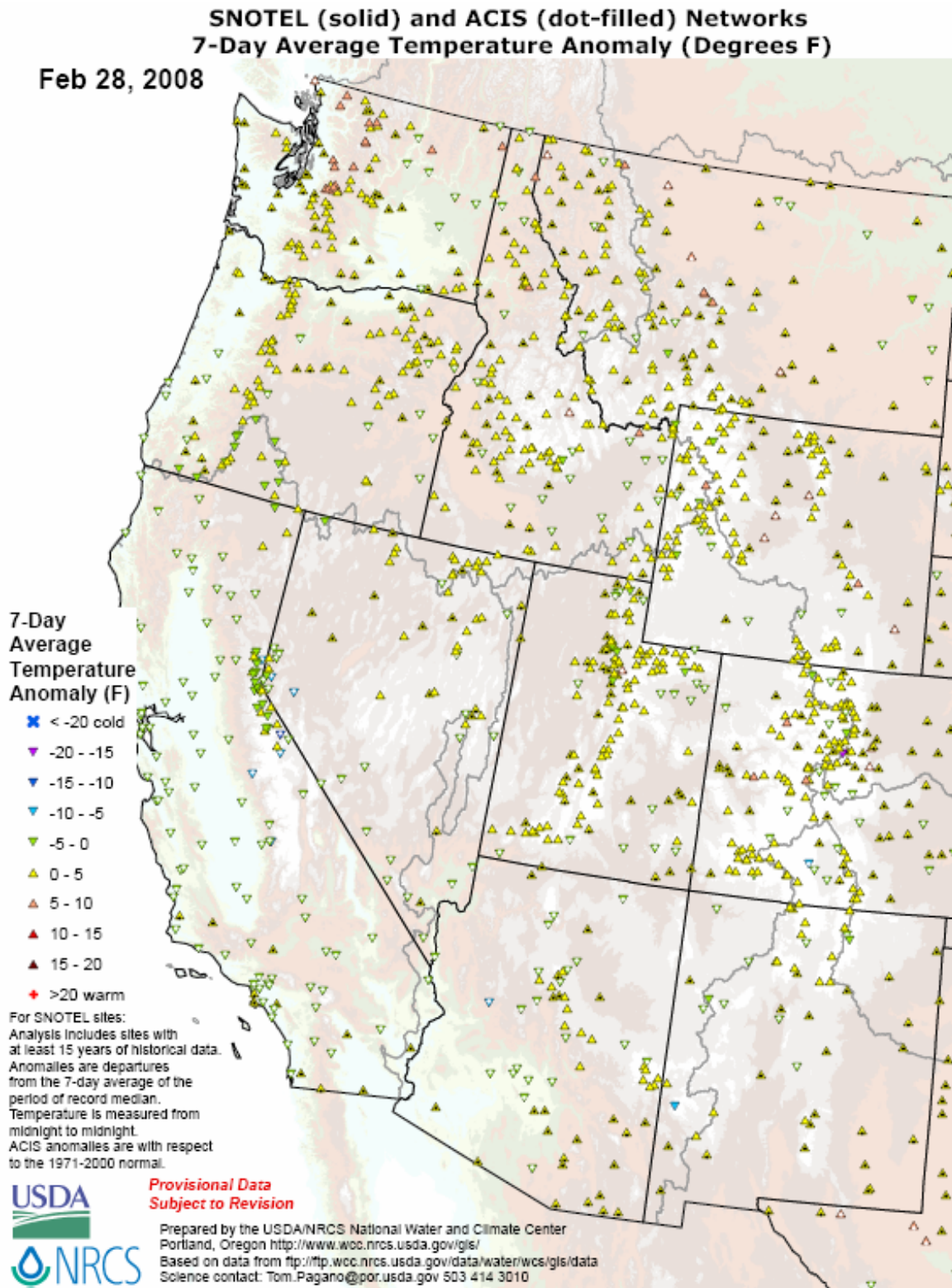
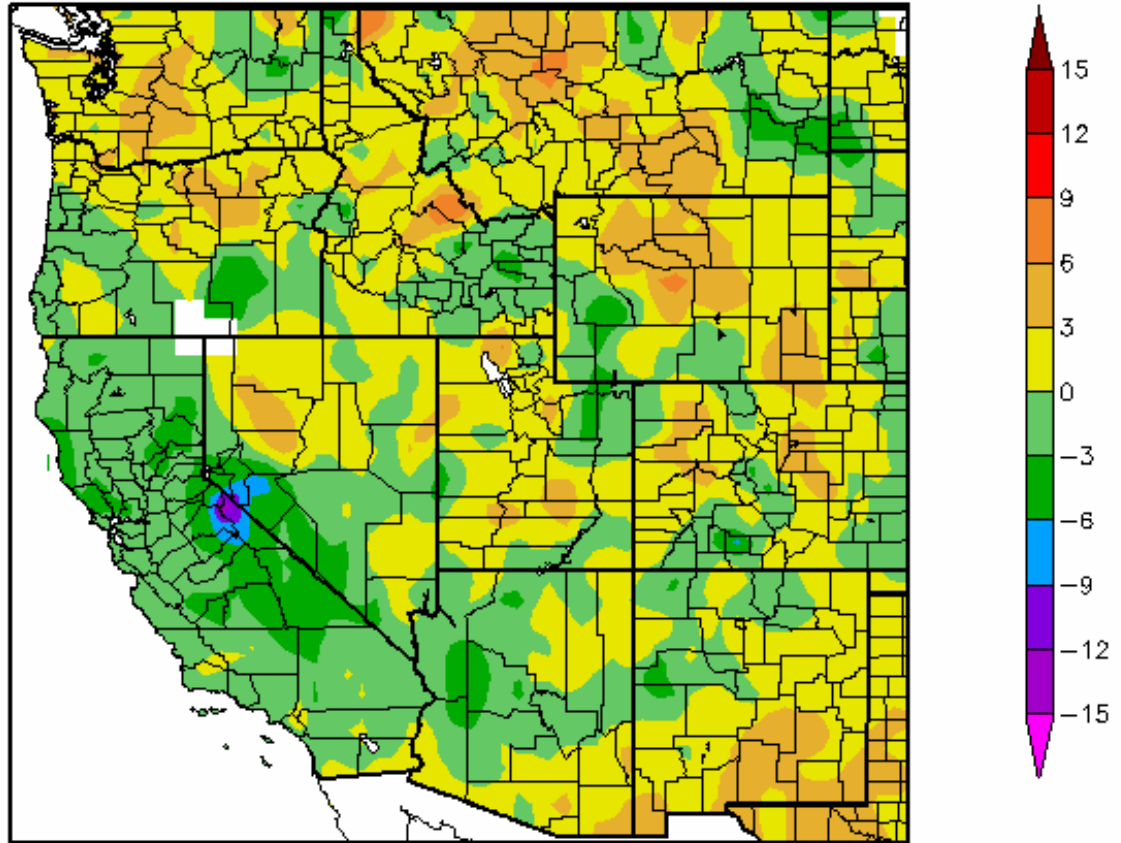


Fig. 2. SNOTEL & ACIS 7-day station average temperature anomaly for most stations in the West were within 5F of normal with warmest departures (~+10F) over the Northern Cascades and coldest departures (~-5F) over the Sierras.

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

Departure from Normal Temperature (F)
2/21/2008 – 2/27/2008



Generated 2/28/2008 at HPRCC using provisional data.

NOAA Regional Climate Centers

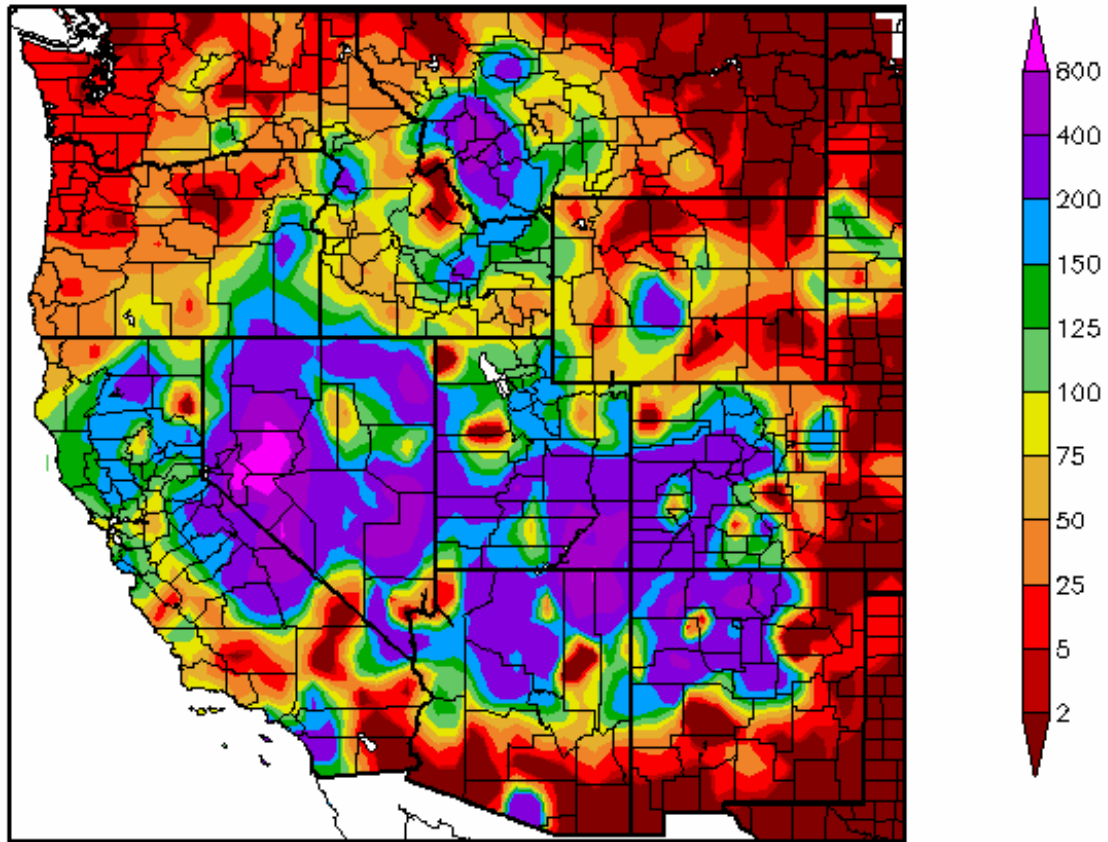
The Current Climate Summary Maps are produced daily using data from the Applied Climate Information System (ACIS). Stations used are from the National Weather Service Cooperative Observer Network (COOP), and the Automated Weather Data Network (AWDN). All near-real-time data are considered preliminary 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 the Sierras (<-10F) and greatest positive departures over the Northern Rockies, southern New Mexico, and Cascades (~+6F). Ref:
http://www.hprcc.unl.edu/maps/current/index.php?action=update_product&product=TDdept.

Percent of Normal Precipitation (%)
2/21/2008 – 2/27/2008



Generated 2/28/2008 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 27 February shows significant precipitation across central California, Nevada, the Montana Rockies, and the 4-Corner States. Significantly lesser amounts fell over the Cascades and Eastern High Plains. 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

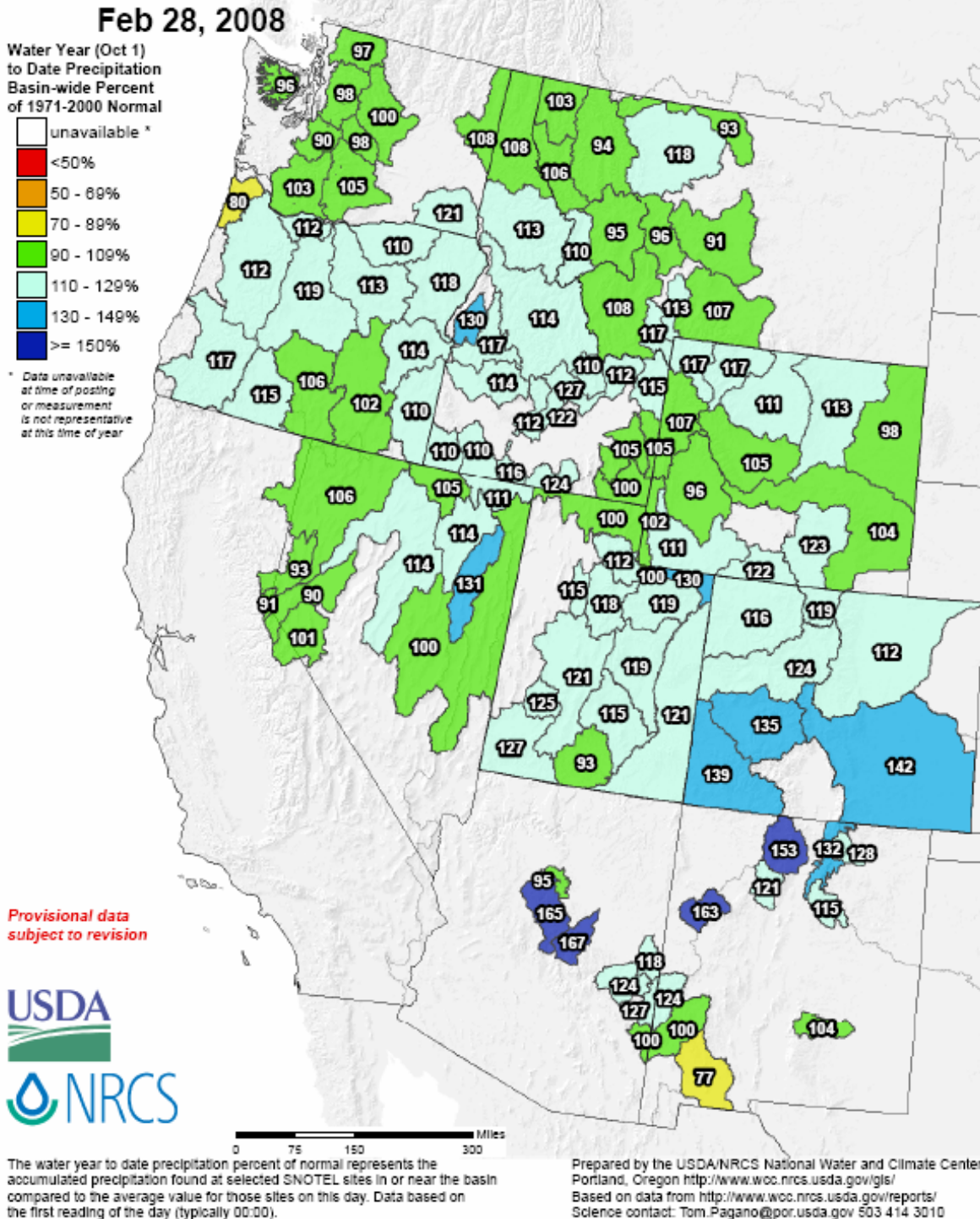


Fig 3a. Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2008 Water Year that began on October 1, 2007 shows well above normal totals over much of the West. Only a few river basins (one in New Mexico and Oregon) are lower than 90% of normal. Ref: ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west_wytdprecptnormal_update.pdf.

U.S. Drought Monitor

February 26, 2008
Valid 7 a.m. EST

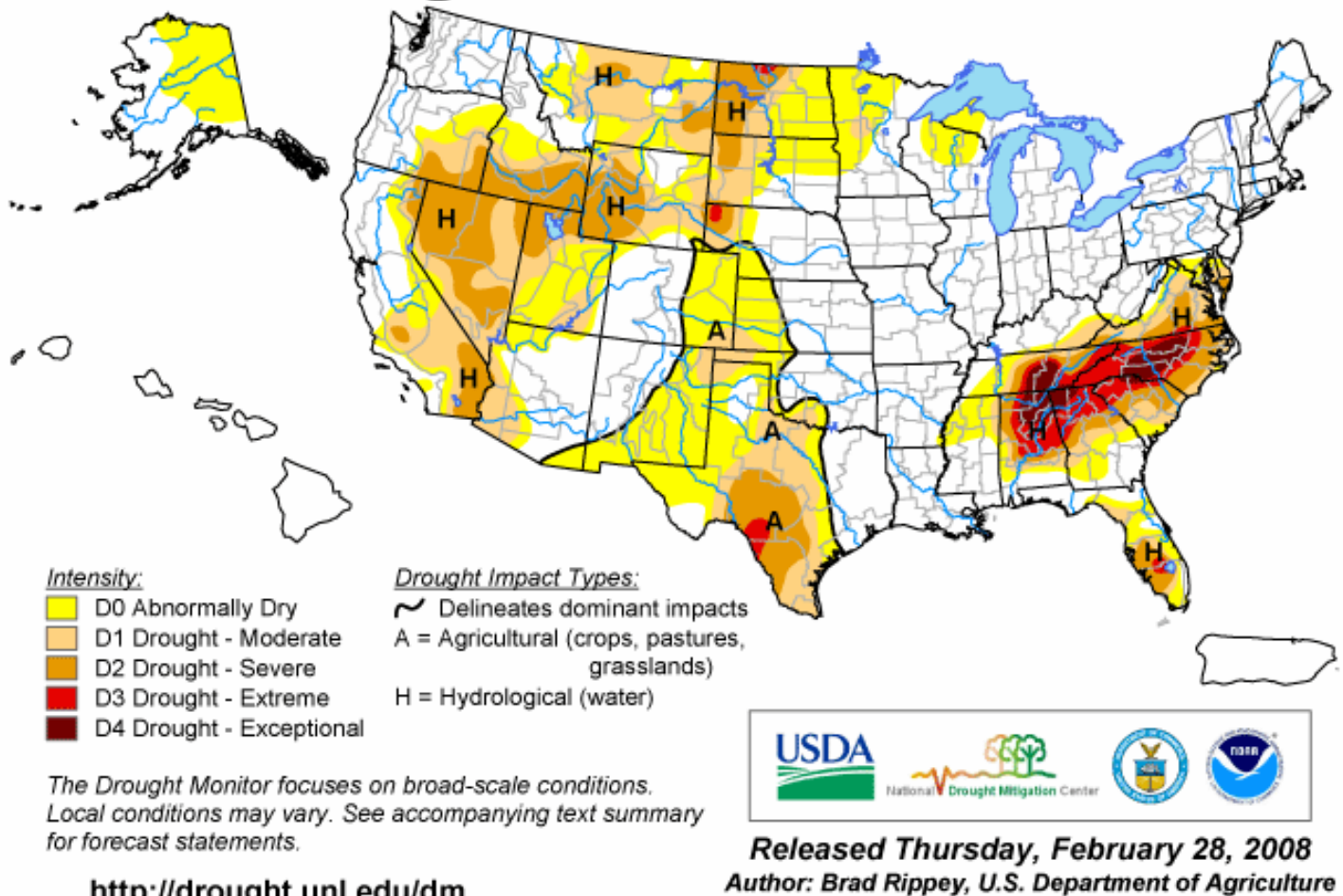


Fig. 4. Current Drought Monitor weekly summary.

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

Weekly Snowpack and Drought Monitor Update Report

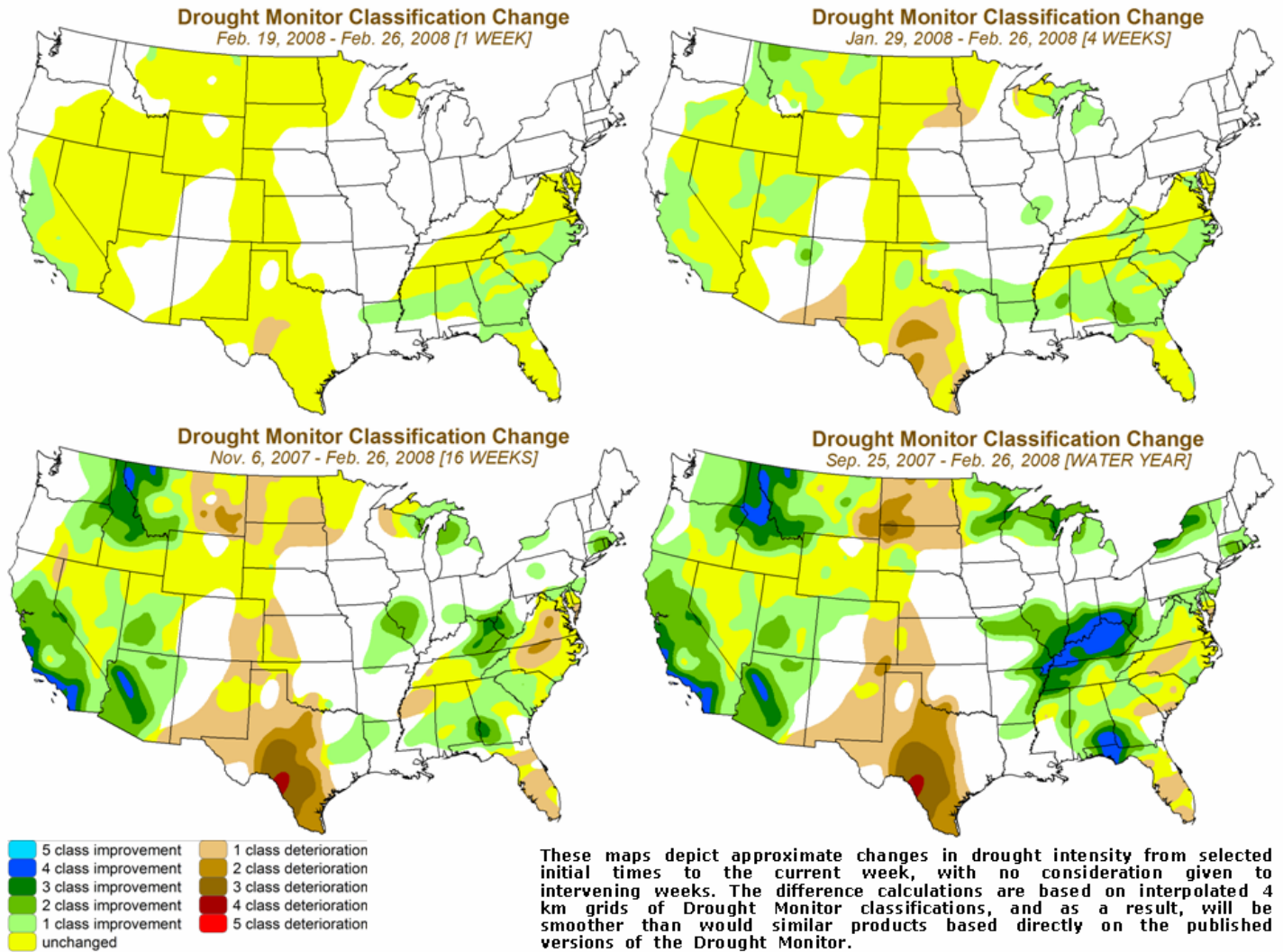


Fig. 4a. Drought Monitor classification changes during several time periods. Scattered improvement occurred across California and the South during the past week with longer term improvement over Kentucky, northwest Florida, northern Idaho, southern California, and southwestern Arizona but worsening conditions 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

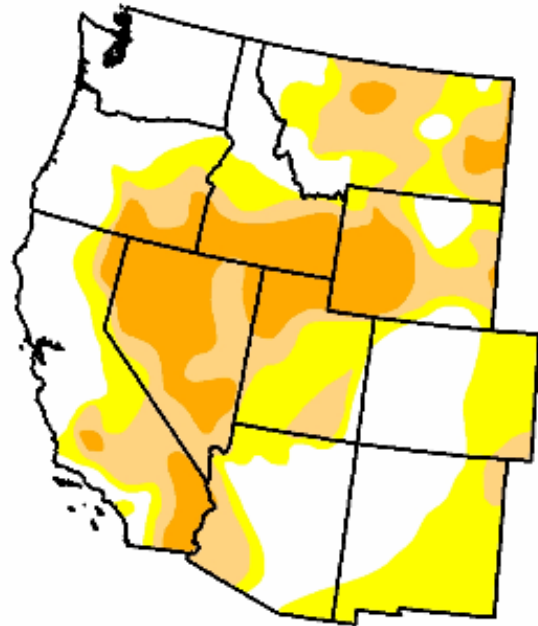
February 26, 2008

Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	37.8	62.2	37.0	16.6	0.0	0.0
Last Week (02/19/2008 map)	33.9	66.1	37.5	16.9	0.0	0.0
3 Months Ago (12/04/2007 map)	26.1	73.9	54.8	32.8	2.7	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 (02/27/2007 map)	41.9	58.1	31.4	17.7	4.0	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>



Released Thursday, February 28, 2008

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

Fig. 4b. Drought Monitor for the Western States with statistics over various time periods. Note some improvement since last week (mostly in D0 category).

Ref: http://www.drought.unl.edu/dm/DM_west.htm.

U.S. Drought Monitor

Southeast

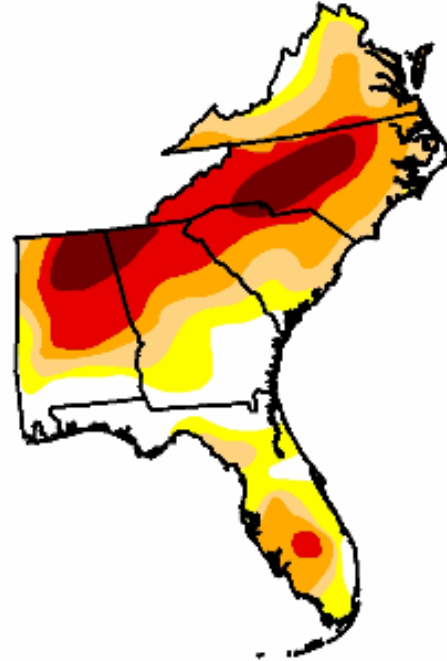
February 26, 2008

Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	18.1	81.9	66.2	48.6	27.1	8.9
Last Week (02/19/2008 map)	8.6	91.4	72.4	54.4	34.5	18.9
3 Months Ago (12/04/2007 map)	12.3	87.7	77.9	59.7	45.2	31.5
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 (02/27/2007 map)	53.1	46.9	10.8	0.0	0.0	0.0

Intensity:

 D0 Abnormally Dry	 D3 Drought - Extreme
 D1 Drought - Moderate	 D4 Drought - Exceptional
 D2 Drought - Severe	



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



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Fig. 4c: Drought Monitor for the Southeastern States with statistics over various time periods. Note the significant improvement in all categories since last week.

Ref: http://www.drought.unl.edu/dm/DM_southeast.htm.

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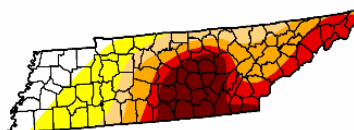
U.S. Drought Monitor Tennessee

February 26, 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	54.0	34.5	17.0
Last Week (02/19/2008 map)	14.3	85.7	66.2	54.1	35.7	18.6
3 Months Ago (12/04/2007 map)	25.6	74.4	61.8	54.0	46.8	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 (10/01/2007 map)	0.0	100.0	100.0	100.0	85.7	61.3
One Year Ago (02/27/2007 map)	27.7	72.3	52.8	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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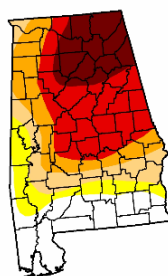
U.S. Drought Monitor Alabama

February 26, 2008
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	20.2	79.8	69.6	57.3	41.8	15.4
Last Week (02/19/2008 map)	18.3	81.7	74.1	64.7	47.9	35.3
3 Months Ago (12/04/2007 map)	6.0	94.0	86.0	71.8	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 (10/01/2007 map)	0.0	100.0	95.4	83.7	76.1	52.0
One Year Ago (02/27/2007 map)	37.6	62.4	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
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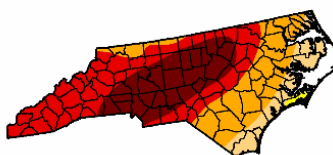
U.S. Drought Monitor North Carolina

February 26, 2008
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.0	100.0	98.8	87.7	61.3	26.3
Last Week (02/19/2008 map)	0.0	100.0	100.0	100.0	78.6	46.2
3 Months Ago (12/04/2007 map)	0.0	100.0	100.0	99.5	81.9	56.2
Start of Calendar Year (01/01/2008 map)	0.0	100.0	100.0	100.0	83.7	51.3
Start of Water Year (10/01/2007 map)	0.0	100.0	100.0	92.8	79.4	37.7
One Year Ago (02/27/2007 map)	83.8	16.2	3.5	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>

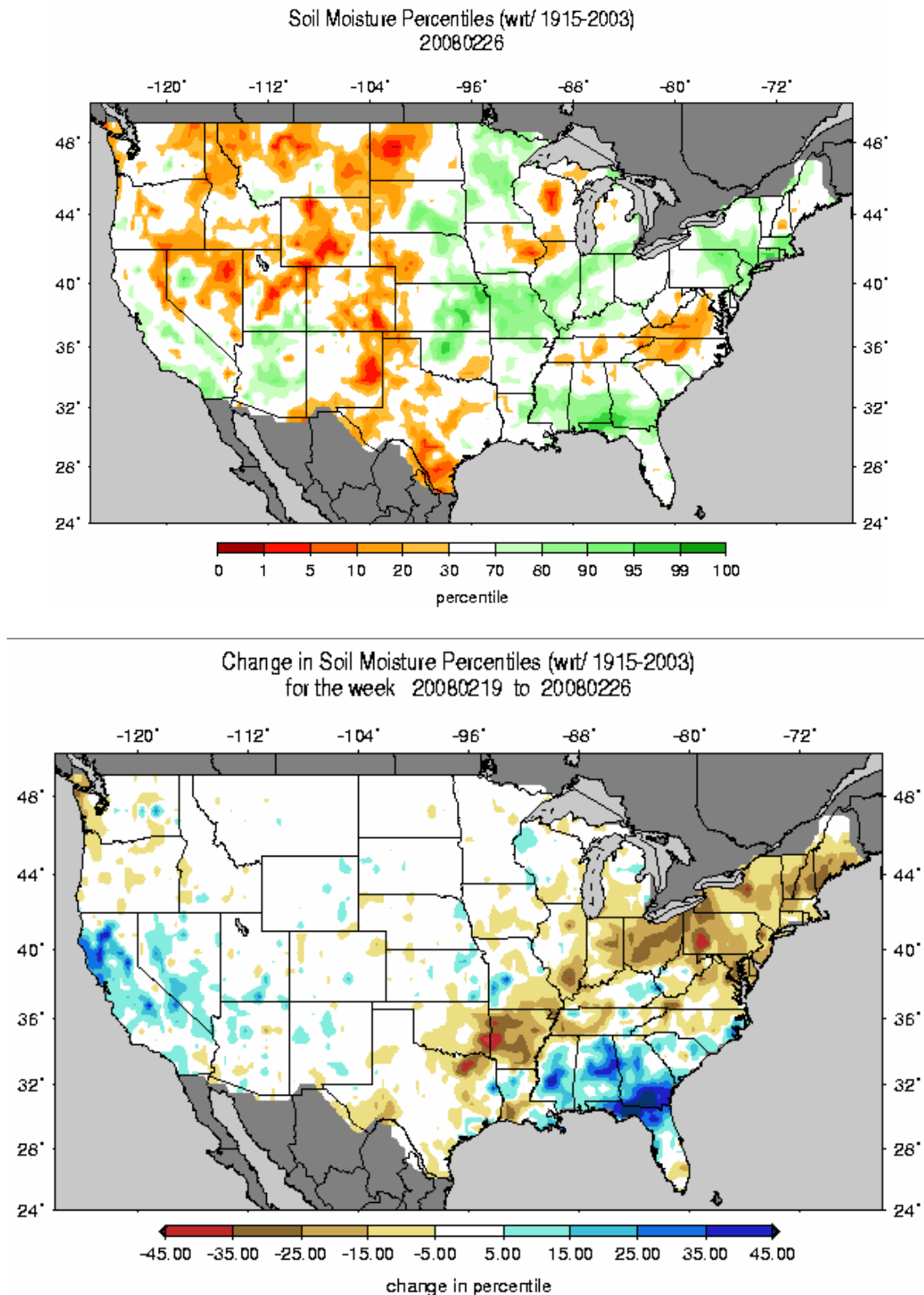


Released Thursday, February 28, 2008
Author: Brad Rippey, U.S. Department of Agriculture

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

Ref: http://www.drought.unl.edu/dm/DM_state.htm?TN,S
http://www.drought.unl.edu/dm/DM_state.htm?AL,SE
http://www.drought.unl.edu/dm/DM_state.htm?NC,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 California and Southeast but much drier from NE Texas to New England. 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.sm_gnt.gif
http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm_gnt.1wk.gif.

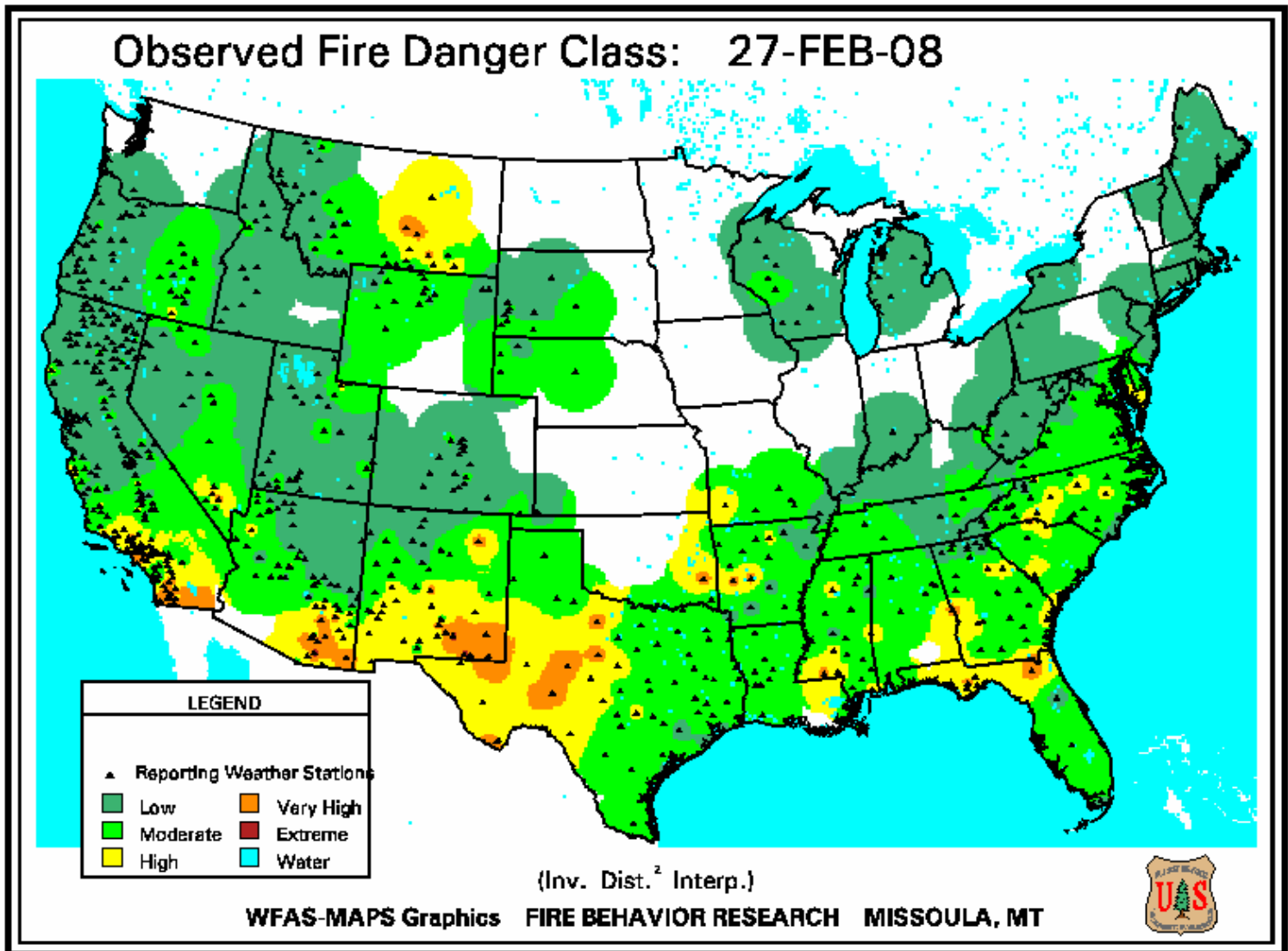


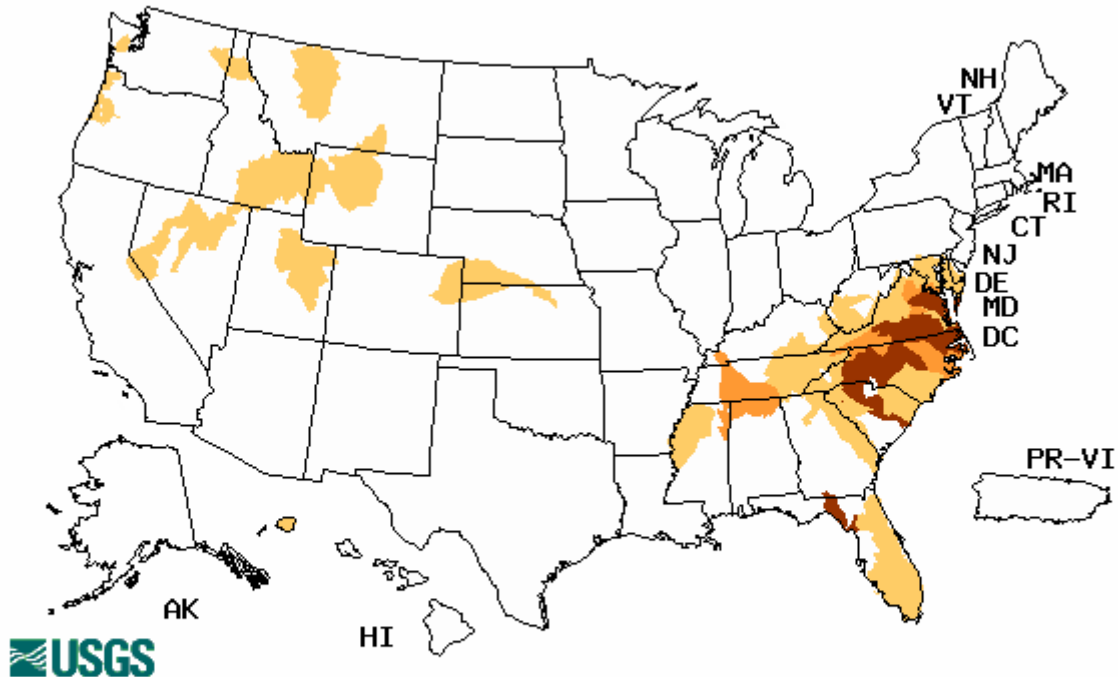
Fig. 6. Observed Fire Danger Class as of 27 February. Note increase risk of fire from southern California to southwestern-central Texas.

Source: Forest Service Fire Behavior Research – Missoula, MT.

Ref: http://www.fs.fed.us/land/wfas/fd_class.gif

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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 improvement over the Southeast but no significant change over the 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 26, 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: At least 2 inches of rain fell from northern Louisiana into much of Georgia and northern Florida, bringing another round of reductions in the coverage and intensity of abnormal dryness (D0) and moderate to exceptional drought (D1 to D4). Rainfall was particularly heavy across southern Georgia and northern Florida, where a few locations received in excess of 10 inches. As a result, a gap widened between drought areas of Florida and the remainder of the Southeast. In fact, improvements were fairly widespread across the Southeast, except along the northern fringe of the drought area.

The Great Lakes Region: Little or no snow was reported in abnormally dry (D0) sections of northern Wisconsin and Upper Michigan, leaving the depiction unchanged.

The Plains: The overall drought picture was virtually unchanged across the northern and central Plains, but deterioration occurred farther south, mainly in Texas, due to windy weather and a heat wave. In particular, coverage of moderate to extreme drought (D1 to D3) increased in parts of southern, central, and western Texas. On February 25, temperatures climbed to 100 degrees F at several places in southern Texas, including locations near Carrizo Springs and Del Rio. At the official observation site in Del Rio, the high of 99 degrees F on the 25th tied its February record, previously attained on February 21, 1996.

In Texas alone, more than a dozen wildfires were in various stages of containment as of February 27. The largest blaze, the 219,000-acre Glass fire southwest of Sterling City, was burning in parts of three counties. Other large incidents included the 29,000-acre Scurry County complex near the town of Snyder, where five homes were destroyed, and the 20,000-acre Silver fire in Coke County, where the community of Robert Lee was evacuated. Just in the last week, nearly 300,000 acres of vegetation were charred across Texas, boosting the year-to-date total to more than 480,000 acres. During all of 2007, just 121,964 acres burned in the Lone Star State. Fires were not just confined to Texas; other blazes in recent days included a 40,000-acre fire near Hobbs, New Mexico, where tower personnel at the Hobbs Airport were evacuated for 4 hours. In northwestern Oklahoma, several thousand acres burned in Woodward County.

Agricultural impacts of dryness and drought across the south-central U.S. included stress on winter wheat. As of February 24, the Texas winter wheat crop was rated 64% very poor to poor, while the state's range and pastureland was rated 45% very poor to poor. Ironically, dry conditions also promoted early-season fieldwork in Texas; by February 24, planting advanced ahead of the 5-year average and was 1% complete for corn and 2% complete for sorghum.

The West: A series of storms moved into California and generally weakened while moving eastward across the West. Precipitation amounts of 2 to 5 inches, with locally higher totals, were common along and near the California coast and in the Sierra Nevada. Abnormal dryness (D0) was removed from much of the coastal region of central and southern California and the majority of

Weekly Snowpack and Drought Monitor Update Report

California's Central Valley. Farther inland, the gradient from abnormal dryness to severe drought (D0 to D2) tightened along and near the California-Nevada border. However, abnormal dryness remained in place across much of the Sierra Nevada due to concerns about expectations for below-average spring and summer runoff in many key watersheds. Nevertheless, the average water content of the Sierra Nevada snow pack climbed to 29 inches (118% of average for the date) by February 27, up from 24 inches (103%) a week earlier, according to the California Department of Water Resources.

Alaska: Again this week, heavy precipitation was confined to south-central and southeastern Alaska, well outside the region of below-average snow packs that define a large area of abnormal dryness (D0).

Looking Ahead: During the next 5 days (through March 3), a storm system will cross the nation's northern tier from February 28 to March 1, producing some snow from the northern Plains into the Northeast. Meanwhile, some light rain will briefly affect the South and East. During the weekend, however, a stronger storm will arrive in the Northwest. By early next week, March 3, there is the potential for some heavy showers and locally severe thunderstorms to develop from the southeastern Plains into the Southeast. Some precipitation may also return to the Midwest.

The NWS 6- to 10-day outlook for March 4-8 calls for the likelihood of a wet weather pattern in most areas from the Plains to the East Coast. Wet conditions will be most likely in the Southeast. Meanwhile, warm, mostly dry weather can be expected across the West Coast states. Elsewhere, above-normal temperatures will prevail in southern Florida and the Northeast, but cooler-than-normal weather will cover much of the central one-third 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 27, 2008