



727 Hardin Hall
3310 Holdrege Street
Lincoln, NE 68583-0997
402 472-6706
Fax 402 472-8763
<http://hprcc.unl.edu>



Winter scene in Nebraska - Photo by Ken Dewey
<http://www.nebraskaweatherphotos.org>

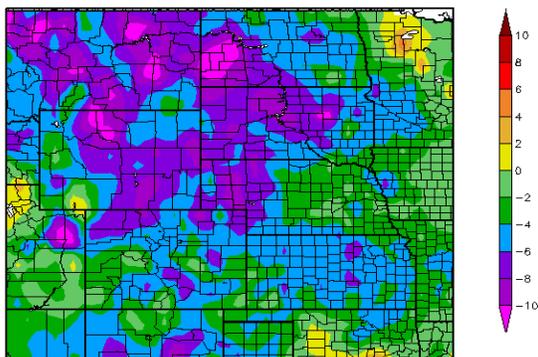
February 2011 Climate Summary

Region Breakdown

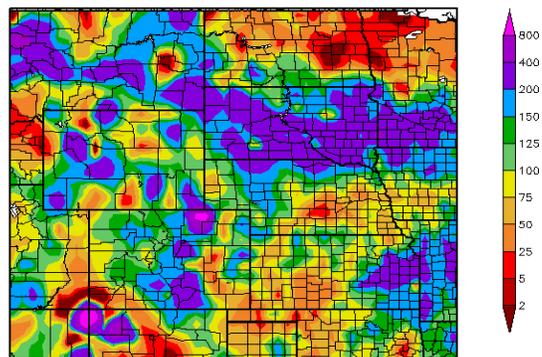
February 2011 was a month of extremes in the High Plains Region. The lowest temperatures of the month were, for the most part, observed at the beginning of the month. An arctic air mass settled into the Region and many daily low temperature records were set. Dangerous wind chills were also experienced throughout the Region. According to the National Weather Service in Cheyenne, Wyoming, the coldest wind chill in that area was -61 degrees F (-51.7 degrees C) at the Laramie Airport on February 2. Also on that date, the Rawlins Municipal Airport, Wyoming tied for its all time lowest temperature when the temperature plummeted to -36 degrees F (-37.8 degrees C) (period of record 1951-2011). There was a warm-up mid month and daily high temperature records were broken in parts of the Region, however cold air returned at the month's end.

Overall, February average temperatures were 2-6 degrees F (1.1-3.3 degrees C) below normal for most of the Region including Kansas, Colorado, the eastern Dakotas, and eastern Nebraska. Large areas of western North Dakota, central and western South Dakota, the panhandle of Nebraska, and central and eastern Wyoming had average temperatures which were more than 6 degrees F (3.3 degrees C) below normal. Locations in Wyoming and the panhandle of Nebraska had average monthly temperatures which ranked in the top 10 coldest Februaries on record. Sunshine 3NE, Wyoming, which is located in the north-west part of the state, had its 2nd coldest February on record with an average temperature of 15.0 degrees F (-9.4 degrees C). The record of 11.0 degrees F (-11.7 degrees C) was recorded in 1989 (period of record 1963-2011).

Departure from Normal Temperature (F)
2/1/2011 - 2/28/2011



Percent of Normal Precipitation (%)
2/1/2011 - 2/28/2011



Departure from 1971-2000 Normal Average Temperature (left) and Percent of Normal Precipitation (right) for February 2011 in the High Plains Region. Maps produced by High Plains Regional Climate Center. Available at: <http://hprcc.unl.edu/maps/current>

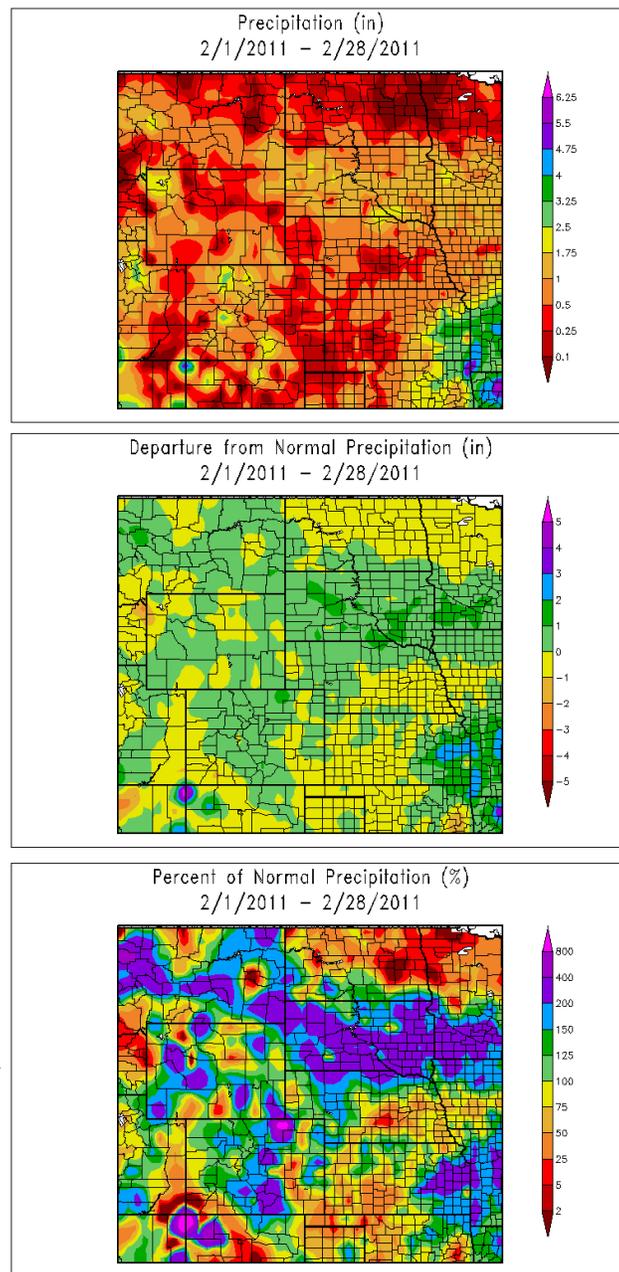
Precipitation Summary

Several storm systems affected the Region this month. Overall, South Dakota, eastern Kansas, and pockets of both Colorado and Wyoming had precipitation which was above normal. The rest of the Region had either near to below normal precipitation.

A strong system brought extreme cold and snow to the Region at the beginning of the month. While many locations within the Region received snowfall, the main impacts of the storm were just east of the Region. A large area from Kansas City through Chicago was hit particularly hard as dangerous blizzard conditions led to interstate and airport closures. Another round of snow hit the eastern portion of the Region on February 8-9. The heaviest snow fell in eastern Kansas where up to 16 inches (41 cm) was reported. A mid-month warm-up allowed for much of the snow cover across the Region to melt, however the snow cover quickly built up again. Later in the month a storm system moved through the Region bringing thunderstorms, ice, and snow. On the 21st, thunderstorms occurred in eastern Nebraska while just to the north, ice accumulations up to a quarter inch were reported. Meanwhile, heavy snow fell across South Dakota, where over a foot (30 cm) of snow was reported in many locations. On February 24th another snow storm hit the Region. Heavy snows of up to a foot (30 cm) were again reported in southwestern South Dakota and up to 5-9 inches (13-23 cm) were reported in Kansas and Nebraska. Also, in Kansas and Nebraska, much of the snow fell in a short amount of time and snowfall rates of 2 inches/hour (5 cm/hour) were reported. The month ended with the first round of severe storms to hit the Region. On February 27th thunderstorms produced large hail in southern Kansas and a brief tornado was spotted along the Kansas-Oklahoma border.

The heavy snow this month not only led to new February records but also new winter (December, January, and February) records. Bonner Springs, Kansas, which is just outside of Kansas City, recorded its snowiest February on record with 17.5 inches (44 cm) of snowfall (period of record 1938-2011). The old record was set in 1978 with 17.0 inches (43 cm). Aberdeen, South Dakota had its 4th snowiest February with 21.0 inches (53 cm) and its snowiest winter with 61.2 inches (155 cm) of snow (period of record 1893-2011). This beat the longstanding record of 57.0 inches (145 cm) which was set in 1915.

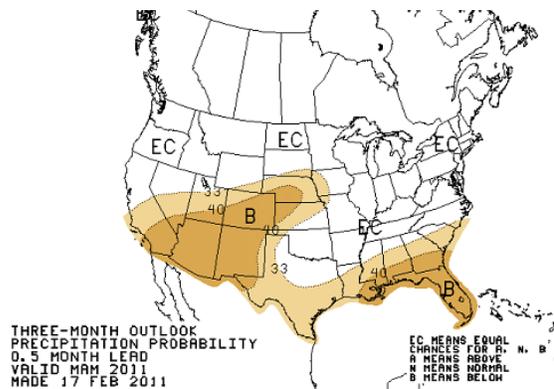
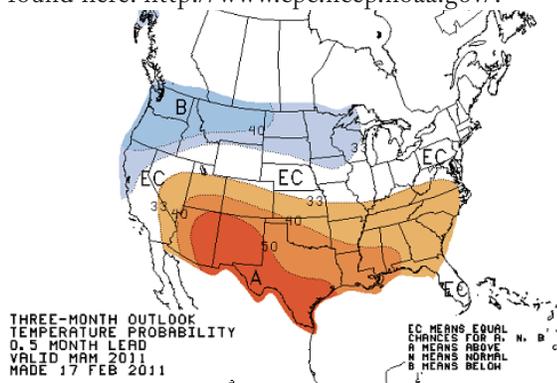
Meanwhile, North Dakota was on the dry side this month. Fargo, North Dakota only received 0.08 inches (2 mm) of liquid equivalent precipitation which was the 6th driest February on record and Grand Forks, North Dakota only received 0.04 inches (1 mm) of liquid equivalent precipitation which was the 4th driest February on record. The dry conditions this month did not stop the concern over flooding along the Red River or flood preparations. According to the North Dakota State Climate Office, Fargo had already filled 1.5 million sand bags and the North Dakota National Guard began training sessions to help prepare for the potential flooding.



Above: Total precipitation (inches) (top), Departure from Normal Precipitation (inches) (middle), and Percent of Normal Precipitation (bottom) for February 2011 in the High Plains Region. These maps are produced by HPRCC and can be found on the Current Climate Summary Maps page at: <http://hprcc.unl.edu/maps/current>.

Climate Outlook

La Niña conditions were present across the equatorial Pacific this month and ENSO-neutral or La Niña conditions are equally likely late spring into early summer 2011. The temperature outlook indicates a higher probability of above normal temperatures for much of Kansas and Colorado. North Dakota, the majority of South Dakota, and extreme northern Wyoming have a higher probability of below normal temperatures. Equal chances of above, near, or below normal temperatures are predicted elsewhere in the Region. The precipitation outlook indicates a higher probability of below normal precipitation for Colorado, Nebraska, the majority of Kansas, southern Wyoming, and southeastern South Dakota. Equal chances of above, near, or below normal precipitation are predicted elsewhere in the Region. The seasonal outlooks combine the effects of long-term trends, soil moisture, and when applicable, the El Niño Southern Oscillation cycle (ENSO). More information about these forecasts can be found here: <http://www.cpc.ncep.noaa.gov/>.



Above: 3-Month Outlook Maps Courtesy the NOAA Climate Prediction Center - <http://www.cpc.ncep.noaa.gov>
(left) The Three-Month Temperature Probability Outlook, (right) The Three-Month Precipitation Probability Outlook

Drought Watch

The U.S. Drought Monitor did not change over the last month for the High Plains Region. Severe drought conditions (D2) persisted over south-central Colorado and western Kansas. A large area of moderate drought conditions (D1) across eastern Colorado, western Kansas, and the panhandle of Nebraska also remained. A second area of D1 in southeastern Kansas also existed. In addition, the areas of abnormally dry conditions (D0) in western Wyoming and surrounding the D1 areas remained unchanged. According to the U.S. Seasonal Drought Outlook released February 17th drought conditions across Colorado, Kansas, and Nebraska were expected to persist and drought conditions were expected to develop in southern Nebraska and central Kansas.

U.S. Drought Monitor February 22, 2011
Valid 7 a.m. EST

High Plains

| | Drought Conditions (Percent Area) | | | | |
|---|-----------------------------------|-------|-------|-------|-------|
| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 |
| Current | 62.25 | 37.75 | 19.14 | 2.39 | 0.00 |
| Last Week (02/15/2011 msg) | 62.25 | 37.75 | 18.93 | 2.39 | 0.00 |
| 3 Months Ago (11/23/2010 msg) | 67.42 | 32.58 | 12.15 | 0.00 | 0.00 |
| Start of Calendar Year (12/29/2010 msg) | 60.35 | 39.65 | 19.57 | 2.63 | 0.00 |
| Start of Water Year (09/28/2010 msg) | 65.06 | 34.95 | 3.74 | 0.00 | 0.00 |
| One Year Ago (02/18/2010 msg) | 79.27 | 20.73 | 4.45 | 0.00 | 0.00 |

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 24, 2011
B. Rippey, U.S. Dept of Agriculture

U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period
Valid Spring (March-May) 2011
Released February 17, 2011

KEY:
 Brown: Drought to persist or intensify
 Orange: Drought ongoing, some improvement
 Green: Drought likely to improve, impacts ease
 Yellow: Drought development likely

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor. NOTE: the green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.

The U.S. Drought Monitor is produced as a joint effort of the U.S. Department of Agriculture (USDA), National Drought Mitigation Center, U.S. Department of Commerce and the National Oceanic and Atmospheric Administration (NOAA). Real-time data provided through ACIS from the Regional Climate Centers are often used by the agencies involved in the U.S. Drought Monitor when determining the area and intensity of drought conditions, although the product itself is not produced by HPRCC. For current Drought Monitor information, please see: <http://www.ndmc.unl.edu/dm/monitor.html>
Portions of this Drought Watch are courtesy the Drought Monitor Text Discussion found on the Drought Monitor webpage.

State Summaries

| Colorado | Temperatures (degrees F) | | | | | | | | Precipitation (inches) | | |
|-------------------------------------|--------------------------|------|------|--------|----------|--------|-----|-------|------------------------|--------|--------|
| | Averages | | | | Extremes | | | | Totals | | |
| | Max | Min | Mean | Depart | High | Date | Low | Date | Obs | Depart | % Norm |
| Alamosa San Luis Airport | 39.2 | 3.0 | 21.1 | -1.4 | 56 | 02/28+ | -31 | 02/03 | 0.39 | 0.18 | 186 |
| Akron Washington County Airport | 39.8 | 12.3 | 26.1 | -6.2 | 68 | 02/16 | -17 | 02/02 | 0.09 | -0.27 | 25 |
| Colorado Springs Municipal Airport | 42.5 | 16.0 | 29.3 | -2.4 | 71 | 02/13 | -12 | 02/02 | 0.14 | -0.21 | 40 |
| Grand Junction Walker Field Airport | 42.6 | 18.3 | 30.5 | -3.6 | 60 | 02/19+ | -4 | 02/09 | 0.34 | -0.16 | 68 |
| Pueblo Memorial Airport | 46.5 | 12.1 | 29.3 | -5.3 | 72 | 02/13 | -18 | 02/03 | 0.58 | 0.32 | 223 |

| Kansas | Temperatures (degrees F) | | | | | | | | Precipitation (inches) | | |
|-------------------------------|--------------------------|------|------|--------|----------|-------|-----|-------|------------------------|--------|--------|
| | Averages | | | | Extremes | | | | Totals | | |
| | Max | Min | Mean | Depart | High | Date | Low | Date | Obs | Depart | % Norm |
| Concordia Municipal Airport | 40.1 | 17.9 | 29.0 | -3.4 | 72 | 02/17 | -1 | 02/02 | 0.71 | -0.02 | 97 |
| Dodge City Regional Airport | 46.6 | 16.5 | 31.6 | -4.4 | 80 | 02/16 | -10 | 02/10 | 0.23 | -0.43 | 35 |
| Goodland Renner Field | 43.1 | 14.5 | 28.8 | -3.6 | 75 | 02/16 | -13 | 02/02 | 0.42 | -0.02 | 95 |
| Topeka Municipal Airport | 42.1 | 19.7 | 30.9 | -2.5 | 76 | 02/17 | -9 | 02/10 | 1.85 | 0.67 | 157 |
| Wichita Mid-Continent Airport | 44.8 | 20.5 | 32.7 | -3.6 | 78 | 02/17 | -17 | 02/10 | 1.39 | 0.37 | 136 |

| Nebraska | Temperatures (degrees F) | | | | | | | | Precipitation (inches) | | |
|-------------------------------|--------------------------|------|------|--------|----------|-------|-----|-------|------------------------|--------|--------|
| | Averages | | | | Extremes | | | | Totals | | |
| | Max | Min | Mean | Depart | High | Date | Low | Date | Obs | Depart | % Norm |
| Chadron Municipal Airport | 34.7 | 7.9 | 21.3 | -6.8 | 68 | 02/16 | -28 | 02/02 | 0.24 | -0.23 | 51 |
| Grand Island Airport | 39.0 | 15.8 | 27.4 | -0.8 | 70 | 02/13 | -5 | 02/02 | 0.28 | -0.40 | 41 |
| Lincoln Municipal Airport | 38.6 | 15.1 | 26.9 | -1.4 | 71 | 02/17 | -8 | 02/03 | 0.79 | 0.13 | 120 |
| Omaha Eppley Airfield | 36.3 | 15.9 | 26.1 | -1.9 | 68 | 02/17 | -10 | 02/08 | 0.59 | -0.21 | 74 |
| Norfolk Karl Stefan Airport | 35.4 | 13.6 | 24.5 | -1.9 | 68 | 02/17 | -9 | 02/08 | 0.59 | -0.17 | 78 |
| North Platte Regional Airport | 39.8 | 10.3 | 25.0 | -4.4 | 71 | 02/16 | -18 | 02/09 | 0.68 | 0.17 | 133 |
| Valentine Miller Field | 33.8 | 10.0 | 21.9 | -4.7 | 71 | 02/16 | -16 | 02/02 | 0.87 | 0.39 | 181 |

| North Dakota | Temperatures (degrees F) | | | | | | | | Precipitation (inches) | | |
|-----------------------------------|--------------------------|------|------|--------|----------|-------|-----|--------|------------------------|--------|--------|
| | Averages | | | | Extremes | | | | Totals | | |
| | Max | Min | Mean | Depart | High | Date | Low | Date | Obs | Depart | % Norm |
| Bismark Municipal Airport | 22.0 | 2.3 | 12.1 | -6 | 49 | 02/15 | -32 | 02/03 | 0.57 | 0.06 | 112 |
| Fargo International Airport | 19.5 | 2.8 | 11.2 | -2.9 | 44 | 02/13 | -20 | 02/03 | 0.08 | -0.51 | 14 |
| Grand Forks International Airport | 18.6 | -0.2 | 9.2 | -3.9 | 47 | 02/13 | -23 | 02/10 | 0.04 | -0.54 | 7 |
| Theodore Roosevelt Airport | 20.5 | 1.4 | 11.0 | -10.2 | 44 | 02/13 | -24 | 02/26+ | 0.16 | -0.27 | 37 |
| Williston International Airport | 19.7 | 0.1 | 9.9 | -6.9 | 44 | 02/14 | -33 | 02/01 | 0.55 | 0.16 | 141 |

All Data are Preliminary and Subject to Change. + indicates multiple dates, latest date listed.

Source: National Weather Service Cooperative Observation Network Data

Data are retrieved through the Applied Climate Information System (ACIS).

These data are available for the entire period of record through the CLIMOD system. For more information please see <http://hprcc.unl.edu/services>.

February 2011 Climate Summary

| South Dakota | Temperatures (degrees F) | | | | | | | | Precipitation (inches) | | |
|------------------------------------|--------------------------|-----|------|--------|----------|--------|-----|-------|------------------------|--------|--------|
| | Averages | | | | Extremes | | | | Totals | | |
| | Max | Min | Mean | Depart | High | Date | Low | Date | Obs | Depart | % Norm |
| Aberdeen Regional Airport | 21.1 | 0.1 | 10.6 | -8.1 | 46 | 02/13 | -29 | 02/02 | 1.05 | 0.57 | 219 |
| Huron Regional Airport | 24.4 | 4.6 | 14.5 | -6.5 | 47 | 02/17 | -25 | 02/08 | 1.49 | 0.92 | 261 |
| Pierre Regional Airport | 26.1 | 6.2 | 16.2 | -8.3 | 63 | 02/16 | -17 | 02/25 | 1.64 | 1.10 | 304 |
| Rapid City Regional Airport | 32.1 | 6.4 | 19.3 | -8.0 | 67 | 02/16+ | -20 | 02/02 | 1.16 | 0.70 | 252 |
| Sioux Falls Joe Foss Field Airport | 26.4 | 7.2 | 16.8 | -4.0 | 50 | 02/17+ | -20 | 02/10 | 0.95 | 0.44 | 186 |

| Wyoming | Temperatures (degrees F) | | | | | | | | Precipitation (inches) | | |
|--|--------------------------|------|------|--------|----------|--------|-----|-------|------------------------|--------|--------|
| | Averages | | | | Extremes | | | | Totals | | |
| | Max | Min | Mean | Depart | High | Date | Low | Date | Obs | Depart | % Norm |
| Casper Natrona County International AP | 31.0 | 10.3 | 20.6 | -6.1 | 53 | 02/16+ | -20 | 02/01 | 0.86 | 0.22 | 134 |
| Cheyenne Municipal Airport | 36.4 | 11.3 | 23.9 | -4.9 | 60 | 02/16 | -24 | 02/02 | 0.79 | 0.35 | 180 |
| Lander Hunt Field Airport | 29.9 | 7.3 | 18.6 | -7.0 | 57 | 02/15 | -20 | 02/02 | 1.39 | 0.85 | 257 |
| Laramie Regional Airport | 29.2 | 5.9 | 17.6 | -5.8 | 48 | 02/14 | -39 | 02/02 | 0.23 | -0.23 | 50 |
| Rawlins Municipal Airport | 28.3 | 9.1 | 18.7 | -7.4 | 50 | 02/19 | -36 | 02/02 | 0.16 | -0.36 | 31 |
| Sheridan County Airport | 32.4 | 8.0 | 20.2 | -6.7 | 63 | 02/15 | -21 | 02/02 | 0.28 | -0.29 | 49 |

All Data are Preliminary and Subject to Change. + indicates multiple dates, latest date listed.

Source: National Weather Service Cooperative Observation Network Data

Data are retrieved through the Applied Climate Information System (ACIS).

These data are available for the entire period of record through the CLIMOD system. For more information please see <http://hprcc.unl.edu/services>.

Winter 2010-2011 Records - Highlights

Winter Records (December, January, and February)

Precipitation in inches

| Snowiest | New Record | Old Record | Period of Record |
|-----------------------|-------------------|-------------------|-------------------------|
| Bottineau, ND | 44.7 | 41.0/1988-1989 | 1893-2011 |
| Dickinson, ND | 35.8 | 35.1/1929-1930 | 1893-2011 |
| Forman 5 SSE, ND | 50.5 | 50.4/2009-2010 | 1893-2011 |
| Medora, ND | 40.7 | 33.9/1958-1959 | 1948-2011 |
| Williston, ND | 61.7 | 59.5/2008-2009 | 1894-2011 |
| Aberdeen, SD | 62.1 | 57.0/1914-1915 | 1893-2011 |
| Bison, SD | 47.3 | 36.0/1996-1997 | 1916-2011 |
| Camp Crook, SD | 68.0 | 41.2/1948-1949 | 1893-2011 |
| Ipswich, SD | 53.5 | 41.5/1996-1997 | 1894-2011 |
| Kennebec, SD | 51.5 | 49.3/1996-1997 | 1893-2011 |
| Watertown Rgnl AP, SD | 70.9 | 55.6/2009-2010 | 1893-2011 |
| Mountain View, WY | 52.5 | 52.0/2007-2008 | 1966-2011 |
| Wettest | New Record | Old Record | Period of Record |
| Medora, ND | 2.71 | 2.39/1948-1949 | 1948-2011 |
| Clark, SD | 4.69 | 4.68/1968-1969 | 1893-2011 |
| Huron, SD | 4.42 | 4.38/1961-1962 | 1881-2011 |
| Watertown Rgnl AP, SD | 5.61 | 5.40/1968-1969 | 1893-2011 |
| Devils Tower, WY | 3.88 | 3.44/1993-1994 | 1958-2011 |

All Data are Preliminary and Subject to Change.

* indicates multiple records, latest year is listed

Source: National Weather Service Cooperative Observation Network Data

State Spotlight - North Dakota

F. Adnan Akyüz - State Climatologist, Barb Mullins
North Dakota State Climate Office, North Dakota State University



Precipitation:

Precipitation ranged from roughly 5% to 200% of normal precipitation. Above normal precipitation fell primarily in the south central region and the western and southeastern edge. The majority of the state had 5% to 70% of normal precipitation (Figure 1. High Plains Regional Climate Center). Precipitation totals ranged mostly from 0.01 to 0.7 inches. While it was the 6th driest February for Fargo, most of the state received roughly 0.05 to 0.1 inches of precipitation. According to the USDA, National Agricultural Statistics Service, North Dakota Field Office the statewide average snow depth was 15.6 inches on February 28 compared to 17.1 inches at this time last year. The mid-February thaw reduced the snowdepth. However, the National Weather Service reported that the moisture content in the snowpack in parts of the southern Red River Valley is higher than it was in 2009 when Fargo hit a record high crest. Spring flood preparations started in the Fargo-Moorhead area as sandbag operations went into full swing. The city of Fargo filled 1.5 million sand bags to date which is 50% of the total sandbags planned to be filled. The North Dakota National Guard began training exercises to prepare for the potential flood fight in the eastern part of the state.

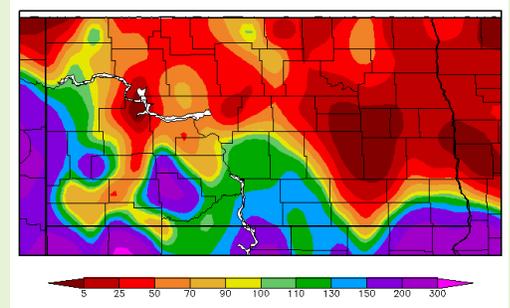


Figure 1. Percent of Normal Precipitation in February 2011 for North Dakota (High Plains Regional Climate Center)

Temperature:

The North Dakota Agricultural Weather Network (NDAWN) February average air temperatures ranged from 5 °F to 13 °F. NDAWN departure from normal temperatures ranged from -1 °F to -10 °F (Figure 2. North Dakota State Climate Office). Average air temperatures were below normal across the state and would have dipped even further below normal if not for the 10 days of above normal temperatures. Average air temperatures were near or above 25 °F across North Dakota from the 3rd through the 5th, and from the 11th through the 17th. The above normal temperatures melted some of the snow depth. The remaining days in February were cold with 10 °F to 25 °F below normal average air temperatures for most of the state.

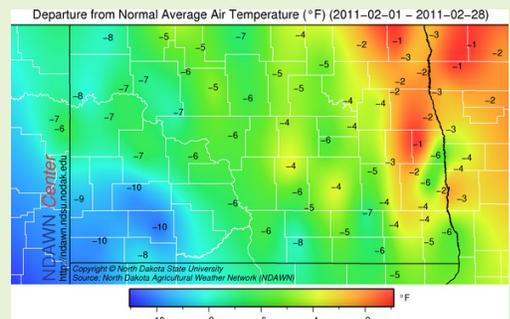


Figure 2. Temperature Departure from Normal in February 2011 for North Dakota (North Dakota State Climate Office)

State Spotlight - South Dakota

Dennis Today - State Climatologist, Nathan Skadsen
 South Dakota State Climate Office, South Dakota State University



Synopsis

South Dakota continued to experience above average snowfall and below average temperatures in the month of February. Travel remained an issue across much of the state as blowing snow closed down parts of the interstates several times. However, the first peeks of spring did begin to make their appearance with a mid-month warm up that saw much of the state reach high temperatures anywhere from the 40s to 60s.

Temperature

The low temperatures seen in January continued to be experienced throughout the state as average temperatures in February were well below normal. The departure from normal temperatures was -6° to -8° Fahrenheit throughout the majority of the state. Average temperatures ranged from the single digits and low teens Fahrenheit in the northeast to the low 20s Fahrenheit in the southwest and Black Hills.

The month started out with an extreme cold snap that brought bitter cold to much of the state. The extreme cold resulted in over 100 school districts canceling classes on February 2nd (Keloland News). Aberdeen and 10W Long Lake saw the lowest reported wind chill values of -46° Fahrenheit and -45° Fahrenheit respectively.

Precipitation and Drought

As with the previous month, February saw the majority of the state receiving above normal precipitation. The percent of normal precipitation was above 150-200% for much of the state. Only stations near Interior, SD and Gettysburg, SD reported near or below average precipitation.

The above average precipitation meant that many observation sites either set or came close to setting new records for total February snowfall. A total of 12 sites, including Newell, Bowdle, Roscoe, Big Stone City 2NW, Camp Crook, Hoover, Andover #2, Bath 1NE, Bristol 7S, Groton, Mission, and Westport, set records. Twenty-eight other sites experienced February snowfalls that were in the top 5 on record.

Much of northeastern South Dakota has not only seen above average precipitation for the month of February, but also for the period from December 1st to February 28th. The towns of Watertown, Aberdeen, and Mobridge have all seen a record amount of snowfall over this period of time. According to the Aberdeen National Weather Service, Aberdeen has already seen the 14th snowiest winter on record, and that's with four more months to go.

The small portion of Fall River County that was experiencing D0 drought conditions at the end of January has since received enough precipitation to remove the D0 conditions. Therefore, at the end of February the entire state of South Dakota was drought free.

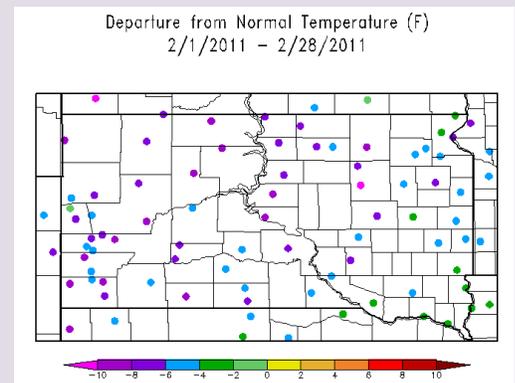


Figure 1. Departure from Normal Temperature in February 2011 for South Dakota (High Plains Regional Climate Center)

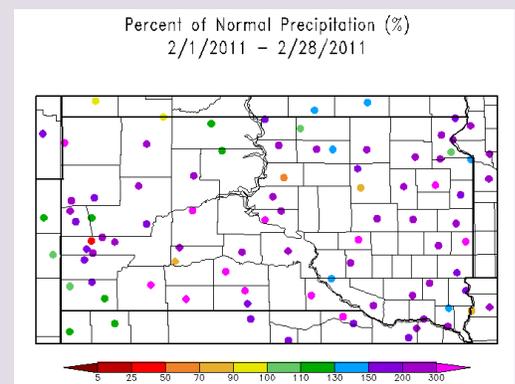


Figure 2. Percent of Normal Precipitation in February 2011 for South Dakota (High Plains Regional Climate Center)

State Spotlight - South Dakota

Dennis Today - State Climatologist, Nathan Skadsen
South Dakota State Climate Office, South Dakota State University



Hydrological Outlook

As of February 24th, much of eastern South Dakota was considered to be at above average or high risk for spring flooding. Both the James and Big Sioux Rivers have a greater than ninety-eight percent chance of reaching major flood stage levels along almost their entire length in South Dakota.

Severe Weather

February 3rd Wind Event

A wind event localized on the eastern slope of the Coteau Hills, which are located in northeastern South Dakota, caught motorists and state officials of guard. The event took place on Wednesday, February 3rd and stranded more than 150 vehicles on Interstate 29 between the towns of Summit, SD and Sisseton, SD. Luckily, no one was injured and the Interstate was reopened Thursday evening.

February 14th - 17th Flood

February 14th saw the Rapid City National Weather Forecast Office issuing a Flood Advisory for Shannon County in southwestern South Dakota. Flooding occurred along the Grass Creek, White Horse Creek, Wounded Knee Creek, Potato Creek, and White Clay Creek due to snowmelt and ice jams. The Flood Advisory was expanded to include Bennett County and southern Jackson County on February 15th as flood waters continued to rise. Oglala Sioux Tribe emergency management had to use boats and other vehicles to deliver drinking water and relief care packages to stranded families. The Advisory was allowed to expire on February 17th as the water receded.

February 20th - 21st Blizzard

President's Day was spent by many people cleaning up from a two day blizzard that brought record snowfall to much of the state. According to the Aberdeen National Weather Service, the towns of Aberdeen (16.0"), Pierre (11.8"), Mobridge (11.1"), and Watertown (11.0") set daily snowfall records on February 20th. The Rapid City National Weather Service reported that Rapid City, SD set a record for daily maximum rainfall (0.57") and daily maximum snowfall (9.3"). Some locations reported locally higher amounts.

State Spotlight - Wyoming

Steve Gray - State Climatologist
Wyoming State Climate Office, University of Wyoming



The climate of February 2011 was marked by bitter cold temperatures in the first half of the month. This was especially true in the basin country of southeastern Wyoming, where several daily minimum temperature and all-time-low temperature records were broken or tied. Mountain snowpack remains high compared with much of the previous decade, and we continue to chip away at lingering drought impacts in the western portion of Wyoming.

On January 31 of this year a strong cold front passed through the state. In the wake of this arctic airmass, portions of the state saw temperatures plummet to -30 °F and below. Severe cold was most prominent in the southeastern corner of the state, where Rawlins tied its all-time-record low of -36 °F on February 2. Though its all-time-record low of -50 °F (recorded on 1/12/63) was never in danger, Laramie's low on the 2nd did reach a daily record of -39 °F. On this same date, Shirley Basin in northern Albany County fell to -48 °F, the second lowest temperature ever recorded at this site (since 1978). The coldest temperature ever recorded at Shirley Basin occurred on 2/3/11, with a low of -48 °F.

As is often the case, February precipitation was highly variable across the state. For example, portions of the Powder and Tongue River basin in northeast Wyoming received < 65% of historical average precipitation for the month (compared to 1971-2000), while portions of the Green River basin in the west received upwards of 200%. Measured as a percent of historical average, the greatest amounts of precipitation tended to be in the state's high-mountain areas. However, unlike most previous months in this water year (October through September), many lower-elevations stations also received significant precipitation. Of particular note were snowfall totals in Fremont County, where the city of Riverton experienced its seventh-wettest February since record keeping began in 1907.

Regarding high-country snowpack, by the end of February the statewide average for snow water equivalent (SWE) was at 114% of historical average (compared to 1971-2000), which is far better than the 73% of average we saw at the same time last year. The Shoshone basin in the northwest corner of Wyoming had the lowest SWE of any drainage in the state, but values still topped 98% of average. The Upper Bear basin in the far southwest had the highest value recorded for any drainage in the state at 136% of average SWE.

According to the U.S. Drought Monitor, Wyoming remained nearly drought free through the month of February 2011 (see <http://www.drought.unl.edu/dm/monitor.html>). February wetness in Fremont County led to the removal of an "abnormally dry" designation from that area. This designation had been in place due to a combination of lingering drought impacts and a lack of low-elevation moisture over the course of this water year.

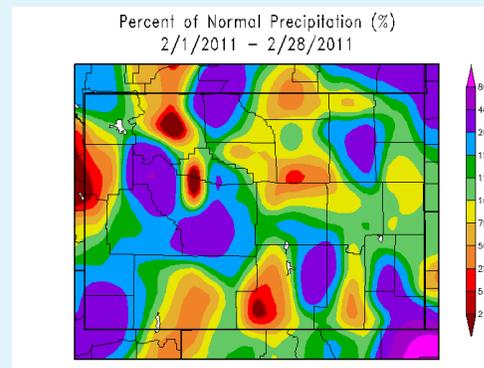


Figure 1. Map showing February 2011 precipitation as a percentage of historical averages (vs. 1971-2000 normal period) for Wyoming. Courtesy HPRCC.

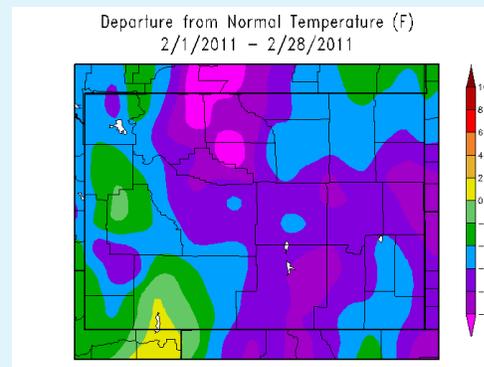


Figure 2. Map showing mean February 2011 temperatures from historical averages (vs. 1971-2000 normal period) for Wyoming. Courtesy HPRCC.

About the High Plains Regional Climate Center

The High Plains Regional Climate Center (HPRCC) operates out of the University of Nebraska - Lincoln (UNL) in Lincoln, Nebraska. As one of 6 regional climate centers throughout the nation, HPRCC works closely with other organizations such as the National Climatic Data Center (NCDC), Local and Regional National Weather Service (NWS) Offices, and other climate services organizations such as the National Drought Mitigation Center (also located at UNL) to provide climate data services and specialized climate products.

For More Information Online

High Plains Regional Climate Center: <http://hprcc.unl.edu>

High Plains Regional Climate Services: <http://hprcc.unl.edu/services>

CLIMOD: <http://climod.unl.edu>

Regional Climate Centers and ACIS: <http://www.rcc-acis.org>

National Weather Service: <http://www.weather.gov>

National Climatic Data Center: <http://ncdc.noaa.gov>

University of Nebraska - Lincoln: <http://www.unl.edu>

National Drought Mitigation Center: <http://drought.unl.edu>

Climate Prediction Center: <http://www.cpc.noaa.gov>

NOAA Storm Prediction Center: <http://www.spc.noaa.gov>



Photo of the Nebraska Sandhills by Bill Sorensen - Senior Programmer - HPRCC

Author Information

For questions, comments, or suggestions, please contact:

Natalie Umphlett - Regional Climatologist - High Plains Regional Climate Center

(402) 472-6764 - numphlett2@unl.edu

712 Hardin Hall

3310 Holdrege Street

Lincoln, NE 68583-0997

