



# February 2018 Climate Summary

A snowy hill 5 miles north of Elm Springs, SD. Photo courtesy Sandy Fields, via NWS Rapid City on Twitter <http://hprcc.unl.edu>

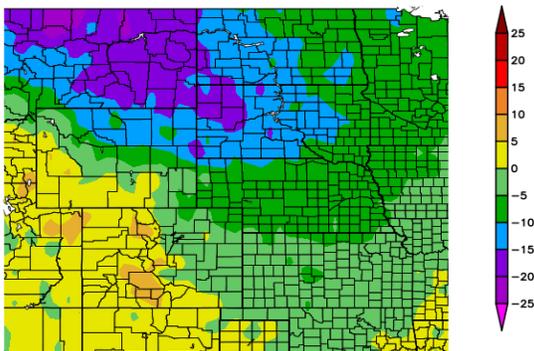
## Cold Conditions Round Out the Winter Season

The last month of the winter season was cold for most of the High Plains region, particularly in the western Dakotas where temperatures ranged from 10.0-15.0 degrees F (5.6-8.3 degrees C) below normal. The cooler temperatures led to several locations breaking records, including Chadron, Nebraska and Rapid City, South Dakota, which had their coolest Februarys on record. Areas of North Dakota and Wyoming made the list of top 10 coolest Februarys as well. The last time record-breaking, below-normal monthly average temperatures were widespread throughout the High Plains was August 2017. Areas that were cold and wet had a snowy month, such as North Platte, NE, Pierre, SD, Rapid City, SD, and Casper, WY. However, cold and dry conditions in areas like North Dakota caused deep frost depths, which prompted concerns over possible damage to water mains.

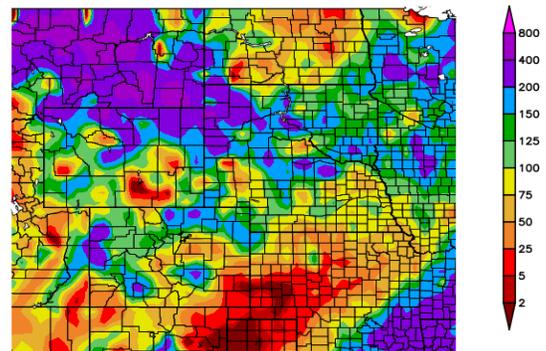
Dryness continued in February throughout Kansas and parts of Colorado, causing drought to intensify. In Colorado, snows helped to reduce seasonal snowfall deficits, but these amounts were not enough to improve conditions. This resulted in drought intensification in the southwestern portion of the state. Mounting precipitation deficits in Kansas caused drought to further spread and intensify across the state. Topsoil moisture and winter wheat conditions were not faring well in Kansas at the end of February. According to the U.S. Department of Agriculture Weekly Weather and Crop Bulletin, 76 percent of the topsoil was rated short to very short, and 50 percent of the winter wheat was rated poor to very poor condition. In the Dakotas, where drought has been present in some areas since late spring 2017, producers are preparing for a possible second consecutive year of drought. For instance, the North Dakota State Water Commissioner's Office authorized another \$500,000 to be used for the Livestock Water Assistance Program, and the state will assist in hauling feed earlier and in higher quantity this year compared to last year. In western South Dakota, the primary concerns were low stock ponds, poor winter wheat conditions, and increased fire activity.

## Temperature and Precipitation Overview

Departure from Normal Temperature (F)  
2/1/2018 - 2/28/2018



Percent of Normal Precipitation (%)  
2/1/2018 - 2/28/2018



Above: Departure from 1981-2010 normal temperature (left) and percent of normal precipitation (right) for February 2018 in the High Plains region. Maps produced by the High Plains Regional Climate Center and are available at: <http://hprcc.unl.edu/maps/current>.

## Precipitation

February yielded both wet and dry conditions throughout the High Plains. On the wet end of the precipitation spectrum, much of Wyoming, South Dakota, northern Nebraska, and pockets of Colorado received 150-400 percent of normal precipitation. Top 10 records for both wettest and snowiest February were set in these areas, which included the following: Sheridan, WY (tied for 3rd wettest); Rapid City, SD (4th snowiest); Pierre, SD (6th wettest and 6th snowiest); Casper, WY (6th snowiest); and North Platte, NE (8th snowiest).

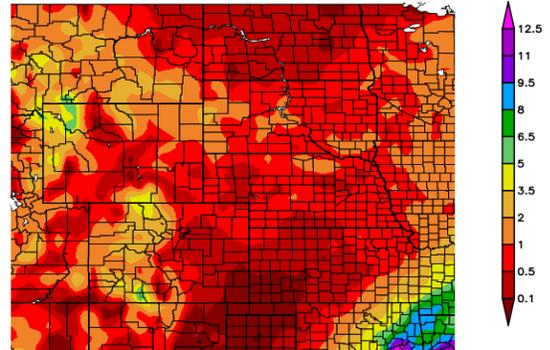
Meanwhile, it was quite dry throughout North Dakota, Kansas, and southeastern Colorado. The driest area was southwestern Kansas, which received less than 5 percent of normal precipitation. Several top 10 records for driest February were set in this area. For instance, Garden City tied multiple years for its driest February on record, while Liberal tied several years for its 4th driest. While snowfall was scarce in some of these locations, the lack of snowfall was not record-breaking for the month of February.

As for winter precipitation, northern and southern areas of the High Plains were dry, while the central part of the region was wet. Wetter areas included a swath from Wyoming to the east and southeast into western South Dakota and western and central Nebraska, where precipitation exceeded 200 percent of normal in some locations. The following top 10 records for wettest or snowiest winter were set: North Platte, NE (snowiest); Casper, WY (4th wettest and 4th snowiest); Sheridan, WY (7th wettest); and Rapid City, SD (7th snowiest).

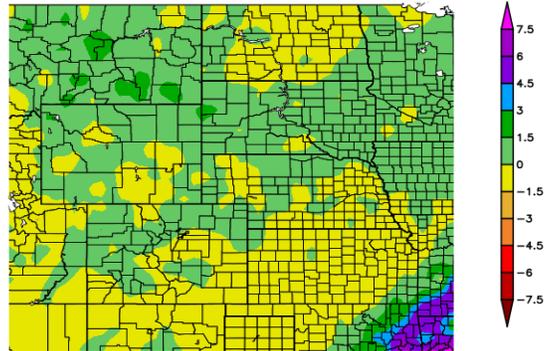
Drier conditions were in place across North Dakota and northeastern South Dakota, as well as throughout southern Wyoming and much of Colorado and Kansas, where little precipitation fell during the winter. Southern and western Kansas was hit the hardest, with the following locations setting records for a top 10 driest or least snowiest winter: Salina (2nd driest), Wichita (3rd driest and 5th least snowiest), and Dodge City (5th driest and 5th least snowiest). Season-to-date snowfall in parts of Kansas has also been lacking. From July-February, only 1.0 inch (3 cm) of snow fell in Wichita, which tied 1999 for the 2nd least snowiest July-February on record. Dodge City was not much better off, with only 1.4 inches (4 cm) of snowfall and the 4th least snowiest July-February on record.

### Regional Precipitation

Precipitation (in)  
2/1/2018 - 2/28/2018



Departure from Normal Precipitation (in)  
2/1/2018 - 2/28/2018



Above: Total precipitation in inches (top) and departure from normal precipitation in inches (bottom) for February 2018. These maps are produced by HPRCC and can be found on the Current Climate Summary Maps page at: <http://hprcc.unl.edu/maps/current>.

## Snowpack Update

Snowpack in the Northern Rockies continued to fare well in February. According to the U.S. Army Corps of Engineers, there were slight increases in snowpack in the Upper Missouri River Basin since last month. Snow Water Equivalent (SWE) in the Basin above Fort Peck Reservoir and between Fort Peck and Garrison Reservoirs was 129% and 135%, respectively, as of the end of February. Snowpack was still above normal in the Rockies of Wyoming. Meanwhile, Colorado snowpack improved slightly over the month in some locations but remained well below normal. In the Plains, snowfall in the northern part of the region deepened the snowpack in North Dakota and covered the ground in South Dakota, which was bare at the end of January. Kansas, eastern Colorado, southeastern Wyoming, and much of Nebraska except the northern tier of the state were snow-free at the end of February.

## Temperatures

February was cool for the majority of the High Plains, particularly in the eastern part of the region. Temperature departures increased from south to north, ranging from 1.0-3.0 degrees F (0.6-1.7 degrees C) below normal across Kansas to as much as 10.0-15.0 degrees F (5.6-8.3 degrees C) below normal across the western Dakotas. Locations across the Dakotas, Nebraska, and Wyoming ranked in the top 10 of coolest Februarys, with Chadron, Nebraska and Rapid City, South Dakota setting new records as the coldest. On the other hand, southwestern Wyoming and the western half of Colorado experienced slightly above-normal temperatures in February.

Winter temperatures followed a similar pattern to February: warm in the southwestern part of the High Plains and cool elsewhere. This pattern was a result of a persistent ridge in the western U.S., which allowed outbreaks of cold air to spill into the northern and central High Plains. This pattern resulted in several records for both warmest and coolest winters. For instance, Alamosa, Colorado had its 2nd warmest winter on record, and it was the 8th warmest for Laramie and Rawlins in Wyoming; however, Rapid City, South Dakota experienced its 8th coolest winter on record. The presence of La Niña conditions also likely played a role in the below-normal temperatures experienced by the Northern Plains during winter.

Coupled with the lack of snow cover this winter, below-normal temperatures continued to maintain deep frost depths in some locations. For instance, frost depth exceeded 100 cm in parts of the Dakotas in February. The deep frost depths caused damage to water mains in South Dakota and Nebraska during February.

## Drought Conditions

Both improvements and degradations in drought conditions occurred across the High Plains in February, according to the U.S. Drought Monitor. Overall, the area experiencing abnormal dryness or drought (D0-D4) decreased from 78 percent to 69 percent, thanks to wet conditions across central portions of the region. However, drought intensified in the southern High Plains.

### U.S. Drought Monitor

**U.S. Drought Monitor  
High Plains**

**February 27, 2018**  
(Released Thursday, Mar. 1, 2018)  
Valid 7 a.m. EST

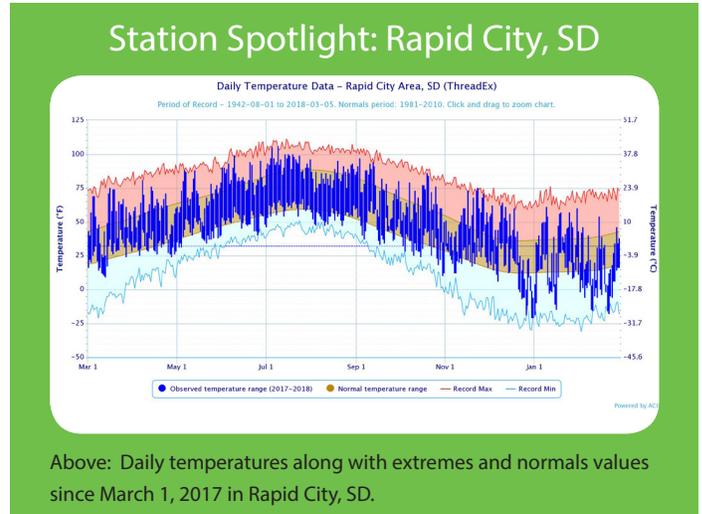
	Drought Conditions (Percent Area)				
	None	D0-D4	D1-D4	D2-D4	D3-D4
<b>Current</b>	31.01	69.99	44.54	15.45	3.09
<b>Last Week</b> (2/20/2018)	28.39	71.61	44.47	15.76	3.00
<b>3 Month Ago</b> (1/29/2017)	59.35	40.65	19.97	3.44	0.00
<b>Start of Calendar Year</b> (1/1/2018)	19.28	80.72	29.19	6.34	0.00
<b>Start of Water Year</b> (10/1/2017)	55.15	43.85	21.11	8.37	1.32
<b>One Year Ago</b> (2/28/2017)	65.37	34.63	19.34	1.41	0.00

**Intensity:**  
■ D0 Abnormally Dry    ■ D3 Extreme Drought  
■ D1 Moderate Drought    ■ D4 Exceptional Drought  
■ D2 Severe Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:  
Deborah Bathke  
National Drought Mitigation Center

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). For current Drought Monitor information, please see: <http://droughtmonitor.unl.edu/>.



Drought conditions continued to worsen in parts of Colorado and Kansas, which have been drier than normal since the fall. The snowpack situation in southwestern Colorado was dire, and conditions warranted the introduction of extreme drought (D3) into the area. Much of Kansas missed out on precipitation in February that would have improved the drought situation. As a result, moderate drought (D1), severe drought (D2), and D3 conditions spread across the state. The drought situation left producers very concerned about available moisture as winter wheat emerges from dormancy. Another concern is the potential for above-normal spring fire activity, particularly across western North Dakota and western and southern Kansas.

On the other hand, beneficial precipitation helped to improve drought conditions across southwestern Nebraska, southeastern Wyoming, and northeastern Colorado. D1 was removed from southwestern Nebraska and northeastern Colorado, as well as abnormal dryness (D0) in southeastern Wyoming. These areas received welcomed snowfall during the early part of February.

## Climate Outlooks

According to the Climate Prediction Center, La Niña conditions are present in the Pacific and a La Niña Advisory is in effect. Equatorial sea surface temperatures are below average across the central and eastern Pacific Ocean. La Niña is most likely to transition to ENSO-neutral conditions during the Northern Hemisphere spring. If you are looking for more information about ENSO, check out the ENSO blog here: <https://www.climate.gov/news-features/department/8443/all>.

Given the low snowpack and presence of drought conditions across the Plains during the winter, flooding is not expected to be a major issue in the Missouri or Red River Basins this spring. Dry conditions across western North Dakota and southern Kansas are expected to lead to above-normal spring wildland fire potential. The seasonal temperature and precipitation outlooks below combine the effects of long-term trends, soil moisture, and when applicable, the El Niño Southern Oscillation cycle (ENSO). To learn more about these outlooks, please see: <http://www.cpc.ncep.noaa.gov>.

### Temperature

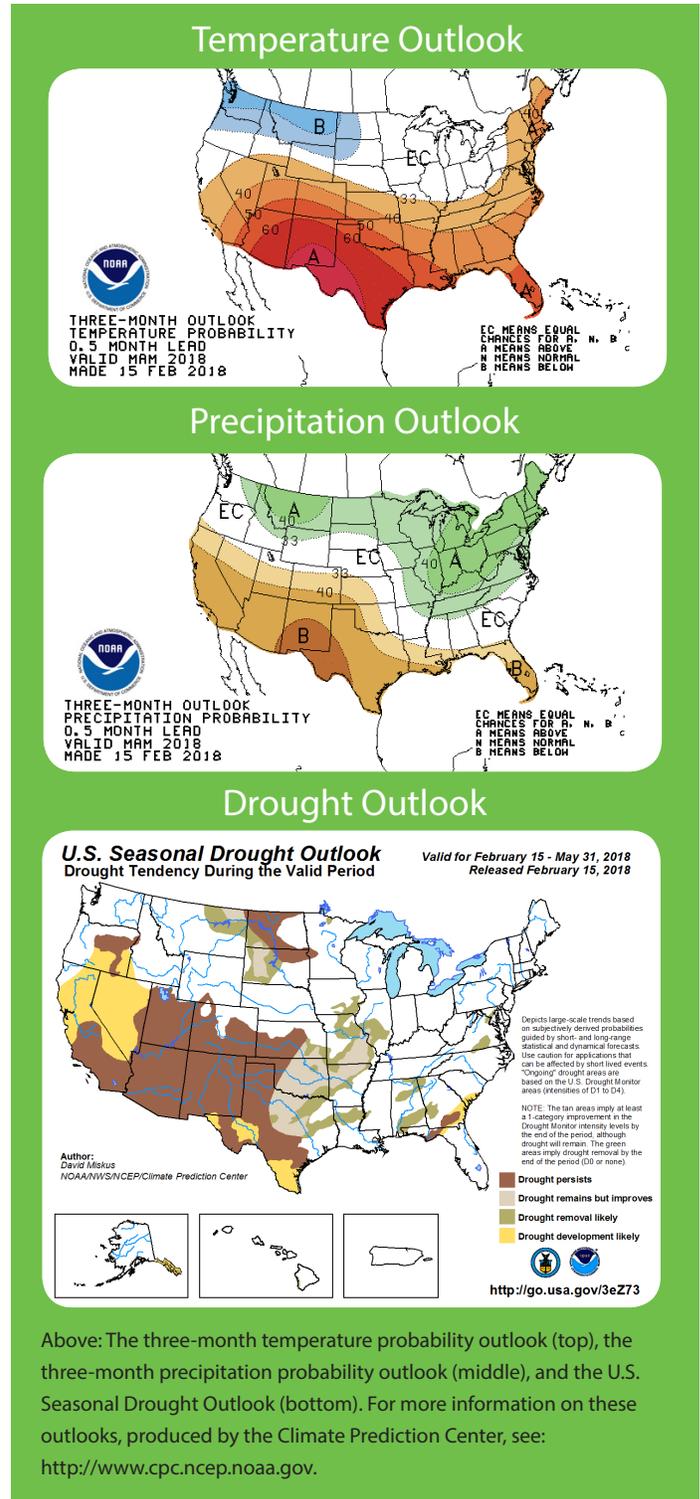
The March-May temperature outlook indicates an increased chance of above-normal temperatures for southern, western, and eastern portions of the contiguous U.S. In the High Plains, this includes Colorado, southern Wyoming, most of Kansas, and southwestern Nebraska. Below-normal temperatures are favored across the Pacific Northwest and Northern Plains, including western portions of the Dakotas and northern Wyoming in the High Plains region. Elsewhere, there are equal chances for above-, below-, and near-normal temperatures during the March-May period.

### Precipitation

The precipitation outlook for the next three months calls for a higher probability of above-normal precipitation in the Northern Rockies, Northern Plains, Ohio Valley, and Northeast. In the High Plains, this includes North Dakota, as well as northern South Dakota and Wyoming. Below-normal precipitation is expected throughout western and southern portions of the contiguous U.S., including the western half of Kansas, much of Colorado, and extreme southwestern Nebraska in the High Plains. Elsewhere, there are equal chances for above-, below-, and near-normal precipitation in the contiguous U.S. during the March-May period.

### Drought

The February 15th U.S. Seasonal Drought Outlook shows that drought is expected to persist across parts of the Southwest, the Plains, and the Southeast. In the High Plains, this includes much of Colorado, western and central Kansas, southern Wyoming, and portions of the Dakotas. Drought may improve or be removed in the Northern Plains, Midwest, and parts of the East, including the western Dakotas and eastern Kansas. Drought development is likely across the southern and western U.S. through May, but additional drought development is not expected in the High Plains during this period.



Above: The three-month temperature probability outlook (top), the three-month precipitation probability outlook (middle), and the U.S. Seasonal Drought Outlook (bottom). For more information on these outlooks, produced by the Climate Prediction Center, see: <http://www.cpc.ncep.noaa.gov>.

## Station Summaries: By the Numbers

Colorado	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Akron Washington County Airport	40.9	13.8	27.3	-4.1	69	02/18	-12	02/20	0.40	-0.04	91
Alamosa San Luis Airport	46.7	10.4	28.5	5.7	59	02/09	-9	02/11	0.23	-0.03	88
Colorado Springs Municipal Airport	45.7	18.1	31.9	-0.2	65	02/18	1	02/21+	0.40	0.06	118
Denver International Airport	44.4	15.4	29.9	-2.6	69	02/18	-7	02/21	0.31	-0.06	84
Grand Junction Walker Field Airport	47.4	25.3	36.4	1.9	60	02/18	14	02/20	0.72	0.18	133
Pueblo Memorial Airport	50.4	17.7	34.0	0.1	71	02/18	-3	02/11	0.58	0.28	193

Kansas	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Concordia Municipal Airport	41.0	17.5	29.3	-3.4	73	02/27	0	02/04	0.57	-0.22	72
Dodge City Regional Airport	49.1	19.1	34.1	-1.8	77	02/18	4	02/21	0.06	-0.62	9
Goodland Renner Field	43.1	15.4	29.3	-3.0	70	02/18	0	02/21	0.61	0.12	124
Topeka Municipal Airport	45.0	21.2	33.1	-1.3	71	02/27	-1	02/04	0.81	-0.51	61
Wichita Mid-Continent Airport	48.1	23.7	35.9	-1.3	72	02/15+	8	02/05	0.28	-0.90	24

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Chadron Municipal Airport	29.3	0.7	15.0	-12.4	50	02/14	-21	02/21	*	*	*
Grand Island Airport	33.6	12.5	23.1	-6.0	60	02/26+	-4	02/10	0.75	0.07	110
Lincoln Municipal Airport	35.3	12.6	23.9	-5.1	65	02/27	-6	02/07	0.74	-0.03	96
Norfolk Karl Stefan Airfield	28.4	9.8	19.1	-7.7	52	02/18	-7	02/10	0.65	-0.11	86
North Platte Regional Airport	33.8	9.0	21.4	-7.6	56	02/18	-9	02/21	0.85	0.35	170
Omaha Eppley Airport	33.5	14.5	24.0	-4.1	61	02/27	-4	02/06	0.97	0.12	114
Valentine Miller Field	31.6	5.3	18.4	-8.8	54	02/14	-17	02/10	0.73	0.25	152

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismarck Municipal Airport	20.3	-3.2	8.6	-9.5	46	02/14	-21	02/06	0.33	-0.18	65
Fargo International Airport	17.6	-2.8	7.4	-7.2	39	02/14	-18	02/12	0.83	0.22	136
Grand Forks International Airport	16.1	-4.6	5.8	-6.2	39	02/14	-20	02/12	0.43	-0.09	83
Theodore Roosevelt Airport	18.4	-3.9	7.3	-13.2	42	02/14	-21	02/12+	0.15	-0.18	45
Williston International Airport	15.4	-8.5	3.4	-13.5	39	02/14	-31	02/12	0.38	-0.01	97

All data are preliminary and subject to change. + indicates multiple dates, latest date listed. \* indicates some missing data for the period. Data are retrieved through the Applied Climate Information System (ACIS) and are available online through the CLIMOD system. For more information please contact us: <http://www.hprcc.unl.edu/contact.php>.

## February 2018 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	21.4	-6.1	7.6	-10.0	49	02/14	-24	02/21	0.83	0.28	151
Huron Regional Airport	22.1	-1.1	10.5	-11.1	42	02/14	-17	02/10	0.96	0.36	160
Pierre Regional Airport	21.5	-0.4	10.6	-13.7	40	02/14	-16	02/21	1.49	0.90	253
Rapid City Regional Airport	25.4	0.5	13.0	-14.4	54	02/14	-18	02/21	0.79	0.35	180
Sioux Falls Joe Foss Field Airport	24.3	3.7	14.0	-7.5	48	02/14	-13	02/06	1.16	0.56	193

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	33.5	6.1	19.8	-6.9	51	02/03	-21	02/20+	0.62	0.05	109
Cheyenne Municipal Airport	39.3	13.1	26.2	-3.4	60	02/18	-14	02/20	0.34	-0.13	72
Lander Hunt Field Airport	33.4	8.4	20.9	-4.3	54	02/08	-15	02/20	0.94	0.36	162
Laramie Regional Airport	35.6	9.8	22.7	-0.8	50	02/18	-22	02/20	0.12	-0.22	35
Rawlins Municipal Airport	33.9	12.6	23.3	-0.4	49	02/09	-15	02/20	*	*	*
Sheridan County Airport	27.4	-0.8	13.3	-13.3	45	02/08	-22	02/20	1.53	0.99	283

## February 2018 Highlights

### Monthly Rankings

Precipitation in inches, Temperature in degrees F

Coolest	Temperature / Ranking	Record / Year	Period of Record
Chadron, NE	15.0 / COOLEST	16.9 / 1978	1942-2018
Rapid City, SD	13.0 / COOLEST	14.4 / 1989	1943-2018
Pierre, SD	10.6 / 4th coolest	-2.1 / 1936	1934-2018
Dickinson, ND	7.3 / 4th coolest	6.1 / 1989	1950-2018
Sheridan, WY	13.3 / 4th coolest (tie, 1929)	3.8 / 1936	1908-2018
Casper, WY	19.8 / 7th coolest	11.9 / 1989	1940-2018
Wettest/Driest	Precipitation / Ranking	Record / Year	Period of Record
Sheridan, WY	1.53 / 3rd wettest (tie, 1953)	2.68 / 1955	1908-2018
Pierre, SD	1.49 / 6th wettest	2.66 / 1952	1893-2018
Garden City, KS	T / DRIEST (tie, 2006+)	T / 2006+	1948-2018
Liberal, KS	T / 4th driest (tie, 2000+)	T / 2000+	1908-2018
Salina, KS	0.14 / 10th driest (tie, 1976)	T / 2006+	1949-2018

All data are preliminary and subject to change. + indicates multiple dates, latest date listed. \* indicates some missing data for the period. Data are retrieved through the Applied Climate Information System (ACIS) and are available online through the CLIMOD system. For more information please contact us: <http://www.hprcc.unl.edu/contact.php>.

# North Dakota Climate Summary

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For more information: [www.ndsu.edu/ndsco](http://www.ndsu.edu/ndsco) or [www.ndawn.ndsu.nodak.edu](http://www.ndawn.ndsu.nodak.edu)



## Precipitation:

Based on the National Centers for Environmental Information (NCEI), the statewide total February precipitation was 0.38 inch, which was 0.16 inch more than last month, but 0.03 inch less than in February 2017 and 0.06 inch less than the 1981-2010 average, making it the 57th driest February in the 124-year period of record. It was the driest February since 2014. Below-average precipitation was observed commonly in the central parts of the state. On the other hand, it was above-average in the southeastern and southwestern parts of the state (Figure 1). The greatest monthly precipitation accumulation was 1.06 inch, recorded in Bowman, Bowman County. The greatest 24-hour precipitation was 0.65 inch, recorded in Mandan, Morton County on Feb. 5. The greatest monthly snowfall accumulation was 17 inches, recorded in Dickinson Ranch, Dunn County. The greatest 24-hour snowfall was 6 inches, recorded in Forman, Sargent County on Feb. 25. Based on historical records, statewide February precipitation showed a negative long-term trend of 0.07 inch per century since 1895. The highest and the lowest February precipitation for the state ranged from 1.59 inches in 1998 to 0.07 inch in 1934.

## Temperature:

The official state average February temperature was 5.2 F, 6.6 F colder than last month, 15.3 F colder than February 2017, and 10.5 F colder than the 1981-2010 average, making it the 18th coldest February in the 124-year period of record. It was the coldest February since 1994. Below-average temperatures were observed commonly in the state with the highest departure from the average in the western parts of the state (Figure 2). The state's highest and lowest daily temperatures ranged from 49 F on Feb. 14 in Fullerton, Dickey County, to minus 31 F on Feb. 12, in Williston Sloulin Int. AP, Williams County. Based on the historical records, the state average February temperature showed a staggering positive trend of 0.7 F per decade since 1895. The highest and the lowest monthly state February average temperatures ranged from 29.6 F in 1954 to minus 14.1 F in 1936.

## Drought and other notable impacts:

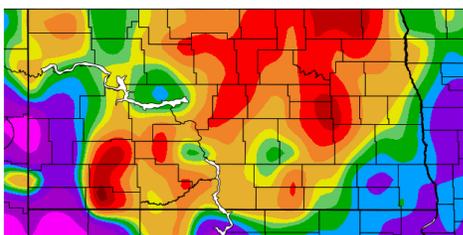
Drought conditions did not change significantly since last month. By the end of February, the percent of the state experiencing drought was 65, a 4 percent increase, compared with the previous month. Based on the DM map on Feb. 27, less than 5 percent of the state was in severe drought (D2).

NDAWN's highest peak gust in February was slightly more than 48 mph, recorded at the St. Thomas weather station in Pembina County on Feb. 15, 2018. The NOAA Storm Report reported no significant storm events in February.

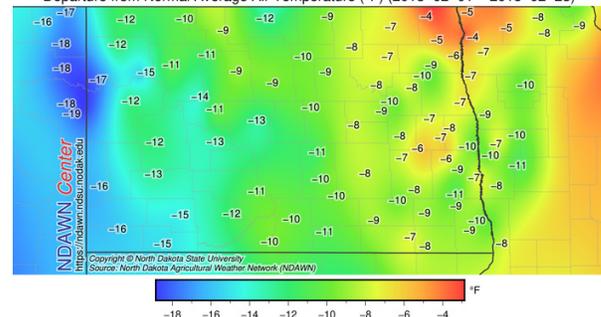
Across the observation network of weather stations with at least 30 years of history, a total of 2 daily high-temperature-related and 6 daily low-temperature-related records were set or tied. A total of 22 highest daily precipitation-related records were set or tied.

## Temperature and Precipitation Overview

Percent of Normal Precipitation (%)  
2/1/2018 - 2/28/2018



Departure from Normal Average Air Temperature (°F) (2018-02-01 - 2018-02-28)



Above: Percent of normal precipitation (left, figure 1) and departure from normal average temperature (right, figure 2) for February 2018 in North Dakota. Figure 1 produced by the Applied Climate Information System, Figure 2 produced by NDAWN.

# Kansas Climate Summary

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 Kansas Weather Data Library, Kansas State University  
 For more information: [www.ksre.ksu.edu/wdl](http://www.ksre.ksu.edu/wdl)



## Dry and Cool

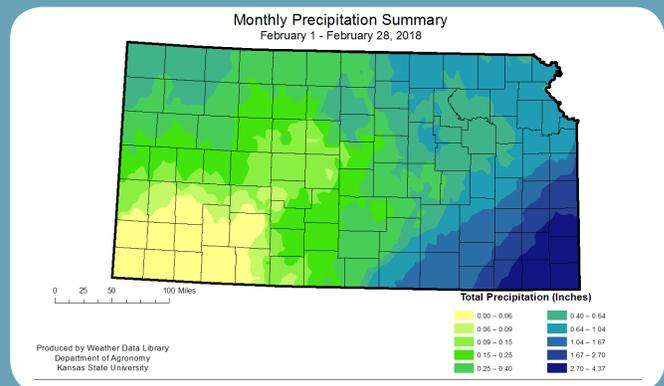
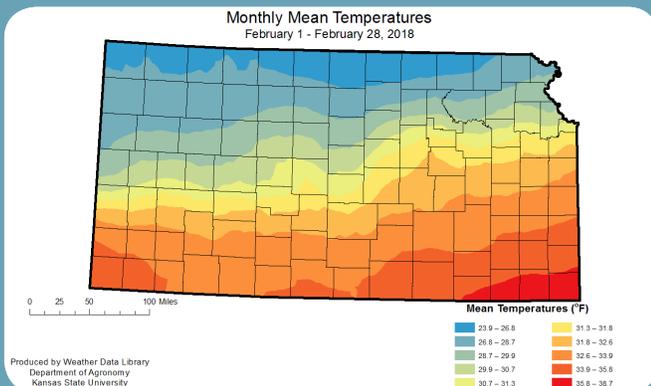
While most locations saw at least some moisture in February, overall the precipitation was below normal for the month. Eight locations, mainly in the Southwest Division, saw just a trace of precipitation during the month. State-wide the average precipitation was 0.53 inches or 41 percent of normal. The Southeast Division was the only area of the state that was above normal for the month, with an average of 1.99 inches or 109 percent of normal. The Southwest Division, with an average of just 0.02 inches, had the lowest percent of normal with just 2 percent. The greatest monthly precipitation totals were 4.37 inches at Coffey Waterworks, Montgomery County (NWS) and 4.05 inches at McCune 1.6 NW, Crawford County (CoCoRaHS). Most of the precipitation came in the last week of the month. There was some snow during the month, with twelve locations setting daily records for snowfall. The greatest daily snowfall report was 4.5 inches at Tribune 1W, Greeley County, on the 6th. The greatest snowfall totals for the month were 9.6 inches at Goodland, Sherman County (NWS) and 16.0 inches at St. Francis 12.1 NW, Cheyenne County (CoCoRaHS).

February continued the pattern of wide temperature swings, as might be expected with the dry air in place. The statewide average temperature was 30.7 oF, or 3.3 degrees cooler than normal. The warm days weren't persistent enough to outweigh the very cold start to the month. All divisions averaged below normal for the month. The Northwest had the greatest departure, with an average of 26.7 oF or 5.0 degrees cooler than normal. The Southeast Division came closest to normal with an average temperature of 34.6 oF and a departure of -1.9 degrees. The warmest temperature reported for the month was 80 oF at Ashland, Clark County, on the 15th and Tallgrass Prairie Park, Chase County, on the 19th. The coldest reading was -10 oF at Marysville, Marshall County, on the 5th. Records were set on both the cold and warm end of the spectrum. On the cold side, there were 7 new record low maximum temperatures and 7 new record low minimum temperatures. On the warm side, there were 22 new record high maximum temperatures and 17 new record high minimums.

Unsurprisingly, given the dry conditions, there were no severe weather reports during the month. In addition to several winter weather advisories, there were several days with extreme fire danger.

Extreme northwest Kansas saw improvement, due to the wet conditions in January and February. The rest of the state saw deterioration. Extreme drought conditions now cover almost 10 percent of the state. Severe drought has expanded to a quarter of the state while moderate drought covers an additional 36 percent of the state. The March outlook has a slight chance for drier than normal conditions state wide, with an increased chance of warmer than normal temperatures. Since March is a critical transition month, that combination is likely to result in further deterioration of the drought conditions. With the wet summer last year and current dryness, increased fire danger continues.

## Temperature and Precipitation Overview



Above: February 2018 monthly mean temperatures (left) and total precipitation (right) in Kansas. Maps produced by Weather Data Library, Department of Agronomy, Kansas State University.

# Nebraska Climate Summary

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 For more information: <https://nsco.unl.edu/>



## A cold and snowy February rounds out the winter season

Winter held on tight across Nebraska this February with a cold and snowy month. The lowest temperatures occurred during two main cold spells during the second and third weeks of the month with lows well below zero. Temperatures in the Panhandle hit  $-20^{\circ}\text{F}$  around the 21st. The Nebraska Mesonet station at Gordon reported a wind chill temperature of  $-31^{\circ}\text{F}$ , also on the 21st.

Average monthly temperatures were in the teens across northern Nebraska and twenties for the southern two thirds of the state. These averages are about 10 degrees to 5 degrees below normal. One impact of the cooler weather you may have noticed is in your heating bill. Heating degree days (using a base temperature of  $65^{\circ}\text{F}$ ) for the month were from 75 to 300 units above average.

February was not without warmth, however. At month's end, temperatures rose into the 50s across northern Nebraska and even above 70 for the southern fringe of the state. The statewide high of  $73^{\circ}\text{F}$  was reported at the Nemaha 4 SE Nebraska Mesonet station.

Soil temperatures at the 4-inch depth under bare ground were as low as  $17^{\circ}\text{F}$  during the third week of February. However, significant warming began by month's end with daily maximums into the 50s at some locations. The average temperature by the start of March was at freezing or higher for the southern half of the state.

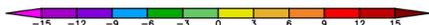
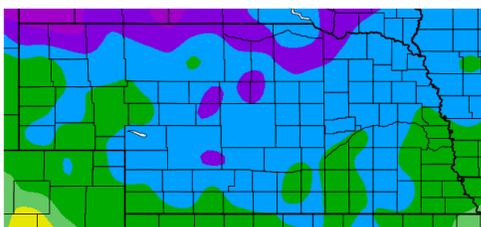
Snowfall occurred with several weather events crossing the state during February. Monthly totals were above normal for many locations. Portions of the Panhandle, southwest, central and northeast Nebraska reported more than 10 inches during February with a few locations receiving more than 20 inches. Totals in the eastern third of the state were around 6 inches or more. Snow was on the ground for much of the month, but began melting or was all gone as the warmth came at month's end.

In terms of liquid equivalent precipitation, monthly totals ranged from three tenths of an inch for portions of western, southcentral, and northeast Nebraska up to an inch or more for pockets of northern, central, and eastern Nebraska. Overall, precipitation was below normal in the east and portions of the west, and was above normal for northcentral, southwest and far western Nebraska.

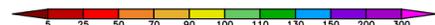
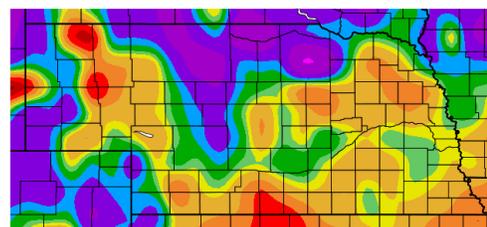
In some areas where above normal precipitation was received, abnormal dryness (D0) and moderate drought (D1) conditions were alleviated during February, according to the U.S. Drought Monitor. Dryness conditions were scaled back for a large swath in southern Nebraska, the southern Panhandle, and a small area north of the Niobrara River. Moderate drought was alleviated completely in southern Nebraska. At the start of March, 25% of the state was in the D0 category and a mere 0.2% of the state was in D1, just grazing northern Cherry County.

## Temperature and Precipitation Overview

Departure from Normal Temperature (F)  
 2/1/2018 - 2/28/2018



Percent of Normal Precipitation (%)  
 2/1/2018 - 2/28/2018



Above: February 2018 departure from normal temperature (left) and percent of normal precipitation (right) in Nebraska. Maps produced by the Applied Climate Information System.

# About the High Plains Regional Climate Center

The High Plains Regional Climate Center (HPRCC) is one of six NOAA Regional Climate Centers (RCCs) that has been providing timely climate data and information to the public for cost effective decision-making since 1987. The HPRCC primarily serves the six-state region of Colorado, Kansas, Nebraska, North Dakota, South Dakota, and Wyoming, but has also served people from all across the country and even throughout the world. HPRCC operates under a three-tiered structure of climate services and works closely with other organizations on the local, regional, and national levels. HPRCC staff engage with a wide range of stakeholders including K-20 education, the public, media, private industry, research, and state/tribal/federal entities, among others.

Much of the data and products found throughout this publication were built on the Applied Climate Information System (ACIS) framework. ACIS was designed to manage the complex flow of information from climate data collectors to the end users of climate data information. The main purpose of ACIS is to alleviate the burden of climate information management for people who use climate information to make management decisions.

HPRCC is involved in the ongoing development and management of ACIS. In the spring of 2014, the RCCs released a new website for ACIS. This new and improved website not only contains descriptions of ACIS and the sources of data found within, but also features real-world examples of how RCCs and external groups are using ACIS for their particular climate data needs. In addition to these examples, there is extensive documentation and tutorials on how ACIS can be used and accessed by external clients using Web Services. For more information see: <http://rcc-acis.org>.



## Additional Summary Information for the High Plains

### Missouri River Basin Quarterly Climate Impacts and Outlook

Quarterly Climate Impacts and Outlook  
Missouri River Basin  
December 2014

**National - Significant Events for September - November 2014**

**Highlights for October and the Month**

**Significant Events for November and Autumn 2014**

**Regional - Impacts for September - November 2014**

**Regional - Climate Overview for September - November 2014**

**Temperature and Precipitation Anomalies**

**Drought CI**

**3-Month Precipitation and Temperature Outlooks**

**Soil Moisture Conditions**

**MO River Basin Partners**

For more information:  
<https://www.drought.gov/drought/dews/missouri-river-basin/reports-assessments-and-outlooks>

### Midwest and Great Plains Monthly Climate and Drought Webinar

20141120 Monthly Climate and Drought Webinar

Forecast Precipitation Amounts (7 day)

To sign up for future webinars:  
<https://www.drought.gov/drought/calendar/webinars>

For an archive:  
[www.hprcc.unl.edu/webinars.php](http://www.hprcc.unl.edu/webinars.php)

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