



February 2019 Climate Summary



Two heifers brave the cold and snow in northwest Kansas. Photo courtesy Sandy Johnson. <http://hprcc.unl.edu>

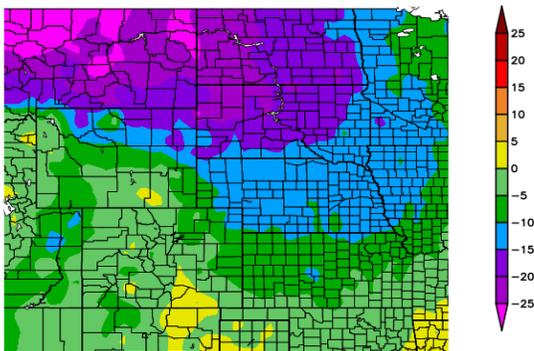
Cold and Snowy

February was cold and snowy across portions of the High Plains, causing many locations to be ranked in the top 10 coldest and snowiest Februaries on record. Dickinson, North Dakota and Rapid City, South Dakota had their coldest Februaries on record, while Fargo, North Dakota, Grand Forks, North Dakota, and Omaha, Nebraska had their snowiest. This cold end to the winter did not result in very many records for coldest winter, however, because the beginning of winter was quite warm. On the other hand, numerous locations experienced a wet and/or snowy winter, as storm systems crossed the region quite often and brought periodic snowfall. In addition to February, Omaha also had its snowiest winter on record. Several locations are on track to have their snowiest season (July-June) on record, such as Lincoln, Nebraska, which had already had its 2nd snowiest season as of the end of February and only had 5.1 inches (13 cm) to go to tie the record.

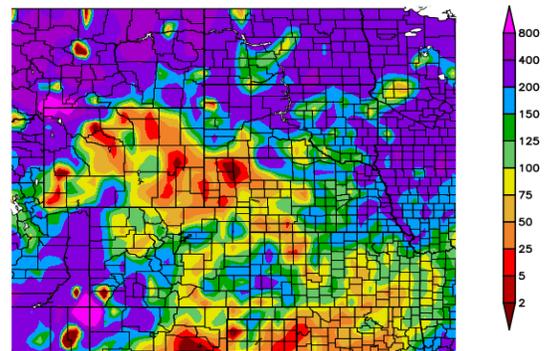
These recent conditions have caused several impacts around the region. On a positive note, mountain snowpack in Wyoming and Colorado has been plentiful thus far this season, and it has helped ease drought conditions in these areas. However, it is yet to be determined how spring runoff may impact low streamflows. The abundant snowpack in the Plains has raised concerns for spring flooding, especially due to the high water content of the snowpack. Furthermore, the frequent snowfall and need for clearing roads caused a shortage of snow removal supplies in some urban areas. The extreme cold conditions have caused some issues for the energy industry, as wind turbines were shut down and energy demand for heating buildings was especially high. Recent conditions have brought about concerns for agriculture as well. As calving season is getting into full swing, livestock producers are concerned about losing calves in harsh conditions. Frost depths are particularly deep in portions of the Dakotas, which is likely to delay planting in these areas, especially of spring wheat. In Kansas, late-planted winter wheat may be at risk, as prolonged cold and snowy/wet conditions will promote little growth of the crop and delay the application of fertilizer.

Temperature and Precipitation Overview

Departure from Normal Temperature (F)
2/1/2019 – 2/28/2019



Percent of Normal Precipitation (%)
2/1/2019 – 2/28/2019



Above: Departure from 1981-2010 normal temperature (left) and percent of normal precipitation (right) for February 2019 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

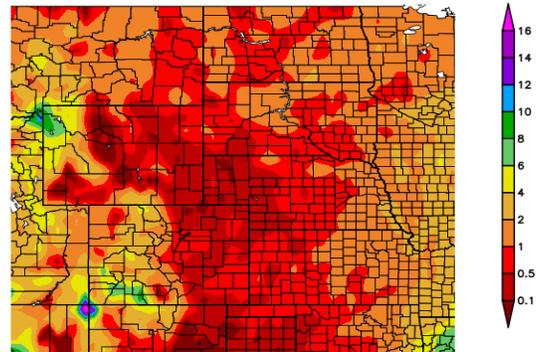
Much of the High Plains experienced wet and snowy conditions during February. Precipitation exceeded 200 percent of normal in eastern portions of the region, and this February ranked among the top 10 of wettest and snowiest Februaries for numerous locations throughout the Dakotas and Nebraska. For instance, Fargo, North Dakota had its snowiest and 6th wettest February on record, while it was the 3rd snowiest and 8th wettest February for Pierre, South Dakota. Meanwhile, dry conditions prevailed in eastern Wyoming and the Nebraska Panhandle, which received less than 50 percent of normal precipitation for the month. Chadron, Nebraska and Laramie, Wyoming each had their 5th driest Februaries on record.

Periodic winter storms pounded the region during the month, causing numerous impacts. In early February, heavy snow and high winds caused blizzard conditions in eastern North Dakota, prompting the closure of Interstates 29 and 94, as well as many other roads. Snow drifts were quite impressive, nearly reaching up to the roofs of some homes. In the middle part of the month, a winter storm caused a large vehicle pileup on Interstate 70 near Concordia, Kansas, killing one person. A few days later, a winter storm caused a pileup of several semis on Interstate 80 near Grand Island, Nebraska. An extremely impactful winter storm crossed the region on the 22nd-23rd. High snowfall rates caused numerous flights to be delayed or cancelled at Denver International Airport. Over 200 miles of Interstate 80 were closed in southern Nebraska due to heavy snow and low visibility. The official snowfall total for Lincoln, Nebraska on the 23rd was 8.0 inches (20 cm), which was its 4th highest 1-day total snowfall on record for the month of February. Given that precipitation began as rain, there was a layer of ice underneath the snow, which hampered snow removal efforts. In fact, the city ran low on snow removal materials, further complicating the issue.

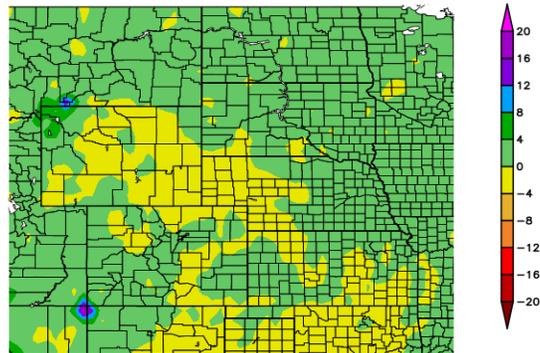
Not only was February wet and snowy for the Dakotas and Nebraska, but for the winter season too. For instance, Omaha, Nebraska had its snowiest winter on record with 46.1 inches (117 cm), beating the old record of 44.3 inches (113 cm) set in 2003-2004 (period of record 1881-2019). Lincoln, Nebraska had its 2nd wettest winter on record and was only 0.3 inches (1 cm) shy of having its snowiest winter. However, western portions of the region experienced a dry winter. Laramie, Wyoming had its 4th driest winter on record, while it was the 9th driest for Akron, Colorado.

Regional Precipitation

Precipitation (in)
2/1/2019 – 2/28/2019



Departure from Normal Precipitation (in)
2/1/2019 – 2/28/2019



Above: Total precipitation in inches (top) and departure from normal precipitation in inches (bottom) for February 2019. 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 conditions continued to improve in Wyoming and Colorado in February. By the end of the month, Snow Water Equivalent (SWE) was above normal in all Colorado basins, including southwestern basins where drought was most severe during the past year. SWE was above normal in nearly all Wyoming basins, including the Wind River Basin where SWE was below normal at the end of January. In the Upper Missouri Basin, mountain SWE above Fort Peck Reservoir and between Fort Peck and Garrison Reservoirs vastly improved to 108 percent of average and 102 percent of average, respectively, by the end of February. SWE was below average in both reaches one month ago. Plains snowpack was ample in February, as the Dakotas, most of Nebraska, northern Kansas, and eastern Colorado were covered with snow by the end of the month.

Temperatures

February was quite cold across the High Plains. Nearly the entire region experienced below-normal temperatures for the month. Departures ranged from approximately 2.0 degrees F (1.1 degrees C) below normal in western areas of Wyoming and Colorado to an astounding 21.0 degrees F (11.7 degrees C) below normal in western North Dakota. It was among the top 10 of coldest Februaries for many locations across the High Plains, particularly in the Dakotas where Dickinson, North Dakota and Rapid City, South Dakota had their coldest Februaries on record. In North Dakota, several places had an average February temperature that was below 0.0 degrees F (-17.8 degrees C), such as Williston, where the average February temperature was only -4.5 degrees F (-20.3 degrees C). A combination of cold temperatures and abundant snow cover produced impressive frost depths across the Dakotas. For instance, according to the North Dakota Agricultural Weather Network (NDAWN), in early March the station at Adams had a frost depth of 69 inches (175 cm), while Minot had a frost depth of 59 inches (150 cm). In northern South Dakota, several South Dakota mesonet stations were reporting frost depths of 50-65 inches (127-165 cm).

Despite the extremely cold end to the winter, average winter temperatures were only slightly below normal, with departures ranging from 1.0-5.0 degrees F (0.6-2.8 degrees C) below normal. This was due to the very warm start to the winter, as much of the region experienced above-normal temperatures in December. One exception was McCook, Nebraska, which tied for its 6th coldest winter on record (period of record 1894-2019).

Drought Conditions

Overall, drought conditions continued to improve throughout the High Plains in February. The area experiencing abnormal dryness or drought (D0-D4) on the U.S. Drought Monitor decreased from approximately 33 percent to 31 percent from late January to the end of February, while the area in drought (D1-D4) decreased from 17 percent to 14 percent.

U.S. Drought Monitor

U.S. Drought Monitor
High Plains

February 26, 2019
(Released Thursday, Feb. 28, 2019)
Valid 7 a.m. EST

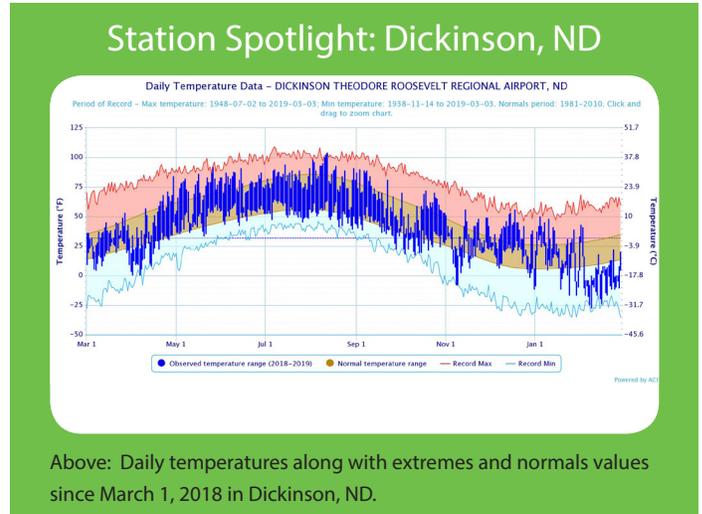
	Drought Conditions (Percent Area)				
	None	D0-D4	D1-D4	D2-D4	D3-D4
Current	69.26	30.74	14.07	7.21	0.12
Last Week <small>(01-14-19)</small>	66.26	33.74	16.95	8.12	0.02
3 Month Ago <small>(11-27-18)</small>	65.34	34.66	20.49	11.84	2.73
Start of Calendar Year <small>(01-01-19)</small>	70.74	29.26	18.27	11.85	2.20
Start of Water Year <small>(09-01-18)</small>	52.20	47.80	28.48	18.28	3.30
One Year Ago <small>(02-28-18)</small>	31.01	68.99	44.54	15.45	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:
Brad Rippey
U.S. Department of Agriculture

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/>.



Widespread improvements in drought conditions occurred throughout Colorado, which has been dealing with drought since late 2017. Frequent storms occurred throughout February, bringing beneficial snowfall to Colorado's southwestern basins where drought was most intense. As a result, exceptional drought (D4) was completely removed, and extreme drought (D3) was nearly eliminated with the exception of extreme southern areas of the state.

Plains snowpack has been ample this season as well, which helped improve drought conditions in the Dakotas. Snowy weather in February prompted a re-evaluation of conditions, ultimately leading to the removal of moderate drought (D1) in North Dakota and abnormally dry conditions (D0) across both states.

Despite overall improvements, degradations in drought conditions occurred as well. D0 was introduced to northern Wyoming, northeastern Colorado, and the Nebraska Panhandle. These areas missed out on abundant precipitation during the winter months, receiving less than 50 percent of normal precipitation.

Climate Outlooks

According to the Climate Prediction Center, El Niño conditions are present in the Pacific and an El Niño Advisory is in effect. Weak El Niño conditions are expected to continue through spring. For more information about ENSO, check out the ENSO blog here: <https://www.climate.gov/news-features/departments/enso-blog>. To learn more about how El Niño may affect the Missouri Basin region, see this El Niño briefing: <https://www.drought.gov/drought/documents/el-nino-impacts-and-outlook-missouri-river-basin-october-2018>.

According to the National Weather Service spring hydrologic outlook, moderate to major flooding is expected in eastern areas of the Missouri River Basin and in the Souris-Red-Rainy water resource region. In the High Plains, this includes eastern portions of the Dakotas, Nebraska, and Kansas. Western areas of the Missouri Basin have a reduced risk for flooding this spring.

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

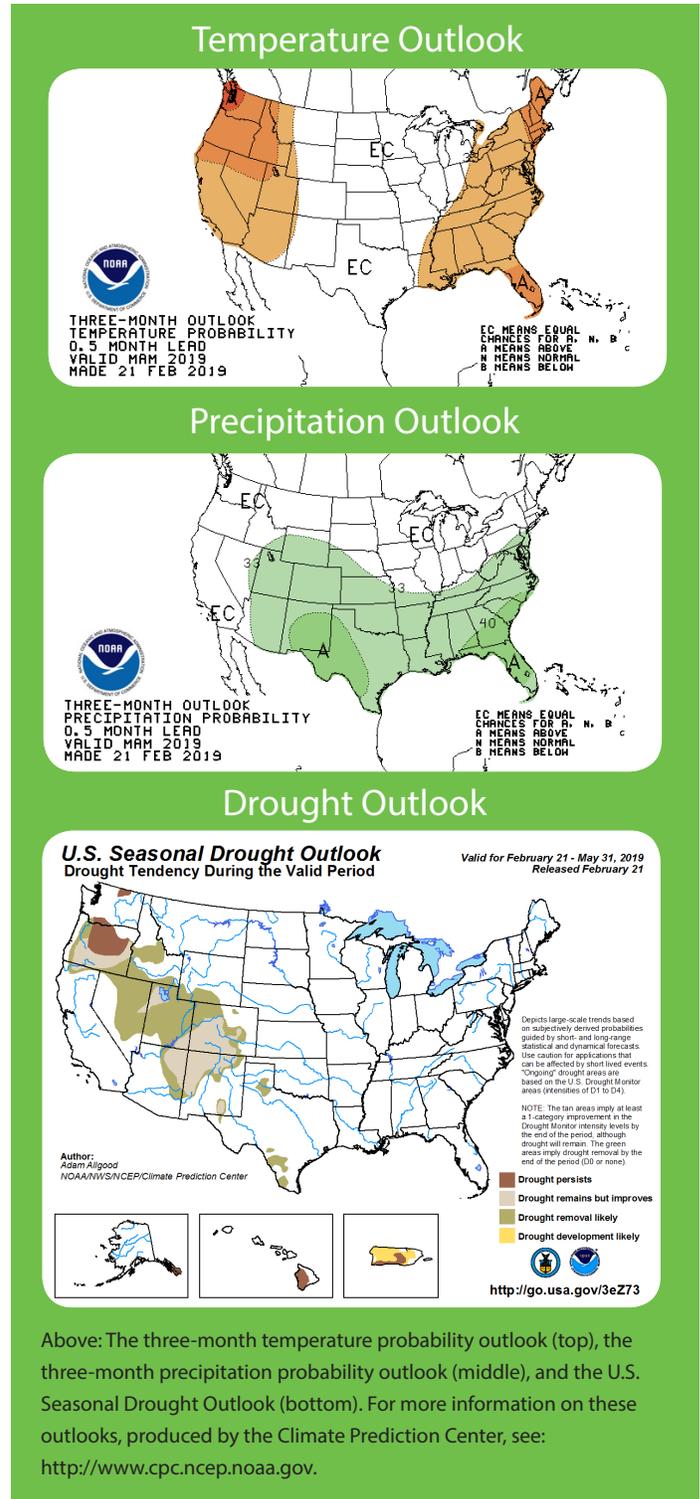
The March-May temperature outlook indicates an increased chance of above-normal temperatures for the western and eastern thirds of the contiguous U.S. In the High Plains, this includes western areas of Wyoming and Colorado. Below-normal temperatures are not anticipated in the contiguous U.S. Elsewhere, 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 across portions of the Interior West and the central and southern Plains, as well as the Southeast and Mid-Atlantic regions. In the High Plains, this includes Colorado, the southern two-thirds of Wyoming, much of Kansas, southwestern Nebraska, and extreme southwestern South Dakota. Below-normal precipitation is not anticipated in the contiguous U.S. Elsewhere, there are equal chances for above-, below-, and near-normal precipitation during the March-May period.

Drought

The February 21st U.S. Seasonal Drought Outlook indicates that drought is expected to persist across parts of the Pacific Northwest. Drought may improve or be removed in portions of the West and the Southern Plains. In the High Plains, this includes western and central Colorado as well as south-central Wyoming. Drought development is not anticipated through May in the contiguous U.S.



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	36.3	11.4	23.8	-7.6	65	02/03	-13	02/07	0.13	-0.31	30
Alamosa San Luis Airport	34.6	6.1	20.3	-2.5	49	02/28	-19	02/01	0.37	0.11	142
Colorado Springs Municipal Airport	46.7	16.4	31.6	-0.5	66	02/26	2	02/20+	0.29	-0.05	85
Denver International Airport	40.8	15.3	28.0	-4.5	65	02/03	-11	02/07	0.72	0.35	195
Grand Junction Walker Field Airport	41.7	23.4	32.5	-2.0	54	02/28	6	02/20	1.00	0.46	185
Pueblo Memorial Airport	51.6	16.4	34.0	0.1	70	02/13	4	02/08	0.22	-0.08	73

Kansas	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Concordia Municipal Airport	31.3	14.9	23.1	-9.6	65	02/03	1	02/08	1.25	0.46	158
Dodge City Regional Airport	40.2	17.9	29.0	-6.9	70	02/02	1	02/08+	0.88	0.20	129
Goodland Renner Field	35.9	12.6	24.3	-8.0	71	02/03	-2	02/07	0.40	-0.09	82
Topeka Municipal Airport	37.3	20.2	28.8	-5.6	68	02/03	6	02/08	1.83	0.51	139
Wichita Mid-Continent Airport	41.9	24.4	33.1	-4.1	70	02/03	8	02/08	0.72	-0.46	61

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Chadron Municipal Airport	28.2	3.8	16.0	-11.4	63	02/02	-17	02/08	0.02	-0.59	3
Grand Island Airport	26.8	9.3	18.1	-11.0	60	02/01	-11	02/25	0.81	0.13	119
Lincoln Municipal Airport	27.4	9.8	18.6	-10.4	58	02/03	-7	02/25	1.59	0.82	206
Norfolk Karl Stefan Airfield	23.2	5.9	14.5	-12.3	58	02/01	-10	02/21	1.04	0.28	137
North Platte Regional Airport	29.6	6.8	18.2	-10.8	64	02/13+	-9	02/08	0.63	0.13	126
Omaha Eppley Airport	25.8	9.3	17.6	-10.5	53	02/03	-7	02/25	2.01	1.16	236
Valentine Miller Field	25.0	3.0	14.0	-13.2	70	02/02	-17	02/08	1.00	0.52	208

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismarck Municipal Airport	8.9	-9.7	-0.4	-18.5	42	02/01	-28	02/15+	0.99	0.48	194
Fargo International Airport	10.0	-8.4	0.8	-13.8	24	02/23	-27	02/08	1.69	1.08	277
Grand Forks International Airport	6.9	-12.0	-2.6	-14.6	20	02/20	-29	02/08	0.99	0.47	190
Theodore Roosevelt Airport	7.9	-8.9	-0.5	-21.0	43	02/01	-28	02/08	*	*	*
Williston International Airport	5.9	-14.9	-4.5	-21.4	41	02/01	-43	02/08	1.39	1.00	356

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 2019 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	10.4	-7.1	1.7	-15.9	22	02/23+	-23	02/08	1.24	0.69	225
Huron Regional Airport	13.5	-3.6	5.0	-16.6	29	02/01	-19	02/08	1.09	0.49	182
Pierre Regional Airport	13.2	-2.4	5.4	-18.9	41	02/01	-18	02/08	1.47	0.88	249
Rapid City Regional Airport	18.0	-0.5	8.7	-18.7	63	02/02	-19	02/07	0.99	0.55	225
Sioux Falls Joe Foss Field Airport	18.9	2.8	10.8	-10.7	50	02/02	-12	02/19+	1.56	0.96	260

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	32.4	7.3	19.9	-6.8	51	02/03	-23	02/07	0.50	-0.07	88
Cheyenne Municipal Airport	38.5	13.5	26.0	-3.6	61	02/03	-14	02/07	0.33	-0.14	70
Lander Hunt Field Airport	30.1	8.0	19.1	-6.1	49	02/26	-11	02/08	0.33	-0.25	57
Laramie Regional Airport	35.2	13.0	24.1	0.6	53	02/26	-13	02/07	0.06	-0.28	18
Rawlins Municipal Airport	29.8	14.6	22.2	-1.5	43	02/28	-6	02/07	0.38	-0.04	90
Sheridan County Airport	23.3	0.7	12.0	-14.6	58	02/01	-14	02/07	0.37	-0.17	69

February 2019 Highlights

Monthly Rankings

Temperature in degrees F, snowfall in inches

Coldest	Temperature / Ranking	Record / Year	Period of Record
Dickinson, ND	-0.5 / COLDEST	6.1 / 1989	1938-2019
Rapid City, SD	8.7 / COLDEST	12.9 / 2018	1942-2019
Aberdeen, SD	1.7 / 2nd coldest	-7.3 / 1936	1893-2019
Pierre, SD	5.4 / 2nd coldest	-2.1 / 1936	1893-2019
Williston, ND	-4.5 / 2nd coldest	-13.6 / 1936	1894-2019
McCook, NE	21.0 / 2nd coldest	17.1 / 1936	1894-2019
Hastings, NE	19.2 / 3rd coldest	13.7 / 1936	1894-2019
Sheridan, WY	12.0 / 3rd coldest	3.8 / 1936	1907-2019
Snowiest	Snowfall / Ranking	Record / Year	Period of Record
Grand Forks, ND	23.2 / SNOWIEST	19.6 / 1943+	1893-2019
Fargo, ND	21.4 / SNOWIEST	19.5 / 1979	1881-2019
Omaha, NE	27.0 / SNOWIEST	25.4 / 1965	1871-2019
Lincoln, NE	23.2 / 2nd snowiest	26.1 / 1965	1887-2019
Pierre, SD	19.0 / 3rd snowiest (tie, 2011)	27.4 / 1952	1893-2019
Sioux Falls, SD	21.0 / 5th snowiest	48.4 / 1962	1893-2019
Aberdeen, SD	19.3 / 6th snowiest	38.5 / 1915	1893-2019
Bismarck, ND	15.7 / 6th snowiest (tie, 1889)	25.6 / 1979	1874-2019
Concordia, KS	14.6 / 7th snowiest	23.6 / 1912	1885-2019

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

Adnan Akyuz - State Climatologist
North Dakota State Climate Office, North Dakota State University
 For more information: www.ndsu.edu/ndsco or www.ndawn.ndsu.nodak.edu



Precipitation:

Based on the National Centers for Environmental Information (NCEI), the statewide average February precipitation was 1.04 inches, which was 0.58 inch more than last month, 0.69 inch more than in February 2018, and 0.6 inch more than the 1981-2010 average, making it the fifth wettest February in the 125-year period of record. It was the wettest February since 2009. The numbers less than 100 in Figure 1 below are shaded in yellow and red to depict the region with below-average precipitation. In contrast, the numbers that are greater than 100 in the same figure are shaded in green, blue and purple to depict the region with above-average precipitation in February. The greatest monthly precipitation accumulation was 2.51 inches, recorded in LaMoure, LaMoure County. The greatest 24-hour precipitation was 1.04 inches, recorded in Minot, Ward County, on Feb. 4. The greatest monthly snowfall accumulation was 35 inches, recorded in Ellendale, Dickey County. That is the record February monthly snowfall total for Ellendale since 1893. The greatest 24-hour snowfall was 12 inches, recorded also in Ellendale on Feb. 8. Based on historical records, statewide February precipitation showed a negative long-term trend of 0.05 inch per century since 1895. The highest and lowest February precipitation for the state ranged from 1.59 inches in 1998 to 0.07 inch in 1934.

Temperature:

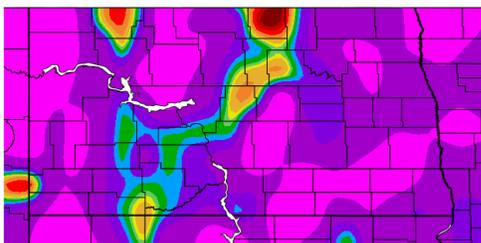
The official state average February temperature was minus 2.9 F, 12.9 F cooler than last month and 8.3 F cooler than in February 2018. The average February temperature was 18.6 F cooler than the 1981-2010 average, making it the second coldest February in the 125-year period of record. It was the coldest February since 1936. The negative numbers in Figure 2 are shaded in green and blue to depict the region with below-average temperatures in February. The state's highest and lowest daily temperatures ranged from 52 F on Feb. 2 in Watford City, McKenzie County, to minus 47 F six days later on Feb. 8, in Bottineau, Bottineau County. Based on the historical records, the state average February temperature showed a positive long-term trend of 0.6 F per decade since 1895. The highest and 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:

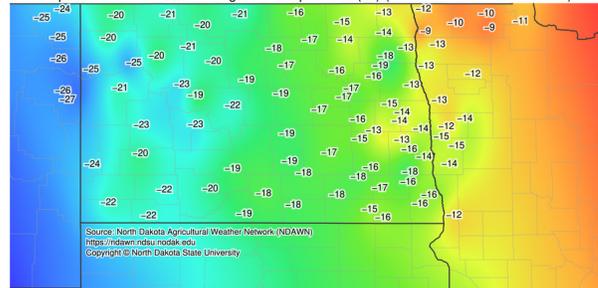
In general, overall drought conditions improved throughout the month. By the end of the month, no parts of the state had any drought designation. NDAWN's highest 10-meter peak gust in February was 42 mph, recorded at the Mooreton weather station in Richland County on Feb. 24, 2019. Across the observation network of weather stations with at least 30 years of history, a total of zero daily high but 72 daily low-temperature-related records were set or tied. A total of 120 highest daily precipitation-related records were set or tied.

Temperature and Precipitation Overview

Percent of Normal Precipitation (%)
 2/1/2019 - 2/28/2019



Departure from Normal Average Air Temperature (°F) (2019-02-01 - 2019-02-28)



Source: North Dakota Agricultural Weather Network (NDAWN)
<https://ndawn.ndsu.nodak.edu>
 Copyright © North Dakota State University

Above: Percent of normal precipitation (left, figure 1) and departure from normal average temperature (right, figure 2) for February 2019 in North Dakota. Figure 1 produced by the Applied Climate Information System, figure 2 produced by NDAWN.

Kansas Climate Summary

Mary Knapp - Service Climatologist
 Kansas Weather Data Library, Kansas State University
 For more information: www.ksre.ksu.edu/wdl



Cold and Snow

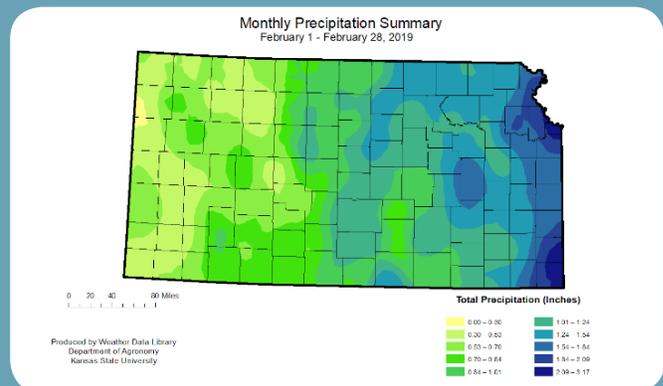
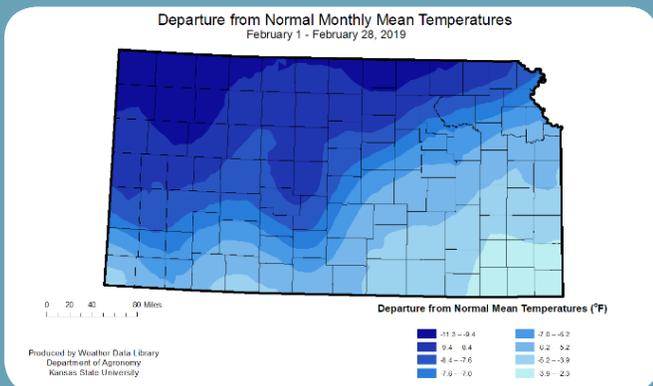
February was much colder than normal across the state. State-wide average temperature for the month was 26.6 oF, which is 7.3 degrees cooler than normal. This ranks as the 12th coldest on record, with the coldest average at 19.0 oF set in 1899. The Northwest Division was the coldest with an average of 22.0 oF, 9.6 degrees cooler than normal. The Southeast Division was the warmest with an average of 32.7 oF or 3.8 degrees cooler than normal. The variability showed in the range of temperatures. The warmest maximum temperature was 81 oF at Richfield 2NE, Morton County, on the 4th. The coldest minimum temperature at a NWS station was recorded at Oakley 4W, Logan County, on the 8th, as -7 oF. The coldest reading at a Kansas Mesonet station was -10.0 oF recorded at the Cheyenne County station near St. Francis on the 9th. Daily record low maximum temperatures were recorded on 47 occasions, but 31 daily record warm minimums were also established in February.

State-wide average precipitation for the month was 1.01 inches, 102 percent of normal. The Northwest Division was the driest with an average of 0.33 inches. That is a deficit of 0.22 inches, 61 percent of normal. The East Central Division had the greatest average precipitation at 1.55 inches. That is 117 percent of normal and a surplus of 0.22 inches. The North Central Division had the greatest percent of normal at 122 percent, with 1.01 inches and a surplus of 0.18 inches. The highest 24-hour rainfall total for a National Weather Service Cooperative station was 2.50 inches at Caldwell, Sumner County, on the 20th. The greatest 24-hour rainfall total for a Community Collaborative Rain, Hail and Snow network station was 1.72 inches at Russell 8.1 NW, Russell County, on the 24th. The greatest monthly precipitation totals for February: 3.17 inches at Emporia 3NW, Lyons County (NWS) and 2.68 inches at Cherokee 0.3 N, Crawford County (CoCoRaHS). Most precipitation was in the form of snow. Monthly totals ranged from around an inch in southern Kansas to 19.5 inches at the CoCoRaHS station at Belleville 4.2 N, Republic County.

Severe storm reports were limited in Kansas during February. The first hail reports of the year occurred on February 6th, with quarter-size hail reported in Cherokee County on the 6th, while Harper County saw hail up to 1 inch on the same date. No reports of tornadoes or damaging winds were received. Severe winter weather was the main feature for the month, with winter storm conditions across most of the state every weekend. Sadly, there were several fatal traffic accidents due to the snowy road conditions.

With the colder than normal temperatures and near normal to above normal precipitation, February continued drought free. The March precipitation outlook favors a slightly increased chance of above normal precipitation across the state. Given the wet soil conditions and the increased amounts of precipitation normal at this time of the year, drought conditions are unlikely. The temperature outlook is for cooler than normal temperature across the state, which will lessen demand and further reduce the chances for a rapid onset of drought.

Temperature and Precipitation Overview



Above: February 2019 departure from normal monthly mean temperatures (left) and total precipitation (right) in Kansas. Maps produced by Weather Data Library, Department of Agronomy, Kansas State University.

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

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

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

For an archive:
www.hprcc.unl.edu/webinars.php

Author Information

For questions, comments, or suggestions, please contact:
Crystal Stiles, Applied Climatologist
(402) 202-3320 - cstiles3@unl.edu
713 Hardin Hall, 3310 Holdrege Street
Lincoln, NE 68583-0997
<http://hprcc.unl.edu>

