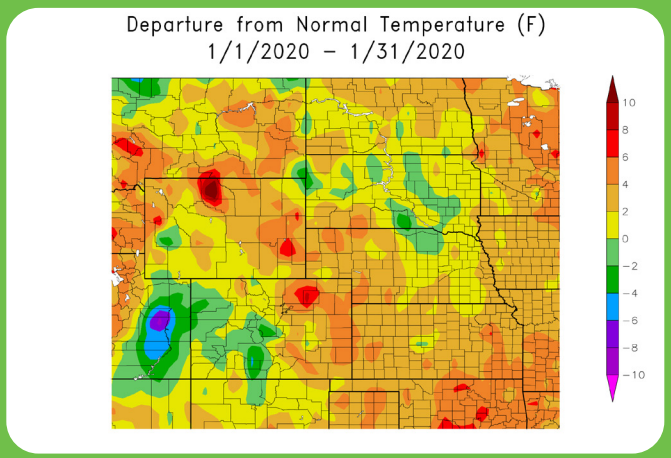
Mild Conditions Persist

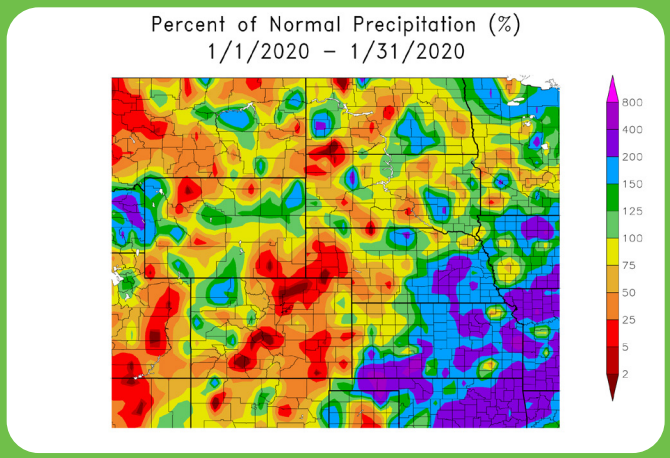
It was another mild month for the High Plains region. Temperature departures in the range of 2.0-4.0 degrees F (1.1-2.2 degrees C) above normal were widespread across much of the region. While there were some isolated areas where departures exceeded 6.0 degrees F (3.3 degrees C) above normal, very few locations ranked in the top 10 warmest Januarys on record. Other areas of the region were largely near normal, with western Colorado and pockets of North Dakota, South Dakota, Wyoming, and northern Nebraska having monthly temperatures that were slightly below normal.

The past month brought above-normal precipitation to much of the southern and eastern portions of the High Plains, with more variable precipitation across the remainder of the region. A series of storm systems tracked across the High Plains region towards the middle and end of the month. These systems brought an extended period of widespread precipitation to much of the region; however, temperatures remained just warm enough for much of the precipitation to fall as a wintry mix of snow, sleet, freezing rain, and rain. This created significant travel issues as the mixed bag of precipitation led to icy and slushy roads across Kansas and Nebraska. Further north across North Dakota and South Dakota, slightly colder air allowed for more of the precipitation to fall as snow, which led to higher snow totals and travel disruptions from blowing and drifting snow.

With planting season around the corner, there are many concerns across the region. For instance, many fields remain unharvested, especially in North Dakota, and fields that went unplanted last year may have weed issues this year. With extremely wet conditions already in place, it may be difficult to get into the fields for spring planting activities. Conditions should be monitored closely through the late winter and spring. For the latest information on the extremely wet conditions that are present across much of the Missouri River Basin, please see this briefing: https://www.weather.gov/media/crh/MissouriBasin.pdf.

Temperature and Precipitation Overview





Above: Departure from 1981-2010 normal temperature (left) and percent of normal precipitation (right) for January 2020 in the High Plains region. Maps produced by the High Plains Regional Climate Center and are available at: http://hprcc.unl.edu/maps/current .

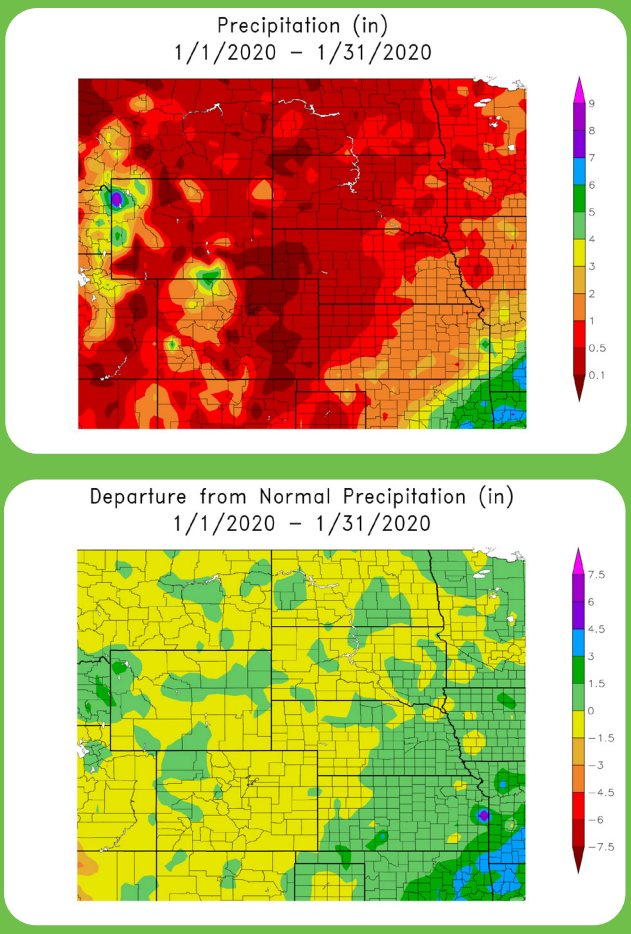
Precipitation

Precipitation varied across the High Plains region this month. Above-normal precipitation occurred across eastern and southern portions of the region, where totals were in excess of 200 percent of normal, with isolated areas up to 400 percent of normal. Meanwhile, a larger area of below-normal precipitation occurred across much of Colorado, northern and southeastern Wyoming, the panhandle of Nebraska, and western North Dakota and South Dakota. Precipitation in these areas was less than half of normal; however, these deficits are not large for this time of the year.

Ultimately, several locations across the region ranked in the top 20 wettest Januarys on record, but few ranked in the top 10. One exception was Wichita, Kansas, which had its 7th wettest January on record with 2.37 inches (60 mm) of liquid equivalent precipitation. Although ranking in the top 10, this was far from the 1949 record amount of 6.29 inches (160 mm) (period of record 1889-2020). On the other side of the spectrum, Laramie, Wyoming tied with 2013 for its driest January on record with only a trace amount of precipitation observed for the entire month (period of record 1948-2020).

Taking a closer look at the month, January started relatively quiet for much of the region, but became more active during the middle and end. During the third week of the month, a series of storm systems tracked across the High Plains. The first of several storms arrived on the 17th and 18th, with additional disturbances moving through the remainder of the week, bringing an extended period of mixed precipitation including snow, sleet, freezing rain, and rain to much of Kansas and Nebraska. Although the mixed precipitation limited overall accumulations in southern areas of the region, very slick and slushy road conditions impacted interstates such as I-80 in Nebraska and I-70 in Kansas. Further north, the January 17-18 storm brought mixed precipitation in addition to blizzard conditions to portions of eastern South Dakota and North Dakota. In anticipation of the storm, flights were delayed or cancelled, and many schools closed early. Travel conditions deteriorated quickly, closing portions of I-29 and I-90 in South Dakota and I-29 and I-94 in North Dakota, and "no travel advisories" impacted several communities in both states. Ultimately, many locations received about 4.0-8.0 inches (10-20 cm) of snow from this storm.

Regional Precipitation



Above: Total precipitation in inches (top) and departure from normal precipitation in inches (bottom) for January 2020. 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

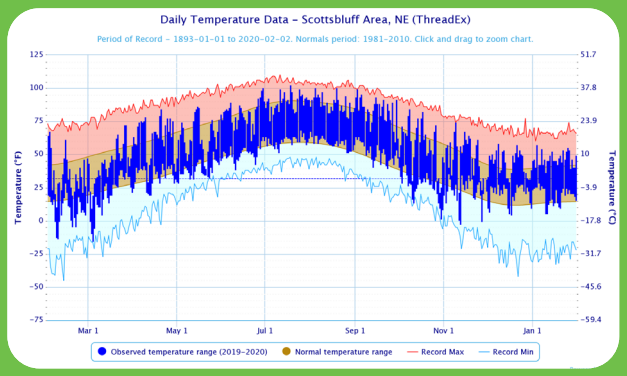
Mountain snowpack remained in good shape this month across much of Colorado and Wyoming. By the end of January, Colorado's statewide Snow Water Equivalent (SWE) was 109 percent of median, while Wyoming's was 108 percent of median. Basins in western Wyoming that had below-normal snowpack in December improved, with only one basin in the state with SWE below 90 percent. Meanwhile, across the Upper Missouri Basin, mountain SWE was still near to slightly above normal. As of February 2nd, mountain SWE was 98 percent of average above Fort Peck and also 98 percent of average in the reach from Fort Peck to Garrison, according to the U.S. Army Corps of Engineers. At the end of the month, plains snowpack was present across eastern portions of the region, as well as southwestern Kansas. SWE varied from a trace to about 6.0 inches (25 mm).

Temperatures

The winter season continued to be relatively mild across the High Plains through January. Temperatures throughout the region were, for the most part, above normal over the past month, with departures generally ranging from 2.0-4.0 degrees F (1.1-2.2 degrees C) above normal. Some locations had departures that were slightly higher.

This was the second month in a row that above-normal temperatures dominated the High Plains region as a whole. The largest departures occurred across northeastern Colorado, northern and eastern Wyoming, and portions of Kansas. There were, however, a few cooler spots in the High Plains during the month of January. Near-normal to slightly below-normal temperatures were observed in areas of North Dakota, South Dakota, western Colorado, and Wyoming. Similar to December, most areas experienced a relatively mild month as a whole; however, the warmest areas only ranked in the top 20 warmest Januarys on record.

Station Spotlight: Scottsbluff, NE



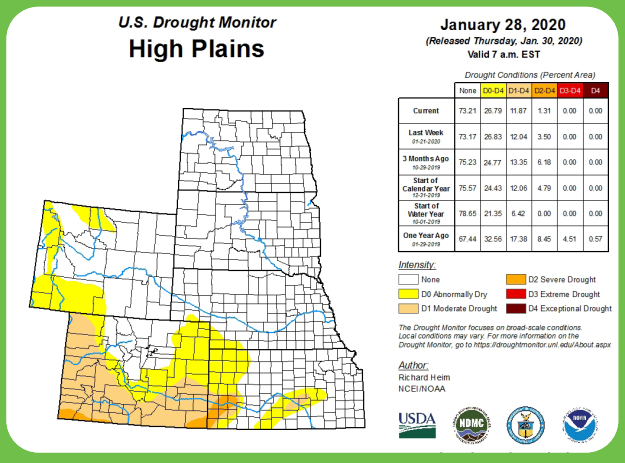
Above: Daily temperatures along with extremes and normals values since February 1, 2019 in Scottsbluff, NE.

Although the month was mild, it was not one for the record books. For instance, an unseasonably warm air mass at the beginning of the month brought temperatures that were over 15.0 degrees F (8.3 degrees C) above normal to western and southern portions of the region. However, this was not enough to break records. One of these locations was Scottsbluff, Nebraska, which recorded a high temperature of 57.0 degrees F (13.9 degrees C) on January 4th. Although unseasonably warm for this time of the year, this fell short of the daily record of 64.0 degrees F (17.8 degrees C), which occurred in 1927 (period of record 1893-2020).

Drought Conditions

Drought conditions improved slightly across western portions of the High Plains region during the month of January. According to the U.S. Drought Monitor, the area experiencing drought (D1-D4) in the High Plains region remained nearly unchanged since the end of December. As of late January, around 12 percent of the High Plains was in drought. Although the area in drought remained about the same, the area in severe drought (D2) fell by about 3 percent over the course of the month.

U.S. Drought Monitor



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/.

Many improvements occurred during January, especially in western and southern Colorado where a sizeable reduction of severe drought (D2) conditions occurred due to ample snowfall. With this reduction, just over 1 percent of the region remained in D2 at the end of the month. Meanwhile, across southwestern Kansas, moderate drought (D1) and severe drought (D2) decreased very slightly as well. Abnormally dry conditions (D0) expanded to include portions of northwestern Kansas, northeastern Colorado, southwestern Nebraska, and northern Wyoming. A small pocket of moderate drought (D1) remained in place across central Kansas throughout the month.

The remainder of the region continued to remain free of drought (D1-D4) and abnormally dry (D0) conditions. As of the January 28th release of the U.S. Drought Monitor, both Nebraska and South Dakota have been drought-free for more than a year.

Climate Outlooks

According to the Climate Prediction Center, ENSO-neutral conditions continued through January in the Pacific. These conditions may continue through spring and summer. For more information about ENSO, check out the ENSO blog here: https://www.climate.gov/news-features/department/enso-blog.

According to the National Weather Service's long-range flood outlook, there is a greater than 50 percent chance of minor, moderate, or major flooding across parts of the region. This includes portions of the Missouri River mainstem in Nebraska and several tributaries, such as the Big Sioux River, the James River, and the Vermillion River. This also includes portions of the Red River and the Souris River in North Dakota. Normal wildland fire potential is expected through May for the High Plains.

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.

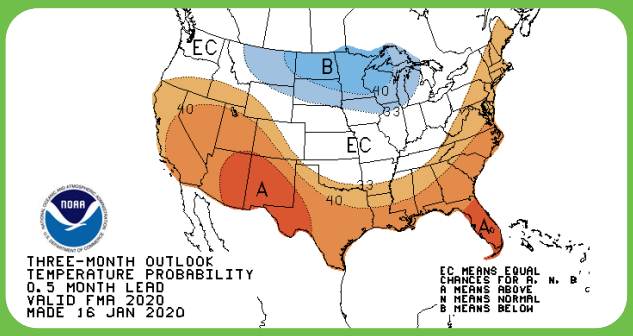
Temperature

The February-April temperature outlook calls for a higher probability of above-normal temperatures for much of the western, southern, and eastern U.S. This includes much of Colorado and southwestern Wyoming in the High Plains region. Meanwhile, there is an increased chance for below-normal temperatures through April for portions of the north central U.S., including much of the Dakotas and northeastern Wyoming in the High Plains rgion. Elsewhere, there are equal chances for above-, below-, and near-normal temperatures.

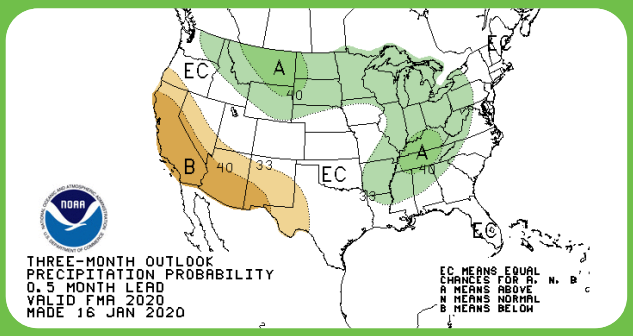
Precipitation

The precipitation outlook through April calls for a higher probability of above-normal precipitation across much of the northern, central, and southern U.S. In the High Plains, this includes the Dakotas, much of Wyoming, and northern Nebraska. Across portions of the western and southwestern U.S., there is an increased chance for below-normal precipitation. Elsewhere, there are equal chances for above-, below-, and near-normal precipitation for the February through April time period.

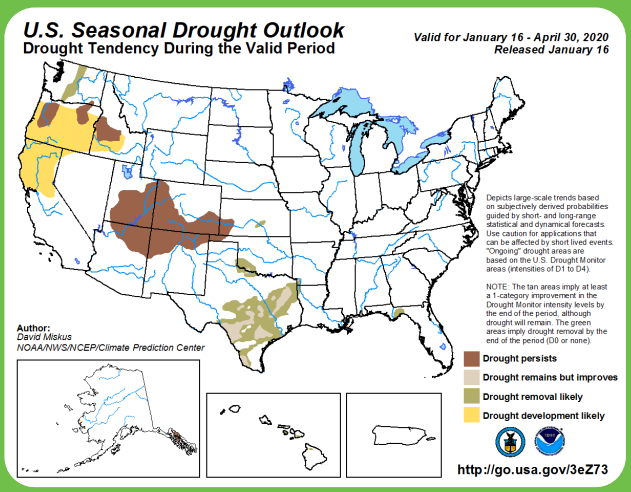
Temperature Outlook



Precipitation Outlook



Drought Outlook



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.

Drought

The January 16th Seasonal Drought Outlook indicates that drought is expected to persist across parts of the Pacific Northwest, West, Central Plains, and the Four Corners region. Drought may improve or be removed across portions of the Pacific Northwest and Southern Plains. Development of drought is likely for portions of the Northwest and West. In the High Plains, drought conditions are expected to persist across southern and western Colorado and southwestern Kansas. Drought conditions may improve or be removed across a small area of central Kansas. Further drought development is not expected at this time in the High Plains through April.

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	46.5	19.7	33.1	4.5	60	01/04	3	01/11+	0.13	-0.17	43
Alamosa San Luis Airport	33.3	-2.8	15.2	-1.1	45	01/26	-22	01/01	0.14	-0.12	54
Colorado Springs Municipal Airport	47.8	20.4	34.1	3.6	59	01/08	12	01/11+	0.09	-0.23	28
Denver International Airport	48.0	21.1	34.6	3.9	62	01/08+	7	01/11	0.14	-0.27	34
Grand Junction Walker Field Airport	34.5	18.7	26.6	-0.8	44	01/26	7	01/07	0.51	-0.07	88
Pueblo Memorial Airport	52.2	17.6	34.9	4.4	63	01/14+	9	01/20+	0.11	-0.24	31

Kansas	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Concordia Municipal Airport	40.3	23.7	32.0	3.4	57	01/08	6	01/21	1.17	0.59	202
Dodge City Regional Airport	47.3	23.8	35.5	3.3	62	01/08	10	01/11	1.00	0.42	172
Goodland Renner Field	48.3	17.7	33.0	3.4	61	01/17	0	01/11	0.40	0.02	105
Topeka Municipal Airport	42.7	24.1	33.4	3.7	63	01/09	7	01/21	1.64	0.78	191
Wichita Mid-Continent Airport	46.9	26.0	36.5	4.3	61	01/09	15	01/21	2.37	1.54	285

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Chadron Municipal Airport	41.5	17.5	29.5	5.1	51	01/21	1	01/15	0.17	-0.19	47
Grand Island Airport	35.0	19.7	27.4	2.3	49	01/26	2	01/20	1.18	0.65	223
Lincoln Municipal Airport	35.4	17.9	26.7	2.1	51	01/07	-3	01/21	1.29	0.65	202
Norfolk Karl Stefan Airfield	32.4	16.2	24.3	1.7	46	01/05	-8	01/16	0.99	0.40	168
North Platte Regional Airport	43.0	16.3	29.6	4.6	58	01/25	-1	01/11	0.20	-0.14	59
Omaha Eppley Airport	34.1	18.7	26.4	2.9	49	01/07	-2	01/20	1.30	0.58	181
Valentine Miller Field	39.1	16.7	27.9	4.3	53	01/04	-8	01/11	0.46	0.20	177

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismarck Municipal Airport	23.6	7.4	15.5	2.7	44	01/04	-22	01/16	0.24	-0.19	56
Fargo International Airport	20.1	3.8	12.0	2.7	37	01/05	-24	01/16+	0.62	-0.08	89
Grand Forks International Airport	18.6	0.2	9.4	2.7	38	01/05	-30	01/16	0.78	0.23	142
Theodore Roosevelt Airport	26.6	10.5	18.5	2.2	45	01/25	-17	01/15	0.14	-0.16	47
Williston International Airport	21.4	6.7	14.0	-	43	01/04	-22	01/15	0.55	-	-

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.

January 2020 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	23.9	6.1	15.0	3.0	42	01/05	-24	01/16	0.44	-0.03	94
Huron Regional Airport	25.2	9.3	17.2	0.5	40	01/05	-18	01/11	0.64	0.14	128
Pierre Regional Airport	28.6	12.5	20.5	0.6	44	01/05+	-10	01/16+	0.32	-0.10	76
Rapid City Regional Airport	38.2	16.1	27.2	2.2	56	01/21	-6	01/15	0.21	-0.09	70
Sioux Falls Joe Foss Field Airport	28.5	12.2	20.4	3.8	41	01/05	-13	01/16	0.80	0.24	143

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	37.1	18.1	27.6	2.9	49	01/16	3	01/10	0.48	-0.03	94
Cheyenne Municipal Airport	41.4	21.4	31.4	2.6	55	01/04	9	01/11+	0.13	-0.20	39
Lander Hunt Field Airport	34.2	13.4	23.8	2.1	44	01/04	4	01/16	0.24	-0.17	59
Laramie Regional Airport	35.5	13.8	24.7	3.0	49	01/16	2	01/31	T	-0.27	0
Rawlins Municipal Airport	30.6	15.2	22.9	1.3	40	01/16	-3	01/15	0.45	0.09	125
Sheridan County Airport	39.9	16.3	28.1	4.3	65	01/04	-9	01/14	0.38	-0.18	68

January 2020 Highlights

Monthly Rankings

Precipitation and Snowfall in inches

Wettest	**Precipitation / Ranking**	**Record / Year**	**Period of Record**
Wichita, KS	2.37 / 7th wettest	6.29 / 1949	1888-present
Driest	**Precipitation / Ranking**	**Record / Year**	**Period of Record**
Laramie, WY	T / DRIEST	T / 2013	1948-present

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 January precipitation was 0.41 inch, which was 0.39 inch less than last month and 0.01 inch less than in January 2018. It also was 0.08 inch less than the 1981-2010 average, making it the 56th driest January in the 126-year period of record. The values less than 100 in Figure 1 below are shaded in yellow, orange and red to depict the region with below-average rainfall. In contrast, the values that are greater than 100 in the same figure are shaded in green, blue and purple to depict the region with above-average rainfall in January. The greatest monthly precipitation accumulation was 1.15 inches, recorded in Grand Forks, Grand Forks County. The greatest monthly snowfall accumulation was 12.5 inches, recorded in Streeter, Stutsman County. Based on historical records, statewide January precipitation showed a slight negative long-term trend of 0.02 inch per century since 1895. The highest and lowest January precipitation for the state ranged from 1.27 inches in 1916 to 0.09 inch in 1942 and 1973.

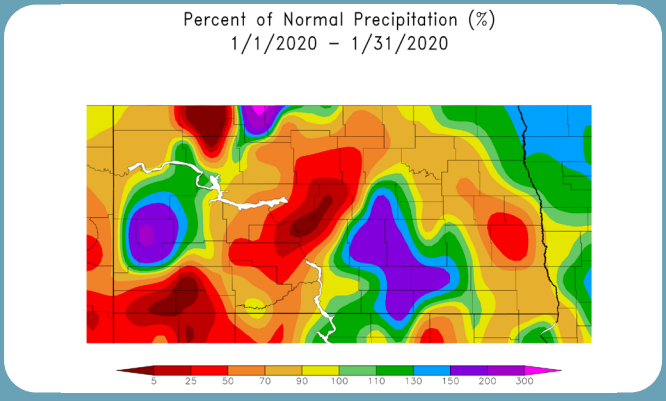
Temperature:

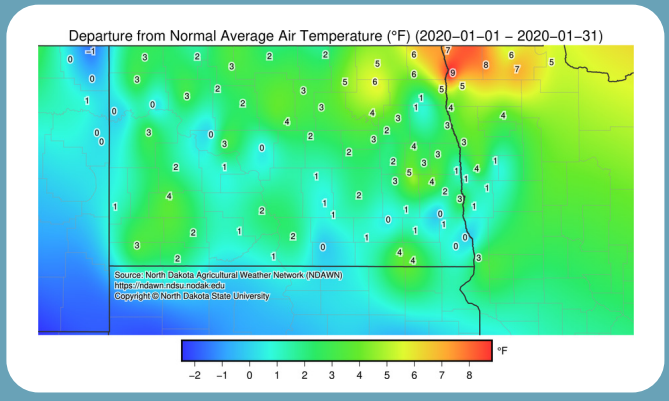
The official state average January temperature was 13 F, which is 3.2 degrees cooler than last month but 3.1 degrees warmer than in January 2018. The average January temperature was 2.4 degrees warmer than the 1981-2010 average, which made it the 31st warmest January in the 126 years of record. It was the warmest January since 2016. The state's highest and lowest daily temperatures ranged from 50 F on Jan. 22 in Hettinger, Adams County, to minus 38 F on Jan. 16, at Lake Methigoshe State Park, Bottineau County. Based on the historical records, the state average January temperature showed a hard positive long-term trend of 0.5 degree per decade since 1895. The highest and lowest monthly state January average temperatures ranged from 25.9 F in 2006 to minus 11.9 F in 1950.

Drought and other notable impacts:

Across the observation network of weather stations with at least 30 years of history, seven daily high- and three daily low-temperature records were set or tied. A total of 83 highest daily precipitation-related records were set or tied.

Temperature and Precipitation Overview





Above: Percent of normal precipitation (left, figure 1) and departure from normal average temperature (right, figure 2) for January 2020 in North Dakota. Figure 1 produced by the High Plains Regional Climate Center, figure 2 produced by NDAWN.

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.

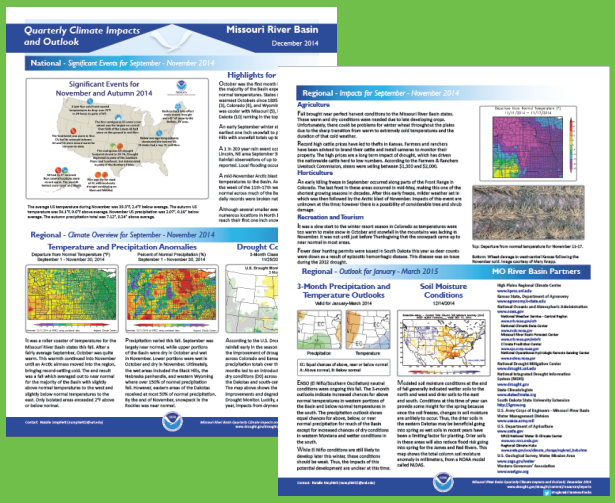
Much of the data and products found throughout this publication were built on the Applied Climate Information System (ACIS) framework. ACIS was designed to manage the complex flow of information from climate data collectors to the end users of climate data information. The main purpose of ACIS is to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

ACIS Applied Climate Information System

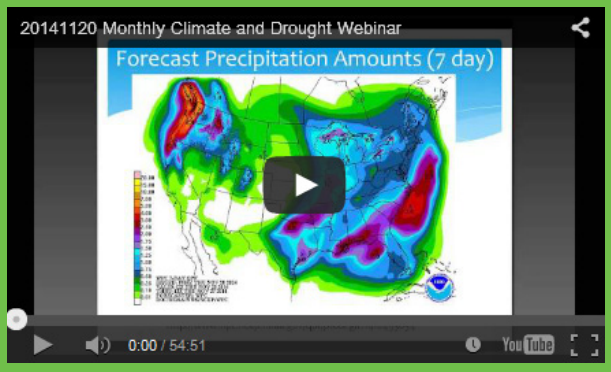
Additional Summary Information for the High Plains

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

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