March 2018 Climate Summary

Sandhill Cranes gather on sand bars in the Platte River in Nebraska at sunrise. Photo courtesy of the Crane Trust.

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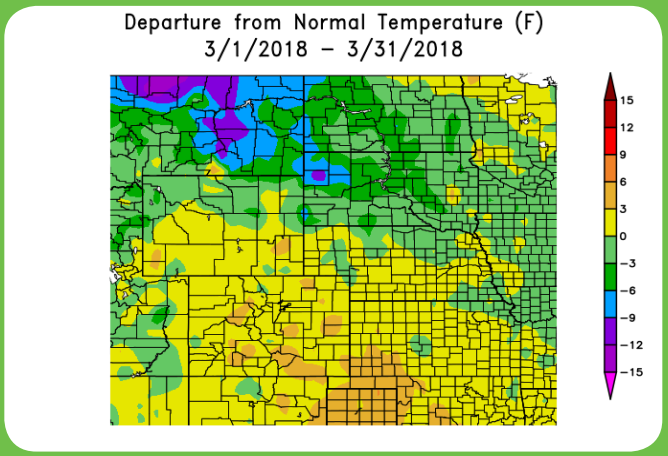
Snowy Start to Spring in the North, Drought in the South

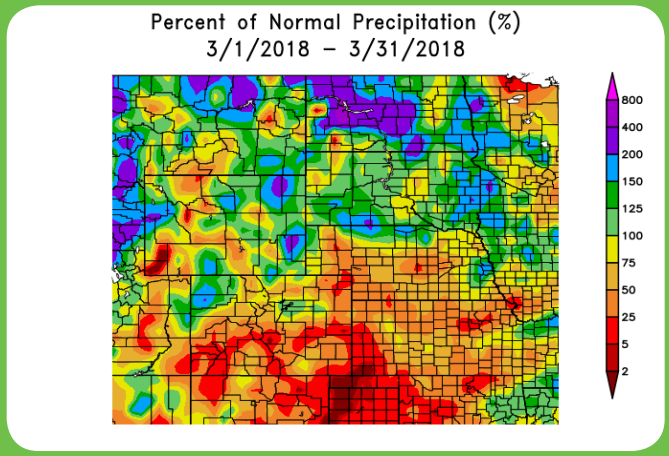
March yielded contrasting climate conditions across the High Plains region. In the Northern Plains, it was cold and snowy, as frequent cold air outbreaks and ample moisture produced several rounds of snow across the Dakotas. Several locations ended up in the top 10 of wettest and/or snowiest Marches on record, particularly in North Dakota. While cold temperatures were not record-breaking for the month, the continuation of below-normal temperatures throughout the winter and early spring combined with the lack of available feed due to last year's drought led to increased instances of cattle and calf deaths across the Dakotas and Montana.

Farther south, precipitation deficits continued to accumulate in March, and drought expanded and intensified across portions of Colorado and Kansas. While the Colorado Rockies received some beneficial snowfall in March, mountain snowpack was still well below normal for the season, and with the normal peak of the mountain snowpack season approaching, it is unlikely that the deficit will be made up. Although the drought developed over winter, it has already impacted agriculture. For instance, the lack of precipitation and snow cover may have damaged alfalfa in the San Luis Valley in south-central Colorado, according to an extension agent in the region. In Kansas, the worsening drought situation prompted the governor to make an official drought declaration for the entire state. Shortly after the drought declaration, Kansas lawmakers requested emergency haying and grazing of Conservation Reserve Program (CRP) lands. Another immediate concern was wildfires, as conditions in March were ripe for wildfires to develop and spread.

Although winter conditions allowed for the improvement of drought across the Northern Plains, this region is still dealing with impacts, such as the lack of available feed contributing to cattle deaths as mentioned above. According to NOAA, the 2017 Northern Plains drought had an economic impact of $2.5 billion on the Dakotas and Montana. Producers are concerned that this region will endure a second year of drought, hampering recovery from last year's drought.

Temperature and Precipitation Overview





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

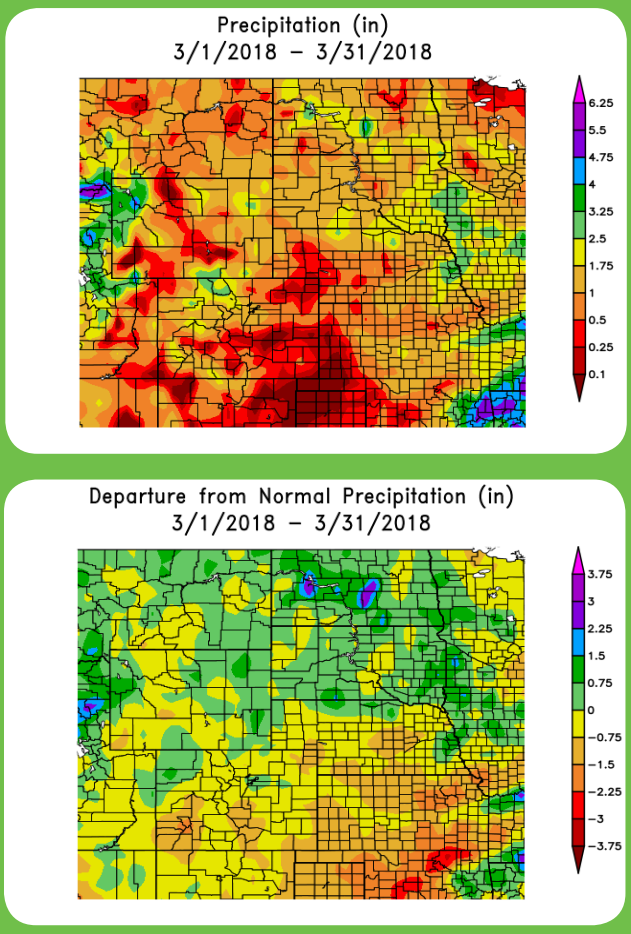
Precipitation

March was wet for the Northern Plains, while dry conditions prevailed throughout the Central Plains. Eastern Wyoming and the Dakotas experienced above-normal precipitation, with the greatest departures occurring throughout western and central North Dakota where precipitation exceeded 200 percent of normal. Meanwhile, March was dry across much of Nebraska, Kansas, Colorado, and western Wyoming, as these regions received 50-75 percent of normal precipitation, at best. The driest area was southwestern Kansas, where very little precipitation fell.

The wetness in the Dakotas and eastern Wyoming was due to several snowstorms that traversed the region. For instance, a snowstorm impacted the Dakotas on the 5th-6th, producing high snowfall totals. Blizzard conditions occurred in Bismarck, North Dakota, causing flights to be cancelled into and out of Bismarck Municipal Airport. Bismarck received 8.5 inches (22 cm) of snow from the storm, which was just shy of its normal March snowfall total of 9.1 inches (23 cm). Bismarck ended up receiving 21.0 inches (53 cm) of snow for the month, which was its 9th snowiest March on record. Another winter storm occurred on the 16th, impacting the Black Hills region of South Dakota, northwestern Nebraska, and eastern Wyoming. Rapid City, South Dakota got 9.6 inches (24 cm) of snow out of the storm, which was its 8th highest 1-day total snowfall on record for March. This storm caused multiple crashes on Interstate 80, forcing the highway to close.

Farther south, it was a much drier month, with drought continuing to spread and intensify across Colorado and Kansas. Warmer temperatures contributed to the lack of snow across these areas as well, which resulted in several locations having a top 10 least snowiest March on record. For instance, Pueblo, Colorado had its 5th driest March, receiving only 0.06 inches (2 mm) of precipitation. Pueblo received only a trace of snowfall, tying last year (and several other years) for its 2nd least snowiest March on record. Season-to-date snowfall was well below normal throughout Colorado and Kansas as well. In fact, several locations are on track to have a top 10 least snowiest season on record. The following rankings are for July-March snowfall: Wichita, KS (least snowiest), Dodge City, KS (2nd least snowiest), Alamosa, CO (5th least snowiest), Grand Junction, CO (tied for 5th least snowiest), Denver, CO (8th least snowiest), and Pueblo, CO (8th least snowiest).

Regional Precipitation



Above: Total precipitation in inches (top) and departure from normal precipitation in inches (bottom) for March 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

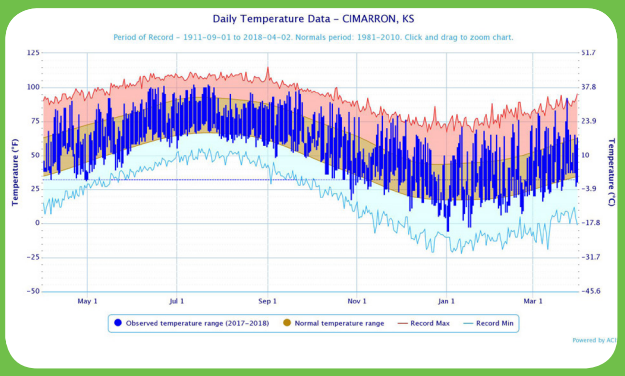
Upper Missouri Basin snowpack continued to be above normal in March. According to the U.S. Army Corps of Engineers, Snow Water Equivalent (SWE) above Fort Peck Reservoir and between Fort Peck and Garrison Reservoirs was 127 percent of normal as of the end of March. Normally by April 1, about 97 percent of the peak mountain SWE has occurred in both reaches, with the normal peak occurring around April 15. Wyoming mountain snowpack was near to slightly above normal in late March. Colorado snowpack was only 70 percent of normal, with southern basins continuing to fare the worst. In the Plains, snow covered the ground across North Dakota, northern South Dakota, and northeastern Wyoming at the end of the month. However, dryness and warmer temperatures resulted in snow-free conditions for much of Nebraska, Kansas, and Plains areas of Colorado and Wyoming.

Temperatures

Temperatures were cooler in the Northern Plains and warmer in the Central Plains during March, ranging from 5.0 degrees F (2.8 degrees C) below normal across parts of North Dakota to 4.0 degrees F (2.2 degrees C) above normal in southwestern Kansas. Temperatures were generally not record-breaking region-wide, although Akron, Colorado had its 9th warmest March on record.

Throughout the month, warm and cold spells caused temperatures to fluctuate over short periods of time, which is common for March. The combination of cold air outbreaks and snow cover kept temperatures below normal for most of the month in the Northern Plains, especially across North Dakota. Meanwhile, persistently dry conditions throughout southwestern Kansas allowed temperatures to soar during warm spells. For instance, a warm spell on the 23rd and 24th produced temperatures in the low 90s across this region. The warmest location was Cimarron, which reached 92.0 degrees F (33.3 degrees C) on the 24th and had its 4th highest March temperature on record (period of record 1911-2018).

Station Spotlight: Cimarron, KS



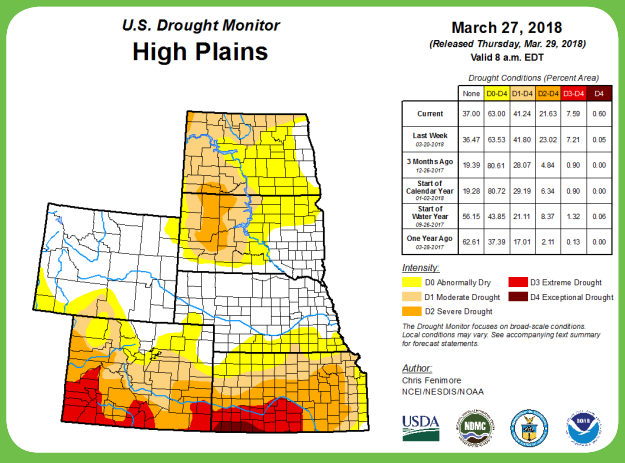
Above: Daily temperatures along with extremes and normals values since April 1, 2017 in Cimarron, KS.

Heading into April, many producers are concerned about the cold start to spring that has occurred in some parts of the High Plains. Combined with recent wet conditions in some areas, it has been difficult for producers to conduct field work to prep their fields for spring planting. Additionally, planting will likely need to be delayed to allow for temperatures to warm up and the soils to dry out. Unfortunately, the outlook for April indicates a higher likelihood for below-normal temperatures across the Northern and Central Plains, which would be problematic for planting.

Drought Conditions

Drought conditions improved across the north while worsening throughout the southern portion of the High Plains during March. According to the U.S. Drought Monitor, the overall area experiencing drought or abnormal dryness (D0-D4) decreased from 69 percent to 63 percent, but areas experiencing severe (D2), extreme (D3), and exceptional (D4) drought increased. As for improvements, a wet pattern prevailed throughout March in the Dakotas, bringing drought relief to the region. Heavy snows fell across this region during the early part of the month, removing drought across the eastern Dakotas and improving conditions in the west.

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/.

However, the drought situation continued to worsen throughout Colorado and Kansas. This region missed out on much-needed precipitation, with the majority of the two states receiving less than 50 percent of normal precipitation for the month. As a result, D2 and D3 conditions expanded across southern, central, and eastern portions of Colorado and Kansas, and D4 conditions expanded across southwestern Kansas. As for impacts, topsoil moisture and winter wheat conditions were suffering from the lack of precipitation. According to the March 27th U.S. Department of Agriculture Weekly Weather and Crop Bulletin, topsoil moisture was rated 69 percent and 63 percent short to very short in Kansas and Colorado, respectively. Winter wheat conditions were rated 49 percent poor to very poor in Kansas and 21 percent poor to very poor in Colorado. Spring precipitation is badly needed for winter wheat growth and for other crops to be planted.

Climate Outlooks

According to the Climate Prediction Center, La Niña conditions are present in the Pacific. Equatorial sea surface temperatures are below average across the central and eastern Pacific Ocean. La Niña is expected to transition to ENSO-neutral conditions during the 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. According to NOAA's Spring Flood Outlook, minor flooding may occur in northern and central Wyoming, eastern North Dakota, and eastern Kansas/extreme southeastern Nebraska. Dry conditions across portions of Colorado and Kansas are expected to lead to above-normal wildland fire potential through July.

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 April-June temperature outlook indicates an increased chance of above-normal temperatures for southern, western, central, and eastern portions of the contiguous U.S. In the High Plains, this includes Colorado, Kansas, southern Wyoming, and the southern half of Nebraska. Below-normal temperatures are favored across the Northern Plains and Rockies, including western North Dakota, the northwestern tip of South Dakota, and extreme northern Wyoming in the High Plains region. Elsewhere, there are equal chances for above-, below-, and near-normal temperatures during the April-June period.

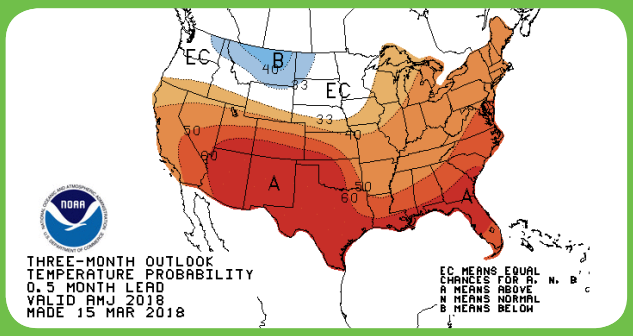
Precipitation

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

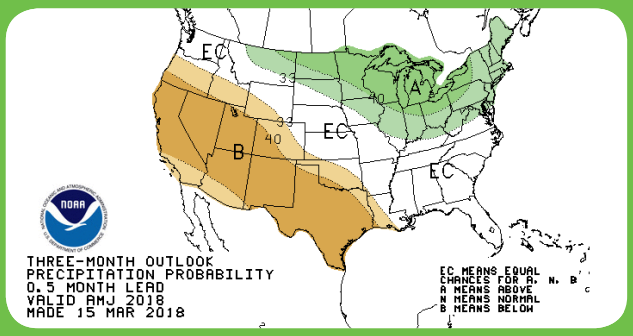
Drought

The March 15th U.S. Seasonal Drought Outlook shows that drought is expected to persist across parts of the Northwest, Southwest, Plains, and Southeast. In the High Plains, this includes large portions of Colorado and Kansas, as well as small parts of Wyoming and Nebraska. 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 June, which includes parts of Colorado and Wyoming in the High Plains.

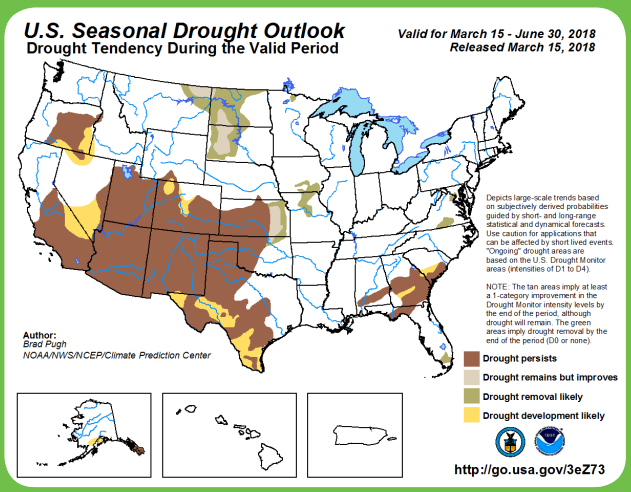
Temperature Outlook



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.

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	57.6	27.2	42.4	3.2	75	03/23	15	03/11+	0.59	-0.28	68
Alamosa San Luis Airport	54.3	15.0	34.6	1.1	70	03/22	-1	03/06	0.15	-0.38	28
Colorado Springs Municipal Airport	58.0	27.5	42.7	3.6	73	03/22	14	03/07	0.60	-0.40	60
Denver International Airport	58.5	26.8	42.7	2.3	73	03/22	13	03/07	1.02	0.10	111
Grand Junction Walker Field Airport	59.1	31.1	45.1	1.2	72	03/31+	14	03/06	0.59	-0.33	64
Pueblo Memorial Airport	65.5	25.4	45.4	3.1	78	03/22	11	03/07	0.06	-0.87	6

Kansas	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Concordia Municipal Airport	56.9	30.4	43.6	0.6	75	03/23+	13	03/08	0.58	-1.43	29
Dodge City Regional Airport	64.0	31.6	47.8	3.4	89	03/23	16	03/12+	1.06	-0.53	67
Goodland Renner Field	59.5	25.2	42.4	1.9	87	03/23	13	03/07	0.41	-0.66	38
Topeka Municipal Airport	57.2	34.3	45.7	0.9	78	03/15	16	03/08	1.05	-1.44	42
Wichita Mid-Continent Airport	62.1	36.2	49.2	2.7	78	03/15	21	03/14	1.12	-1.57	42

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Chadron Municipal Airport	51.3	22.2	36.7	0.9	71	03/14	7	03/01	0.64	-0.59	52
Grand Island Airport	51.8	28.8	40.3	0.9	73	03/04	15	03/08	1.26	-0.54	70
Lincoln Municipal Airport	52.2	29.8	41.0	0.9	73	03/03	12	03/08	2.71	0.78	140
Norfolk Karl Stefan Airfield	46.8	27.6	37.2	-0.2	67	03/14	11	03/08	1.63	-0.14	92
North Platte Regional Airport	54.8	24.3	39.5	1.5	73	03/22	14	03/12+	0.71	-0.34	68
Omaha Eppley Airport	49.7	30.9	40.3	0.8	69	03/14	20	03/07	2.82	0.83	142
Valentine Miller Field	48.3	24.6	36.4	0.2	72	03/14	7	03/07	1.54	0.47	144

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismarck Municipal Airport	35.1	17.9	26.5	-3.4	54	03/27	-5	03/08	1.57	0.70	180
Fargo International Airport	34.0	18.4	26.2	-1.6	46	03/27	-2	03/07	1.95	0.65	150
Grand Forks International Airport	32.2	16.5	24.3	-0.9	41	03/18+	0	03/09	1.85	0.89	193
Theodore Roosevelt Airport	35.9	18.7	27.3	-2.7	53	03/27	3	03/31	0.71	0.02	103
Williston International Airport	33.6	14.8	24.2	-5.1	51	03/27	-9	03/08	1.76	1.05	248

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.
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March 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	36.3	20.4	28.3	-1.6	56	03/27	-8	03/01	1.59	0.43	137
Huron Regional Airport	38.9	23.8	31.4	-1.7	57	03/27	0	03/01	1.96	0.50	134
Pierre Regional Airport	39.3	22.4	30.8	-3.6	59	03/27	0	03/08	1.38*	0.15	112
Rapid City Regional Airport	44.7	20.2	32.4	-3.0	67	03/14	3	03/17	1.35	0.42	145
Sioux Falls Joe Foss Field Airport	41.3	25.9	33.6	0.7	56	03/14	10	03/08	2.06	0.30	117

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	49.1	21.8	35.5	0.3	66	03/22	12	03/11	1.00	0.18	122
Cheyenne Municipal Airport	51.0	24.2	37.6	1.7	66	03/22	11	03/11	1.01	-0.04	96
Lander Hunt Field Airport	48.7	23.8	36.3	0.8	64	03/22	12	03/01	1.09	-0.07	94
Laramie Regional Airport	45.4	17.9	31.7	0.8	60	03/22	4	03/11	0.91*	0.33	157
Rawlins Municipal Airport	45.9*	22.1*	34.0*	1.7	62	03/22	11	03/06	0.32*	-0.36	47
Sheridan County Airport	44.2	20.5	32.4	-2.8	68	03/24	2	03/01	1.50	0.52	153

March 2018 Highlights

Monthly Rankings

Precipitation and Snowfall in inches, Temperature in degrees F

Wettest/Driest	**Precipitation / Ranking**	**Record / Year**	**Period of Record**
Williston, ND	1.76 / 8th wettest	2.26 / 1975	1894-2018
Grand Forks, ND	1.85 / 9th wettest	3.08 / 1966	1893-2018
Fargo, ND	1.95 / 10th wettest	4.62 / 2009	1881-2018
Pueblo, CO	0.06 / 5th driest	0.01 / 1893	1889-2018
Snowiest/Least Snowiest	**Snowfall / Ranking**	**Record / Year**	**Period of Record**
Fargo, ND	19.0 / 3rd snowiest (tie, 1995)	28.1 / 2009	1886-2018
Bismarck, ND	21.0 / 9th snowiest	31.1 / 1975	1886-2018
Pueblo, CO	T / 2nd least snowiest (tie, 2017+)	0.0 / 1910	1889-2018
Topeka, KS	T / 6th least snowiest (tie, 2015+)	0.00 / 2004+	1888-2018
Concordia, KS	T / 7th least snowiest (tie, 2016+)	0.00 / 2015+	1893-2018
Goodland, KS	0.9 / 10th least snowiest (tie, 1938)	T / 2017+	1896-2018
Warmest	**Temperature / Ranking**	**Record / Year**	**Period of Record**
Akron, CO	42.4 / 9th warmest	48.4 / 2012	1938-2018

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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 total March precipitation was 1.37 inches, which was 0.99 inch more than last month and also 0.99 inch less than in March 2017, but 0.54 inch greater than the 1981-2010 average, making it the 11th wettest March in the 124-year period of record. It was the wettest March since 2009. Above-average precipitation was observed commonly in the cental parts of the state. On the other hand, it was below average in the southwestern and northeastern parts of the state (Figure 1). The greatest monthly precipitation accumulation was 3.95 inches, recorded in Steele, Kidder County. The greatest 24-hour precipitation was 1.72 inches, recorded in Oakes, Dickey County, on March 6. The greatest monthly snowfall accumulation was 27 inches, recorded in Washburn, McLean County. The greatest 24-hour snowfall was 14 inches, recorded in Fullerton, Dickey County, on March 6. Based on historical records, statewide March precipitation showed a slight positive long-term trend of 0.01 inch per century since 1895. The highest and lowest March precipitation for the state ranged from 2.31 inches in 1902 to 0.11 inch in 1930.

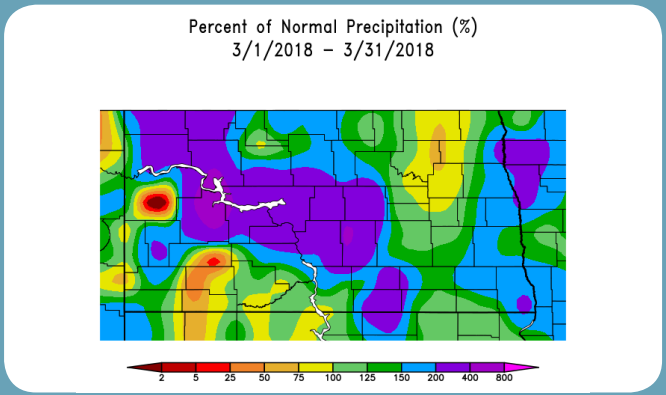
Temperature:

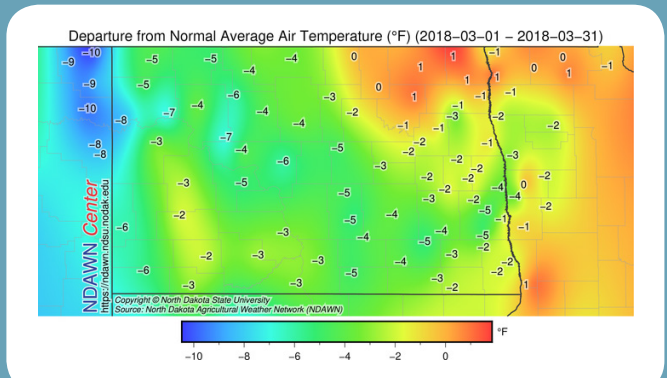
The official state average March temperature was 25.1 F, 19.9 F warment than last month but 2.4 F colder than March 2017 and 2.4 F colder than the 1981-2010 average, making it the 67th coldest (58th warmest) March in the 124-year period of record. It was the coldest March since 2014. Below-average temperatures were observed commonly in the state, with the highest departure from the average in the southwestern part of the state. Some above-average conditions were observed in the northeastern corner of the state (Figure 2). The state's highest and lowest daily temperatures ranged from 67 F on March 16 in Dunn Center, Dunn County, to minus 17 F on March 30 in Foxholm, Ward County. Based on the historical records, the state average March temperature showed a staggering positive trend of 0.5 F per decade since 1895. The highest and the lowest monthly state March average temperatures ranged from 40.6 F in 2012 to 7 F in 1899.

Drought and other notable impacts:

Drought conditions improved since last month. By the end of March, the percent of the state experiencing drought was 49, a 16 percent decrease, compared with the previous month. Based on the DM map on March 27, less than 5 percent of the state still was in severe drought (D2). Despite the unusually wet March, farmers still are concerned about the dry soil and overgrazed pastures from last year. A cooler than average spring forecast also is concerning in terms of a possibility of late planting. NDAWN's highest peak gust in March was 48 mph, recorded at the Linton weather station in Emmons County on March 23, 2018. The NOAA Storm Report reported no significant storm events in March. Across the observation network of weather stations with at least 30 years of history, a total of two daily high-temperature-related and 18 daily low-temperature-related records were set or tied. A total of 78 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 March 2018 in North Dakota. Figure 1 produced by the Applied Climate Information System, Figure 2 produced by NDAWN.

March 2018 Climate Summary

Kansas Climate Summary

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

KANSAS STATE UNIVERSITY

Another Dry Month

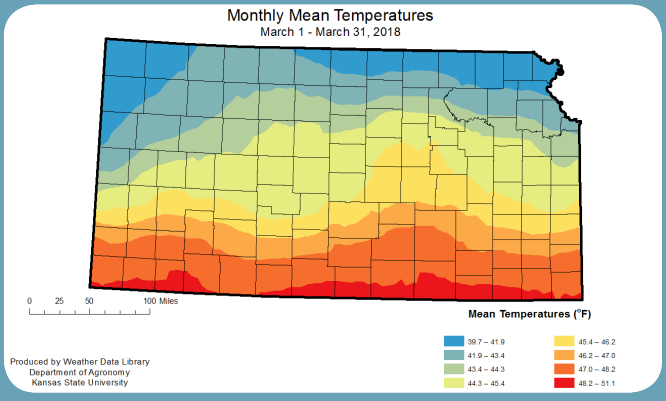
The Southwest Division again missed out on most of the precipitation during March. State-wide the average precipitation was 0.97 inches or 41 percent of normal. No division reached normal for precipitation for the month. The Southwest Division, with an average of just 0.33 inches, had the lowest percent of normal at just 22 percent. The East Central Division had the closest to normal precipitation with an average of 1.50 inches or 55 percent of normal. The greatest monthly precipitation totals were 3.78 inches at Stillwell 1N, Johnson County (NWS) and 4.10 inches at Plevna 3.1 NNW, Reno County (CoCoRaHS. There was some snow during the month, with two locations matching or 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 3.0 inches at both Ransom 2NE, Ness County and Wakeeney, Trego County (NWS); and 2.7 inches at St. Francis 12.1 NW, Cheyenne County (CoCoRaHS).

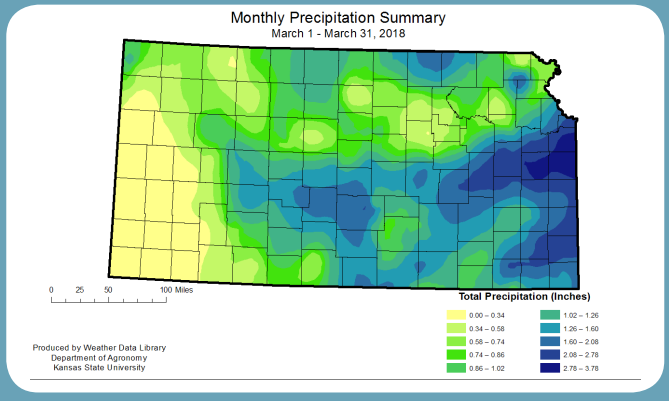
March continued the pattern of wide temperatures swings, as might be expected with the dry air in place. The statewide average temperature was 44.7 oF, or 1.2 degrees warmer than normal. The cold days weren't persistent enough to outweigh the warmer start to the month. Only the Northeast Divisions averaged below normal for the month. The average temperature for the Northeast was 42.1 oF, or 0.4 degrees cooler than normal. The Southwest Division had the greatest departure, with an average of 47.6 oF or 3.3 degrees warmer than normal. The warmest temperature reported for the month was 93 oF at Ashland, Clark County, on the 24th. The coldest reading was 7 oF at Alton 2SW, Osborne County, on the 8th. Records were set on both the cold and warm end of the spectrum, with most of those records on the warm side of the spectrum. On the cold side, there was one new record low maximum temperature and no new record low minimum temperatures. On the warm side, there were 27 new record high maximum temperatures and 10 new record high minimums.

Unsurprisingly, given the dry conditions, the severe weather reports during the month were limited. There were 17 hail reports and 3 damaging wind reports. In addition, there were several winter weather advisories and several days with extreme fire danger.

The Northwest and Southeast corners of the state remain drought-free. The rest of the state saw deterioration. Exceptional drought conditions now cover just over 3 percent of the state, with extreme drought covers an additional 17 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 April outlook has a slight chance for wetter than normal conditions across the eastern portions of the state, with drier than normal conditions in the southwest corner of the state. The temperature outlook is for cooler than normal temperatures statewide. Unless April moisture is significant, even that combination is unlikely to result in significant improvement of the drought conditions. With the wet summer last year and current dryness, increased fire danger continues.

Temperature and Precipitation Overview





Above: March 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

Martha Shulski - State Climatologist
Nebraska State Climate Office, University of Nebraska-Lincoln
For more information: https://nsco.unl.edu/

NEBRASKA STATE CLIMATE OFFICE

Rain, snow, and hail and variable temperatures – Nebraska experienced a range of weather to start the spring season. The monthly total precipitation was heaviest for a pocket of east central Nebraska, including the Omaha metro area, receiving more than three inches, which is more than an inch greater than normal for March. A couple of other wet pockets were in north central Nebraska (two inches or greater) and the Panhandle (more than an inch). The rest of Nebraska was on the dry side in which a half inch to an inch less than normal was received.

Several record rainfall amounts were received on March 16th. For example, Omaha (0.87”), Norfolk (0.83”) and Valentine (0.75”) all received the highest totals for that date. The Nebraska Mesonet station near West Point received 0.91 inches on the 17th. Severe weather season got its start with 1-inch hail reported on the 23rd at Edison (Furnas County). Just a few miles south into Kansas were much more widespread hail reports.

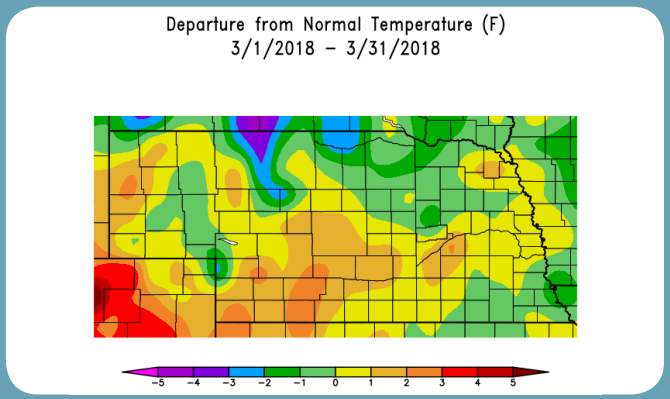
Snow was plentiful across northern Nebraska with more than a foot for the monthly total at Bloomfield in the northeast and Harrison in the northwest. The heaviest totals in southern Nebraska occurred in the Holdrege and Minden area in which 4 to 6 inches fell on the 19th. Elsewhere, monthly totals ranged from 0 to less than 2 inches.

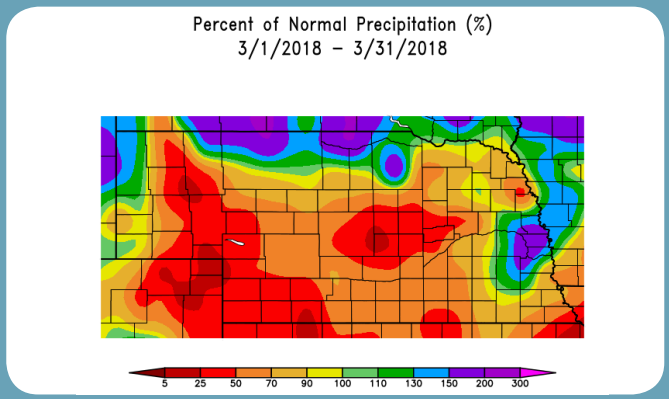
Temperatures averaged on the cool side for southeast, west central, north central and portions of northeast Nebraska. Temperature departures were 1 to 3 degrees cooler than an average March. The rest of the state experienced relative warmth with temperatures 1 to 2 degrees above average. McCook and a handful of other communities in southern Nebraska took the top spot with the highest daily maximum temperature of 78 degrees. The lowest air temperature for the month was observed in northeast Nebraska, 4 degrees above zero at Wausa and Crofton. Nighttime lows were mostly below freezing for the month, particularly for northern and western Nebraska. Low temperatures above freezing occurred more frequently (~ 10 days) in the southeast portion of the state.

Although early, producers were beginning to issue concerns in regard to spring planting of warm season crops. Temperatures at the end of March were averaging 10 – 20 degrees below normal east of the Panhandle. These cool temperatures developed last year in mid-April, and this coupled with frequent rainfall led to significant planting issues through the end of May.

Soil temperatures at the 4-inch depth averaged in the high 30s to low 40s at the start of April. Afternoon highs have been in the mid 40s in the north to mid 50s in the south. Early morning lows dip just below freezing to the mid 30s. However, on the morning of March 8th, the soil temperature at Ainsworth dipped to 23 degrees. The warmest reading was 65 degrees on the afternoon of March 22nd at Guide Rock 3E in southcentral Nebraska.

Temperature and Precipitation Overview





Above: March 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.

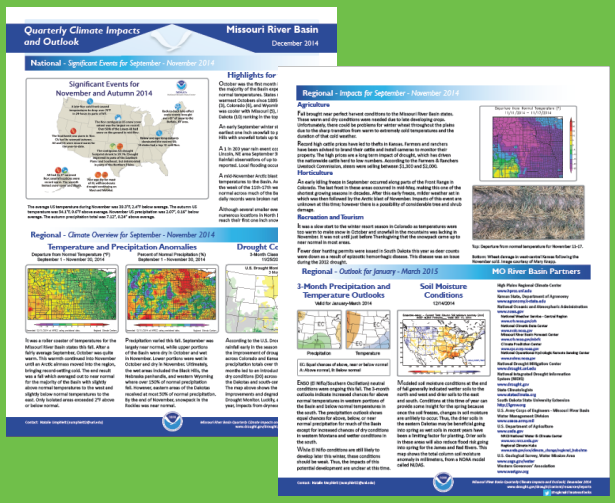
Much of the data and products found throughout this publication were built on the Applied Climate Information System (ACIS) framework. ACIS was designed to manage the complex flow of information from climate data collectors to the end users of climate data information. The main purpose of ACIS is to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

ACIS Applied Climate Information System

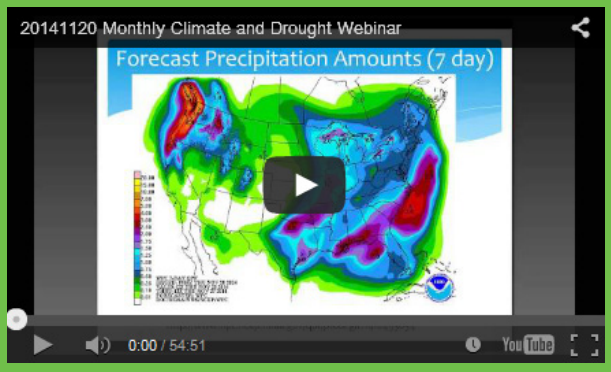
Additional Summary Information for the High Plains

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:
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For an archive:
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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

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