



October 2018 Climate Summary

Snow on soybeans in the Kansas River Valley east of Manhattan, KS. Photo courtesy of Chip Redmond. <http://hprcc.unl.edu>

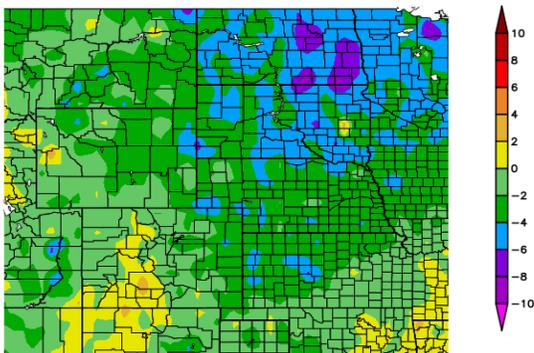
Cool and Wet

October was cool and wet for the majority of the High Plains. Below-normal temperatures were most evident across the Dakotas, while the wettest areas could be found in Kansas and eastern Colorado. Most of the region had experienced its first fall freeze by the end of the month, ending the growing season. The first snowfall of the season came early for several areas in the eastern part of the region, including Wichita, Kansas, which had its earliest snowfall on record, and areas of eastern North Dakota, where more than a foot of snow fell. These cool and wet conditions relieved drought and improved soil moisture conditions throughout the Dakotas, Kansas, and Colorado. While it did not help crops that were already being harvested, the rains were beneficial for the emerging winter wheat crop in Colorado, and it helped improve streamflow conditions across the state. However, October conditions caused a variety of issues. For instance, harvest was delayed due to excessively wet conditions, and some crop disease issues were reported. Additionally, the first fall freeze came early in parts of Kansas, causing damage to sorghum.

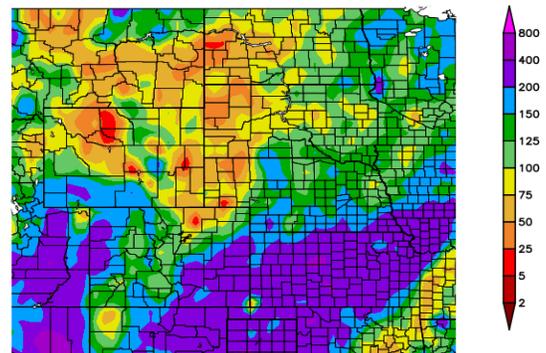
Overall, corn and soybeans did quite well in the High Plains this season thanks to generally favorable weather conditions. Luckily, the rapid maturation of crops limited freeze damage across the region this year. In fact, the U.S. Department of Agriculture has predicted record high corn and soybean yields for Nebraska and South Dakota. However, corn and soybean harvest were both behind due to cool and wet weather in October. According to the October 30th U.S. Department of Agriculture Weekly Weather and Crop Bulletin, corn harvest was 8-9 percent behind the 5-year average in North Dakota, South Dakota, Nebraska, and Kansas. However, soybean harvest was even further behind, with North Dakota, South Dakota, and Nebraska ranging from 14-17 percent behind the 5-year average while Kansas was 28 percent behind. Warmer, drier weather is needed to aid in the drying down of crops and wet soils so that producers can get back into the fields to complete harvest.

Temperature and Precipitation Overview

Departure from Normal Temperature (F)
10/1/2018 – 10/31/2018



Percent of Normal Precipitation (%)
10/1/2018 – 10/31/2018



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

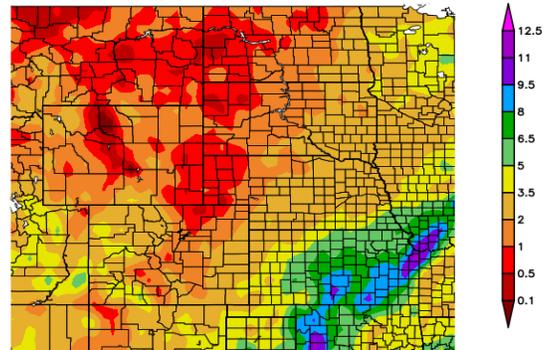
Most of the High Plains experienced a wet October, with precipitation ranging from 125-300 percent of normal throughout the eastern Dakotas, much of Nebraska and Kansas, and eastern Colorado. The wettest areas included Kansas and eastern Colorado where several locations ranked in the top 5 of wettest Octobers. For instance, Dodge City, Kansas had its wettest October on record, receiving 6.45 inches (164 mm) and crushing the old record of 5.00 inches (127 mm) set in 2008. Not all areas of the region were wet in October, however. It was dry across the western Dakotas, the Nebraska Panhandle, and portions of Wyoming, with some areas receiving less than 50 percent of normal precipitation.

Eastern parts of the region got an early taste of winter in October, as a couple of storm systems brought accumulating snowfall to areas as far south as southern Kansas. Grand Forks, North Dakota received 6.6 inches (17 cm) of snow out of a system that passed through on the 10th-11th. However, according to the National Weather Service in Grand Forks, the Grand Forks Air Force Base received an astounding 19.2 inches (49 cm) of snow! On the 14th, a system brought snow to parts of Nebraska and Kansas. While snowfall amounts were not particularly high, it was still enough to break records. The following locations broke the top 10 for snowiest October: Grand Forks, ND (2nd snowiest); Lincoln, NE (3rd snowiest); Wichita, KS (4th snowiest); Topeka, KS (9th snowiest); and Concordia, KS (10th snowiest). It was also quite early for snow in some places. In fact, Wichita, Kansas had its earliest measurable snow on record on the 14th with 0.7 inches (2 cm). Across the region, the snows brought down tree limbs, as many trees still had leaves on them, and it brought an early end to the gardening and growing season.

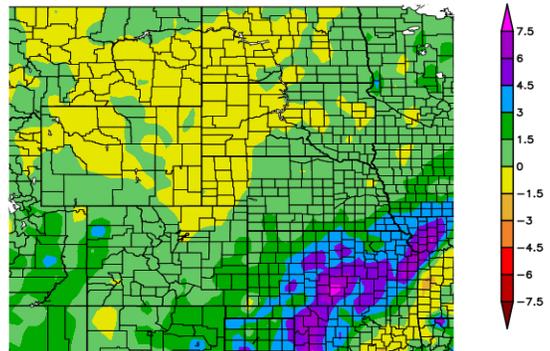
The wet conditions resulted in several impacts to agriculture. For instance, heavy rains caused flooding in fields that had not yet been harvested, and wet soils made it difficult for producers to get into the fields. Flooded wheat fields in Kansas had producers contemplating whether they would need to be replanted. The sprouting and shattering of soybeans, as well as soybeans dropping pods, was reported in Kansas, Nebraska, and South Dakota, and corn mold was reported in Nebraska. However, the abundant rainfall significantly improved drought conditions across the region, and with the growing season ending, excess moisture could soak into the ground and recharge soil moisture.

Regional Precipitation

Precipitation (in)
10/1/2018 – 10/31/2018



Departure from Normal Precipitation (in)
10/1/2018 – 10/31/2018



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

Streamflow Update

Heavy rains in October led to much above normal streamflows in the eastern High Plains. Streamflows were highest across southern South Dakota, eastern Nebraska, and western and central Kansas where October precipitation exceeded 300 percent of normal in some locations. In fact, above-normal precipitation and runoff across Kansas and Missouri prompted the U.S. Army Corps of Engineers to reduce releases from Gavins Point Dam and Fort Randall Dam until the water had subsided to avoid contributing to high flows and flooding. Farther west in Colorado, the water year got off to a good start with snowfall in the mountains and soaking rains across the Eastern Plains of Colorado. October precipitation was above normal for most of the state. However, while streamflows did improve slightly, much of western Colorado's streams were still running low for this time of year.

Temperatures

October was cool throughout the High Plains with temperature departures generally ranging from 2.0-5.0 degrees F (1.1-2.8 degrees C) below normal. Departures greater than 5.0 degrees F (2.8 degrees C) below normal could be found across eastern North Dakota. Several locations in the Dakotas broke the top 10 for coldest October on record. The only exception to the cool conditions found in the region was central Colorado, where temperatures were slightly above normal.

The first half of the month was particularly cold across the Northern Plains, largely contributing to the temperature records previously mentioned. Aberdeen, South Dakota, Fargo, North Dakota, and Grand Forks, North Dakota had their coldest first half of October (October 1-15) on record. It got especially cold in Grand Forks, as the temperature dipped down to a chilly 9.0 degrees F (-12.8 degrees C) on the 12th. This was the earliest single-digit temperature on record for the season in Grand Forks.

By the end of October, nearly all of the High Plains region had experienced its first fall freeze of the season. For the most part, the freeze occurred near the expected dates based on climatology. However, the freeze came a bit early for parts of Kansas. In fact, more than half the state experienced a hard freeze (28.0 degrees F (-2.2 degrees C)) in mid-October, which was 7-14 days earlier than expected. Damage to sorghum in Kansas was reported due to a number of factors. For instance, wet conditions during the spring delayed planting in some areas, which delayed crop development. Then, wet conditions during the fall delayed harvest, leaving the crop vulnerable to freezing temperatures.

Drought Conditions

Heavy rains in October brought improvements in drought conditions across the High Plains region. The area experiencing drought or abnormal dryness (D0-D4) decreased from 48 percent to 37 percent over the course of the month, according to the U.S. Drought Monitor.

U.S. Drought Monitor

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

October 30, 2018
(Released Thursday, Nov. 1, 2018)
Valid 8 a.m. EDT

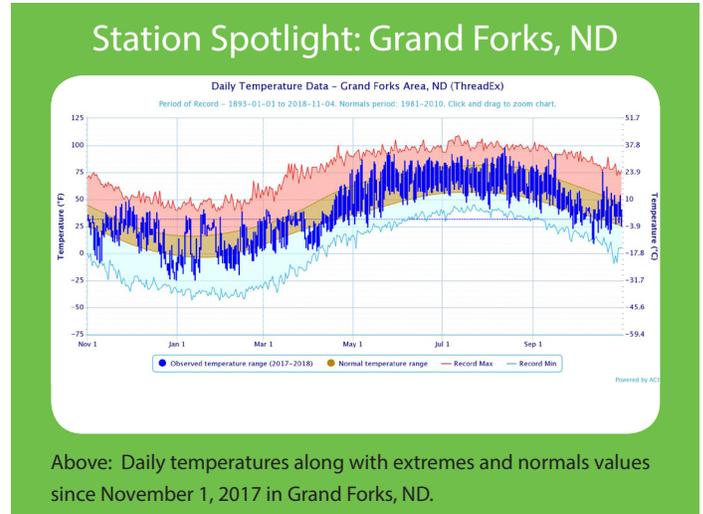
	Drought Conditions (Percent Area)				
	None	D0-D4	D1-D4	D2-D4	D3-D4
Current	63.14	35.86	20.69	13.31	7.95
Last Week 10/23/2018	61.64	38.36	23.12	14.21	8.05
3 Months Ago 07/31/2018	61.99	38.01	25.99	16.67	10.24
Start of Calendar Year 01/01/2018	19.28	80.72	29.19	6.34	0.90
Start of Water Year 09/01/2017	52.20	47.80	28.48	18.28	11.05
One Year Ago 10/31/2017	64.75	35.25	13.70	3.26	0.90

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.

Autor:
Deborah Bathke
National Drought Mitigation Center

The U.S. Drought Monitor is produced as a joint effort of the U.S. Department of Agriculture (USDA), National Drought Mitigation Center, U.S. Department of Commerce, and the National Oceanic and Atmospheric Administration (NOAA). For current Drought Monitor information, please see: <http://droughtmonitor.unl.edu/>.



The greatest improvements occurred across eastern Kansas where some areas saw a 3-category improvement - primarily from extreme drought (D3) to abnormally dry conditions (D0). This area received approximately 200-300 percent of normal precipitation during October, which was very beneficial for recharging soil moisture before the winter season. The small area of exceptional drought (D4) was eliminated, and by the end of the month, only small pockets of moderate drought (D1) remained.

Colorado also received much-needed relief from drought conditions. Several snows occurred in the mountains to start off the water year with ample precipitation, resulting in the reduction of area in D3 or D4. Meanwhile, heavy rains fell across the Eastern Plains of Colorado, improving conditions in a large area experiencing severe drought (D2). The rainfall greatly benefited recently-planted winter wheat.

Conditions improved throughout portions of the Dakotas as well, as D2 and D3 were eliminated in South Dakota and North Dakota, respectively. Improvements in soil moisture and ground and surface water conditions were reported.

Climate Outlooks

According to the Climate Prediction Center, ENSO-neutral conditions are present in the Pacific. Equatorial sea surface temperatures are above average across most of the Pacific Ocean. There is a 70-75 percent chance that El Niño will develop in the next couple of months and continue through the winter. An El Niño Watch is in effect. If you are looking for more information about ENSO, check out the ENSO blog here: <https://www.climate.gov/news-features/department/enso-blog>. In order to learn more about how El Niño may affect the Missouri River Basin region, please see this El Niño briefing: <https://www.drought.gov/drought/documents/el-nino-impacts-and-outlook-missouri-river-basin-october-2018>.

The National Weather Service long-range flood outlook indicates a greater than 50 percent chance of minor flooding along the Missouri River in Nebraska at Brownville and Rulo, as well as the Stranger Creek at Easton, KS through January. Elsewhere in the High Plains, the chance for flooding is low.

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

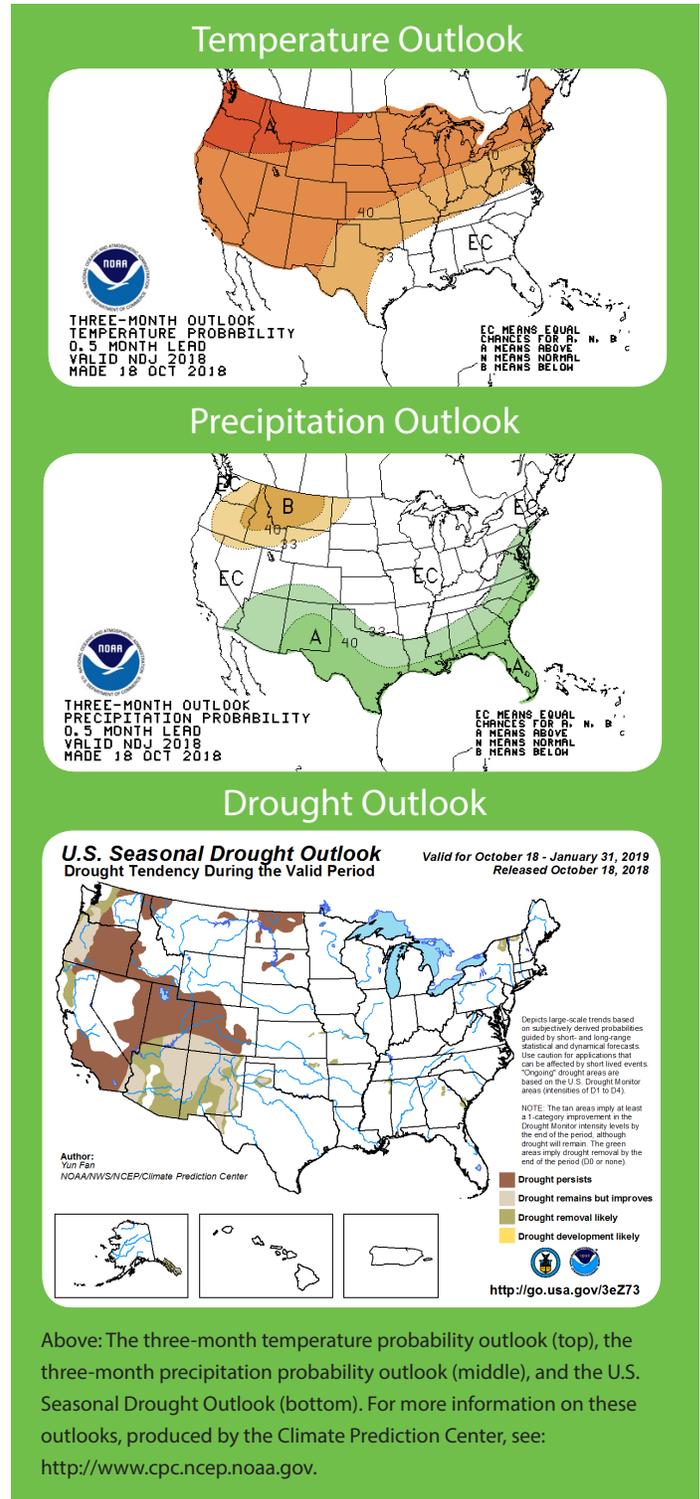
The November-January temperature outlook indicates an increased chance of above-normal temperatures for nearly the entire contiguous U.S., including the High Plains region. The only exception is in the Southeast U.S., where there are equal chances for above-, below-, and near-normal temperatures during the November-January period.

Precipitation

The precipitation outlook for the next three months calls for a higher probability of above-normal precipitation across portions of the Southwest, Southern Plains, Southeast, and East Coast. In the High Plains, this includes southern Colorado. Below-normal precipitation is expected in the Pacific Northwest and Northern Rockies, including northwestern Wyoming and western North Dakota. Elsewhere, there are equal chances for above-, below-, and near-normal precipitation in the contiguous U.S. during the November-January period.

Drought

The October 18th U.S. Seasonal Drought Outlook shows that drought is expected to persist across parts of the West and the Northern Plains regions. In the High Plains, this includes areas of drought in the Dakotas, Colorado, and Wyoming. Drought may improve or be removed in the West, the Southern Plains, the Midwest, and the Northeast, including areas of drought in southwestern Colorado and eastern Kansas. Drought development is not anticipated in the contiguous U.S. through January.



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	61.1*	35.6*	48.3*	-1.9	88	10/03	14	10/15	0.98*	-0.13	88
Alamosa San Luis Airport	60.3	27.5	43.9	0.8	76	10/03	8	10/15	1.16	0.48	171
Colorado Springs Municipal Airport	59.7	36.4	48.1	-1.3	86	10/03	16	10/15	1.61	0.79	196
Denver International Airport	61.5	36.8	49.2	-1.7	86	10/03	18	10/15	0.99	-0.03	97
Grand Junction Walker Field Airport	61.1	41.6	51.3	-1.7	79	10/03	27	10/15	2.76	1.70	260
Pueblo Memorial Airport	65.1	37.6	51.4	-0.4	94	10/03	16	10/15	1.54	0.82	214

Kansas	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Concordia Municipal Airport	63.6	42.4	53.0	-2.4	95	10/03	26	10/15	5.28	3.36	275
Dodge City Regional Airport	65.6	41.5	53.5	-3.1	96	10/03	25	10/15	6.45	4.71	371
Goodland Renner Field	61.9	36.0	49.0	-2.9	94	10/03	16	10/15	2.36	0.99	172
Topeka Municipal Airport	67.1	44.0	55.5	-1.1	93	10/03	27	10/16	7.01	3.98	231
Wichita Mid-Continent Airport	68.9	46.5	57.7	-0.6	93	10/03	30	10/16	6.28	3.50	226

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Chadron Municipal Airport	60.5	31.4	45.9	-1.7	84	10/02	11	10/15	0.51	-0.80	39
Grand Island Airport	61.3	38.1	49.7	-2.5	94	10/03	23	10/15	2.88	1.02	155
Lincoln Municipal Airport	62.3	38.8	50.5	-2.7	94	10/03	27	10/21	2.71	0.74	138
Norfolk Karl Stefan Airfield	58.8	36.1	47.4	-3.6	90	10/03	25	10/15	2.97	0.90	143
North Platte Regional Airport	61.8	33.5	47.6	-1.5	92	10/03	12	10/15	2.86	1.31	185
Omaha Eppley Airport	61.8	41.5	51.6	-1.6	93	10/03	31	10/15	2.94	0.79	137
Valentine Miller Field	60.6	33.4	47.0	-1.5	85	10/03	13	10/15	1.76	0.51	141

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismarck Municipal Airport	53.2	31.3	42.2	-2.6	71	10/18	17	10/15	1.50	0.25	120
Fargo International Airport	48.8	31.3	40.1	-5.4	73	10/18	18	10/12	2.70	0.55	126
Grand Forks International Airport	47.2	28.8	38.0	-5.1	76	10/18	9	10/12	3.04	1.07	154
Theodore Roosevelt Airport	54.0	28.4	41.2	-2.6	72	10/18	17	10/11	0.81	-0.42	66
Williston International Airport	54.0	27.1	40.6	-2.4	72	10/18	15	10/11	0.76	-0.16	83

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>.

October 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	53.7	29.3	41.5	-3.7	75	10/18	15	10/15	2.49	0.50	125
Huron Regional Airport	55.2	32.4	43.8	-4.1	78	10/03	19	10/15	1.88	0.09	105
Pierre Regional Airport	55.6	34.3	45.0	-3.7	76	10/18	22	10/15	1.52	-0.13	92
Rapid City Regional Airport	58.0	30.3	44.1	-3.6	87	10/02	13	10/15	0.92	-0.50	65
Sioux Falls Joe Foss Field Airport	55.7	35.5	45.6	-2.3	86	10/03	25	10/23	2.61	0.44	120

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	57.6	29.2	43.4	-1.8	80	10/02	17	10/15+	1.69	0.58	152
Cheyenne Municipal Airport	56.7	32.0	44.4	-1.9	77	10/02	11	10/15	0.69	-0.24	74
Lander Hunt Field Airport	57.5	31.6	44.6	-1.0	81	10/02	13	10/15	1.10	-0.19	85
Laramie Regional Airport	53.5	27.0	40.2	-1.6	73	10/01	0	10/15	0.61	-0.19	76
Rawlins Municipal Airport	53.7	29.3	41.5	-1.8	74	10/02	11	10/10	1.36	0.61	181
Sheridan County Airport	57.9	30.0	44.0	-1.5	78	10/02	12	10/15	1.69	0.28	120

October 2018 Highlights

Monthly Rankings

Precipitation in inches, Temperature in degrees F

Coldest	Temperature / Ranking	Record / Year	Period of Record
Grand Forks, ND	38.0 / 3rd coldest	34.1 / 1925	1895-2018
Aberdeen, SD	41.5 / 5th coldest	37.6 / 2002	1894-2018
Pierre, SD	45.0 / 6th coldest (tie, 2013)	39.7 / 2002	1933-2018
Fargo, ND	40.1 / 7th coldest (tie, 1898)	34.6 / 1925	1881-2018
Rapid City, SD	44.1 / 7th coldest (tie, 1970)	38.7 / 2009	1942-2018
Dickinson, ND	41.2 / 8th coldest	32.8 / 2002	1948-2018
Wettest	Precipitation / Ranking	Record / Year	Period of Record
Dodge City, KS	6.45 / WETTEST	5.00 / 2008	1874-2018
Wichita, KS	6.28 / 3rd wettest	9.42 / 1998	1888-2018
Topeka, KS	7.01 / 4th wettest	10.65 / 1941	1887-2018
Salina, KS	5.70 / 4th wettest	6.77 / 1979	1948-2018
Grand Junction, CO	2.76 / 4th wettest	3.45 / 1972	1893-2018
Concordia, KS	5.28 / 5th wettest	6.37 / 1959	1885-2018

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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 October precipitation was 1.46 inches, which was 0.26 inch less than last month but 1.21 inches more than in October 2017, and the same as the 1981-2010 average, making it the 30th wettest October in the 124-year period of record. It was the wettest October since 1982. The numbers less than 100 in Figure 1 below are shaded in yellow and red to depict the region with below-average rainfall. In contrast, the numbers that are greater than 100 in the same figure are shaded in green and blue to depict the region with above-average rainfall in October. The greatest monthly precipitation accumulation was 3.63 inches, recorded in Grandin, Traill County. The greatest 24-hour precipitation was 1.44 inches, recorded in LaMoure, LaMoure County, on Oct. 13. Based on historical records, statewide October precipitation showed a positive long-term trend of 0.5 inch per century since 1895--the steepest monthly precipitation trend in North Dakota. The highest and lowest October precipitation for the state ranged from 4.61 inches in 1982 to 0.09 inch in 1952.

Temperature:

The official state average October temperature was 39.1 F, 16.5 F cooler than last month and 6 F cooler than in October 2017. The average October temperature was 4.3 F cooler than the 1981-2010 average, making it the 12th coolest October in the 124-year period of record. It was the coolest October since 2009. The positive numbers in Figure 2 below are shaded in yellow and red to depict the region with above-average temperature or lesser magnitudes of colder temperatures. In contrast, the negative numbers in the same figure are shaded in green and blue to depict the region with below-average temperature in October. The state's highest and lowest daily temperatures ranged from 76 F on Oct. 18 in McClusky, Sheridan County, to 8 F on Oct. 12, in Mayville, Traill County. Based on the historical records, the state average October temperature showed a positive long-term trend of 0.09 F per decade since 1895. The highest and lowest monthly state October average temperatures ranged from 54.8 F in 1963 to 32.6 F in 1925.

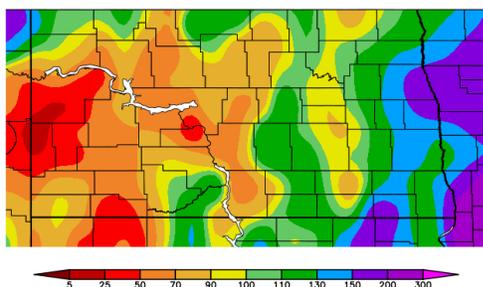
Drought and other notable impacts:

In general, overall drought conditions improved throughout the month. By the end of October, D1 (Moderate drought) or worse covered nearly 27 percent of the state, 7 percent of which was under D2 (severe drought). The Oct. 30 map shows more than 26 percent of the state experiencing drought (18 percent decrease in coverage, compared with the previous month).

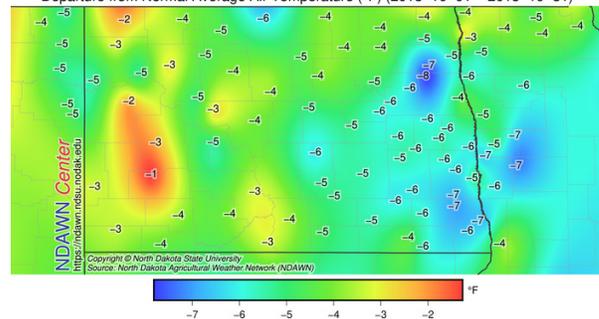
NDAWN's highest peak gust in October was 51 mph, recorded at the Bowman weather station in Bowman County on Oct. 14, 2018. Across the observation network of weather stations with at least 30 years of history, a total of eight daily high and 14 daily low-temperature-related records were set or tied. A total of 18 highest daily precipitation-related records were set or tied.

Temperature and Precipitation Overview

Percent of Normal Precipitation (%)
 10/1/2018 - 10/31/2018



Departure from Normal Average Air Temperature (°F) (2018-10-01 - 2018-10-31)



Above: Percent of normal precipitation (left, figure 1) and departure from normal average temperature (right, figure 2) for October 2018 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



Cool and Wet

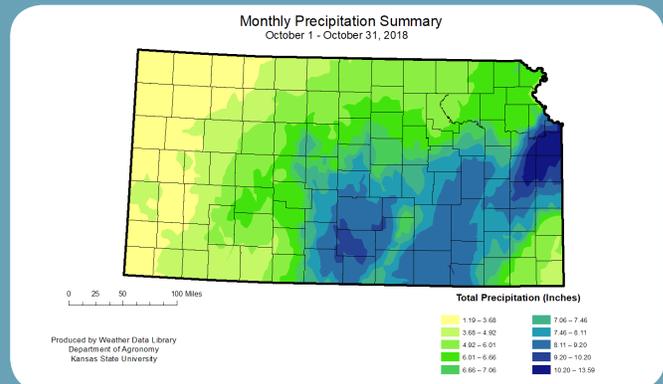
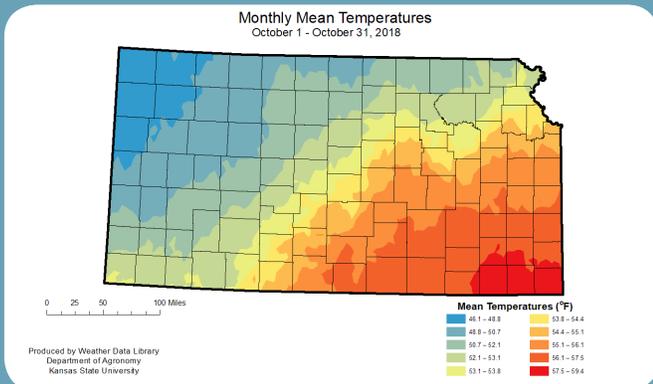
October was a very wet month across the state. It actually ranks as the second wettest October since 1895. The wettest October on record was in 1941 when the state-wide average was 5.99 inches. This year the state-wide average precipitation was 5.88 inches, 259 percent of normal. The Northwest Division was the driest with an average of 2.62 inches. That is a surplus of 1.06 inches, 165 percent of normal. The South Central Division was the wettest, with an average of 7.97 inches. That 5.33 inches above normal, 305 percent of normal. There were 165 new daily record rainfall totals, of which 3 were records for any day in October. The highest 24 hour rainfall total for a National Weather Service Cooperative station was 5.55 inches at Stilwell 1N, Johnson County, on the 8th. The greatest 24 hour rainfall total for a Community Collaborative Rain Hail and Snow network station was 6.44 inches recorded at Coats 3.3 NNE, Pratt County, on the 9th. The greatest monthly precipitation totals for October: 13.59 inches at Stilwell 1N, Johnson County (NWS) and 13.24 inches at Princeton 2.0 NE, Franklin County (CoCoRaHS). Not all precipitation was in the form of rainfall. A total of 257 stations reported snowfall in October, with monthly totals ranging from trace amounts in eastern Kansas to 9 inches at the CoCoRaHS station north of St. Francis, Cheyenne County.

Despite a warm start to the month, October temperatures were cooler than normal. State-wide average temperature for the month was 53.0 oF, which is 2.3 degrees cooler than normal. All divisions were cooler than normal. The Northwest Division and the West Central division tied for the largest departure, with an average of 48.6 and 50.0 oF, or 3.6 degrees cooler than normal. The Southeast Division came closest to normal with an average of 57.1 oF or 0.8 degrees cooler than normal. The variability showed in the range of temperatures. The warmest maximum temperature was 101 oF at Tribune 13NNE, Greeley County, on the 4th. The coldest minimum temperature at a NWS station was 12 oF, recorded at Brewster 4W, Sherman County, on the 16th. The Kansas Mesonet station in Cheyenne County, south of St. Francis, reported a low of 9 oF. There were 11 record daily high maximum temperatures in the month, and 121 record daily low maximum temperatures. On the minimum temperature side, there was one record high minimum compared to only 60 record low minimums.

For once hail wasn't featured in the severe weather reports. High winds and a tornado were major contributors to severe weather in Kansas during October. Flooding was again a feature, with much of the damage occurring in South Central, KS.

Much higher than normal precipitation, coupled with cooler than normal temperatures resulted in major improvements in the drought conditions. The area of the state that was drought free jumped from 78 percent at the beginning of October to 91 percent at the end of the month. Moderate drought and abnormally dry conditions linger in the eastern parts of the state. The November outlook has increased chances for above normal precipitation across most of the state. However, given the low normal precipitation at this time of the year, continued improvement is likely to be slow. The temperature outlook is for cooler than normal temperatures across all but the western edges of the state.

Temperature and Precipitation Overview



Above: October 2018 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.

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

Overall cool weather, season-ending freeze and snow highlight October

Nebraska started October quite warm with some daily high temperatures tied or broken. Grand Island and Hastings Airports both reached 94°F on the afternoon of the 3rd, records for that date. The high for the month was observed at the McCook airport, 96°F also on the 3rd. Thanks to a cold front, temperatures promptly took a dive for the next few weeks. In fact, Grand Island and Hastings airports both reported record low daily high temperatures just one day after their record highs, (Oct 4th, 45°F and 47°F respectively). Temperatures remained below normal until the second half of the month with a return to relative warmth.

Season-ending freezes occurred statewide around mid-October, which is in line with the median date. More record cold weather returned as daily low temperature records were set for Alliance (6°F, Oct 14), Grand Island AP (23°F, Oct 15), Hastings AP (25°F, Oct 15), North Platte (12°F, Oct 15) and Valentine (13°F, Oct 15). The lowest observed temperature was 3°F at Agate and Harrison.

For the month overall, temperatures across Nebraska were a few degrees below normal. Nebraska lied on the southern flank of a relative cool spot for the contiguous U.S. as the strongest temperature departures were found in the Dakotas and Minnesota (5°F below average and colder). Temperatures for the west coast, portions of the intermountain west, and the eastern third of the U.S. averaged above normal for the month.

Precipitation

Along with the cold experienced around mid-month was relatively heavy, wet snow. Five inches fell in and around the Capitol city and a handful of daily snowfall records were observed on the 14th (Omaha AP 1.4", Lincoln AP 3.5", Grand Island AP 1.5", Hastings AP 1.1", Valentine AP 3.0"). Several pockets in southeast Nebraska had more than six inches for this event. Many locations around Nebraska reported snow during the month, trace amounts to nearly 10 inches total near Chadron. With a relative warm-up that followed, the snow did not stick around long.

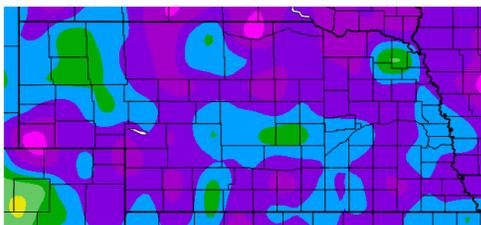
For monthly totals, precipitation conditions were wetter than normal for the eastern two-thirds of the state and drier than normal in the Panhandle. The far southeastern counties reported more than five inches for the month.

Drought

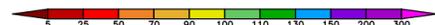
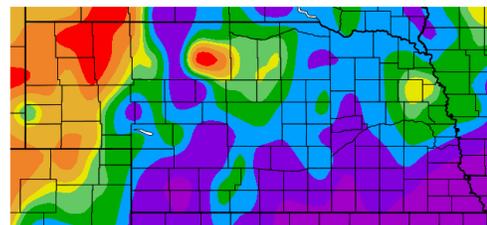
Nebraska was a blank slate on the U.S. Drought Monitor map throughout October. We have remained as such for the last eight weeks. The country as a whole saw widespread improvements for areas that are experiencing drought during October. There are a few areas around Nebraska in a precipitation deficit when looking at the last 12 months and longer. Pockets of southeast Nebraska, portions of the southwest and Panhandle are running deficits of a few inches. The rest of the state remains in the above normal precipitation category over the last year.

Temperature and Precipitation Overview

Departure from Normal Temperature (F)
10/1/2018 - 10/31/2018



Percent of Normal Precipitation (%)
10/1/2018 - 10/31/2018



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

About the High Plains Regional Climate Center

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

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

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



Additional Summary Information for the High Plains

Missouri River Basin Quarterly Climate Impacts and Outlook

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>

