April 2017 Climate Summary

A wheat field is covered in snow in late April in western Kansas. - Photo by Justin Gilpin, Kansas Wheat.

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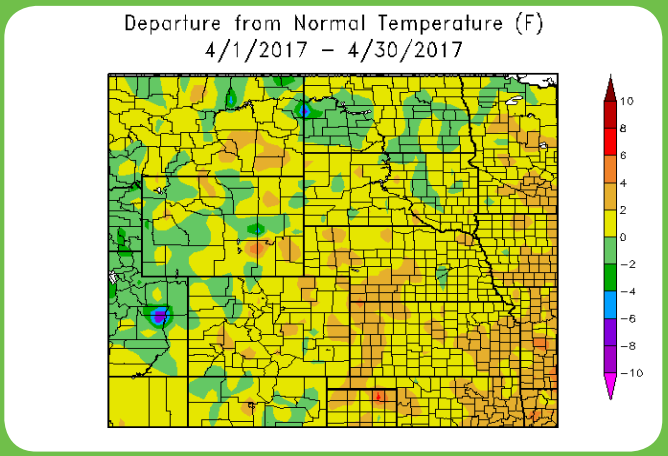
Late-Season Winter Storms Put Crops and Livestock at Risk

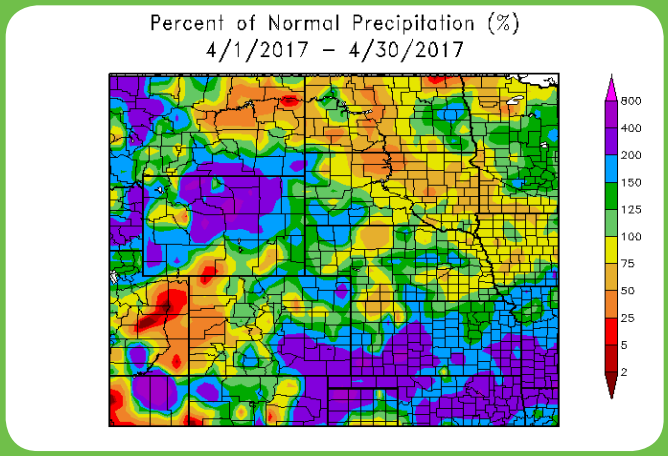
The wet pattern that has been a primary feature since March continued in places like Wyoming, Kansas, and eastern Colorado during April. As a result of the wetness, mountain snowpack continued to increase throughout the month and is expected to peak later than normal in the Missouri River Basin. Continued wet conditions also nearly eliminated drought in Kansas and eastern Colorado and vastly improved topsoil moisture as well. However, storm systems that passed through the High Plains toward the end of the month caused devastating impacts, particularly to agriculture and livestock.

Heavy rain and snow, sub-freezing temperatures, and high winds accompanied a couple of storm systems that came through in late April. These conditions killed cattle in Colorado and especially put calves at risk. The long-term presence of drought conditions and early emergence put a stressed winter wheat crop at additional risk for damage in western Kansas. Losses are projected to be greatest in southwestern Kansas where the crop was at a critical growth stage and the greatest impacts occurred. Even in areas that did not sustain sub-freezing temperatures, prolonged cold and wet conditions caused diseases to emerge, such as wheat stripe rust and leaf rust. Besides winter wheat, corn that had already been planted was put at risk in north-central and western Kansas where soil temperatures took a dive. While it appears that southwestern Nebraska may have escaped damage to winter wheat from these storms, the heavy snow may have damaged the alfalfa crop. Damage will be assessed in May after temperatures rise and the snow melts.

An excessive northern Plains snowpack caused flooding in North Dakota during April. Major flooding occurred in Devils Lake, the Pembina River, and the Souris River. Although April was not a particularly wet month in the northern Plains, excess soil moisture from last fall was preventing producers from getting into the fields. Cool and wet conditions in late April slowed planting of sugar beets in North Dakota and corn in North Dakota and South Dakota.

Temperature and Precipitation Overview





Above: Departure from 1981-2010 normal temperature (left) and percent of normal precipitation (right) for April 2017 in the High Plains region. Maps produced by the High Plains Regional Climate Center and are available at: http://hprcc.unl.edu/maps/current .

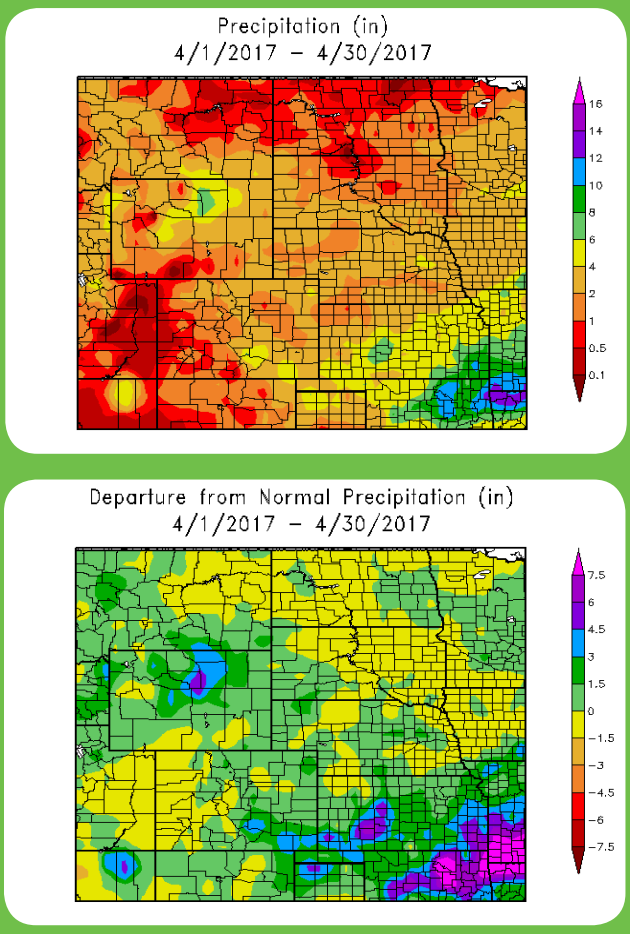
Precipitation

Precipitation varied across the High Plains during April. Wet conditions were present throughout much of Wyoming, Kansas, and southeastern Colorado, as these areas received greater than 200 percent of normal precipitation. Heavy rain and snow that fell during the month led to several top 10 records for wettest April in these locations. Meanwhile, dry conditions prevailed across much of the Dakotas, but the dryness was not record-breaking.

Two storm systems that brought rain and snow to the region toward the end of the month contributed to much of the wetness experienced by a large part of the region. One system came through on the 25th-26th, bringing snowfall to the Rockies of Wyoming and Colorado, as well as South Dakota. According to the National Weather Service office in Aberdeen, South Dakota, Aberdeen received 1.8 inches (5 cm) of snowfall on the 26th, which was the most snow to fall there that late in the season since April 1994. In fact, a tornado drill was held on the 26th while snow was on the ground in Aberdeen!

A second, more impactful storm system moved through the region from April 28th-May 1st. This potent system produced heavy precipitation across parts of Colorado, Wyoming, Kansas, Nebraska, and southeastern South Dakota. This same system spawned tornadoes across the South and Midwest and caused deadly flash flooding in Missouri and Arkansas. A band of heavy snow fell across central Nebraska and western Kansas, with some areas receiving as much as one to two feet (30-61 cm), resulting in several locations setting records for top 10 snowiest April. Because this storm system also impacted the region on May 1st, more details on records will be provided in the May climate summary.

Regional Precipitation



Above: Total precipitation in inches (top) and departure from normal precipitation in inches (bottom) for April 2017. These maps are produced by HPRCC and can be found on the Current Climate Summary Maps page at: http://hprcc.unl.edu/maps/current.

While this system helped eradicate drought conditions across the central and southern Plains, it caused many negative impacts, particularly for agriculture and ranching. According to agronomy specialists at Kansas State University, snow covered approximately 40 percent of the wheat acreage in Kansas. Heavy snow in the western part of the state knocked winter wheat to the ground, causing stems to break. Damage will be assessed in May after the snow melts and the wheat stands back up. Meanwhile, in Baca County, Colorado, hundreds of cattle were lost or killed due to deep snow and blizzard conditions.

Snowpack Update

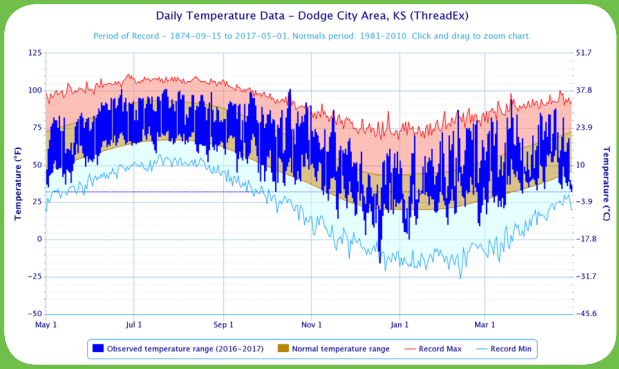
Another wet month allowed snowpack to continue to build in the Rockies of Wyoming and Colorado. Once again, the Wind River Range in Wyoming received precipitation that exceeded 300 percent of normal for the month. Temperatures were near normal in both states during April, which helped keep the snowpack in place. According to the U.S. Army Corps of Engineers, Snow Water Equivalent (SWE) above Fort Peck Dam was 107 percent of average at the end of April, which was a 13 percent increase from the previous month. Snowpack greatly increased between Fort Peck and Garrison Dams, as SWE went from 129 percent of average to 155 percent of average during the month. The Missouri River Basin mountain snowpack normally peaks near April 15, but given the increase in SWE in both reaches, snowpack will peak late this year.

Temperatures

After a very warm March, April's temperatures were closer to normal throughout the region. Temperatures ranged from about 2.0 degrees F (1.1 degrees C) below normal to 3.0 degrees F (1.7 degrees C) above normal. Areas experiencing the greatest warmth included southwestern Nebraska through western Kansas, as well as eastern Kansas. However, the region did not experience the record-breaking warmth that occurred in February and March.

The biggest story of the month in regard to temperatures was several potentially damaging freezes throughout the region. While freezes are common in the area during April, the early emergence of plants due to late winter/early spring warmth put them at risk for freeze damage. With the exception of southeastern Kansas, most of the region had a freeze during April.

Station Spotlight: Dodge City, KS



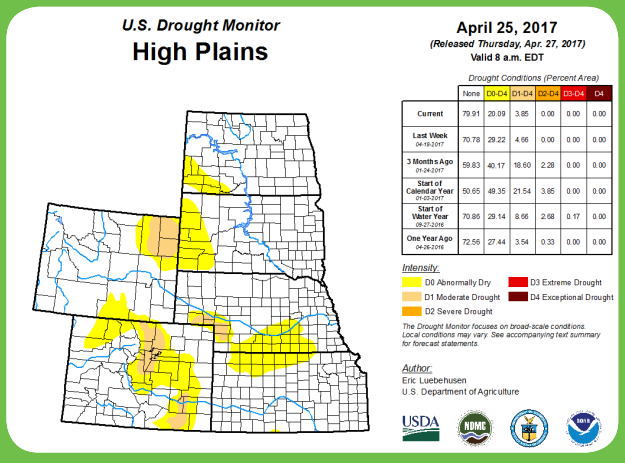
Above: Daily temperatures along with extremes and normals values since May 1, 2016 in Dodge City, KS.

Prolonged freezing temperatures occurred in conjunction with the late-April storm system that impacted much of the region. In particular, the swath of snow that fell throughout central Nebraska and western Kansas held maximum temperatures down into the 30s. The following locations experienced their lowest maximum temperatures on record for April 30th: Grand Island, NE (tie); Dodge City, KS; Garden City, KS; and Ulysses 3NE, KS (COOP). In Dodge City, the high temperature was only 37.0 degrees F (2.8 degrees C), which crushed the previous record by 6.0 degrees F (3.3 degrees C), set in 2004 and 1893. Minimum temperatures were also quite low in some places, and areas of western Kansas sustained sub-freezing temperatures for 12-24 consecutive hours, likely causing freeze injury to winter wheat.

Drought Conditions

Major improvements in drought conditions occurred during April, as beneficial precipitation fell across drought-stricken areas in the High Plains. Regionwide, all severe drought (D2) and extreme drought (D3) were removed by the end of the month on the U.S. Drought Monitor map. The area in drought (D1-D4) in the region decreased from 17 percent to 4 percent, and the area experiencing drought or abnormal dryness (D0-D4) decreased to 20 percent.

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/.

The biggest improvements occurred throughout Kansas. Most of the state received at least 150 percent of normal precipitation, while precipitation exceeded 300 percent of normal in western portions of the state. As of the end of March, nearly half the state was in drought, but it was drought-free by the end of April and only 12 percent of the state was experiencing abnormally dry (D0) conditions. Portions of eastern Colorado and western South Dakota experienced relief in drought conditions as well. Reports state that regionwide, April precipitation has helped grasslands recover in drought-stricken areas.

Despite recent precipitation and improving conditions, the impacts of drought are still being felt across the parts of the region. Drought conditions during the past six months have caused the winter wheat crop to suffer in Colorado and Kansas. Additionally, ranchers in Kansas are still dealing with the impacts from devastating wildfires in March, which included the loss of cattle and miles of fence, and many are culling herds and buying costlier feed.

Climate Outlooks

According to the Climate Prediction Center, ENSO-neutral conditions are present in the Pacific. Equatorial sea surface temperatures are near average in the central Pacific Ocean, while they are above average in the eastern Pacific Ocean. ENSO-neutral conditions are favored to continue through at least spring 2017, with increasing chances for El Niño development by late summer into the fall. 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 the National Weather Service, moderate to major flooding is expected along the Wind River in Wyoming and the North Platte River in Nebraska during the May-July period. This is likely due to the anticipation of high runoff from an above-normal snowpack in the Wind River Range. Excessively wet conditions have also raised the risk of moderate flooding in eastern Kansas for the same period.

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 May-July temperature outlook indicates an increased chance of above-normal temperatures for the western, central, southern, and eastern U.S. This includes Colorado, Kansas, Nebraska, most of Wyoming, and southern and eastern South Dakota in the High Plains region. Elsewhere, there is an equal chance for above-, below-, or near-normal temperatures in the contiguous U.S. during the May-July period.

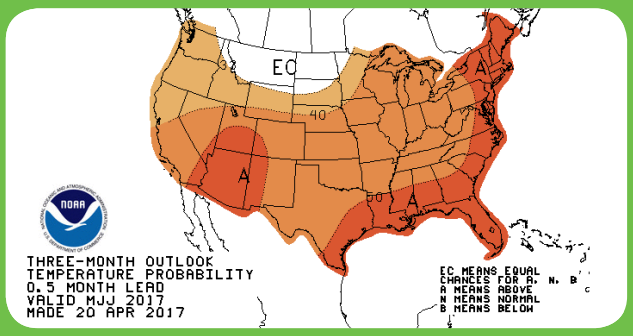
Precipitation

The precipitation outlook for the next three months calls for a higher probability of above-normal precipitation across the Rockies southward through New Mexico, as well as the Louisiana and Texas Gulf Coast. In the High Plains region, this includes Wyoming, most of Colorado, southwestern North Dakota, western South Dakota, and the Nebraska Panhandle. Below-normal precipitation is favored in the Great Lakes region. The remainder of the contiguous U.S. has equal chances for above-, below-, or near-normal precipitation.

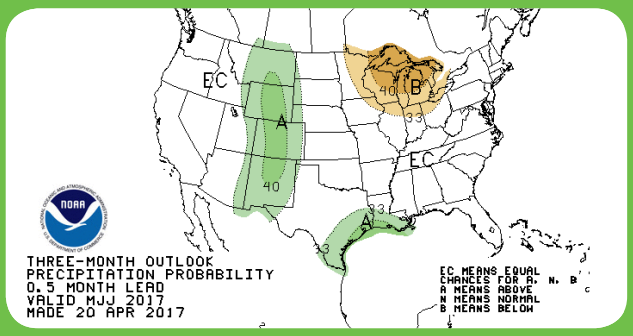
Drought

The April 20th U.S. Seasonal Drought Outlook shows that drought is expected to persist across portions of the Southwest and the Southeast. Drought may improve or be removed in portions of the Plains, the Northeast, and the Southeast, including Florida. In the High Plains, this includes northeastern Wyoming, central and eastern Colorado, and southwestern and south-central Nebraska. Drought development is likely in the Southeast, but additional drought development is not likely in the High Plains region through July.

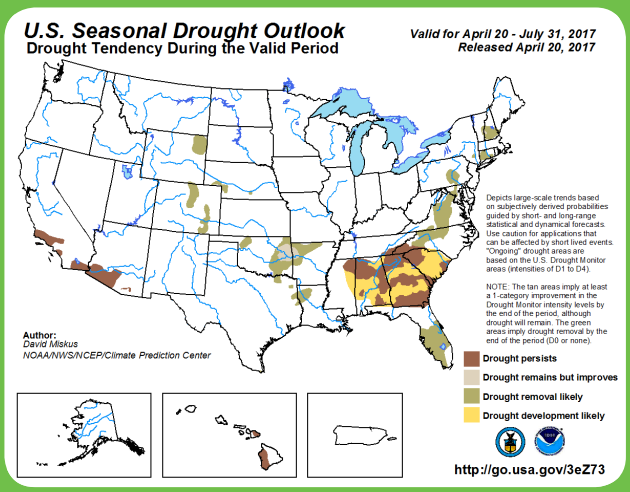
Temperature Outlook



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	62.3	35.2	48.8	1.8	81	04/07	25	04/05	2.16	0.51	131
Alamosa San Luis Airport	60.4	26.6	43.5	1.7	74	04/18	16	04/10	0.63	0.04	107
Colorado Springs Municipal Airport	61.1	36.5	48.8	2.3	80	04/14	22	04/05	2.14	0.72	151
Denver International Airport	63.2	34.5	48.9	1.5	79	04/14+	24	04/10	0.98	-0.73	57
Grand Junction Walker Field Airport	66.7	38.0	52.4	0.7	81	04/18+	24	04/28+	0.23	-0.68	25
Pueblo Memorial Airport	67.0	38.0	52.5	1.9	87	04/14	28	04/10	4.19	2.79	299

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	43.7	53.7	0.6	81	04/19	27	04/11	5.34	2.89	218
Dodge City Regional Airport	67.1	43.8	55.4	1.5	88	04/19	32	04/30	7.66	5.84	421
Goodland Renner Field	65.2*	38.1*	51.6*	2.4	88	04/14	27	04/11	1.82*	0.23	114
Topeka Municipal Airport	68.0	47.1	57.6	2.5	82	04/19+	31	04/07	6.04	2.51	171
Wichita Mid-Continent Airport	68.2	47.4	57.8	1.7	82	04/19	34	04/27	7.28	4.69	281

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Chadron Municipal Airport	61.3	33.9	47.6	2.8	81	04/07	25	04/30	2.91	0.93	147
Grand Island Airport	63.1	39.2	51.1	0.5	79	04/15	22	04/11	2.64	0.11	104
Lincoln Municipal Airport	65.0	41.9	53.5	1.9	83	04/19	25	04/07	3.55	0.84	131
Norfolk Karl Stefan Airfield	60.8	38.0	49.4	-0.2	78	04/08	24	04/11	3.83	1.18	145
North Platte Regional Airport	64.6	37.0	50.8	3.2	82	04/08	26	04/11	2.23	-0.04	98
Omaha Eppley Airport	64.4	44.3	54.4	2.7	82	04/09	30	04/11	2.42	-0.54	82
Valentine Miller Field	63.2	35.8	49.5	2.8	82	04/14	21	04/27	1.36	-0.86	61

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismarck Municipal Airport	58.5	32.0	45.3	1.5	76	04/14+	20	04/17+	0.96	-0.30	76
Fargo International Airport	57.6	33.6	45.6	1.4	76	04/14	23	04/11	1.40	0.04	103
Grand Forks International Airport	55.1	32.9	44.0	2.0	75	04/14	22	04/27	1.34	0.33	133
Theodore Roosevelt Airport	54.5	28.0	41.3	-1.0	78	04/07	11	04/17	0.50	-0.97	34
Williston International Airport	57.2	31.1	44.2	0.8	77	04/07	14	04/17	0.50	-0.5	50

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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April 2017 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	59.4	31.5	45.4	1.0	76	04/08	15	04/11	1.38	-0.47	75
Huron Regional Airport	59.5	33.6	46.6	0.1	79	04/08	21	04/11	1.18	-1.13	51
Pierre Regional Airport	60.5	33.9	47.2	0.2	81	04/07	21	04/27	1.78	-0.03	98
Rapid City Regional Airport	59.0	32.1	45.6	0.6	81	04/07	24	04/27	1.77	-0.03	98
Sioux Falls Joe Foss Field Airport	59.8	38.1	49.0	2.6	81	04/08	24	04/28	2.87	-0.14	95

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	56.0	29.9	43.0	0.3	79	04/13	19	04/10	2.21	0.92	171
Cheyenne Municipal Airport	56.9	31.5	44.2	1.4	74	04/08	24	04/05	2.57	0.79	144
Lander Hunt Field Airport	53.9	31.0	42.4	-1.5	75	04/13	20	04/05	3.26	1.39	174
Laramie Regional Airport	52.9	23.9	38.4	0.5	69	04/17+	8	04/30	1.11	0.04	104
Rawlins Municipal Airport	53.9	27.2	40.5	0.4	73	04/13	16	04/05	1.39	0.34	132
Sheridan County Airport	56.7	32.0	44.4	0.8	81	04/13	23	04/30+	4.60	3.00	288

April 2017 Highlights

Monthly Rankings

Precipitation and snowfall in inches

Wettest	**Precipitation / Ranking**	**Record / Year**	**Period of Record**
Dodge City, KS	7.66 / 2nd wettest	8.08 / 2016	1875-2017
Chanute, KS	11.02 / 3rd wettest	16.25 / 1994	1898-2017
Concordia, KS	5.34 / 3rd wettest	5.98 / 1984	1886-2017
Wichita, KS	7.28 / 3rd wettest	12.42 / 1944	1889-2017
Sheridan, WY	4.60 / 3rd wettest	5.52 / 1925	1908-2017
Pueblo, CO	4.19 / 5th wettest	8.13 / 1900	1889-2017
Garden City, KS	3.44 / 8th wettest	4.77 / 1984	1947-2017
Topeka, KS	6.04 / 9th wettest	8.69 / 1999	1888-2017
Snowiest	**Snowfall / Ranking**	**Record / Year**	**Period of Record**
Sublette 7WSW, KS (COOP)	10.0* / SNOWIEST	tie / 1983	1918-2017
Ulysses 3NE, KS (COOP)	15.0 / 2nd snowiest	15.4 / 2007	1893-2017
Wallace, KS (COOP)	7.9 / 2nd snowiest	8.5 / 1903	1892-2017
Pueblo, CO	14.0 / 6th snowiest	21.2 / 1957	1889-2017
Riverton, WY (COOP)	20.9 / 6th snowiest	31.7 / 1999	1907-2017

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North Dakota Climate Summary

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Precipitation:

Based on the National Centers for Environmental Information (NCEI), statewide total April precipitation was 0.95", 1.58" less than the last year, and 0.27" less than the 1981-2010 average, making it the 34th driest April in the 123-year period of record. It was the driest April since 2015. Above-average precipitation was limited in the east central part of the state. Widespread drier-than-normal conditions were observed elsewhere (Figure 1). The greatest monthly precipitation accumulation was 2.85" recorded in Abercrombie, Richland County. The greatest monthly snowfall accumulation was 6.7" recorded in Grand Forks, Grand Forks County. The greatest 24-hr precipitation was 1.38" recorded in LaMoure, LaMoure County on April 18. The highest 24-hr snowfall of 6.2" was recorded in Grand Forks, Grand Forks County on April 26. Based on historical records, statewide April precipitation showed a slight positive long-term trend of 0.04" per century since 1895. The highest and the lowest April precipitation for the state ranged from 3.71" in 1986 to 0.11" in 1987.

Temperature:

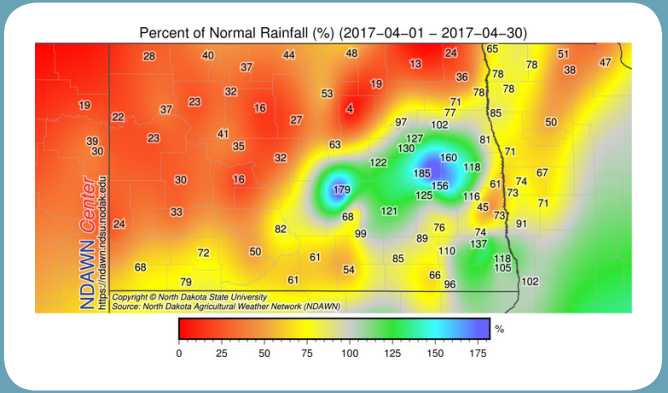
The official state average April temperature was 42.6°F, 0.7° warmer than the last year, and 0.2° warmer than the 1981-2010 average, making it the 42nd warmest April in the 123-year period of record. Above-average temperatures were observed in northern and southwestern parts of the state. Below average conditions were observed in the extreme western parts of the state. Elsewhere, it was mostly an average April (Fig. 2). The state's highest and lowest daily temperatures ranged from 81° on April 8 in Medora, Billings County to 9° on April 17 in Pretty Rock, Grant County. Based on historical records, the state average April temperature showed no discernable trend since 1895. The highest and the lowest monthly state April average temperatures ranged from 50.2° in 1987 to 31.3° in 2013.

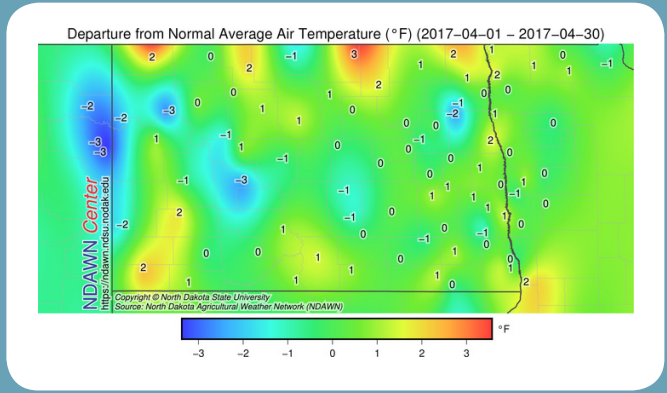
Drought and other notable impacts:

Despite the drier-than-normal conditions in the northwestern half of the state shown in Figure 1, a plentiful supply of soil moisture from the previous season negated the impact of this precipitation deficit. Based on the Drought Monitor (DM), less than 10% of the state was designated as "Abnormally Dry". A slight increase in coverage in abnormally dry conditions observed during the week of April 11 refleting true conditions in this parts of the state. If timely precipitation is not received, areas to watch are southerm and the southeastern parts of the state.

NDAWN's highest peak gust in April was 50 mph, recorded at the Watford City weather station in Williams County on April 13, 2017. A late winter storm on April 23 brought over 2" of snow in an area between Bismarck and Minot. Another winter storm affected southeastern North Dakota on April 26 and 27 bringing up to 3.82" snow in Lisbon. Across the observation network of weather stations with at least 30 years of history, a total of 18 daily high-temperature related and 25 daily low-temperature related records were set or tied. A total of 15 highest daily precipitation related records (including snowfall) 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 April 2017 in North Dakota. Both figures produced by NDAWN.

April 2017 Climate Summary

Kansas Climate Summary

Mary Knapp - Service Climatologist
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For more information: www.ksre.ksu.edu/wdl

KANSAS STATE UNIVERSITY

Epic Blizzard

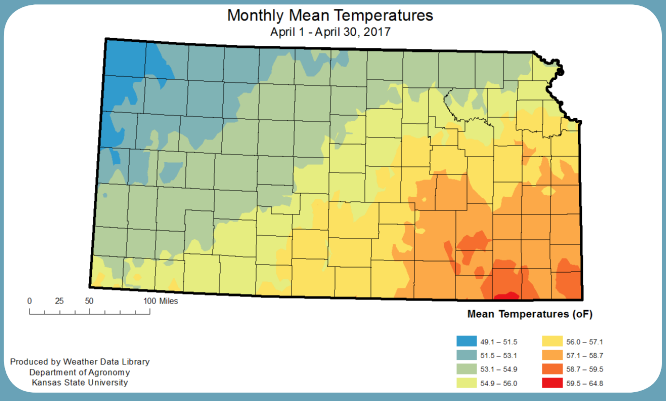
While much of the month was warmer than normal, the last week brought a return to cold, wintery weather in the western third of the state, and cold rainy weather in the east. Thirteen stations recorded record amounts of snow for a three-day Spring storm ending on the 1st of May. Tribune 1W, in Greeley County, reported 22 inches of snow in the event, with part of that total reported on the 1st of May. There were widespread reports of more than a foot of snow. This was complicated by strong winds, with averages over 30 mph for more than six hours, and peak winds in excess of 55 miles per hour. The storm also included cold temperatures with lows below the freezing mark each of the three days of the storm, with some locations reporting over 48 hours of below freezing temperatures. This has the potential for heavy losses in winter wheat that was in the heading/flowering stages. Damage from the event is still being collected, but included downed power lines/power poles, tree damage, livestock deaths and damage to winter wheat. Losses in the winter wheat may not be evident for another week to ten days.

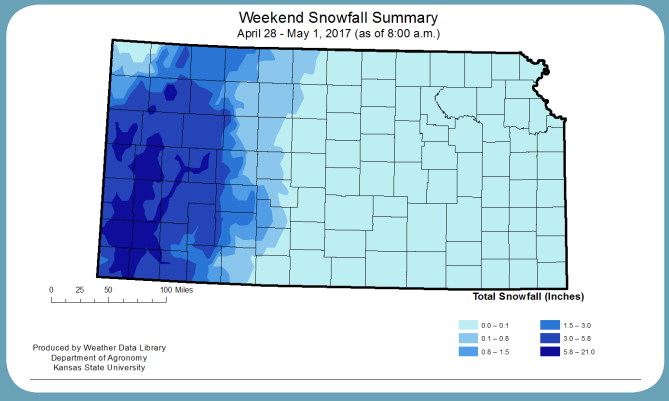
Despite the cold end, April was warmer than normal state-wide. The greatest departure was in the East Central Division, with an average of 56.2 oF or 2.2 degrees warmer than normal. The South Central Division was closest to normal with an average of 55.9 oF or 0.7 degrees warmer than normal. The highest temperature reported during the month was 92 oF at the Garden City Experiment Station, Finney County, on the 20th. The coldest temperature reported was 20 oF at Council Grove Lake, Morris County, on the 7th and again at Hays 1S, Ellis County, on the 30th. There were four record high maximum temperatures during the month and 28 record high minimum temperatures during the month. On the cold side, there were 29 new record cold maximum temperature in April and 5 new record low minimum temperatures. Freezing temperatures were reported in all nine climate divisions, with the coldest low temperatures in the North Central and Central divisions reaching the mid to low twenties on the 27th of April.

The state-wide average precipitation was 4.86 inches, or 145 percent of normal. This ranks as the 6h wettest April since 1895. Only the Northwest Division was below normal for the month, as part of the storm total was recoded on the 1st of May. The Southwest Division saw the greatest percent of normal, with an average of 4.47 inches or 292 percent of normal. The greatest 24-hour precipitation total for a National Weather Service (NWS) station was 34.18 inches at Pittsburg, Crawford County, on the 30th. The greatest 24-hour precipitation total for a Community Collaborative Rain Hail and Snow (CoCoRaHS) station was 5.10 inches at Fort Scott 9.3 NNE, Bourbon County, also on the 30th. The stations with the greatest monthly totals: 13.00 inches at Pittsburg, Crawford County (NWS); 14.09 inches at Farlington 0.8 NNE, Crawford County (CoCoRaHS). The greatest snowfall total for April at a National Weather Service station was 17 inches at Hugoton, Stevens County. The greatest snowfall total for the month at a CoCoRaHS station was 15 inches at Ulysses 3.8 ENE, Grant County. Aside from the blizzard, the month was less active than usual as far as severe weather events. There were 6 reports of tornadoes, 65 hail and 15 high wind events.

The higher than normal precipitation resulted in continued improvement in the drought conditions as shown in the U.S. Drought Monitor. The state in now drought free and even abnormally dry conditions have been eliminated.

Temperature and Precipitation Overview





Above: April 2017 monthly mean temperatures (left) and April 28-May 1 snowfall summary (right) in Kansas. Maps produced by Weather Data Library, Department of Agronomy, Kansas State University.

Nebraska Climate Summary

Martha Shulski - State Climatologist
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NEBRASKA STATE CLIMATE OFFICE

Aside from a handful of locations across the state that were on the cool side, Nebraska again experienced warmer than normal monthly average temperatures. Departures were mostly around 2°F above average. April temperatures in Nebraska have, in fact, warmed over the long term (since 1895) by about 1.0°F. The lowest temperatures for the month occurred at the end with observations into the 20s.

The most interesting precipitation story was the strong late season snow storm that moved across the Plains during the end of April and early May. The highest daily snowfall amounts were in the 10 inch range. The storm left a relatively narrow swath of snow cover through central Nebraska. It remains to be determined the extent of the damage to the winter wheat crop.

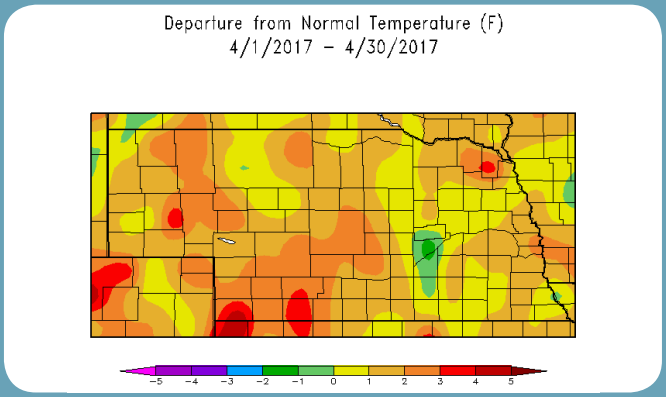
How much precipitation you received depended on where you were in Nebraska. Some locations ended the month above normal, and some locations below normal. Areas in the northern Panhandle, central, southcentral, and southeast were generally wetter than normal. Pockets of lower than normal precipitation were in the northcentral, southwest, east central, and northeast. Nebraska Mesonet precipitation totals for the month showed the highest amount at Indian Cave State Park - 4.74 inches. Six stations observed more than 4 inches for the month – all located in eastern Nebraska.

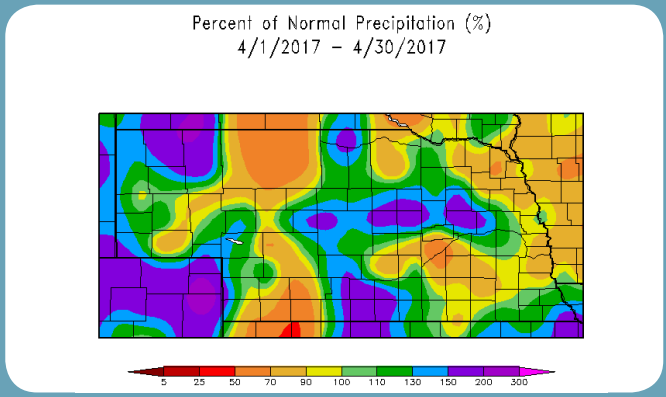
Soil temperatures are an observation that is closely followed this time of year in the agricultural and horticultural community. Nebraska Mesonet stations observe this at the 4 inch depth over bare ground at all our sites across Nebraska. For the week ending on May 1st, temperatures averaged in the mid 40s to mid 50s. This represents a cool-down from earlier in April, which was driven by the low temperatures at the end of the month as well as the rain and snow.

It is not surprising that drought conditions in Nebraska were eased as beneficial rains were received, particularly during the last week of April. Areas of concern in the state as far as dryness were in the southcentral and southwest as well as the northern Panhandle with 25% in D0 – D1 at the start of the month. All of the D1 conditions have been erased and 95% of Nebraska is in no abnormal dryness or drought. There are two pockets of longer-term abnormal dryness (D0) left in Nebraska at the start of May, the southcentral (Hall, Hamilton, and York counties) and southwest (Cheyenne to Chase counties). This is a significant improvement when compared to the start of the year when 51% of Nebraska was in D0 – D2.

Mountain snowpack in the basins that help to feed Nebraska rivers were running above normal for most of Wyoming and below to above normal in Colorado as of May 1. Once passing this timeframe, the peak mountain snow accumulation has generally passed as temperatures warm and melting begins. Streamflow conditions at the start of May around the state showed a gradient from below normal in the southwest, normal in Central Nebraska, and above to much above normal in the east.

Temperature and Precipitation Overview





Above: April 2017 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.

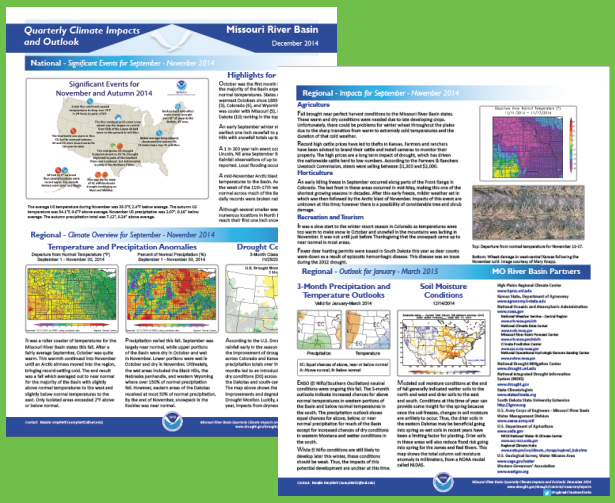
Much of the data and products found throughout this publication were built on the Applied Climate Information System (ACIS) framework. ACIS was designed to manage the complex flow of information from climate data collectors to the end users of climate data information. The main purpose of ACIS is to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

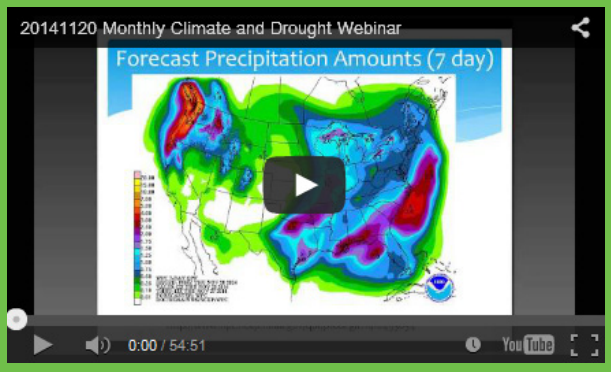
Additional Summary Information for the High Plains

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



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