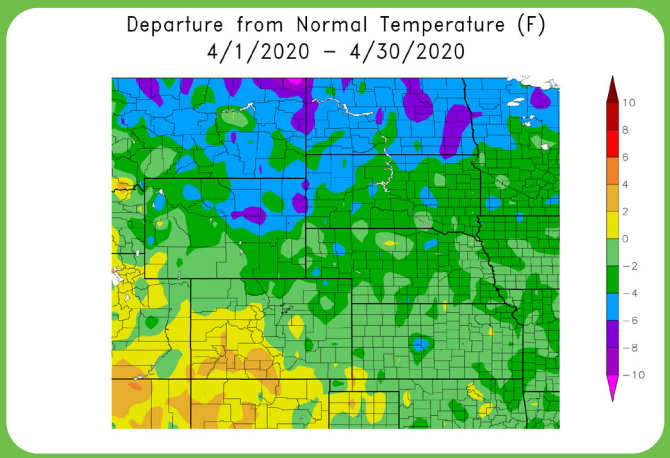
Dry Conditions Return to the Region

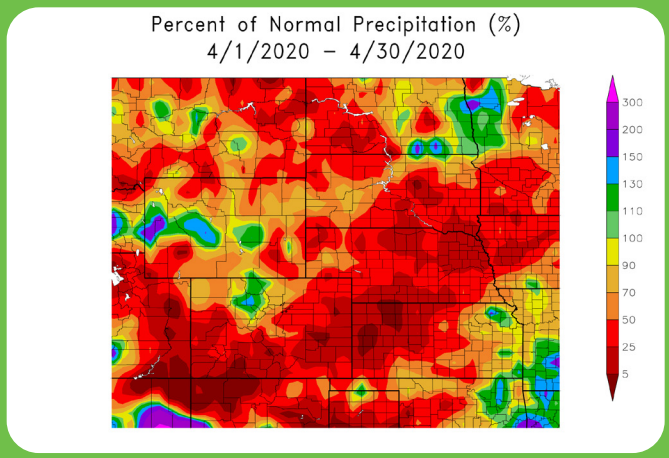
Overall, April was a cool and dry month for the High Plains region. The largest temperature departures were across the northern parts of the region, where temperatures were generally 4.0-6.0 degrees F (2.2-3.3 degrees C) below normal. Further south, temperatures were closer to normal for this time of the year, with some locations in Colorado having slightly above-normal temperatures. Meanwhile, the majority of the region was dry, with large areas of Colorado, Kansas, Nebraska, North Dakota, and South Dakota receiving less than 50 percent of normal precipitation.

This month's conditions had mixed impacts for agriculture. On a positive note, dry conditions helped producers get out into the fields for spring planting. This was quite the contrast to last year's extreme wetness and delayed planting. But, the dryness, in combination with hard freezes, has begun to take a toll on the Kansas winter wheat crop. According to Kansas State University's Agronomy eUpdates, a preliminary assessment of the winter wheat crop after freezes during the week of April 13th showed damage, especially in the central part of the state. Damage to the crop varied across western and central areas, however, due to the different growth stages of the crop and the wide range of low temperatures that occurred. Other hard freezes that week impacted the Western Slope of Colorado, which is known for its peach production. With temperatures below 28.0 degrees F (-2.2 degrees C) several nights in a row, the peach crop was decimated. A USDA Disaster Declaration has been requested for the impacted counties.

Although dry conditions were widespread, flooding along some rivers continued to be an issue for parts of the region. In North Dakota, flooding along the Red River created significant problems as many roads and bridges were closed, including a section of I-29 between Manvel and Grafton. On April 24th, North Dakota Governor Doug Burgum declared a statewide flood emergency due to the spring flooding. In a statement released from the Office of the Governor, the initial damage to infrastructure was estimated at $7 million.

Temperature and Precipitation Overview





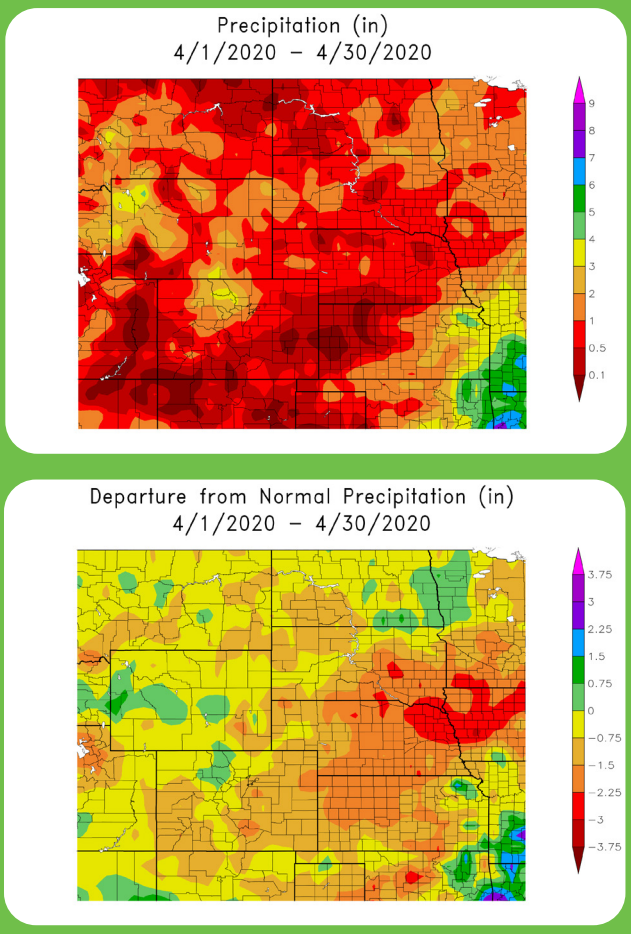
Above: Departure from 1981-2010 normal temperature (left) and percent of normal precipitation (right) for April 2020 in the High Plains region. Maps produced by the High Plains Regional Climate Center and are available at: http://hprcc.unl.edu/maps/current .

Precipitation

April was a dry month across the High Plains region, with only a few spotty areas receiving normal or above-normal precipitation. A large swath of the region from Colorado northeastward through Kansas, Nebraska, and South Dakota had precipitation totals of less than 50 percent of normal. Embedded within this area, a few pockets received less than 5 percent of normal precipitation. This dryness led to monthly precipitation deficits of 1.50-3.00 inches (38-76 mm), which has had mixed impacts across the region. Dry conditions helped with spring planting, but the lack of moisture has begun to stress pastures and winter wheat. Ultimately, these extremely dry conditions led to several locations ranking in the top 10 driest Aprils on record, including Norfolk, NE (2nd driest); Williston, ND (4th driest); Goodland, KS (6th driest); and Alamosa, CO (7th driest).

As mentioned above, some locations did receive above-normal precipitation, such as eastern and southern North Dakota, northern Colorado, western Wyoming, and portions of eastern Kansas. Only a few isolated areas received upwards of 200 percent of normal precipitation. Although the month was dry, there were a few locations that ranked in the top 10 snowiest Aprils on record, including Lincoln, NE (6th snowiest); Omaha, NE (6th snowiest); and Boulder, CO (6th snowiest). Boulder's snowfall this month was particularly noteworthy as it pushed the seasonal snowfall total to 152.0 inches (386 cm) – a new record! The old record of 143.2 inches (364 cm) was set over 100 years ago during the 1908-09 season (period of record 1893-present).

Regional Precipitation



Above: Total precipitation in inches (top) and departure from normal precipitation in inches (bottom) for April 2020. These maps are produced by HPRCC and can be found on the Current Climate Summary Maps page at: http://hprcc.unl.edu/maps/current.

The storm system that pushed Boulder's snowfall into record territory occurred during the middle of the month when a particularly strong system moved across the region, bringing a swath of late-season snowfall to portions of Colorado, Wyoming, Nebraska, and northern Kansas. Boulder had a one-day snowfall total of 16.9 inches (43 cm) on the 16th, which was the second highest one-day April snowfall on record! Other places also had impressive totals, albeit much smaller. Lincoln, NE and Omaha, NE picked up 4.5 inches (11 cm) and 5.0 inches (13 cm), respectively. Not only was this the season's largest snowfall for both locations, it was also a top 5 single-day snowfall total for the month of April. The combination of wet, heavy, snow and strong winds did cause some damage to trees and power lines. Travel was disrupted in some areas, as a portion of I-80 was closed in Wyoming due to the wintry conditions.

Snowpack Update

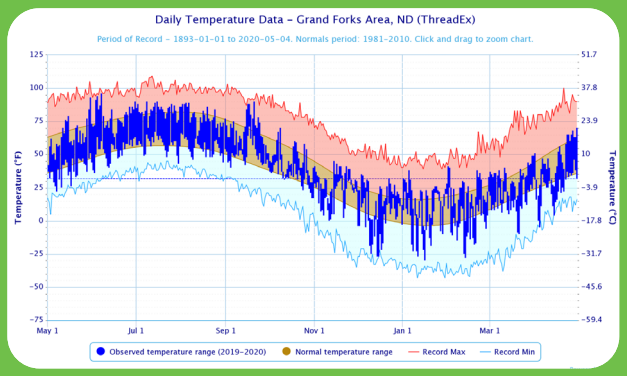
Overall, mountain snowpack remained in decent shape during the month of April. At the end of April, the statewide snowpack for Colorado and Wyoming was 97 percent of median and 118 percent of median, respectively. In Colorado, the Snow Water Equivalent (SWE) was near or above median in the north and below median in the south, while in Wyoming, SWE was near to above median in all basins except for Belle Fourche, Cheyenne, and Sweetwater. As of April 30th, mountain SWE across the Upper Missouri Basin was right around average. According to the U.S. Army Corps of Engineers, mountain SWE was 98 percent of average above Fort Peck and 99 percent of average in the reach from Fort Peck to Garrison. Snowpack above Fort Peck peaked on April 16th at 109 percent of the normal peak, with snowpack in the reach from Fort Peck to Garrison peaking on April 19th at 112 percent of the normal peak.

Temperatures

Overall, temperatures were below normal across the High Plains region this month. Departures increased from south to north, with near-normal temperatures across portions of Colorado, Kansas, and Nebraska and departures of up to 8.0 degrees F (4.4 degrees C) below normal across northern portions of the region. This included pockets of North Dakota, South Dakota, and northeastern Wyoming. The warm spot for the month was southwestern Colorado, where temperatures were 2.0-4.0 degrees F (1.1-2.2 degrees C) above normal.

One of the cooler locations in the region was Grand Forks, North Dakota, which had its 8th coolest April on record with an average temperature of 35.7 degrees F (2.1 degrees C) (period of record 1893-present). This was 6.3 degrees F (3.5 degrees C) below normal. On the 4th, with a minimum temperature of -5.0 degrees F (-20.6 degrees C), Grand Forks set a new temperature record for the day, beating the old record set in 1970 by 5.0 degrees F (2.8 degrees C).

Station Spotlight: Grand Forks, ND



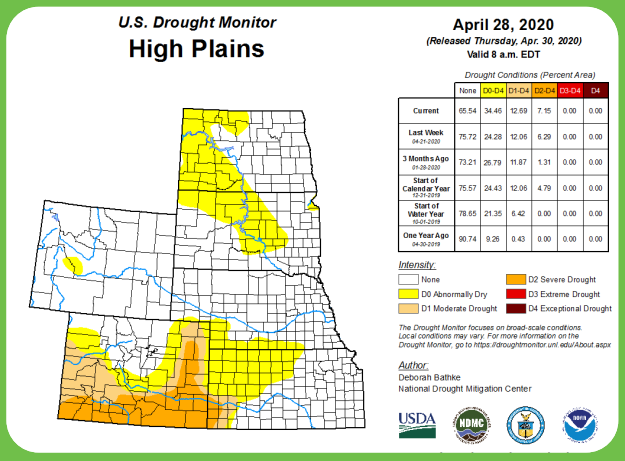
Above: Daily temperatures along with extremes and normals values since May 1, 2019 in Grand Forks, ND.

Although the month of April was on the cool side overall, the region experienced a wide range of temperatures. For instance, Lincoln, Nebraska set a new record high of 87.0 degrees F (30.6 degrees C) on the 7th and then set a new record low of 17.0 degrees F (-8.3 degrees C) on the 10th. Only a week later, Lincoln recorded back-to-back record low temperatures of 16.0 degrees F (-8.9 degrees C) on the 14th and 15th (period of record 1887-present). The contrast between very warm and very cold temperatures caused substantial freeze damage in some areas. Early estimates show that approximately 95% of Colorado's peach crop may be lost due to a series of hard freezes that occurred the week of April 13th.

Drought Conditions

This month, drought conditions expanded only slightly across the High Plains region. According to the U.S. Drought Monitor, the area experiencing drought (D1-D4) in the region increased about 2 percent between March 31st and April 28th. Although the area in drought did not increase much, it should be noted that drought conditions intensified in Colorado, with severe drought (D2) expanding to include nearly 33 percent of the state.

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/.

Abnormally dry conditions (D0) increased in coverage across much of the region this month. To the south, D0 spread across portions of eastern Colorado, Nebraska, and Kansas, while another area developed across North Dakota and South Dakota as well. The small area of D0 in west-central Wyoming, which was introduced due to a low snowpack, remained. By the end of the month, over 20 percent of the region was in the D0 designation. With precipitation deficits mounting, these areas are being closely monitored for the development of drought conditions. Meanwhile, in Colorado, drought expanded and intensified across the south and east, with over half of the state experiencing drought conditions at the end of the month. In Kansas, drought conditions remained largely unchanged, with only a slight expansion in D1 and D2 coverage. Impacts to rangelands and winter wheat have been reported in these two states.

The remainder of the region was free of drought and abnormally dry conditions.

Climate Outlooks

According to the Climate Prediction Center, ENSO-neutral conditions continued through April and will likely continue through summer. For more information about ENSO, check out the ENSO blog here: https://www.climate.gov/news-features/department/enso-blog.

According to the National Weather Service's long-range flood outlook, there is a greater than 50 percent chance of minor to major flooding across portions of the region. This includes portions of the Missouri River mainstem in Nebraska, along with several tributaries, such as the Big Sioux, James, and Vermillion Rivers in South Dakota. Minor to moderate flooding is also forecast along the Neosho and Marais Des Cygnes Rivers in Kansas. Normal wildland fire potential is expected through August for most of the region; however, parts of western and southern Colorado have an above-normal wildland fire potential in June and 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 May-July temperature outlook indicates an increased probability of above-normal temperatures for much of the western, southern, and eastern U.S. In the High Plains, this includes Wyoming, most of Colorado, and southwestern Kansas. The remainder of the U.S. has equal chances for above-, below-, and near-normal temperatures through July. This includes most of Kansas, Nebraska, South Dakota, and North Dakota in the High Plains region. There are no areas with an increased chance of below-normal temperatures forecasted through July.

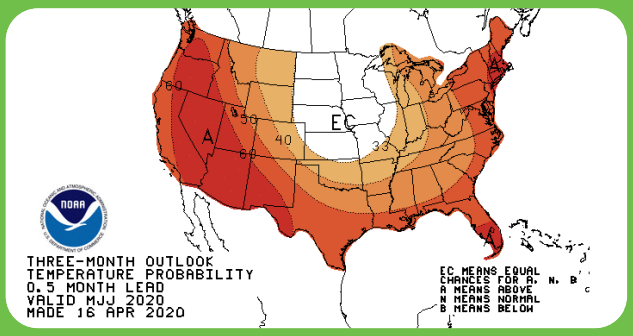
Precipitation

The May-July precipitation outlook indicates a higher probability of above-normal precipitation across much of the northern, central, southern, and eastern U.S. In the High Plains, this includes Nebraska, South Dakota, Kansas, southern North Dakota, eastern Wyoming, and portions of eastern Colorado. Across the northwestern U.S., there is an increased chance for below-normal precipitation through July. Elsewhere, there are equal chances for above-, below-, and near-normal precipitation.

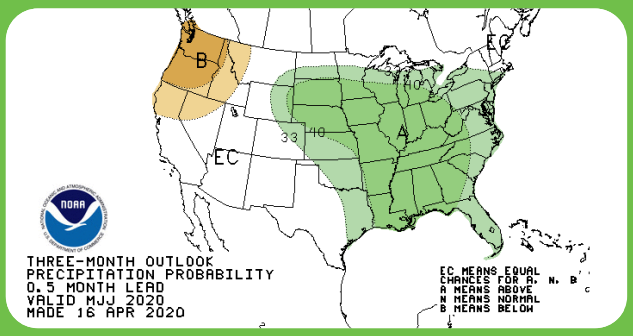
Drought

The April 16th Seasonal Drought Outlook indicates that drought is expected to persist across parts of the West, the Four Corners region, and the Plains. Drought may improve or be removed across portions of the southern U.S., almost all of Florida, and portions of the central Plains. Development of drought is likely for portions of the West and a small area in the Four Corners region. In the High Plains, drought conditions are expected to persist across southern and western Colorado and southwestern Kansas. Drought conditions are likely to be removed across portions of eastern Colorado over the next three months.

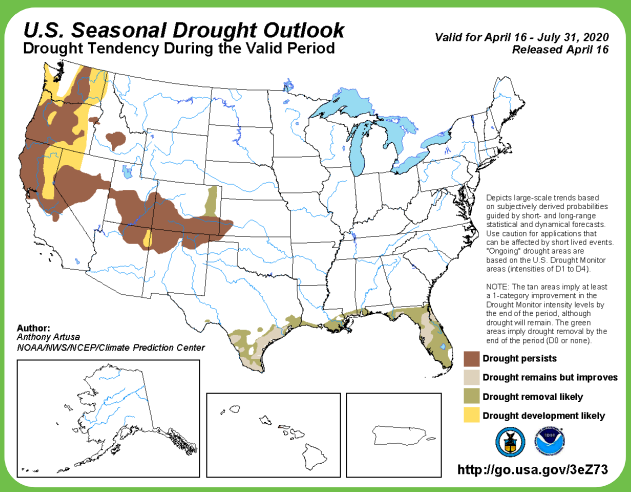
Temperature Outlook



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	61.3	29.9	45.6	-1.4	87	04/30	11	04/03	0.27	-1.38	16
Alamosa San Luis Airport	66.4	26.8	46.6	4.8	82	04/30	9	04/15	0.09	-0.50	15
Colorado Springs Municipal Airport	61.7	32.7	47.2	0.7	85	04/30	7	04/14	0.86	-0.56	61
Denver International Airport	61.1	31.4	46.3	-1.1	81	04/30	11	04/14	0.54	-1.17	32
Grand Junction Walker Field Airport	67.4	37.6	52.5	0.8	89	04/30	19	04/14	0.20	-0.71	22
Pueblo Memorial Airport	68.9	32.9	50.9	0.3	94	04/30	20	04/15+	0.24	-1.16	17

Kansas	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Concordia Municipal Airport	67.9	39.2	53.5	0.4	90	04/07	22	04/13	0.99	-1.46	40
Dodge City Regional Airport	69.7	37.9	53.8	-0.1	86	04/30+	20	04/04	1.00	-0.82	55
Goodland Renner Field	64.5	30.3	47.4	-1.8	83	04/27	17	04/13	0.30	-1.29	19
Topeka Municipal Airport	66.3	41.5	53.9	-1.2	88	04/08	26	04/10	3.98	0.45	115
Wichita Mid-Continent Airport	68.8	42.1	55.5	-0.6	88	04/08	27	04/15+	3.03	0.44	117

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Chadron Municipal Airport	60.1	24.5	42.4	-2.4	90	04/30	-10	04/03	0.49	-1.49	25
Grand Island Airport	64.7	34.1	49.4	-1.2	86	04/07	17	04/14	0.76	-1.77	30
Lincoln Municipal Airport	65.5	34.2	49.8	-1.8	87	04/07	16	04/15+	0.88	-1.83	32
Norfolk Karl Stefan Airfield	62.7	32.3	47.5	-2.1	83	04/27	14	04/04	0.21	-2.44	8
North Platte Regional Airport	64.3	28.2	46.3	-1.3	85	04/30	12	04/13	0.61	-1.66	27
Omaha Eppley Airport	64.2	37.9	51.1	-0.6	86	04/07	21	04/15	0.69	-2.27	23
Valentine Miller Field	61.8	28.4	45.1	-1.6	86	04/30	8	04/03	0.83	-1.39	37

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismarck Municipal Airport	54.2	27.6	40.9	-2.9	79	04/30+	8	04/04+	0.47	-0.79	37
Fargo International Airport	50.1	28.2	39.1	-5.1	72	04/30	2	04/04	1.61	0.25	118
Grand Forks International Airport	46.8	24.5	35.7	-6.3	70	04/30	-5	04/04	0.94	-0.07	93
Theodore Roosevelt Airport	53.0	23.9	38.4	-3.9	83	04/30	2	04/03	0.16*	-1.31	11
Williston International Airport	51.7	24.8	38.3	-5.1	84	04/30	4	04/03	0.09	-0.91	9

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.

April 2020 Climate Summary

South Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Aberdeen Regional Airport	56.0	27.8	41.9	-2.5	78	04/22	7	04/04	0.91	-0.94	49
Huron Regional Airport	56.9	31.9	44.1	-2.4	78	04/22	16	04/04	0.52	-1.79	23
Pierre Regional Airport	58.4	28.6	43.5	-3.5	80	04/30	9	04/04+	0.78	-1.03	43
Rapid City Regional Airport	56.1	25.2	40.6	-4.4	83	04/30	-1	04/03	1.09	-0.71	61
Sioux Falls Joe Foss Field Airport	59.0	31.6	45.3	-1.1	80	04/22	14	04/04	1.15	-1.86	38

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	54.7	23.4	39.0	-3.7	78	04/30	-5	04/03	1.28	-0.01	99
Cheyenne Municipal Airport	54.9	25.6	40.3	-2.5	84	04/30	5	04/17	0.89	-0.89	50
Lander Hunt Field Airport	55.4	26.9	41.2	-2.7	80	04/30	2	04/03	2.35	0.48	126
Laramie Regional Airport	50.9	19.9	35.4	-2.5	76	04/30	-11	04/17	0.64	-0.43	60
Rawlins Municipal Airport	53.7	24.6	39.2	-0.9	78	04/30	-7	04/03	0.69	-0.36	66
Sheridan County Airport	55.1	24.3	39.7	-3.9	77	04/29	-2	04/03	1.14	-0.46	71

April 2020 Highlights

Monthly Rankings

Precipitation and Snowfall in inches

Snowiest	**Snowfall / Ranking**	**Record / Year**	**Period of Record**
Lincoln, NE	4.8 / 6th snowiest	11.1 / 1997	1948-present
Omaha, NE	5.7 / 6th snowiest	10.3 / 1983	1881-present
Boulder, CO	37.3 / 6th snowiest	47.6 / 2013	1893-present
Driest	**Precipitation / Ranking**	**Record / Year**	**Period of Record**
Norfolk, NE	0.21 / 2nd driest	0.11 / 1928	1893-present
Akron, CO	0.27 / 2nd driest	0.10 / 1937	1937-present
Williston, ND	0.09 / 4th driest	T / 1931	1894-present
Dickinson, ND	0.16 / 6th driest	T / 1988	1938-present
Goodland, KS	0.30 / 6th driest	T / 1963	1895-present
Alamosa, CO	0.09 / 7th driest	T / 1972	1906-present

All data are preliminary and subject to change. + indicates multiple dates, latest date listed. * indicates some missing data for the period.
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For more information please contact us: http://www.hprcc.unl.edu/contact.php.

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.

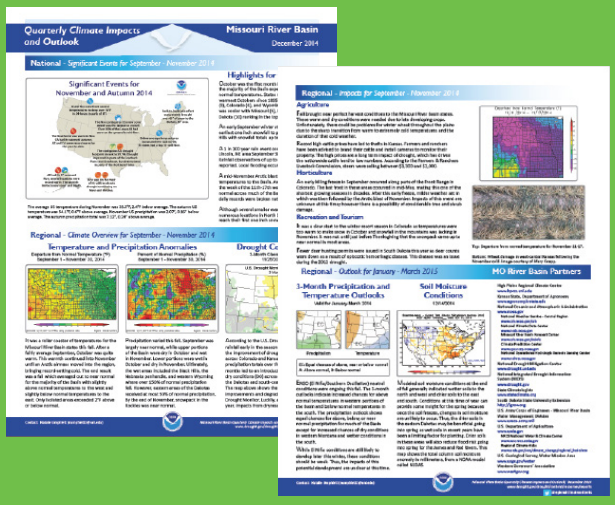
Much of the data and products found throughout this publication were built on the Applied Climate Information System (ACIS) framework. ACIS was designed to manage the complex flow of information from climate data collectors to the end users of climate data information. The main purpose of ACIS is to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

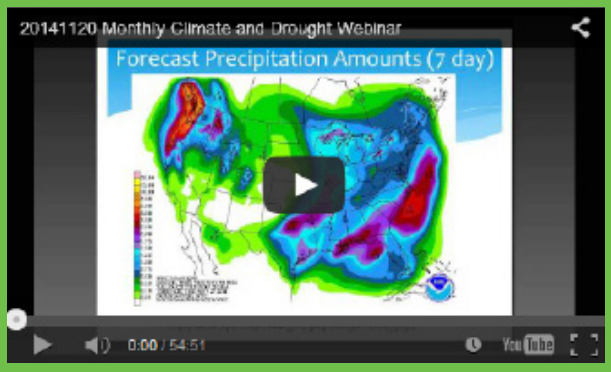
Additional Summary Information for the High Plains

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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For an archive:
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