



September 2016 Climate Summary



Early September flooding in south-central Kansas. - Photo courtesy Greenwood County (KS) EM. <http://hprcc.unl.edu>

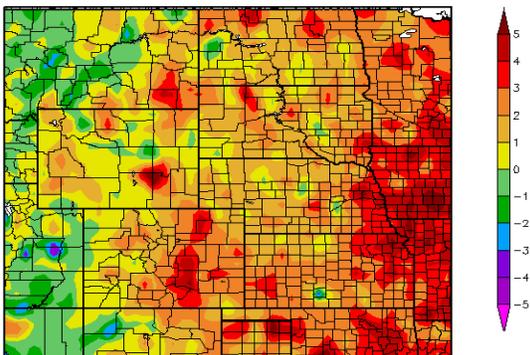
A Warm Start to Fall

The fall season got off to a warm start across the High Plains, with temperatures ranging from near normal in Wyoming to 3.0-5.0 degrees F (1.7-2.8 degrees C) above normal in the eastern High Plains and Colorado. It was especially warm in Colorado, as Pueblo tied for its 5th warmest September, while Colorado Springs experienced its 7th warmest on record. Precipitation varied throughout the area, with wet conditions across the western and eastern High Plains and dryness in the central part of the region. Kansas and North Dakota have especially been wet over the past few months, as some locations have continued to set top 10 records. For instance, Wichita, Kansas had its 2nd wettest July, 4th wettest August, and 2nd wettest September on record this year. As of the end of September, Wichita had received 47.64 inches (1210 mm) of precipitation since January 1, which is enough precipitation to become the 3rd wettest year on record with three months left in the year. On the dry side, Colorado continued to experience below-normal precipitation, which resulted in the drying of topsoil and subsoil across the state. Drought conditions worsened in northwestern Wyoming, which experienced low streamflows and increased wildfire activity. According to the National Park Service, Yellowstone National Park had its most active fire year since 1988 with 62,000 acres burned.

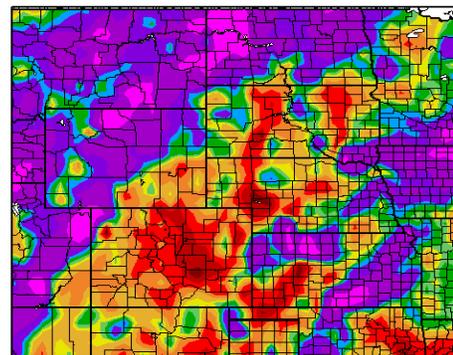
The growing season has nearly ended throughout the region, and harvest is now in full swing. For the most part, row crops and pasture conditions fared well this year due to ample moisture and the lack of widespread drought conditions. In fact, according to the U.S. Department of Agriculture, record-high corn and soybean production is expected in the U.S. this year, thanks to favorable weather and excellent field conditions. Corn and soybean harvest got off to a decent start across much of the region due to warm temperatures and late-September dryness, and spring wheat harvest wrapped up early. However, persistent wetness slowed the sugar beet harvest in North Dakota, while dry conditions in South Dakota delayed the planting of winter wheat.

Temperature and Precipitation Overview

Departure from Normal Temperature (F)
9/1/2016 - 9/30/2016



Percent of Normal Precipitation (%)
9/1/2016 - 9/30/2016



Above: Departure from 1981-2010 normal temperature (left) and percent of normal precipitation (right) for September 2016 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

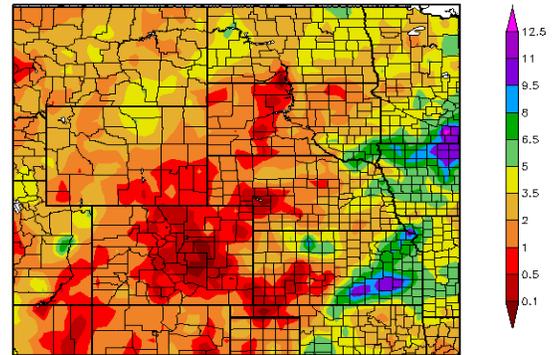
The High Plains region continued to experience a mix of wet and dry conditions during September. One wet area extended from Wyoming northeastward through North Dakota, while a second wet area included northwestern and eastern Kansas, extending north and east to eastern Nebraska and southeastern South Dakota. In between these areas, it was much drier from Colorado northeastward through central Nebraska and South Dakota. Numerous top 10 records for wettest September were set, including Wichita, Kansas (2nd wettest); Williston, North Dakota (3rd wettest); Sioux Falls, South Dakota (3rd wettest); and Sheridan, Wyoming (5th wettest). In some of these areas, precipitation was greater than 250 percent of normal. As for dryness, areas of Colorado, central Nebraska, and central South Dakota received 25 percent of normal precipitation, at best. However, the fall season tends to be a drier time of year in the High Plains, and dry conditions are welcomed by farmers who are amidst harvest.

One major precipitation event that occurred in the region in September was flooding in south-central Kansas due to a system that impacted the area from the 7th through the 10th. A moist atmosphere combined with several upper-level disturbances to produce storms that continued to redevelop and train over the same areas. According to the National Weather Service Weather Forecast Office in Wichita, rainfall rates of 3.00-5.00 inches (76-127 mm) per hour were reported, which resulted in flooding that led to numerous roads being closed, stranded vehicles, and water rescues. Several rivers and streams swelled out of their banks, and a record-high crest occurred on the Ninnescah River near Belle Plaine. The city of Clearwater, which is southwest of Wichita, received the greatest amount of precipitation. By the time the flooding event ended, over a foot of rain had fallen in this area. The highest amounts were recorded on the 9th, as several CoCoRaHS observers reported 24-hour rainfall totals of 6.00-10.00 inches (152-254 mm).

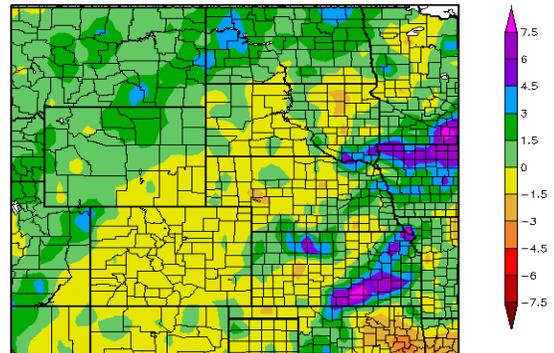
During the fall, the replenishment of soil moisture is very important as we prepare to enter winter dormancy. As a result of ample rainfall received by parts of the region during September, topsoil and subsoil moisture improved over the course of the month. This included North Dakota, South Dakota, and Wyoming, where drought has been present. However, soil moisture in Colorado declined in September due to prolonged dryness.

Regional Precipitation

Precipitation (in)
9/1/2016 – 9/30/2016



Departure from Normal Precipitation (in)
9/1/2016 – 9/30/2016



Above: Total precipitation in inches (top) and departure from normal precipitation in inches (bottom) for September 2016. These maps are produced by HPRCC and can be found on the Current Climate Summary Maps page at: <http://hprcc.unl.edu/maps/current>.

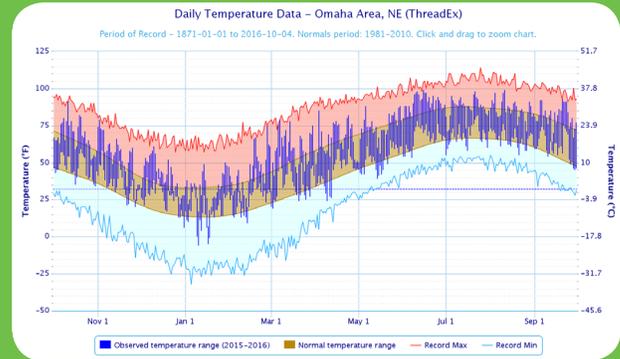
Streamflow Update

Streamflow in September in the High Plains followed a similar pattern to August, as below-normal streamflows could be found in the Upper Missouri River Basin, while the Lower Basin continued to experience above-normal streamflows. The lowest streamflows were in northwestern Wyoming where drought has been present since the end of August. Streamflow conditions in the Black Hills region of South Dakota improved during September, as did drought conditions thanks to much-needed rainfall. On the contrary, excessive wetness that has been present since July has caused streamflows to run high across eastern North Dakota and eastern Kansas. According to the National Weather Service, there is a greater than 50 percent chance for flooding from October-December in parts of the Lower Missouri Basin, which includes some streams in eastern Kansas.

Temperatures

Temperature departures were back to above normal in September throughout the majority of the High Plains. The warmest locations included central and eastern Colorado, eastern Nebraska, and eastern Kansas, where temperatures were 3.0-5.0 degrees F (1.7-2.8 degrees C) warmer than normal. The warmth was most impressive in Colorado, where top 10 records for warmest September were set in Pueblo (tied for 5th warmest) and Colorado Springs (7th warmest). While locations in eastern Nebraska and eastern Kansas did not experience record-breaking warmth for the month as a whole, a few daily record highest maximum temperature and record highest minimum temperature records were set. A big warmup occurred on the 20th and brought high temperatures above 90.0 degrees F (32.2 degrees C) to these areas. Daily maximum temperature records were set in Kansas at Garden City and Salina, as well as in Nebraska at Lincoln, Omaha, and North Platte. On the 21st, low temperatures did not dip below 70.0 degrees F (21.1 degrees C) in several places, and Omaha, Lincoln, and Garden City set records for daily highest minimum temperature.

Station Spotlight: Omaha, NE



Above: Daily temperatures along with extremes and normals values since October 1, 2015 in Omaha, NE.

It is that time of year when the first fall freeze often occurs, which has implications for agriculture and horticulture. Locations that experienced their first freeze of the fall season in September included Alamosa, Colorado; Williston, North Dakota; Casper, Wyoming; and Laramie, Wyoming. These freezes occurred very close to the dates of median first 32.0 degrees F (0.0 degrees C) freeze for these locations. However, Rawlins, Wyoming experienced its 4th earliest hard freeze (defined as 28.0 degrees F, or -2.2 degrees C) on record September 10th (period of record 1951-2016).

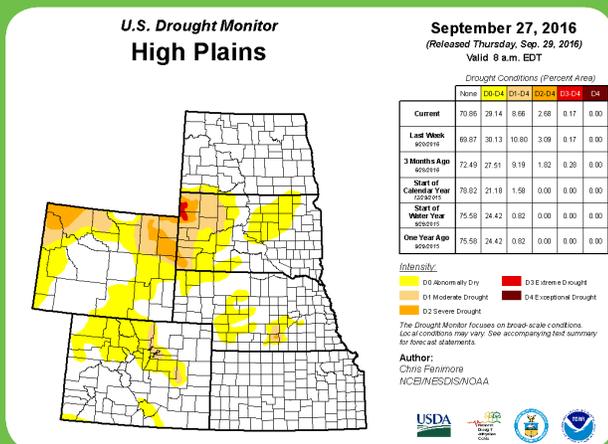
Drought Conditions

Overall, drought conditions in the High Plains improved slightly during September. The area experiencing drought or abnormal dryness (D0-D4) decreased from just over 32 percent to about 29 percent over the course of the month. The Black Hills region, which has endured the most intense drought conditions in the High Plains over the past few months, received beneficial rainfall during early September that alleviated the dryness. Rain also fell across central South Dakota during that time, resulting in the removal of moderate drought (D1). Farther south, drought conditions in south-central Nebraska improved, and the D1 in northwestern Kansas was removed.

In the western High Plains, prolonged dryness caused drought to intensify in northwestern Wyoming. D1 was degraded to severe drought (D2) in early September. The U.S. Drought Monitor author for the September 6th map noted that baseflow in the headwaters of the Snake River was well below normal. In Colorado, continued dryness in the northeastern part of the state resulted in a slight expansion of D1 by mid-late September.

Drought in South Dakota and Wyoming caused some impacts to agriculture and the environment. In South Dakota, pasture conditions suffered during the summer, and poor corn pollination was reported in the southeastern portion of the state. In northwestern Wyoming, drought was partly to blame for an extremely active fire year at Yellowstone National Park.

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/>.

Climate Outlooks

According to the Climate Prediction Center, ENSO-neutral conditions are present in the Pacific. Equatorial sea surface temperatures are near average to below average in the east-central and eastern Pacific Ocean. La Niña is no longer favored to develop this fall, and the La Niña Watch has been canceled. ENSO-neutral conditions are now slightly favored, as there is approximately a 55-60 percent chance that ENSO-neutral conditions will be present during the fall and winter 2016-17 in the Northern Hemisphere. If you want to keep up to date on the status of ENSO, check out the ENSO blog here: <https://www.climate.gov/news-features/department/8443/all>.

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 October-December temperature outlook indicates an increased chance of above-normal temperatures for the majority of the contiguous U.S., including all of the High Plains region and especially across Colorado and southern Wyoming. There are no areas of the contiguous U.S. with an increased chance for below-normal temperatures. There is an equal chance for above-, below-, or near-normal temperatures in the Southeast during the October-December period.

Precipitation

The precipitation outlook for the next three months calls for a higher probability of above-normal precipitation across the northern Rockies. In the High Plains region, this includes extreme northern Wyoming and western North Dakota. Below-normal precipitation is favored across the southern Plains and the Southeast. The remainder of the contiguous U.S. has equal chances for above-, below-, or near-normal precipitation.

Drought

The September 15th U.S. Seasonal Drought Outlook shows that drought is expected to persist across portions of the West, the northern Plains, the Southeast, and the Northeast. In the High Plains region, this includes northwestern South Dakota and western Wyoming. Drought will remain, but improve, in western and extreme southeastern Montana, as well as northeastern Wyoming and small pockets of western South Dakota. Drought removal is likely along the Pacific Northwest coast, the northern Rockies, pockets of the Plains, and northern Ohio. In the High Plains region, this includes northern Wyoming, southwestern South Dakota, south-central Nebraska, and northern and eastern Colorado. Drought development is likely in the Southeast and the mid-Atlantic. Additional drought development is not expected across the High Plains region through December.

Temperature Outlook

THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
0.5 MONTH LEAD
VALID QND 2016
MADE 15 SEP 2016

EC MEANS EQUAL CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW

Precipitation Outlook

THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.5 MONTH LEAD
VALID QND 2016
MADE 15 SEP 2016

EC MEANS EQUAL CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW

Drought Outlook

U.S. Seasonal Drought Outlook valid for September 15 - December 31, 2016
Drought Tendency During the Valid Period
Released September 15, 2016

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short-lived events. *Ongoing* drought areas are based on the U.S. Drought Monitor areas (precipitation of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

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NOAA/NWS/NCEP/Climate Prediction Center

Drought persists

Drought remains but improves

Drought removal likely

Drought development likely

<http://go.usa.gov/3eZ73>

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	79.8	50.0	64.9	1.9	92	09/11	37	09/24	1.37	0.21	118
Alamosa San Luis Airport	76.0	36.9	56.5	1.5	82	09/19+	25	09/25+	0.28	-0.63	31
Colorado Springs Municipal Airport	80.1	50.3	65.2	4.3	90	09/20	37	09/26	0.16	-1.03	13
Denver International Airport	82.3	49.7	66.0	2.6	93	09/05	37	09/10	0.28	-0.68	29
Grand Junction Walker Field Airport	81.7	52.8	67.3	1.2	91	09/01	41	09/25	0.68	-0.51	57
Pueblo Memorial Airport	87.5	52.0	69.8	5.1	98	09/05	40	09/26	0.05	-0.72	6

Kansas	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Concordia Municipal Airport	81.9	59.7	70.8	2.8	95	09/20	41	09/30	2.00	-0.91	69
Dodge City Regional Airport	86.3	57.7	72.0	2.8	99	09/19	39	09/29+	0.31	-1.36	19
Goodland Renner Field	82.1	51.7	66.9	2.3	95	09/05	38	09/26	2.49	1.27	204
Topeka Municipal Airport	82.7	61.9	72.3	4.0	93	09/20+	47	09/30	7.78	4.12	213
Wichita Mid-Continent Airport	84.4	62.8	73.6	2.6	95	09/20	48	09/30+	11.30	8.16	360

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Chadron Municipal Airport	79.4	47.2	63.3	2.3	95	09/11	34	09/10	1.23	-0.50	71
Grand Island Airport	78.8	55.0	66.9	1.8	93	09/20	38	09/29	2.53	0.30	113
Lincoln Municipal Airport	82.2	58.1	70.2	4.2	96	09/20	42	09/30+	3.38	0.36	112
Norfolk Karl Stefan Airfield	77.9	54.4	66.2	2.4	94	09/20	36	09/30	2.04	-0.65	76
North Platte Regional Airport	81.1	50.0	65.6	3.3	96	09/20	33	09/29	0.94	-0.47	67
Omaha Eppley Airport	81.3	60.3	70.8	5.1	93	09/20	45	09/29	4.42	1.74	165
Valentine Miller Field	77.8	48.9	63.4	1.1	91	09/23+	34	09/29	1.52	-0.12	93

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismark Municipal Airport	72.2	47.7	60.0	1.5	90	09/11	35	09/27	1.22	-0.37	77
Fargo International Airport	73.4	52.0	62.7	3.6	84	09/11+	37	09/27+	2.60	0.03	101
Grand Forks International Airport	71.1	49.1	60.1	3.2	84	09/03	36	09/14	4.16	2.11	203
Theodore Roosevelt Airport	69.8	46.0	57.9	0.7	87	09/01	34	09/26	3.42	1.95	233
Williston International Airport	71.2	47.8	59.5	2.8	92	09/01	29	09/13	3.54	2.48	334

All data are preliminary and subject to change. + indicates multiple dates, latest date listed.

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>.

September 2016 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	75.0	49.6	62.3	3.4	86	09/04	34	09/29	1.23	-0.96	56
Huron Regional Airport	76.0	51.9	64.0	2.3	89	09/23	34	09/28	1.29	-1.17	52
Pierre Regional Airport	77.7	50.9	64.3	1.4	93	09/23+	35	09/14	1.23	-0.64	66
Rapid City Regional Airport	75.9	47.1	61.5	0.7	90	09/11	36	09/14+	0.84	-0.45	65
Sioux Falls Joe Foss Field Airport	76.0	55.4	65.7	4.4	88	09/21	40	09/29	7.55	4.78	273

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	74.3	43.3	58.8	0.9	93	09/01	30	09/10	1.55	0.47	144
Cheyenne Municipal Airport	75.7	45.4	60.6	2.4	88	09/11	35	09/10	0.80	-0.68	54
Lander Hunt Field Airport	73.2	45.4	59.3	0.7	89	09/01	35	09/25	1.68	0.63	160
Laramie Regional Airport	72.1	39.1	55.6	2.3	84	09/01	24	09/10	0.77	-0.34	69
Rawlins Municipal Airport	71.4	40.7	56.1	0.7	88	09/01	25	09/10	0.65	-0.32	67
Sheridan County Airport	73.0	46.3	59.7	1.8	95	09/02	35	09/10	3.71	2.28	259

September 2016 Highlights

Monthly Rankings

Temperature in degrees F / Precipitation in inches

Warmest / Coolest	Temperature / Ranking	Record / Year	Period of Record
Pueblo, CO	69.8 / 5th warmest (tie, 1998+)	72.0 / 2015	1888-2016
Colorado Springs, CO	65.2 / 7th warmest	67.3 / 2015	1895-2016
Wettest / Driest	Precipitation / Ranking	Record / Year	Period of Record
Wichita, KS	11.30 / 2nd wettest	12.96 / 2008	1888-2016
Topeka, KS	7.78 / 6th wettest	12.71 / 1973	1887-2016
Williston, ND	3.54 / 3rd wettest	3.74 / 1959	1894-2016
Dickinson, ND	3.42 / 5th wettest	6.25 / 1977	1948-2016
Jamestown, ND	3.91 / 6th wettest	5.26 / 1973	1948-2016
Sioux Falls, SD	7.55 / 3rd wettest	9.26 / 1986	1893-2016
Sheridan, WY	3.71 / 5th wettest	8.18 / 1923	1907-2016
Pueblo, CO	0.05 / 10th driest	T / 1956+	1888-2016

All data are preliminary and subject to change. + indicates multiple dates, latest date listed. - indicates insufficient data.
 Data are retrieved through the Applied Climate Information System (ACIS) and are available online through the CLIMOD system.
 For more information please contact us: <http://www.hprcc.unl.edu/contact.php>.

North Dakota Monthly 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), statewide total September precipitation was 3.14", 1.57" greater than the last year (twice as wet), 1.43" greater than the 1981-2010 average, making it the 10th wettest September in the 122-year period of record. It was also the wettest September since 2010. Above-average precipitation was observed all across the state except for a small region in the southeastern parts of the state in Sargent, eastern Dickey, southern Ransom and western Richland counties (Figure 1). The greatest monthly accumulation was 5.93" and was recorded in Grand Forks, Grand Forks County by a CoCoRaHS observer. The least amount of monthly accumulation was 1.21" and recorded in Reeder, Adams County by a National Weather Service (NWS) cooperative (Coop) weather observer. The greatest 24-hr rainfall was 4.85" and was recorded in Grand Forks on September 5 by another CoCoRaHS observer. Based on historical records, statewide September precipitation showed an increasing trend of 0.03" per decade since 1895. The highest and the lowest September precipitation for the state ranged from 4.68" in 1941 to 0.2" in 2012.

Temperature:

The official state average September temperature was 58.6°F, 3.4° cooler than the last year, but 1.8° warmer than the 1981-2010 average, making it the 33rd warmest September in the 122-year period of record. It was also the warmest September since 2015. Above-average temperatures were observed all across the state except for a small pocket in central North Dakota where slight below-average temperatures were observed (Fig. 2). The state's highest and lowest daily temperatures ranged from 98° on September 2 in Watford City, McKenzie County to 26° on September 13 in Crosby, Divide County. Based on historical records, the state average September temperature showed an increasing trend of 0.18°F per decade since 1895. The highest and the lowest monthly state September average temperatures ranged from 63.5° in 1897 to 45.5° in 1965.

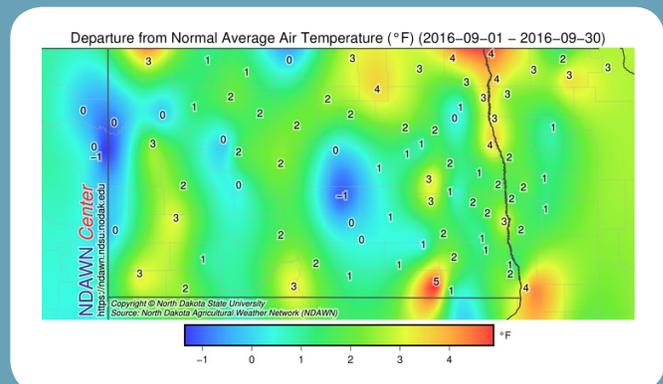
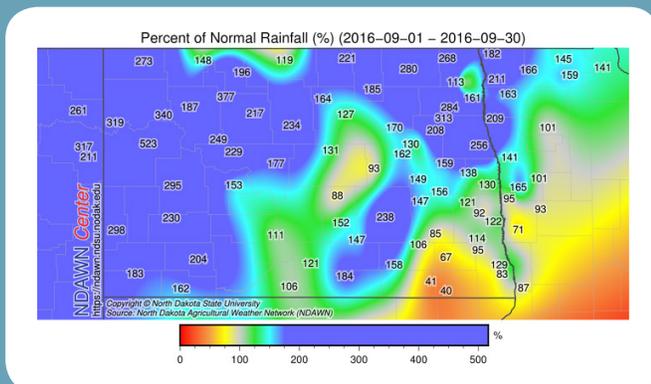
Drought and other notable impacts:

Based on the Drought Monitor (DM) by the end of the month (September 27, 2016), less than 1% of the state was under a drought designation. Counties in the moderate drought areas as of September 27: Bowman and Adams.

NWS Storm Prediction Center reported no tornado incidents, but 6 hail events and 14 high wind reports in September for the State. NDAWN's highest peak gust in September was 49 mph recorded at the McHenry weather station on September 18, 2016.

Because of the heavy rains, much of the harvest activities were slowed. By the end of September, the ND Ag Statistical Service reported corn 59% mature (well ahead of average) and harvested 3%. Soybean dropping leaves 87% (near average).

Temperature and Precipitation Overview



Above: Percent of normal precipitation (left, figure 1) and departure from normal average temperature (right, figure 2) for September 2016 in North Dakota. Both figures 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



Warm, with a Wet Tilt

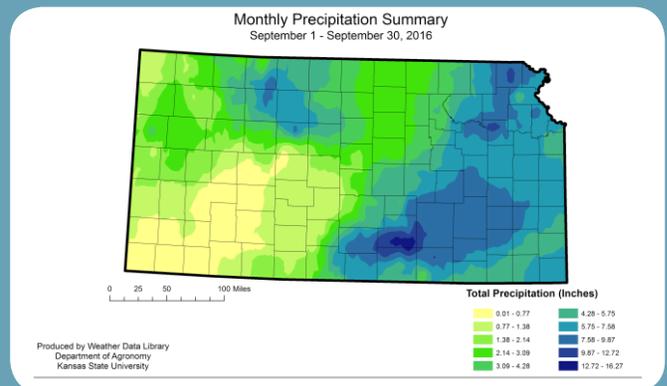
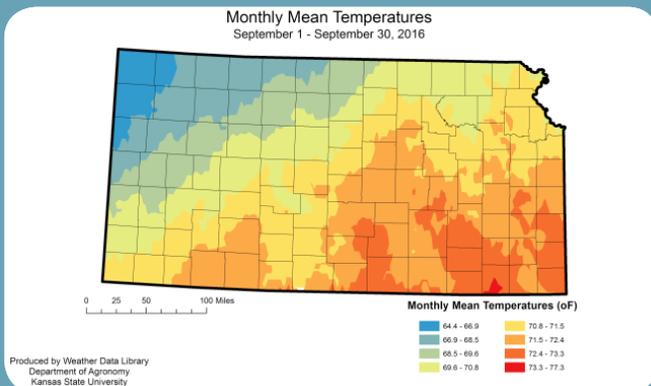
Temperatures were warmer than normal across the state in September. The state-wide average temperature was 70.7 oF, or 3.0 degrees warmer than normal. This was the 32nd warmest since 1896, which places it on the warm side of the distribution range. The Northwest Division was closest to normal for the month. Their average was 67.1 oF, or 2.3 degrees warmer than normal. The warmest division was the Northeast Division where average temperature was 71.5 oF or 4.5 degrees warmer than normal. There were 2 events that tied the daily record high temperature, when Girard and Pomona Lake reached 90 oF on the 20th, breaking their previous records of 89 oF set in 1998 and 1986 respectively. In contrast, there were no new record low maximum temperatures or minimum temperatures set. There were 27 new record warm minimum temperatures set. Of those, one set a monthly record. That was the 72 oF reported for the low temperature at the Garden City Experiment Station on September 6th. The previous record was 71 oF set on September 1, 1964. The highest temperature recorded was 100 oF reported at Hudson, Stafford County, on the 19th. The coldest temperature recorded for the month was reported as 31 oF at Brewster 4W, Thomas County, on the 27th.

State-wide average rainfall for September was well above normal. The state-wide average was 4.15 inches or 148 percent of normal. However, the distribution was skewed to the Northeastern and South Central Divisions. The Southwest Division missed out on most of the rainfall. The divisional average was just 0.62 inches, or 37 percent of normal. The West Central Division was also below normal, although less dramatically. The average for the West Central division was 1.57 inches or 97 percent of normal. In contrast, the South Central Division averaged 5.87 inches or 206 percent of normal. However, this excess moisture was concentrated heavily in the southern Sedgwick County area, where the Haysville and Clearwater areas saw the heaviest totals for the month. This September ranks as the 20th wettest in the 122 years of record. The wettest September on record occurred in 1973, when the statewide average total was 8.32 inches. With the overall wet pattern it is no surprise that there were 138 new record daily rainfall totals. Of those, 11 reports set new monthly records and seven set new all-time records as well. The greatest 24 hour total was at CoCoRaHS station: 9.32 inches at Clearwater 3.9 NNE, Sedgwick County, on the 9th. Highest monthly totals: 15.56 inches at Haysville 3SE, Sedgwick County (NWS) and 16.27 inches at Clearwater 7.0 N, Sedgwick County (CoCoRaHS).

Severe weather was also a factor, although not to the degree that was seen in August. There was one tornado reported in September. The EF0 tornado was reported near Weskan, Wallace County. Fortunately there were no deaths or injuries reported with the events. There were a total of 38 hail reports and 29 damaging wind reports in the month. There were 81 flood/flash flood reports, including several swift water rescues.

Above normal precipitation coupled with near normal temperatures allowed for removal of the abnormally dry conditions across the state. On the other hand, the continued below normal rainfall in the western divisions coupled with warmer than normal temperatures increase the likelihood that abnormally dry conditions will return, particularly in the Southwestern Division.

Temperature and Precipitation Overview



Above: September 2016 monthly mean temperatures (left) and total precipitation (right) in Kansas. Maps produced by Weather Data Library, Department of Agronomy, Kansas State University.

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

Quarterly Climate Impacts and Outlook
Missouri River Basin
December 2014

National - Significant Events for September - November 2014

Highlights for October and the first week of November 2014

Significant Events for November and Autumn 2014

Regional - Impacts for September - November 2014

Regional - Climate Overview for September - November 2014

Drought Co-Occurrence

3-Month Precipitation and Temperature Outlooks

Soil Moisture Conditions

MO River Basin Partners

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

20141120 Monthly Climate and Drought Webinar

Forecast Precipitation Amounts (7 day)

To sign up for future webinars:
<https://www.drought.gov/drought/calendar/webinars>

For an archive:
www.hprcc.unl.edu/webinars.php

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