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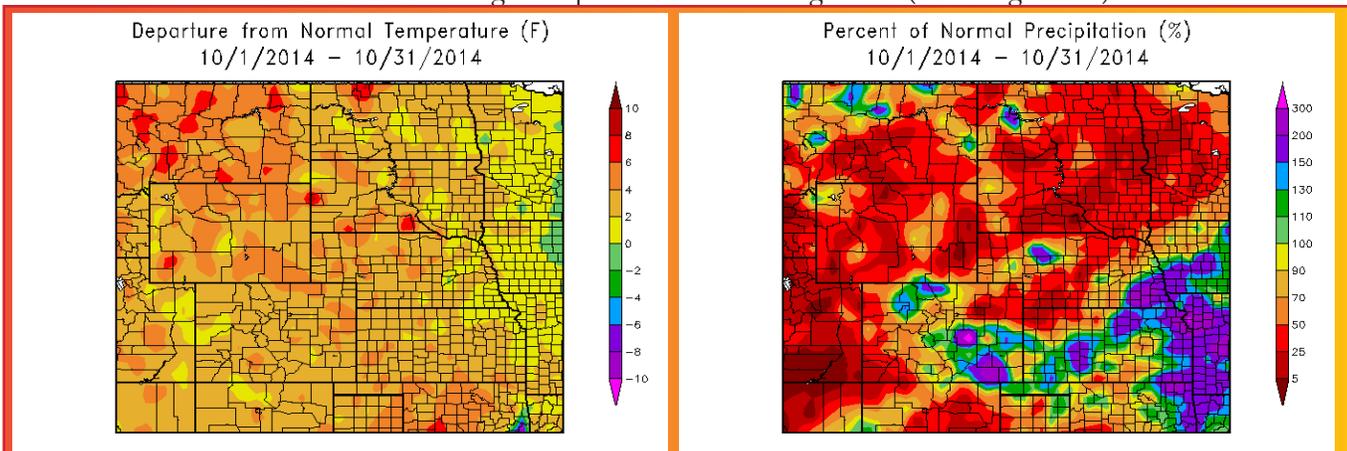
Central Wyoming Scenery - Near Lander, WY - Photo by Natalie Umphlett
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October 2014 Climate Summary

Region Breakdown

For the first time in just over a year, the entire High Plains Region was warmer than normal. Generally, October average temperatures ranged from 2.0-4.0 degrees F (1.1-2.2 degrees C) above normal. However, some areas ranged from 4.0-6.0 degrees F (2.2-3.3 degrees C) above normal, with some isolated locations slightly higher. The end of the month was particularly warm with average temperatures between the 19th and 25th of 9.0-12.0 degrees F (5.0-6.7 degrees C) above normal. Many daily records were broken during this time period. One particularly warm day in Colorado and Wyoming was the 24th. Alamosa, Colorado Springs, Denver, and Pueblo in Colorado and Cheyenne and Lander in Wyoming all set new records that day. One example of these records was Cheyenne, Wyoming which had a high temperature of 77 degrees F (25.0 degrees C). This beat the old record for that day by 3 degrees F (1.7 degrees C) (period of record 1872-2014).

Many locations in Wyoming ranked in the top 10 warmest Octobers on record, including Cheyenne (9th), Lander (8th), Laramie (5th), and Rawlins (5th). Impressively, Lander's average temperature of 51.0 degrees F (10.6 degrees C) was 5.4 degrees F (3.0 degrees C) above normal (period of record 1891-2014). Lander's warmest October on record occurred back in 1963 with an average temperature of 53.6 degrees F (12.0 degrees C).

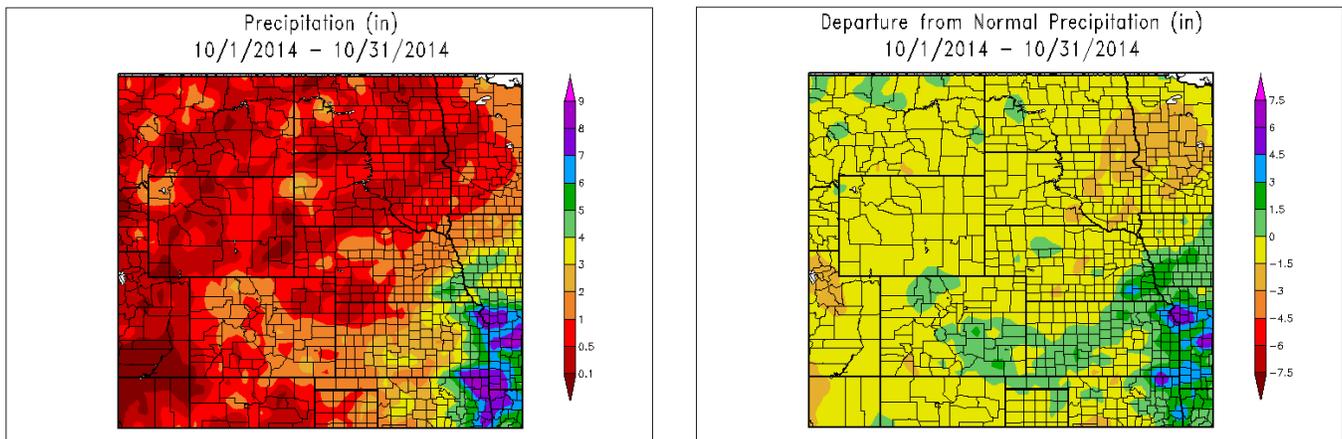


Departure from 1981-2010 Normal Average Temperature (left) and Percent of Normal Precipitation (right) for October 2014 in the High Plains Region. Maps produced by High Plains Regional Climate Center. Available at: <http://hprcc.unl.edu/maps/current>

Precipitation Summary

October 2014 was fairly dry, with most of the High Plains Region receiving at most 1.00 inch (mm) of precipitation. This translated into a widespread area receiving less than 50 percent of normal precipitation including large areas of the Dakotas, much of Wyoming, and a swath stretching from northeastern Colorado into northern Kansas and southern and central Nebraska. Areas receiving over 150 percent of normal precipitation were isolated to eastern Nebraska, central and eastern Kansas, and southeastern Colorado. Much of that precipitation occurred during the first half of the month. Colorado Springs, Colorado was one of the few wet locations this month. With 2.96 inches (75 mm), Colorado Springs had its 3rd wettest October on record (period of record 1894-2014). All of this precipitation fell over a two day period, the 9th and 10th. 2.83 inches (72 mm) fell on the 9th, which smashed the old 1967 daily record of 0.59 inches (15 mm). Although just outside the Region, it is worth noting that Kansas City, Missouri had its 2nd wettest October on record with a whopping 9.29 inches (236 mm). This amount was 6.13 inches (156 mm) above normal, or 294 percent of normal (period of record 1888-2014). On the dry side of things, Sheridan, Wyoming had its 4th driest October on record with only 0.16 inches (4 mm). With records dating back to 1907, the driest occurred in 1965 with 0.02 inches (1 mm).

The dry conditions did allow producers to make significant harvest progress and aided in crop drydown.



Above: Total Precipitation (inches) (left) and Departure from Normal Precipitation (inches) (right) for October 2014 in the High Plains Region. These maps are produced by HPRCC and can be found on the Current Climate Summary Maps page at: <http://hprcc.unl.edu/maps/current>.

October 2014 Top 10 Rankings - Highlights

Monthly Rankings			
Temperature in degrees F / Precipitation in inches			
Warmest	Average Temperature / Ranking	Record / Year	Period of Record
Alamosa, CO	46.7 / 7th warmest	49.5 / 1950	1906-2014
Colorado Springs, CO	53.5 / 8th warmest	58.2 / 1963	1894-2014
Cheyenne, WY	50.9 / 9th warmest	54.4 / 1963	1872-2014
Lander, WY	51.0 / 8th warmest	53.6 / 1963	1891-2014
Laramie, WY	46.3 / 5th warmest	49.8 / 1950	1948-2014
Rawlins, WY	48.0 / 5th warmest	49.9 / 1988	1951-2014
Wettest / Driest	Precipitation / Ranking	Record / Year	Period of Record
Colorado Springs, CO	2.96 / 3rd wettest	5.01 / 1984	1894-2014
Sheridan, WY	0.16 / 4th driest	0.02 / 1965	1907-2014

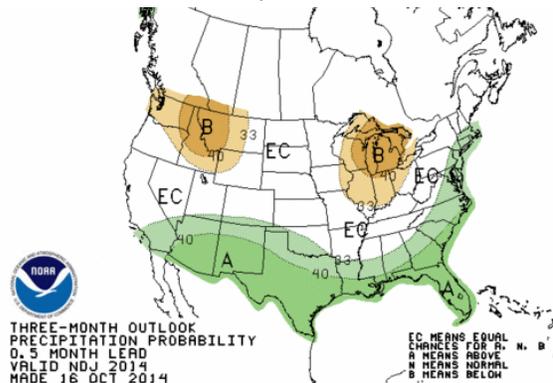
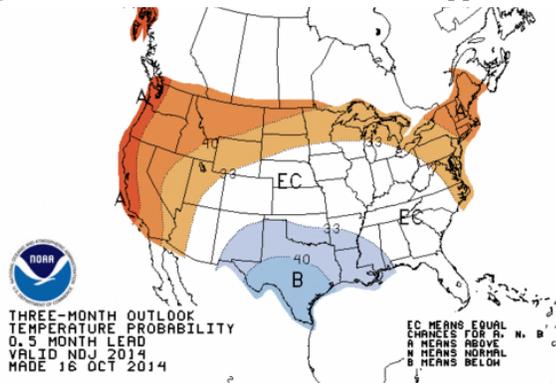
All Data are Preliminary and Subject to Change.
 * indicates multiple records, latest year is listed

The High Plains Regional Climate Center is one of the Regional Climate Centers, and is involved in the Applied Climate Information System (ACIS) development and management effort. Data found throughout this publication were derived using products built on the ACIS framework.



Climate Outlook

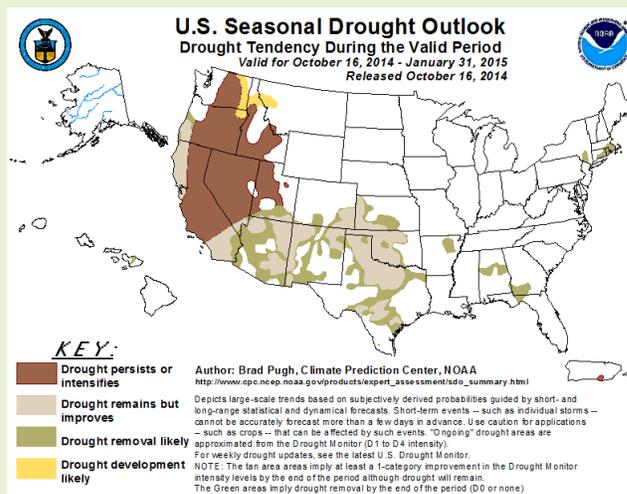
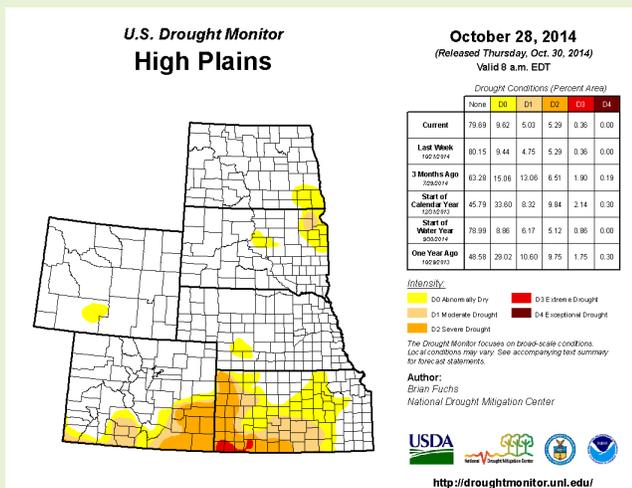
Although ENSO-neutral conditions continued, El Niño may begin at some point in the next couple of months. The temperature outlook through January indicates a higher probability of above normal temperatures for much of the western and northern portions of the United States and includes northern portions of the High Plains Region - North Dakota, much of South Dakota, and the majority of Wyoming. No areas in the Region have a higher probability for below normal temperatures. Meanwhile, the precipitation outlook shows a higher probability for above normal precipitation in far southern Colorado, while the northwestern part of Wyoming has a higher probability of below normal precipitation. All other areas in the Region have equal chances of above, near, or below normal temperatures and precipitation. The seasonal outlooks combine the effects of long-term trends, soil moisture, and when applicable, the El Niño Southern Oscillation cycle (ENSO).



Above: 3-Month Outlook Maps Courtesy of the NOAA Climate Prediction Center - <http://www.cpc.ncep.noaa.gov>
(left) The Three-Month Temperature Probability Outlook, (right) The Three-Month Precipitation Probability Outlook

Drought Watch

There were only slight changes to drought conditions in the High Plains Region according to the U.S. Drought Monitor. The total area in drought (D1-D4) dropped slightly from 12 percent to 11 percent. At the beginning of the month, only Colorado and Kansas had drought conditions, however by the end of the month moderate drought (D1) had developed in northeastern South Dakota where dry conditions have prevailed over the past few months. A new area of abnormally dry conditions (D0) also developed in northeastern South Dakota and southeastern North Dakota. Conditions in Kansas improved, mainly in the eastern part of the state. Statewide, drought conditions went from 46 percent to 38 percent over the past month. Meanwhile, the last remaining extreme drought (D3) area in Colorado was eliminated and now severe drought conditions (D2) remain. According to the U.S. Seasonal Drought Outlook released October 16th, all drought conditions in the Region should improve or be removed over the next few months.



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). Real-time data provided through ACIS from the Regional Climate Centers are often used by the agencies involved in the U.S. Drought Monitor when determining the area and intensity of drought conditions, although the product itself is not produced by HPRCC. For current Drought Monitor information, please see: <http://droughtmonitor.unl.edu/>
 Portions of this Drought Watch are courtesy of the Drought Monitor Text Discussion found on the Drought Monitor webpage.

State Summaries

Colorado	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Akron Washington County Airport	68.5	39.9	54.2	4.0	82	10/15	25	10/28	0.22	-0.89	20
Alamosa San Luis Airport	65.8	27.7	46.7	3.6	75	10/25	14	10/29	0.70	0.02	103
Colorado Springs Municipal Airport	67.3	39.6	53.5	4.1	82	10/15	31	10/29	2.96	2.14	361
Denver International Airport	69.7	40.7	55.2	4.3	83	10/15	29	10/27	0.52	-0.50	51
Grand Junction Walker Field Airport	68.3	40.5	54.4	1.4	77	10/25	29	10/29	0.58	-0.48	55
Pueblo Memorial Airport	72.4	39.4	55.9	4.1	86	10/06	27	10/29	0.91	0.19	126

Kansas	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Concordia Municipal Airport	69.8	45.3	57.6	2.2	84	10/26	27	10/31	2.44	0.52	127
Dodge City Regional Airport	73.8	45.5	59.7	3.1	90	10/25	31	10/31	2.14	0.40	123
Goodland Renner Field	70.8	38.4	54.6	2.7	89	10/24	23	10/31	0.44	-0.93	32
Topeka Municipal Airport	71.4	46.8	59.1	2.5	88	10/26	29	10/31	4.46	1.43	147
Wichita Mid-Continent Airport	75.8	49.5	62.7	4.4	91	10/25+	30	10/31	1.41	-1.37	51

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Chadron Municipal Airport	68.0	34.6	51.3	3.7	85	10/15	18	10/29	0.37	-0.94	28
Grand Island Airport	68.7	41.1	54.9	2.7	80	10/24+	22	10/31	1.28	-0.58	69
Lincoln Municipal Airport	68.6	41.7	55.2	2.0	86	10/26	26	10/31	2.46	0.49	125
Norfolk Karl Stefan Airfield	66.3	39.5	52.9	1.9	78	10/21	21	10/31	0.97	-1.10	47
North Platte Regional Airport	69.7	34.6	52.2	3.1	85	10/26	20	10/29	0.73	-0.82	47
Omaha Eppley Airport	66.6	43.9	55.3	2.1	80	10/26	28	10/31	2.48	0.33	115
Valentine Miller Field	68.4	35.1	51.8	3.3	85	10/26	19	10/31+	0.56	-0.69	45

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismark Municipal Airport	61.9	33.6	47.8	3.0	83	10/21	11	10/31	0.15	-1.10	12
Fargo International Airport	59.5	37.2	48.4	2.9	78	10/24	13	10/31	0.33	-1.82	15
Grand Forks International Airport	57.5	34.7	46.1	3.0	74	10/24	12	10/31	0.37	-1.60	19
Theodore Roosevelt Airport	59.8	33.9	46.8	3.0	79	10/21	17	10/29	0.37	-0.86	30
Williston International Airport	59.8	33.5	46.6	3.6	78	10/20	21	10/29	0.25	-0.67	27

All Data are Preliminary and Subject to Change. + indicates multiple dates, latest date listed.

Source: National Weather Service Cooperative Observation Network Data

Data are retrieved through the Applied Climate Information System (ACIS).

These data are available for the entire period of record through the CLIMOD system. For more information please see <http://hprcc.unl.edu/services>.

October 2014 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	62.6	34.3	48.4	3.2	80	10/24+	12	10/31	0.26	-1.73	13
Huron Regional Airport	63.7	35.2	49.4	1.5	81	10/24+	8	10/31	0.28	-1.51	16
Pierre Regional Airport	65.7	36.7	51.2	2.5	86	10/15	14	10/31	0.30	-1.35	18
Rapid City Regional Airport	66.0	35.7	50.8	3.1	82	10/21+	22	10/28	0.54	-0.88	38
Sioux Falls Joe Foss Field Airport	62.0	38.6	50.3	2.4	76	10/24+	19	10/31	0.67	-1.50	31

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	66.8	33.5	50.1	4.9	77	10/25	20	10/30	1.05	-0.06	95
Cheyenne Municipal Airport	65.3	36.5	50.9	4.6	77	10/24+	29	10/31+	0.51	-0.42	55
Lander Hunt Field Airport	65.6	36.3	51.0	5.4	76	10/25+	27	10/28+	0.50	-0.79	39
Laramie Regional Airport	61.1	31.6	46.3	4.5	74	10/15	24	10/28+	0.30	-0.50	38
Rawlins Municipal Airport	62.0	34.1	48.0	4.7	72	10/25	21	10/31	0.18	-0.57	24
Sheridan County Airport	68.2	32.3	50.3	4.8	83	10/14	20	10/03	0.16	-1.25	11

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State Spotlight - Kansas

Mary Knapp - Service Climatologist
 Kansas State Climate Office, Kansas State University

Mellow month

October began the month on a cool, wet note but then moved to a warm, dry pattern. Overall, the state-wide average temperature was 2.9 degrees warmer than normal. The warmest divisions were the Southwest and South Central, where average temperatures were 3.7 degrees above normal. The coolest division was the Northeast, where average temperatures were 2.1 degrees above normal. In the North Central, the first frost was recorded in September. For the rest of the divisions, the first frost wasn't until the end of October. All divisions saw low temperatures at 30F or colder, with most of the coldest readings on the 30th and 31st. All divisions saw temperatures at or above 90F during the month. The warmest reading was 93F and reported at multiple locations. The latest of these occurred on the 27th, at Independence in Montgomery County. There were 17 new daily record highs set and there were also 11 new record warm minimums set during the month. On the cool side of the scale, there were 10 new daily record low maximum temperatures and 3 new daily record low minimum temperatures. No monthly or all-time records were set for either maximum or minimum temperatures.

The state-wide average precipitation for October was 2.54 inches, which shows a 0.24 inch surplus for the month. The total is 104 percent of normal precipitation for the month, and places it as the 37th wettest of 120 years, or on the wet side of the normal range. However, both the Northwest and the South Central division averaged below normal. The Northwest fared the worst, with an average of just 0.42 inches or 27 percent of normal. The South Central Division fared slightly better with an average of 2.25 inches or 87 percent of normal. Most of the moisture in these divisions fell during the afternoon and evening of September 30th. Those totals were reported on the 1st of October. Heavy rains began the month, with more moderate amounts in the middle, and mainly dry to end October. Mound Valley in Labette County recorded the greatest 24 hour total for the NWS with 7.57 inches on the 10th; Independence 0.3 NW reported the greatest 24 hour total for the CoCoRaHS network with 4.05 inches, also on the 10th. Highest monthly totals were 11.50 inches at Columbus, Cherokee County for the NWS and 7.74 inches at McCune 1.6 NW, Crawford County for CoCoRaHS.

October was fairly quiet on the severe weather side. No tornadoes were reported, while there were 34 reports of hail and 13 reports of wind damage.

Drought conditions persist across the state, particularly in the west. There was some improvement in the eastern portions of the state. At the end of September, the portion of the state that was drought free was at almost 19 percent. At the end of October the drought-free area had increased to almost 33 percent. The warmer temperatures during this month and the increased precipitation in September moderated some of the negative impacts from the lack of moisture in August. However, the dry pattern to end the month is likely to result in further expansion of drought in the Northwest Division. The El Niño/Southern Oscillation (ENSO) is still expected to switch to an El Niño event before winter, but it remains to be seen what impact will be felt. Other global circulation patterns, including the North Atlantic Oscillation (NAO), can have significant impacts on the winter season. The November temperature outlook is neutral for the entire state, with equal chances of above normal, normal or below normal temperatures across Kansas. The precipitation outlook is also neutral for all except extreme eastern and southeastern KS. In those areas, there is a chance for above normal precipitation. This does not indicate how that moisture might be distributed, and means heavy rains or extended dry periods are both possible.

For more information about the Kansas State Climate Office: <http://www.ksre.ksu.edu/wdl/>
 The KSU's AWDN is a part of the High Plains Automated Weather Data Network (AWDN). Data are available through KSU or HPRCC.

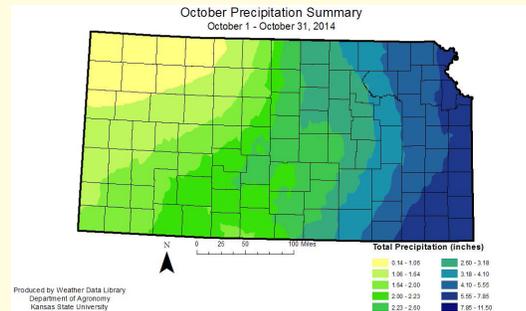


Figure 1. October 2014 total precipitation for Kansas (Kansas State Climate Office)

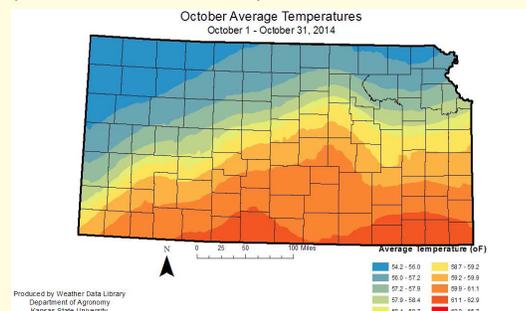


Figure 2. October 2014 average temperatures for Kansas (Kansas State Climate Office)

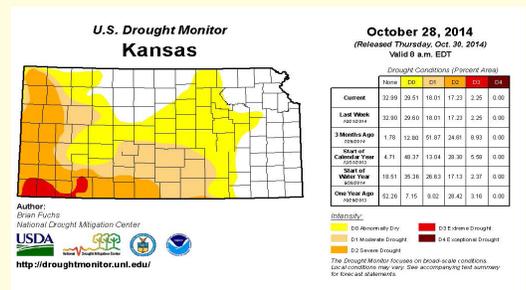


Figure 3. October 28, 2014 U.S. Drought Monitor map and statistics for Kansas (U.S. Drought Monitor)

State Spotlight - North Dakota

F. Adnan Akyüz - State Climatologist, Daryl Ritchison - Research Specialist
 North Dakota State Climate Office, North Dakota State University



Precipitation:

Every North Dakota Agricultural Weather Network (NDAWN) station recorded below average rainfall in October 2014 (Figure 1). The average rainfall from the NDAWN stations in North Dakota was just 0.33 inches. That is well below the 30 year average of 1.46 inches. With many parts of North Dakota recording below average rainfall in September, plus October being exceptionally dry, the U.S. Drought Monitor now lists nearly 6 percent of North Dakota, all of which in the southeastern part of the state, in abnormally dry conditions as of October 28, 2014.

Temperature:

October 2014 was the second straight month with above average temperatures recorded across the NDAWN mesonet. The overall average temperature of the North Dakota NDAWN sites was 46.4 degrees which is 3.0 degrees above the 1981-2010 average temperature of 43.4 degrees. Although there were two stations that recorded temperatures right at the average, the rest of the NDAWN stations all finished with above normal temperatures for the month. Most locations recorded positive temperature anomalies of 2 to 4 degrees which aided, in combination with the dry conditions, to an excellent harvest season.

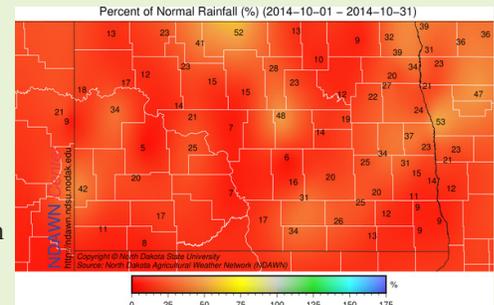


Figure 1. Percent of Normal Precipitation in October 2014 for North Dakota (NDSCO)

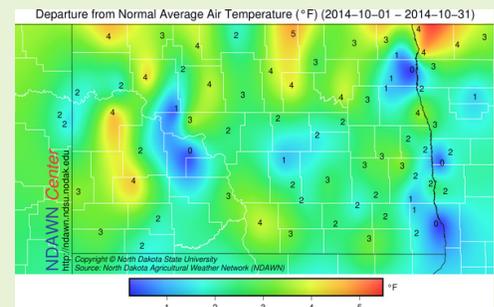


Figure 2. Temperature Departure from Normal in October 2014 for North Dakota (NDSCO)

About the High Plains Regional Climate Center

The High Plains Regional Climate Center (HPRCC) operates out of the University of Nebraska - Lincoln (UNL) in Lincoln, Nebraska. As one of 6 regional climate centers throughout the nation, HPRCC works closely with other organizations such as the National Climatic Data Center (NCDC), Local and Regional National Weather Service (NWS) Offices, and other climate services organizations such as the National Drought Mitigation Center (also located at UNL) to provide climate data services and specialized climate products.

For More Information Online

High Plains Regional Climate Center: <http://hprcc.unl.edu>

High Plains Regional Climate Services: <http://hprcc.unl.edu/services>

CLIMOD: <http://climod.unl.edu>

Regional Climate Centers and ACIS: <http://www.rcc-acis.org>

National Weather Service: <http://www.weather.gov>

National Climatic Data Center: <http://ncdc.noaa.gov>

University of Nebraska - Lincoln: <http://www.unl.edu>

National Drought Mitigation Center: <http://drought.unl.edu>

Climate Prediction Center: <http://www.cpc.noaa.gov>

NOAA Storm Prediction Center: <http://www.spc.noaa.gov>



Photo of the Nebraska Sandhills by Bill Sorensen - Senior Programmer - HPRCC

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