



727 Hardin Hall  
 3310 Holdrege Street  
 Lincoln, NE 68583-0997  
 402 472-6706  
 Fax 402 472-8763  
<http://hprcc.unl.edu>



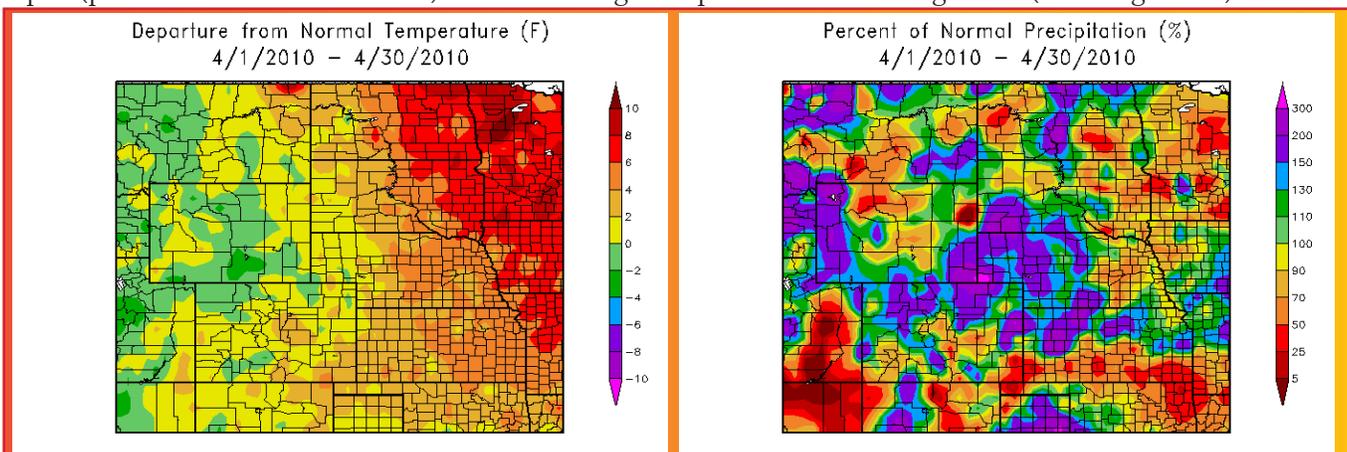
Central Nebraska - Photo by Ken Dewey  
<http://www.nebraskaweatherphotos.org>

# April 2010 Climate Summary

## Region Breakdown

April 2010 was warmer than normal for most locations across the High Plains Region. The highest above normal temperature departures occurred in the eastern Dakotas where temperature departures were 6-10 degrees F (3.3-5.6 degrees C) above normal. The above normal temperature departures tapered off in intensity toward the western part of the Region, ending in central Wyoming and northern Colorado, where temperature departures of 2-4 degrees F (1.1-2.2 degrees C) below normal occurred.

Many locations across eastern portions of North Dakota and South Dakota were ranked in the top 10 warmest Aprils on record and at least two locations set or tied for the warmest on record. Fargo, North Dakota recorded its warmest April on record (period of record 1881-2010) with an average temperature of 51.6 degrees F (10.9 degrees C) which was 8.1 degrees F (4.5 degrees C) above normal. This beat the old record of 51.5 degrees F (10.8 degrees C) which occurred in both 1915 and 1987. Britton, South Dakota tied its own 1987 record for the warmest April (period of record 1893-2010) with an average temperature of 53.5 degrees F (11.9 degrees C).

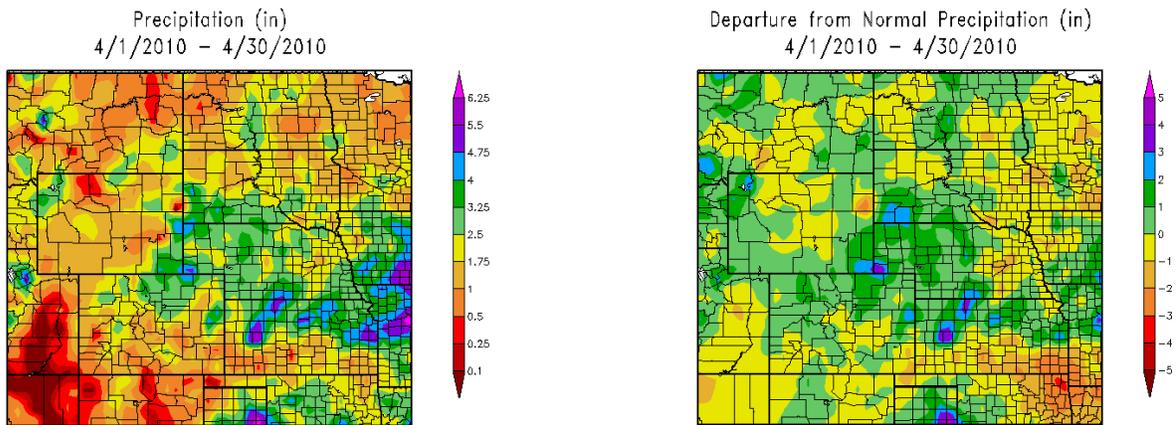


Departure from 1971-2000 Normal Average Temperature (left) and Percent of Normal Precipitation (right) for April 2010 in the High Plains Region. Maps produced by High Plains Regional Climate Center. Available at: <http://hprcc.unl.edu/maps/current>

# Precipitation Summary

Precipitation varied this month and areas of the Region which received at least 150 percent of normal precipitation included north and central North Dakota, southwestern South Dakota, western Nebraska, northern Kansas, western and southeastern Wyoming, and northern Colorado. While western Wyoming received above normal precipitation this month, it was not enough to make a dent in the ongoing drought conditions. Meanwhile, an ongoing lack of precipitation in northwestern North Dakota and south central Kansas led to the development of abnormally dry conditions.

April was an active month as weather ranging from snow to tornadoes affected parts of the Region. Early in the month, a series of snowstorms hit Wyoming pushing snow totals for the season even higher. For example, Riverton, Wyoming, with 61.9 inches (157.2 cm) of snow, now ranks as the second snowiest season on record (period of record 1907-2010). Later in the month, severe storms affected areas of the Region. In particular, April 22nd was one of the most active severe weather days of the month for the High Plains Region. Numerous tornadoes, large hail, and damaging thunderstorm winds were reported in eastern Colorado and western Kansas. These storms also produced heavy rain which caused record precipitation totals. One of these locations was Healy, Kansas. During the 24-hour period from April 22-23, Healy, Kansas received a record 4.26 inches (108.20 mm) of precipitation. According to a local sheriff, up to 4 feet of water covered the streets in the downtown area. This precipitation not only set the new record for the day, but also for the highest one day precipitation total for the month of April and the 4th highest one day precipitation total for the entire period of record (period of record 1901-2010). In addition, for the month of April, Healy, Kansas received 5.82 inches (147.83 mm) of precipitation, or 305 percent of normal. This beat the old record of 5.77 inches (146.56 mm) received in April 1984.



Above: Total precipitation (inches) (left) and Departure from Normal Precipitation (inches) (right) for April 2010 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>.

## April 2010 Records - Highlights

Monthly Records			
Temperature in degrees F, Precipitation in inches			
Warmest	New Record	Old Record	Period of Record
Fargo, ND	51.6	51.5/1987*	1881-2010
Britton, SD	53.5	tied/1987	1893-2010
Wettest	New Record	Old Record	Period of Record
Healy, KS	5.82	5.77/1984	1901-2010
Oral, SD	4.57	3.99/2000	1971-2010
Alta 1 NNW, WY	4.62	4.42/1920	1909-2010

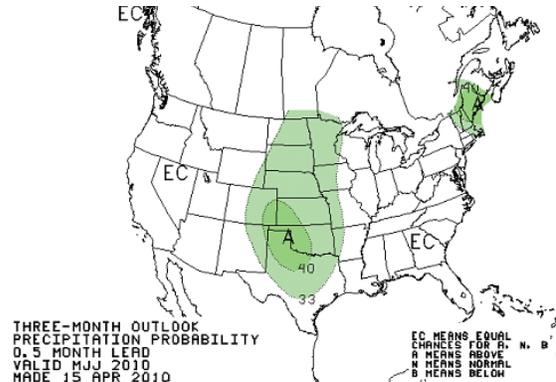
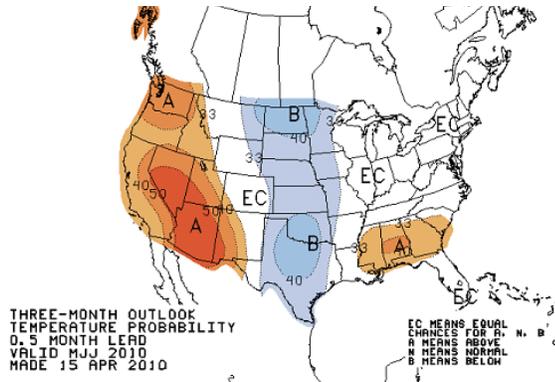
All Data are Preliminary and Subject to Change.  
 \* indicates multiple records, latest year is listed  
 Source: National Weather Service Cooperative Observation Network Data

The High Plains Regional Climate Center is one of the NOAA 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

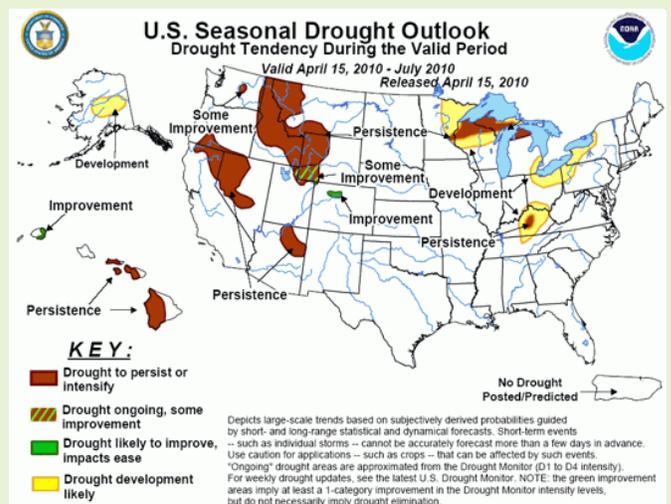
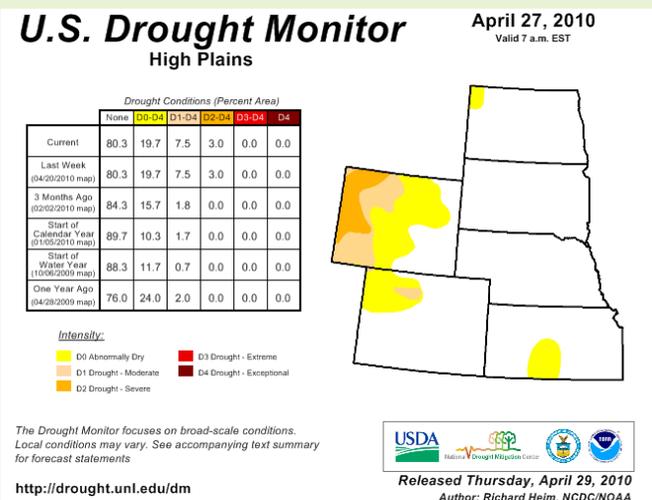
El Niño conditions were present this month and are expected to continue through Spring 2010. El Niño is expected to transition to El Niño Southern Oscillation (ENSO) neutral conditions by Summer 2010. The temperature outlook indicates a higher probability of below normal temperatures for the majority of the Region including the Dakotas, Nebraska, Kansas, northeastern Wyoming, and eastern Colorado. Only the southwestern corner of Colorado and the far southwestern corner of Wyoming have a higher probability for above normal temperatures. Equal chances of above, near, or below normal temperatures are predicted elsewhere. The precipitation outlook indicates a higher probability of above normal precipitation for the majority of the Dakotas, Nebraska, Kansas, southeastern Wyoming, and the eastern half of Colorado. Equal chances of above, near, or below normal precipitation are predicted elsewhere in the Region. More information about these forecasts can be found here: <http://www.cpc.ncep.noaa.gov/>.



Above: 3-Month Outlook Maps Courtesy 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

Minor changes to the drought monitor occurred this month. Abnormally dry conditions (D0) developed in central Kansas and also spread from Montana east into the northwest corner of North Dakota. Both areas have experienced below normal precipitation over the past few months. The drought conditions in Colorado and Wyoming have remained largely unchanged from last month. According to the U.S. Seasonal Drought Outlook released April 15th, the moderate drought conditions (D1) in northwestern Colorado and southwestern Wyoming are expected to improve through July 2010, however the moderate (D1) to severe drought conditions (D2) in the remaining areas of Wyoming are expected to persist.



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 NOAA 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://www.ndmc.unl.edu/dm/monitor.html>  
Portions of this Drought Watch are courtesy 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
Alamosa San Luis Airport	59.6	25.2	42.4	1.6	70	4/28+	10	4/07	0.62	0.08	115
Akron Washington County Airport	61.8	34.4	48.1	1.0	83	4/28	26	4/05+	1.79	0.21	113
Colorado Springs Municipal Airport	61.2	34.7	47.9	2.6	78	4/28	22	4/08	1.25	-0.37	77
Grand Junction Walker Field Airport	65.0	38.4	51.7	0.8	79	4/19	27	4/02	0.97	0.11	113
Pueblo Memorial Airport	67.9	34.1	51.0	1.1	85	4/28	18	4/08+	1.14	-0.11	91

Kansas	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Concordia Municipal Airport	68.8	44.9	56.9	4.1	81	4/29+	33	4/08+	3.85	1.40	157
Dodge City Regional Airport	69.9	42.8	56.4	2.5	88	4/29+	27	4/03	1.05	-1.20	47
Goodland Renner Field	64.5	36.3	50.4	1.6	86	4/28	24	4/02	2.16	0.65	143
Topeka Municipal Airport	72.6	47.7	60.1	5.6	85	4/06	35	4/08	3.12	-0.02	99
Wichita Mid-Continent Airport	72.6	49.2	60.9	5.6	85	4/05	31	4/08+	1.02	-1.55	40

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Chadron Municipal Airport	61.0	35.1	48.0	2.1	80	4/28	25	4/27+	3.66	1.77	194
Grand Island Airport	66.6	42.1	54.4	4.5	83	4/12	28	4/08	1.94	-0.67	74
Lincoln Municipal Airport	68.8	42.4	55.6	4.4	85	4/01	25	4/08	2.53	-0.37	87
Omaha Eppley Airfield	69.5	45.1	57.3	5.9	87	4/01	29	4/08	3.01	0.07	102
Norfolk Karl Stefan Airport	66.5	41.4	53.9	4.8	85	4/12	25	4/08	1.70	-0.89	66
North Platte Regional Airport	63.3	36.5	49.9	1.8	80	4/12	21	4/03	2.97	1.00	151
Valentine Miller Field	61.7	37.7	49.7	3.6	80	4/13+	24	4/17+	3.11	1.14	158

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismark Municipal Airport	62.0	33.6	47.8	4.5	79	4/13	22	4/11+	3.08	1.62	211
Fargo International Airport	64.6	38.6	51.6	8.1	77	4/23	24	4/08	1.49	0.12	109
Grand Forks International Airport	62.1	36.3	49.2	6.9	75	4/23	24	4/08	1.30	0.07	106
Theodore Roosevelt Airport	57.8	30.6	44.2	1.4	71	4/22	22	4/10+	1.20	-0.56	68
Williston International Airport	59.7	31.0	45.4	2.9	73	4/22	17	4/11	0.97	-0.08	92

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>.

South Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Aberdeen Regional Airport	63.7	38.2	51.0	5.6	81	4/13	24	4/08	3.15	1.32	172
Huron Regional Airport	64.5	40.6	52.6	6.5	81	4/13	26	4/08	2.40	0.11	105
Pierre Regional Airport	62.7	38.6	50.6	3.4	82	4/13	27	4/17+	2.54	0.52	126
Rapid City Regional Airport	58.4	32.7	45.6	0.9	79	4/28	22	4/27	3.03	1.17	163
Sioux Falls Joe Foss Field Airport	64.4	39.9	52.2	6.5	79	4/13	26	4/08	2.65	0.00	100

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	27.7	41.2	-1.5	71	4/27	17	4/27+	1.11	-0.41	73
Cheyenne Municipal Airport	52.9	30.5	41.7	0.1	71	4/28	21	4/03+	3.80	2.25	245
Lander Hunt Field Airport	53.7	31.4	42.5	-1.4	72	4/19	20	4/04	2.29	0.22	111
Laramie Regional Airport	50.0	24.9	37.3	0.1	65	4/12+	10	4/26	1.13	0.07	107
Rawlins Municipal Airport	51.8	26.5	39.1	-2.5	69	4/21+	18	4/27	1.31	0.25	124
Sheridan County Airport	56.1	29.9	43.0	-0.9	72	4/19	19	4/10	1.77	0.00	100

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>.

## State Spotlight - North Dakota

**F. Adnan Akyüz - State Climatologist, Barb Mullins**  
**North Dakota State Climate Office, North Dakota State University**



### Precipitation:

Monthly precipitation totals were 1.5 to 3.75 inches in the central and southeast corner of the state with less than an inch falling elsewhere. Percent of normal monthly precipitation was 150% to 300% of normal in the central part of the state. The southwest and southeast corners also had above normal precipitation. The western and eastern parts of the state had below normal precipitation (Figure 1). Most days in April were dry. The primary daily rainfall events happened from the 1st to the 3rd, 12th and 13th, and scattered showers across the state from the 22nd to the end of the month. The April 1st and 2nd severe storm event produced freezing rain, ice and heavy snow in the central part of the state. The storm caused thousands of residents to lose power. The President declared the storm a major disaster which released federal funds to be used by 12 counties and the Standing Rock Sioux Indian Reservation to repair the damage. The eastern part of the state continued with mild spring weather that produced only a trace or no snow throughout April.

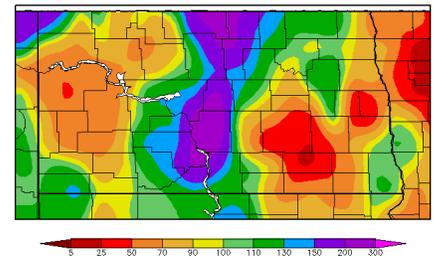


Figure 1. Precipitation Percent of Normal in April 2010 for North Dakota (HPRCC)

### Temperature:

April average monthly temperatures ranged from 41°F to 52°F with the higher temperatures in the southeast and the lower temperatures in the northwest. The average departure from normal temperatures were primarily above normal across the state with a range of -2°F to 10°F (Figure 2). The eastern half of the state had monthly departures of 4°F and greater. The western half of the state had near normal and slightly above normal monthly temperatures. The daily average air temperatures were near or above normal throughout most of the month. The last few days of the month had cooler than normal daily air temperatures. The mild April temperatures allowed producers to get in their fields two weeks earlier than the previous year. The USDA, National Agricultural Statistics Service, North Dakota Field Office reported the statewide average starting date for fieldwork was April 18.

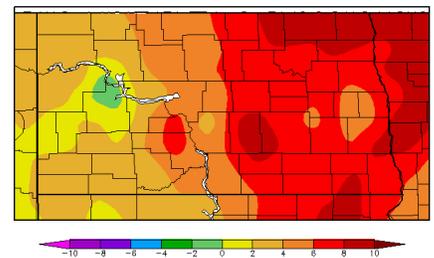


Figure 2. Temperature Departure from Normal in April 2010 for North Dakota (HPRCC)

For more information about the North Dakota State Climate Office: <http://www.ndsu.edu/ndsco>

For more information on the North Dakota Agricultural Network: <http://www.ndawn.ndsu.nodak.edu>

The North Dakota Agricultural Network is a part of the Automated Weather Data Network (AWDN).

# 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 operated under the National Oceanic and Atmospheric Administration (NOAA), 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>

NOAA 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

## Author Information

For questions, comments, or suggestions, please contact:

Natalie Umphlett - Regional Climatologist - High Plains Regional Climate Center

(402) 472-6764 - [numphlett2@unl.edu](mailto:numphlett2@unl.edu)

714 Hardin Hall

3310 Holdrege Street

Lincoln, NE 68583-0997

