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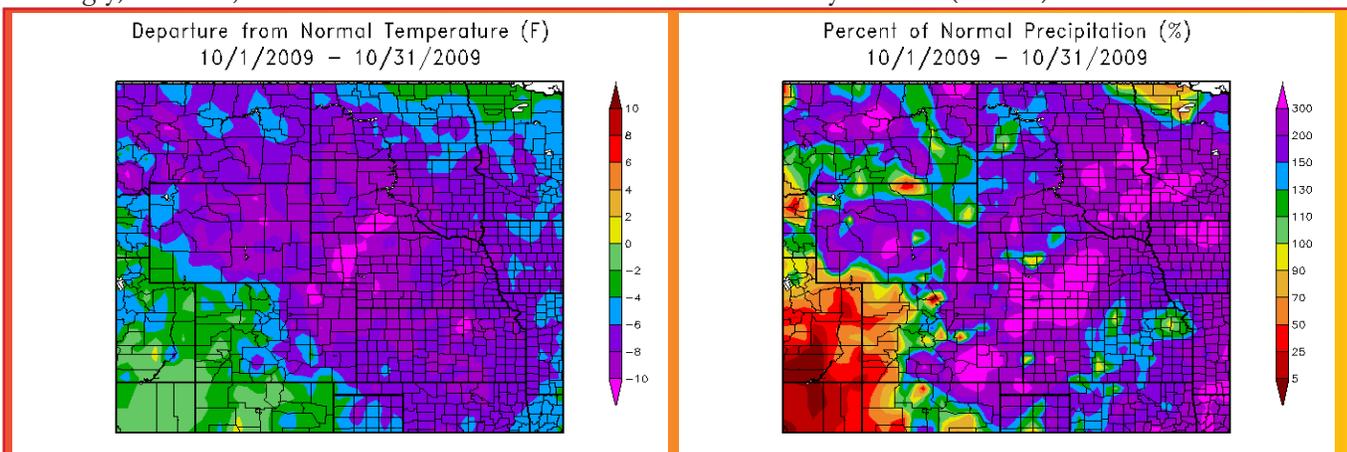
Unseasonably cold and an early snowfall - Photo by Ken Dewey
<http://www.nebraskaweatherphotos.org>

October 2009 Climate Summary

Region Breakdown

October 2009 was cold and wet for the High Plains Region. Temperatures were below normal for the entire Region as temperature departures of 6°F to 10°F (3.3°C to 5.5°C) below normal were common. The majority of the Region was wet as precipitation totals greater than 200% of normal were observed in every state. These wet and cool conditions stalled harvest all across the Region this month. One state hit particularly hard was Nebraska and, according to the USDA, by the end of the month corn harvest lagged by four weeks and soybean harvest lagged by two weeks.

Numerous locations across the Region recorded the coldest October on record and countless others had average temperatures which ranked in the top 10 coldest Octobers on record. An intense cold spell during the weekend of the 10th led to an interesting record being broken in Cheyenne, WY. The high temperature on October 10th was 17°F (-8.3°C) and this temperature was well below the previous record lowest high temperature of 34°F (1.1°C). Interestingly, however, it was also lower than the record low for the day of 19°F (-7.2°C)!



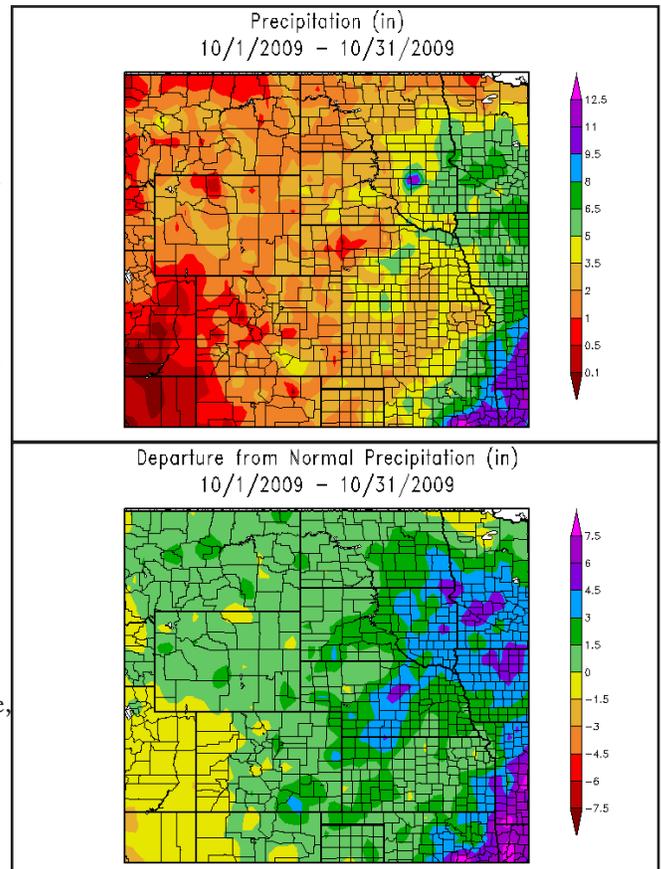
Departure from 1971-2000 Normal Average Temperature (left) and Percent of Normal Precipitation (right) for October 2009 in the High Plains Region. Maps produced by High Plains Regional Climate Center. Available at: <http://hprcc.unl.edu/maps/current>

Precipitation Summary

October 2009 was wet and snowy for the majority of the Region. The only exception was extreme southern Wyoming and the western half of Colorado, where drought continues. Each state in the Region had widespread heavy precipitation that resulted in large swaths where 200-300% of normal precipitation was received.

Three major winter storms impacted the Region this month. The snowfall was quite early in the season and a blanket of snow covered colorful autumn trees, green lawns, and blooming flowers. The first system brought record breaking snow to Nebraska and record cold to every state in the Region. The second system came through later in the month and brought snow to areas of Nebraska and heavy rains to Kansas and Nebraska. But, it was the third system at the end of the month that really pounded the Region by bringing over 3 feet of snow to the Front Range and foothills of Colorado, over a foot of snow to eastern Wyoming and western Nebraska, and blizzard conditions east of Denver. Numerous roads, highways, schools, and businesses were closed in all three states.

Although countless precipitation records were set this month (highlighted in the table below), this month's snowy spot was North Platte, NE. The total October snowfall for North Platte was 29.4 inches (74.68 cm) which crushed the old October snowfall record of 15.7 inches (39.88 cm) set in 1969. The snowfall received this month also set the new record snowiest month for North Platte, beating the previous record of 27.8 inches (70.61 cm) recorded in March 1912. In addition, this month's snowfall has already topped the average *seasonal* snowfall of 28.5 inches (72.39 cm)!



Above: Total precipitation (inches) (top) and Departure from Normal Precipitation (inches) (bottom) for October 2009 in the High Plains Region. These maps are produced by HPRCC and can be found on the Current Climate Summary Map page at: <http://hprcc.unl.edu/maps/current>.

October 2009 Precipitation Records - Highlights

Monthly Records			
Precipitation in inches			
Snowiest	New Record	Old Record/Year	Period of Record
Fort Collins CSU, CO	25.7	17.5/1997	1893-2009
Dalton, NE	23.0	17.0/1969	1914-2009
North Platte, NE	29.4	15.7/1969	1874-2009
Mt. Rushmore, SD	19.4	19.0/1996	1962-2009
Cheyenne, WY	28.0	23.1/1906	1883-2009
Medicine Bow, WY	29.5	11.3/1969	1948-2009
Wettest	New Record	Old Record/Year	Period of Record
Julesburg, CO	3.36	3.18/1997	1893-2009
Madrid, NE	4.63	4.59/2008	1893-2009
Medicine Creek Dam, NE	5.34	4.35/2008	1951-2009
De Smet, SD	5.58	5.07/1914	1893-2009

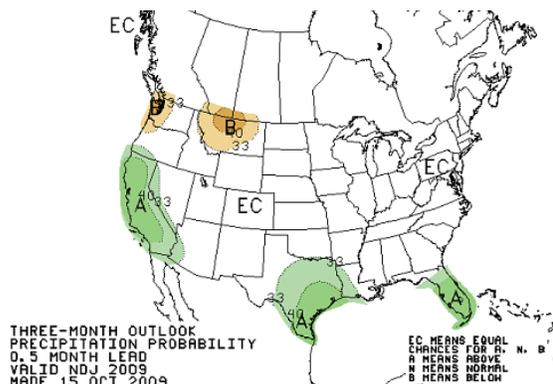
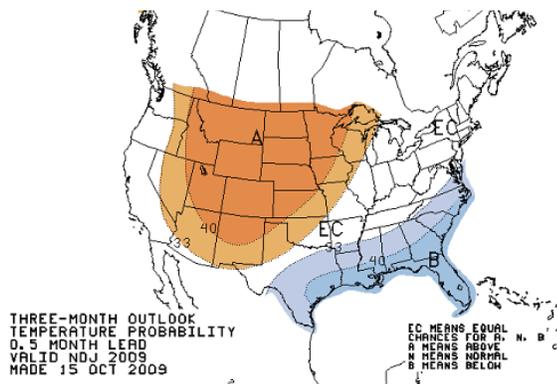
All Data are Preliminary and Subject to Change.
Source: National Weather Service Cooperative Observation Network Data

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

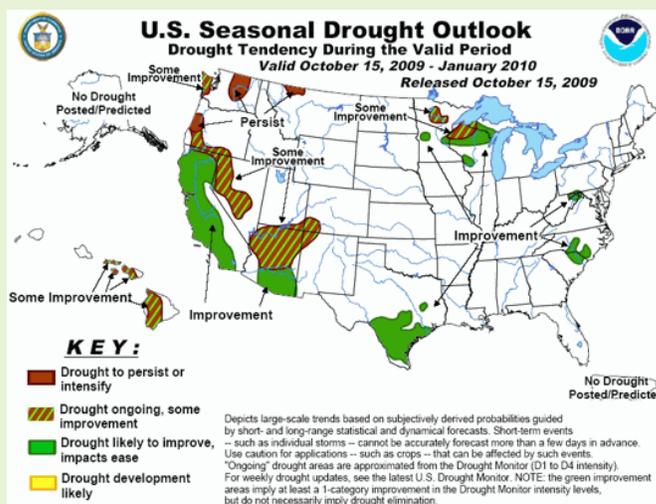
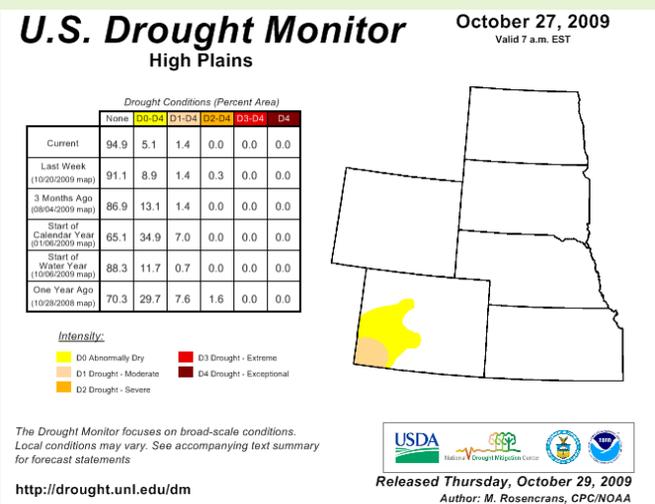
El Niño conditions were present this month and are expected to intensify and continue through winter 2009-10 based on current observations and forecasts. The temperature outlook indicates a higher probability of above normal temperatures for the whole Region. The precipitation outlook indicates that there are equal chances of above, near, or below normal precipitation for the entire Region. The seasonal outlooks combine the effects of long-term trends, soil moisture, and, when applicable the El Niño Southern Oscillation (ENSO) cycle. 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

Improvements were made to the U.S. Drought monitor this month as heavy rain and snow helped erase the abnormally dry conditions (D0) in North Dakota, South Dakota, and Nebraska. After receiving significant rainfall in southeastern Nebraska, the state was completely free of drought and abnormal dryness for the first time in over 10 years (since October 5, 1999). Meanwhile, Wyoming remained drought free for the fourth month in a row. Drought conditions remained in southwest Colorado where an abnormally dry monsoon season led to reduced streamflows, lowered reservoir levels, and decreased soil moisture. According to the U.S. Seasonal Drought Outlook released October 15th, the drought conditions in the southwest corner of Colorado are expected to improve through January 2010.



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	57.1	23.6	40.4	-2.5	72	10/18	4	10/30	1.33	0.66	199
Akron Washington County Airport	51.4	30.7	41.0	-10.0	82	10/18	13	10/30	1.58	0.68	176
Colorado Springs Municipal Airport	55.2	30.2	42.7	-6.2	82	10/18	15	10/30	0.36	-0.50	42
Grand Junction Walker Field Airport	62.3	36.5	49.4	-3.3	80	10/19	22	10/31	0.62	-0.38	62
Pueblo Memorial Airport	60.9	31.4	46.1	-6.2	88	10/18	23	10/30	1.92	1.28	300

Kansas	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Concordia Municipal Airport	57.7	38.9	48.3	-7.7	76	10/20	27	10/10	2.77	0.93	151
Dodge City Regional Airport	59.8	38.4	49.1	-8.0	83	10/20	26	10/10	3.85	2.40	266
Goodland Renner Field	54.7	32.6	43.7	-8.1	83	10/18	20	10/20	2.77	1.72	264
Topeka Municipal Airport	60.3	40.9	50.6	-6.0	77	10/20	29	10/27+	3.13	0.14	105
Wichita Mid-Continent Airport	60.3	41.5	50.9	-7.8	76	10/20	31	10/27	3.79	1.34	155

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Chadron Municipal Airport	51.1	29.0	40.0	-8.9	83	10/18	11	10/10	2.81	1.76	268
Grand Island Airport	54.2	35.0	44.6	-7.4	71	10/19+	24	10/10	3.39	1.88	225
Lincoln Municipal Airport	55.7	36.7	46.2	-7.3	73	10/07	26	10/26	4.23	2.29	218
Omaha Eppley Airfield	55.0	38.5	46.8	-6.4	72	10/07	27	10/26+	3.47	1.26	157
Norfolk Karl Stefan Airport	51.9	35.4	43.6	-7.4	71	10/07	25	10/10	3.74	2.02	217
North Platte Regional Airport	51.8	30.0	40.9	-8.8	81	10/18	18	10/11	4.29	3.05	346
Valentine Miller Field	49.8	31.3	40.5	-7.8	81	10/18	17	10/10	1.61	0.39	132

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismark Municipal Airport	46.4	32.5	39.5	-5.7	80	10/18	21	10/09	2.21	0.93	173
Fargo International Airport	47.3	33.4	40.3	-5.0	62	10/18	17	10/13	5.32	3.35	270
Grand Forks International Airport	46.8	33.0	39.9	-4.4	62	10/18	18	10/13	2.61	0.91	154
Theodore Roosevelt Airport	43.6	28.6	36.1	-9.2	73	10/18	16	10/11	1.33	-0.01	99
Williston International Airport	45.4	30.5	38.0	-5.7	72	10/18	12	10/12	1.17	0.30	134

All Data are Preliminary and Subject to Change.

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 2009 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	47.5	32.9	40.2	-6.6	67	10/18	22	10/13+	4.33	2.70	266
Huron Regional Airport	48.6	34.0	41.3	-6.6	68	10/18	19	10/11	3.90	2.31	245
Pierre Regional Airport	47.9	32.8	40.4	-9.3	71	10/18	16	10/11	4.18	2.54	255
Rapid City Regional Airport	48.4	29.0	38.7	-9.5	81	10/18	11	10/10	1.97	0.60	144
Sioux Falls Joe Foss Field Airport	49.7	35.2	42.4	-5.6	65	10/07	21	10/11	5.52	3.59	286

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	48.2	25.8	37.0	-8.7	75	10/18	11	10/10	1.27	0.13	111
Cheyenne Municipal Airport	46.9	27.1	37.0	-8.4	73	10/18	10	10/10	2.32	1.57	309
Lander Hunt Field Airport	47.6	26.8	37.2	-9.2	74	10/18	10	10/10	2.41	1.04	176
Laramie Regional Airport	47.1	23.1	35.1	-6.8	68	10/18	0	10/30	0.95	0.15	119
Rawlins Municipal Airport	47.9	25.1	36.5	-9.0	70	10/18	6	10/29	1.56	0.70	181
Sheridan County Airport	48.4	27.1	37.7	-7.4	75	10/17	5	10/09	0.69	-0.72	49

All Data are Preliminary and Subject to Change.

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 2009 Temperature Records - Highlights

Monthly Records			
Temperature in degrees F			
Coldest	New Record	Old Record/Year	Period of Record
Holyoke, CO	41.0	43.0/1969	1897-2009
Leroy 9 WSW, CO	40.9	41.4/1925	1893-2009
Hoxie, KS	44.7	46.9/1898	1897-2009
Mc Donald, KS	43.3	44.9/1969	1954-2009
Arthur, NE	39.1	42.0/1969	1929-2009
Chadron, NE	40.0	40.8/2002	1915-2009
Hastings 4 N, NE	44.0	44.7/1917	1907-2009
Hays Center, NE	41.6	42.4/1925	1905-2009
Hemingford, NE	38.7	40.9/1969	1964-2009
Hershey 5 SSE, NE	41.1	42.8/1969	1965-2009
Lodgepole, NE	39.6	40.5/1925	1894-2009
Medicine Creek Dam, NE	42.5	45.9/1969	1951-2009
Merriman, NE	39.6	42.8/2002	1906-2009
Scottsbluff, NE	40.5	40.8/1925	1893-2009
Harrold, SD	38.8	42.1/1969	1963-2009
Kennebec, SD	41.6	42.5/1917, 2002	1893-2009
Mission, SD	38.5	40.5/2002	1966-2009
Rapid City, SD	38.7	39.0/2002	1942-2009
Cheyenne, WY	37.0	37.1/1969	1872-2009
Lander Hunt Field AP, WY	37.2	37.8/1969	1946-2009
Midwest, WY	37.2	40.8/2002	1939-2009

All Data are Preliminary and Subject to Change.

Source: National Weather Service Cooperative Observation Network Data

State Spotlight - Nebraska



Al Dutcher - State Climatologist
Nebraska State Climate Office, University of Nebraska - Lincoln

October 2009 was certainly one for the weather record books. Sustained cold weather, heavy snowfall, high winds, and extended periods of cloud cover were the rule, instead of the exception. Although data are still being assessed, preliminary indications point to this October as being one of the top 3 coldest since 1895. Three major snow storms hit western Nebraska, with several locations approaching their normal seasonal snowfall totals before months end. Cloudy and wet conditions virtually brought the 2009 grain harvest to a standstill for much of the month.

Temperatures

The upper air pattern through much of the month favored a trough over the upper Midwest that allowed several closed upper air lows to form across the central Plains region. When these upper air lows broke away from the mean flow, they remained over the region for several days before slowly lifting eastward out of the region. The result was extended periods of cloudy skies and inclement weather.

Numerous low maximum temperature records were set under cloudy conditions at all of the first order NWS locations. The extended cloudy conditions definitely intensified the strength of the cold air and it is unlikely that this October would have been as cold if normal cloud cover conditions would have been observed during the month.

Average temperatures for the month of October ranged from 6 to 10 F below normal, with the greatest temperature departures located across the northern 1/4 of the state. Analysis of the first order National Weather Service locations revealed that every site had its second or third coldest October on recorded. Only 1917 and/or 1925 eclipsed October 2009 as the coldest on record. Based upon this analysis, it is likely that this October will rank 2nd or 3rd coldest on record.

Even with the cold, there were several days when the temperature did push above normal. The warmest conditions during the month fell on either the 18th or 19th, when high temperatures moved into the 70's east to mid 80's west. Conversely, the low-est temperatures recorded during the month generally fell the mornings of the 9th and 10th.

The state high of 87 F recorded at Bridgeport 18 WSW on the 1st was actually the high recorded on September 30, since this location is a morning observation site. The true high temperature for October was 85 F recorded at Big Springs and Lewellan on the 18th. Temperatures plunged into the tens and single digits on the 10th, with a state low of 5 F recorded at the High Plains Regional Climate Center's Alliance West station on the 10th.

Precipitation

Preliminary data indicate that every recording location within the state experienced above normal moisture for the month. Although the moisture, in combination with cloudy skies, led to significant harvest delays, the moisture received across eastern Nebraska helped to offset the below normal moisture observed during September. By the end of October, no portion of Nebraska was designated in any of the U.S. Drought Monitor classifications (D0 - D5). This is the first time this has happened since the fall of 1999.

Total October precipitation ranged from 150 to 350 percent of normal, with the central Panhandle and northeast Nebraska experiencing the greatest departures from normal. The High Plains Regional Climate Center's Concord station recorded the state high of 7.70 inches of moisture during October. The greatest 24-hour precipitation total was 2.38 inches on the 22nd at Elwood 8 S. Just over half of the recording locations available for this report received at least four inches of moisture during the month.

Much of the moisture that fell across western Nebraska was in the form of snow. Three significant snow events hit the state: October 10-12, October 22-23, and October 29-30. The first system laid a path of accumulating snowfall from I-80 northward from Scottsbluff to Omaha. Within this area, up to 18 inches of snow was reported north of North Platte. Most accumulations were in the 2-6 inch range.

State Spotlight - Nebraska

Al Dutcher - State Climatologist
Nebraska State Climate Office, University of Nebraska - Lincoln



Precipitation - continued

The second major storm dropped accumulating snowfall north and west of a line from Imperial to West Point. Totals approached a foot across portions of east central and northeast Nebraska. The third major snow event fell just prior to Halloween west of Kearney. Totals approached 18 inches across the northwest Panhandle, with 6-12 inches common across the Panhandle, southwest, and west central sections of the state.

According to preliminary data, the greatest monthly snowfall accumulation was 31 inches at the Scottsbluff Airport, while 29.4 inches was recorded at the North Platte Airport. It is likely that when final October data are received, several locations will likely beat these preliminary totals. Many areas within the Panhandle, West Central, and Southwest climate district have already received 50 to 80% of their normal seasonal snowfall during this October. The greatest 24-hour snowfall total reported so far from these snow events was 20 inches at Plainview Ranch (Panhandle) on the 29th.

State Spotlight - North Dakota

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



Precipitation:

October monthly precipitation was above normal across the state with no reported drought conditions. The southeast had the highest monthly total with 200% to 300% above normal. The northern and western parts of the state had 100% to 200% of normal precipitation (Figure 1. North Dakota State Climate Office). Rain fell frequently during October with the highest amounts falling on the 1st. The weekly wet conditions hampered harvest throughout the month. The quality of crops suffered under the continuing wet conditions. The second week of October had rain turn to snow across most areas of the state with the highest snow accumulations in the east and southeast. The North Dakota Agricultural Weather Network (NDAWN) total October rainfall ranged from 5.91 inches at Wahpeton to 0.67 inches at Roseau, MN.

Temperature:

The monthly departure from normal air temperatures were below normal across the state with a range of 3°F below normal in the northeast and gradually falling to 9°F below normal in the southwest (Figure 2. North Dakota State Climate Office). Monthly average temperatures ranged from 41°F to 35°F. The first half of October was cold with far below normal daily average temperatures. A killing frost occurred in the second week of October. Record low maximum temperatures were set at Bismarck on the 9th with 32°F and at Fargo on the 10th with 35°F. The second half of October continued to be cool with average temperatures at or below normal.

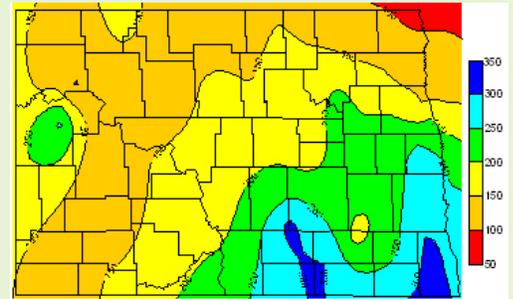


Figure 1. Precipitation Percent of Normal in October 2009 for North Dakota (North Dakota Climate Center)

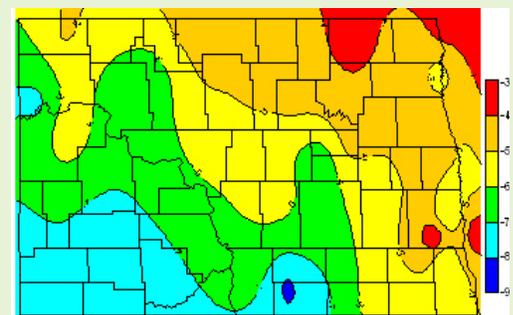


Figure 2. Temperature Departure from Normal in October 2009 for North Dakota (North Dakota Climate Center)

State Spotlight - South Dakota

Dennis Todey - State Climatologist
Chirag Shukla
South Dakota State Climate Office, South Dakota State University



Early October brought an abrupt end to the growing season as very cold temperatures overspread the state. Temperatures during the first two weeks of the month were by far the coldest ever observed during that time period in the history of the state. In addition to the colder temperatures most of the state saw very wet conditions which severely limited harvest activities in the state and are creating further mold problems in corn during harvest.

Temperatures

Temperatures for October were much cooler than average. The most remarkable event of the month was the extremely cold conditions during the first two weeks of the month. Many stations had their coldest first two weeks of October by several degrees.

Statewide temperatures for the whole month averaged from the upper 30s F from northwest to the mid 40s in the southeast. These were generally 6-10° F below average. A number of temperature records are noted below. Most of these occurred from the 10th to 13th of the month.

Statewide the overall temperatures for most stations were in the top 5 coldest Octobers on record. Redfield, Murdo, Stephen 2NW, Academy 2NE, Cedar Butte 1NE, Ft. Meade, Gregory and Martin recorded the coldest Octobers for their station. A few of these locations have shorter periods of record, missing some colder Octobers in the late 1800s and early 1900s. As final data are calculated, the state will certainly rank somewhere in the top 5 coldest statewide. Some other comparable Octobers for temperature were in 1917, 1919, 1925, and 2002.

Precipitation and Drought

Statewide precipitation for the month ranged from 2-3" in the western part of the state to 5-7" along I-29 in the eastern part of the state. All stations received above average totals ranging from around 150% of average in some western areas to more than 300% of average in the south central and eastern quarter of the state. For most locations this put stations in the top 10 historically. DeSmet had the wettest October on record at 5.58". Nine other stations recorded their second wettest October. The early snowfalls even brought several stations in the top 10 snowiest Octobers. Martin (10") and Camp Crook (17") were the 3rd snowiest.

The additional precipitation removed any D0 condition from the US Drought Monitor. Many fields were too wet for harvesting as will be discussed in the agricultural section.

The Army Corps of Engineers issued press releases that the Missouri River reservoir system was essentially back to near average conditions for the first time since 2000-01.

Severe Weather

Early winter storms brought heavy snowfalls to locations in the state between the 7th and 12th and again on the 28th-30th. Schools were delayed or closed in the western part of the state. Heavy snow even closed the Mt. Rushmore Visitor Center one afternoon because of poor conditions.

State Spotlight - South Dakota

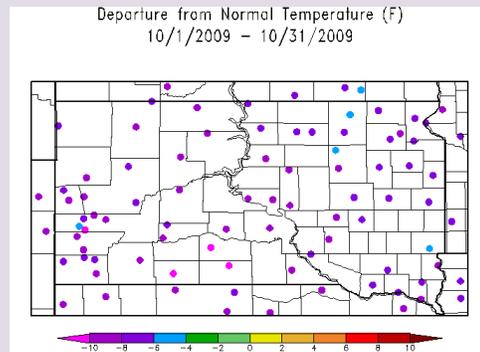
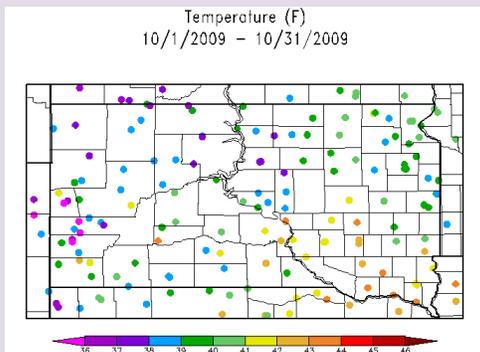
Dennis Todey - State Climatologist
Chirag Shukla
 South Dakota State Climate Office, South Dakota State University



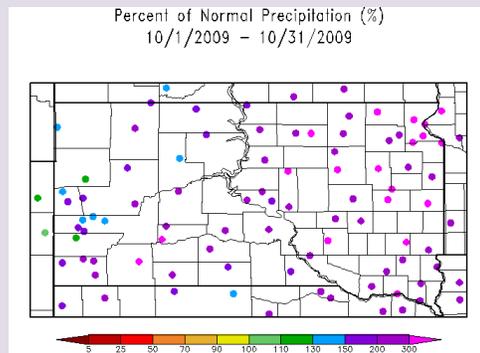
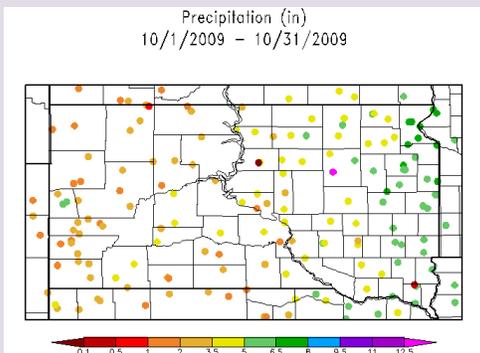
Agricultural Impacts

Crops experienced many impacts caused by cool, wet conditions or both. The heavy precipitation later in the month essentially brought harvest to a standstill because of wet soil conditions with large percentages of crops in the field. The cool summer conditions delayed development of crops. Thus, producers left them in the field to mature and dry down as much as possible. But after the first freeze conditions continued cold and became wetter soon after the freeze limiting harvesting. Harvest therefore has been much later than average. As of November 1 corn harvest was at 12% compared to the 5 year average of 55%. Soybean harvest was at 50% compared to the 5 year average of 95% according South Dakota Agricultural Statistics Service.

The cool and wet conditions also introduced mold conditions in corn in many locations. The overall impact of the delayed harvest and moldy corn issue is still being addressed as the harvest continues. The first freeze held off until just after average freeze date to as much as two weeks later than average. The late freeze was a positive in allowing corn particularly to get closer to maturity overall. After the freeze 84% of the corn was rated as mature, much higher than some other states in the Corn Belt. The harvested corn and beans were coming in at very high moisture contents leading to issues with drying and storage.



Above: Average Temperature (left) and Departure from 1971-2000 Normal Temperature (right) for October 2009 for South Dakota (HPRCC).



Above: Total Precipitation (left) and Percent of 1971-2000 Normal Precipitation (right) for October 2009 for South Dakota (HPRCC).

For more information about the South Dakota State Climate Office: <http://climate.sdstate.edu>

The SDSU's AWDN is a part of the High Plains Automated Weather Data Network (AWDN). Data are available through SDSU or the High Plains Regional Climate Center.

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

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