

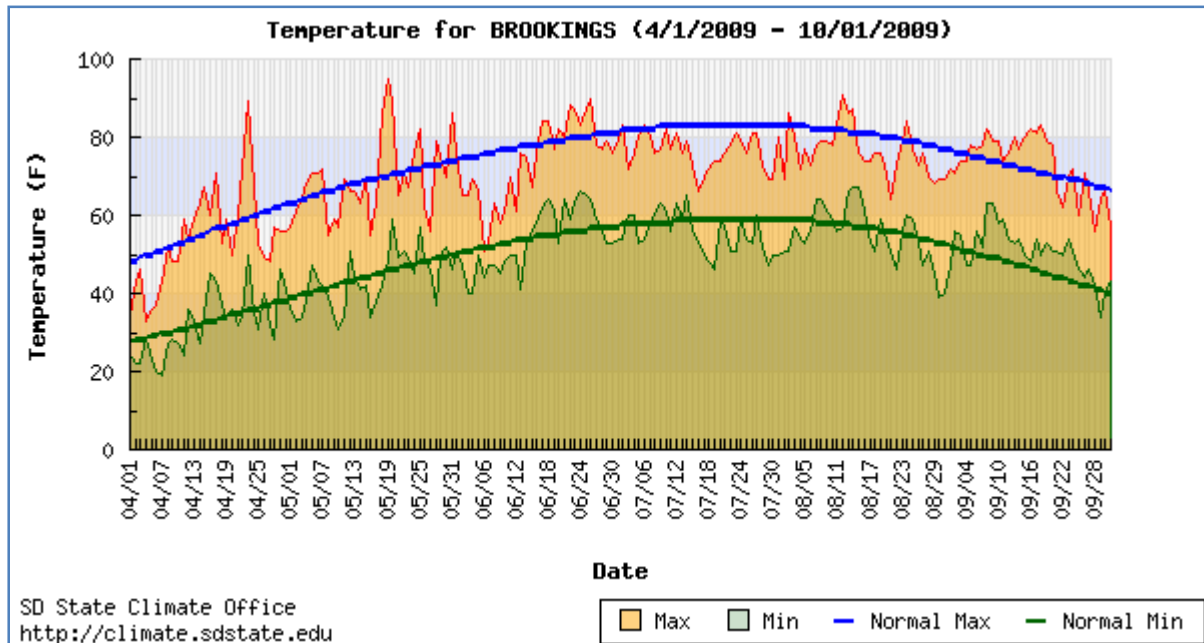
**South Dakota Climate Summary  
September 2009  
Dennis Todey and Chirag Shukla**

September shifted in contrast to the rest of the summer and became warmer than average over nearly the whole state. The warm temperatures particularly in the middle of the month were very welcome to row crop producers needed additional warm air and a lack of freeze for crops to reach maturity. Most of the state received these conditions and escaped freeze for the most part. Only a few locations went below freezing during the month. Most of these were outside the main row crop area. Precipitation was lacking over most of the state. Only the northeast corner and a small area around rapid City were above average precipitation. Much of the southern part of the state was quite dry during the month.

**Temperatures**

September averaged warmer than average for nearly the whole state. Only a few stations along the Nebraska border fell below average for the month. Average temperatures were in the low to mid 60s F except for the Black Hills which averaged around 60 F. The departures from average were most impressive across the northern third of the state where temperatures were 4 – 8 F above average.

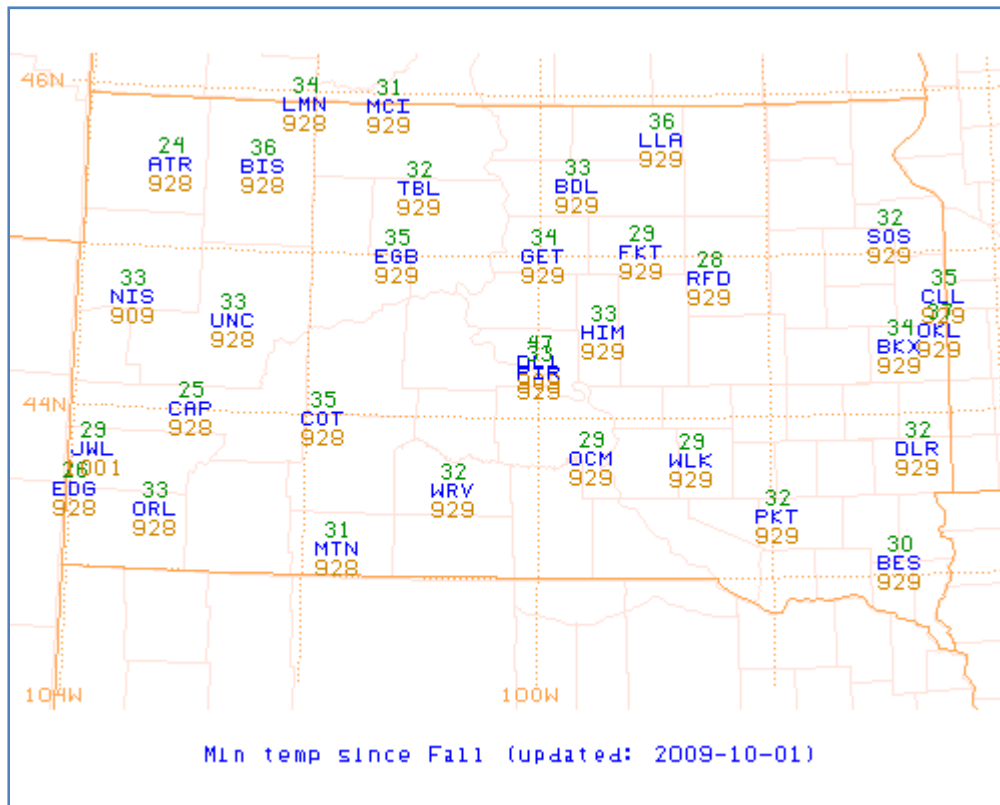
What these temperatures meant are illustrated in the figure below. While temperatures were cooler throughout the summer, the warmer temperatures in September extended the growing season as temperatures maintained a fairly steady level until later in the month. See the following example from Brookings.

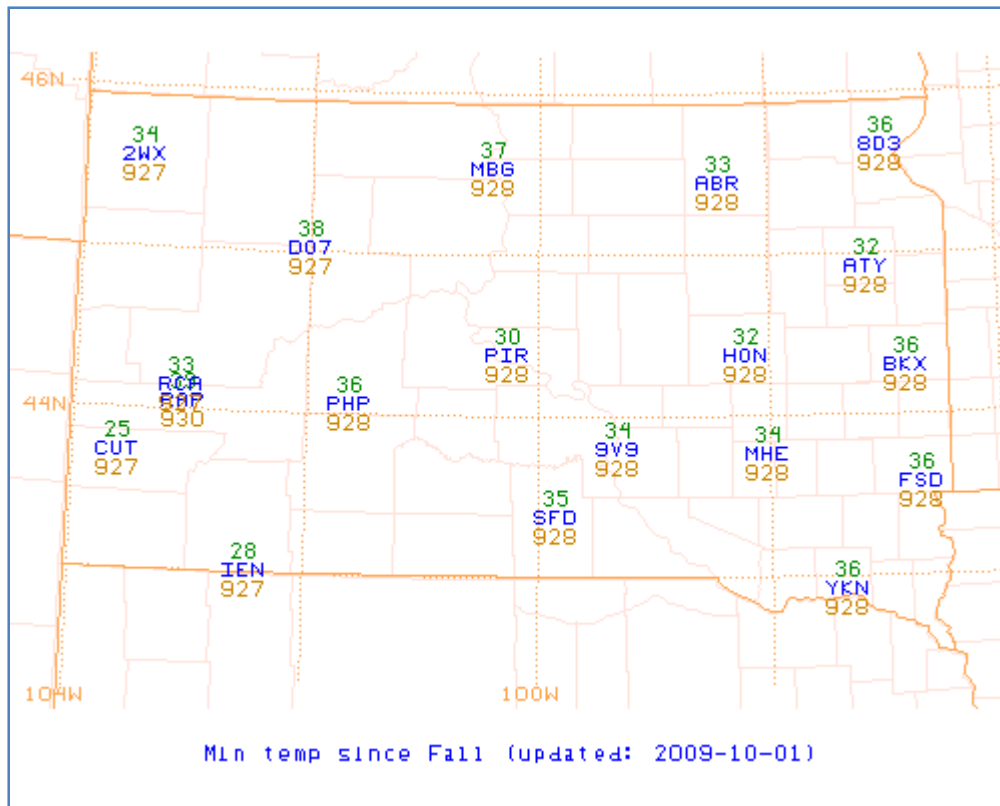


## Agricultural Impacts

Corn and many crops entered the month well behind development, in many cases as much as three weeks behind. But the warmer temperatures for the month and the lack of freeze have pushed along development and allowed for some harvesting to begin by the end of the month according to the South Dakota Agricultural Statistics Service. Many crops still need more time to mature and dry down in the field. But the overall concern is much lower at this point. Corn as of the last NASS report was 34% mature across the state compared to the 5 year average of 59%. Soybeans were 26% mature compared to the 5 year average of 49%. Sorghum and sunflowers reported similar delays in development.

Because of the delayed development, even a near average freeze would have caused problems. Fortunately, freezing conditions have only reached the western and central parts of the state. And the hard freeze (sub-28 F) conditions have been confined generally outside row crop areas in Rapid Valley, the far northwest corner of the state and in the Black Hills. The lack of a frost puts most of the state later than the 30 year average for frost. The state is later than average for a hard freeze in many locations, also. A cold pool of air moved across the state on the 27<sup>th</sup> and 28<sup>th</sup> bringing the only sub-freezing temperatures of the month.





### Precipitation and Drought

Most locations west of the Missouri reported less than a inch of precipitation for the month. Eastern locations were in the 1-3" range with areas around Aberdeen exceeded 4" for the month. Areas north of a Eureka-Huron-DeSmet-Milbank line were above average for the month. Stations around Rapid City were also well above average. The rest of the state was drier than average. Much of the southern half of the state was below 50% of average for the month.

Combined with the cool conditions, the again were fairly limited impacts of the dryness. The US Drought Monitor map included only small areas of east central and northwest South Dakota in D0 (Abnormally Dry) areas. Even the driest areas reported few if any impacts. Another reason for the lack of impacts was the dry areas occur at locations that were wet in the last couple months.

The dry conditions in the south and west part of the state did allow for good progress on winter wheat planting. As of the last report, 66% had been planted compared to the 5 year average of 64%.

### Severe Weather

Some severe weather did occur in a few locations during the first 10 days of the month. Large hail was the primary culprit with 19 scattered reports. A single tornado event was reported in Brule County on the 2<sup>nd</sup>, near Kimball. Heavy rains were reported in Kingsbury County on the 2<sup>nd</sup> and Edmunds and Faulk Counties on the 8<sup>th</sup>.

## Records

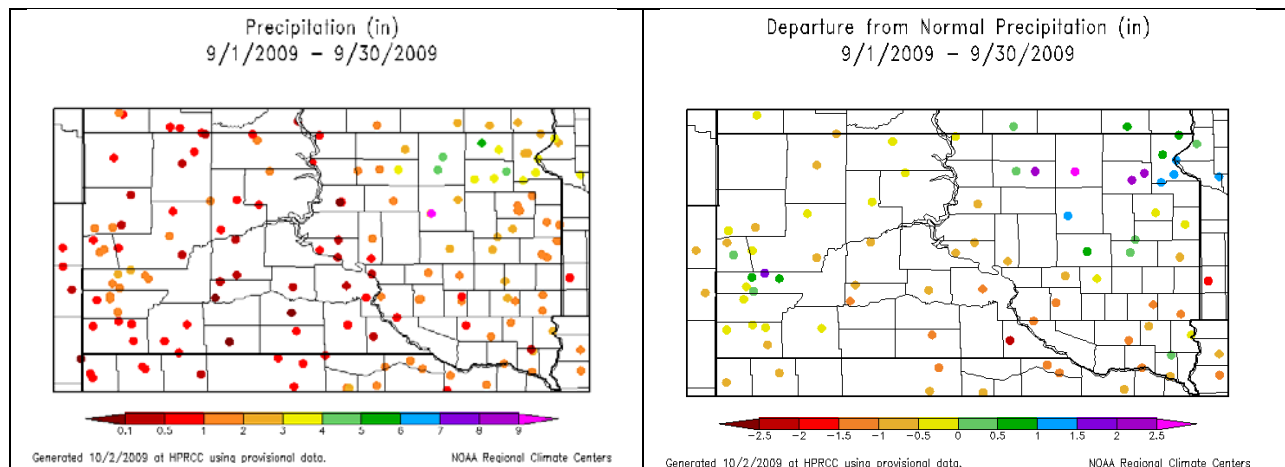
Despite the very warmer temperatures, only seven stations were in the top 15 warmest Septembers based on preliminary data (Bison, Webster, Roscoe, Timber Lake, Sisseton, Milesville, 5 NE). One other station, Spearfish, reported the warmest September on record based on a shorter period of record (50 years). For precipitation, five stations in the northeast were in the top 5 wettest, Aberdeen, Webster, Wilmot, Ipswich and Redfield. Aberdeen had the highest total at 4.41" coming in 6<sup>th</sup> all time. Two Rapid City stations and Pactola Dam were in the top 15 wettest based on less than 60 years of data for them.

Murdo had its 15<sup>th</sup> driest September at 0.25".

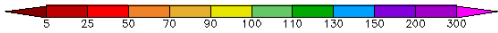
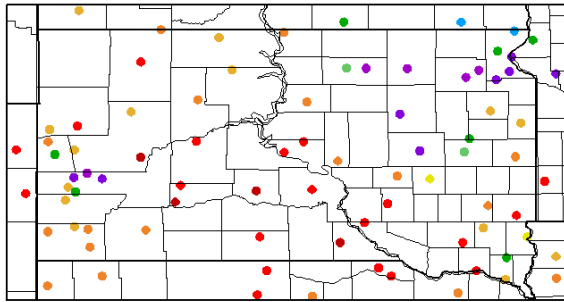
## Daily records

Location	Event	Record	Previous record
Rapid City	Daily precip	1.40" on 13th	0.62" in 1985
East Rapid City	Daily precip	1.20" on 13th	1.00" in 1903
Pierre	Lo temp	29F on 29th	1984 tied with

## August Climate Images

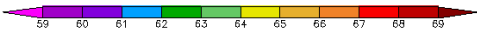
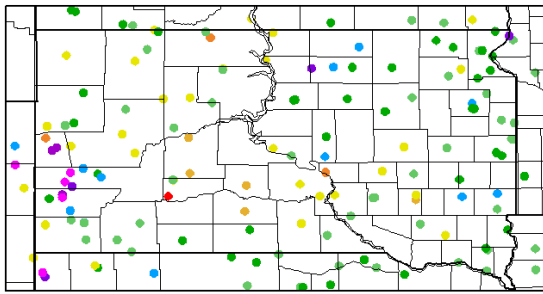


Percent of Normal Precipitation (%)  
9/1/2009 - 9/30/2009



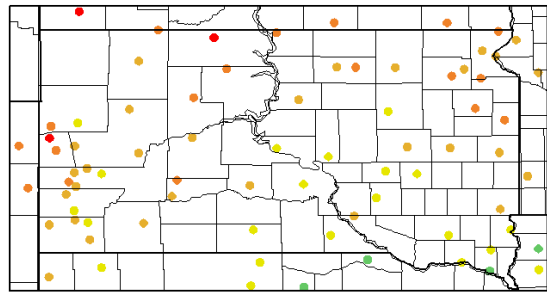
Generated 10/2/2009 at HPRCC using provisional data. NOAA Regional Climate Centers

Temperature (F)  
9/1/2009 - 9/30/2009



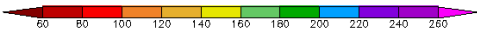
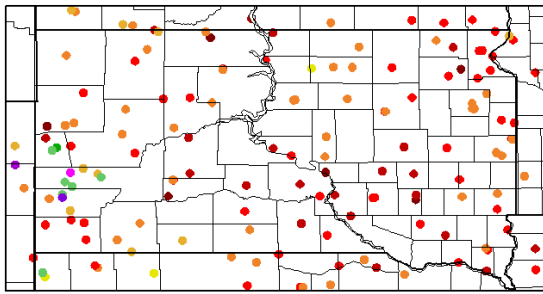
Generated 10/2/2009 at HPRCC using provisional data. NOAA Regional Climate Centers

Departure from Normal Temperature (F)  
9/1/2009 - 9/30/2009



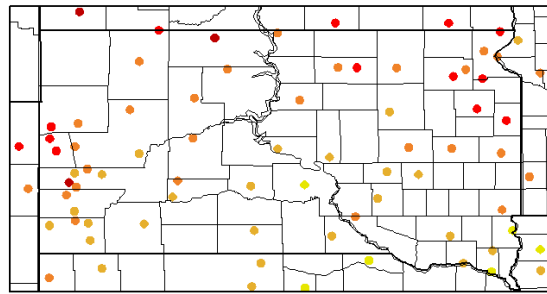
Generated 10/2/2009 at HPRCC using provisional data. NOAA Regional Climate Centers

Heating Degree Days (base 65)  
9/1/2009 - 9/30/2009

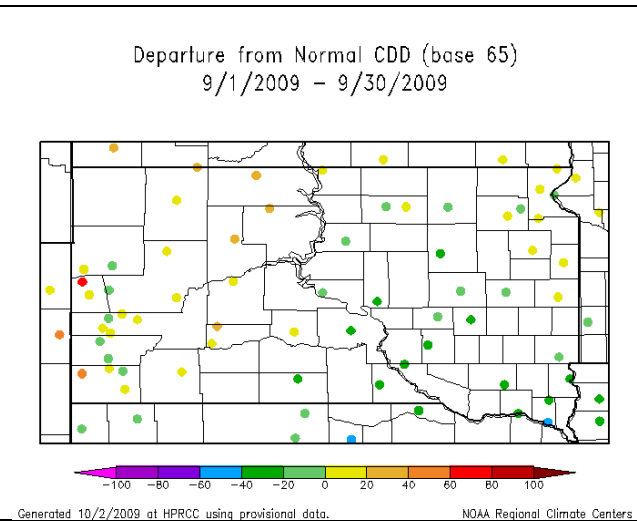
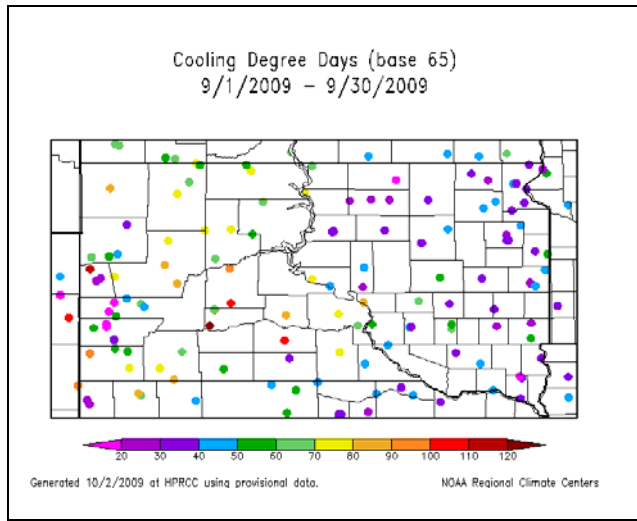


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Departure from Normal HDD (base 65)  
9/1/2009 - 9/30/2009



Generated 10/2/2009 at HPRCC using provisional data. NOAA Regional Climate Centers



# U.S. Drought Monitor

## South Dakota

**September 29, 2009**  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	93.0	7.0	0.0	0.0	0.0	0.0
Last Week (09/22/2009 map)	93.1	6.9	0.0	0.0	0.0	0.0
3 Months Ago (07/07/2009 map)	92.3	7.7	0.0	0.0	0.0	0.0
Start of Calendar Year (01/06/2009 map)	99.5	0.5	0.0	0.0	0.0	0.0
Start of Water Year (10/07/2008 map)	73.9	26.1	0.8	0.0	0.0	0.0
One Year Ago (09/30/2008 map)	73.9	26.1	7.0	0.0	0.0	0.0

**Intensity:**

- D0 Abnormally Dry
- D3 Drought - Extreme
- D1 Drought - Moderate
- D4 Drought - Exceptional
- D2 Drought - Severe

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements*

<http://drought.unl.edu/dm>

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Author: D. Miskus, JAWF/CPC/NOAA

Data Courtesy:

National Weather Service

High Plains Regional Climate Center  
US Drought Monitor  
South Dakota Agricultural Statistics