

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

HPRCC Personnel Publications

High Plains Regional Climate Center

6-2015

Umphlett QCI June 2015

Natalie A. Umphlett

Follow this and additional works at: <https://digitalcommons.unl.edu/hprccpubs>



Part of the [Atmospheric Sciences Commons](#), [Climate Commons](#), [Environmental Indicators and Impact Assessment Commons](#), [Environmental Monitoring Commons](#), [Fresh Water Studies Commons](#), [Hydrology Commons](#), [Meteorology Commons](#), [Natural Resources Management and Policy Commons](#), [Sustainability Commons](#), and the [Water Resource Management Commons](#)

This Article is brought to you for free and open access by the High Plains Regional Climate Center at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in HPRCC Personnel Publications by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

National - Significant Events for March - May 2015

Highlights for the Basin

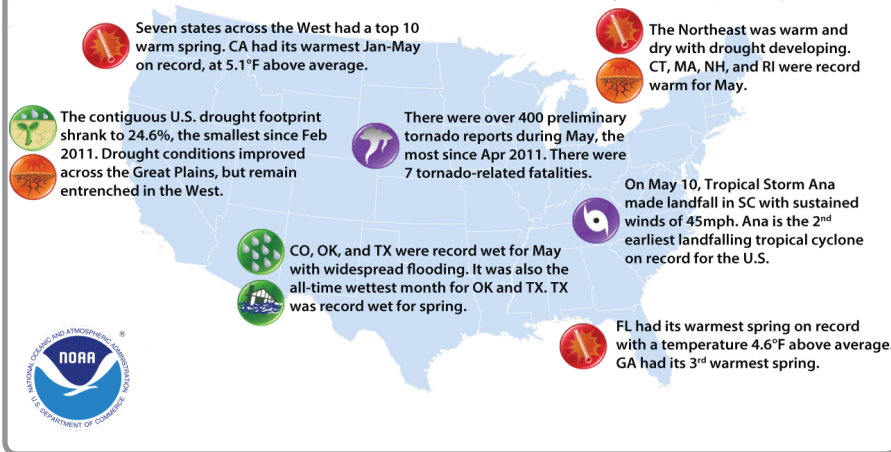
March was warm and dry across the Basin with several states ranking in the top ten warmest and driest. For instance, South Dakota was 2nd driest and 7th warmest, while Nebraska was 2nd driest and 8th warmest. May, on the other hand, was extremely wet with many states ranking in the top 10 wettest Mays, such as Colorado (wettest), Kansas (2nd), Wyoming and South Dakota (5th), Nebraska (8th), and North Dakota (10th).

The extreme shift from dry to wet conditions this spring was illustrated well by South Dakota which had its driest start to the year (Jan-Apr), but then went on to have its 5th wettest May on record.

Many interesting temperature records were set during March. Locations in central Nebraska and western South Dakota set records for highest March temperature. Additionally, some stations from Colorado, Wyoming, and the Dakotas recorded their earliest 80°F day, while others in Nebraska had their earliest 90°F day.

Numerous locations had their wettest May on record including Colorado Springs, CO, Lincoln, NE, and Fargo, ND. Rapid City, SD had its snowiest.

U.S. Selected Significant Climate Anomalies and Events May and Spring 2015



The average U.S. temperature during May was 60.8°F, 0.6°F above average. The spring U.S. temperature was 53.2°F, 2.2°F above average. May U.S. precipitation was 4.63 inches, 1.45 inches above average and the wettest month of any month on record. The spring precipitation total was 9.33 inches, 1.39 inches above average.

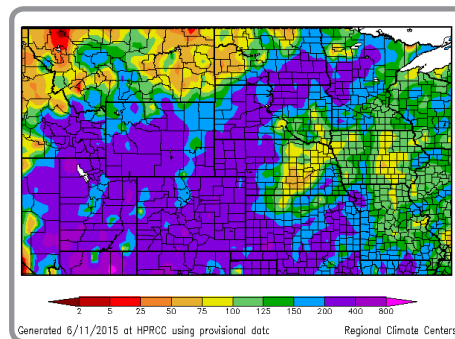
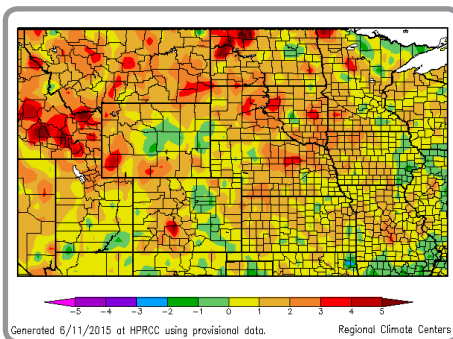
Please Note: Material provided in this map was compiled from NOAA's State of the Climate Reports. For more information please visit: <http://www.ncdc.noaa.gov/sotc>

Regional - Climate Overview for March - May 2015

Temperature and Precipitation Anomalies

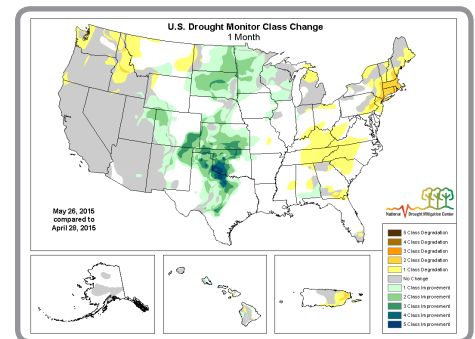
Departure from Normal Temperature (°F)
March 1 - May 31, 2015

Percent of Normal Precipitation (%)
May 2015



Drought Conditions

U.S. Drought Monitor Class Change
1 Month



The spring started off quite warm, with a large portion of the region having monthly temperature departures in excess of 6°F above normal in March. The warm weather continued during April, although temperature departures were not as extreme. May, on the other hand, was a complete reversal. With ridging in the eastern U.S., the Missouri River Basin states were cooler during the month of May with below normal temperatures across the Basin. The result was a spring which was, overall, above normal across the region.

There was a dramatic shift from dry to wet conditions this spring for much of the Missouri River Basin area. Early in the season, drought conditions were developing and worsening, however, a number of low pressure systems brought several heavy rain events to the region in May. This resulted in widespread precipitation totals that ranged from 200-400 percent of normal. The heavy precipitation broke numerous records, improved drought conditions, and caused flooding in both urban and rural areas.

Drought conditions improved drastically across the entire plains region during the month of May. Areas of Texas, Oklahoma, Kansas, and Colorado, which had been experiencing drought for several years, are now largely drought free. Drought conditions that developed in the Dakotas over the winter and spring improved as well. According to the U.S. Drought Monitor authors, this four week period was the second largest decline in areal drought coverage since the U.S. Drought Monitor started in 1999.

Regional - Impacts for March - May 2015

Water Supplies Recovering

Missouri River Basin snowpack peaked much below average this spring and, prior to the heavy May precipitation, reduced service along the lower Missouri River was likely. However, precipitation and subsequent runoff during May should allow for a full navigation season this year.

Reservoirs across the region are filling due to the heavy precipitation. For example, high flows in the South Platte River will allow Lake McConaughy to fill by the end of June.

Heavy Rains Cause Flooding

Storms during the evening and overnight hours of May 6-7 brought extremely heavy rainfall to southeast Nebraska, including the capital city of Lincoln. Anywhere from 6-10 inches fell in approximately 8-10 hours and caused extensive flooding. Numerous roads were closed and some residents in Lancaster, Saline, and Jefferson Counties were evacuated from the rising floodwaters. Although there was damage from the flooding, the NRCS estimates that over \$3 million in damages were prevented by flood control structures.



Above: (Left) Flooding over a rural road in southeast Nebraska in early May, courtesy NRCS; (Center) stripe rust on winter wheat in south-central South Dakota, courtesy SDSU Extension; and (Right) flood damage in Lusk, WY in early June, courtesy *Rapid City Journal*.

Agriculture Impacts

A combination of conditions this spring has impacted producers both positively and negatively. While dry conditions allowed producers in North Dakota and South Dakota to rapidly plant crops, wet conditions have made fields too wet to tend or completely submerged others. Untimely freezes in May also damaged crops, such as sugarbeets and canola in North Dakota.

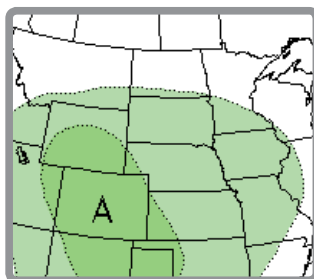
Insect and disease issues have arisen due to the heavy May precipitation, especially in Kansas, Nebraska, and South Dakota. Leaf rust, stripe rust, and head scab have been reported in the wheat crops there. Additionally, the application of agricultural chemicals have either been delayed or lost.

Regional - Outlook for July - September 2015

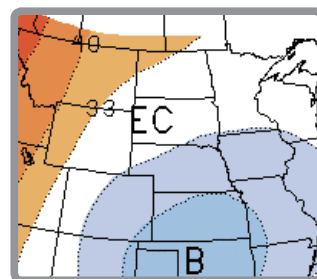
MO River Basin Partners

3-Month Precipitation and Temperature Outlooks

Valid for July - September 2015



Precipitation



Temperature

EC: Equal chances of above, near or below normal, A: Above normal, B: Below normal

According to the Climate Prediction Center, El Niño conditions continued this spring and are expected to continue and strengthen through the end of the year. El Niño impacts are most notable in the winter, and so the strength of the El Niño at the end of the year could help determine any impacts to the region.

Over the next three months, outlooks indicate increased chances for above normal temperatures for northern parts of the region and increased chances for below normal temperatures in lower parts of the basin. Meanwhile, the precipitation outlook shows increased chances for above normal precipitation for the majority of the region. While above normal precipitation may remove lingering drought conditions, it could also increase chances of flooding.

The excessive moisture from May could have residual impacts throughout the summer. Evaporation from the surface and transpiration from plants will raise relative humidities. With an increase in relative humidities, maximum temperatures should be slightly lower. However, even with lower temperatures, higher humidities may create muggy conditions and higher heat indices. Another impact that people may already be experiencing is an increase in mosquito activity.

Bureau of Reclamation

www.usbr.gov

High Plains Regional Climate Center

www.hprcc.unl.edu

Kansas State, Department of Agronomy

www.agronomy.k-state.edu

National Drought Mitigation Center

www.drought.unl.edu

National Integrated Drought Information System

www.drought.gov

National Oceanic and Atmospheric Administration

National Weather Service - Central Region

www.crh.noaa.gov/crh

National Centers for Environmental Information

www.ncdc.noaa.gov

Missouri River Basin Forecast Center

www.crh.noaa.gov/mbrfc

Climate Prediction Center

www.cpc.ncep.noaa.gov

National Operational Hydrologic Remote Sensing Center

www.nohrsc.noaa.gov

South Dakota State University Extension

<http://jgrow.org>

State Climatologists

www.stateclimate.org

U.S. Army Corps of Engineers - Missouri River Basin Water Management Division

www.usace.army.mil

U.S. Department of Agriculture

Natural Resources Conservation Service

www.nrcs.usda.gov

NRCS National Water & Climate Center

www.wcc.nrcs.usda.gov

Regional Climate Hubs

www.usda.gov/oce/climate_change/regional_hubs.htm

U.S. Geological Survey, Water Mission Area

www.usgs.gov/water

Western Governors' Association

www.westgov.org