6-2016

Umphlett QCI June 2016

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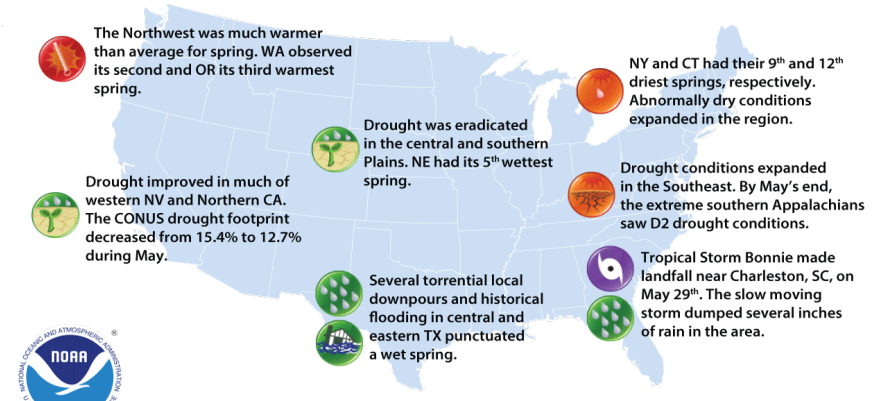
Quarterly Climate Impacts and Outlook

Missouri River Basin

June 2016

National - *Significant Events for March - May 2016*

U.S. Selected Significant Climate Anomalies and Events
May and Spring 2016



The average U.S. temperature during May was 60.3°F, 0.1°F above average. The spring U.S. temperature was 53.7°F, 2.8°F above average. May U.S. precipitation was 3.04 inches, 0.13 inch above average. The spring U.S. precipitation was 9.03 inches, 1.09 inch 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

Highlights for the Basin

It was a warm spring for the Basin with most states ranking in the top 20 warmest on record. Upper portions of the Basin ranked in the top 10, including Montana and North Dakota (6th), as well as South Dakota (9th).

Notable snowstorms occurred in both March and April. Colorado, Nebraska, and South Dakota were impacted on March 23-24 when blizzard conditions shut down the Denver International Airport, as well as parts of I-70 and I-80. Meanwhile, April snowstorms increased the snowpack and extended the ski season in Colorado.

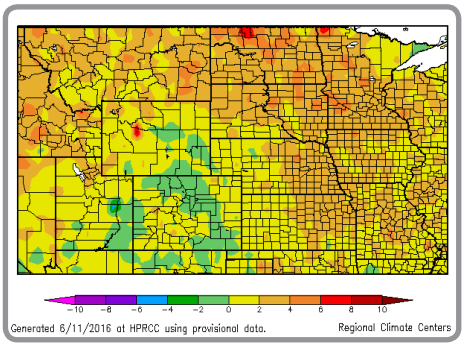
May 5th was a record-setting day for parts of North Dakota where temperatures soared into the 90°Fs. Minot, ND had a high temperature of 95°F that day, which was its earliest 95°F day on record.

It was an extremely wet spring in southwestern Wyoming as each month of the season was above normal and flash flooding was an issue several times. Lander, WY had its wettest spring on record with 14.23 inches of liquid precipitation, which was 9.00 inches above normal.

Regional - *Climate Overview for March - May 2016*

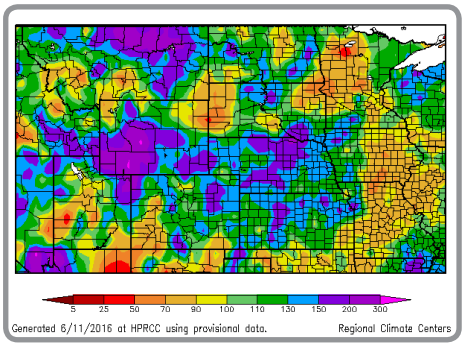
Temperature and Precipitation Anomalies

Departure from Normal Temperature (°F)
March 1 - May 31, 2016



Overall, spring temperatures were slightly above normal for most of the Missouri River Basin region, with widespread temperature departures in the 2°F-4°F range. The spring started off quite warm, as most states in the region ranked in the top 10 warmest Marches on record. April temperatures moderated a bit, while widespread below-normal temperatures occurred in May. This was the first time since last summer that the majority of the Basin experienced below-normal monthly average temperatures.

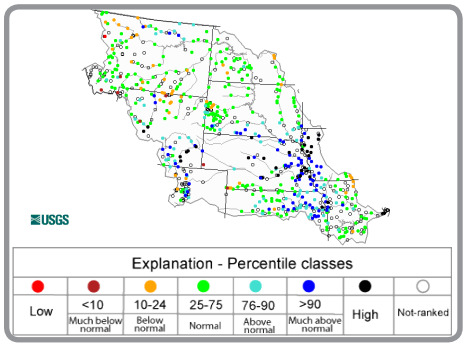
Percent of Normal Precipitation (%)
March 1 - May 31, 2016



The Missouri River Basin states were quite wet this spring as large swaths of the region received above-normal precipitation. April was particularly wet, with Kansas, Nebraska, and the Dakotas all ranking in the top 10 wettest on record. Additionally, Nebraska had its 5th wettest spring. Not all areas of the Basin were wet, however. Drier locations included an area of western South Dakota along with portions of eastern Wyoming and Montana; eastern South Dakota into Minnesota; and a large portion of central Missouri.

Snowpack and Streamflow

Missouri Basin Streamflow
May 2016



According to the U.S. Army Corps of Engineers, Missouri River Basin mountain snowpack peaked in early April, about two weeks earlier than normal. The snow water equivalent peaked at 95% of average above Fort Peck Reservoir and 89% of average between Fort Peck and Garrison Reservoirs.

Streamflows at the end of the season were high across lower portions of the Basin including Nebraska, Kansas, and Iowa as well as southeastern Wyoming. High flows were due to snowmelt and/or convective activity.

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Regional - *Impacts for March - May 2016*

Limited Frost Damage to Crops this Spring

Early-season warmth punctuated by several hard freezes caused concerns for producers across the Basin. Although hard freezes are typical this time of the year, unseasonably warm weather caused early-emerged winter wheat to be particularly susceptible to low temperatures. A late-season event on May 14th spared most of the crops in the Dakotas, but canola, sugar beets, and alfalfa are being monitored for possible damage.

Wet Conditions Cause Mixed Impacts

The wet spring had mixed impacts for farmers and ranchers across the region. Rangeland conditions were largely in the good to excellent categories, which was welcome news for ranchers trying to rebuild cattle herds. On the other hand, the wetness caused disease issues for crops like winter wheat, while some areas of Kansas, Nebraska, and South Dakota experienced delays in corn planting. Prevented planting insurance claims are likely in central and southeastern South Dakota.

Above: (Left) Pathfinder Reservoir in Wyoming spilling over for only the 4th time in 30 years in early June, courtesy Chad McNutt; (Center) stripe rust on a flag leaf, the last leaf of a wheat plant, in Nebraska in May, courtesy CropWatch; and (Right), burn scar from March wildfires in Kansas and Oklahoma, courtesy NASA.

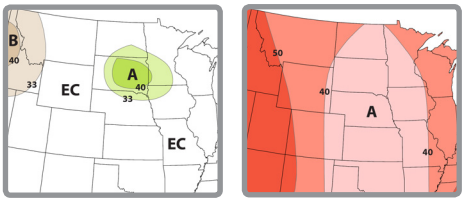
Wildfires Impact Region

Wildfires that were both inside and outside the region had an impact this spring. Ideal fire weather conditions were present in March across the Plains portion of the region, where short-term dryness and warmth were present. Additionally, there was ample fuel to burn after a wet fall encouraged plant growth. Although many fires burned during the month, the notable fire of the season was the Anderson Creek fire in south-central Kansas. The fire, which started in Oklahoma, burned almost 400,000 acres and was ultimately one of the largest wildfires on record for Kansas. Meanwhile, thick smoke from the large Fort McMurray, Alberta, Canada wildfire swept into the region in early May, reducing visibilities and creating poor air quality. In some locations, schools cancelled all outside activities and a Blue Angels flight show was cancelled in Lincoln, NE.

Regional - *Outlook for July - September 2016*

3-Month Precipitation and Temperature Outlooks

Valid for July - September 2016



Precipitation Temperature

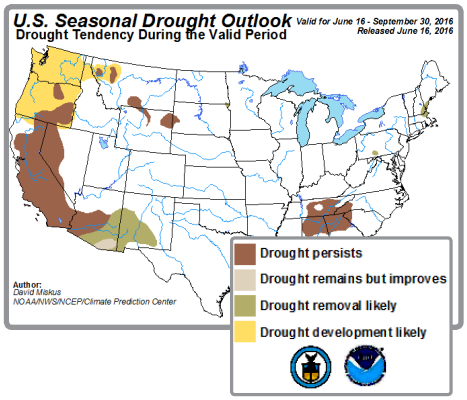
EC: Equal chances of above, near or below normal
A: Above normal, **B:** Below normal

According to the Climate Prediction Center, El Niño conditions weakened this spring. As of this writing, neutral conditions were present. Outlooks show that La Niña conditions could develop this summer, with a 75% chance of continuance into the fall and winter.

Over the next three months, the outlooks favor increased chances for above-normal temperatures for the entire Basin, especially across western areas. The precipitation outlook shows increased chances for below-normal precipitation for western Montana and above-normal precipitation for northern Nebraska, much of South Dakota, and southern North Dakota.

U.S. Seasonal Drought Outlook

Valid for 06/16/2016 - 09/30/2016



Dry conditions early this spring led to the development of abnormally dry and moderate drought conditions across portions of the central and northern Plains, with peak coverage occurring in mid-April. Heavy precipitation alleviated the majority of the dryness issues, with moderate drought conditions lingering in only a few pockets of Montana, Wyoming, and South Dakota. The seasonal outlook indicates that most current drought conditions will persist through September. Drought development is likely across portions of western Montana.

MO River Basin Partners

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