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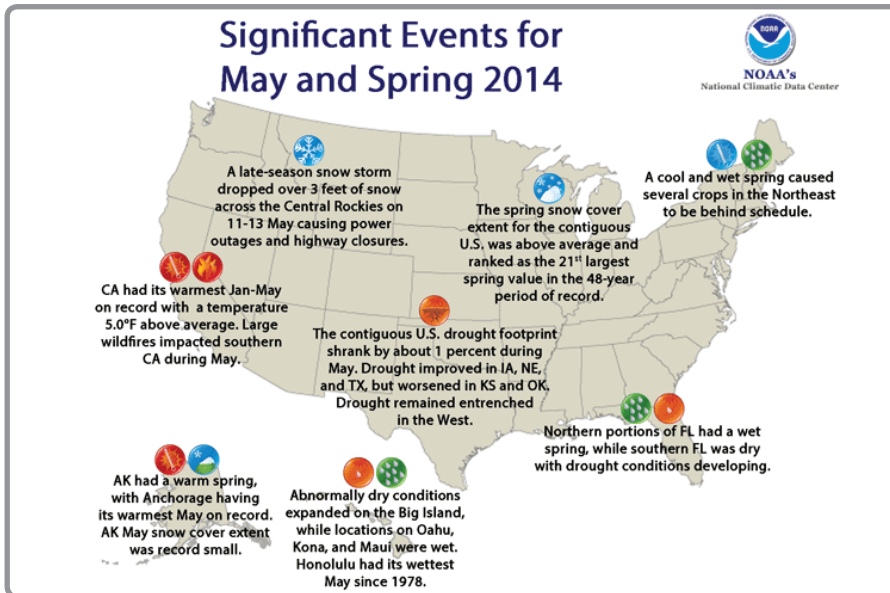
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National - Significant Events for March - May 2014



Highlights for the Basin

Although individual locations experienced extremes this spring, statewide extremes were not common. Montana did have its 3rd wettest March, while Kansas had its 10th driest March and 6th driest May.

Precipitation was severely lacking in portions of South Dakota, Nebraska, and Kansas. Goodland, KS had its 10th driest spring on record with only 2.60 inches. Sioux Falls, SD had its 11th driest with 3.99 inches.

Mountain snowpack continued to be above average as the snow water equivalent peaked at 132% above Fort Peck Reservoir and 140% between Fort Peck and Garrison Reservoir.

Windy conditions continued into spring. April was particularly windy in Kansas as many locations were 3 mph above the long term average.

This spring had the least active start to tornado season in the past 60 years. One notable system was the Mother's Day storm which brought accumulating snowfall to western portions of the Basin and severe weather to eastern portions of the Basin.

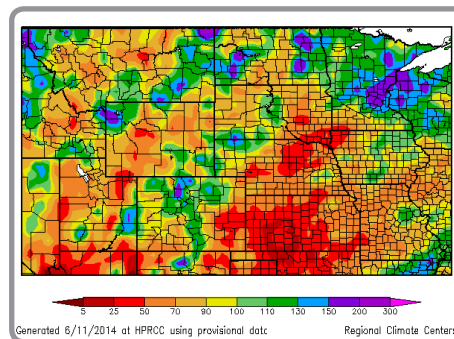
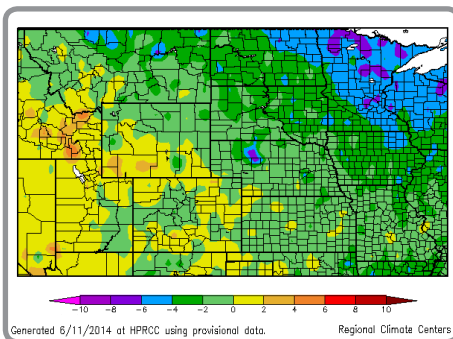
The average U.S. temperature during May was 61.2°F, 1.0°F above average. The spring U.S. temperature was 51.1°F, 0.2°F above average. May U.S. precipitation was 2.76 inches, 0.15 inch below average. The spring precipitation total was 8.01 inches, 0.07 inch above average.

Regional - Climate Overview for March - May 2014

Temperature and Precipitation Anomalies

Departure from Normal Temperature (°F)
March 1 - May 31, 2014

Percent of Normal Precipitation (%)
March 1 - May 31, 2014

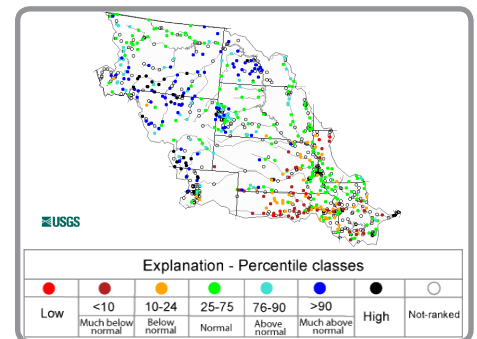


The strong ridge/trough pattern continued from the winter into the first part of spring with March showing the familiar northwest flow pattern. April and May were largely near normal, with the coldest temperatures confined to the northern tier of the Basin. For the spring as a whole, areas of northern Montana, North Dakota, and most of South Dakota averaged 2.0°F-6.0°F below normal while other areas of the Missouri River Basin states were within 2.0°F above or below normal.

Precipitation was highly variable during the spring months for the Missouri Basin states. The higher precipitation areas included parts of North Dakota, Montana, and a swath running from western Colorado through the panhandle of Nebraska and into central South Dakota. Meanwhile, other areas missed out on precipitation. Parts of Kansas, Nebraska, and eastern Colorado were hit particularly hard with precipitation totals at best 50% of normal. Unfortunately, this led to the development of new drought conditions across Kansas.

Streamflow

Missouri Basin Streamflow
05/30/2014



Streamflow measurements indicated a range of conditions across the Basin at the end of spring. Lower than normal temperatures impacted the rivers this spring by producing more ice jam flooding than usual. But, these cooler conditions helped naturally meter out the snowmelt at a slower pace. Below normal streamflow was present in the southern part of the basin where precipitation has been lacking. Surface water supplies were a concern in Kansas due to both low streamflows and stock ponds.

Regional - Impacts for March - May 2014

Drought Impacts to Livestock

The ongoing drought in the central and southern Plains drove beef prices to record highs this spring. According to the United States Department of Agriculture, the average price for a pound of beef hit a new high of \$5.72 in March. A combination of impacts from the drought has led to what is now the United States' smallest national cattle herd in 63 years.



Above: (Left) Wet fields in late April in Wahpeton, North Dakota, courtesy DuPont, (Center) Stranded vehicle surrounded by dirt from a dust storm in April in Barton County, Kansas, courtesy Kansas Department of Transportation, (Right) Wheat field in March in Kit Carson County, Colorado, courtesy coloradowheat.org.

Continued Cold Hampers Producers in North

It was a late start for the growing season in North Dakota and portions of South Dakota where most crops were planted later than average as a result of both cooler air and soil temperatures. Additionally, the remaining frost layer in the soil prevented moisture from infiltrating deeply. The top layer of soil became too moist, further preventing any field work.

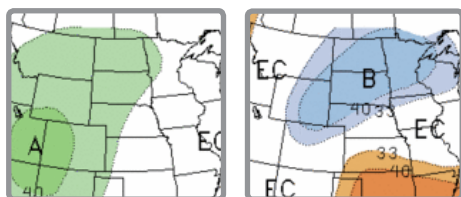
Extreme Temperatures and High Winds Impact Winter Wheat Crop

Winter wheat was hit hard this spring, especially in portions of Kansas and Colorado, where dry and windy conditions continued. Some fields are now too dry and barren to hold on to their topsoil. Blowing dust from these fields resulted in dust storms which impacted travel on many roads and interstates and resulted in at least one fatality. In addition to dry and windy conditions, extreme temperatures including record highs and lows also played a role in the rapid decline of the winter wheat crop. A late freeze event in mid-May was the final blow. Although the final numbers on winter wheat damage are not in yet, insurance payments have already gone out to some producers which would be considered quite early.

Regional - Outlook for Summer 2014

3-Month Precipitation and Temperature Outlooks

Valid for July - September 2014



Precipitation

Temperature

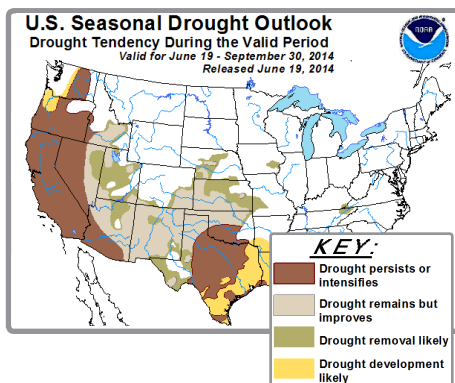
EC: Equal chances of above, near or below normal
A: Above normal, B: Below normal

ENSO (El Niño/Southern Oscillation) neutral conditions continued this spring. The 3-month outlooks indicate increased chances for above normal precipitation and below normal temperatures across much of the northern and western portions of the Basin. Enhanced chances for above normal temperatures exist in areas to the south of the Basin.

At this time, it is quite likely that El Niño conditions will develop with an 80% chance during the fall and winter. While an El Niño may occur, keep in mind that neutral conditions are still present and any future impacts of the possible El Niño will depend on its strength, which is not certain at this time.

U.S. Seasonal Drought Outlook

Valid for 06/19/2014 - 09/30/2014



This spring, drought conditions worsened across the southern tier of the basin as extreme drought expanded across eastern Colorado, central Kansas, and central Nebraska. Drought conditions also spread northward into South Dakota. Only few areas had improvements. During the first half of June, heavy rains across Kansas, Nebraska, South Dakota, and North Dakota improved drought conditions significantly. The seasonal outlook indicates that drought conditions will continue to improve or be removed completely.

MO River Basin Partners

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