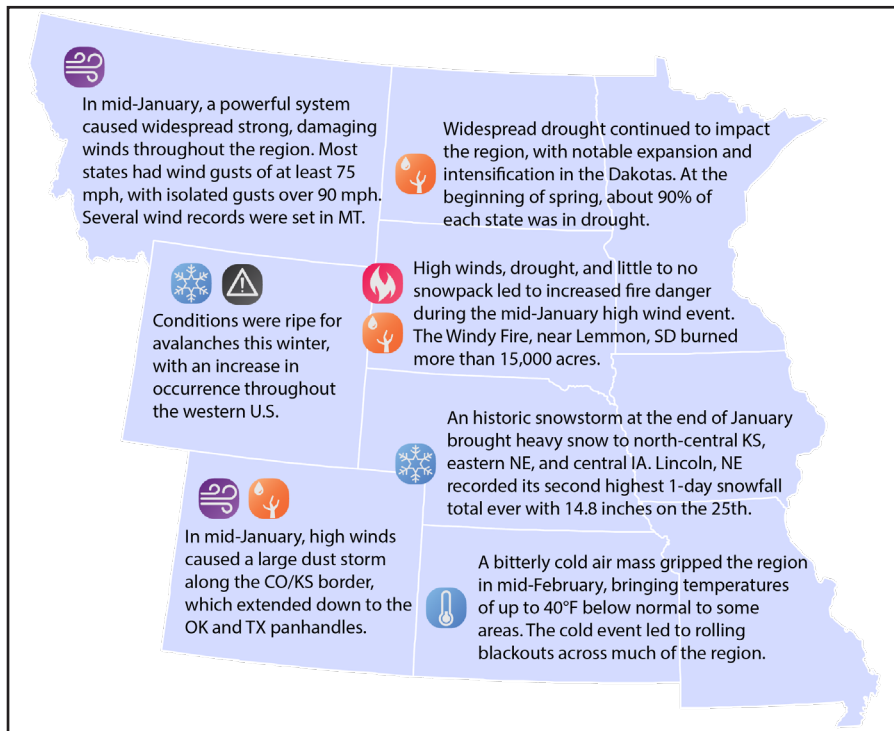




Regional – Significant Events for December 2020 - February 2021



Highlights for the Basin

Temperatures this winter were extreme on both ends of the spectrum. Several states in the region ranked in the top 10 warmest Decembers and Januarys, while others ranked in the top 10 coldest Februarys. For instance, with records extending back to 1895, Nebraska had its 9th warmest December and its 6th coldest February.

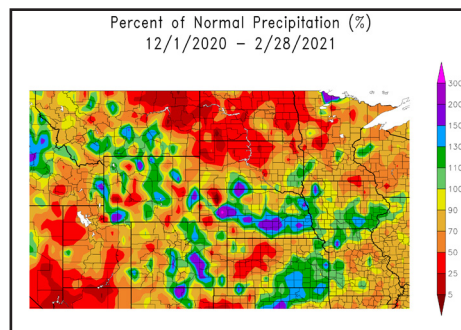
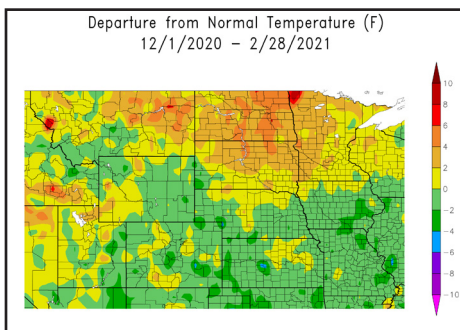
Although much of the region was on the dry side this winter, only North Dakota ranked in the top 10 at 3rd driest.

At the beginning of spring, the Upper Missouri Basin mountain snowpack was near average, according to the U.S. Army Corps of Engineers. The Snow Water Equivalent (SWE) was 94% of average above Fort Peck Reservoir and for the reach between Fort Peck and Garrison Reservoirs.

Regional – Climate Overview for December 2020 - February 2021

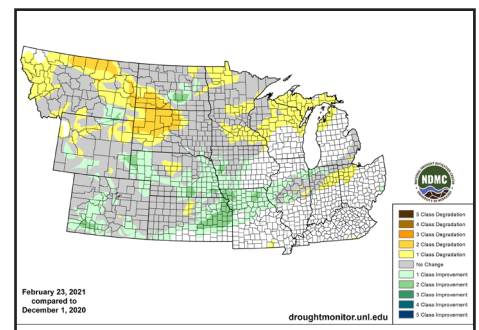
Temperature and Precipitation Anomalies

Departure from Normal Temperature (°F) (left) and Percent of Normal Precipitation (right) for Winter 20-21



Change in Drought Conditions

Dec. 1, 2020 - Feb. 23, 2021



The warm conditions at the end of fall continued into winter across much of the region. In fact, the three-month time period of November 2020-January 2021 was one of the warmest on record, with every state in the region ranking among the top 10 warmest. In February, however, an extremely cold Arctic air mass settled into the region, bringing some of the lowest temperatures in decades. Although states in the lower part of the Basin ranked in the top 10 coldest Februarys on record (IA, KS, MO, and NE), the region, as a whole, was much colder in February 2019. Meanwhile, winter precipitation was mixed, with the majority of the region receiving below-normal precipitation. However, isolated areas did receive ample precipitation, setting new records for wintertime snowfall.

Overall, there was an expansion in drought (D1-D4) conditions across the region with nearly 75 percent of the Missouri Basin in drought at the end of winter. The largest expansion occurred in western parts of the Dakotas and eastern parts of Montana due to a lack of snowfall this season. It should be noted that a major storm in mid-March helped improve conditions in several areas. More details to come.



Regional – Impacts for December 2020 - February 2021

Agriculture

Cold, dry conditions affected producers in the Plains, particularly in February. In the Dakotas, several drought-related impacts to livestock were reported and there is concern that hay supplies could be limited later this spring. To the south, record cold impacted calving operations in Kansas. Meanwhile, the lack of snow cover combined with extreme cold left winter wheat vulnerable. The extent of the damage is not yet known.



Energy

The extreme cold of February increased the demand for heat, especially during the February 14-18 timeframe. Residents were asked to conserve energy; however, the power grid could not keep up, and rotating outages were instituted across the area served by the Southwest Power Pool, which includes much of the Missouri Basin. Normal operations returned once temperatures moderated and demand declined.



Recreation

Early season warmth had a number of impacts to outdoor recreation this winter. In some northern areas, lake ice was not thick enough to support the weight of the equipment needed for ice fishing, with several reports of vehicles and ice shacks falling into the water. In mountainous areas, autumn snowfall was followed by dry conditions, which weakened the snowpack, leading to an increase in avalanches.



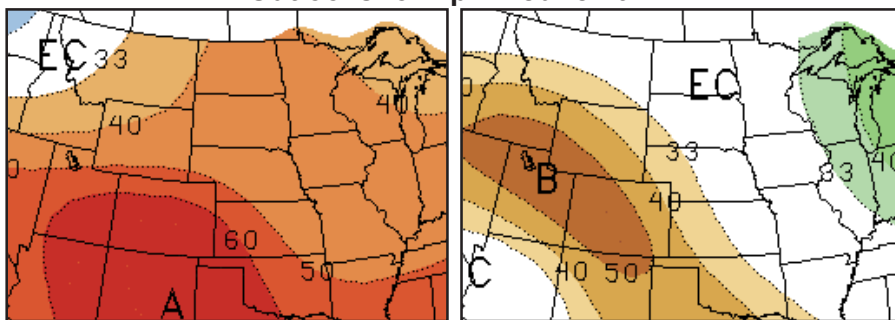
Above: Leaf burn on wheat in Hays, KS, courtesy Guorong Zhang, KSU (left); Snowy scene in Lincoln, NE, courtesy Natalie Umphlett, HPRCC (center); Ice-free Holmes Lake in eastern NE, courtesy Natalie Umphlett, HPRCC (right).

Regional – Outlook for April - June 2021

Temperature

Precipitation

Outlooks for April - June 2021



EC: Equal chances of above, near, or below normal

A: Above normal, B: Below normal

According to NOAA's Climate Prediction Center, La Niña conditions continued this winter; however, there is a 60% chance that conditions could transition to Neutral later this spring or early summer. Through June, above-normal temperatures are favored across the majority of the region, with the highest chances in Colorado and southwest Kansas. Meanwhile, below-normal precipitation is favored for western and central portions of the region, including Colorado, Wyoming, southern Montana, southwestern South Dakota, western Nebraska, and western and central Kansas. Although heavy precipitation brought widespread improvements in mid-March, drought remains an issue across the region. Because late spring and early summer is typically the wettest time of the year for much of the region, conditions should be monitored closely.

MO River Basin Partners

High Plains Regional Climate Center
www.hprcc.unl.edu

National Drought Mitigation Center
<http://drought.unl.edu/>

National Integrated Drought Information System
<https://www.drought.gov/>

NOAA NCEI
www.ncdc.noaa.gov

NOAA NWS- Central Region
www.weather.gov/crh

NOAA NWS Climate Prediction Center
www.cpc.ncep.noaa.gov

NOAA NWS Missouri Basin River Forecast Center
www.weather.gov/mbrfc

American Association of State Climatologists
<https://www.stateclimate.org/>

U.S. Army Corps of Engineers
www.nwd-mr.usace.army.mil/rcc/

U.S. Bureau of Reclamation
<https://www.usbr.gov/>

USDA Natural Resources Conservation Service
www.nrcs.usda.gov

USDA Northern Plains Climate Hub
www.climatehubs.ocs.usda.gov

USGS, Water Mission Area
www.usgs.gov/water

Western Governors' Association
<http://westgov.org>