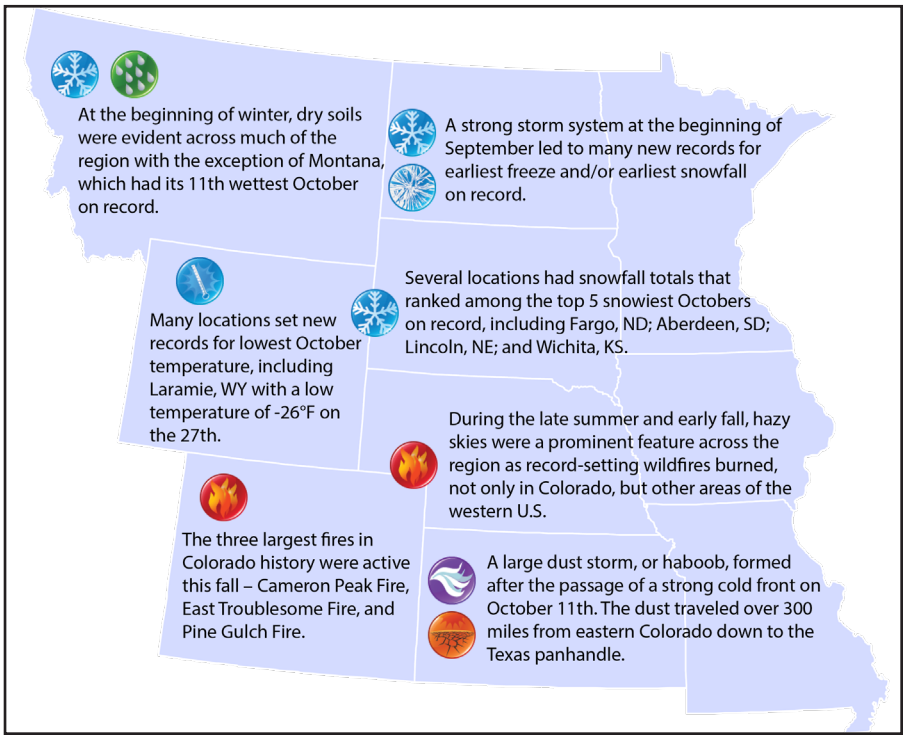
Quarterly Climate Impacts and Outlook

Missouri River Basin

December 2020

Regional – *Significant Events for September - November 2020*



Highlights for the Basin

Autumn 2020 was one of the driest on record for several states, including ND (3rd), CO (9th), NE (9th), KS (19th), and SD (20th). Year-to-date rankings were also on the dry side, with CO (3rd), WY (5th), ND (10th), and NE (15th) ranking among the driest Jan-Nov time periods.

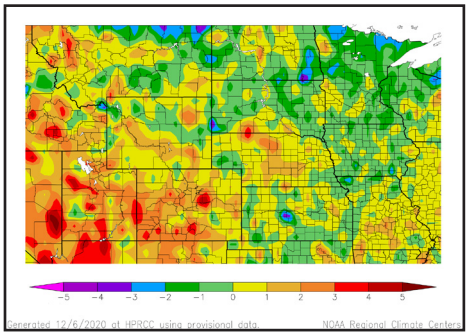
Although temperatures were, overall, near normal, autumn had many extremes. For instance, SD had its 7th coolest October, which was then followed by its 9th warmest November.

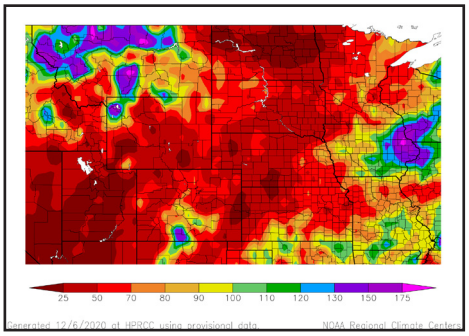
At the beginning of winter, the Upper Missouri Basin mountain snowpack was near average, according to the U.S. Army Corps of Engineers. The Snow Water Equivalent (SWE) was 90% of average above Fort Peck Reservoir and 99% of average for the reach between Fort Peck and Garrison Reservoirs.

Regional – *Climate Overview for September - November 2020*

Temperature and Precipitation Anomalies

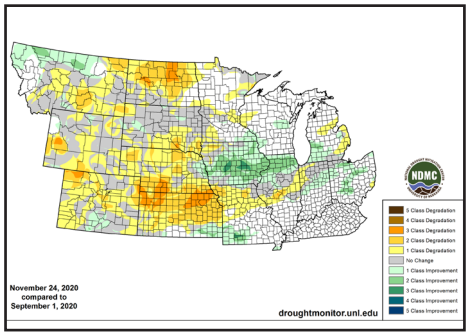
Departure from Normal Temperature (°F) (left) and Percent of Normal Precipitation (right) for Autumn 2020





Change in Drought Conditions

Sep. 1 - Nov. 24, 2020



Overall, it was another dry season across the Missouri Basin states, with much of the region receiving no greater than 50% of normal precipitation. This led to degradations in drought conditions in many locations. Montana was the only state in the region to have widespread above-normal precipitation. Meanwhile, with a roller coaster of temperatures this autumn, seasonal temperatures were, overall, near normal. Temperatures were slightly above normal across southern Wyoming and central Nebraska, while temperatures were slightly below normal across much of eastern Montana, the Dakotas, and central Kansas. Colorado was the main exception, however, with temperatures that were much above normal this season. In fact, this autumn ranked as the 13th warmest on record for the state.

Drought conditions expanded and intensified this autumn, with over 60% of the Missouri Basin experiencing drought (D1-D4). At the beginning of winter, extreme drought (D3) was introduced in North Dakota, marking the first time since 2002 that D3 had been introduced in the state during the month of December. Typically, drought conditions change little in this region during the winter.

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Regional – *Impacts for September - November 2020*

Fires

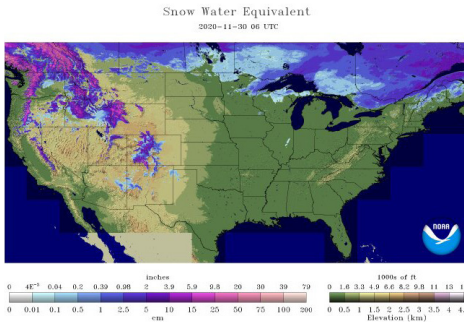
Record-setting fires continued to impact Colorado and Wyoming. According to InciWeb, the Cameron Peak, East Troublesome, Pine Gulch, and Mullen Fires caused numerous evacuations and damaged or destroyed over 1,000 homes, outbuildings, and commercial structures. Collectively, these fires burned over 700,000 acres, including parts of Rocky Mountain National Park.

Agriculture

Dry conditions allowed for a quick harvest this autumn, but continued to cause issues for livestock producers where pasture and range conditions were impacted, especially across Colorado, Wyoming, and North Dakota. Dryness was also a concern for winter wheat producers, with at least 20% of the crop in poor to very poor condition in Colorado (38%), Nebraska (26%), and Kansas (22%), according to USDA NASS.

Recreation

Despite early snows, the lack of snow cover across the Plains and the low snowpack across the central Rocky Mountains impacted recreational activities in late November and early December. Competitive snowmobile events have been canceled across portions of Minnesota and North Dakota, while some ski resorts in Colorado delayed their openings. Fires also impacted other recreational activities, such as hunting.



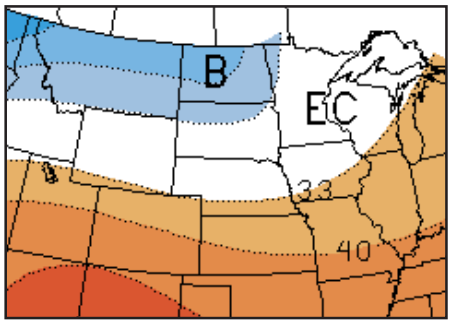
Above: Cameron Peak Fire on Oct. 14, Becky Bolinger, CO Climate Center (left); Cattle on wheat in eastern KS, courtesy Mary Knapp, KSU Weather Data Library (center); Snow Water Equivalent map showing lack of snow cover in the Plains, courtesy NOHRSC (right).

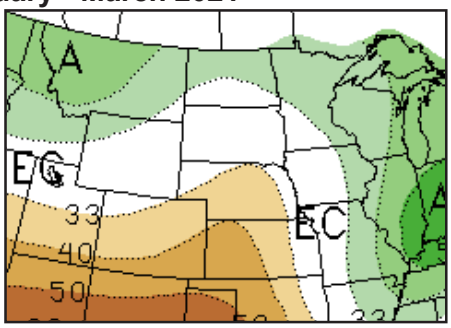
Regional – *Outlook for January - March 2021*

Temperature

Precipitation

Outlooks for January - March 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 autumn and are likely to continue through winter and early spring. Conditions could transition to Neutral in the spring or early summer next year. Through March, above-normal temperatures are favored across southern portions of the region, while below-normal temperatures are favored across the north. Meanwhile, below-normal precipitation is favored for much of Colorado, Kansas, and Nebraska, with above-normal precipitation favored across the north and portions of Missouri. Above-normal precipitation at this time of the year will likely not improve drought conditions across the north. With this in mind, current drought conditions are expected to persist, with new development possible in Kansas and Nebraska.

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.oce.usda.gov

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

Western Governors' Association
http://westgov.org