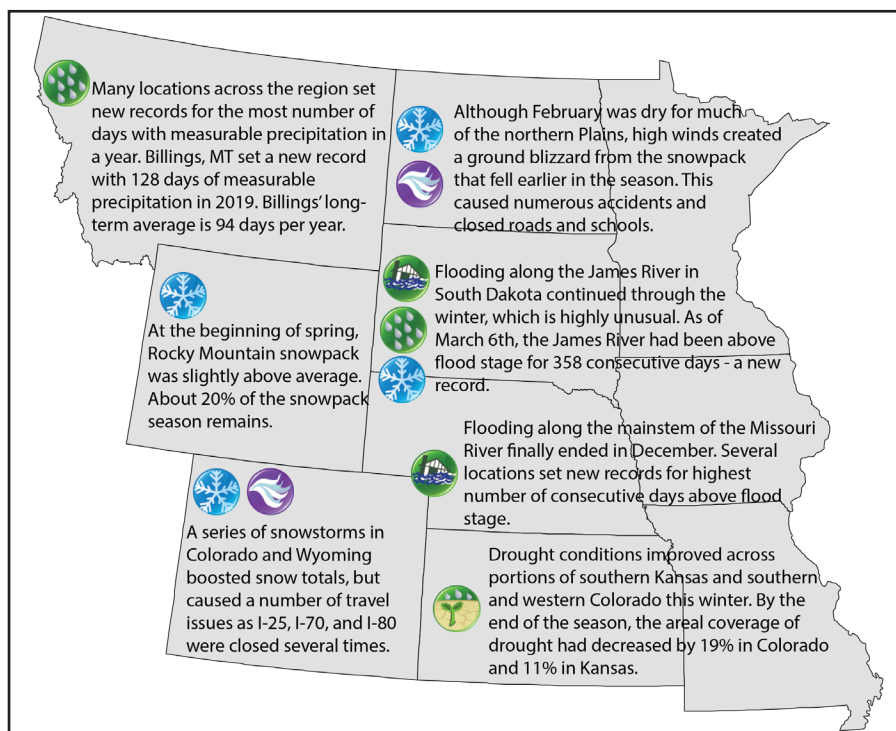


Regional – Significant Events for December 2019 - February 2020



Highlights for the Basin

It was a warm winter for the Missouri River Basin states, with each state having above to much above average temperatures. None ranked in the top 10 warmest winters on record, however.

December precipitation added to an already wet year. Nearly 150 locations set new annual precipitation records. 2019 was also the wettest year on record for North Dakota and South Dakota.

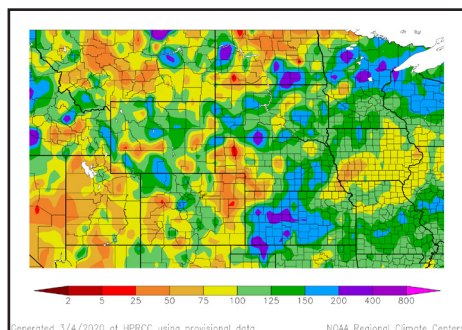
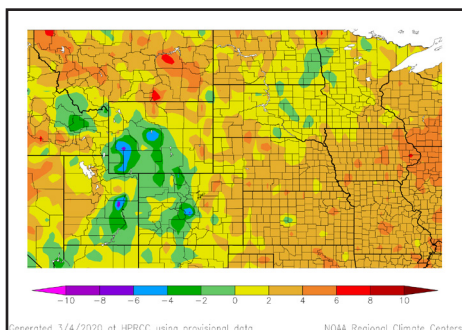
According to the U.S. Army Corps of Engineers, releases from Gavins Point at the start of spring were more than twice the average for this time of the year.

Also according to the U.S. Army Corps of Engineers, the 2020 runoff forecast for the upper Missouri River Basin (above Sioux City) is 36.9 MAF. If realized, this would rank as the 9th highest runoff on record.

Regional – Climate Overview for December 2019 - February 2020

Temperature and Precipitation Anomalies

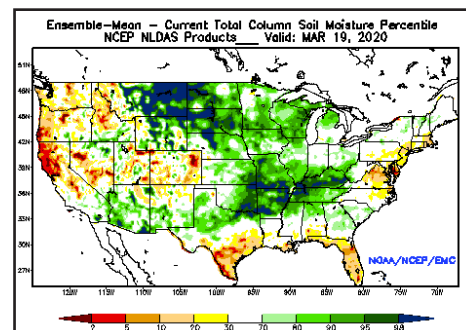
Departure from Normal Temperature (°F) (left)
and Percent of Normal Precipitation (right) for Winter 2019-20



In stark contrast to last year, seasonal temperatures for the majority of the Missouri Basin were much above normal. The main exception to this warmth was the mountainous areas of Colorado and Wyoming. The winter started off particularly warm, with Missouri and Kansas having their 9th and 12th warmest Decembers, respectively. Meanwhile, precipitation varied across the region, with the largest departures occurring across eastern parts of the region. Much of this precipitation fell during the month of December, when a large storm system after Christmas brought heavy rain, freezing rain, and snow to eastern areas of the region. Ultimately, many locations in the eastern part of the region picked up more precipitation in December than January and February combined.

Soil Moisture Conditions

March 19, 2020



Soils continued to be wet across much of the region, especially the northern tier of the Basin. These conditions, along with the potential for above-normal precipitation through June, have increased concerns for flooding and could lead to issues with spring planting activities. The map above shows soil moisture conditions in percentiles from an ensemble of land surface models from NOAA.

Regional – Impacts for December 2019 - February 2020

Agriculture

With much of the corn crop in North Dakota still standing, producers continued to have harvest issues. According to the USDA's National Agricultural Statistics Service, only 61% of corn and 79% of sunflowers in North Dakota had been harvested as of February 24th. Wet soil conditions in North Dakota have also raised concerns about the increase in wheat midge populations, which was caused by last year's high precipitation.



Infrastructure

In the wake of last year's extreme wetness and flooding, damaged infrastructure such as roads, bridges, and levees continued to be repaired across the region. Unfortunately, all repairs will not be completed by the spring, which could leave some communities vulnerable to flooding. A recent report by the U.S. Army Corps of Engineers Omaha District estimates that damage to that region's levee system was between \$1-2 billion.



Recreation

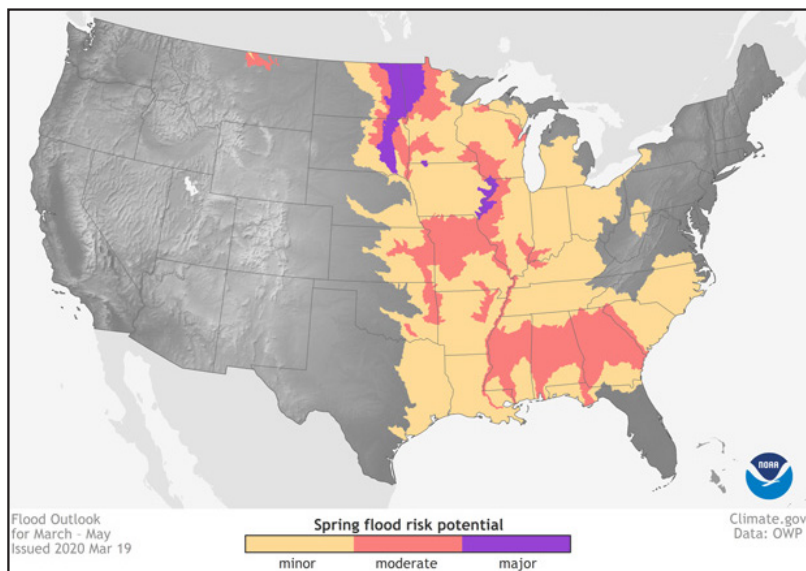
Impacts to outdoor recreation were mixed this winter. For some, conditions were optimal for skiing and snowmobiling. But, high river levels and thin ice caused issues in other areas. For instance, flooding in eastern parts of the Dakotas prompted closures due to the dangerous conditions. Meanwhile, the lack of thick ice formation on local lakes caused vehicles to fall through thin ice and limited some ice fishing.



Above: Snow in corn stubble near Hetland, SD, photo courtesy USACE (left); Levee repairs southwest of Hamburg, IA, photo courtesy USACE (center); Avenue of Flags at Mount Rushmore, SD, photo courtesy Eric Helgeson, NWS Rapid City (right).

Regional – Outlook for March - May 2020

Spring 2020: U.S. Flood Outlook



According to NOAA, there is a greater than 50% chance that some rivers in the region will reach minor, moderate, or major flood stage this spring. Areas that could reach major flood stage include the James River in South Dakota and the Red River of the North in North Dakota and Minnesota. Through June, the outlooks call for enhanced chances of above-normal temperatures and precipitation for much of the Basin. For more information, please see: www.cpc.ncep.noaa.gov.

Contact: Natalie Umphlett (numphlett2@unl.edu)
#regionalclimateoutlooks



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>

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<https://www.drought.gov/drought/resources/reports>