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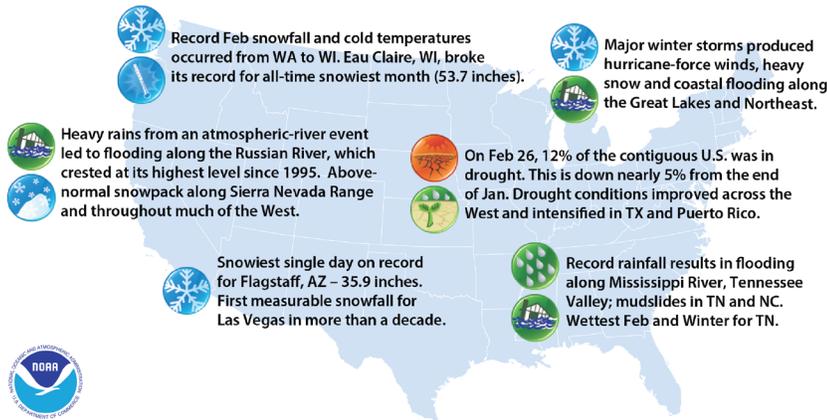
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National – Significant Events for December 2018 - February 2019

U.S. Selected Significant Climate Anomalies and Events for February and Winter 2019



The average U.S. temperature for February was 32.0°F, 1.8°F below average, ranking in the coldest third of the 125-year record. The U.S. precipitation average for February was 3.22 inches, 1.09 inches above average, ranking second wettest on record. The winter average U.S. temperature was 33.4°F, 1.2°F above average. The winter precipitation total was 9.01 inches, 2.22 inches above average - wettest on record. For more information, see: <https://www.ncdc.noaa.gov/sotc>.

Highlights for the Basin

The winter of 2018-19 was one of the wettest on record for many states in the Basin, including IA (3rd), MO (5th), NE (7th), and SD (7th).

Frequent storm systems traversed the region and many locations ranked in the top 10 snowiest winters. With records dating back to 1884, Omaha, NE had its snowiest winter with 46.1 inches.

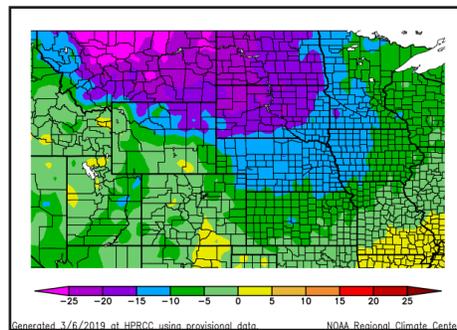
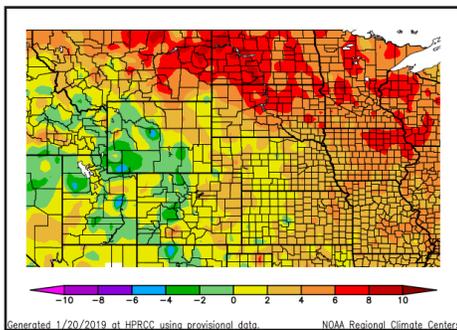
At the end of January, a bitterly cold airmass brought some of the lowest temperatures in years to the Basin. Wind chills dipped below -50°F across portions of the Dakotas.

Rocky Mountain snowpack has fared well this season. At the beginning of spring, the snow water equivalent was near normal for nearly all basins in Colorado, Montana, and Wyoming.

Regional – Climate Overview for December 2018 - February 2019

Temperature Anomalies

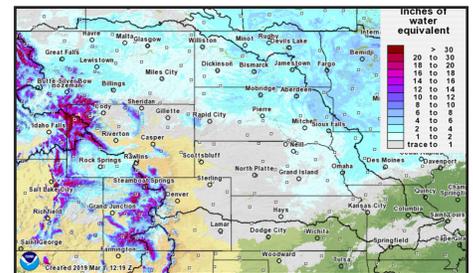
Departure from Normal Temperature (°F)
December 2018 (left) and February 2019 (right)



With a warm start and a cold end, average temperatures for the winter of 2018-19 were only slightly below normal across the Missouri River Basin. Upper portions of the Basin experienced the largest temperature swing this winter, with December temperatures of 6-10°F above normal and February temperatures of 15-25°F below normal. Because of these opposing extremes, winter temperatures, overall, were not record-breaking. February was quite cold and many locations set new daily temperature records throughout the month. Average temperatures for the month were even below 0°F in some places. Ultimately, February ranked among the top 10 coldest on record for several states, including MT (2nd), ND (2nd), SD (3rd), and NE (8th).

Plains Snowpack

Snow Water Equivalent (SWE)
as of March 1, 2019



Persistent cold, along with frequent snowstorms during the latter half of winter, allowed the snowpack to build across the Plains. At the beginning of March, snow depths of one to two feet stretched across parts of the Dakotas, with the highest snow water equivalent (SWE) in northern and eastern areas. This snowpack, combined with wet, frozen soils, will contribute to an increased risk of flooding this spring.



Regional – Impacts for December 2018 - February 2019

Agriculture

Ranchers have battled the cold and snow in order to keep cattle watered and fed this winter. Cold stress has been a major concern, particularly as calving season gets into full swing. While there are some indications that calf mortality may be higher than usual, that is yet to be determined. This winter's harsh conditions also limited fieldwork, as many producers who were unable to fertilize in the fall have not been able to this year, either.



Energy

Frequent snowstorms delayed deliveries of propane and heating oil to rural areas across the northern tier of the Basin. In response, Montana Governor Steve Bullock declared a state of energy emergency at the end of February, which allowed for longer driving hours to get supplies to areas in need. In addition, during the extreme cold event at the end of January, wind turbines in the Dakotas shut down to protect the equipment.



Transportation

This winter was a struggle for communities trying to keep up with snow removal, with crews working hard to keep roads clear. During one storm in late February, over 200 miles of I-80 were closed for several hours in eastern Nebraska due to blizzard conditions. It took some communities days to dig out from the storm. Interstates across the region were closed multiple times this winter due to heavy and/or blowing snow.



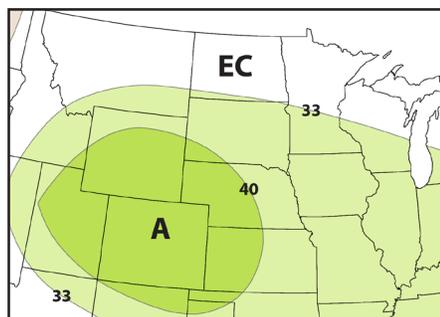
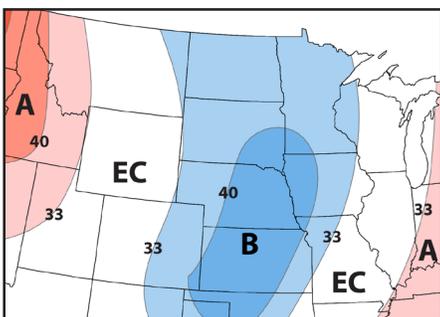
Above: Cattle in the snow in northwest KS, photo courtesy Sandy Johnson, KSU (left); Snow-covered streets in Lincoln, NE, photo courtesy Natalie Umphlett (middle); Large drift near Harlowton, MT, photo courtesy Chris Frehse, MT Dept. of Transportation (right).

Regional – Outlook for April - June 2019

Temperature

Precipitation

Outlooks for April - June 2019



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

A: Above normal, B: Below normal

Between the end of winter and the release of this report, historic flooding has occurred across parts of the lower Missouri River Basin, with damage estimates over \$1 billion. The next report will cover this event and its impacts in more detail. Over the next three months, below-normal temperatures and above-normal precipitation are favored across much of the Basin. Moderate to major flooding is expected along the main stem of the Missouri, as well as its tributaries, such as the Big Sioux and James Rivers. Although not in the Basin, major flooding is also expected for the Red River of the North. Please see your local National Weather Service Office for the most up-to-date flood information: www.weather.gov.

MO River Basin Partners

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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>