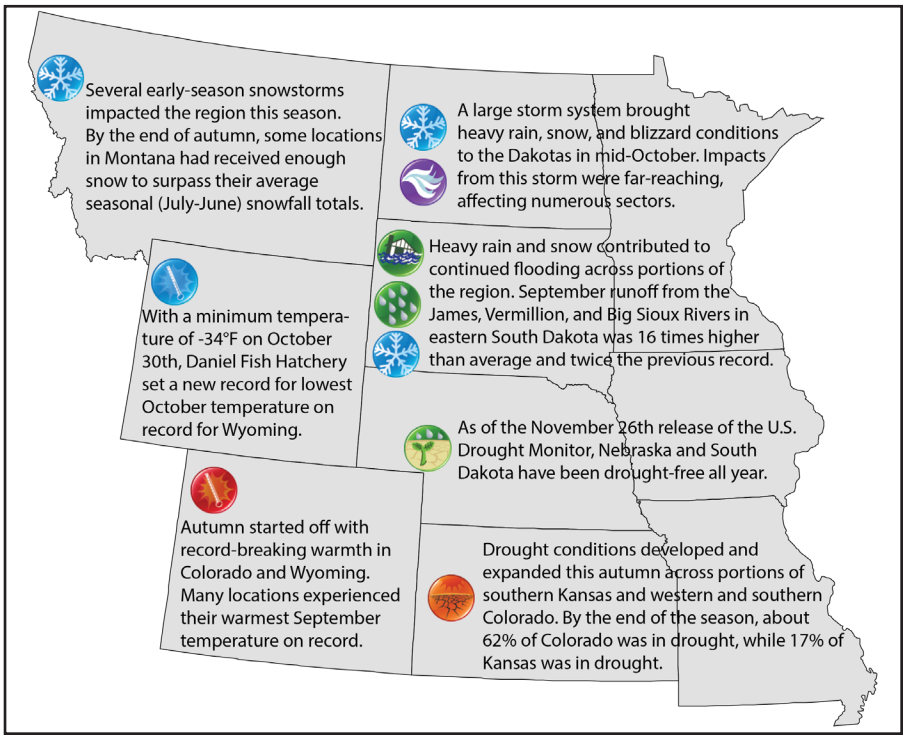
Quarterly Climate Impacts and Outlook

Missouri River Basin

December 2019

Regional – *Significant Events for September - November 2019*



Highlights for the Basin

The wet pattern continued across the northern tier of the Missouri River Basin. Overall, autumn 2019 was one of the wettest on record for ND (wettest), SD (5th), IA (6th), and MT (11th).

The snow season started strong, as several early snowstorms impacted the region. At the beginning of winter, mountain snow water equivalent was near to above normal in most basins.

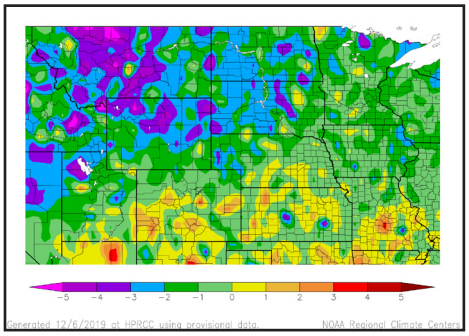
Like 2018, persistent wet conditions will cause 2019 to rank among the top 10 wettest years on record. With one month to go, 2019 is already the wettest year on record for the state of South Dakota.

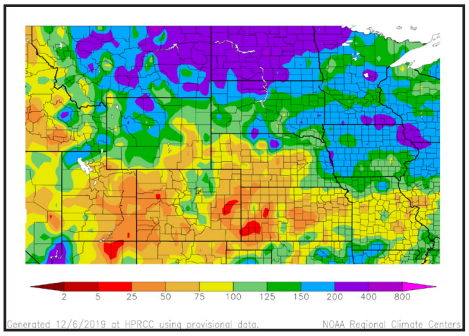
As of December 5, the U.S. Army Corps of Engineers' 2019 runoff forecast for the upper Basin (above Sioux City, IA) was 60.4 MAF, which is just behind the record set in 2011 with 61.0 MAF.

Regional – *Climate Overview for September - November 2019*

Temperature and Precipitation Anomalies

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

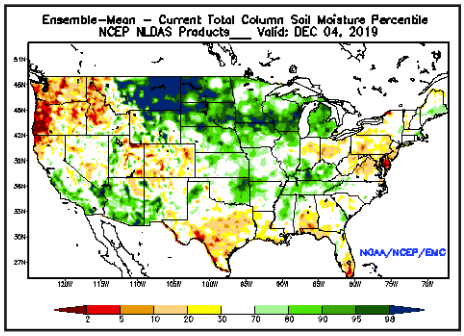




Extreme temperature swings were masked by what was, overall, a largely near-normal autumn. The start of the season was characterized by extreme warmth, with many states in the region having their top 5 warmest September on record. This was followed by a complete reversal, with many of the same states having their top 5 coldest October. Meanwhile, heavy precipitation occurred across northern parts of the region where totals exceeded 200% of normal. September was particularly wet, with North Dakota and Montana having their wettest and 2nd wettest September on record, respectively. This wet pattern is a continuation of conditions that have been in place since last year. The 12-month period from Dec. 2018-Nov. 2019 was the wettest on record for North Dakota and South Dakota, and 2nd wettest for Nebraska.

Soil Moisture Conditions

December 4, 2019



Wet soils continued to be evident, especially across the northern tier of the Basin where heavy precipitation occurred throughout the season. Muddy or flooded fields were quite problematic for fall harvest, with many producers unable to make it out into the fields. The map above shows soil moisture conditions in percentiles from an ensemble of land surface models from NOAA's NLDAS.

Contact: Natalie Umphlett (numphlett2@unl.edu)

Regional – *Impacts for September - November 2019*

Agriculture

It was a difficult harvest season for the region, especially for corn, soybeans, sugar beets, and sunflowers. Not only were crops slow to mature, but wet conditions in the fields made it impossible for some producers to complete harvest.

Harvest conditions in North Dakota have been particularly unfavorable this autumn. By the beginning of winter, only 43% of the North Dakota corn crop had been harvested and thousands of acres of sugar beets were left in the fields, unharvested. In response to the wet conditions and widespread impacts, in early November, North Dakota Governor Doug Burgum requested a disaster declaration for 47 counties in the state. This was subsequently approved by the USDA.

The impacts of this wet year will continue to be realized well into 2020.

Energy

Cool, wet conditions have led to an increase in energy demand across the region. This demand is driven by crop drying needs (propane) and home heating needs. Nationally, there is not a shortage of supplies; however, there have been challenges in the supply chain, making it difficult to fulfill all energy needs. In response, the Federal Motor Carrier Safety Association issued an emergency declaration for several states in the region.

Infrastructure

Infrastructure continued to be impacted by flooding this season, and construction crews have been hard at work making repairs to roads, bridges, and levees.

In parts of the Sand Hills in central and western Nebraska, some roads have been inundated for months due to the high water table. Although some roads have been repaired and reopened, others will have to wait until the water recedes and the weather improves.

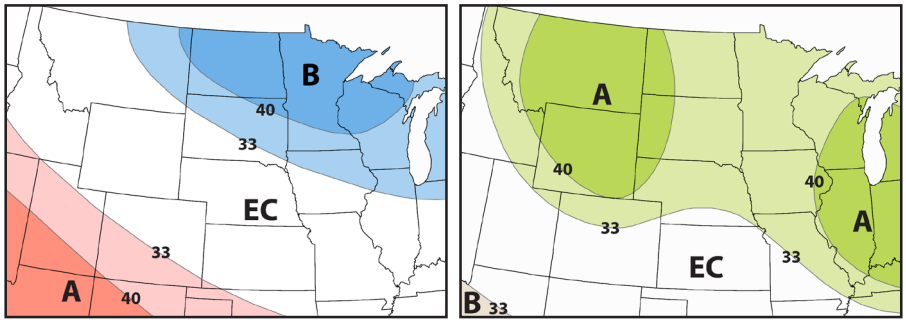
Above: Mature soybeans near Aberdeen, SD, photo courtesy Laura Edwards, SDSCO (left); Flooding on I-90, west of Sioux Falls, SD, photo courtesy Patrick Todey (right).

Regional – *Outlook for January - March 2020*

Temperature

Precipitation

Outlooks for January - March 2020



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

A: Above normal, B: Below normal

According to NOAA's Climate Prediction Center, ENSO-neutral conditions are present and expected to continue through the spring. Over the next three months, below-normal temperatures are favored for northern portions of the region, while above-normal temperatures are favored across the southwestern half of Colorado. Above-normal precipitation is favored across the majority of the region.

Regardless of the outlooks, the region is at an increased risk for flooding in the spring. Even near-normal winter precipitation could result in above-normal runoff next spring due to the wet soil conditions and high flows that are currently in place.

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

Contact: Natalie Umphlett (numphlett2@unl.edu)
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