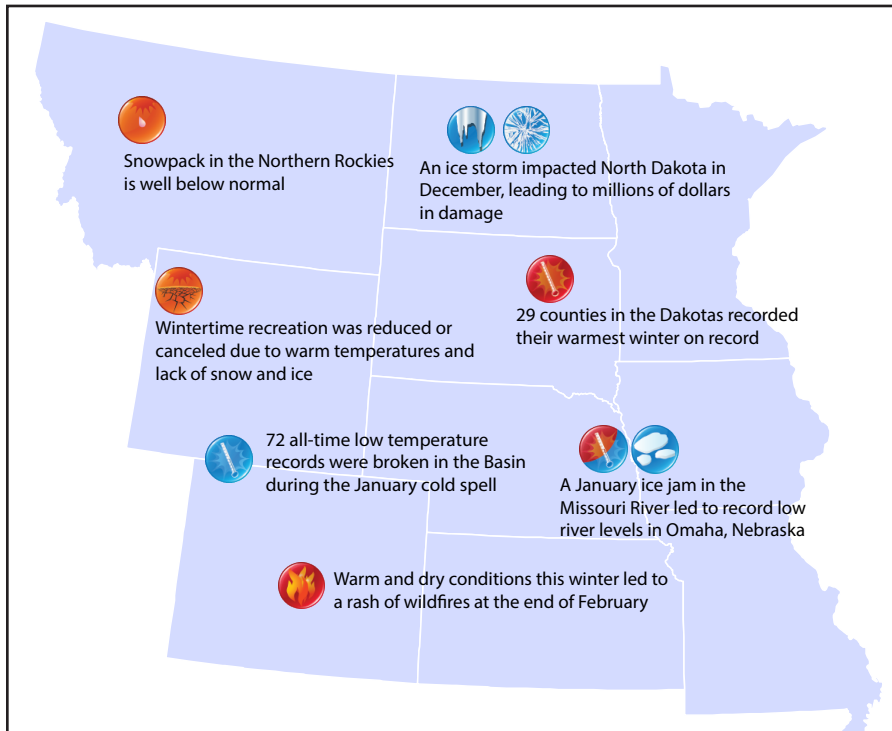




### Regional – Significant Events for December 2023 - February 2024



### Highlights for the Basin

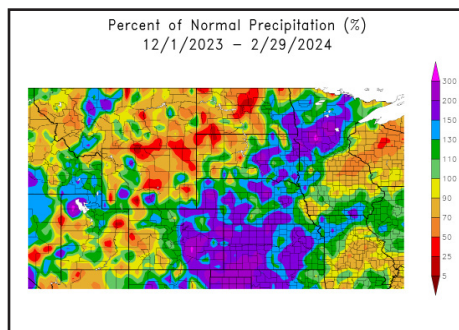
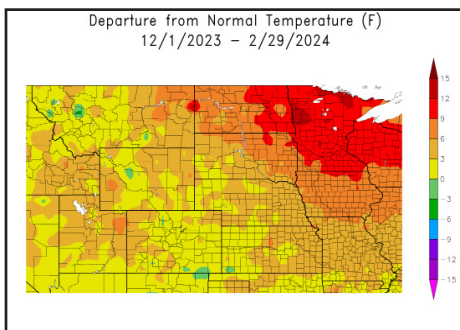
This winter was historically warm in the Dakotas, with records obliterated in some places. 46 counties in both states broke their minimum temperature records for the winter. Highlighting the extreme warmth, Cass and Traill in North Dakota were nearly 17 degrees F above their normal minimum temperatures. Within Cass County, Fargo surpassed their previous average temperature record by 4.4 degrees F and their average minimum temperature by 4.8 degrees.

Late February brought the return of fire weather, with a large fire breaking out near North Platte, Nebraska. 71,000 acres burned in just a day and a disaster was declared by the state, however, minimal damage occurred due to the sparse population.

### Regional – Climate Overview for December 2023 - February 2024

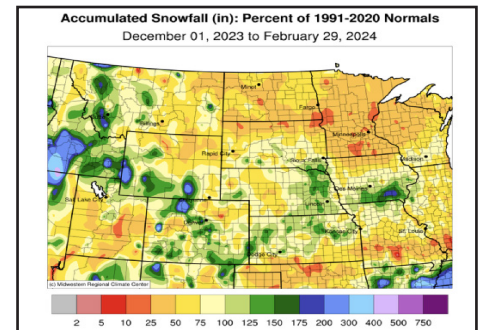
#### Temperature and Precipitation Anomalies

Departure from Normal Temperature (°F) (left) and Percent of Normal Precipitation (%) (right) for Winter 23-24



#### Snow Drought This Winter

Dec. 1, 2023 - Feb. 29, 2024



In typical El Niño fashion, temperatures were well above normal for the region. December and February brought record warmth, but January was below normal due to the single but very cold air outbreak. North Dakota recorded its warmest winter on record, while the majority of the region ranked in the top 5.

Precipitation was above normal for the southern and eastern parts of the basin, while the northwestern portions were below normal. December was unusually wet in the Dakotas, with 11 counties ranking wettest. Several winter storms impacted the southeastern parts of the Basin in January, while February was nearly bone-dry for eastern Nebraska and parts of the Dakotas.

The map above shows the percent of normal snowfall for this winter, with shades of red/yellow representing below normal and shades of blue/green meaning above-normal. Typical of an El Niño pattern, snowfall was below normal in the northern basin. Parts of northern Wyoming were 30 inches below their normal snowfall this winter.



## Regional – Impacts for December 2023 - February 2024

### Agriculture

Warmer temperatures led farmers to begin fieldwork much earlier than usual, with soybeans already planted in some parts of Nebraska. Winter wheat is also highly susceptible to frost this spring after breaking dormancy early. Calving was easier this year due to lower snowfall and warmer temperatures, however, these conditions have led to early insect emergence.



Above: Flowers blooming near Kansas City, Missouri, credit Doug Kluck (left); Manhattan, Kansas during the January cold spell, credit Matthew Sittel (right)

### Water Resources

Snowpack by mid-March was at 75 percent in the Northern Rockies. Runoff will likely be well below normal, with potential implications for irrigators and navigation this summer. Rivers in the northern portions of the Basin were ice-free at the end of February, which is several weeks ahead of a typical year. Drought conditions increased up to three classes this winter due to the dryness.



### Phenology

In response to the unseasonably warm temperatures, plants across the southern part of the region began greening up weeks earlier than usual. Spring blooming perennials were blossoming in Kansas City by late February, which led to an earlier occurrence of seasonal allergies and more susceptible to a late frost.

### January Cold Air Outbreak

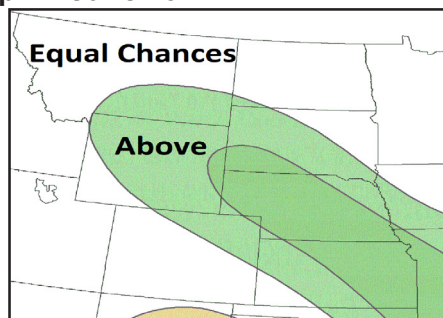
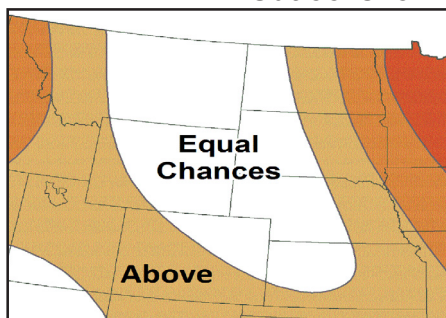
A bone-chilling cold outbreak impacted the region in the middle of January. Combined with gusty winds, wind chills bottomed out at [-70 degrees F](#) in North Dakota. Thousands of daily records were broken, and numerous all-time records across the Basin. The Kansas City Chiefs playoff game ranked as the 4th coldest NFL game, with wind chills reaching [-28 degrees](#). Helmets [shattered](#) due to the cold, and dozens of cases of [frostbite cases](#) were reported. 70% of [frostbite cases](#) were advised to undergo amputations.

## Regional – Outlook for April - June 2024

### Temperature

### Precipitation

#### Outlooks for April - June 2024



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

A: Above normal, B: Below normal

According to NOAA's Climate Prediction Center, the outlook for the upcoming season indicates increased chances of above-normal temperatures across the eastern and western portions of the Basin. Increased chances of above-normal precipitation are present in Kansas, Nebraska, South Dakota, Wyoming, and southern Montana. The rest of the Basin has equal chances of above, below, and near-normal precipitation.

El Niño influences will end and shift towards ENSO-neutral this spring. Above-normal precipitation this spring across the central portions of the Basin would be beneficial to drought conditions, however, this could lead to delays in fieldwork and planting.

## MO River Basin Part-

High Plains Regional Climate Center  
[www.hprcc.unl.edu](http://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](http://www.ncdc.noaa.gov)

NOAA NWS- Central Region  
[www.weather.gov/crh](http://www.weather.gov/crh)

NOAA NWS Climate Prediction Center  
[www.cpc.ncep.noaa.gov](http://www.cpc.ncep.noaa.gov)

NOAA NWS Missouri Basin River Forecast Center  
[www.weather.gov/mbrfc](http://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/](http://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](http://www.nrcs.usda.gov)

USDA Northern Plains Climate Hub  
[www.climatehubs.ocs.usda.gov](http://www.climatehubs.ocs.usda.gov)

Bureau of Indian Affairs – Great Plains Region  
[www.bia.gov/regional-offices/great-plains](http://www.bia.gov/regional-offices/great-plains)