

### Midwest Ag-Focus Climate Outlook

#### Main Points



- ◆ Warm and dry has been the theme over the last month across much of the North Central US, with a few exceptions, including the Christmas system dropping multiple inches of precipitation in areas.
- ◆ The region saw both 1- to 2-class improvements and degradations in drought status, and concerns are starting to weigh heavily on whether or not soil moisture will be recharged this winter.
- ◆ The next three months follow a typical El Niño pattern overall, where temperatures lean warmer for the region and conditions drier for the northern and eastern states.

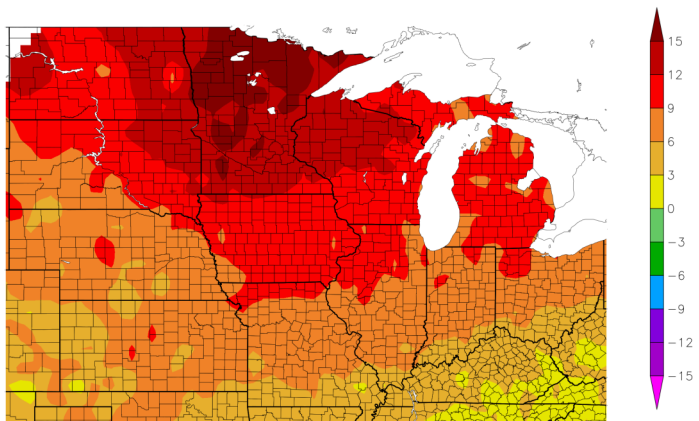


Daffodils breaking dormancy early due to warmth (credit: NWS DSM).



#### Current Conditions

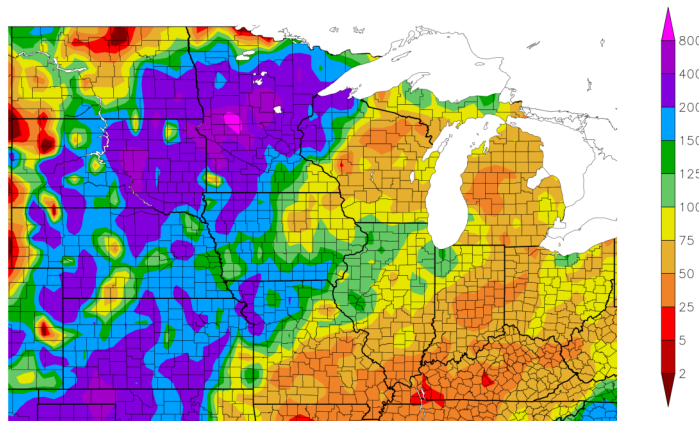
Departure from Normal Temperature (F)  
12/5/2023 - 1/3/2024



Generated 1/4/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

Percent of Normal Precipitation (%)  
12/5/2023 - 1/3/2024



Generated 1/4/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

The whole region saw temperatures above normal the last 30 days, which is likely a result of El Niño and climate change as the frigid winter air masses were locked up in Canada. The northern states have seen the largest departures from normal. Parts of Minnesota- Duluth, International Falls, Rochester, St. Cloud, and the Twin Cities- observed both the highest high temperature and the highest low temperature on record on December 24<sup>th</sup>. Some of the daily low temperatures were 6-10°F higher than any other low temperature on record. Much of the region has seen few-to-no days in December where the daily maximum temperature fell below freezing, and climatologists are trying to determine if this is a first on record. Some ag implications are that colder air temperatures bring colder soils, aid in crop dormancy, accumulation of chilling hours, and maintenance of snow cover (if snow falls). December was slightly wetter than previous months, but there is still widespread dryness and the impacts are starting to show (impacts discussed below). Nearly the entire eastern half of the Corn Belt saw less than 100% of normal precipitation, with widespread areas of 50% or below. There were even a few targeted areas of less than 5% of normal precipitation, namely in the Dakotas and Nebraska. Kansas and Minnesota are two outliers in precipitation recently. Kansas had a huge rain event the week of December 11, which may put December 2023 in the top 10 wettest Decembers on record and totaling as much as 400% of normal precipitation. 3.59" was the largest total for this event, which occurred on the Kansas/Oklahoma border. Over the last 30 days, most of Minnesota saw greater than 100% of normal precipitation, with a small area at 800% of normal. The state saw a significant amount of precipitation over Christmas, where nearly 60% of Minnesota received 1.5"+. Many areas across the state saw record precipitation between December 23-26, including a 3-day total of 3.52" reported near Big Lake by a CoCoRaHS observer. In all the precipitation that fell, almost all of it fell as rain due to the lack of cold air.

Images from High Plains Regional Climate Center (HPRCC), [ACIS Climate Maps](#). Generated: 1/4/2024.



## Impacts

### Drought

All states in the North Central region continue to see some status of drought. Over the last 4 weeks, there have been both 1- to 2-class improvements (central) and degradations (east), where there's generally greater or less than 100% of normal precipitation. However, much of the region remains unchanged with the overall lack of precipitation. It's approximately the 180<sup>th</sup> week of D1 somewhere in Iowa, which is the longest stretch since the 1950s. Exceptional drought persists in southeast Nebraska, with some places being consistently exceptional for the past 5 months. On the flip side, almost 60% of Nebraska has no intensity of drought, which is the best since spring 2020.

### Hydrological

While surface soil moisture has improved with recent precipitation, subsoils, water tables, reservoirs, and rivers are seeing lower levels due to having very little chance to recharge. If soil moisture does not recover over the winter, concerns may be raised because of the lack of moisture during spring planting and germination. With low river levels and low flow, particularly on the Missouri and Ohio rivers, there are concerns for ice jams. Low water levels and flow mean that water can freeze quicker. When a river freezes, the water is trapped below the ice and lowers the water level in the river, thus, creating ice jams. Low reservoir and water table levels mean water supply concerns. Osceola and south-central Iowa are still dealing with issues, where Osceola has now called for its citizens to consider drinking bottled water because of quantity issues.

### Snow

The Great Plains and into the western Midwest experienced a White Christmas, where some reported nearly 17" in northwest Nebraska and western South Dakota, which put parts of Nebraska and South Dakota (barely) into the above normal snowfall category. For the southern Midwest, such as Missouri, Illinois, Indiana, and Ohio, it's not out of the ordinary to go snowless up to the New Year. However, the upper Midwest has experienced abnormal snowfall- ranging from 1 to 40 inches below normal for the month of December, according to the MRCC's accumulated snowfall departure map. Climatologists are filtering through records to determine if some states have ever experienced this little amount of snow to date. According to the [National Weather Service](#) as of January 2, Gaylord, MI has only seen 27.5" of snow this season, where the normal to date is 59.3". Recreational activities that are dependent on colder temperatures and snow are suffering (e.g., skiing, ice fishing, snowmobiling).

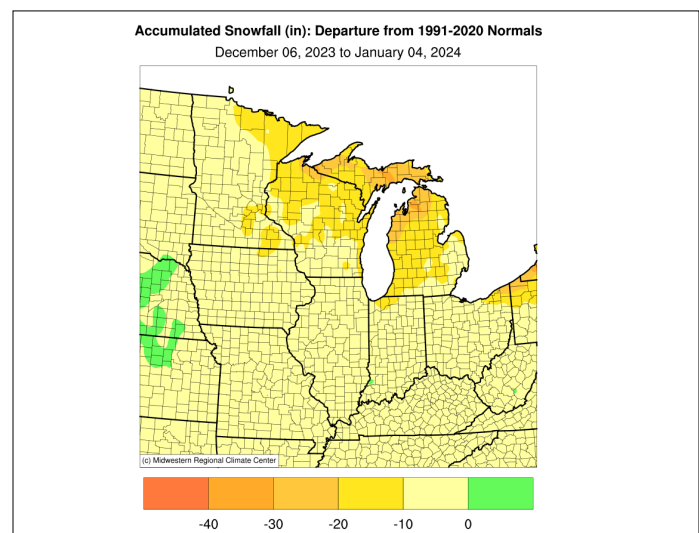
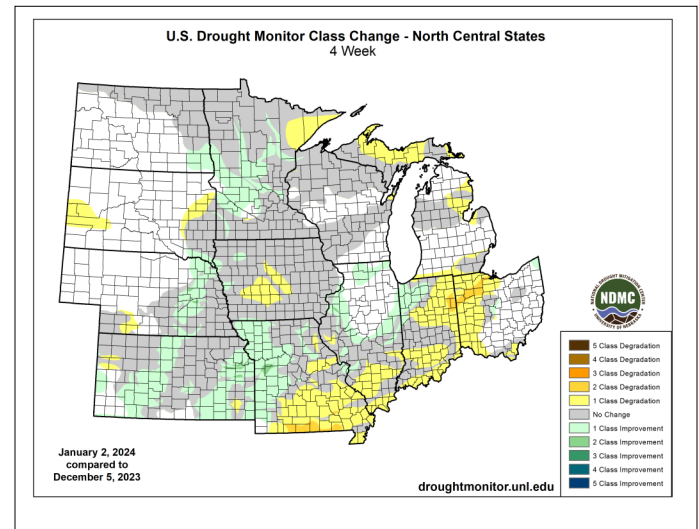
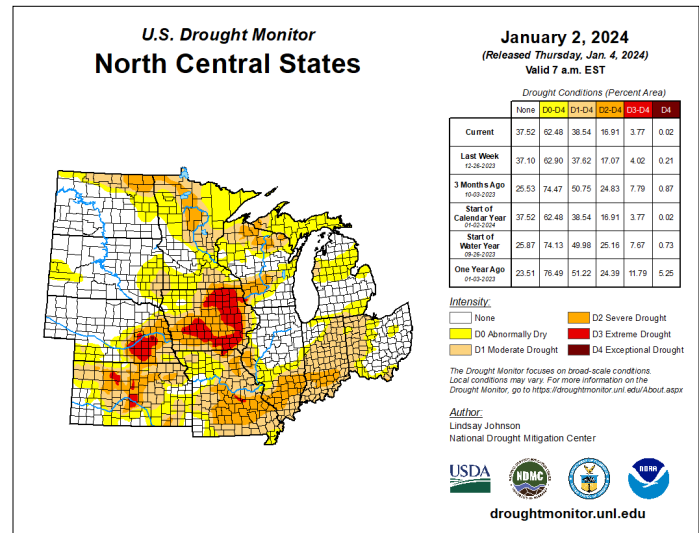
### Crops and Livestock

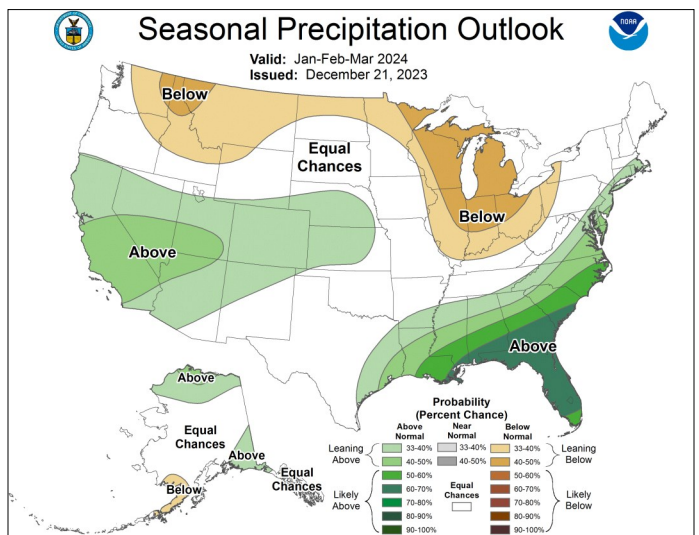
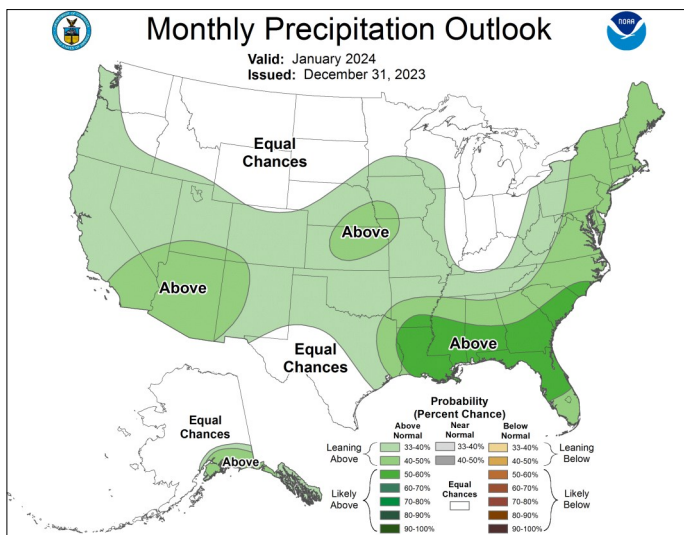
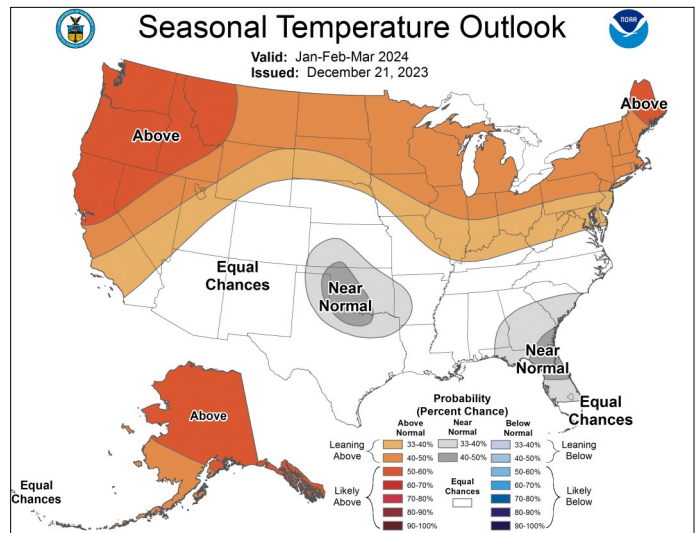
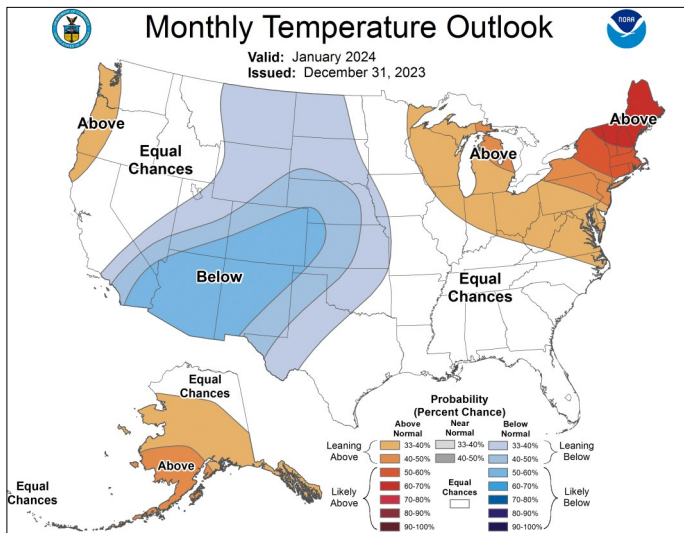
While there has been a lack of snow cover to protect fall planted crops, there has been little cold air to cause winter damage. With warmer temperatures, early dormancy break is occurring. With unfrozen soils and little-to-no snow cover, cattle are feeding on less hay and rather grazing on corn stalks and whatever they can dig up in cover crops. With relatively dry conditions, livestock pastures are significantly less muddy.

### Fire

The fire community said they haven't seen much fire partly due to okay surface soil moisture, despite dryness and lack of snow cover to stop fire this time of year.

Maps Generated by the [National Drought Mitigation Center](#) and the [Midwestern Regional Climate Center cli-MATE system](#).





Outlooks provided by the [Climate Prediction Center](https://climatepredictioncenter.com/).

**Outlook**



Over the next two weeks, temperatures look to lean below normal to the west whereas the eastern half of the region may potentially see above normal temperatures in the 6-10 day outlook and near normal temperatures in the 8-14 day outlook. Over the next 6-10 days, precipitation chances are leaning above normal in the upper Midwest and likely above normal to the east and south. Similarly, most of the Midwest has the chance to see above normal precipitation between days 8-14, with the exception southern Illinois, Missouri, and the eastern half of Kansas seeing near normal conditions. In January, temperatures may be above normal to the east and below normal to the west, with equal chances for above, near, or below normal temperatures from Minnesota down to Missouri and Kentucky. Precipitation is generally leaning above normal to the south with equal chances to the north. The next three months follow a typical El Niño pattern overall, where temperatures lean warmer to the north and conditions lean drier (wetter) around the Great Lakes and Ohio Valley (central Plains). Confidence is high that El Niño will stick around through April, and potentially transition to the Neutral phase for the summer.

**Partners and Contributors**



- [United States Department of Agriculture \(USDA\)](https://www.usda.gov/)
- [National Oceanic and Atmospheric Administration \(NOAA\)](https://www.noaa.gov/)
- [Climate Prediction Center \(CPC\)](https://climatepredictioncenter.com/)
- [National Weather Service \(NWS\)](https://www.weather.gov/)
- [National Center for Environmental Information \(NCEI\)](https://www.ncei.noaa.gov/)

- [\(NCEI\)](https://www.ncei.noaa.gov/)
- [National Drought Mitigation Center \(NDMC\)](https://www.ndmc.gov/)
- [National Integrated Drought Information System \(NIDIS\)](https://www.nidis.gov/)
- [Midwestern Regional Climate Center \(MRCC\)](https://www.mrcc.gov/)



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