Quarterly Climate Impacts and Outlook

Midwest Region

March 2024

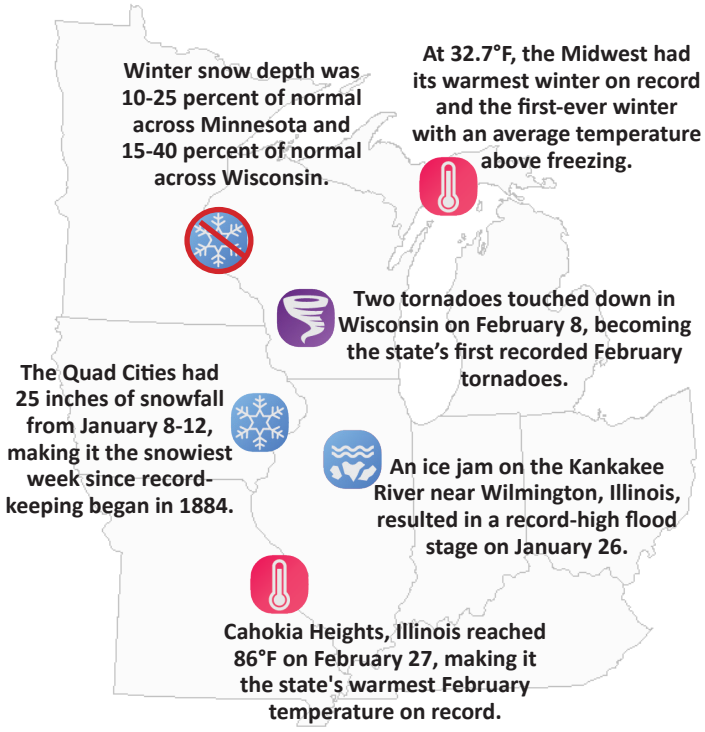
Midwest Significant Events – *December 2023 - February 2024*

Persistent warmth blanketed the region in December. Much of Minnesota saw 3 months' worth of rain in just 3 days, from December 24-26. The upper Midwest, which tends to have 5 to 24 inches of snowpack by late December, ended the month with mostly bare ground.

The first (and only) true blast of winter weather affected the region from about January 9-22. Multiple rounds of winter storms ushered in cold temperatures, bitter wind chills, and isolated heavy snowfall.

January was much cloudier than usual across the Midwest. Many locations across Illinois, Indiana, Kentucky, Ohio, and Michigan had measurable precipitation on more than half the days in January. A dense fog event from January 23-27 affected the majority of the region as mild Gulf Coast air pushed across cold, moist, and snow-covered ground.

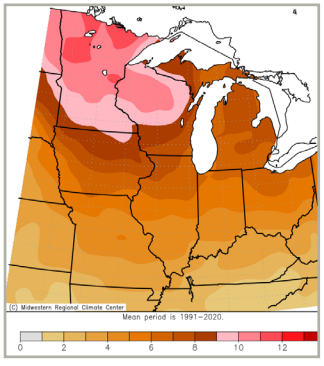
Unseasonable warmth returned in February. At least 22 tornadoes were confirmed across Illinois, Indiana, Michigan, and Ohio on February 27-28. Kenosha broke Wisconsin's all-time high temperature for February and winter at 77°F on February 27, and locations in many states had their earliest 70°F temperature on record.



Regional Climate Overview – *December 2023 - February 2024*

Winter Temperature

Departure from Normal (°F)

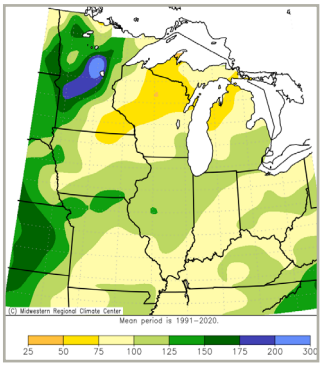


Winter temperatures were 4-8°F above normal across the lower Midwest and up to 12°F above normal across the upper Midwest. The Midwest, Iowa, Minnesota, Wisconsin, and Michigan had the warmest winter on record. Minnesota's winter temperature exceeded the previous record, set in 1997-98, by 2.7°F. Missouri, Illinois, Indiana, and Ohio had the second warmest winter on record.

The upper Midwest had above-normal temperatures during all three winter months, while the lower Midwest had normal to below-normal temperatures in January, with unusual warmth in December and February. Minnesota shattered the previous record warm December, which occurred in 2015, by 4.9°F. Wisconsin and Iowa also had a record-warm December. In February, the Midwest, Iowa, Minnesota, Missouri, and Wisconsin had record-setting warmth.

Winter Precipitation

% of Normal

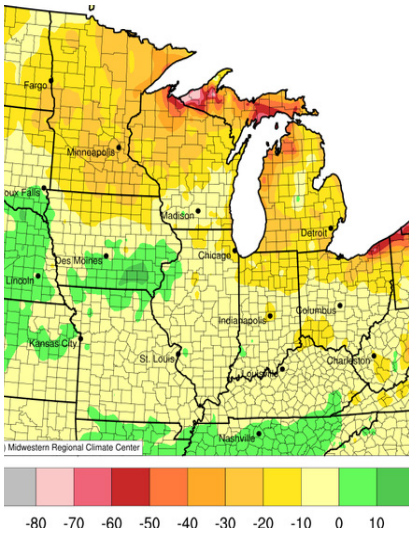


Winter precipitation was near average for the Midwest, oscillating between wet and dry across the region from month to month. Minnesota had a record-wet December. Illinois had its second driest February.

Excluding Iowa, the Midwest lacked winter snowfall and snowpack fueled by above-normal temperatures. The greatest snowfall deficits were in lake-affected regions across the upper Midwest where winter snowfall was 40-80 inches below normal (10-50 percent of normal).

Winter Snowfall

Departure from normal (inches)



Contact: Doug Kluck (doug.kluck@noaa.gov)
Melissa Widhalm (mwidhalm@purdue.edu)

Regional Impacts – *December 2023 - February 2024*

Winter Warmth

Persistent winter warmth had far-reaching impacts—some positive and some negative. Energy costs were lower than usual for Midwestern households due to reduced heating demand. Tourism and recreation had a difficult season, with ski resorts closed early, snowmobile trails shuttered, unsafe ice fishing conditions, and canceled festivals. Record and near-record early ice out and short ice season length were reported in Minnesota and Wisconsin.

Lack of snow cover (credit: Minnesota State Climatology Office)

Agriculture and Natural Resources

Farmers had an early start to the maple syrup season, with reports of tapping several weeks ahead of normal in Wisconsin, Indiana, and Michigan. In Ohio, unfrozen ground contributed to rutting and root damage during syrup collection. Across the lower Midwest, many locations had unfrozen ground all winter. This allowed for water infiltration in January in areas where rainfall was abundant, but it also enabled evaporation in February. A lack of deep soil moisture was reported in Indiana, Iowa, Illinois, and Missouri. Pollen season was weeks ahead of schedule across the lower Midwest as the warmth quickly advanced plant phenology, and early-blooming flowers were spotted even in the upper Midwest.

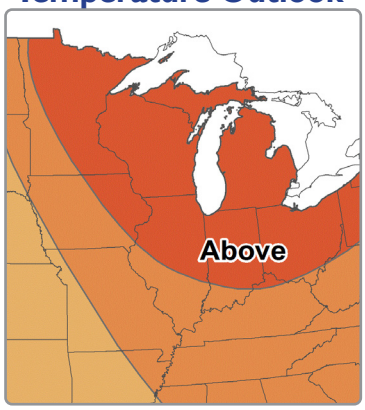
Kankakee River ice jam near Wilmington, IL (credit: Will County Emergency Management Agency)

January Arctic Blast

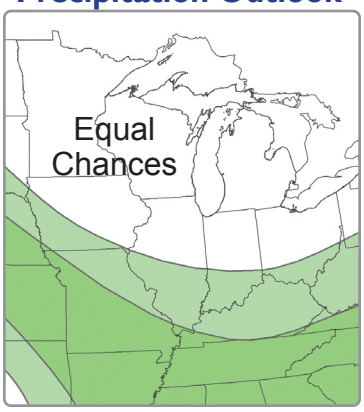
Numerous injuries and fatalities from cold exposure were reported during the January cold snap in Missouri, Illinois, and Indiana. Rapid freezing caused navigation issues as barges froze on the Kankakee River and river flooding from ice jams. Peach crop damage was reported in southern Illinois, and the full extent of the damage will be unknown until later in the growing season.

Regional Outlook – *April - June 2024*

Temperature Outlook



Precipitation Outlook



NOAA forecasters are predicting increased chances of above-normal temperatures for the entire Midwest. The precipitation outlook shows a slight chance of above-normal precipitation across the southern Midwest, with equal chances of above-, below-, or near-normal precipitation in the north.

Strong El Niño conditions have started to weaken, and a transition to ENSO-neutral conditions are expected during spring.

The continuation of long-term drought around and west of the Mississippi River threatens trees, ecosystem health, reservoir levels, recreation, and agriculture. Some locations have multi-year precipitation deficits over 30 inches. Dry soils, especially a foot or two below the surface, are a concern for river baseflows and water supply. Normal to slightly above-normal spring precipitation will do little to alleviate long-term dryness.

Plants and crops entered spring weeks ahead of schedule, particularly across the lower Midwest. Advanced phenology puts fruit crops at risk of damage as normal freezes can occur throughout April and May.

Spring flood potential is below normal in the Upper Mississippi River Basin due to historically low snow depth and snow water equivalent. Spring flood potential is normal to below normal in the Ohio River Basin.

Midwest Partners

- Midwestern Regional Climate Center
- American Association of State Climatologists
- National Integrated Drought Information System
- USDA Midwest Climate Hub
- National Drought Mitigation Center
- NWS Climate Prediction Center
- NWS Central Region Headquarters
- North Central River Forecast Center
- Ohio River Forecast Center
- National Centers for Enviro. Info

Contact: Doug Kluck (doug.kluck@noaa.gov)
Melissa Widhalm (mwidhalm@purdue.edu)