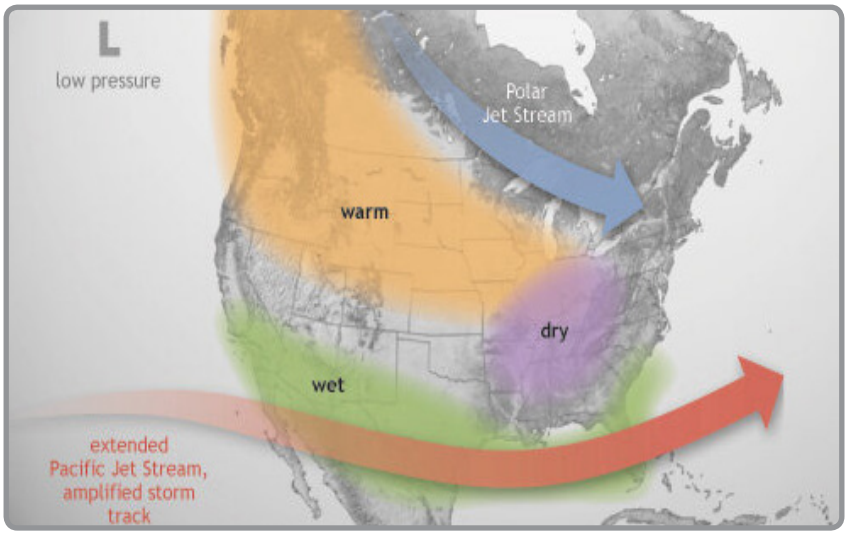
El Niño Impacts and Outlook

Midwest Region

November 2026

Typical El Niño Winter Pattern



During El Niño winters, the Polar Jet Stream tends to stay further to the north while the Pacific Jet Stream remains across the southern U.S. With the Midwest region falling between storm tracks, warmer and possibly drier conditions (particularly in the Ohio River Valley) can develop during El Niño events.

Image courtesy of the National Oceanic and Atmospheric Administration.

Highlights for the Midwest

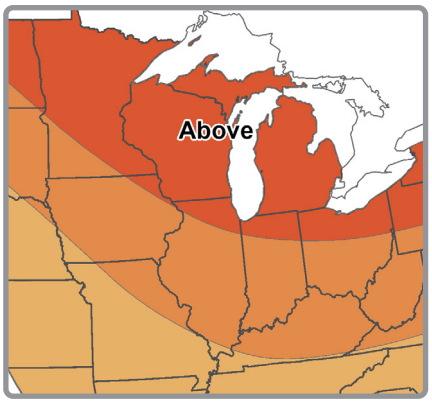
An El Niño develops when sea surface temperatures are warmer than average in the eastern equatorial Pacific Ocean for an extended time. El Niño conditions can affect North American weather patterns, especially in the winter and early spring.

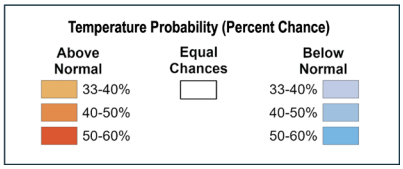
While each El Niño event is different, some general patterns are predictable. For instance, the Polar Jet Stream is typically farther north than usual, while the Pacific Jet Stream tends to remains across the southern U.S.

El Niño does not determine every storm, but it shifts the odds. This pattern brings increased chances of above-normal temperatures to the upper Midwest. Cold weather will still occur, but cold air outbreaks tend to be less frequent. The Ohio River Valley generally has an increased chance of dry weather during an El Niño winter.

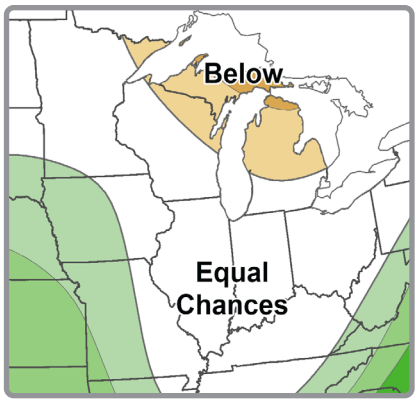
Winter Outlook -- *December 2026 - February 2027*

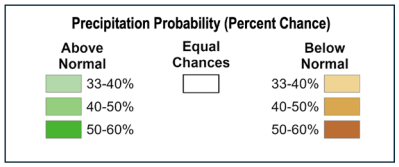
Temperature





Precipitation





Images courtesy of the National Oceanic and Atmospheric Administration.

NOAA's winter temperature outlook (issued in October 2026) indicates the Midwest has an increased chance of above-normal temperatures, with greater chances of above-normal temperatures across the Great Lakes and upper Midwest.

The winter precipitation outlook shows a slightly increased chance of below-normal precipitation across the central Great Lakes. There are equal chances of above-, below-, and near-normal precipitation along the Mississippi River and across the Ohio River Valley.

An El Niño Advisory is currently in effect, which means El Niño conditions have developed and are expected to continue.

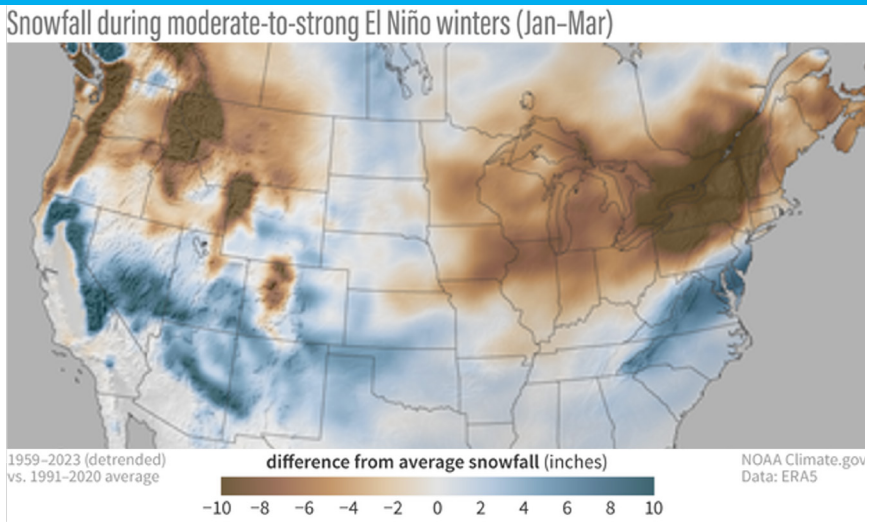
According to the NOAA Climate Prediction Center, there is a 100 percent chance that El Niño conditions will last through early 2027. There is an **83 percent chance** this will be the **strongest El Niño event on record** (dating back to 1950).

Contact: Melissa Widhalm (mwidhalm@purdue.edu)

Potential Winter and Spring Impacts

Snowfall

The map to the right shows areas that tend to receive more (blue) or less (brown) than average snowfall from January to March during moderate-to-strong El Niño events from 1959 to 2023. The Midwest and Great Lakes tend to have below-average snowfall.



Map source: NOAA ENSO Blog (Archived)

Agriculture

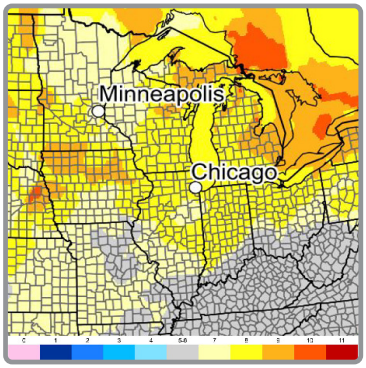
The far upper and far lower Midwest are entering winter with below-normal soil moisture. In the north, drier conditions due to El Niño may slow drought recovery, while wetter conditions may bring relief in the south. Additionally, reduced snowpack can expose crops to harsh winds and cold air outbreaks.

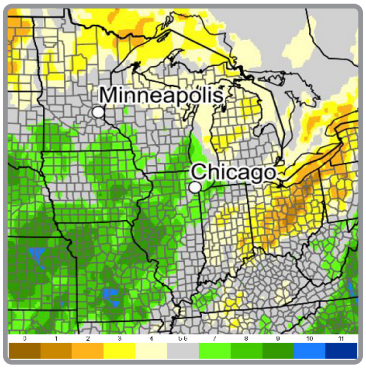
Milder winter temperatures should benefit livestock producers by reducing operating costs and animal stress, but unfrozen soils are at an increased risk of becoming excessively muddy during rain events. Wheat, forage, and cover crops may benefit from milder conditions. Northern fruit crops could achieve chilling requirements more rapidly, which can increase vulnerability to frost damage in the early spring.

Economy

Mild winters with lower snowfall can be beneficial to construction and home sales, along with reduced heating costs and increased retail sales. Economic losses from a mild winter include reduced salt sales, snow removal, and towing. Winter sports and businesses that depend on typical winter conditions may be negatively affected.

Comparisons and Limitations





Source: ERA5 Reanalysis, maps by Brian Brettschneider

Variability of Winter Conditions During Past El Niño Years

While El Niño winters (Dec-Jan-Feb) tend to be warmer and, in some places, drier, across the Midwest, each event is unique and may not follow this pattern. The **left top map** shows how many of the 11 past strong-to-very strong El Niño events since 1950 resulted in above-normal temperatures (gray = 5 to 6 times, yellows = 7 to 8 times, oranges = 9 to 10 times). The **left bottom map** shows how many past events since 1950 resulted in above-normal precipitation (browns to yellows = 0 to 4 times, gray = 5 to 6 times, greens = 7 to 9 times, blues = 10 to 11 times). *Analysis years: 1958, 1966, 1973, 1983, 1988, 1992, 1998, 2003, 2010, 2016, 2024; RONI ERSSTv5 severity threshold reached at any point between Oct. and March.*

Past El Niño events can help inform weather forecasts, but there are some limitations. For instance, El Niño is *not* known to impact:

- first freeze in the fall (early or late),
- last freeze in the spring (early or late),
- potential for ice storms or blizzards,
- track/intensity of any one weather system,
- potential for spring drought or flooding.

Additionally, El Niño events are happening alongside other modes of climate variability and a warming trend in long-term global climate patterns, including warmer winters in the Midwest region. This creates added complexity for identifying El Niño signals.

Midwest Partners

Midwestern Regional Climate Center

American Association of State Climatologists

National Integrated Drought Information System

USDA Midwest Climate Hub

National Oceanic and Atmospheric Administration

National Centers for Enviro. Info

Contact: Melissa Widhalm (mwidhalm@purdue.edu)