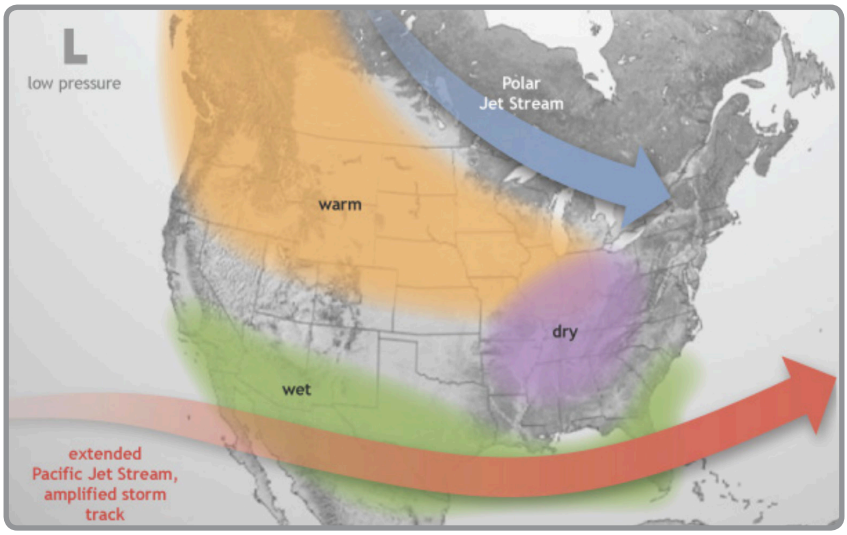
El Niño Impacts and Outlook

Great Lakes Region

November 2026

Typical El Niño Winter Pattern



During El Niño winters, the Polar Jet Stream tends to stay to the north of the Great Lakes region, while the Pacific Jet Stream remains across the southern U.S. With the Great Lakes positioned between the storm tracks, warmer and possibly drier conditions can develop during El Niño events.

Image courtesy of the National Oceanic and Atmospheric Administration.

Highlights for the Great Lakes Basin

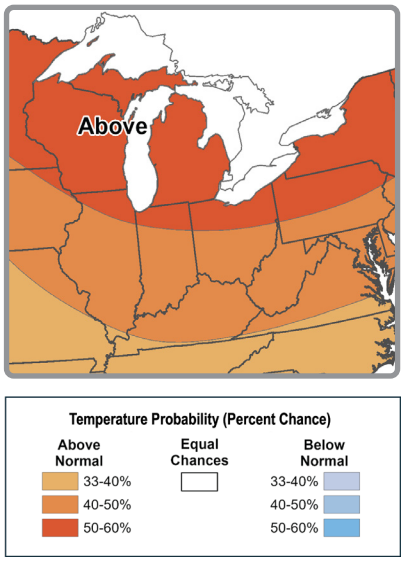
An El Niño develops when sea surface temperatures are warmer than average in the eastern equatorial Pacific Ocean for an extended time. El Niño conditions can affect North American weather patterns, especially in the winter and early spring.

While each El Niño 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.

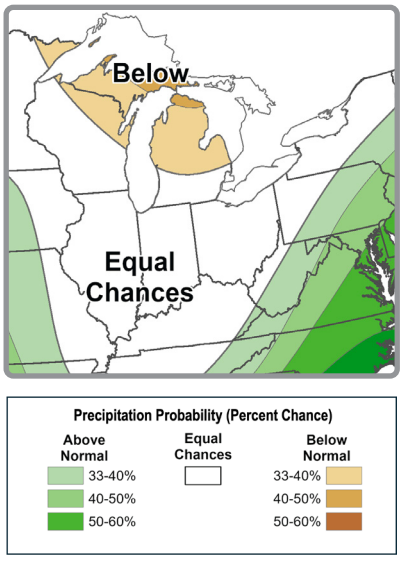
El Niño does not determine every storm, but it shifts the odds. This pattern brings increased chances of above-normal temperatures to the Great Lakes region. Cold weather will still occur, but cold air outbreaks tend to be less frequent. El Niño also increases the chances of dry conditions, especially in the southern portion of the Great Lakes basin.

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 Great Lakes basin has an increased chance of above-normal temperatures. The Canadian outlook shows a similar pattern.

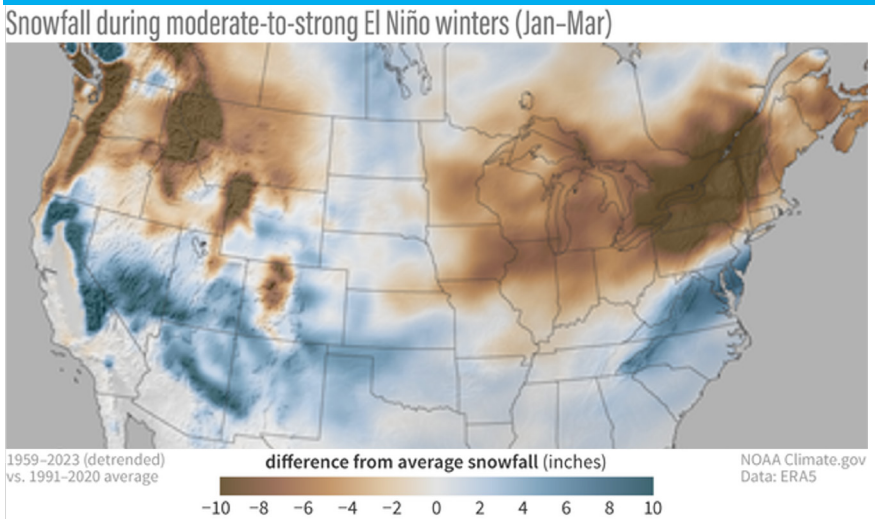
The winter precipitation outlook also shows a slightly increased chance of below-normal precipitation across the central Great Lakes. There are equal chances of above-, below-, and near-normal precipitation across the southern and eastern portions of the basin. The Canadian outlook shows a similar pattern.

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).

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Potential Winter and Spring Impacts



The image above 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 Great Lakes tend to have below-average snowfall. Source: NOAA ENSO Blog (Archived)

Water Levels and Ice

Runoff is typically a significant contributor to increasing lake levels, but runoff may be limited this winter and spring due to warmer temperatures and reduced snowpack. Warmer winter temperatures may also contribute to basin wide reduced ice cover on the Great Lakes.

Agriculture

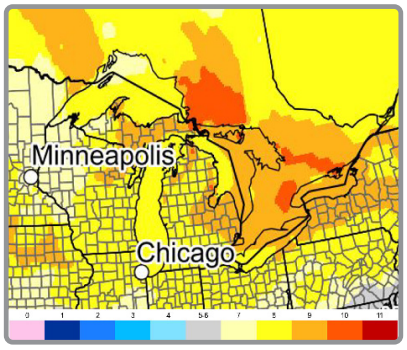
Much of the western and central Great Lakes region is entering winter with below-normal soil moisture, so drier conditions due to El Niño may slow drought recovery. Additionally, reduced snowpack can expose crops to harsh winds and cold air outbreaks. Milder winter temperatures should benefit livestock producers by reducing operating costs and animal stress. Wheat, forage, cover crops, and fruit plants may also benefit from milder conditions.

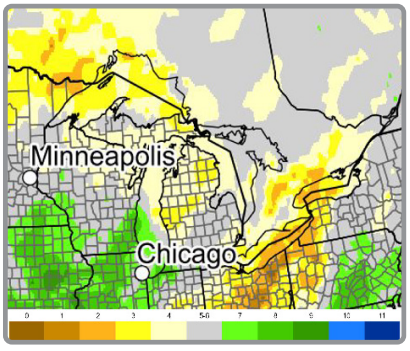
Economy

Mild winters with lower snowfall can be beneficial to construction and home sales, along with reduced heating costs and increased retail sales. Less ice on the Great Lakes could lead to an extended navigation season for shipping. 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

Variability of Winter Conditions During Past El Niño Years





Source: ERA5 Reanalysis, maps by Brian Brettschneider

While El Niño winters (Dec-Jan-Feb) tend to be warmer and drier across the Great Lakes, 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, red = 11 times). The **left bottom map** shows how many past events 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 inform 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 Great Lakes region. This creates added complexity for identifying El Niño signals.

Great Lakes Partners

Midwestern Regional Climate Center

American Assoc. of State Climatologists

National Integrated Drought Information System

USDA Midwest Climate Hub

National Oceanic and Atmospheric Administration

National Centers for Environmental Information

Environment and Climate Change Canada

Agriculture and Agri-Food Canada

GLISA

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