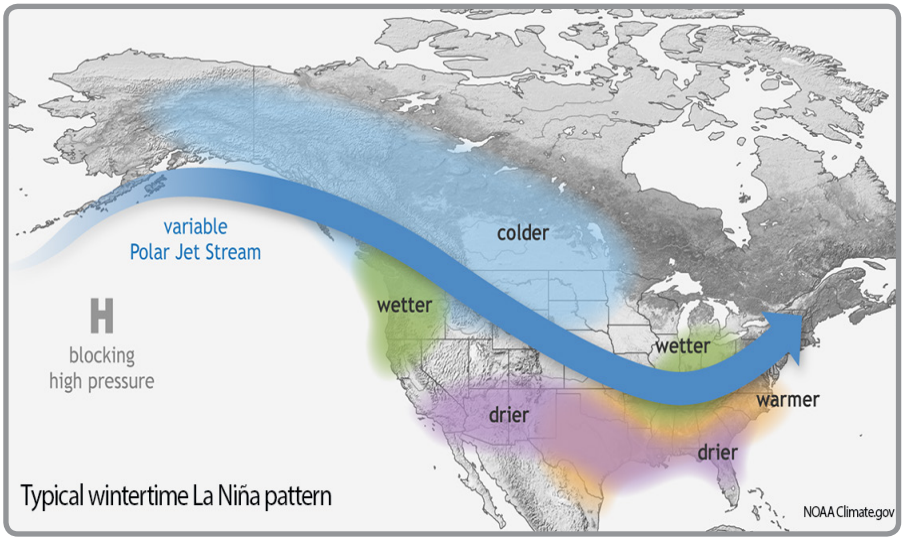
La Niña Impacts and Outlook

Midwest Region

October 2020

Typical La Niña Winter Pattern



The image above shows the typical pattern in the winter during La Niña events. The polar jet stream tends to stay to the south of the Great Lakes region, while the Pacific jet stream tends to track closely along the Pacific Northwest, bringing increased chances for moisture.

Image courtesy of the National Oceanic and Atmospheric Administration.

Highlights for the Midwest

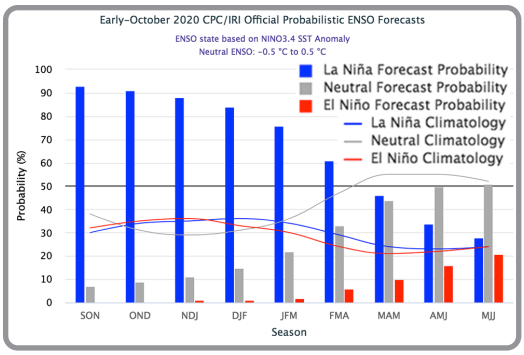
A La Niña develops when sea surface temperatures are cooler than average in the eastern equatorial Pacific for an extended time. This is important to North America because La Niña can impact our weather patterns, especially in the winter.

While no two La Niña events are alike, there are some general tendencies that emerge. For instance, the polar jet stream is typically farther south than usual.

This pattern brings enhanced chances for below-normal temperatures to the upper Midwest, particularly in the more western areas. The Ohio River Valley also sees enhanced chances of wetter-than-normal conditions, particularly for late winter. Warmer or drier weather events can still occur, but those events may be milder and less frequent across the basin.

La Niña Outlook

La Niña Probablility
Winter 2020-2021



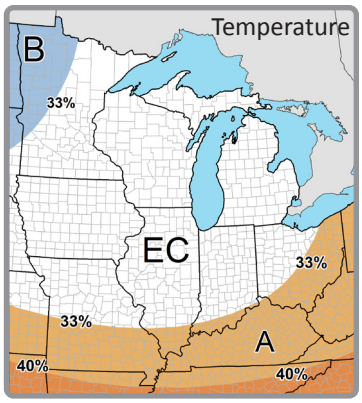
La Niña conditions have continued this fall and forecasts indicate that this La Niña will strengthen, peaking as a moderate or even strong event in late fall or early winter. According to the Climate Prediction Center, there is a greater than 85% chance that these conditions will last through the winter and about an 60% chance that La Niña will continue into the early spring, as shown in the image above. A La Niña Advisory is currently in effect.

Winter Temperature and Precipitation Outlooks

The winter temperature outlook (issued in October) indicates that the northwestern corner of the region has slightly increased chances of below-normal temperatures, while the southern parts of the region have slightly increased chances for above-normal temperatures.

Precipitation outlooks for the region show increased chances of above-normal precipitation for the Great Lakes region. There are equal chances of above-, below-, and near-normal precipitation for much of Iowa and Missouri, along with small areas of Minnesota, Illinois, and Kentucky.

Outlooks Valid for December 2020 - February 2021

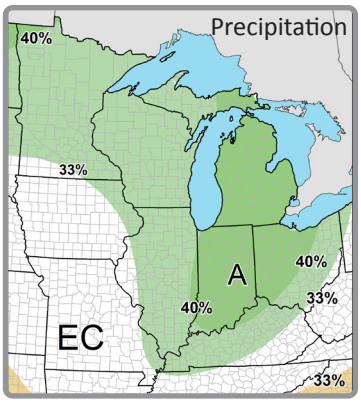


Outlook Probabilities

A: Above normal

B: Below normal

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



Contact: Doug Kluck (doug.kluck@noaa.gov)
https://www.drought.gov/drought/resources/reports

Potential Impacts

Agriculture

In the Midwest, most La Niña impacts are felt outside the growing season. Cold and snowy and wet winters could negatively impact winter wheat and fruit orchards. However, increased snowpack in the upper Midwest could insulate crops to harsh winds and cold outbreaks. Cold winter temperatures can be adverse for livestock producers due to increased operating costs and the potential stress to animals. A benefit of colder temperatures would be to limit certain pests (both plants and insects) and diseases.

Winter street scene. (NOAA photoarchive)

Winter joggers in a park. (IL-IN Sea Grant)

Economy

Cold and wet winters with above-average snowfall can have sector-specific impacts on the economy. The largest negative impacts associated with La Niña are increases in heating costs, snow removal, and difficulties in transportation. Sectors that depend on winter weather conditions could see a benefit from increased snowfall. These include winter recreation, snow removal and towing companies, and road salt sales. Colder and snowier conditions may also hamper construction in the region.

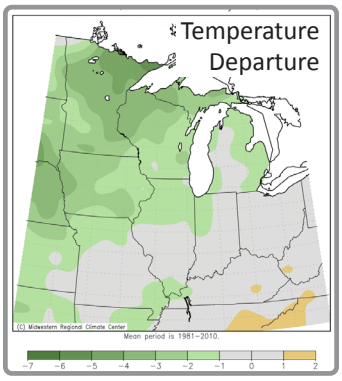
Ecosystems and Rivers

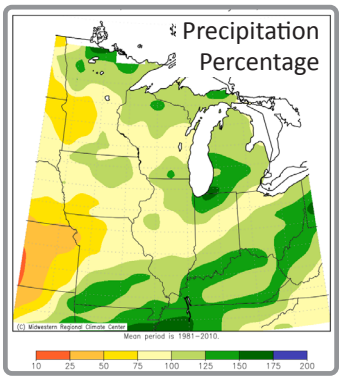
Similar to the potential issues with livestock, more severe winter conditions could be detrimental to some wildlife, but beneficial to others that depend on very cold temperatures. Water availability is complex and depends on both the rain/snow mix and when the precipitation falls. Early winter precipitation on unfrozen soils would be beneficial, while a large snowpack on frozen soils could lead to higher river levels in spring depending on how spring weather develops.

Snowy lake shore. (IL-IN Sea Grant)

Comparisons and Limitations

Winter Conditions During Past La Niña Years





Maps courtesy of Midwestern Regional Climate Center

The maps to the left illustrate winter conditions of the most recent La Niña event in 2017-2018. Much of the region was cooler than average, particularly in northwestern areas. Precipitation was varied with the driest areas to the west and wettest areas in the Ohio River Valley and near the Great Lakes. Note that each La Niña is different and other factors need to be considered. In addition, La Niña impacts can be limited by many factors, including being overcome by short-term weather and climate events.

While past La Niña events can help inform forecasters about certain conditions, there are limitations. For instance, in the Midwest, La Niña 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 drought/flooding in the spring.

Midwest Partners

Midwestern Regional Climate Center
mrcc.illinois.edu

American Association of State Climatologists
www.stateclimate.org

National Integrated Drought Information System
www.drought.gov

USDA Midwest Climate Hub
www.climatehubs.usda.gov/hubs/midwest

International Research Institute for Climate and Society
iri.columbia.edu

National Oceanic and Atmospheric Administration
www.noaa.gov

- National Centers for Environmental Information
  www.ncei.noaa.gov
- NOAA NWS Climate Prediction Center
  www.cpc.ncep.noaa.gov
- NWS Central Region Headquarters
  www.weather.gov/crh
- North Central River Forecast Center
  www.weather.gov/ncrfc
- Ohio River Forecast Center
  www.weather.gov/ohrfc

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