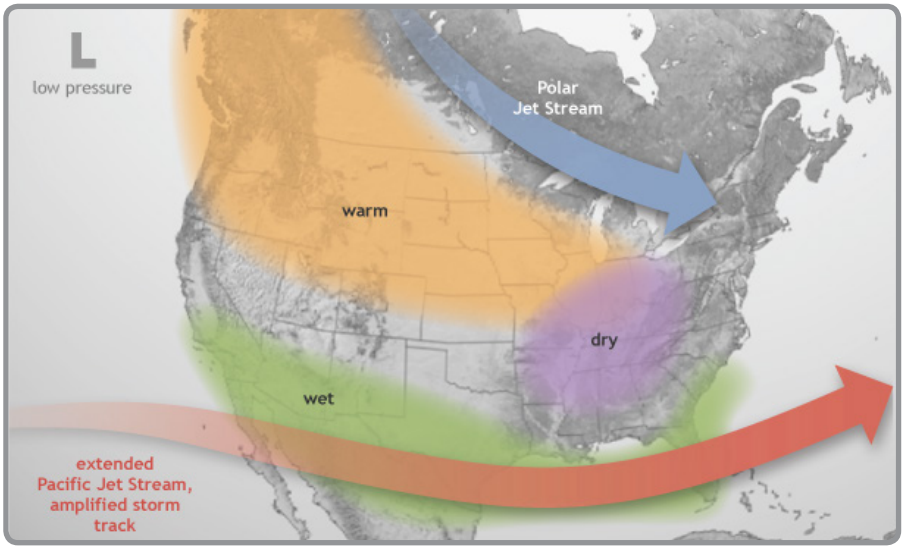
El Niño Impacts and Outlook

Midwest

October 2018

Typical El Niño Winter Pattern



The image above shows the typical pattern in the winter during El Niño events. In 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 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 Midwest

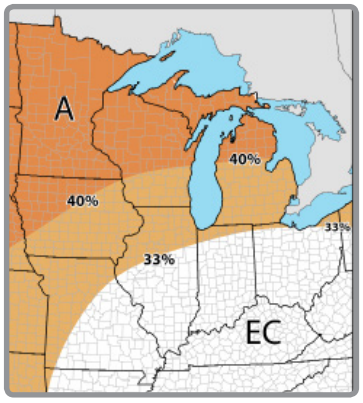
An El Niño develops when sea surface temperatures are warmer than average in the equatorial Pacific for an extended time. This is important to North America because El Niño can impact our weather patterns, especially in the winter.

Although each El Niño is different, there are some general patterns that are predictable. For instance, the polar jet stream is typically farther north than usual, while the Pacific jet stream remains across the southern U.S.

This pattern brings enhanced chances of above-normal temperatures to the upper Midwest. Cold weather will still occur, but extreme cold weather may be milder or less frequent. Enhanced chance of dry weather in the Ohio Valley is also associated with El Niño winters.

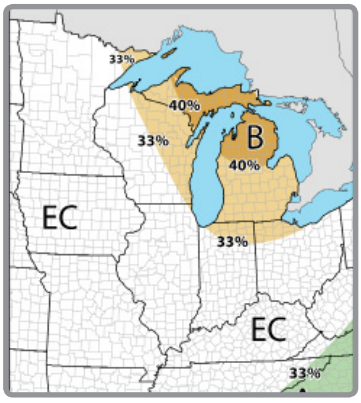
Winter Outlook

Valid for December 2018 - February 2019



Temperature

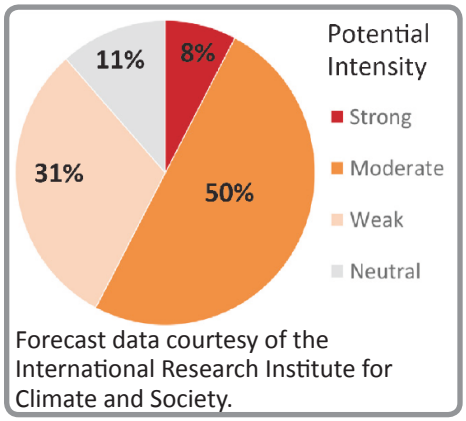
A: Above normal,
B: Below normal
EC: Equal chances of above, near, or below normal



Precipitation

As of October, the winter precipitation outlook shows that below-normal precipitation is favored near the Great Lakes, while there are equal chances for the rest of the region. The temperature outlook shows an increased chance of above-normal temperatures in the northern and western Midwest and equal chances for much of the southern Midwest. If this outlook comes to pass, it could have implications for many sectors, some positive (fewer construction delays, reduced highway snow removal costs, and reduced heating costs) and some negative (reduced snow and ice for winter recreation, overwintering of pests, and reduced soil moisture going into spring).

Winter El Niño Strength



Forecast data courtesy of the International Research Institute for Climate and Society.

According to the Climate Prediction Center, outlooks favor a weak to moderate El Niño event developing in the next few months, which could continue through the winter (70-75% chance). An El Niño Watch is in effect. The chart above shows the potential intensity of this winter's El Niño, using data from the International Research Institute for Climate and Society.

Contact: Doug Kluck (doug.kluck@noaa.gov)

Potential Winter Impacts

Agriculture

Grapes in Michigan.
Image: Matthew Kanable (via Flickr CC)

Winter El Niño impacts in the Midwest are often beneficial. Milder weather can benefit wheat, forage, and cover crops as well as fruit plants. However, El Niño winters can have reduced snowpack, exposing the crops to harsh winds and cold air outbreaks. Milder temperatures should be beneficial for livestock producers by reducing operating costs, reducing stress to animals, and better production. Commodity prices may increase due to negative impacts internationally.

Economy

Winter construction in Michigan.
Image: MSU IPF (via Flickr CC)

Mild and dry winters with decreased snowfall can have a significant positive overall impact on the Midwest economy. The largest positive impacts are reductions in heating costs and increased retail sales. Construction and home sales also benefit from mild winter conditions. Economic losses from a mild winter include salt sales, towing, snow removal, winter sports, and other businesses that are dependent on typical winter temperatures and snowfall.

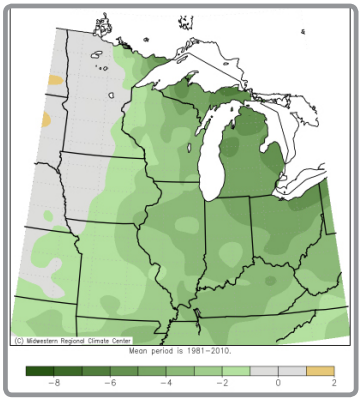
Transportation

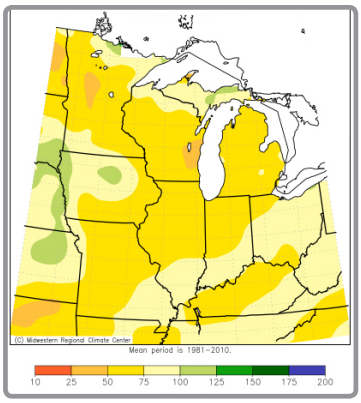
Highway I-65 in Kentucky.
Image: Stu Foster

Transportation systems are vulnerable to extreme weather and climate conditions. The anticipation of warmer and drier conditions in parts of the Midwest may positively affect the sector. Fluctuations in an active storm track across the southern US pose a risk of heavy snow events impacting the southern Midwest. For the central and northern parts of the region, an expected overall decrease in snowfall could reduce costs associated with snow and ice treatment on roads.

Comparisons and Limitations

Winter Conditions During Past El Niños





The maps to the left illustrate the conditions during the most recent weak to moderate strength El Niño from the winter of 2014-15. Much of the Midwest was cooler than average (top image). Percentage of normal precipitation (lower image) showed that most of the region fell short of normal for the winter. Please note that each El Niño is different and other factors also impact the winter conditions, such as antecedent conditions or the Arctic Oscillation, which trumped the El Niño during the winter of 2009-10.

While past El Niño events can help inform forecasters about certain conditions, there are limitations. For one, the El Niño event may not develop as forecast. Additionally in the Midwest, El Niño is *not* known to impact: 1) potential for ice storms or blizzards, 2) the track or intensity of any single weather system, 3) early and late freeze events in the fall and spring, or 4) potential for drought or flooding to develop in the spring.

Midwest Region Partners

Midwestern Regional Climate Center
mrcc.illinois.edu

State Climatologists
www.stateclimate.org

National Oceanic and Atmospheric Administration
www.noaa.gov

- ***NWS Climate Prediction Center***
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National Drought Mitigation Center
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National Integrated Drought Information System
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USDA Midwest Climate Hub
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