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El Niño effects expected to make local impact

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The National Weather Service Climate Prediction Center announced Thursday that El Niño conditions are present and expected to gradually strengthen into the winter, a pattern that will bring change to Kentucky's weather.

El Niño, along with its counterpart La Niña, are naturally occurring climate patterns that have major impacts on the world's weather.

El Niño is triggered by warmer-than-average ocean temperatures in the tropical Pacific, exacerbated by weaker trade winds.

“It’s warm ocean water, it promotes evaporation, you can get more cloud cover and more storms, and the whole thing starts feeding back into the atmosphere,” said Dr. Joshua Durkee, Western Kentucky University’s university meteorologist.

While it may sound like it’s “really far away and it doesn’t matter,” Durkee said this area of warming ocean is a teleconnector to other weather patterns, shifting the trajectory of the subtropical jet stream.

“It just becomes a feedback loop,” he said. “Temperatures warm, you increase the storm pattern, it modifies circulation, that circulation is traveling around the globe and teleconnects a new storm pattern to the United States.”

Durkee said an El Niño’s signals typically show their face in Kentucky’s late fall and winter.

“If you look at all the El Niños across history, on average it typically promotes a drier record and temperatures close to average,” Durkee said. “It doesn’t necessarily promote a warmer or colder pattern. But definitely there tends to be a more prominent dry signal during the cool season.”

He said there are “wiggles” that shift how the commonwealth could be affected by El Niño – like a busy hurricane season or a quiet summer – but “typically it’s pretty dry.”

According to data provided by the National Oceanic and Atmospheric Administration's Earth System Research Laboratories, Kentucky tends to receive less winter precipitation than usual during El Niño events.

But there have been times when the pattern brought wetter conditions to the bluegrass, like in 1951-52 and 2002-03.

This year's El Niño could also be soggy.

Dr. Jerry Brotzge, director of the Kentucky Climate Center and the Kentucky Mesonet at WKU, said long-term models are forecasting a "bullseye" of above-normal precipitation over the commonwealth.

"That's counter to the historical trends for El Niño in Kentucky," Brotzge said.

The NOAA's long-term seasonal outlook maps give Kentucky a 40-50% chance of above average precipitation from June to September and a wetter-than-normal spring in 2024.

The outlooks lean toward the state experiencing above-normal temperatures throughout the summer until February.

Brotzge said you can "always have too much rain," but increased precipitation should be much appreciated in a state that has seen a dry spring.

"The dry spring has allowed farmers to plant their crops earlier than normal, especially compared to the last five years, so we're ahead of schedule in getting the crops in the field," he said.

He said this year's first hay cutting was very good across the state, but a six-week dry spell has put a halt to hay growth.

“For honeybees, the clover crop has stalled because of the lack of rainfall,” Brotzge said. “A lot of beekeepers are seeing less honey than normal for this time of year.”

He said an El Niño typically brings a less severe storm season, “so we’ll see what next spring brings.”

According to the NOAA, El Niño typically last anywhere from nine to 12 months but are known to extend out to multiple years. The patterns make an appearance every two to seven years on average, with El Niño occurring more frequently than its sister, La Niña.

La Niña is marked by a period of cooler water in the tropical Pacific. This cycle of warming and cooling is called El Niño-Southern Oscillation (ENSO). According to the World Meteorological Organization, the tropical Pacific currently sits in ENSO-neutral after three years of La Niña.

While conditions are favorable for El Niño, the WMO said in a May update that there is no indication of the pattern’s potential strength or duration. The last “very strong” El Niño occurred in 2015-16, bringing with it a new highest global average surface temperature.

“We just had the eight warmest years on record, even though we had a cooling La Niña for the past three years and this acted as a temporary brake on global temperature increase,” WMO Secretary-General Petteri Taalas said in the update. “The development of an El Niño will most likely lead to a new spike in global heating and increase the chance of breaking temperature records.”

Durkee said the pattern is a “big, slow-moving thing” with a lot of faster things that can affect it.

“That’s the hard thing to describe,” Durkee said. “Seasonal forecasting is tough. It’s not nearly as easy or accurate as daily weather forecasting, but these are the kind of things that we look at to plug into those seasonal forecasts and El Niño is one of the top predictors.”