

# What are El Niño and La Niña?

**El Niño and La Niña are complex weather patterns resulting from variations in ocean temperatures in the Equatorial Pacific. How do they differ in the impact on weather conditions in North America?**

El Niño and La Niña are opposite phases of what is known as the *El Niño-Southern Oscillation* (ENSO) cycle. The ENSO cycle is a scientific term that describes the fluctuations in temperature between the ocean and atmosphere in the east-central Equatorial Pacific (approximately between the International Date Line and 120 degrees West).

La Niña is sometimes referred to as the *cold phase* of ENSO and El Niño as the *warm phase* of ENSO. These deviations from normal surface temperatures can have large-scale impacts not only on ocean processes, but also on global weather and climate.

El Niño and La Niña episodes typically last nine to 12 months, but some prolonged events may last for years. While their frequency can be quite irregular, El Niño and La Niña events occur on average every two to seven years. Typically, El Niño occurs more frequently than La Niña.

## El Niño

El Niño means *The Little Boy*, or *Christ Child* in Spanish. El Niño was originally recognized by fishermen off the coast of South America in the 1600s, with the appearance of unusually warm water in the Pacific Ocean. The name was chosen based on the time of year (around December) during which these warm waters events tended to occur.

The term El Niño refers to the large-scale ocean-atmosphere climate interaction linked to a periodic warming in sea surface temperatures across the central and east-central Equatorial Pacific.

Typical El Niño effects are likely to develop over North America during the upcoming winter season. Those include warmer-than-average temperatures over western and central Canada, and over the western and northern United States. Wetter-than-average conditions are likely over portions of the U.S. Gulf Coast and Florida, while drier-than-average conditions can be expected in the Ohio Valley and the Pacific Northwest. The presence of El Niño can significantly influence weather patterns, ocean conditions, and marine fisheries across large portions of the globe for an extended period of time.

## La Niña

La Niña means *The Little Girl* in Spanish. La Niña is also sometimes called *El Viejo*, *anti-El Niño*, or simply "a cold event."

La Niña episodes represent periods of below-average sea surface temperatures across the east-central Equatorial Pacific. Global climate La Niña impacts tend to be opposite those of El Niño impacts. In the tropics, ocean temperature variations in La Niña also tend to be opposite those of El Niño.

During a La Niña year, winter temperatures are warmer than normal in the Southeast and cooler than normal in the Northwest.

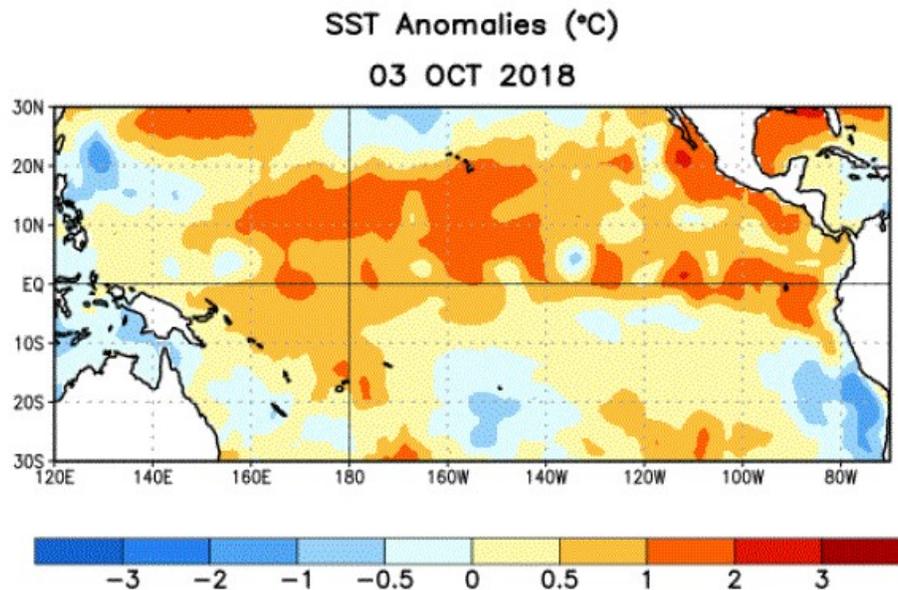


Figure 1. Average sea surface temperature (SST) anomalies (°C) for the week centered on 3 October 2018. Anomalies are computed with respect to the 1981-2010 base period weekly means.