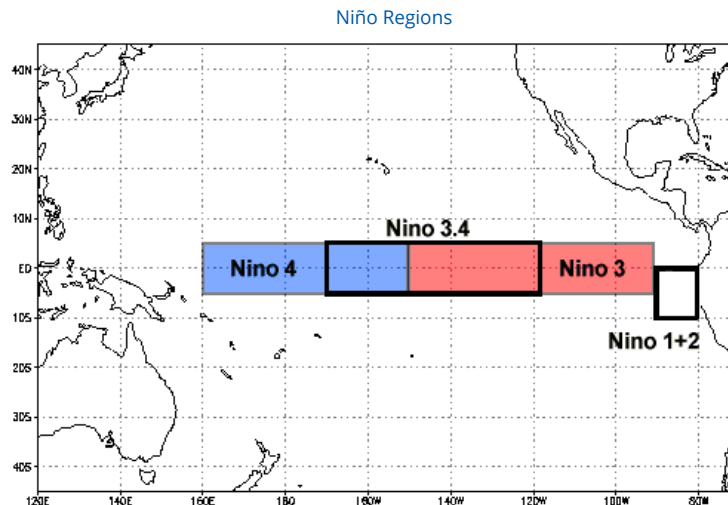


Equatorial Pacific Sea Surface Temperatures

[ENSO](#) | [SSTs](#) | [OLR](#) | [SOI](#)

El Niño (La Niña) is a phenomenon in the equatorial Pacific Ocean characterized by a five consecutive 3-month running mean of sea surface temperature (SST) anomalies in the [Niño 3.4 region](#) that is above (below) the threshold of $+0.5^{\circ}\text{C}$ (-0.5°C). This standard of measure is known as the [Oceanic Niño Index \(ONI\)](#).



Historically, scientists have classified the intensity of El Niño based on SST anomalies exceeding a pre-selected threshold in a certain region of the equatorial Pacific. The most commonly used region is the Niño 3.4 region, and the most commonly used threshold is a positive SST departure from normal greater than or equal to $+0.5^{\circ}\text{C}$. Since this region encompasses the western half of the equatorial cold tongue region, it provides a good measure of important changes in SST and SST gradients that result in changes in the pattern of deep tropical convection and atmospheric circulation. The criteria, that is often used to classify El Niño episodes, is that five consecutive 3-month running mean SST anomalies exceed the threshold.

Studies have shown that a necessary condition for the development and persistence of deep convection (enhanced cloudiness and precipitation) in the Tropics is that the local SST be 28°C or greater. Once the pattern of deep convection has been altered due to anomalous SSTs, the tropical and subtropical atmospheric circulation adjusts to the new pattern of tropical heating, resulting in anomalous patterns of precipitation and temperature that extend well beyond the region of the equatorial Pacific. An SST anomaly of $+0.5^{\circ}\text{C}$ in the Niño 3.4 region is sufficient to reach this threshold from late March to mid-June. During the remainder of the year a larger SST anomaly, up to $+1.5^{\circ}\text{C}$ in November-December-January, is required in order to reach the threshold to support persistent deep convection in that region.

Oceanic Niño Index (ONI)

Warm and **cold** phases are defined as a minimum of five consecutive 3-month running mean of SST anomalies (ERSST.v4, 1971-2000 base period) in the Niño 3.4 region surpassing a threshold of $\pm 0.5^{\circ}\text{C}$.

Last 12 3-Month Running Means in Niño 3.4 Region

Source: http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/ensoyears.shtml

Niño Regions Sea Surface Temperatures

Last 12 Months

MONTH	NIÑO 1+2		NIÑO 3		NIÑO 4		NIÑO 3.4	
	TEMP	ANOM	TEMP	ANOM	TEMP	ANOM	TEMP	ANOM
May 2017	25.06°C (77.11°F)	0.78°C (1.40°F)	27.60°C (81.68°F)	0.51°C (0.92°F)	29.08°C (84.34°F)	0.29°C (0.52°F)	28.30°C (82.94°F)	0.46°C (0.83°F)
June 2017	22.98°C (73.36°F)	0.10°C (0.18°F)	26.73°C (80.11°F)	0.30°C (0.54°F)	29.39°C (84.90°F)	0.55°C (0.99°F)	28.19°C (82.74°F)	0.55°C (0.99°F)
July 2017	21.54°C (70.77°F)	-0.07°C (-0.13°F)	25.85°C (78.53°F)	0.23°C (0.41°F)	29.21°C (84.58°F)	0.40°C (0.72°F)	27.61°C (81.70°F)	0.39°C (0.70°F)
August 2017	20.19°C (68.34°F)	-0.45°C (-0.81°F)	24.82°C (76.68°F)	-0.17°C (-0.31°F)	28.87°C (83.97°F)	0.19°C (0.34°F)	26.67°C (80.01°F)	-0.15°C (-0.27°F)
September 2017	19.67°C (67.41°F)	-0.67°C (-1.21°F)	24.17°C (75.51°F)	-0.68°C (-1.22°F)	28.69°C (83.64°F)	0.00°C (0.00°F)	26.29°C (79.32°F)	-0.43°C (-0.77°F)
October 2017	19.45°C (67.01°F)	-1.34°C (-2.41°F)	24.28°C (75.70°F)	-0.64°C (-1.15°F)	28.55°C (83.39°F)	-0.11°C (-0.20°F)	26.23°C (79.21°F)	-0.46°C (-0.83°F)
November 2017	20.44°C (68.79°F)	-1.15°C (-2.07°F)	23.92°C (75.06°F)	-1.05°C (-1.89°F)	28.46°C (83.23°F)	-0.18°C (-0.32°F)	25.79°C (78.42°F)	-0.86°C (-1.55°F)
December 2017	21.44°C (70.59°F)	-1.38°C (-2.48°F)	24.05°C (75.29°F)	-1.09°C (-1.96°F)	28.24°C (82.83°F)	-0.25°C (-0.45°F)	25.80°C (78.44°F)	-0.77°C (-1.39°F)
January 2018	23.71°C (74.68°F)	-0.81°C (-1.46°F)	24.48°C (76.06°F)	-1.14°C (-2.05°F)	28.03°C (82.45°F)	-0.27°C (-0.49°F)	25.82°C (78.48°F)	-0.75°C (-1.35°F)
February 2018	25.57°C (78.03°F)	-0.57°C (-1.03°F)	25.36°C (77.65°F)	-1.01°C (-1.82°F)	27.86°C (82.15°F)	-0.24°C (-0.43°F)	25.83°C (78.49°F)	-0.90°C (-1.62°F)
March 2018	25.83°C (78.49°F)	-0.80°C (-1.44°F)	26.37°C (79.47°F)	-0.76°C (-1.37°F)	28.14°C (82.65°F)	-0.05°C (-0.09°F)	26.48°C (79.66°F)	-0.73°C (-1.31°F)
April 2018	24.61°C (76.30°F)	-0.99°C (-1.78°F)	27.13°C (80.83°F)	-0.37°C (-0.67°F)	28.56°C (83.41°F)	0.06°C (0.11°F)	27.37°C (81.27°F)	-0.41°C (-0.74°F)
Apr - Mar Difference	-1.22°C	-0.19°C	0.76°C	0.39°C	0.42°C	0.11°C	0.89°C	0.32°C
	-2.20°F	-0.34°F	1.37°F	0.70°F	0.76°F	0.20°F	1.60°F	0.58°F

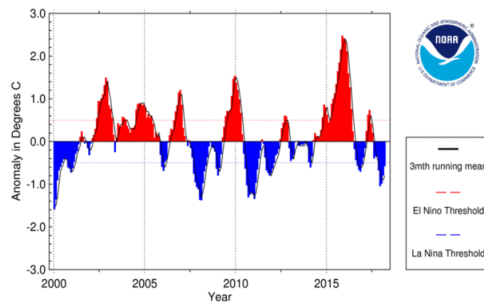
Source: <http://www.cpc.ncep.noaa.gov/data/indices/sstoi.indices>

SST values in the Niño 3.4 region may not be the best choice for determining La Niña episodes but, for consistency, the index has been defined by negative anomalies in this area. A better choice might be the [Niño 4 region](#), since that region normally has SSTs at or above the threshold for deep convection throughout the year. An SST anomaly of -0.5°C in that region would be sufficient to bring water temperatures below the 28°C threshold, which would result in a significant westward shift in the pattern of deep convection in the tropical Pacific.

Sea surface temperature anomalies were calculated using the Extended Reconstructed Sea Surface Temperature version 4 ([ERSST.v4](#)).

For more information on El Niño and La Niña, please visit [NOAA's El Niño information website](#).

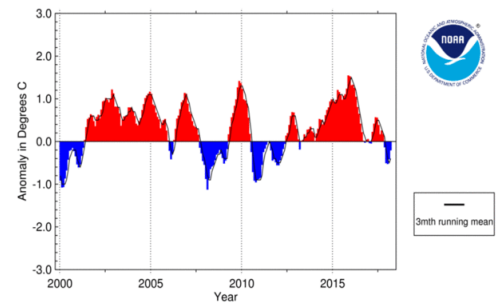
SST Anomaly in Niño 3.4 Region (5N-5S,120-170W)



National Centers for Environmental Information / NESDIS / NOAA

Time series since 2000 of SST
Anomaly in Niño 3.4 Region

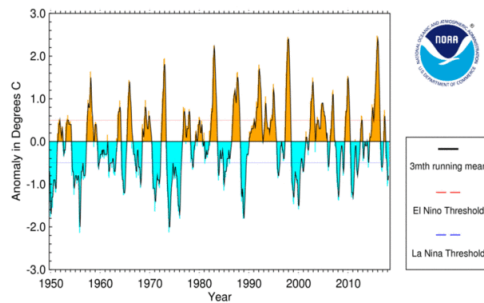
SST Anomaly in Niño 4 Region (5N-5S,150W-160E)



National Centers for Environmental Information / NESDIS / NOAA

Time series since 2000 of SST
Anomaly in Niño 4 Region

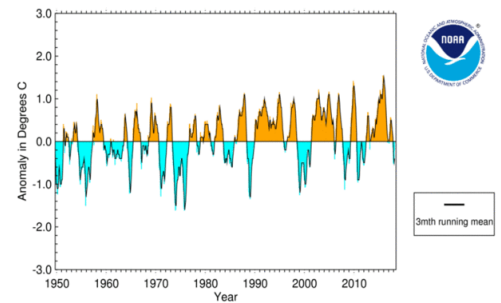
SST Anomaly in Niño 3.4 Region (5N-5S,120-170W)



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Period of Record Time series for SST
Anomaly in Niño 3.4 Region

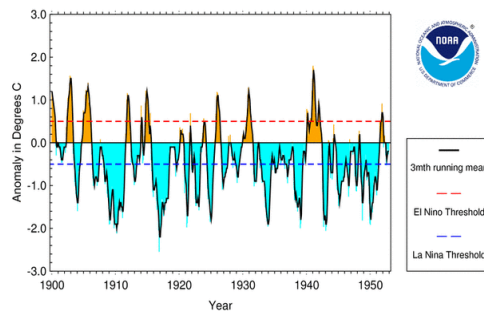
SST Anomaly in Niño 4 Region (5N-5S,150W-160E)



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Period of Record Time series for SST
Anomaly in Niño 4 Region

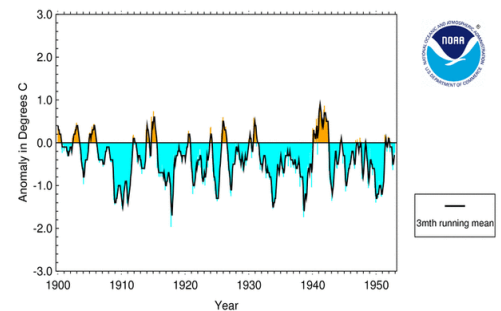
SST Anomaly in Niño 3.4 Region (5N-5S,120-170W)



National Climatic Data Center / NESDIS / NOAA

1900-1950 Time series for SST
Anomaly in Niño 3.4 Region

SST Anomaly in Niño 4 Region (5N-5S,150W-160E)



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1900-1950 Time series for SST
Anomaly in Niño 4 Region



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