

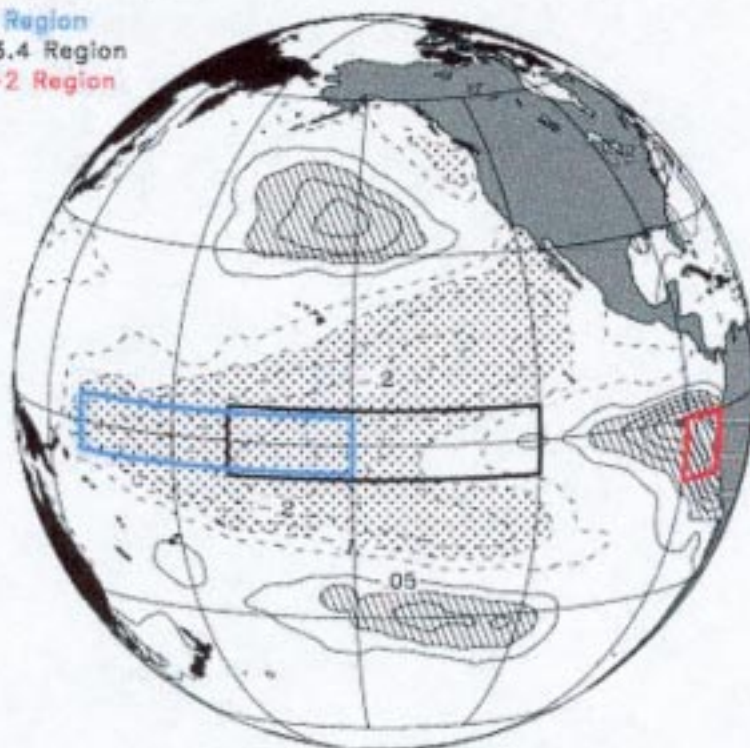
TNI (Trans-Niño Index) and N3.4 (Niño 3.4 Index)

Regression (1900–1976)

SST and TNI

(°C)

Blue = Niño 4 Region
Black = Niño 3.4 Region
Red = Niño 1+2 Region



Regression of global SST anomalies with TNI for 1900-1976 in °C. Values exceeding 0.10°C are hatched and less than -0.10°C are stippled. The contours are ±0.05°C, ±0.10°C, ±0.15°C, etc. (The TNI is defined and discussed below.)

(For a view of the first printed map of the Pacific Ocean, see [Ortelius's *Maris Pacifici*](#).)

Indices, statistics, and selected figures from

Indices of El Niño Evolution

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J. Climate, 14, 1697-1701.

Abstract

To characterize the nature of El Niño-Southern Oscillation (ENSO), sea surface temperature (SST) anomalies in different regions of the Pacific have been used. We suggest that an optimal characterization of both the distinct character and the evolution of each El Niño or La Niña event requires at least two indices: (i) SST anomalies in the Niño 3.4 region (referred to as N3.4), and (ii) a new index we call the Trans-Niño Index (TNI), which is given by the difference in normalized anomalies of SST between Niño 1+2 and Niño 4 regions. The first index can be thought of as the mean SST throughout the equatorial Pacific east of the dateline and the second index is the gradient in SST across the same region. Consequently they are approximately orthogonal. TNI leads N3.4 by 3 to 12 months prior to the climate shift in 1976/77 and also follows N3.4 but with opposite sign 3 to 12 months later. However, after the 1976/77 shift, the sign of the TNI leads and lags are reversed.

(A link to an online version of the full text is provided [here](#).)

Geographic Extent of Currently Defined Niño Regions

The following table lists the geographic extent of Niño regions described in the NCEP *Climate Diagnostics Bulletin* (and also at the NCEP CPC web site [Monthly Atmospheric and SST Indices](#). (What is reported as Niño 3.5 at the CPC website is a typo – it should read Niño 3.4) The outlines of the Niño 1+2, 3.4 and 4 regions are shown in the figure at the [top of this web page](#).

Niño Region	Range Longitude	Range Latitude
1+2	90°W-80°W	10°S-0°
3	150°W-90°W	5°S-5°N
3.4	170°W-120°W	5°S-5°N
4	160°E-150°W	5°S-5°N