



**Western Region Technical Attachment
No. 91-26
July 2, 1991**

**EL NIÑO/SOUTHERN OSCILLATION (ENSO)
DIAGNOSTIC ADVISORY 91/03**

CLIMATE ANALYSIS CENTER/NMC

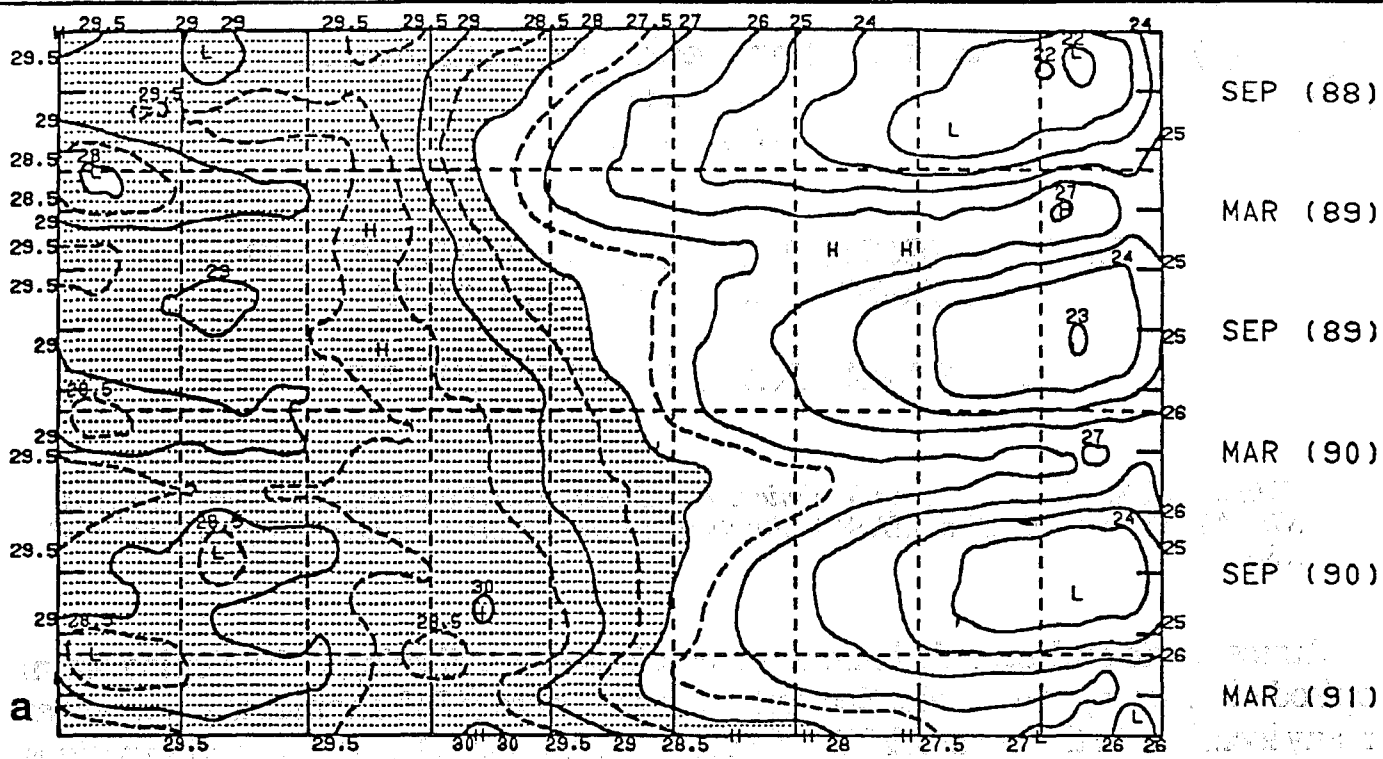
[Editor's Note: This following Technical Attachment is a Diagnostic Advisory on the El Niño/Southern Oscillation (ENSO) situation, issued by the Climatic Analysis Center of NMC.]

Atmospheric and oceanic indices are consistent in indicating a developing warm episode in the tropical Pacific. Sea surface temperature (SST) anomalies increased at many locations in the equatorial Pacific during May [Figure 1]. All three Niño regions experienced increased index values over those observed during April, with the greatest change occurring in the Niño 3 region [Figure 2]. At the same time, the Southern Oscillation Index (SOI) registered its third consecutive month with values less than or equal to -1 [Figure 3]. In addition, low-level westerly anomalies were observed in the three 850 mb index regions during May.

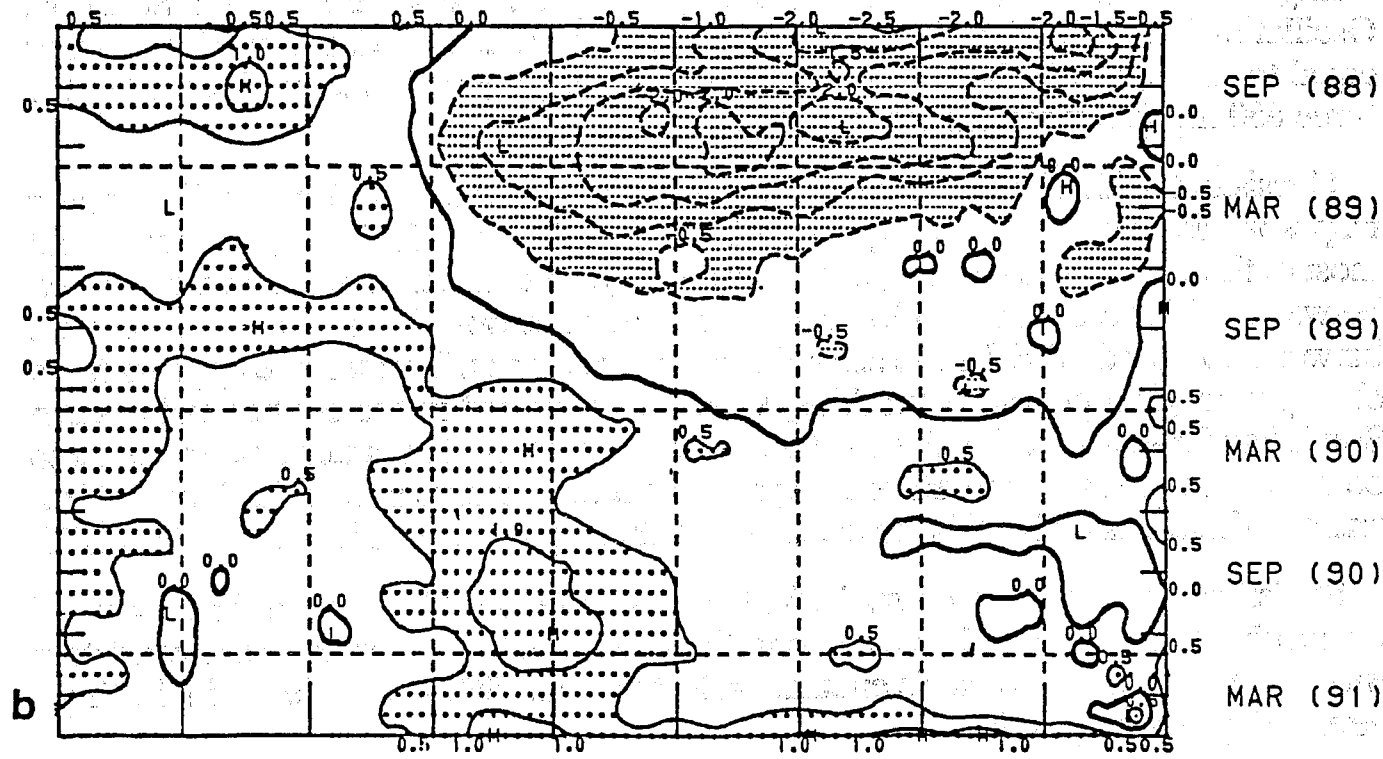
Consistent with the low-level pattern of westerly zonal wind anomalies, upper tropospheric equatorial easterly anomalies were observed during April throughout most of the Pacific, and a strong anomalous anticyclonic circulation center was located between 15°S and 20°S near 170°W . An enhanced subtropical jet stream was observed between 20°S and 30°S for the second consecutive month. This feature appears to be closely related to persistent blocking, which has occurred in the central and eastern South Pacific sector during the last two months. This blocking pattern also appears to be related to the rather persistent negative sea level pressure anomalies found at low and mid-latitudes within this sector, thus contributing to the negative values of the SOI.

Statistical and model forecasts indicate an increase in SST anomalies in the central equatorial Pacific during the next two to three seasons. These forecasts are consistent with the observed atmospheric circulation features and SST anomalies in indicating a developing warm episode.

The evolution of the anomaly patterns in the tropical Pacific will continue to be closely monitored, especially with regards to further increases in SST anomalies and to the development of strongly enhanced convection in the equatorial Pacific. The next Advisory will be issued when significant further developments are observed.



100E 120E 140E 160E 180 160W 140W 120W 100W 80W



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FIGURE 1. Time-Longitude Section of Monthly Sea Surface Temperature, a) Mean and b) Anomalous, for 5°N-5°S. Contour interval is 1°C and 0.5°C, respectively. SST values greater than 28°C and anomalies less than -0.5°C are shaded. Stippled areas indicate anomaly values greater than 0.5°C. Anomalies are computed based on the COADS/ICE climatology.

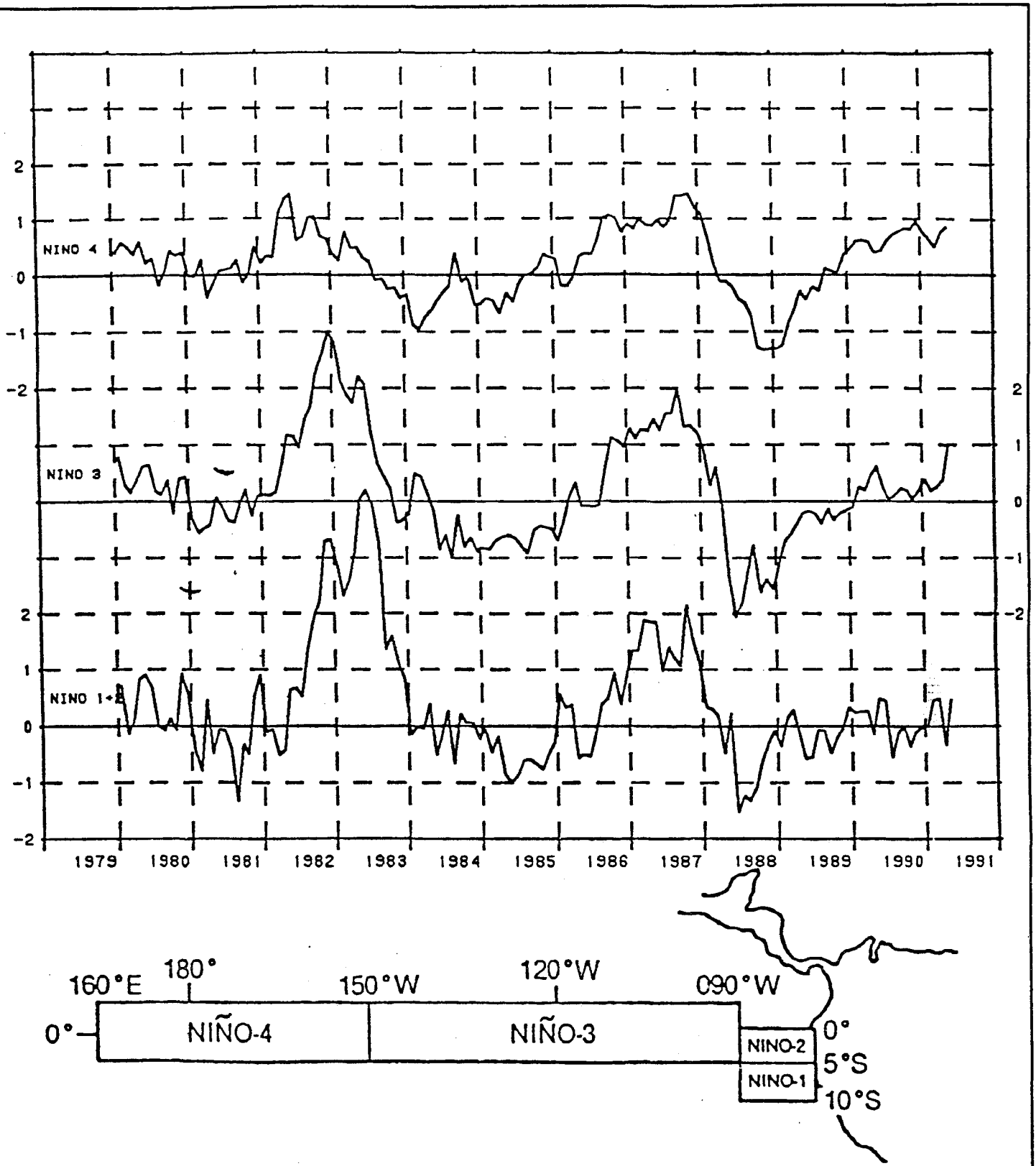


FIGURE 2. Equatorial Pacific Sea Surface Temperature Anomaly Indices ($^{\circ}\text{C}$; for the areas indicated at the bottom of the figure). Niño 1 + 2 is the average over Niño 1 and Niño 2 areas. Anomalies are computed with respect to the COADS/ICE climatology.

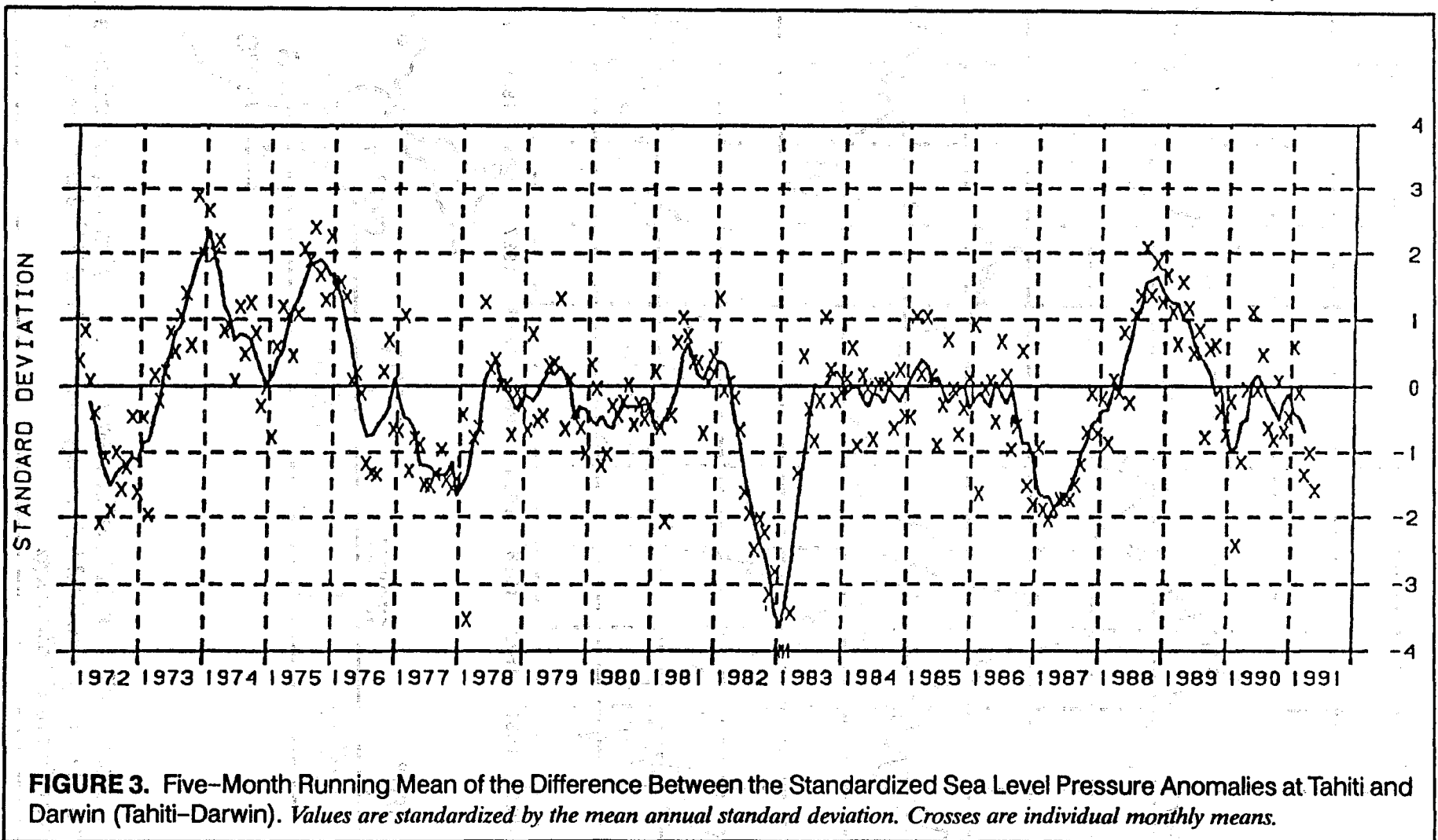


FIGURE 3. Five-Month Running Mean of the Difference Between the Standardized Sea Level Pressure Anomalies at Tahiti and Darwin (Tahiti-Darwin). Values are standardized by the mean annual standard deviation. Crosses are individual monthly means.