

# EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

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**Synopsis: ENSO-neutral conditions are expected to continue into Northern Hemisphere Fall 2008.**

A transition from La Niña to ENSO-neutral conditions occurred during June 2008, as sea surface temperatures (SSTs) returned to near-average across the central and east-central equatorial Pacific Ocean (Fig. 1). Also, positive SST anomalies continued in the eastern equatorial Pacific. Consistent with this pattern, the latest weekly SST index was  $-0.1^{\circ}\text{C}$  in the Niño-3.4 region, and  $+0.4^{\circ}\text{C}$  in the Niño 1+2 region (Fig. 2). The subsurface oceanic heat content (average temperatures in the upper 300m of the ocean, Fig. 3) and patterns of subsurface temperature anomalies (Fig. 4) also reflected the transition to ENSO-neutral conditions. Positive heat content anomalies were associated with above-average temperatures at thermocline depth across the entire equatorial Pacific, while small negative subsurface temperature anomalies persisted near the Date Line between the surface and 75m depth.

Similar to past transitions, La Niña continues to linger in the atmospheric circulation, but with diminishing strength. Enhanced low-level easterly winds and upper-level westerly winds remain across the central equatorial Pacific, while convection continues to be suppressed in the central equatorial Pacific and slightly enhanced over the far western Pacific. Collectively, these atmospheric and oceanic anomalies are consistent with a return from La Niña to ENSO-neutral.

Most of the recent dynamical and statistical SST forecasts for the Niño 3.4 region indicate ENSO-neutral conditions ( $-0.5$  to  $0.5$  in the Niño-3.4 region) will continue through Northern Hemisphere Winter 2008-09 (Fig. 5). Despite this model consensus, the possible development of El Niño or La Niña cannot be ruled out due to uncertainty in model forecasts and because ENSO events often form during the second half of the year. Based on current atmospheric and oceanic conditions, recent trends, and model forecasts, ENSO-neutral conditions are expected to continue into Northern Hemisphere Fall 2008.

This discussion is a consolidated effort of the National Atmospheric and Oceanic Administration (NOAA), NOAA's National Weather Service, and their funded institutions. Oceanic and atmospheric conditions are updated weekly on the Climate Prediction Center web site ([El Niño/La Niña Current Conditions and Expert Discussions](#)). Forecasts for the evolution of El Niño/La Niña are updated monthly in the [Forecast Forum](#) section of CPC's Climate Diagnostics Bulletin. The next ENSO Diagnostics Discussion is scheduled for 7 August 2008. To receive an e-mail notification when the monthly ENSO Diagnostic Discussions are released, please send an e-mail message to: [ncep.list.enso-update@noaa.gov](mailto:ncep.list.enso-update@noaa.gov).

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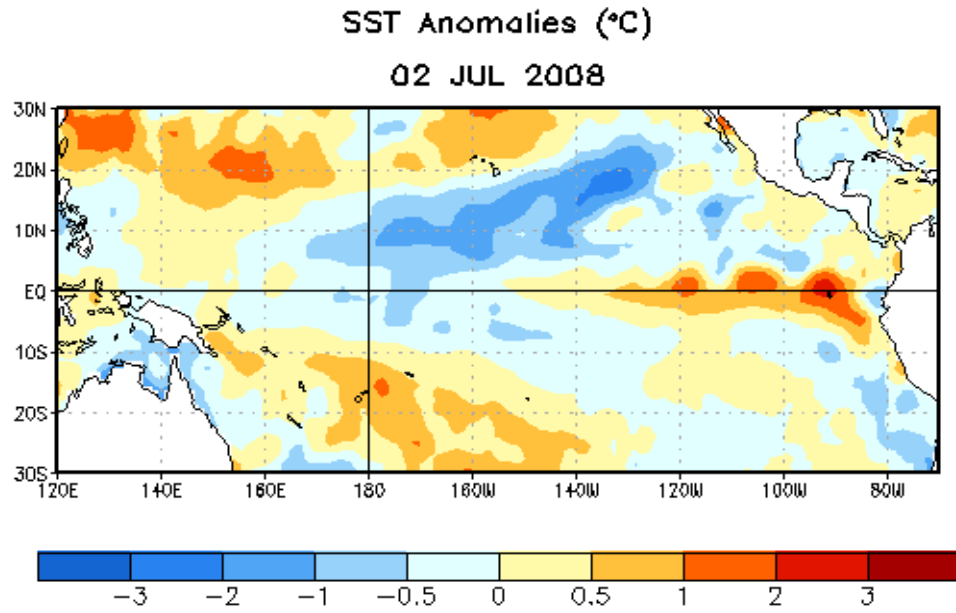


Figure 1. Weekly sea surface temperature (SST) anomalies (°C) centered on 2 July 2008. Anomalies are computed with respect to the 1971-2000 base period weekly means (Xue et al. 2003, *J. Climate*, **16**, 1601-1612).

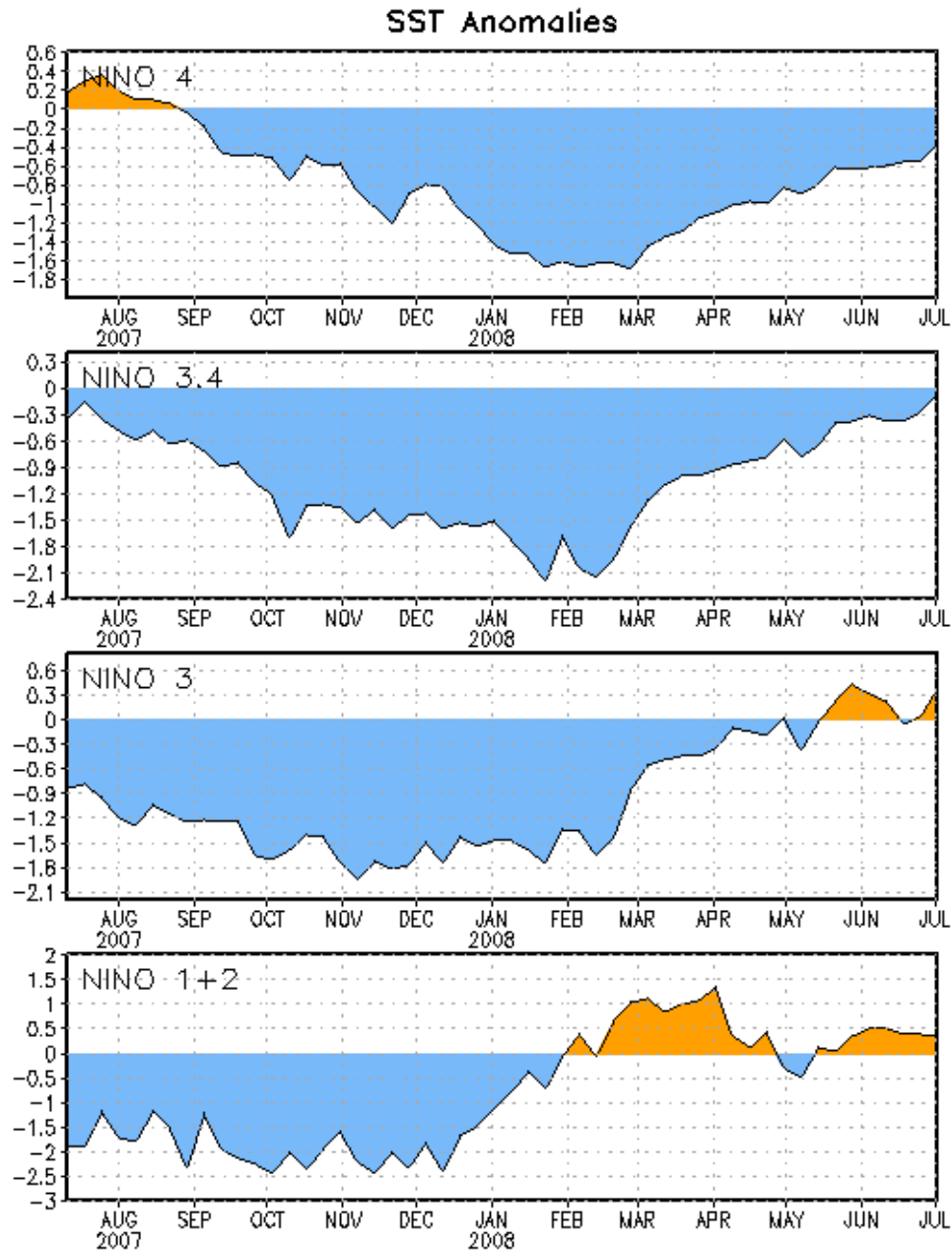


Figure 2. Time series of area-averaged sea surface temperature (SST) anomalies ( $^{\circ}\text{C}$ ) in the Niño regions [Niño-1+2 ( $0^{\circ}$ - $10^{\circ}\text{S}$ ,  $90^{\circ}\text{W}$ - $80^{\circ}\text{W}$ ), Niño 3 ( $5^{\circ}\text{N}$ - $5^{\circ}\text{S}$ ,  $150^{\circ}\text{W}$ - $90^{\circ}\text{W}$ ), Niño-3.4 ( $5^{\circ}\text{N}$ - $5^{\circ}\text{S}$ ,  $170^{\circ}\text{W}$ - $120^{\circ}\text{W}$ ), Niño-4 ( $150^{\circ}\text{W}$ - $160^{\circ}\text{E}$  and  $5^{\circ}\text{N}$ - $5^{\circ}\text{S}$ )]. SST anomalies are departures are from the 1971-2000 base period weekly means (Xue et al. 2003, *J. Climate*, **16**, 1601-1612).

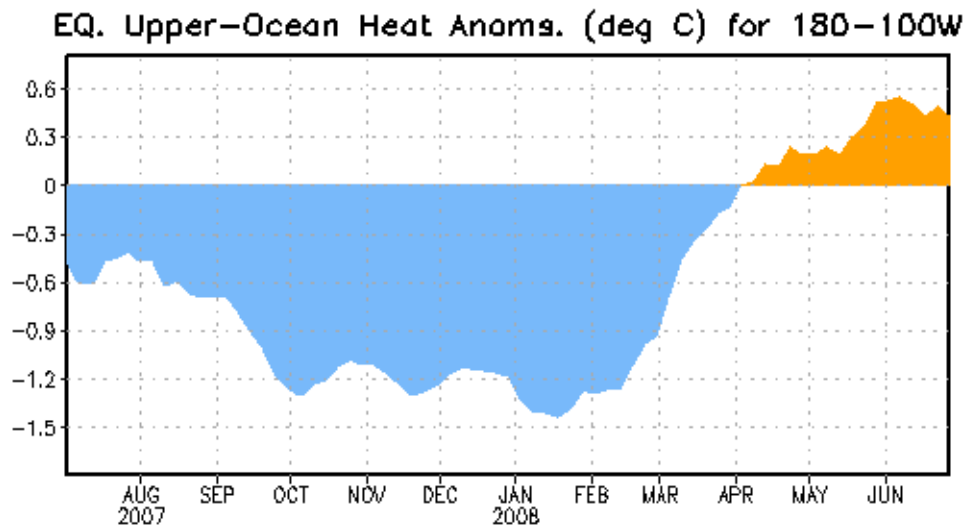


Figure 3. Area-averaged upper-ocean heat content anomalies ( $^{\circ}\text{C}$ ) in the equatorial Pacific ( $5^{\circ}\text{N}$ - $5^{\circ}\text{S}$ ,  $180^{\circ}$ - $100^{\circ}\text{W}$ ). Heat content anomalies are computed as departures from the 1982-2004 base period weekly means.

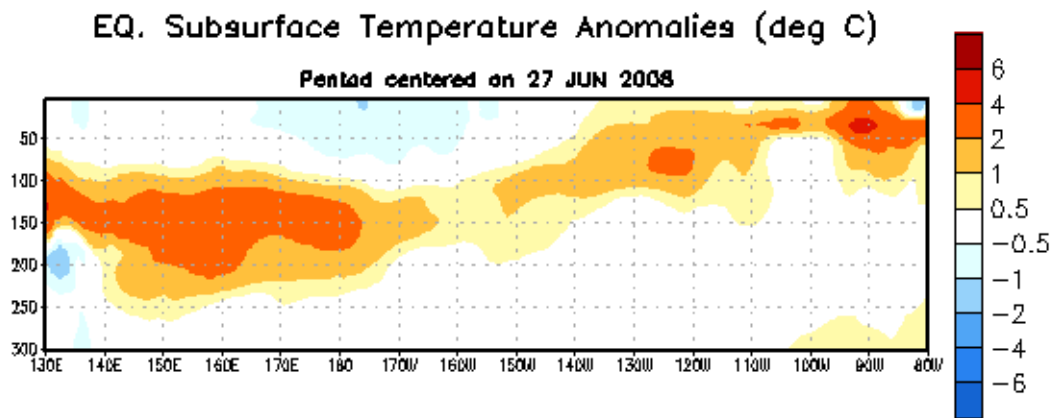


Figure 4. Depth-longitude section of equatorial Pacific upper-ocean (0-300m) temperature anomalies ( $^{\circ}\text{C}$ ) centered on the week of 27 June 2008. The anomalies are averaged between  $5^{\circ}\text{N}$ - $5^{\circ}\text{S}$ . Anomalies are departures from the 1982-2004 base period weekly means.

### Model Forecasts of ENSO from Jun 2008

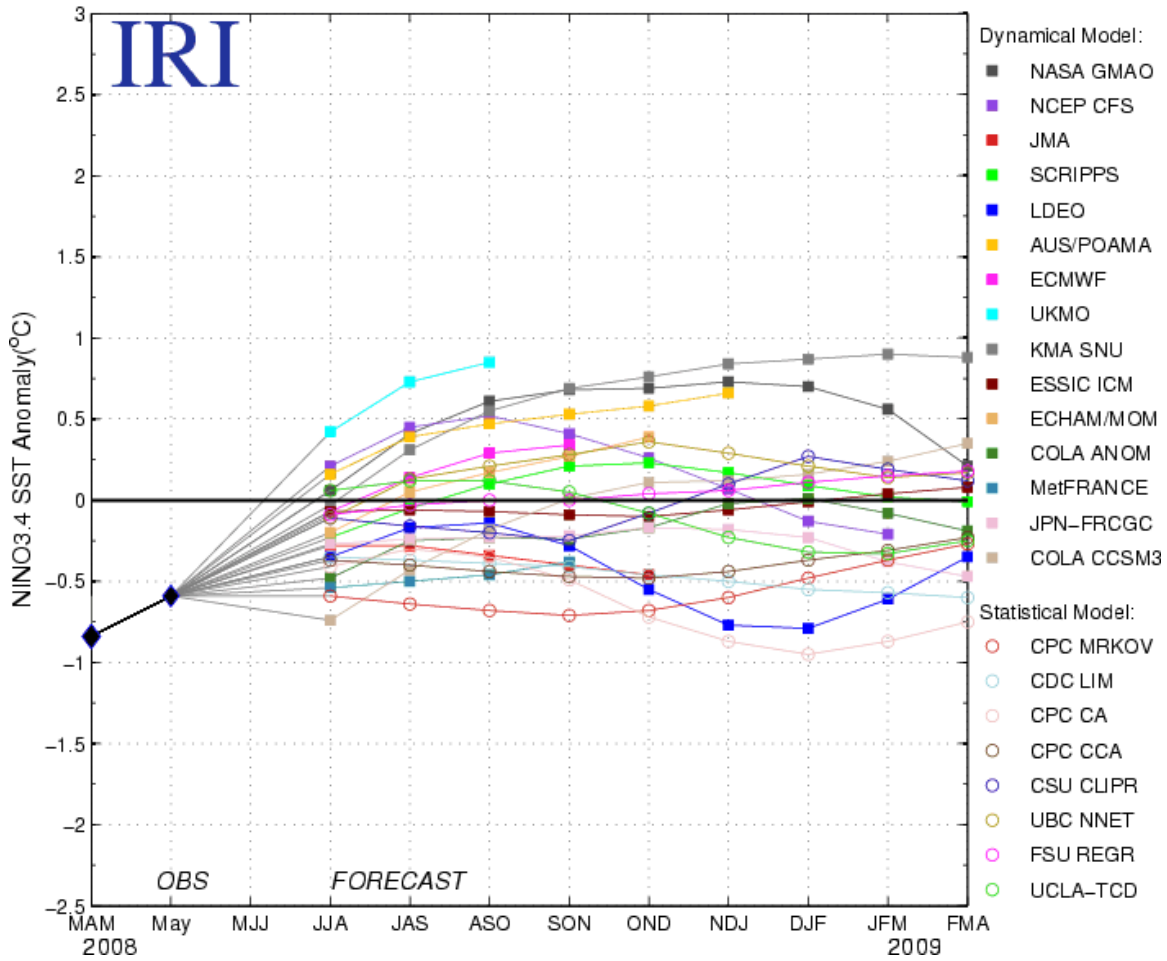


Figure 5. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure courtesy of the International Research Institute (IRI) for Climate and Society. Figure updated 18 June 2008.