EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

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Synopsis: ENSO-neutral conditions are expected to continue into early 2009.

ENSO-neutral conditions continued during September 2008, as sea surface temperatures (SSTs) remained near-average in the east-central equatorial Pacific Ocean. SSTs remained slightly below-average in the central Pacific, and slightly above-average in the eastern Pacific (Fig. 1). From west to east, the latest weekly SST index values range from −0.2°C in the Niño-4 region to +0.3°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) continued to decrease in response to the strengthening of negative temperature anomalies at thermocline depth in the east-central Pacific (Fig. 4).

Although ENSO-neutral conditions have been in place since June 2008, the atmospheric circulation over the western and central tropical Pacific continues to reflect lingering aspects of La Niña. The MJO accentuated this signal during early-to-mid September, and suppressed it during the latter part of the month. The combined monthly average signal featured enhanced low-level easterly winds and upper-level westerly winds in the central Pacific, with convection enhanced over Indonesia and suppressed over the central Pacific. Overall, the ocean-atmosphere system remains consistent with ENSO-neutral conditions.

Most of the dynamical and statistical SST forecasts for the Niño 3.4 region indicate a continuation of ENSO-neutral conditions (−0.5°C to 0.5°C in the Niño-3.4 region) into the first half of 2009 (Fig. 5). While the model spread continues to include possibilities ranging from El Niño to La Niña, the recent decrease in subsurface and surface temperatures favors a return to La Niña over the development of El Niño. However, based on current atmospheric and oceanic conditions, recent trends, and model forecasts, ENSO-neutral conditions are expected to continue into early 2009.

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 6 November 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.

Climate Prediction Center
National Centers for Environmental Prediction
NOAA/National Weather Service
Camp Springs, MD 20746-4304

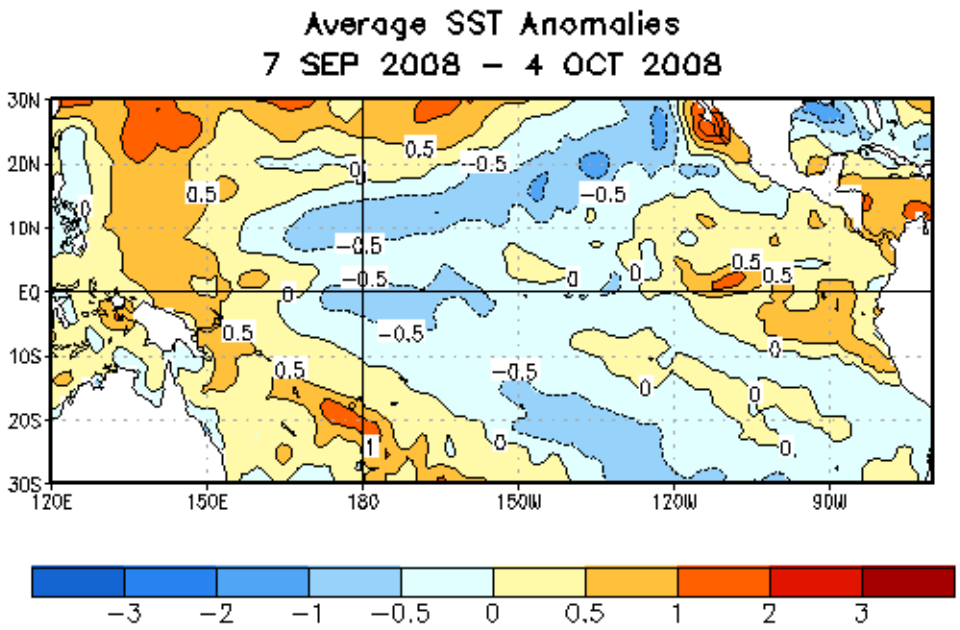

Figure 1. Average sea surface temperature (SST) anomalies (°C) for the four-week period 7 September - 4 October 2008. Anomalies are computed with respect to the 1971-2000 base period weekly means (Xue et al. 2003, *J. Climate*, **16**, 1601-1612).

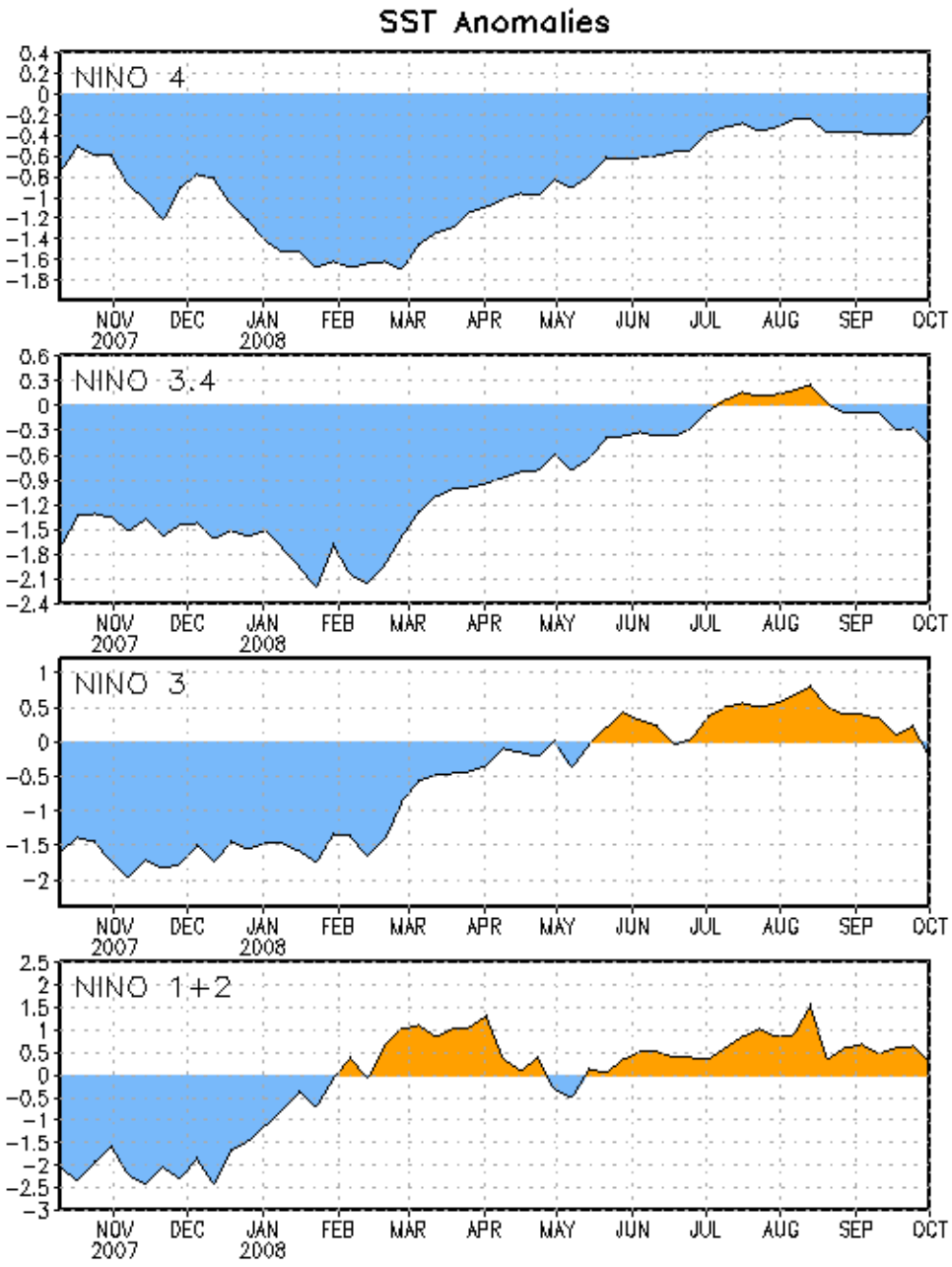

Figure 2. Time series of area-averaged sea surface temperature (SST) anomalies (°C) in the Niño regions [Niño-1+2 (0°-10°S, 90°W-80°W), Niño 3 (5°N-5°S, 150°W-90°W), Niño-3.4 (5°N-5°S, 170°W-120°W), Niño-4 (150ºW-160ºE and 5ºN-5ºS)]. SST anomalies are departures from the 1971-2000 base period weekly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

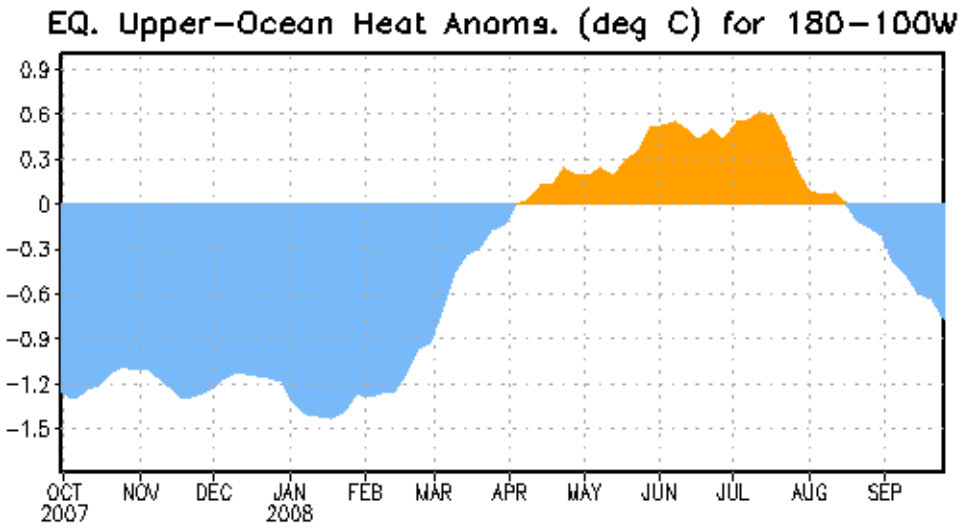

Figure 3. Area-averaged upper-ocean heat content anomalies (°C) in the equatorial Pacific (5°N-5°S, 180º-100ºW). Heat content anomalies are computed as departures from the 1982-2004 base period pentad means.

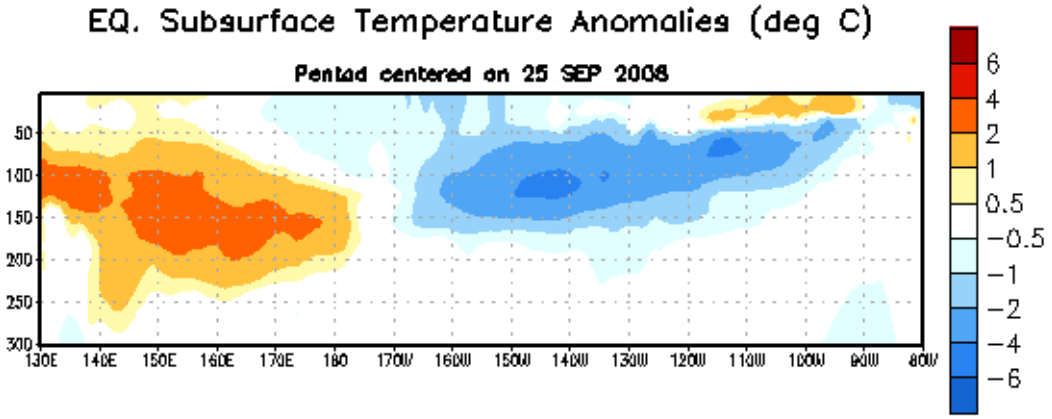

Figure 4. Depth-longitude section of equatorial Pacific upper-ocean (0-300m) temperature anomalies (°C) centered on the week of 25 September 2008. The anomalies are averaged between 5°N-5°S. Anomalies are departures from the 1982-2004 base period pentad means.

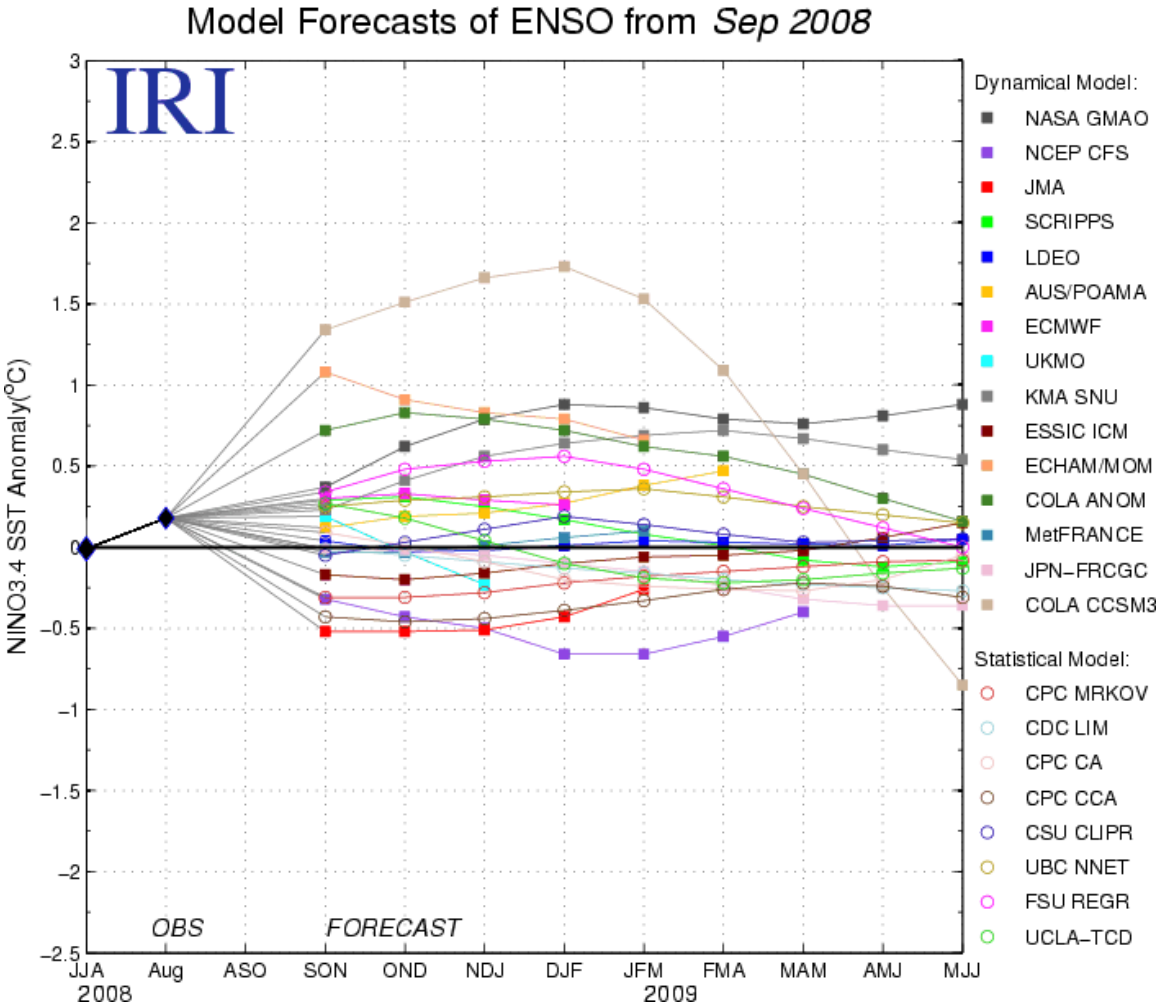

Figure 5. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure courtesy of the International Research Institute (IRI) for Climate and Society. Figure updated 19 September 2008.