EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

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Synopsis: ENSO-neutral is expected into the Northern Hemisphere spring 2014.

ENSO-neutral continued during September 2013, as sea surface temperature (SST) anomalies were near-average across much of the equatorial Pacific Ocean (Fig. 1). Except for the Niño-1+2 region, all of the latest weekly Niño index values were between 0°C and -0.5°C (Fig. 2). The oceanic heat content (average temperature in the upper 300m of the ocean) weakened (Fig. 3), as a consequence of an upwelling oceanic Kelvin wave contributing to below-average temperatures in the east-central Pacific Ocean (Fig. 4). The strength of the tropical atmospheric circulation anomalies, as reflected by convection and winds, also weakened over the last month. Slightly enhanced convection remained over parts of Indonesia, with weakly suppressed convection evident near the Date Line (Fig. 5). Low-level winds were near average, while anomalous westerly winds prevailed at upper-levels. Collectively, these atmospheric and oceanic conditions reflect ENSO-neutral.

The majority of model forecasts indicate that ENSO-neutral (Niño-3.4 index between -0.5°C and 0.5°C) will persist into the Northern Hemisphere spring 2014 (Fig. 6). Though the forecast favors near-average conditions, many models predict a gradual increase from slightly cooler than average to warmer conditions as the spring approaches. Overall, the consensus forecast is for ENSO-neutral to continue into the Northern Hemisphere spring 2014 (see CPC/IRI consensus forecast).

This discussion is a consolidated effort of the National Oceanic and Atmospheric 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 November 2013. 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.

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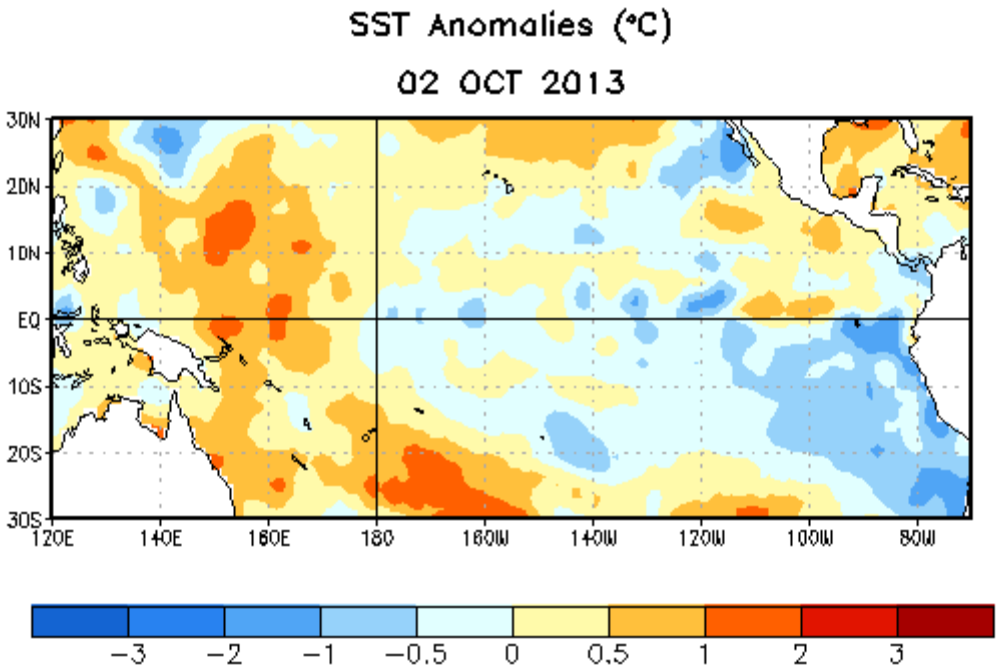

Figure 1. Average sea surface temperature (SST) anomalies (°C) for the week centered on 2 October 2013. Anomalies are computed with respect to the 1981-2010 base period weekly means.

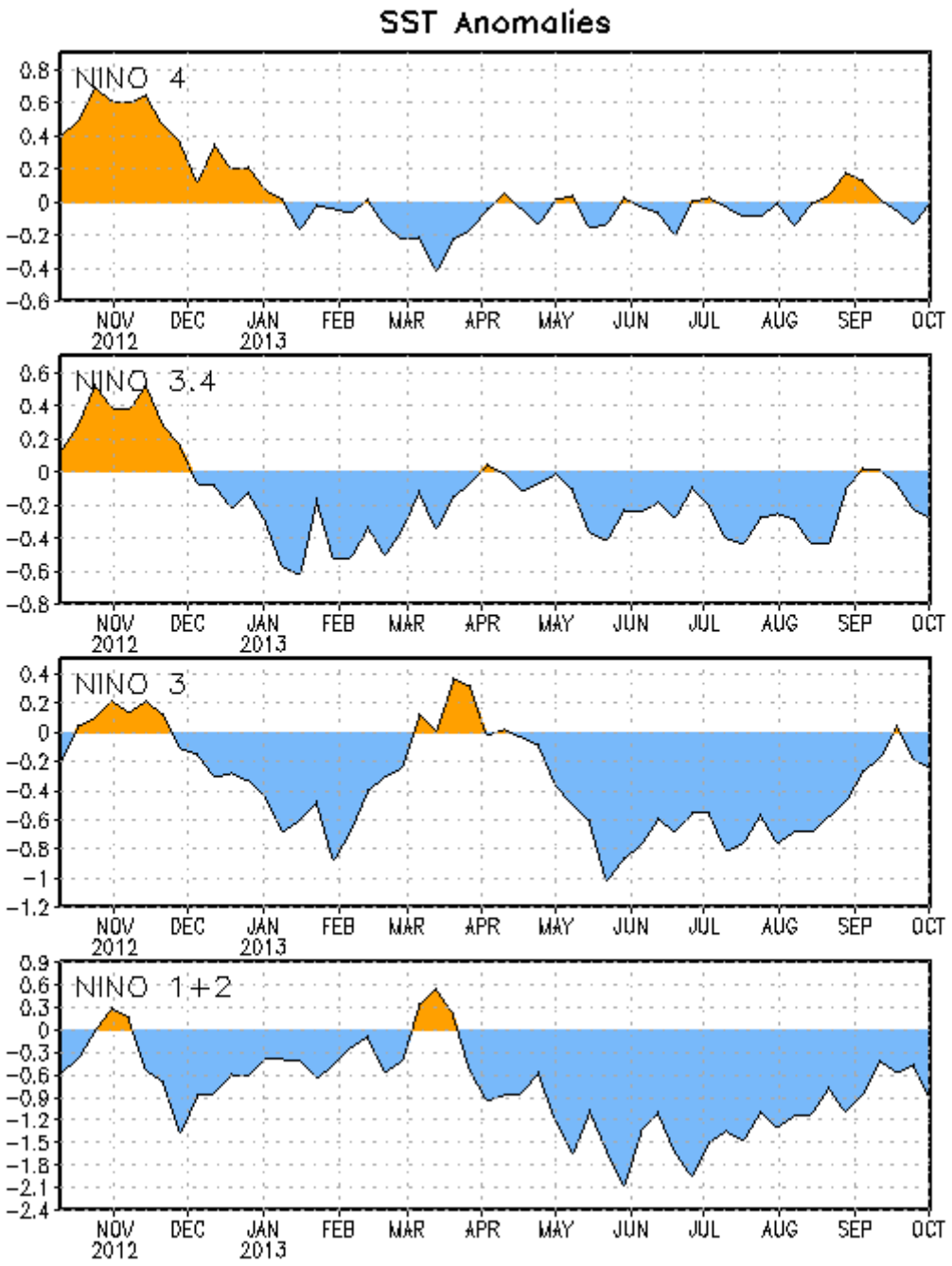

Figure 2. Time series of area-averaged sea surface temperature (SST) anomalies (°C) in the Niño regions [Niño-1+2 (0°-10°S, 90°W-80°W), Niño 3 (5°N-5°S, 150°W-90°W), Niño-3.4 (5°N-5°S, 170°W-120°W), Niño-4 (5ºN-5ºS , 150ºW-160ºE]. SST anomalies are departures from the 1981-2010 base period weekly means.

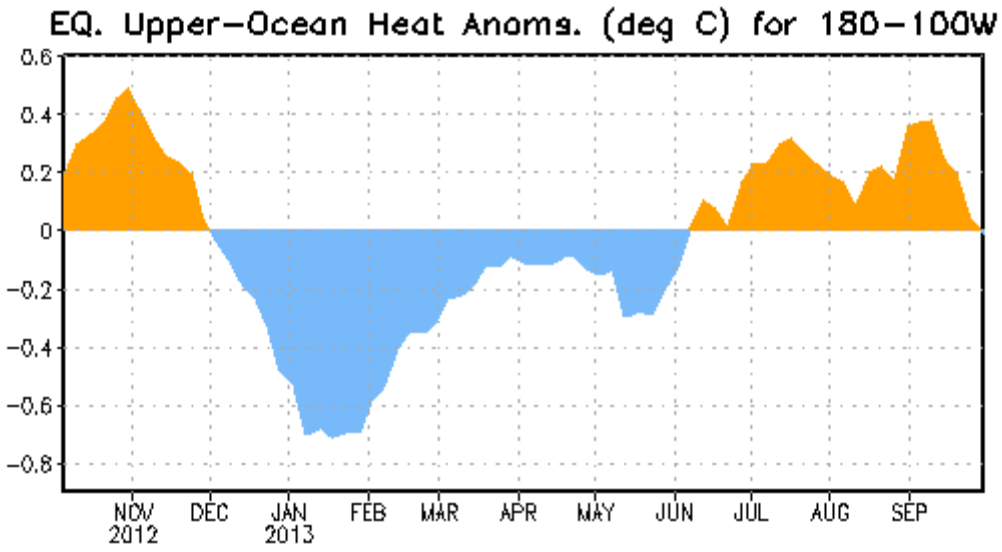

Figure 3. Area-averaged upper-ocean heat content anomaly (°C) in the equatorial Pacific (5°N-5°S, 180º-100ºW). The heat content anomaly is computed as the departure from the 1981-2010 base period pentad means.

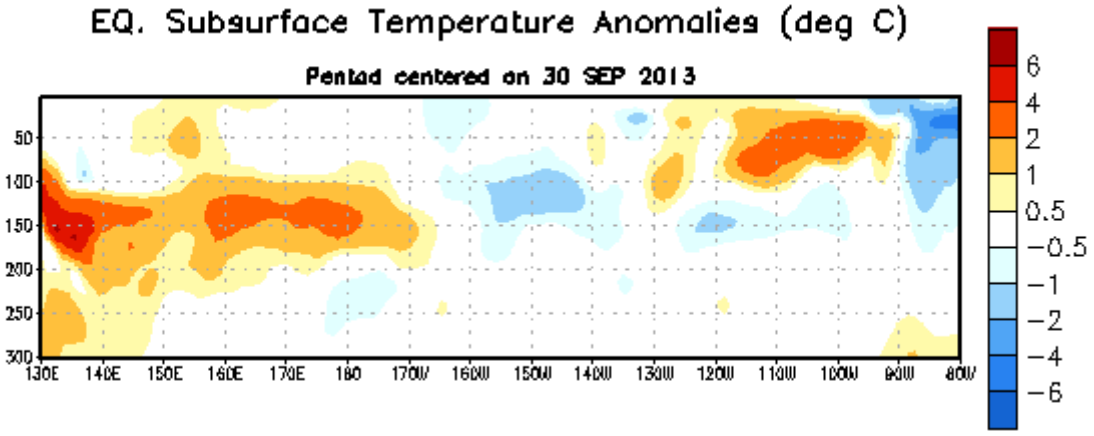

Figure 4. Depth-longitude section of equatorial Pacific upper-ocean (0-300m) temperature anomalies (°C) centered on the pentad of 30 September 2013. The anomalies are averaged between 5°N-5°S. Anomalies are departures from the 1981-2010 base period pentad means.

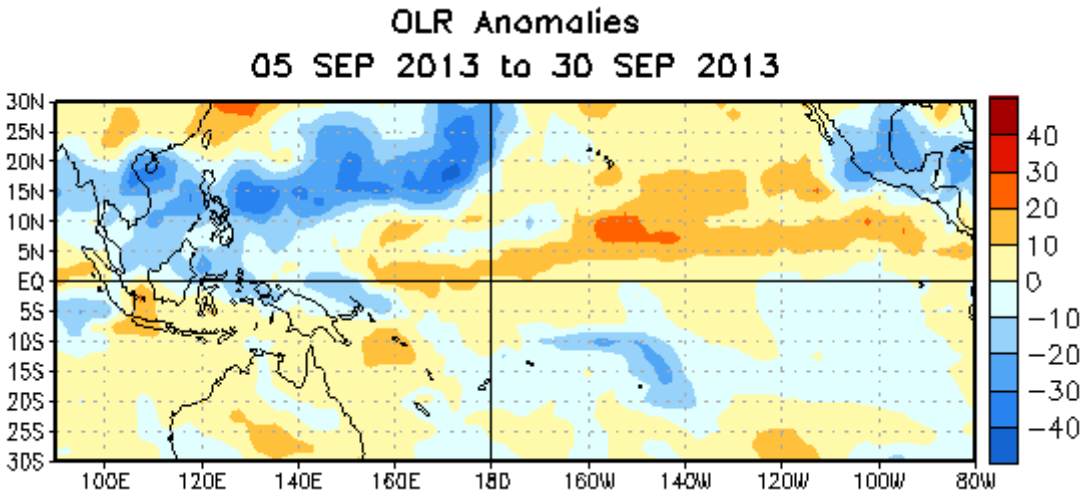

Figure 5. Average outgoing longwave radiation (OLR) anomalies (W/m^2) for the period 5 – 30 September 2013. OLR anomalies are computed as departures from the 1979-1995 base period pentad means.

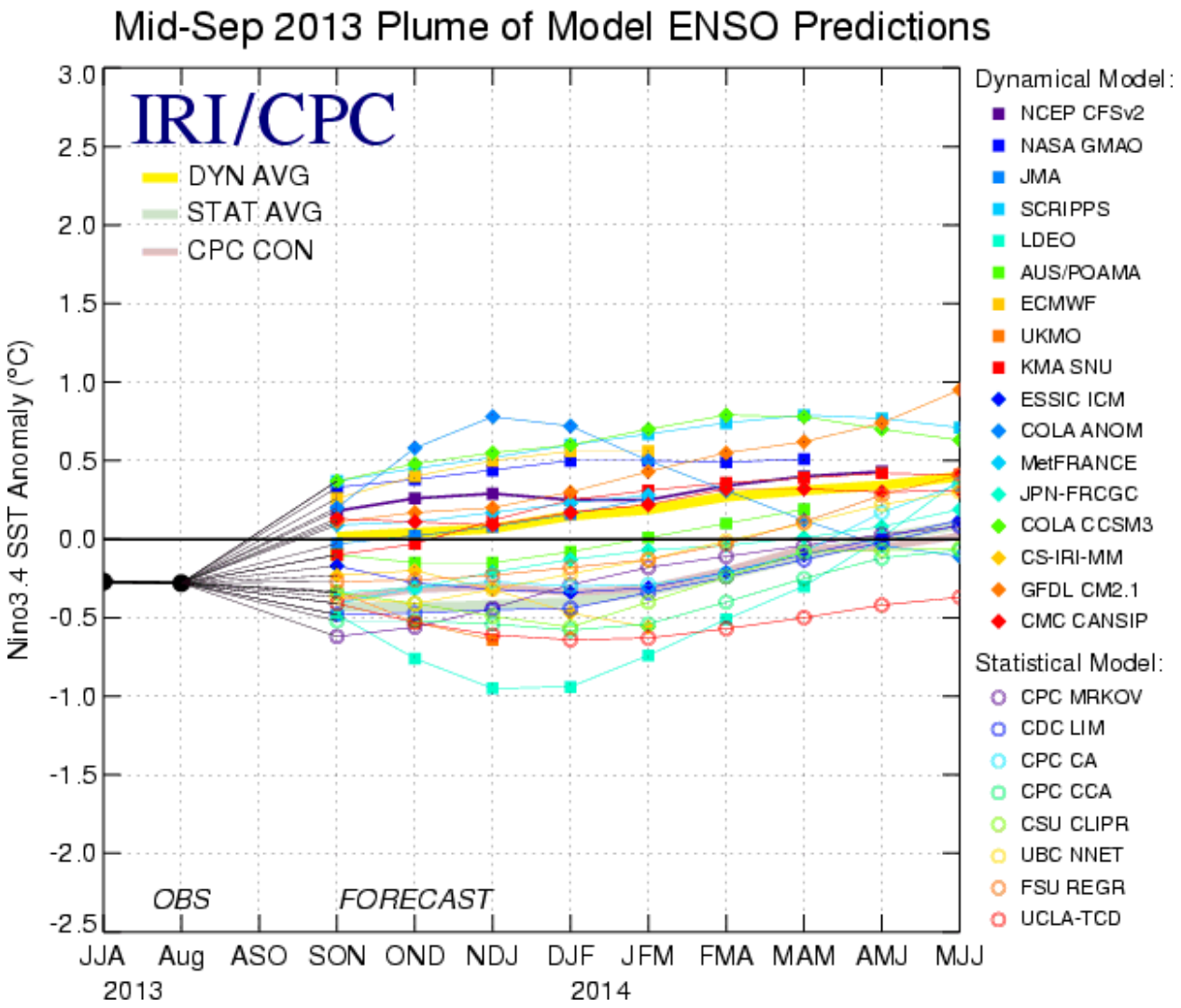

Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure updated 18 September 2013.