EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

issued by

CLIMATE PREDICTION CENTER/NCEP/NWS and the International Research Institute for Climate and Society

8 November 2012

ENSO Alert System Status: Not Active

Synopsis: ENSO-neutral is favored through the Northern Hemisphere winter 2012-13.

During October 2012, the Pacific Ocean continued to reflect borderline ENSO-neutral/ weak El Niño conditions. Equatorial sea surface temperature (SST) anomalies increased across the Pacific Ocean during the latter half of the month (Fig. 1), which was also reflected in the Niño indices (Fig. 2). The oceanic heat content (average temperature in the upper 300m of the ocean) anomalies also increased slightly (Fig. 3) in association with the downwelling oceanic Kelvin wave (Fig. 4). While the subsurface and surface Pacific Ocean has recently warmed, the tropical atmosphere remained largely consistent with ENSO-neutral. Upper-level and lower-level winds were near average, and the strength of anomalous convection decreased over the past month (Fig. 5). Thus, the atmosphere and ocean continue to indicate borderline ENSO-neutral/ weak El Niño conditions.

Relative to last month, the SST model predictions more strongly favor ENSO-neutral, although remaining above-average in the Niño-3.4 region through the Northern Hemisphere winter 2012-13 (Fig. 6). While the tropical ocean and atmosphere may resemble a weak El Niño at times, it is now considered less likely that a fully coupled El Niño will develop. Therefore, the previous El Niño Watch has been discontinued as the chance of El Niño has decreased. While the development of El Niño, or even La Niña, cannot be ruled out during the next few months, ENSO-neutral is now favored through the Northern Hemisphere winter 2012-13 (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 6 December 2012. 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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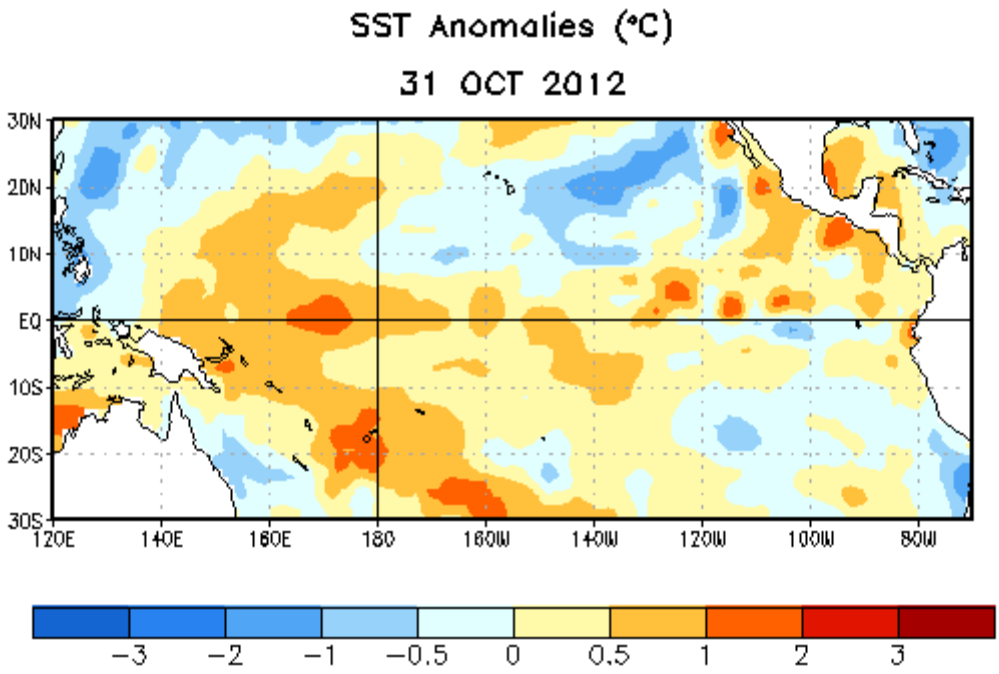

Figure 1. Average sea surface temperature (SST) anomalies (°C) for the week centered on 31 October 2012. Anomalies are computed with respect to the 1981-2010 base period weekly means.

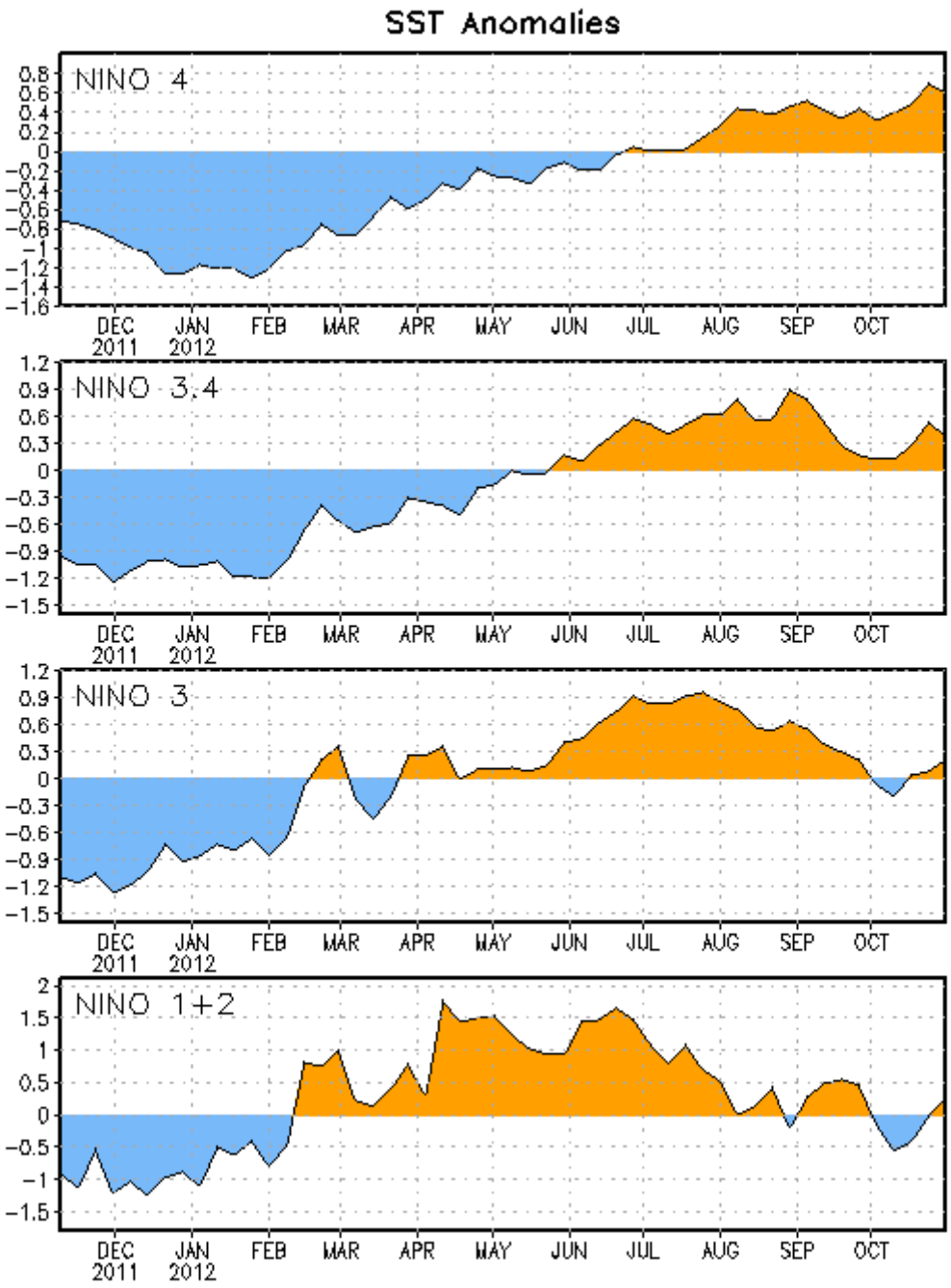

Figure 2. Time series of area-averaged sea surface temperature (SST) anomalies (°C) in the Niño regions [Niño-1+2 (0°-10°S, 90°W-80°W), Niño 3 (5°N-5°S, 150°W-90°W), Niño-3.4 (5°N-5°S, 170°W-120°W), Niño-4 (150ºW-160ºE and 5ºN-5ºS)]. SST anomalies are departures from the 1981-2010 base period weekly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

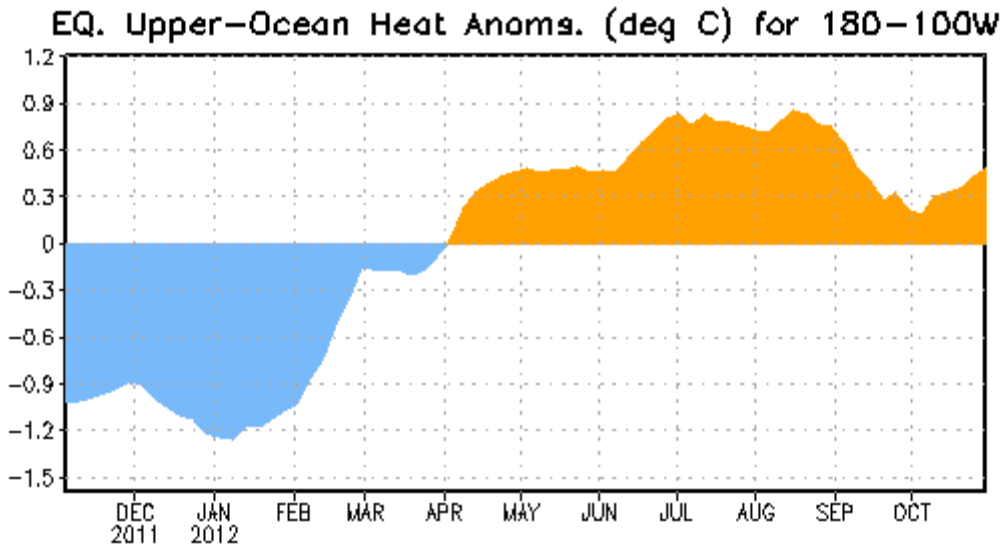

Figure 3. Area-averaged upper-ocean heat content anomaly (°C) in the equatorial Pacific (5°N-5°S, 180°-100°W). The heat content anomaly is computed as the departure from the 1981-2010 base period pentad means.

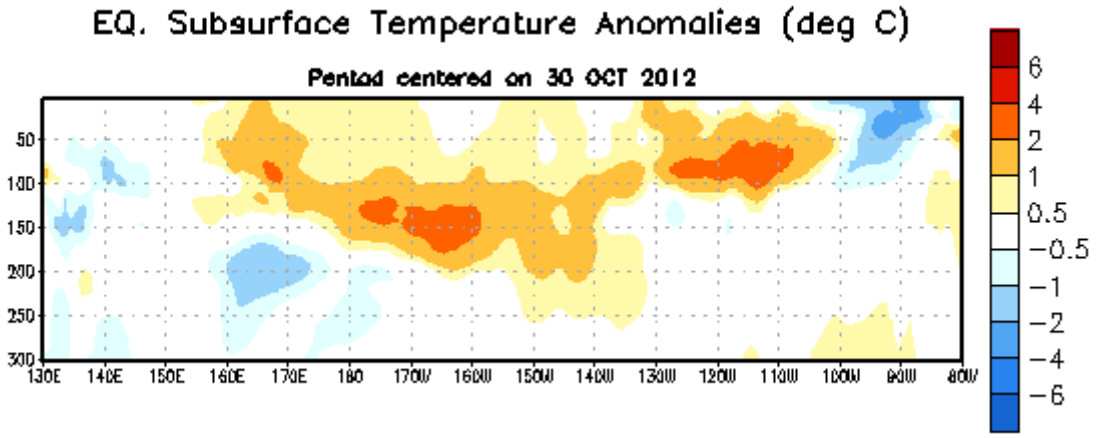

Figure 4. Depth-longitude section of equatorial Pacific upper-ocean (0-300m) temperature anomalies (°C) centered on the pentad of 30 October 2012. The anomalies are averaged between 5°N-5°S. Anomalies are departures from the 1981-2010 base period pentad means.

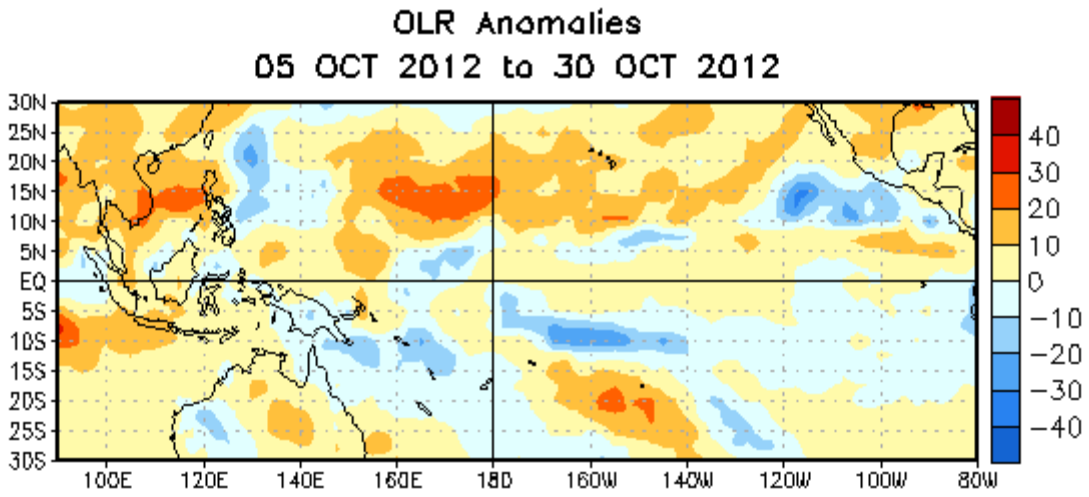

Figure 5. Average outgoing longwave radiation (OLR) anomalies (W/m^2) for the four-week period 5 – 30 October 2012. OLR anomalies are computed as departures from the 1979-1995 base period pentad means.

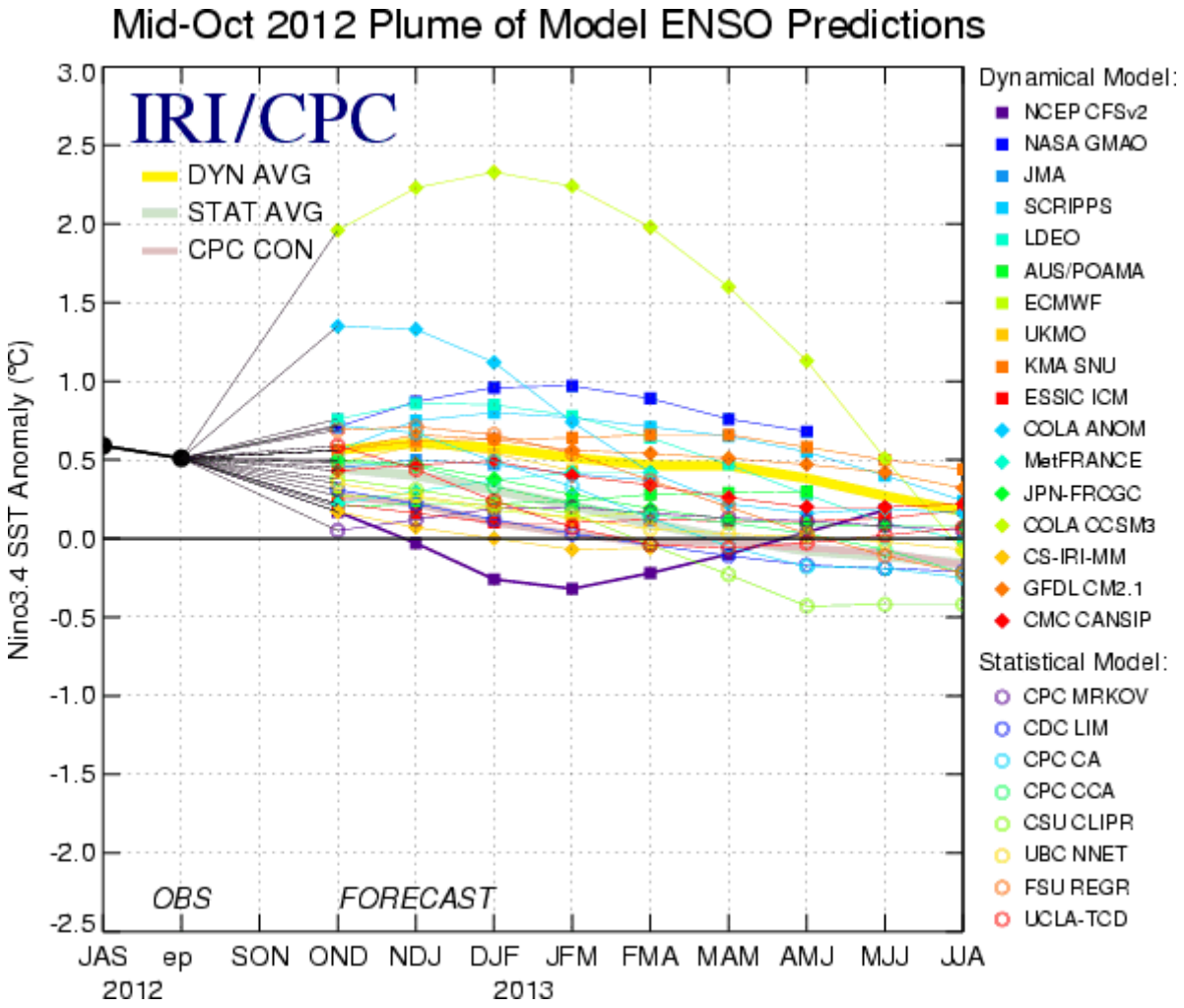

Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure courtesy of the International Research Institute (IRI) for Climate and Society. Figure updated 15 October 2012.