

EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

issued by

CLIMATE PREDICTION CENTER/NCEP/NWS
and the International Research Institute for Climate and Society
4 December 2014

ENSO Alert System Status: El Niño Watch

Synopsis: There is an approximately 65% chance that El Niño conditions will be present during the Northern Hemisphere winter and last into the Northern Hemisphere spring 2015.

During November 2014, sea surface temperature (SST) anomalies increased across the central and eastern equatorial Pacific (Fig. 1). At the end of the month, the weekly Niño indices ranged from +0.4°C in the Niño-1+2 region to +1.0°C in the Niño-3.4 region (Fig. 2). The subsurface heat content anomalies (averaged between 180°-100°W) also increased during November (Fig. 3) as a downwelling oceanic Kelvin wave increased subsurface temperatures in the central and eastern Pacific (Fig. 4). However, the overall atmospheric circulation has yet to show a clear coupling to the anomalously warm waters. The monthly equatorial low-level winds were largely near average, although weak anomalous westerlies appeared in a portion of the eastern tropical Pacific. Upper level easterly anomalies emerged in the central and eastern tropical Pacific during the month. The Southern Oscillation Index has been somewhat negative, but the equatorial Southern Oscillation Index has been near zero. Also, rainfall continued to be below average near the Date Line and over Indonesia, and near average east of the Date Line (Fig. 5). Although the SST anomalies alone might imply weak El Niño conditions, the patterns of wind and rainfall anomalies generally do not clearly indicate a coupling of the atmosphere to the ocean. Therefore, despite movement toward El Niño from one month ago, the combined atmospheric and oceanic state remains ENSO-neutral.

Similar to last month, most models predict SST anomalies to be at weak El Niño levels during November-January 2014-15 and to continue above the El Niño threshold into early 2015 (Fig. 6). Assuming that El Niño fully emerges, the forecaster consensus favors a weak event. In summary, there is an approximately 65% chance of El Niño conditions during the Northern Hemisphere winter, which are expected to last into the Northern Hemisphere spring 2015 (click [CPC/IRI consensus forecast](#) for the chance of each outcome).

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 are also updated monthly in the [Forecast Forum](#) of CPC's Climate Diagnostics Bulletin. Additional perspectives and analysis are also available in an [ENSO blog](#). The next ENSO Diagnostics Discussion is scheduled for 8 January 2015. 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
College Park, MD 20740

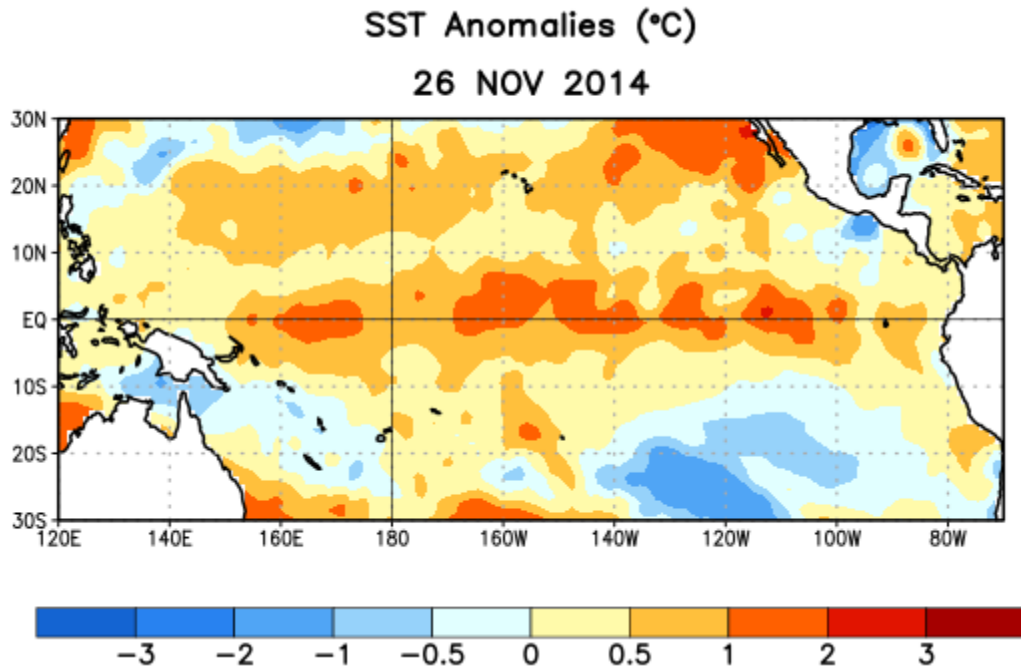


Figure 1. Average sea surface temperature (SST) anomalies (°C) for the week centered on 26 November 2014. Anomalies are computed with respect to the 1981-2010 base period weekly means.

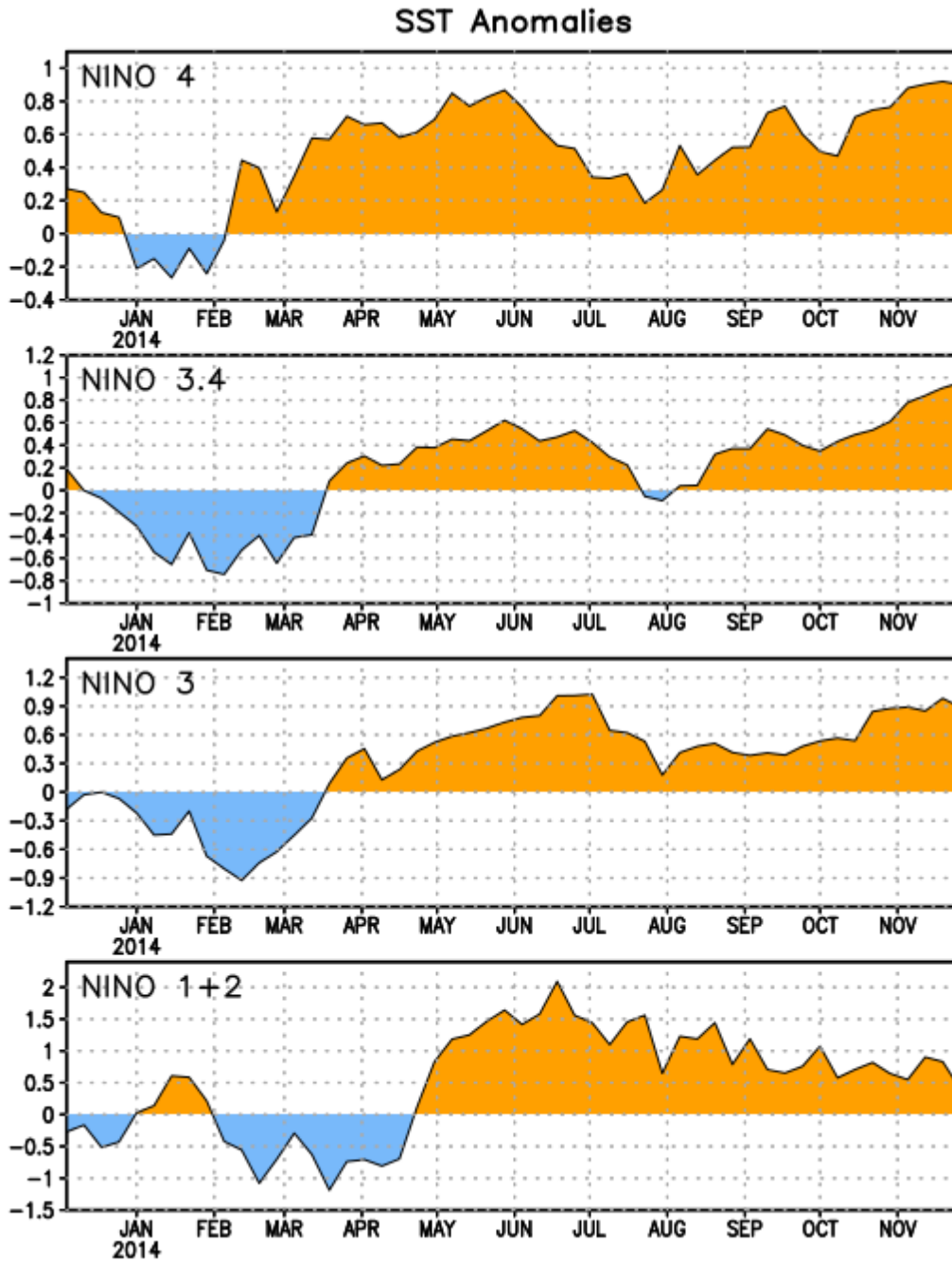


Figure 2. Time series of area-averaged sea surface temperature (SST) anomalies ($^{\circ}\text{C}$) in the Niño regions [Niño-1+2 (0° - 10°S , 90°W - 80°W), Niño 3 (5°N - 5°S , 150°W - 90°W), Niño-3.4 (5°N - 5°S , 170°W - 120°W), Niño-4 (5°N - 5°S , 150°W - 160°E). SST anomalies are departures from the 1981-2010 base period weekly means.

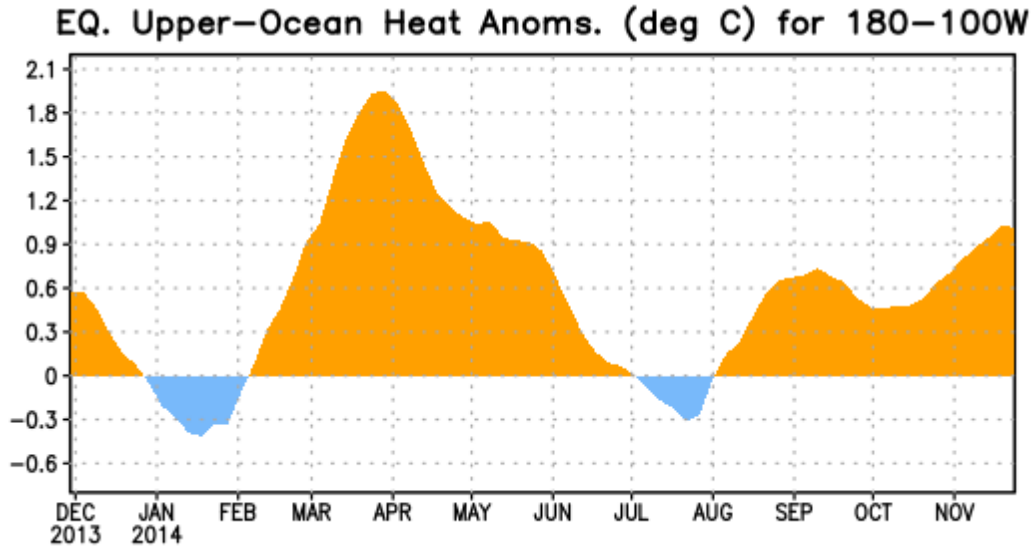


Figure 3. Area-averaged upper-ocean heat content anomaly ($^{\circ}\text{C}$) in the equatorial Pacific (5°N - 5°S , 180° - 100°W). The heat content anomaly is computed as the departure from the 1981-2010 base period pentad means.

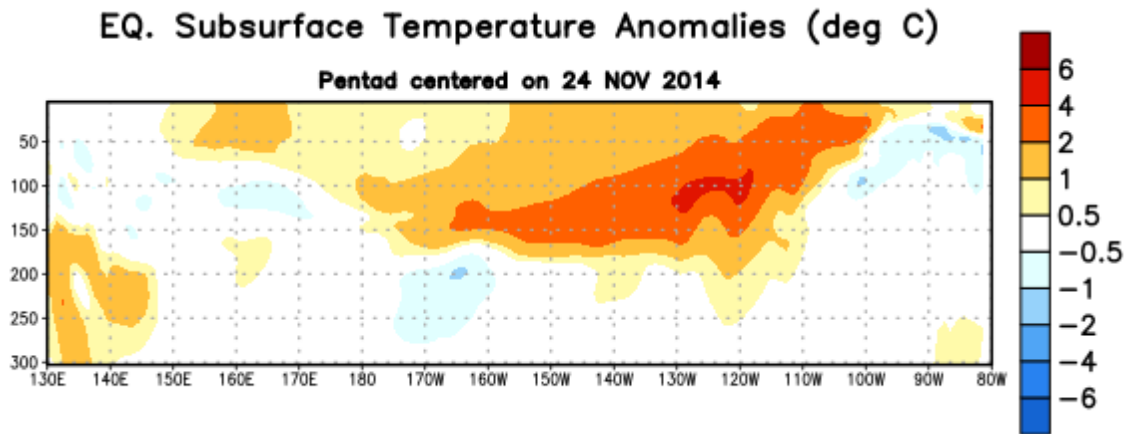


Figure 4. Depth-longitude section of equatorial Pacific upper-ocean (0-300m) temperature anomalies ($^{\circ}\text{C}$) centered on the pentad of 24 November 2014. The anomalies are averaged between 5°N - 5°S . Anomalies are departures from the 1981-2010 base period pentad means.

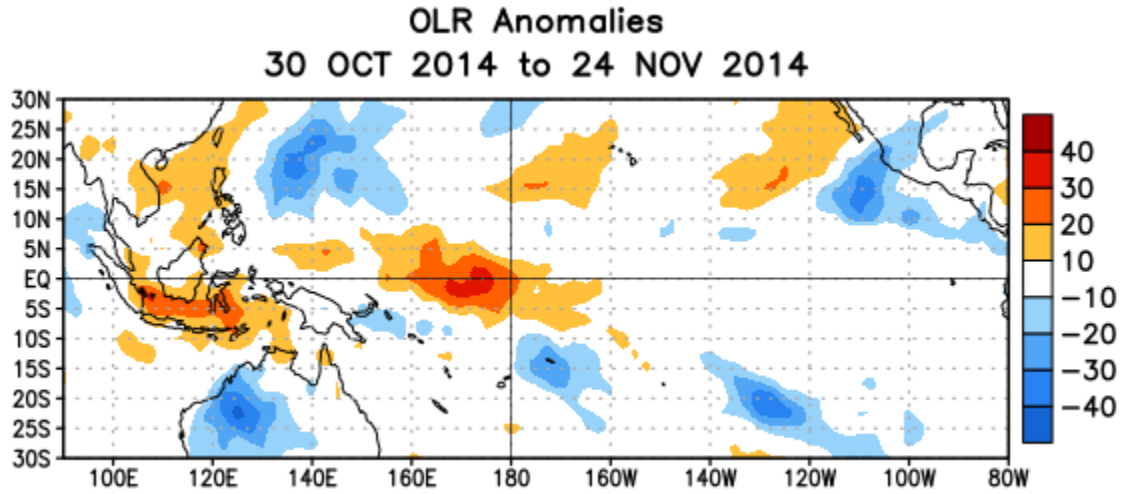


Figure 5. Average outgoing longwave radiation (OLR) anomalies (W/m^2) for the period 30 October – 24 November 2014. OLR anomalies are computed as departures from the 1979-1995 base period pentad means.

Mid-Nov 2014 Plume of Model ENSO Predictions

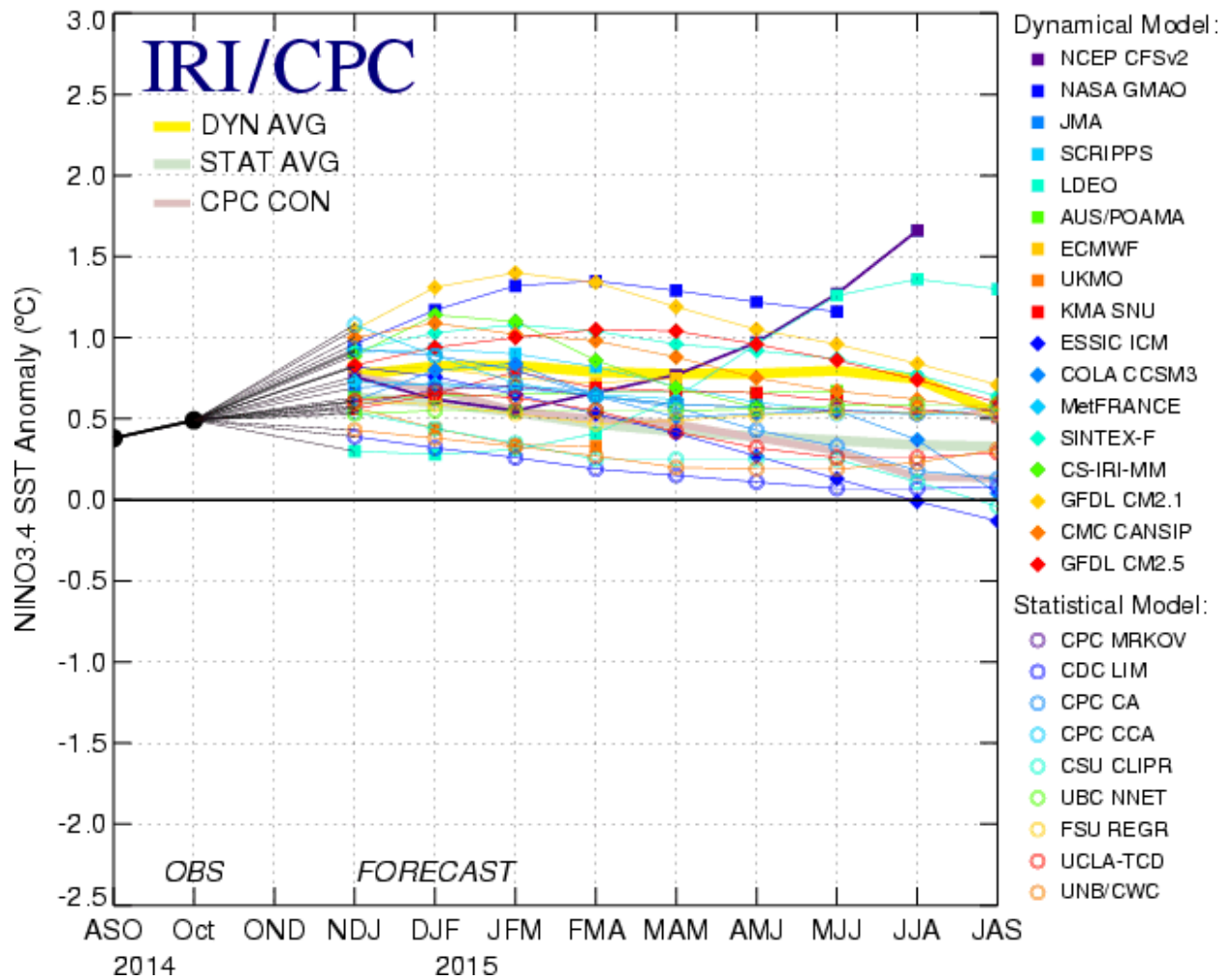


Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure updated 18 November 2014.