

# EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

issued by

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**and the International Research Institute for Climate and Society**  
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**ENSO Alert System Status: El Niño Advisory**

**Special Notice:** Starting in May 2015, the ENSO Diagnostic Discussion will be released on the second Thursday of each month.

**Synopsis:** There is an approximately 70% chance that El Niño will continue through Northern Hemisphere summer 2015, and a greater than 60% chance it will last through autumn.

By the end of March 2015, weak El Niño conditions were reflected by above-average sea surface temperatures (SST) across the equatorial Pacific (Fig. 1), and by the expected tropical atmospheric response. The latest weekly Niño indices were +1.1°C in the Niño-4 region, +0.7°C in the Niño-3.4 region, and +0.6°C and +1.4°C in the Niño-3 and Niño-1+2 regions, respectively (Fig. 2). Subsurface temperature anomalies increased substantially during the month (Fig. 3) in response to a downwelling oceanic Kelvin wave, which resulted in strong positive subsurface anomalies across most of the Pacific (Fig. 4). Consistent with ocean-atmosphere coupling, enhanced convection shifted eastward to the central equatorial Pacific (Fig. 5), while low-level westerly wind anomalies continued over the western equatorial Pacific and upper-level easterly wind anomalies continued in the central Pacific. Also, both the traditional and the equatorial Southern Oscillation Index (EQSOI) remained negative during the month. Collectively, these features reflect weak El Niño conditions.

Compared to last month, more models predict El Niño (3-month values of the Niño-3.4 index equal to or greater than 0.5°C) to continue throughout 2015 (Fig. 6). These forecasts are supported by the increase in subsurface temperatures, enhanced convection over the Date Line, and the increased persistence of low-level westerly wind anomalies. However, model forecast skill tends to be lower during the Northern Hemisphere spring, which limits the forecast probabilities of El Niño through the year. At this time, there is also considerable uncertainty as to how strong this event may become. In summary, there is an approximately 70% chance that El Niño will continue through the Northern Hemisphere summer 2015, and a greater than 60% chance that it will last through autumn (click [CPC/IRI consensus forecast](#) for the chance of each outcome for each 3-month period).

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 **14 May 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](mailto:ncep.list.enso-update@noaa.gov).

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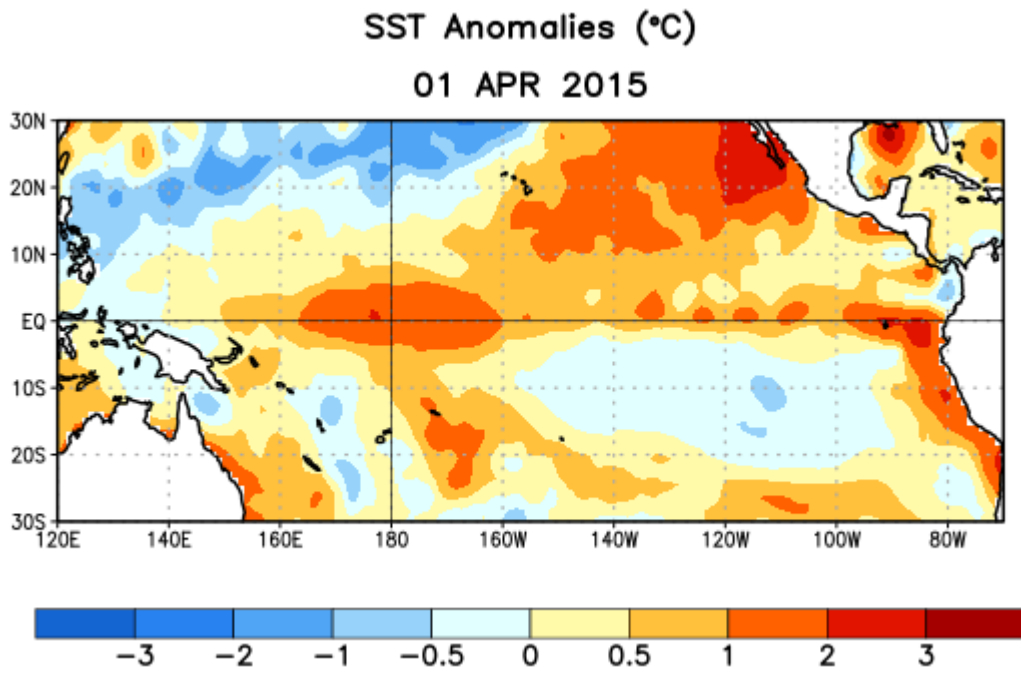


Figure 1. Average sea surface temperature (SST) anomalies (°C) for the week centered on 1 April 2015. Anomalies are computed with respect to the 1981-2010 base period weekly means.

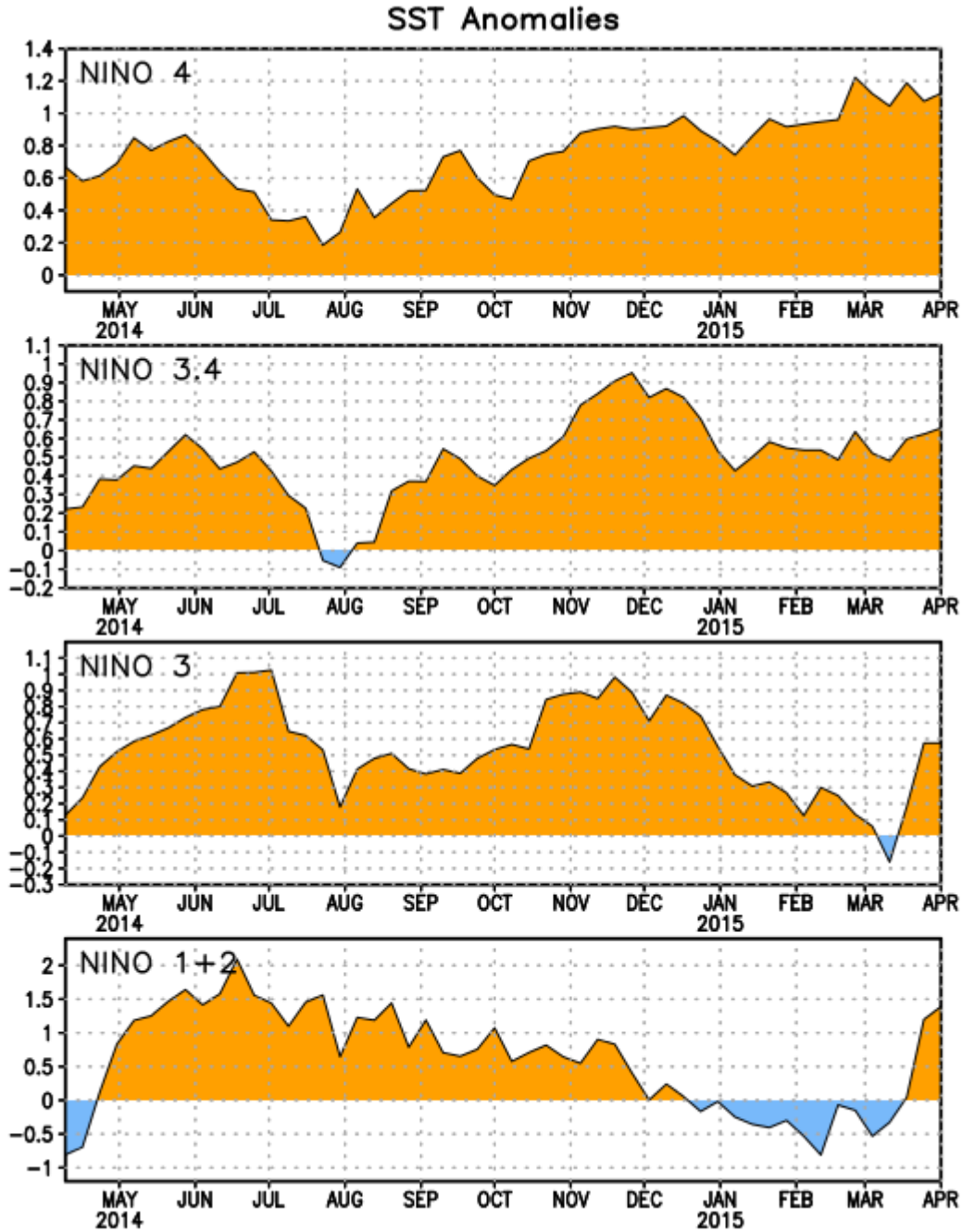


Figure 2. Time series of area-averaged sea surface temperature (SST) anomalies ( $^{\circ}\text{C}$ ) in the Niño regions [Niño-1+2 ( $0^{\circ}$ - $10^{\circ}\text{S}$ ,  $90^{\circ}\text{W}$ - $80^{\circ}\text{W}$ ), Niño 3 ( $5^{\circ}\text{N}$ - $5^{\circ}\text{S}$ ,  $150^{\circ}\text{W}$ - $90^{\circ}\text{W}$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

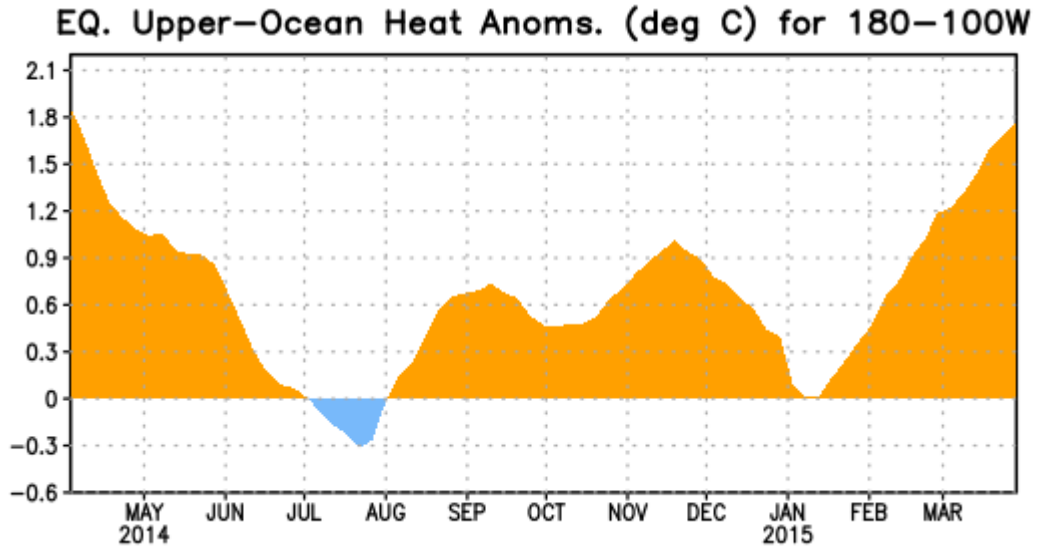


Figure 3. Area-averaged upper-ocean heat content anomaly ( $^{\circ}\text{C}$ ) in the equatorial Pacific ( $5^{\circ}\text{N}$ - $5^{\circ}\text{S}$ ,  $180^{\circ}$ - $100^{\circ}\text{W}$ ). The heat content anomaly is computed as the departure from the 1981-2010 base period pentad means.

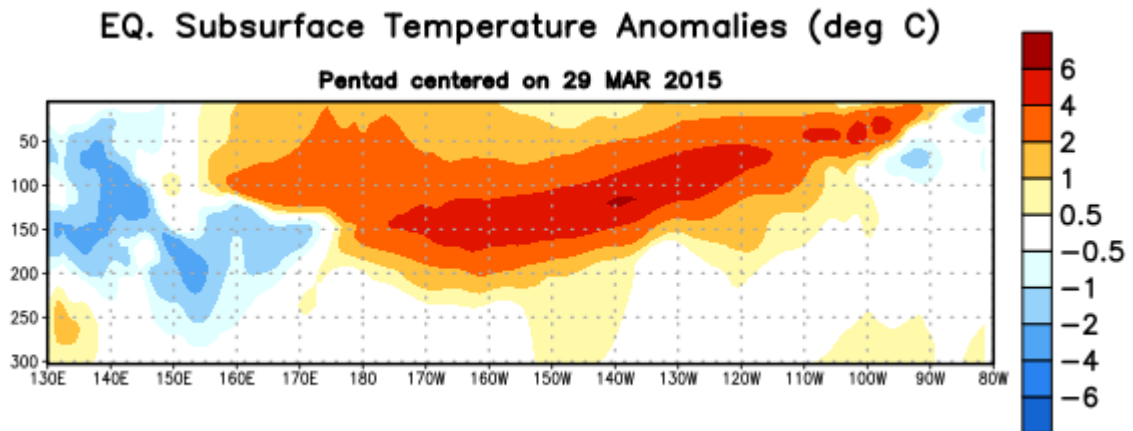


Figure 4. Depth-longitude section of equatorial Pacific upper-ocean (0-300m) temperature anomalies ( $^{\circ}\text{C}$ ) centered on the pentad of 29 March 2015. The anomalies are averaged between  $5^{\circ}\text{N}$ - $5^{\circ}\text{S}$ . Anomalies are departures from the 1981-2010 base period pentad means.

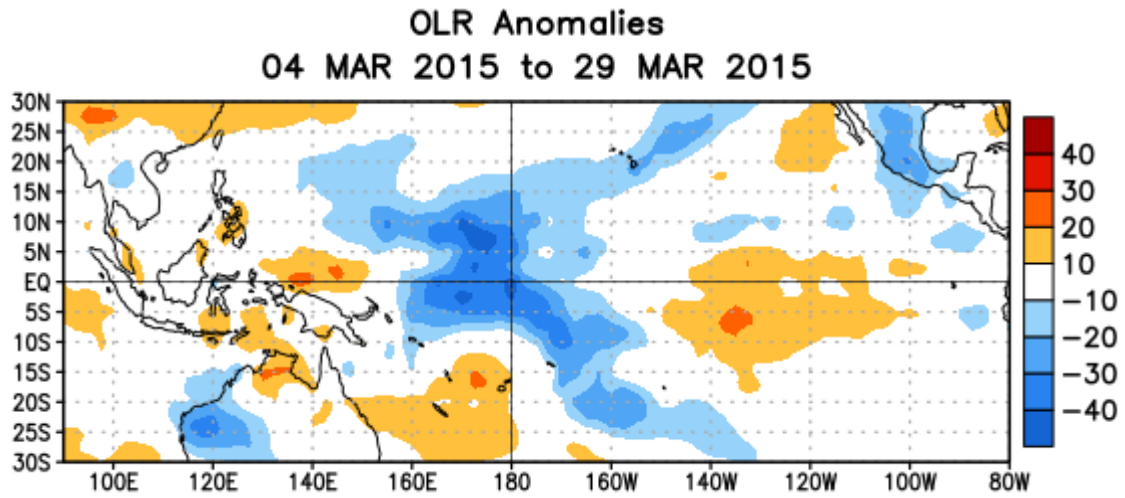


Figure 5. Average outgoing longwave radiation (OLR) anomalies ( $W/m^2$ ) for the period 4 – 29 March 2015. OLR anomalies are computed as departures from the 1979-1995 base period pentad means.

## Mid-Mar 2015 Plume of Model ENSO Predictions

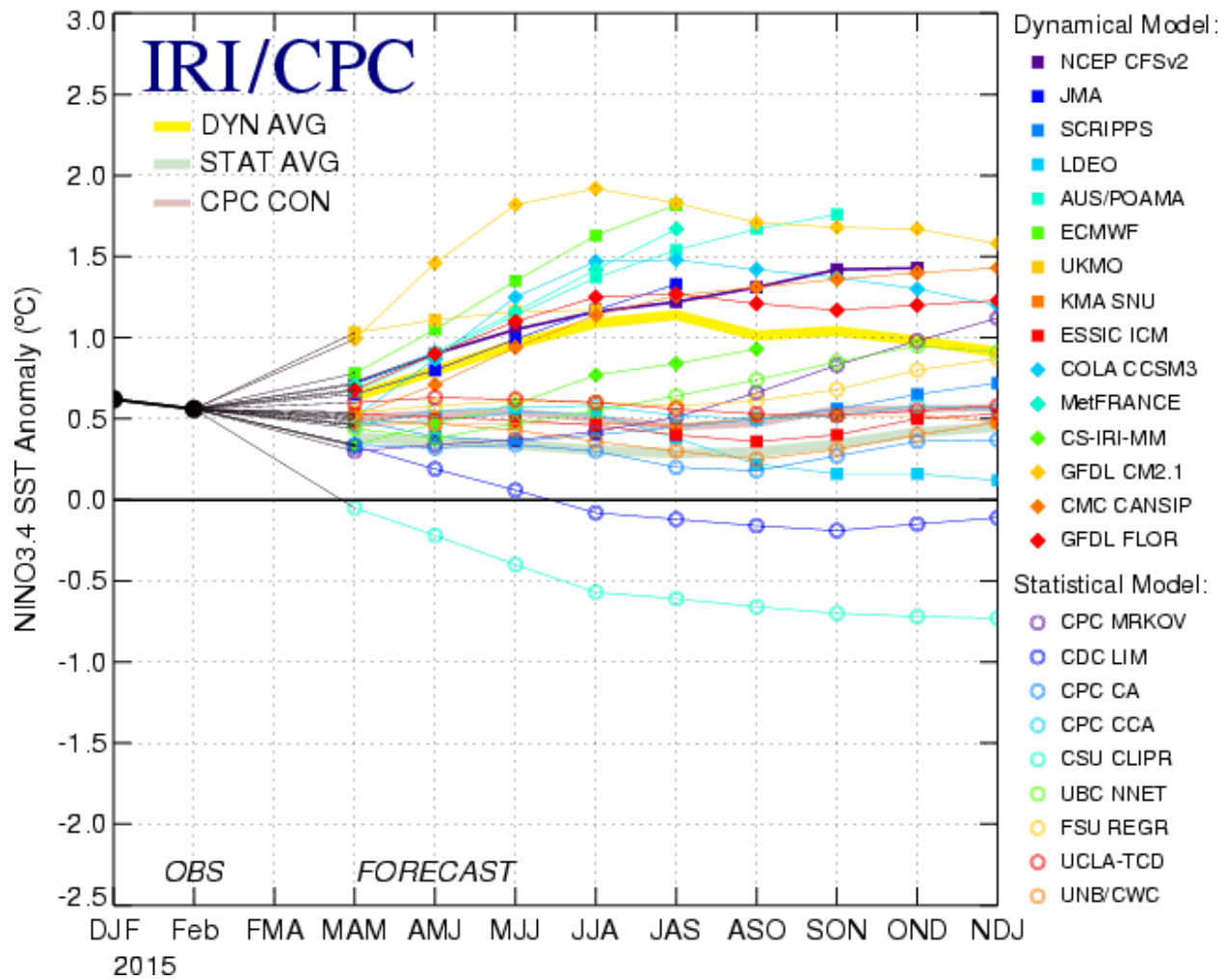


Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure updated 17 March 2015.