

EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

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ENSO Alert System Status: Final El Niño Advisory

Synopsis: El Niño has transitioned to ENSO-neutral, which is most likely to continue through Northern Hemisphere winter 2019-20 (50-55% chance).

During July, ENSO-neutral conditions were reflected by the combination of below-average sea surface temperatures (SSTs) in the eastern equatorial Pacific Ocean and above-average SSTs in the central Pacific (Fig. 1). The latest weekly ENSO indices were +1.0°C, +0.5°C, -0.2°C and -0.5°C in the Niño-4, Niño-3.4, Niño-3 and Niño-1+2 regions, respectively (Fig. 2). Upper-ocean subsurface temperatures (averaged across 180°-100°W) were near average throughout the month (Fig. 3), as anomalously cool waters prevailed in the eastern Pacific and anomalously warm waters continued in the central Pacific (Fig. 4). Suppressed tropical convection continued over Indonesia, while near-average convection was observed near the Date Line (Fig. 5). Low-level wind anomalies were near average over the tropical Pacific Ocean, and upper-level winds were easterly over the east-central Pacific. The traditional and equatorial Southern Oscillation Indices remained slightly negative. Overall, oceanic and atmospheric conditions were consistent with a transition to ENSO-neutral.

The latest IRI/CPC plume of forecasts of the Niño-3.4 index (Fig. 6) favors ENSO-neutral (Niño-3.4 index between -0.5°C and +0.5°C), with index values greater than zero from late Northern Hemisphere summer into fall, warming closer to the El Niño threshold (+0.5°C) by winter. Atypically, dynamical models forecast weaker positive SST anomalies than statistical models throughout most of the forecast period. As a result, while forecasters favor ENSO-neutral conditions, the odds of El Niño (~30%) are roughly twice that of La Niña for next winter. In summary, El Niño has transitioned to ENSO-neutral, which is most likely to continue through Northern Hemisphere winter 2019-20 (50-55% chance; 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 12 September 2019. 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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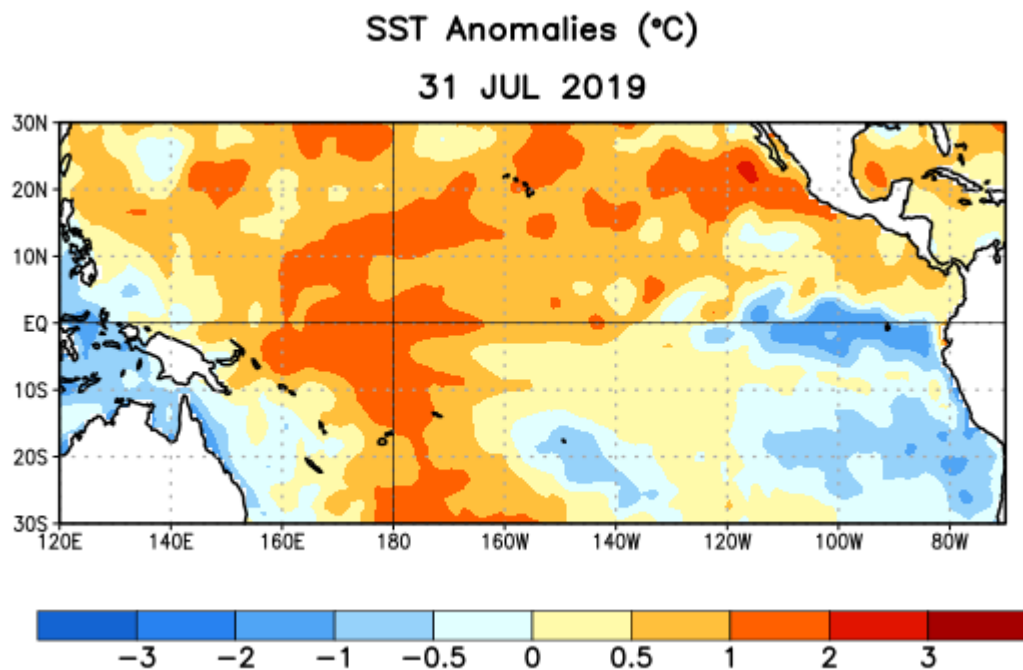


Figure 1. Average sea surface temperature (SST) anomalies (°C) for the week centered on 31 July 2019. Anomalies are computed with respect to the 1981-2010 base period weekly means.

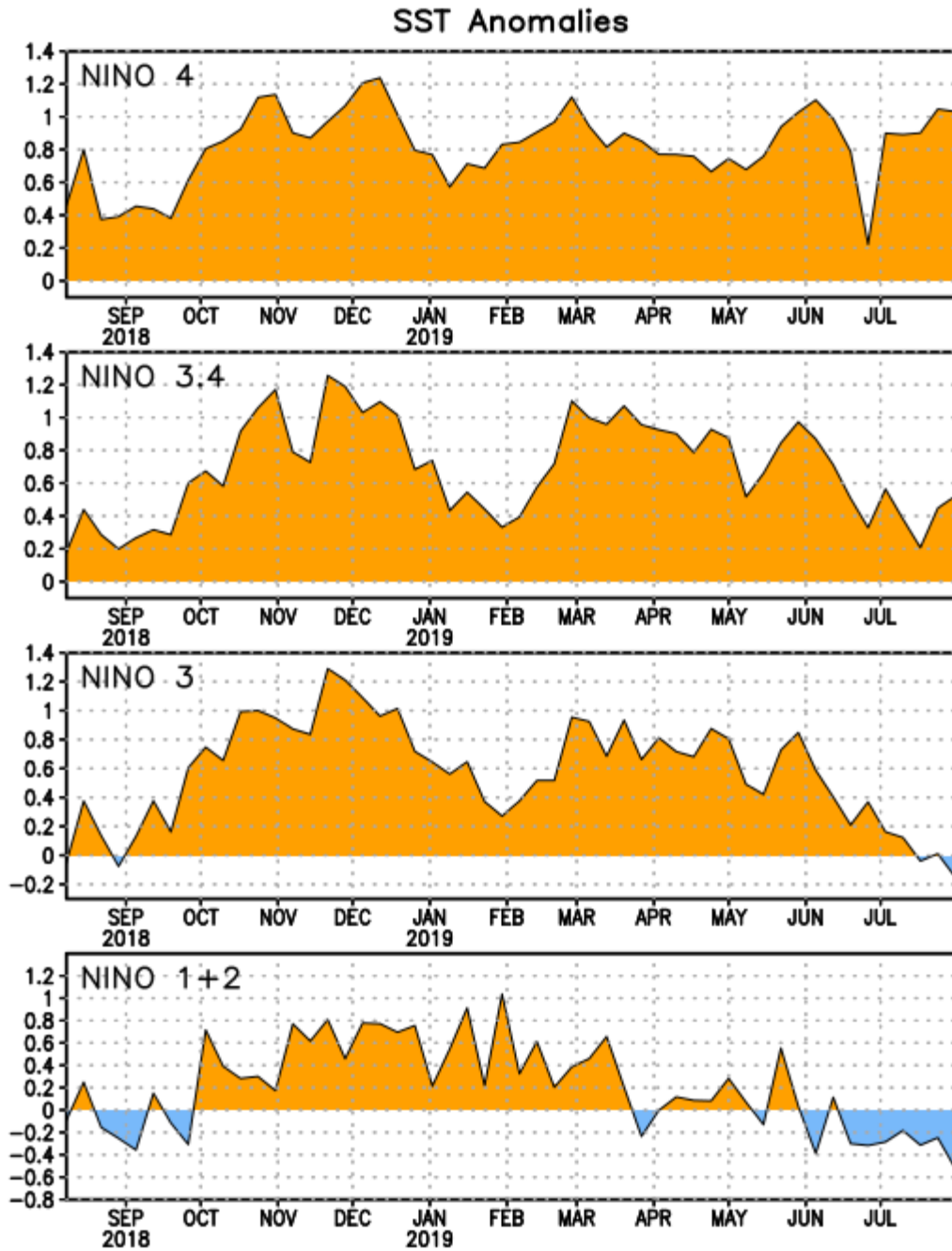


Figure 2. Time series of area-averaged sea surface temperature (SST) anomalies ($^{\circ}\text{C}$) in the Niño regions [Niño-1+2 (0° - 10°S , 90°W - 80°W), Niño-3 (5°N - 5°S , 150°W - 90°W), Niño-3.4 (5°N - 5°S , 170°W - 120°W), Niño-4 (5°N - 5°S , 150°W - 160°E)]. SST anomalies are departures from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

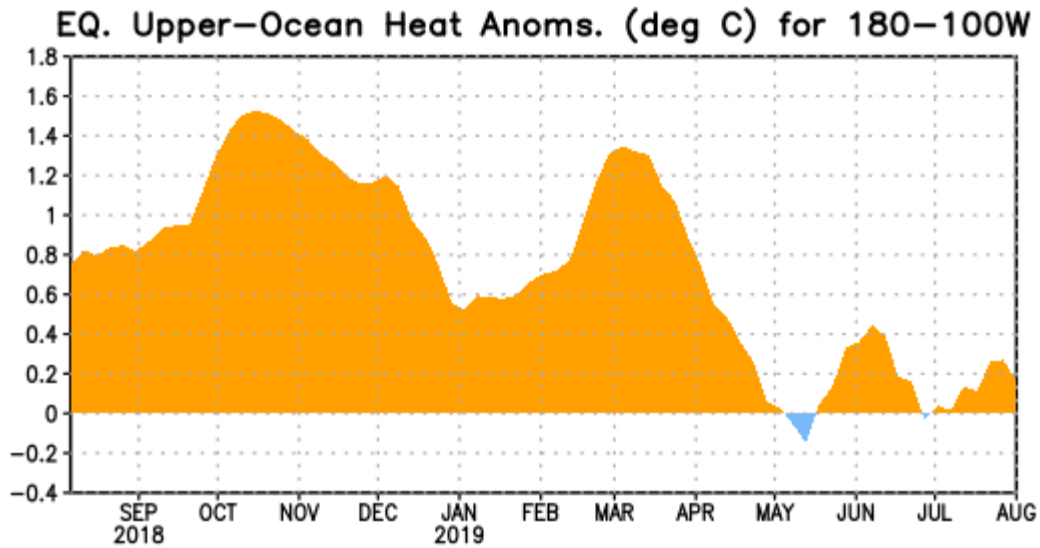


Figure 3. Area-averaged upper-ocean heat content anomaly ($^{\circ}\text{C}$) in the equatorial Pacific (5°N - 5°S , 180° - 100°W). The heat content anomaly is computed as the departure from the 1981-2010 base period pentad means.

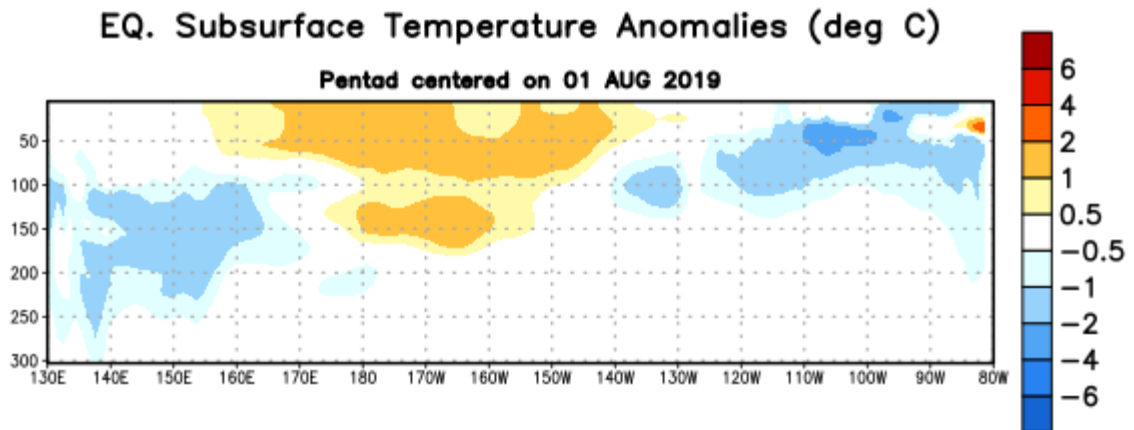


Figure 4. Depth-longitude section of equatorial Pacific upper-ocean (0-300m) temperature anomalies ($^{\circ}\text{C}$) centered on the pentad of 1 August 2019. Anomalies are departures from the 1981-2010 base period pentad means.

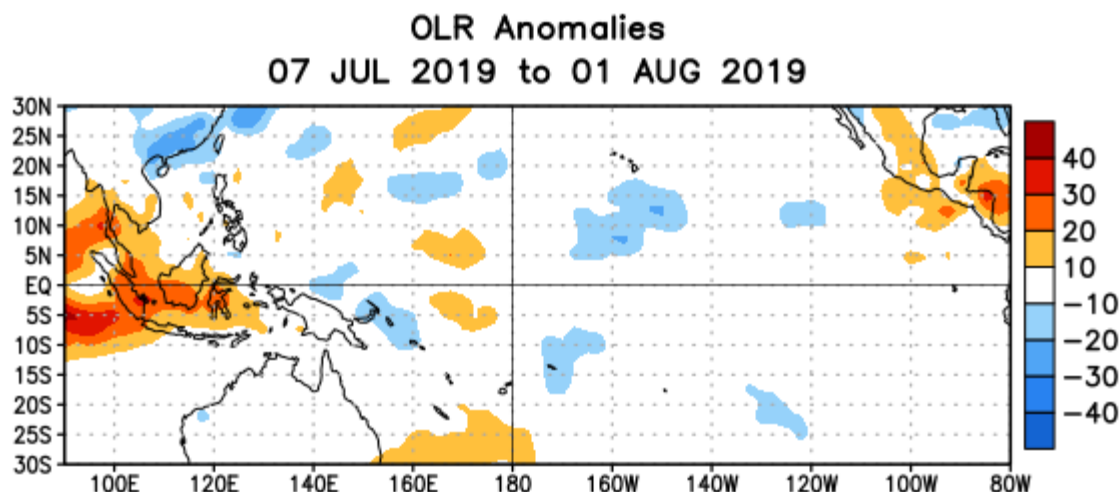


Figure 5. Average outgoing longwave radiation (OLR) anomalies (W/m^2) for the period 7 July – 1 August 2019. OLR anomalies are computed as departures from the 1981-2010 base period pentad means.

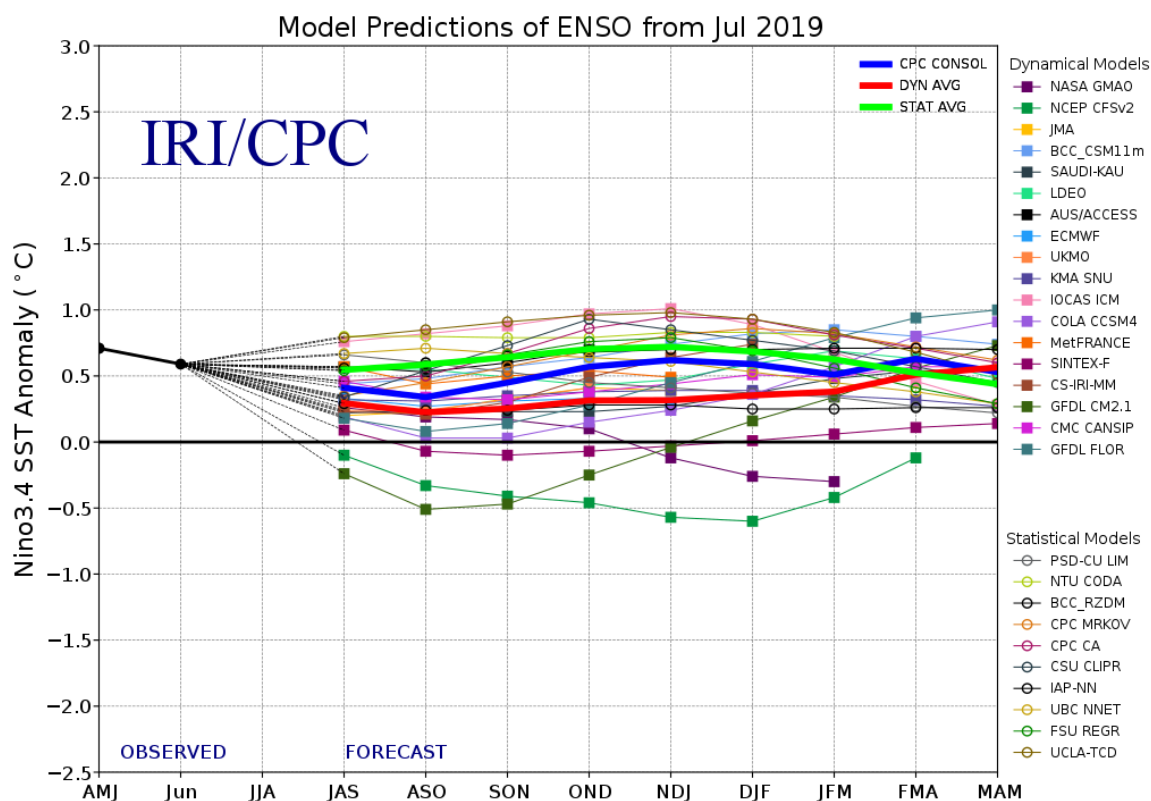


Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N – 5°S , 120°W – 170°W). Figure updated 19 July 2019.