

EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

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CLIMATE PREDICTION CENTER/NCEP/NWS
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ENSO Alert System Status: [La Niña Watch](#)

Synopsis: There is a ~60% chance of La Niña development during Northern Hemisphere fall 2020 and continuing through winter 2020-21 (~55% chance).

By early August 2020, sea surface temperatures (SSTs) were below average in the equatorial Pacific from the Date Line to the west coast of South America (Fig. 1). The four Niño indices were negative during the latest week, with the Niño-3.4 and Niño-3 indices at -0.6°C (Fig. 2). Negative equatorial subsurface temperature anomalies (averaged across 180° - 100°W), which had weakened during June and early July, began re-strengthening in mid-July (Fig. 3) as below-average subsurface temperatures re-emerged in the east-central equatorial Pacific (Fig. 4). During July, low-level wind anomalies were easterly across most of the equatorial Pacific, while upper-level wind anomalies were westerly over portions of the far western, central, and eastern Pacific. Tropical convection was suppressed over the western and central Pacific, and was near average over Indonesia (Fig. 5). Overall, the combined oceanic and atmospheric system remained consistent with ENSO-neutral.

The models in the IRI/CPC plume (Fig. 6) are split between La Niña and ENSO-neutral (Niño-3.4 index between -0.5°C and $+0.5^{\circ}\text{C}$) during the fall and winter, but slightly favor La Niña from the August-October through the November-January seasons. Based largely on dynamical model guidance, the forecaster consensus favors La Niña development during the August-October season, lasting through winter 2020-21. In summary, there is a ~60% chance of La Niña development during Northern Hemisphere fall 2020 and continuing through winter 2020-21 (~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 10 September 2020. 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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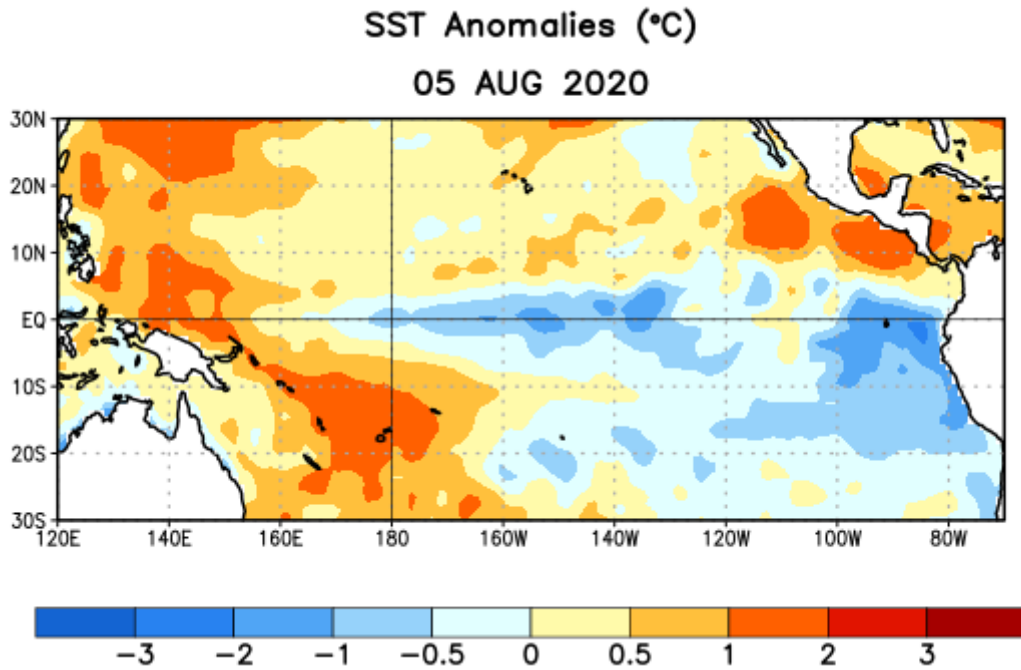


Figure 1. Average sea surface temperature (SST) anomalies (°C) for the week centered on 5 August 2020. Anomalies are computed with respect to the 1981-2010 base period weekly means.

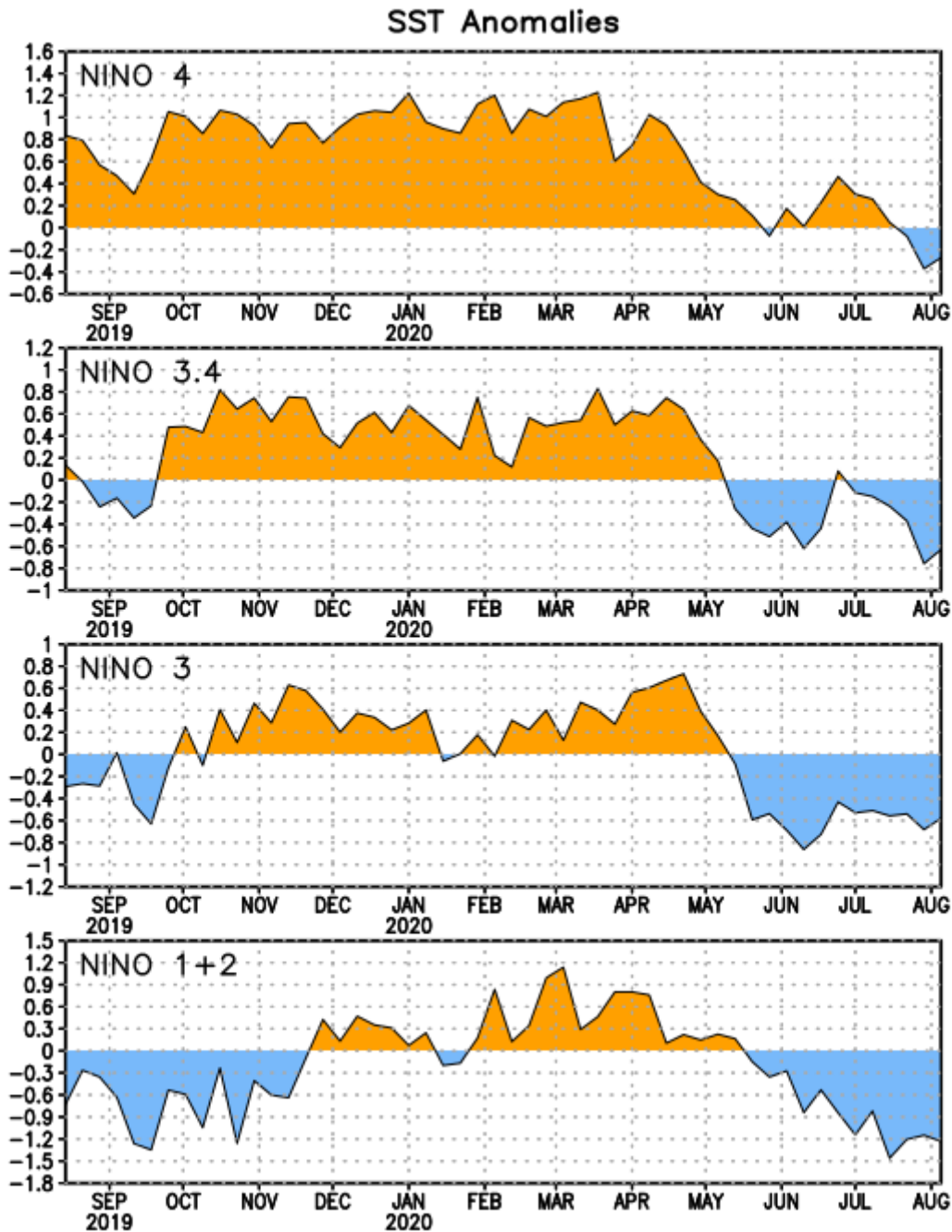


Figure 2. Time series of area-averaged sea surface temperature (SST) anomalies ($^{\circ}\text{C}$) in the Niño regions [Niño-1+2 ($0^{\circ}\text{-}10^{\circ}\text{S}$, $90^{\circ}\text{W-}80^{\circ}\text{W}$), Niño-3 ($5^{\circ}\text{N-}5^{\circ}\text{S}$, $150^{\circ}\text{W-}90^{\circ}\text{W}$), 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.

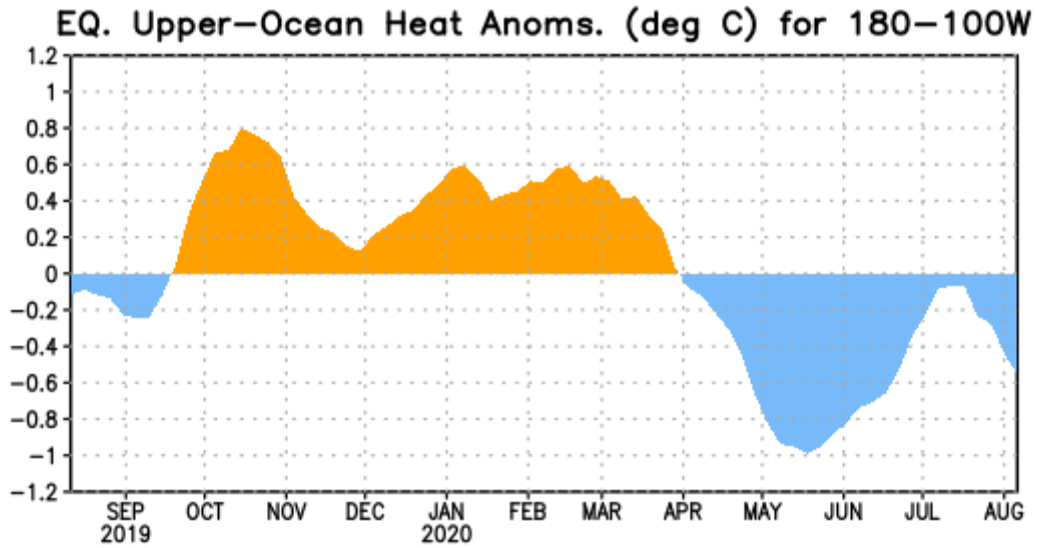


Figure 3. Area-averaged upper-ocean heat content anomaly ($^{\circ}\text{C}$) in the equatorial Pacific (5°N - 5°S , 180° - 100°W). The heat content anomaly is computed as the departure from the 1981-2010 base period pentad means.

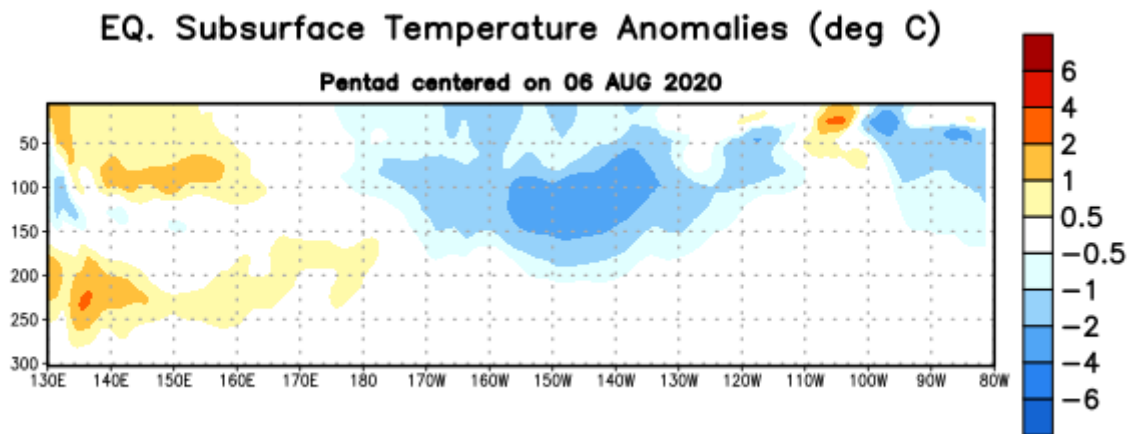


Figure 4. Depth-longitude section of equatorial Pacific upper-ocean (0-300m) temperature anomalies ($^{\circ}\text{C}$) centered on the pentad of 6 August 2020. Anomalies are departures from the 1981-2010 base period pentad means.

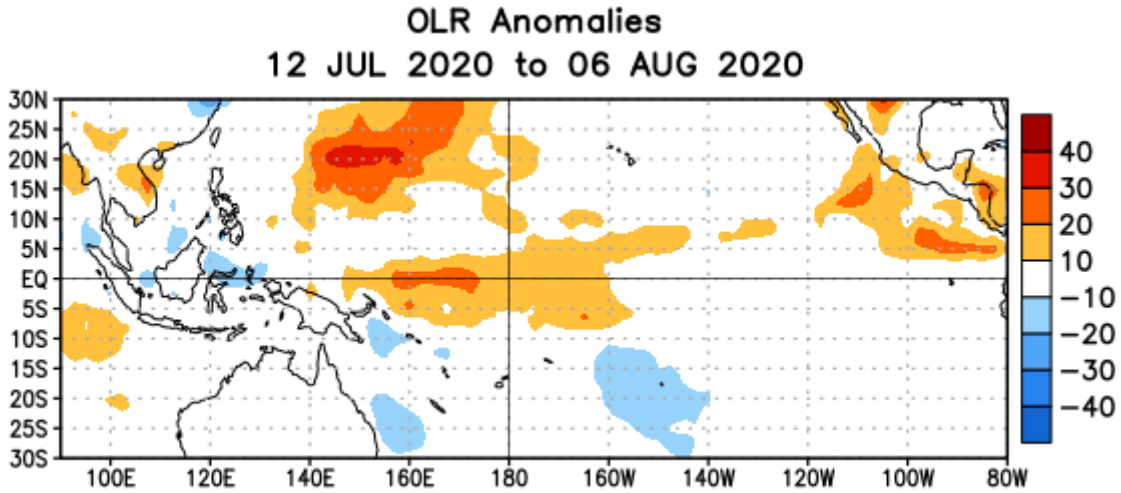


Figure 5. Average outgoing longwave radiation (OLR) anomalies (W/m^2) for the period 12 July – 6 August 2020. OLR anomalies are computed as departures from the 1981-2010 base period pentad means.

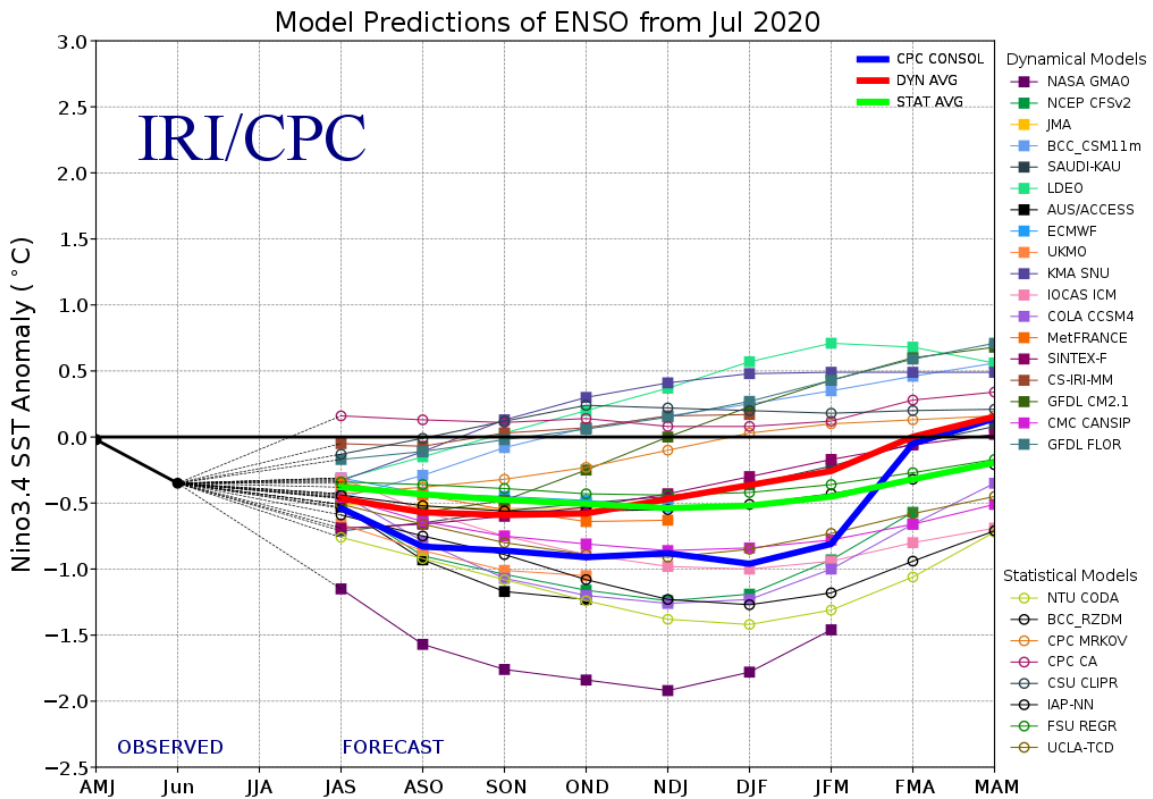


Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region ($5^{\circ}N$ - $5^{\circ}S$, $120^{\circ}W$ - $170^{\circ}W$). Figure updated 20 July 2020.