

# EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

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CLIMATE PREDICTION CENTER/NCEP/NWS

10 October 2024

ENSO Alert System Status: **La Niña Watch**

**Synopsis: La Niña is favored to emerge in September-November (60% chance) and is expected to persist through January-March 2025.**

During September 2024, ENSO-neutral continued with near-average sea surface temperatures (SSTs) observed across most of the central and eastern equatorial Pacific Ocean (Fig. 1). Similar to this time last month, the latest weekly Niño indices ranged from +0.2°C (Niño-4) to -0.4°C (Niño-1+2; Fig. 2). Below-average subsurface temperatures persisted (Fig. 3) across the east-central and eastern equatorial Pacific Ocean (Fig. 4). Low-level wind anomalies were easterly over the east-central equatorial Pacific, and upper-level wind anomalies were westerly over the eastern Pacific. Convection was near average over Indonesia and was slightly suppressed over the Date Line (Fig. 5). Collectively, the coupled ocean-atmosphere system reflected ENSO-neutral.

The IRI plume predicts a weak and a short duration La Niña, as indicated by the Niño-3.4 index values less than -0.5°C (Fig. 6). The latest North American Multi-Model Ensemble (NMME) forecasts were warmer this month, but still predict a weak La Niña. As a result of the warmer predictions and the recent weakening of equatorial trade winds, the team still favors a [weak event](#), but has lowered the chances of La Niña. A weaker La Niña implies that it would be less likely to result in conventional winter impacts, though predictable signals could still influence the forecast guidance (e.g., [CPC's seasonal outlooks](#)). In summary, La Niña is favored to emerge in September-November (60% chance) and is expected to persist through January-March 2025 (Fig. 7).

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 website ([El Niño/La Niña Current Conditions and Expert Discussions](#)). Additional perspectives and analyses are also available in an [ENSO blog](#). A probabilistic strength forecast is [available here](#). The next ENSO Diagnostics Discussion is scheduled for 14 November 2024. 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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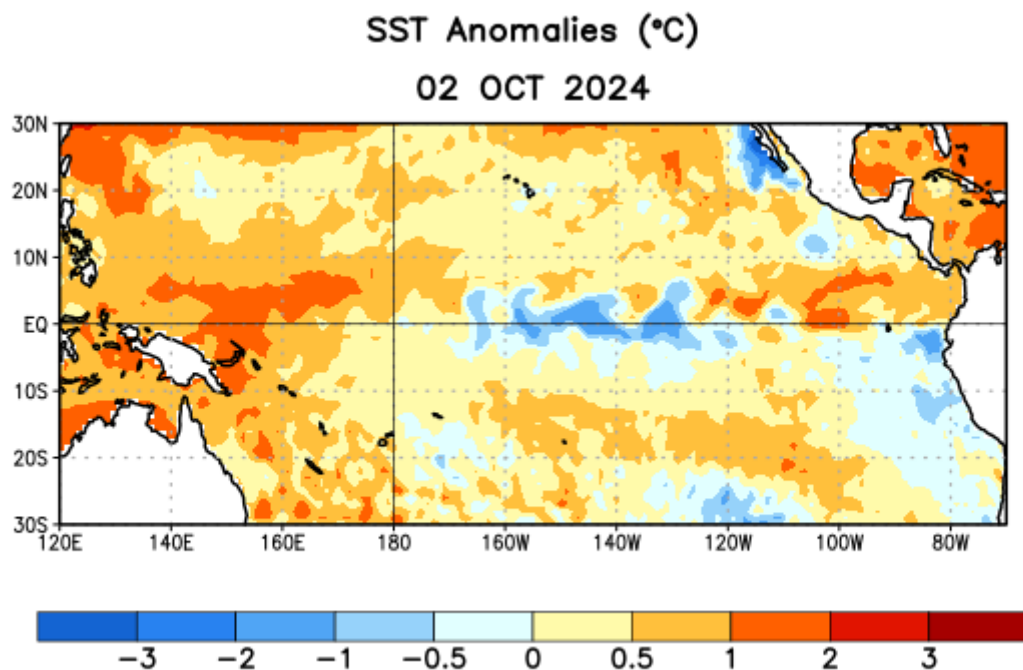


Figure 1. Average sea surface temperature (SST) anomalies (°C) for the week centered on 2 October 2024. Anomalies are computed with respect to the 1991-2020 base period weekly means. Data credit: UKMet OSTIA.

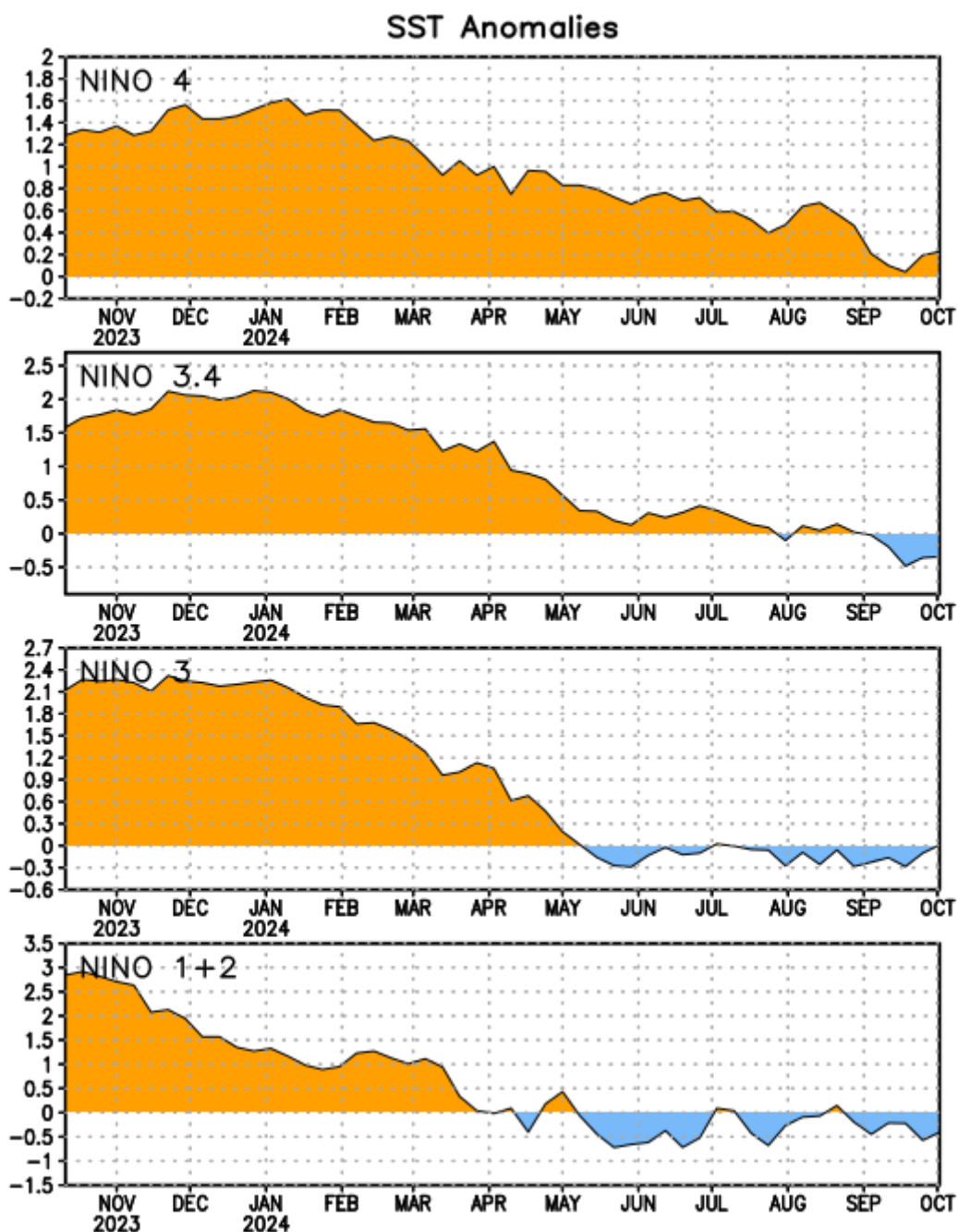


Figure 2. Time series of area-averaged sea surface temperature (SST) anomalies ( $^{\circ}\text{C}$ ) in the Niño regions [Niño-1+2 ( $0^{\circ}$ - $10^{\circ}\text{S}$ ,  $90^{\circ}\text{W}$ - $80^{\circ}\text{W}$ ), Niño-3 ( $5^{\circ}\text{N}$ - $5^{\circ}\text{S}$ ,  $150^{\circ}\text{W}$ - $90^{\circ}\text{W}$ ), 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 1991-2020 base period weekly means. Data credit: UKMet OSTIA.

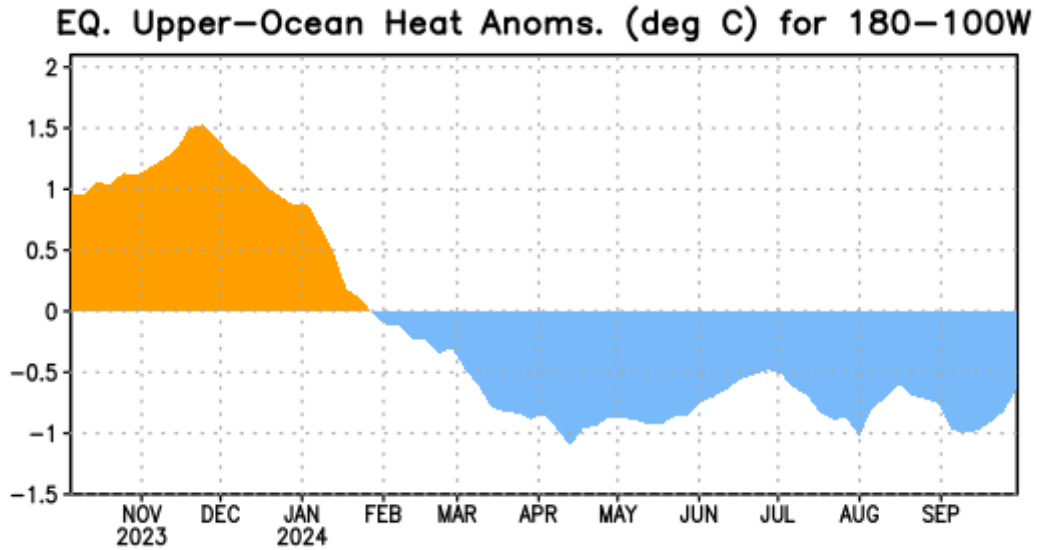


Figure 3. Area-averaged upper-ocean heat content anomaly ( $^{\circ}\text{C}$ ) in the equatorial Pacific ( $5^{\circ}\text{N}$ - $5^{\circ}\text{S}$ ,  $180^{\circ}$ - $100^{\circ}\text{W}$ ). The heat content anomaly is computed as the departure from the 1991-2020 base period pentad means.

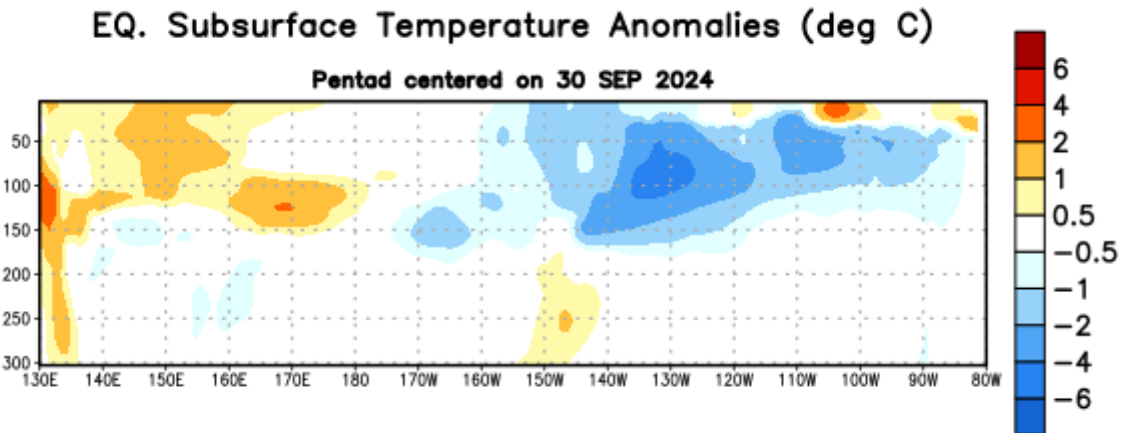


Figure 4. Depth-longitude section of equatorial Pacific upper-ocean (0-300m) temperature anomalies ( $^{\circ}\text{C}$ ) centered on the pentad of 30 September 2024. Anomalies are departures from the 1991-2020 base period pentad means.

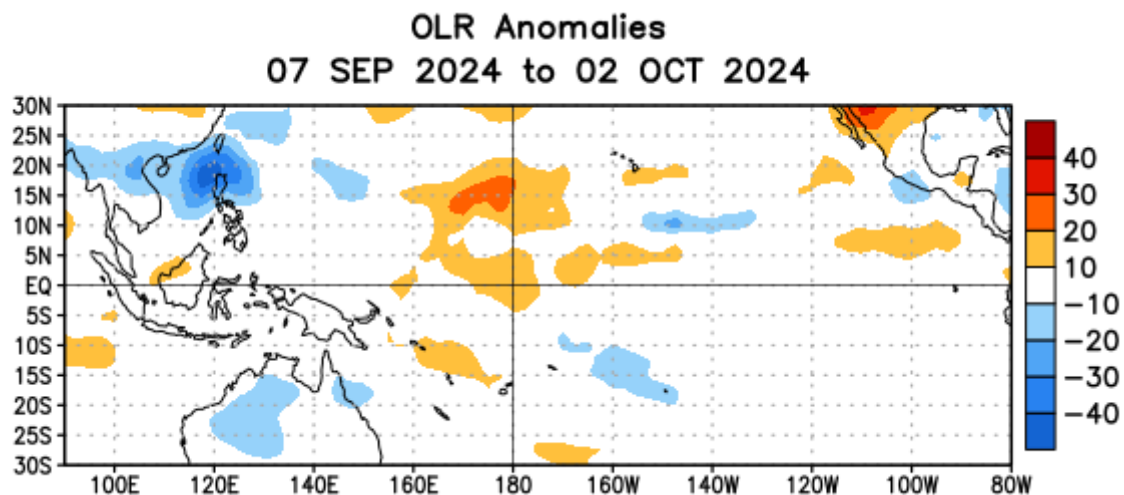


Figure 5. Average outgoing longwave radiation (OLR) anomalies ( $\text{W/m}^2$ ) for the period 7 September – 2 October 2024. OLR anomalies are computed as departures from the 1991-2020 base period pentad means.

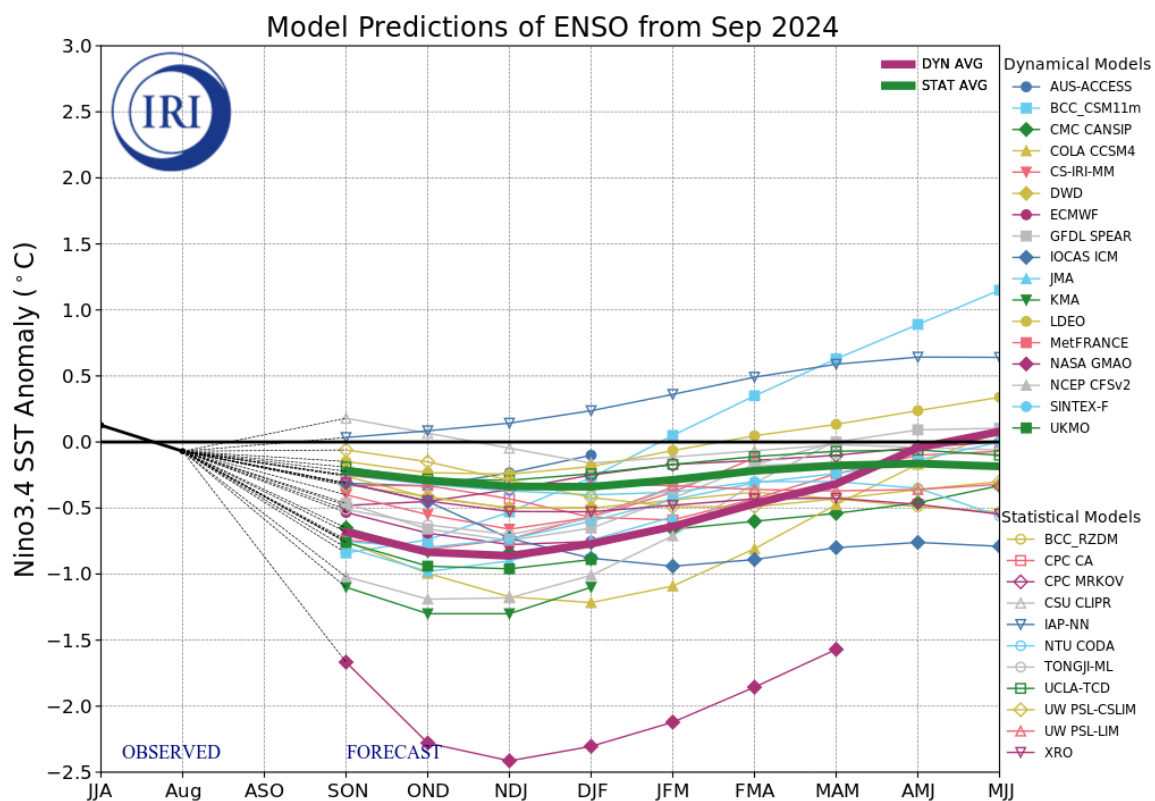


Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region ( $5^{\circ}\text{N}$ - $5^{\circ}\text{S}$ ,  $120^{\circ}\text{W}$ - $170^{\circ}\text{W}$ ). Figure updated 19 September 2024 by the International Research Institute (IRI) for Climate and Society.

## Official NOAA CPC ENSO Probabilities (issued October 2024)

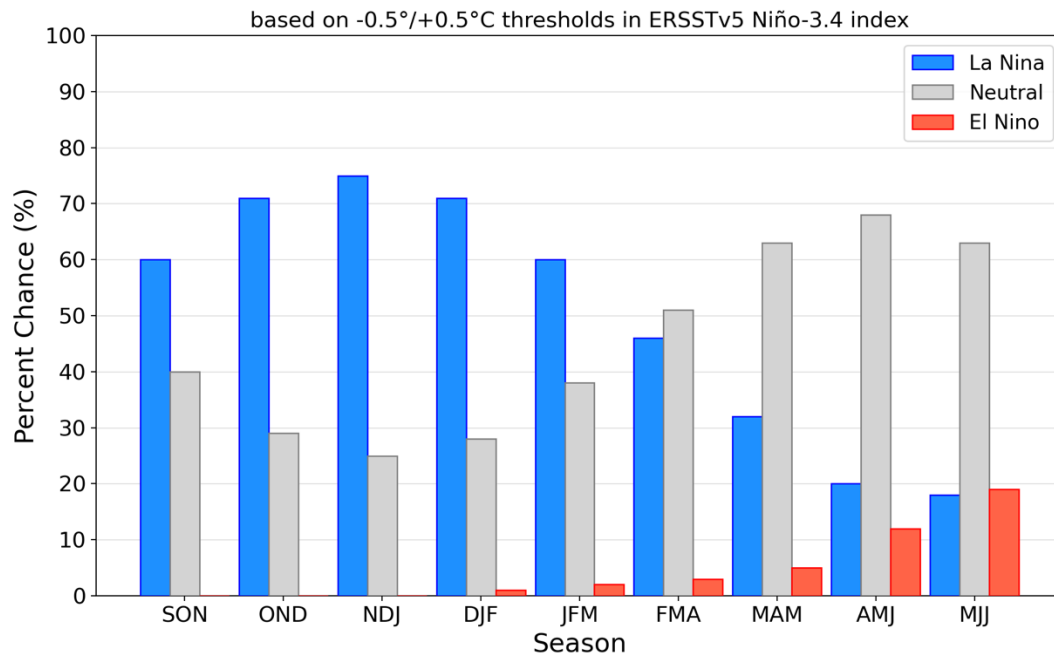


Figure 7. Official ENSO probabilities for the Niño 3.4 sea surface temperature index ( $5^{\circ}\text{N}$ - $5^{\circ}\text{S}$ ,  $120^{\circ}\text{W}$ - $170^{\circ}\text{W}$ ). Figure updated 10 October 2024.