ENSO: Recent Evolution, Current Status and Predictions

Update prepared by:
Climate Prediction Center / NCEP
29 June 2026

Outline

Summary

Recent Evolution and Current Conditions

Relative Oceanic Niño Index (RONI)

Pacific SST Outlook

U.S. Seasonal Precipitation and Temperature Outlooks

Summary

Summary

ENSO Alert System Status: **El Niño Advisory**

El Niño conditions are present.*

Equatorial sea surface temperatures (SSTs) are above average across the central and eastern Pacific Ocean.

The atmospheric circulation anomalies over the equatorial Pacific Ocean are consistent with El Niño.

El Niño conditions are expected to strengthen into the Northern Hemisphere winter 2026-27.*

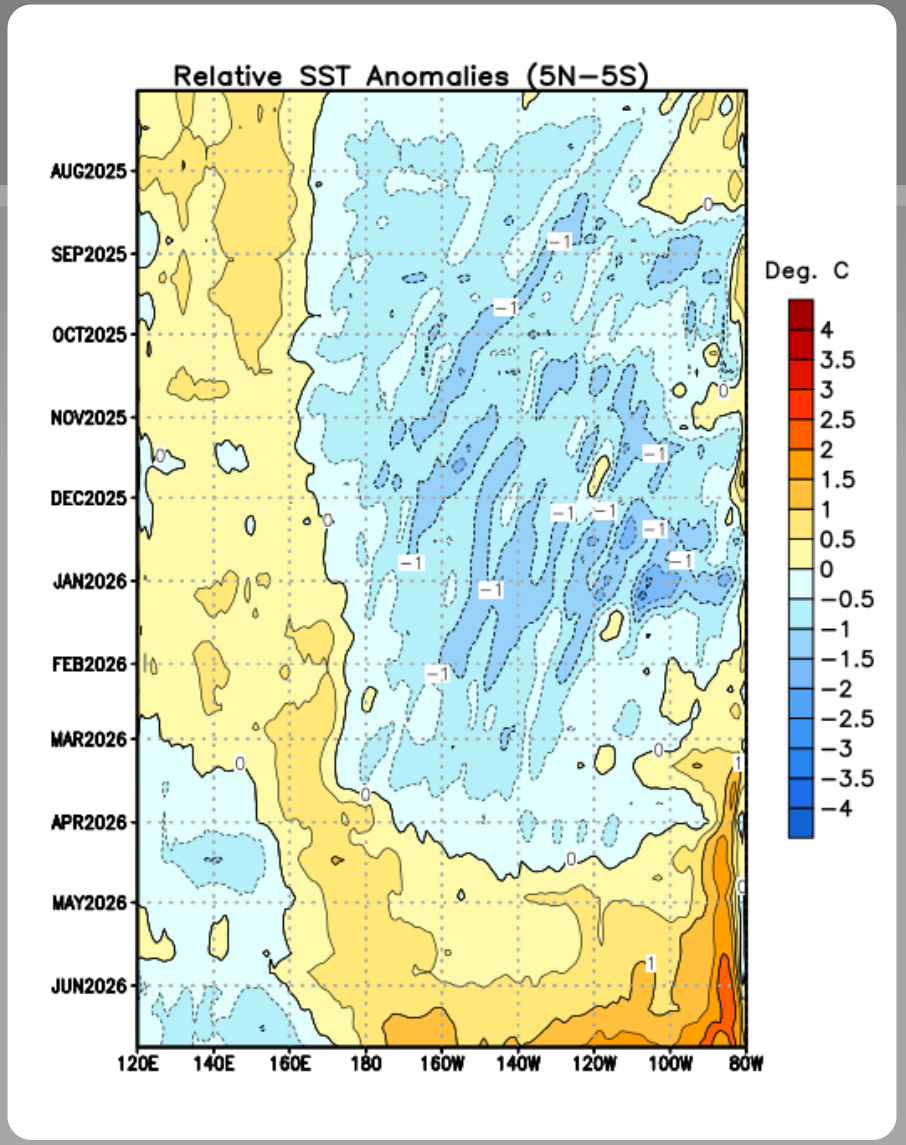
* Note: These statements are updated once a month (2nd Thursday of each month) in association with the ENSO Diagnostics Discussion, which can be found by clicking here.

Recent Evolution of Equatorial Pacific SST Departures (°C)

From August 2025 through February 2026, below-average SSTs was evident across most of the equatorial Pacific Ocean.

Beginning in early February 2026, above-average SSTs emerged in the far eastern equatorial Pacific.

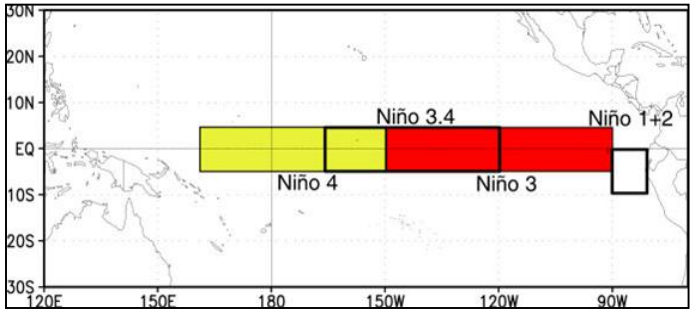
Since mid-April 2026, above-average equatorial SSTs have increased across the central to eastern Pacific Ocean.

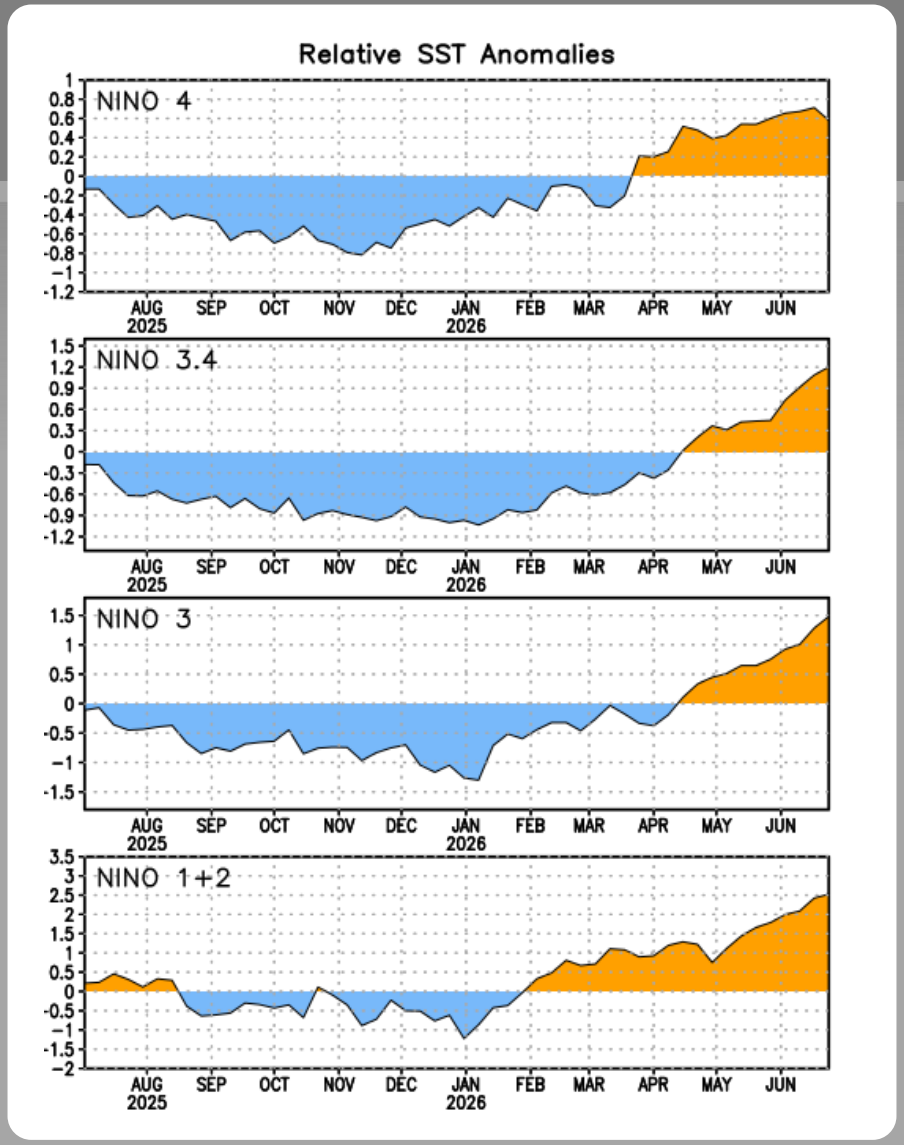


Niño Region SST Departures (ºC) Recent Evolution

The latest weekly SST departures are:

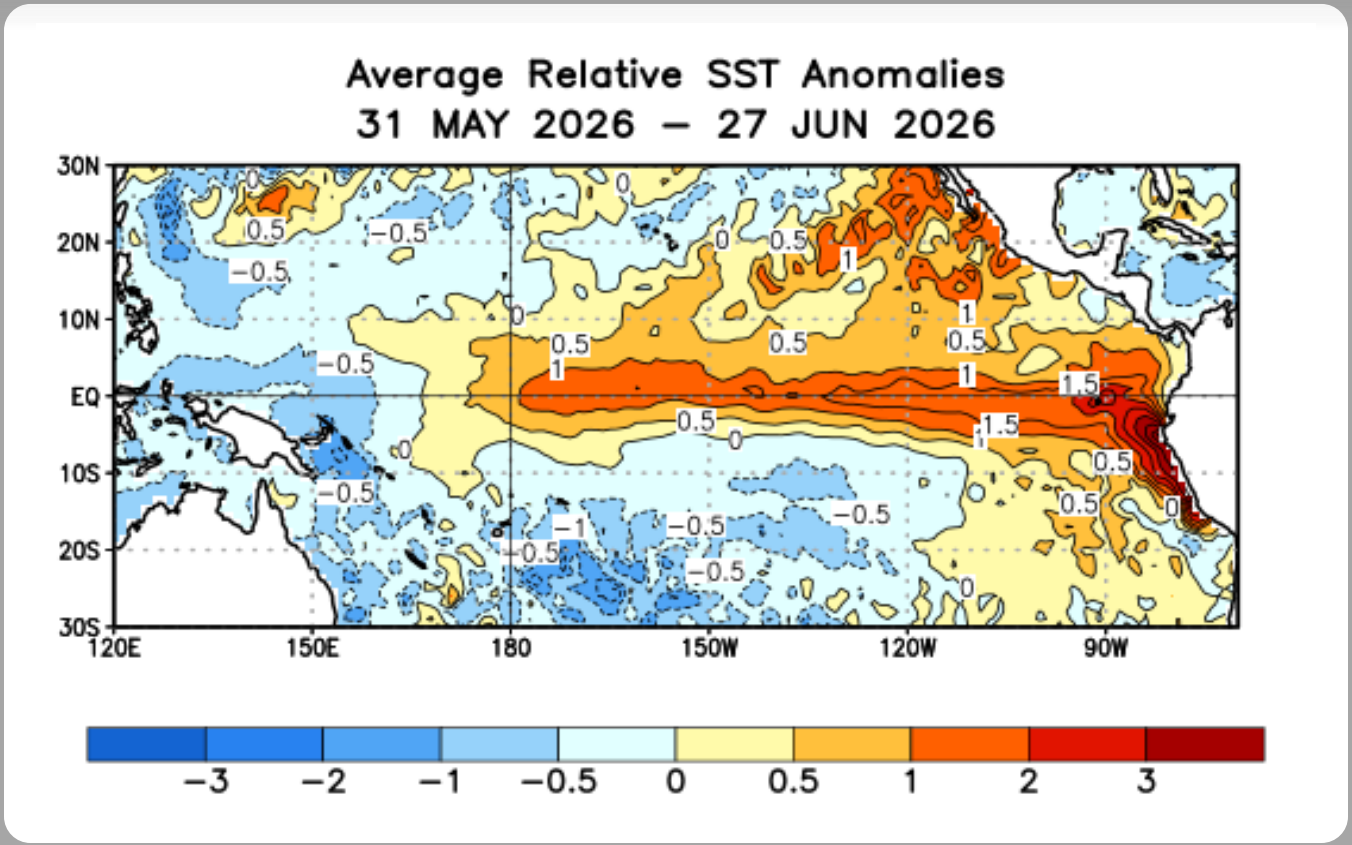
Niño 4	0.6ºC
Niño 3.4	1.2ºC
Niño 3	1.5ºC
Niño 1+2	2.5ºC





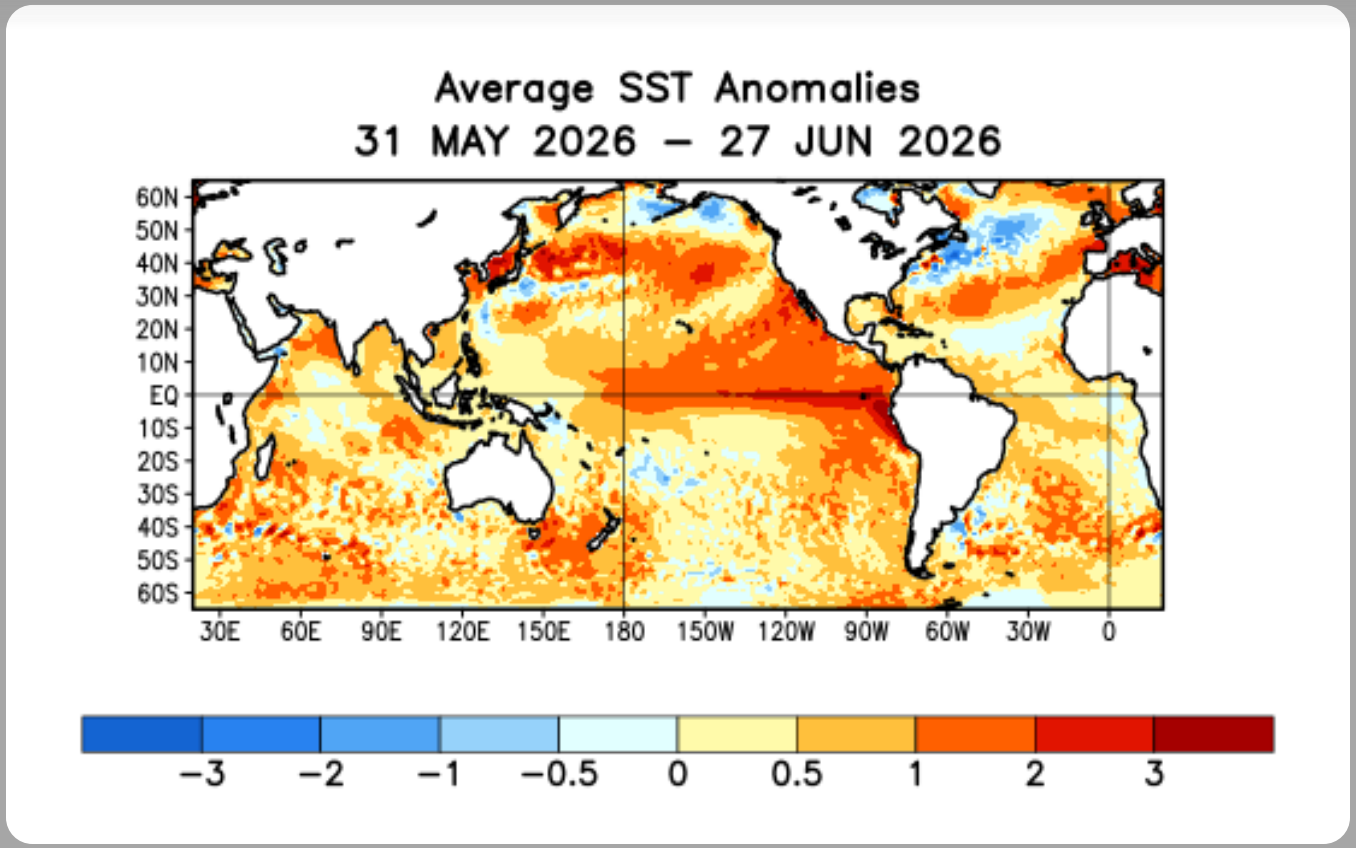
SST Departures (ºC) in the Tropical Pacific During the Last Four Weeks

In the last four weeks, equatorial SSTs were above average from the central to eastern Pacific Ocean, and below average in the western Pacific Ocean.



Global SST Departures (°C) During the Last Four Weeks (Traditional SST Anomalies)

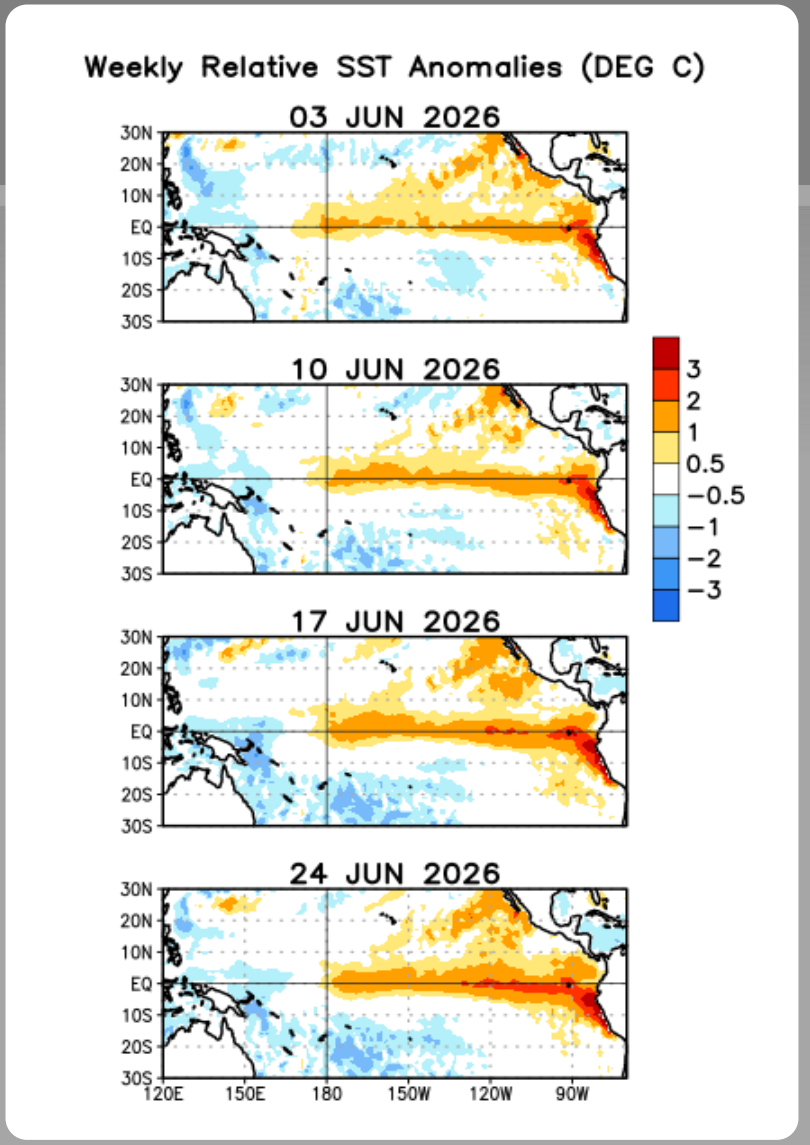
During the last four weeks, above-average SSTs were prevalent over most of the global oceans. Equatorial SSTs were near-to-above average in the Atlantic and Indian Oceans. In the equatorial Pacific, positive SSTs were amplified from the Date Line to the eastern Pacific.



Weekly SST Departures during the Last Four Weeks

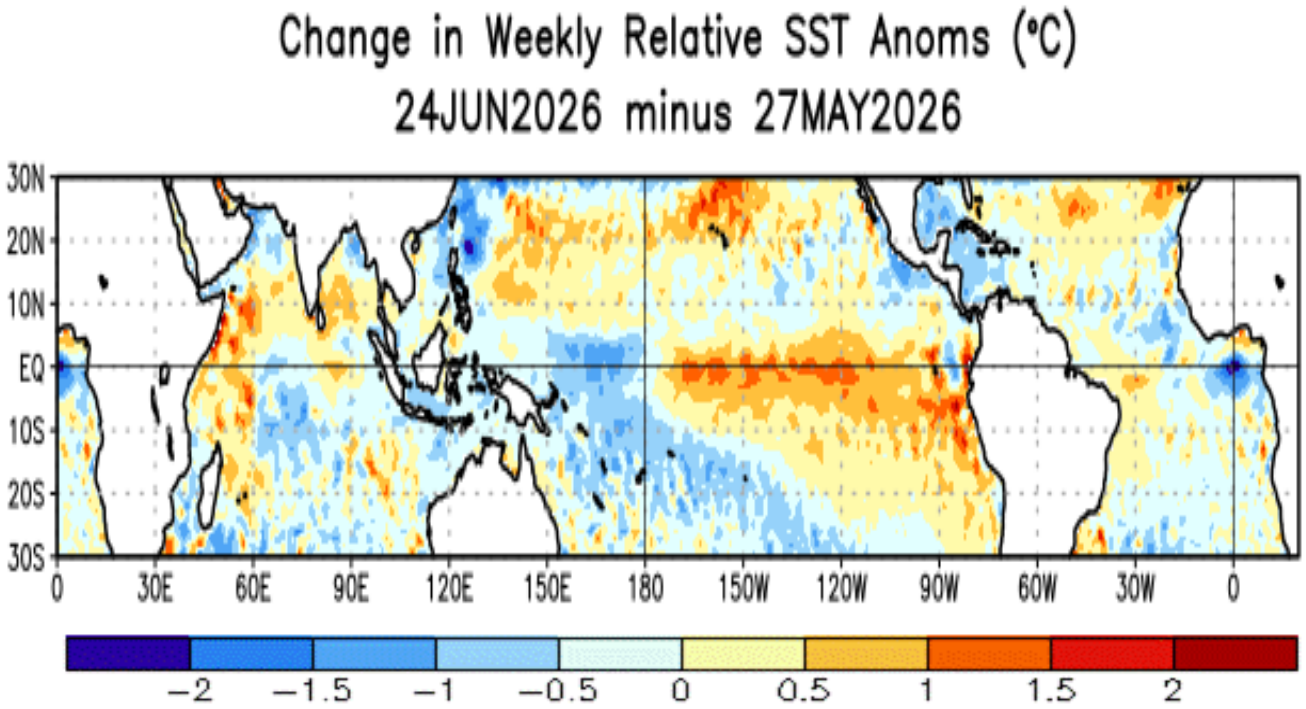
During the last 4 weeks, above-average SSTs have mostly persisted north of the equator in the eastern equatorial Pacific.

Above-average SSTs increased over the central to eastern Pacific Ocean.



Change in Weekly SST Departures over the Last Four Weeks

During the last four weeks, positive equatorial SST anomaly changes were observed across the central and eastern Pacific Ocean and in the western Indian Ocean. Negative changes were evident in the eastern Atlantic Ocean and in the western Pacific Ocean.



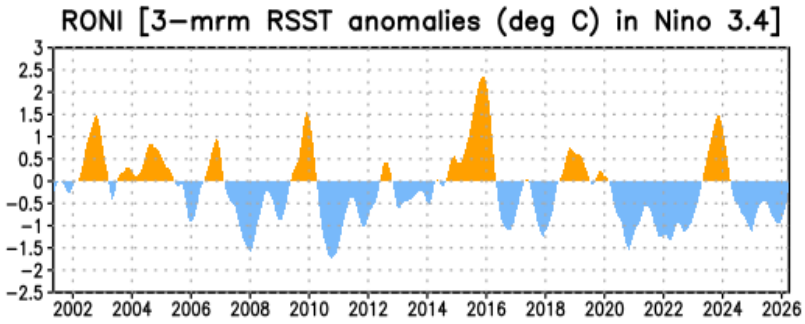
Upper-Ocean Conditions in the Equatorial Pacific

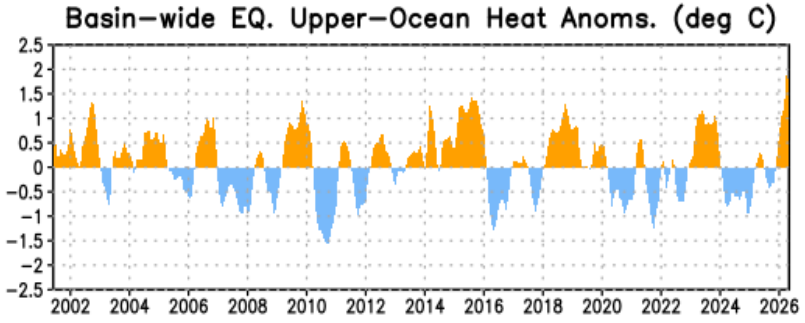
The basin-wide equatorial upper ocean (0-300 m) heat content is greatest prior to and during the early stages of a Pacific warm (El Niño) episode (compare top 2 panels), and least prior to and during the early stages of a cold (La Niña) episode.

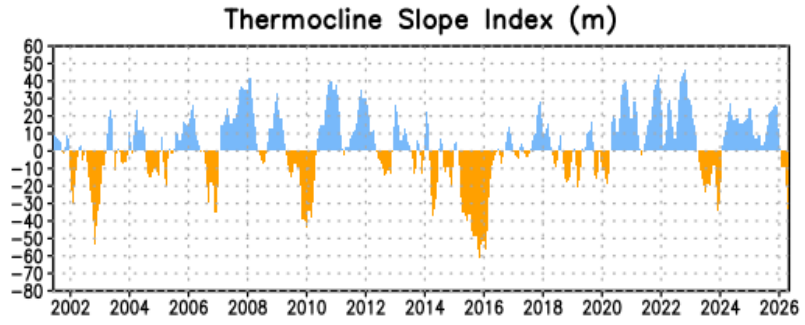
The slope of the oceanic thermocline is least (greatest) during warm (cold) episodes.

Recent values of the upper-ocean heat anomalies are above-average and the thermocline slope index is below-average.

The monthly thermocline slope index represents the difference in anomalous depth of the 20°C isotherm between the western Pacific (160°E-150°W) and the eastern Pacific (90°-140°W).

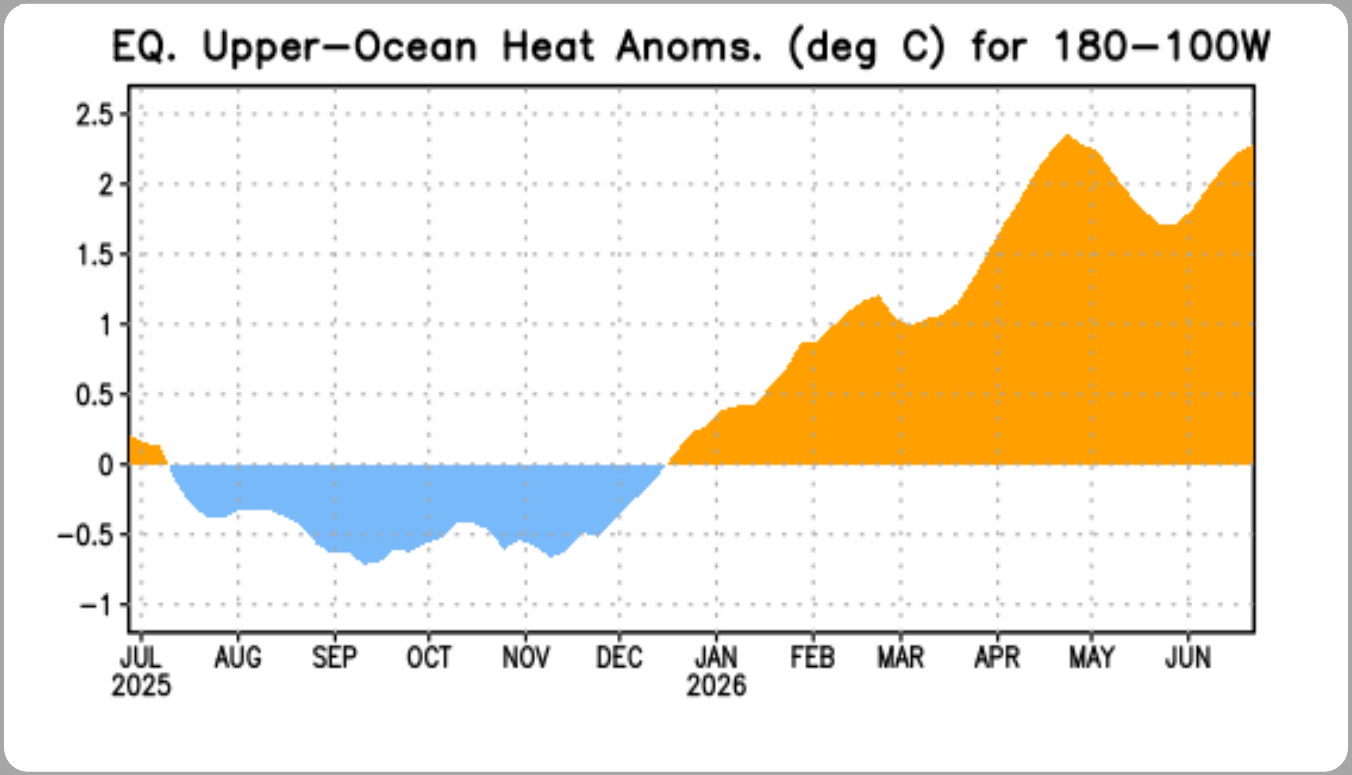






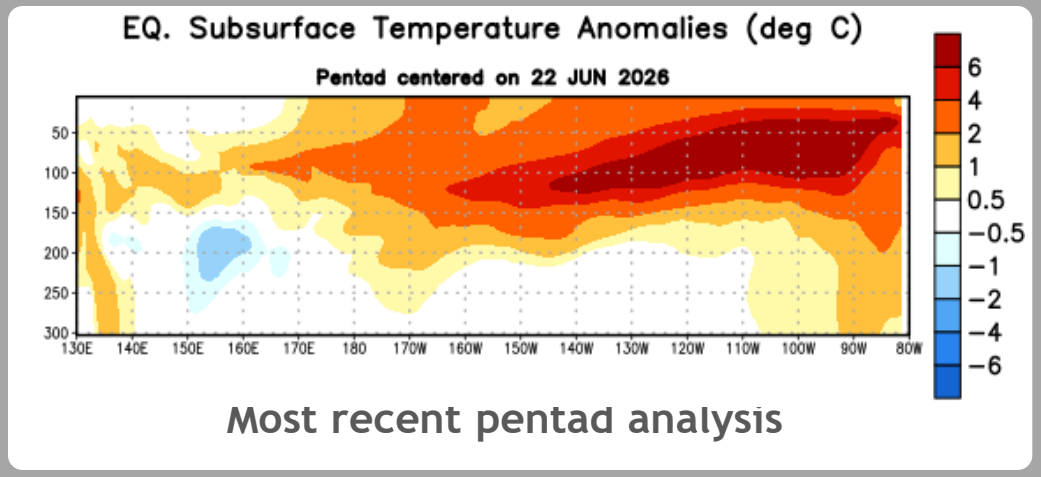
Central and Eastern Pacific Upper-Ocean (0-300 m) Weekly Average Temperature Anomalies

Negative subsurface temperature anomalies emerged in mid-July 2025 and persisted through mid-December 2025. From mid-December 2025 through late April 2026, positive anomalies developed and gradually increased. From late April to late May 2026, positive anomalies decreased. Positive anomalies increased again starting in late May 2026.

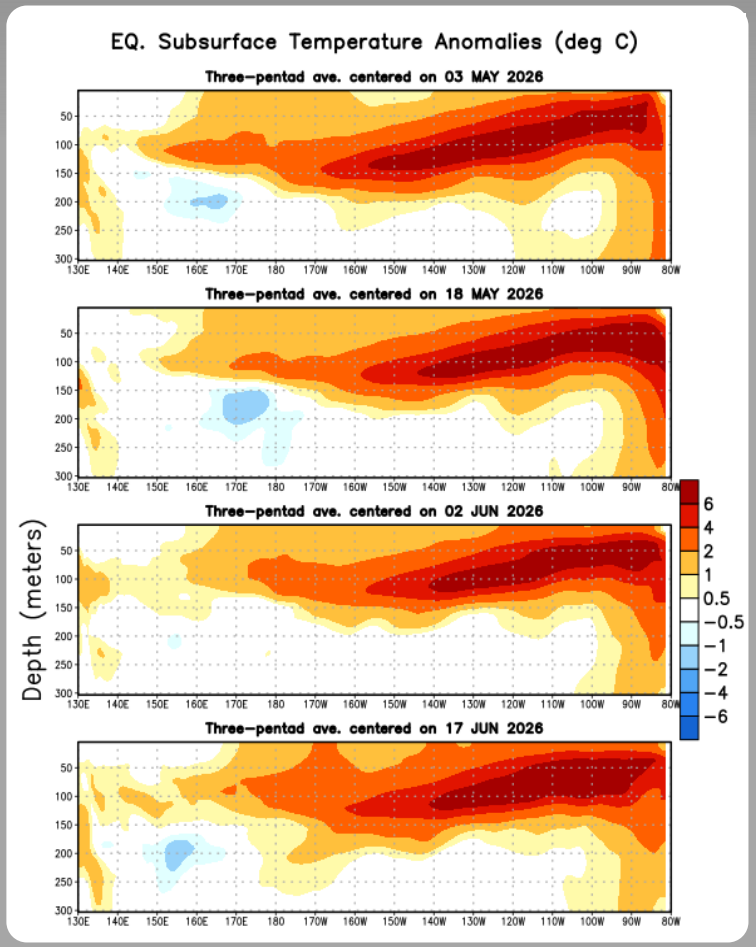


Sub-Surface Temperature Departures in the Equatorial Pacific

In the last two months, above-average subsurface temperatures have persisted across most of the equatorial Pacific Ocean.



Most recent pentad analysis

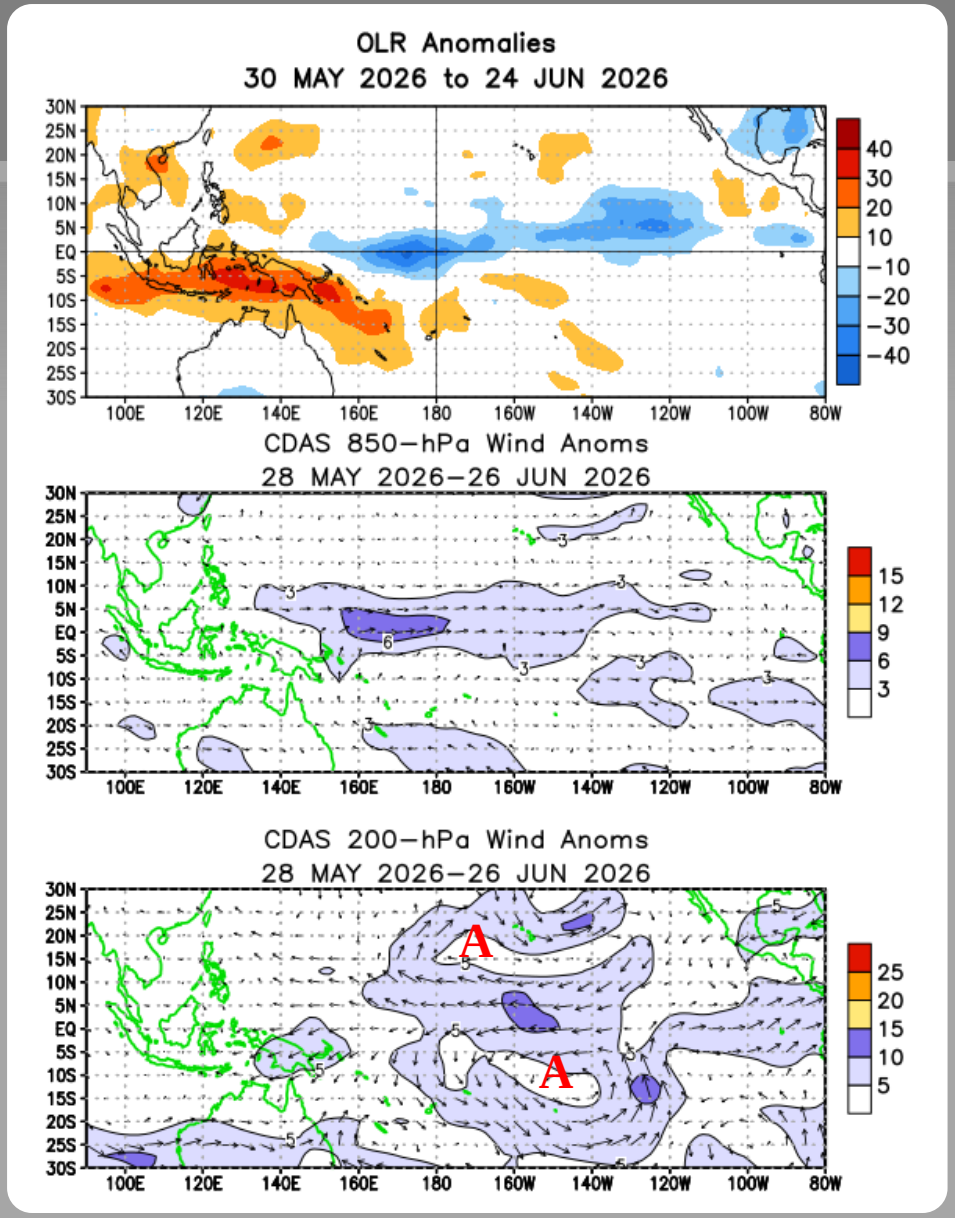


Tropical OLR and Wind Anomalies During the Last 30 Days

Below-average OLR (enhanced convection and precipitation) was evident on the equator near the Date Line and over the east-central Pacific. Above-average OLR (suppressed convection and precipitation) was observed over the Philippines, Indonesia, and Papua New Guinea.

Low-level (850-hPa) westerly wind anomalies were evident from the western to the east-central equatorial Pacific Ocean.

Upper-level (200-hPa) wind anomalies were easterly over the central and east-central equatorial Pacific and westerly over the eastern equatorial Pacific. An anomalous anticyclonic couplet straddled the equator over the east-central Pacific.



Intraseasonal Variability

Intraseasonal variability in the atmosphere (wind and pressure), which is often related to the Madden-Julian Oscillation (MJO), can significantly impact surface and subsurface conditions across the Pacific Ocean.

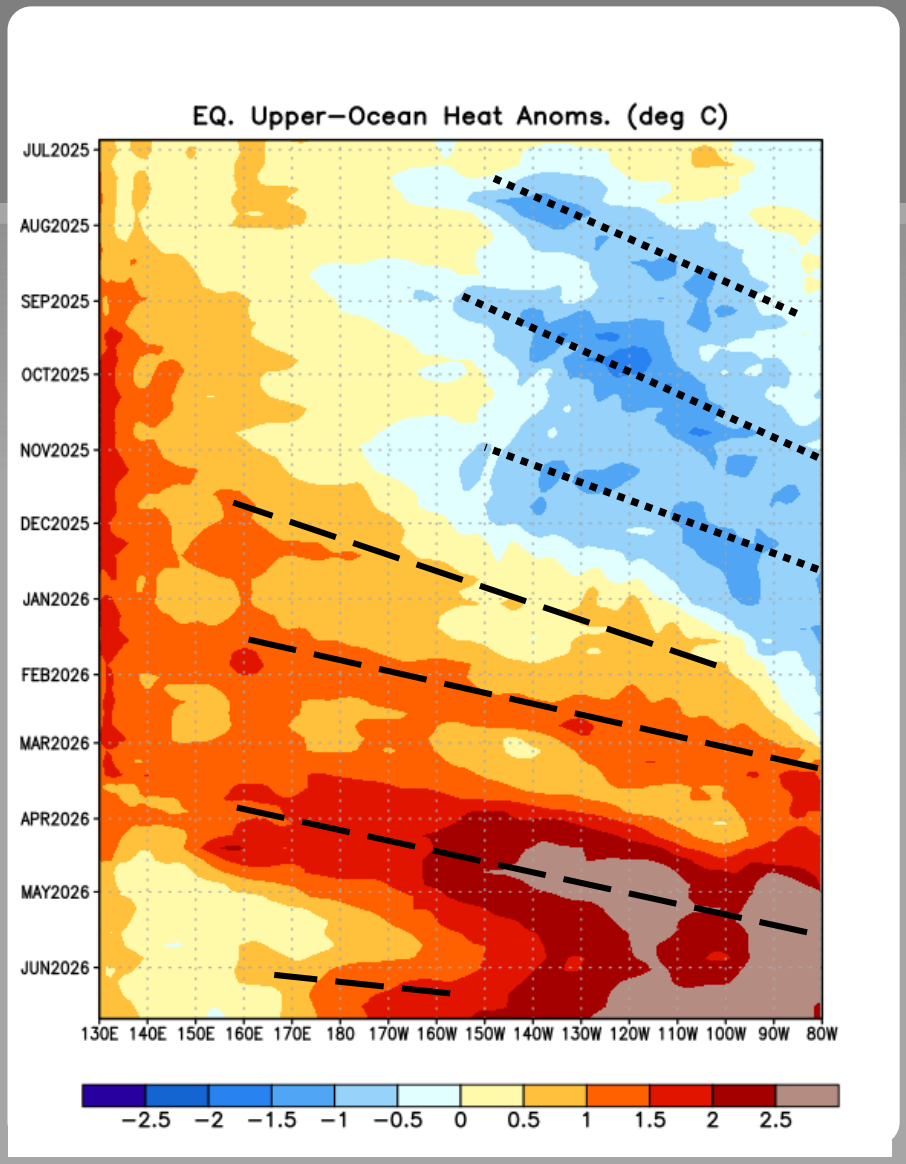
Related to this activity:

Significant weakening of the low-level easterly winds usually initiates an eastward-propagating oceanic Kelvin wave.

Weekly Heat Content Evolution in the Equatorial Pacific

Equatorial oceanic Kelvin wave activity (dashed and dotted lines) has been present at times throughout the period shown. Upwelling Kelvin waves were initiated during July, August, and October 2025. Downwelling Kelvin waves were initiated in December 2025, January 2026, March 2026, and June 2026.

Positive subsurface temperature anomalies have recently increased in the central Pacific Ocean.



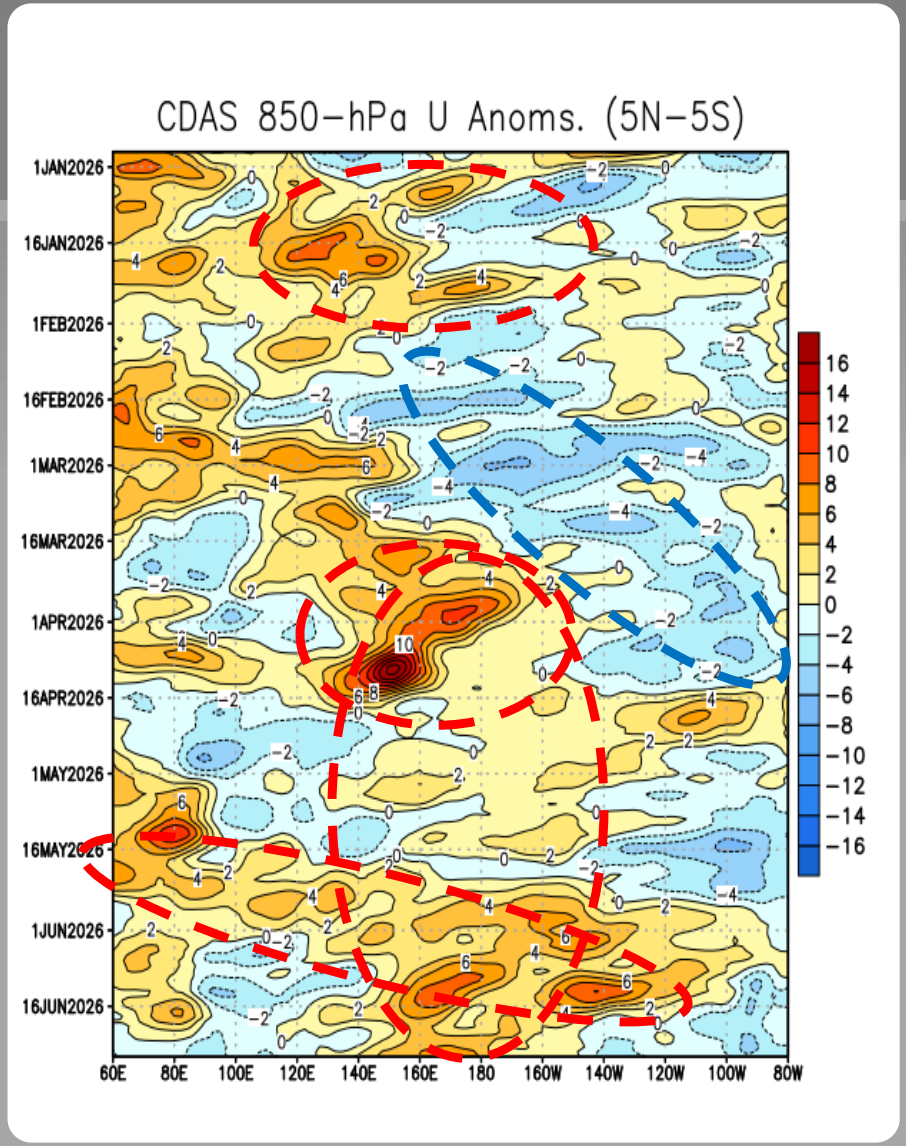
Equatorial oceanic Kelvin waves have alternating warm and cold phases. The warm phase is indicated by dashed lines. Down-welling and warming occur in the leading portion of a Kelvin wave, and up-welling and cooling occur in the trailing portion.

Low-level (850-hPa) Zonal (east-west) Wind Anomalies (m s^{-1})

During December 2025 and January 2026, periodic westerly wind anomalies extended across the equatorial Pacific Ocean.

From mid-March through present, westerly wind anomalies were generally observed over the central equatorial Pacific Ocean.

Recently, westerly wind anomalies have persisted in the central equatorial Pacific Ocean.

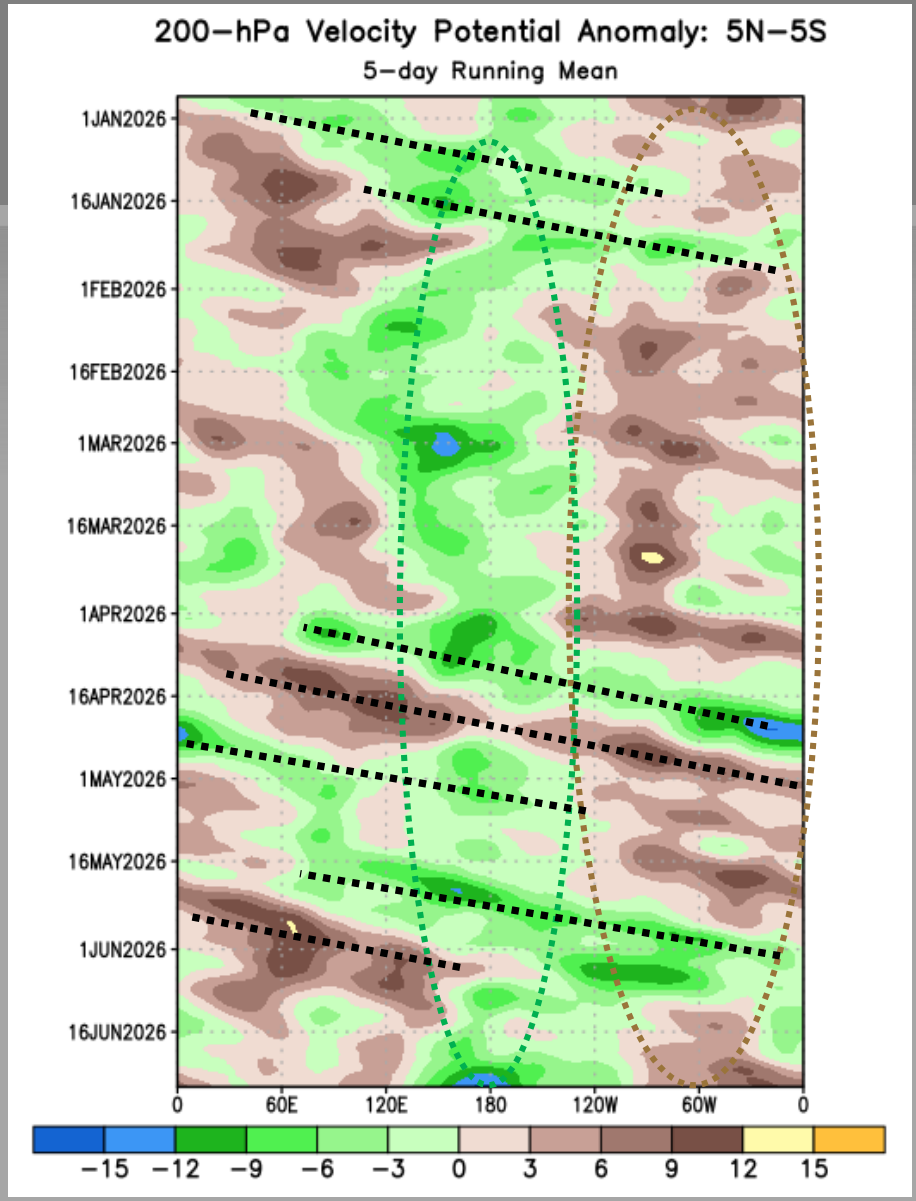


Westerly Wind Anomalies (orange/red shading)
Easterly Wind Anomalies (blue shading)

Upper-level (200-hPa) Velocity Potential Anomalies

At times, regions of anomalous divergence (green shading) and convergence (brown shading) shifted eastward.

During most of the period, anomalous divergence persisted over the central equatorial Pacific Ocean. Anomalous convergence was evident over the eastern Pacific Ocean.

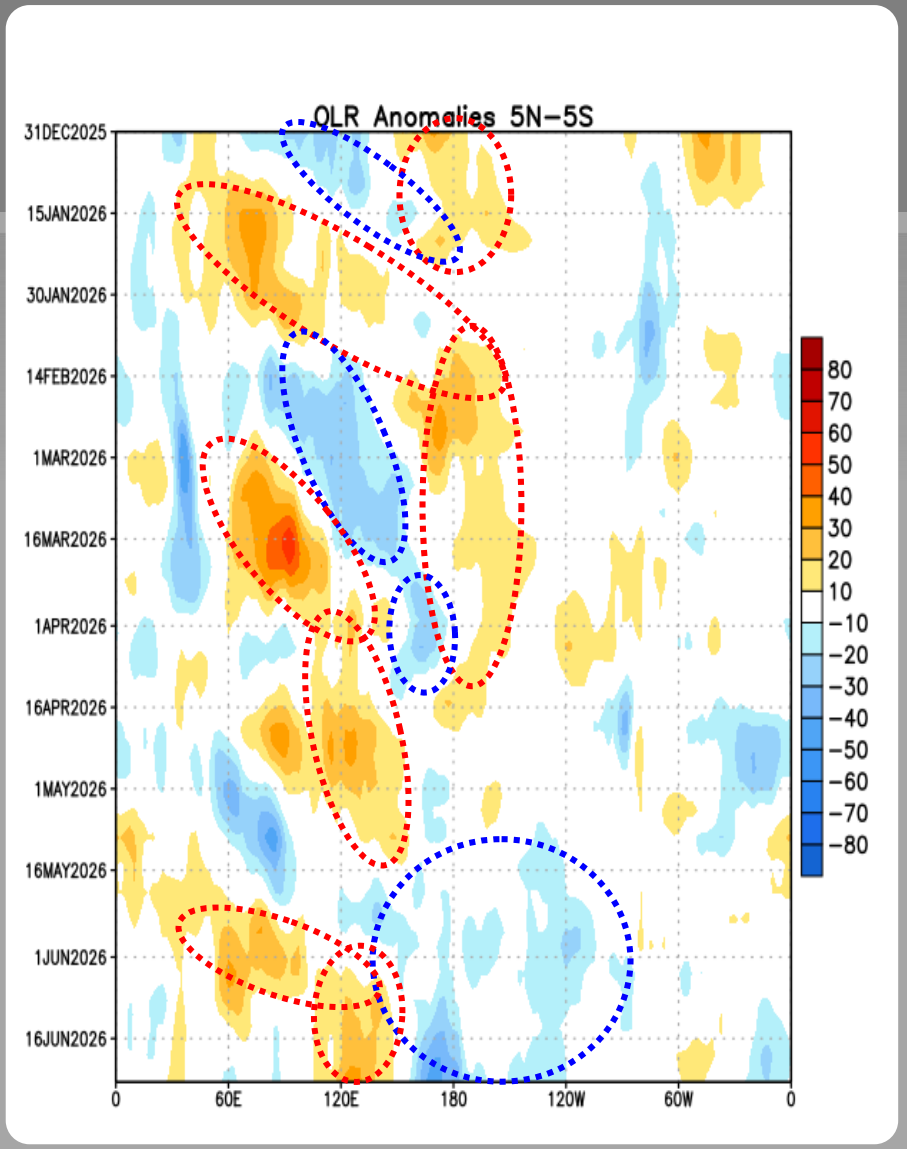


Unfavorable for precipitation (brown shading)
Favorable for precipitation (green shading)
Note: Eastward propagation is not necessarily indicative of the Madden-Julian Oscillation (MJO).

Outgoing Longwave Radiation (OLR) Anomalies

During April through mid-May 2026, positive OLR anomalies (suppressed convection/rainfall) were observed over Indonesia or the western Pacific Ocean. Positive OLR anomalies re-emerged over Indonesia in early June.

Since mid-May, weak, negative OLR anomalies (enhanced convection/rainfall) were observed over the central and east-central equatorial Pacific.



Drier-than-average Conditions (orange/red shading)
Wetter-than-average Conditions (blue shading)

Relative Oceanic Niño Index (RONI)

The RONI is a principal measure for monitoring, assessing, and predicting ENSO. The RONI helps to place current events into a historical perspective.

RONI is the SST departures from average in the Niño 3.4 region (5°N-5°S, 120°-170°W) with the tropical mean (20°S-20°N) SST departures subtracted out. The variance is adjusted to match the variance of the original Niño 3.4 index. A three-month running-mean is applied to the index.

The SST data are based on a set of improved homogeneous historical SST analyses (Extended Reconstructed SST - ERSST.v5). The SST reconstruction methodology is described in Huang et al., 2017)

Note: a different SST dataset is used for weekly SST monitoring (slides #4-9) and is using OISSTv2.1 (Huang et al., 2021).

6/22/26: In the afternoon on Aug. 3rd, the ERSSTv5 will switch to ERSSTv6 because NCEI is discontinuing ERSSTv5. RONI values will change slightly. The weekly OISSTv2.1 data will remain unaffected.
https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso/roni/

NOAA Operational Definitions for El Niño and La Niña

El Niño: characterized by a positive RONI greater than or equal to +0.5°C.

La Niña: characterized by a negative RONI less than or equal to -0.5°C.

By historical standards, to be classified as a full-fledged El Niño or La Niña episode, these thresholds must be exceeded for a period of at least 5 consecutive overlapping 3-month seasons.

CPC considers El Niño or La Niña conditions to occur when the monthly relative Niño3.4 departures meet or exceed +/- 0.5°C along with consistent atmospheric features. These anomalies must also be forecasted to persist for 3 consecutive months.

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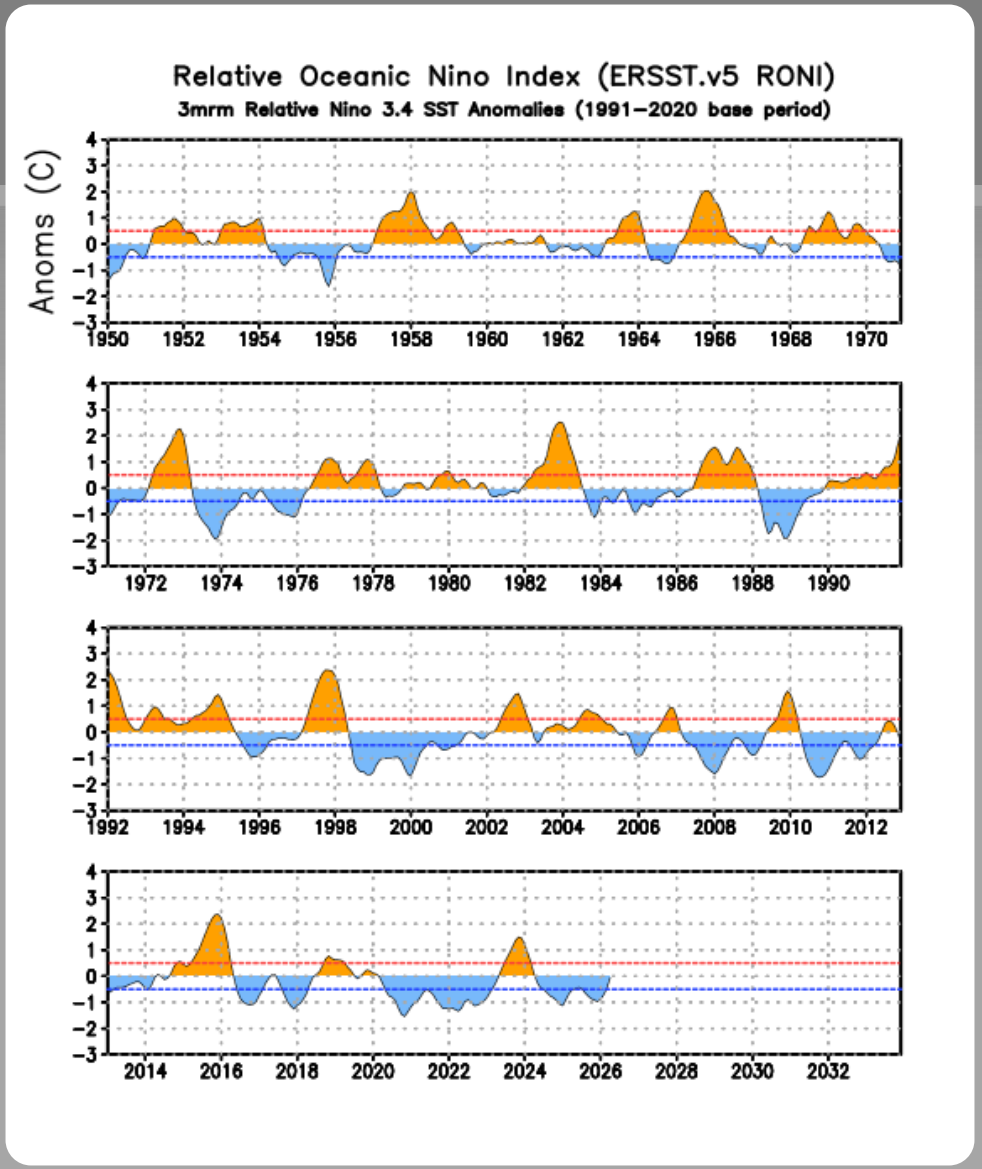
RONI (°C): Evolution since 1950

The most recent RONI value (March - May 2026) is -0.1°C.



Historical El Niño and La Niña Episodes Based on the RONI computed using ERSST.v5

Recent Pacific warm (red) and cold (blue) periods based on a threshold of +/- 0.5 °C for the Relative Oceanic Nino Index (RONI) [ERSST.v5 SST anomalies]. For historical purposes, periods of below and above normal SSTs are colored in blue and red when the threshold is met for a minimum of 5 consecutive over-lapping seasons.

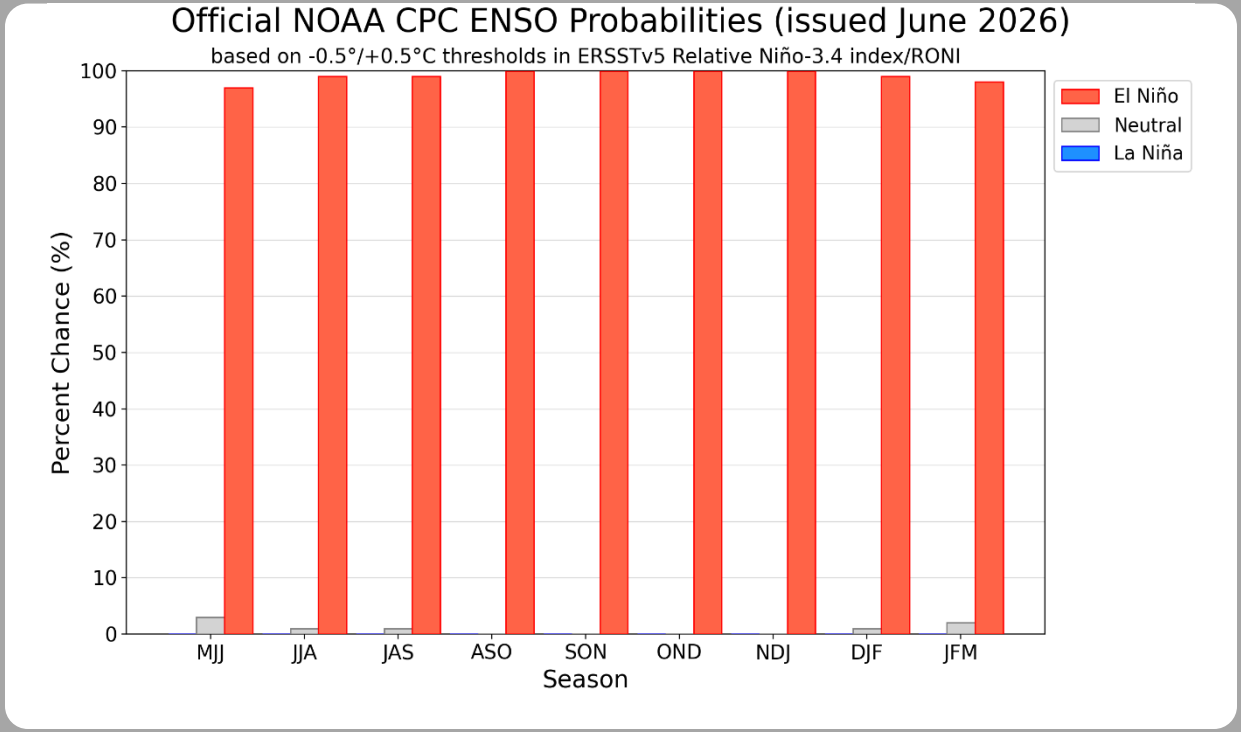
The RONI is one measure of the El Niño-Southern Oscillation, and other indices can confirm whether features consistent with a coupled ocean-atmosphere phenomenon accompanied these periods. The complete table going back to DJF 1950 can be found here.

Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2014	-0.5	-0.5	-0.3	0.0	0.1	0.0	-0.1	-0.1	0.1	0.4	0.5	0.6
2015	0.5	0.4	0.5	0.6	0.8	1.0	1.3	1.6	1.9	2.2	2.3	2.4
2016	2.2	1.8	1.3	0.5	-0.1	-0.6	-0.9	-1.0	-1.1	-1.1	-1.1	-1.0
2017	-0.7	-0.5	-0.3	-0.1	0.1	0.1	-0.2	-0.5	-0.7	-1.0	-1.1	-1.3
2018	-1.1	-1.0	-0.9	-0.7	-0.3	0.0	0.1	0.2	0.4	0.7	0.8	0.7
2019	0.6	0.6	0.6	0.5	0.3	0.2	0.0	-0.1	0.0	0.1	0.2	0.2
2020	0.1	0.1	0.0	-0.3	-0.6	-0.8	-0.8	-0.9	-1.2	-1.5	-1.5	-1.4
2021	-1.2	-1.0	-1.0	-0.8	-0.6	-0.5	-0.6	-0.7	-0.9	-1.1	-1.2	-1.2
2022	-1.2	-1.2	-1.3	-1.3	-1.2	-1.0	-0.9	-1.0	-1.1	-1.1	-1.0	-1.0
2023	-0.8	-0.6	-0.4	-0.2	0.1	0.4	0.6	0.9	1.1	1.4	1.5	1.5
2024	1.2	0.9	0.5	0.1	-0.3	-0.5	-0.5	-0.6	-0.8	-0.8	-0.9	-1.1
2025	-1.1	-0.9	-0.7	-0.5	-0.5	0.0	-0.5	-0.6	-0.8	-0.9	-0.9	-1.0
2026	-0.9	-0.7	-0.4	-0.1								

CPC Probabilistic ENSO Outlook

Updated: 11 June 2026

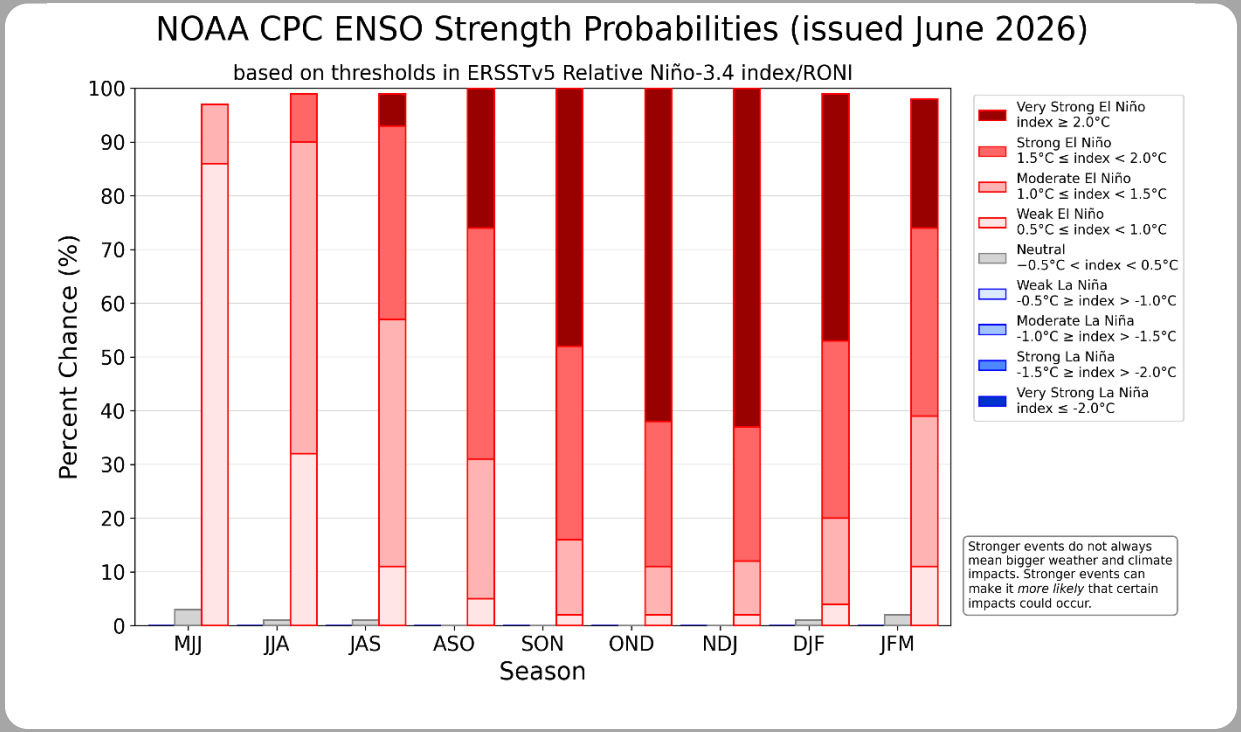
El Niño is favored to persist through Northern Hemisphere winter 2026-27.



CPC Probabilistic ENSO Strength Outlook

Updated: 11 June 2026

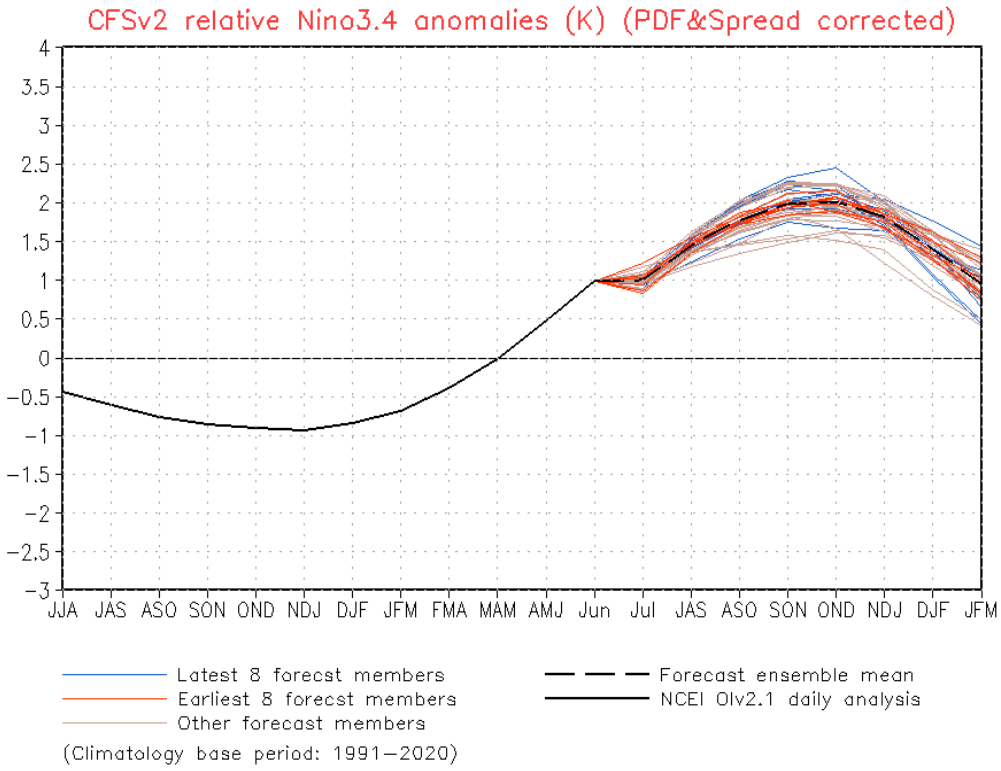
In November 2026- January 2027, there is a 63% chance of a very strong El Niño. There is a 1-in-3 chance of El Niño remaining weaker than very strong.

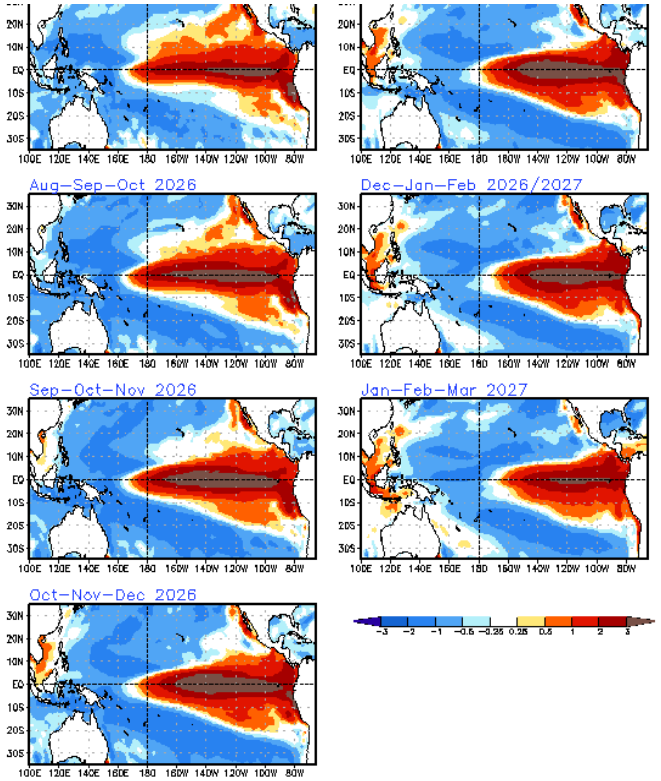


SST Outlook: NCEP CFS.v2 Forecast (PDF & Spread Corrected)

Issued: 29 June 2026

The CFS.v2 ensemble mean (black dashed line) favors El Niño to continue through Northern Hemisphere winter 2026-27.



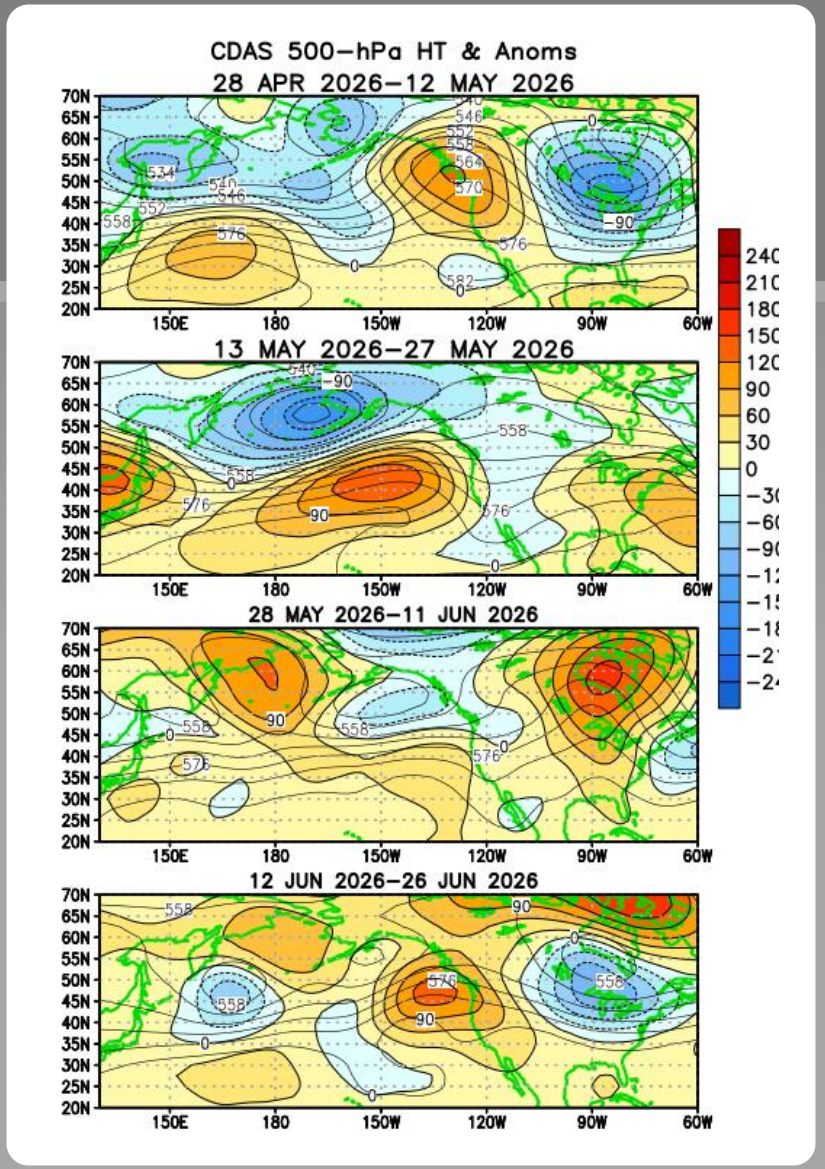


Atmospheric anomalies over the North Pacific and North America During the Last 60 Days

From late April through late May, below-average heights and temperatures were dominant over eastern Canada and the Great Lakes.

From late April through early June, below-average heights persisted near the southwestern U.S., periodically associated with below-average temperatures in the region.

Since middle June, above-average heights and temperatures prevailed over the western U.S.



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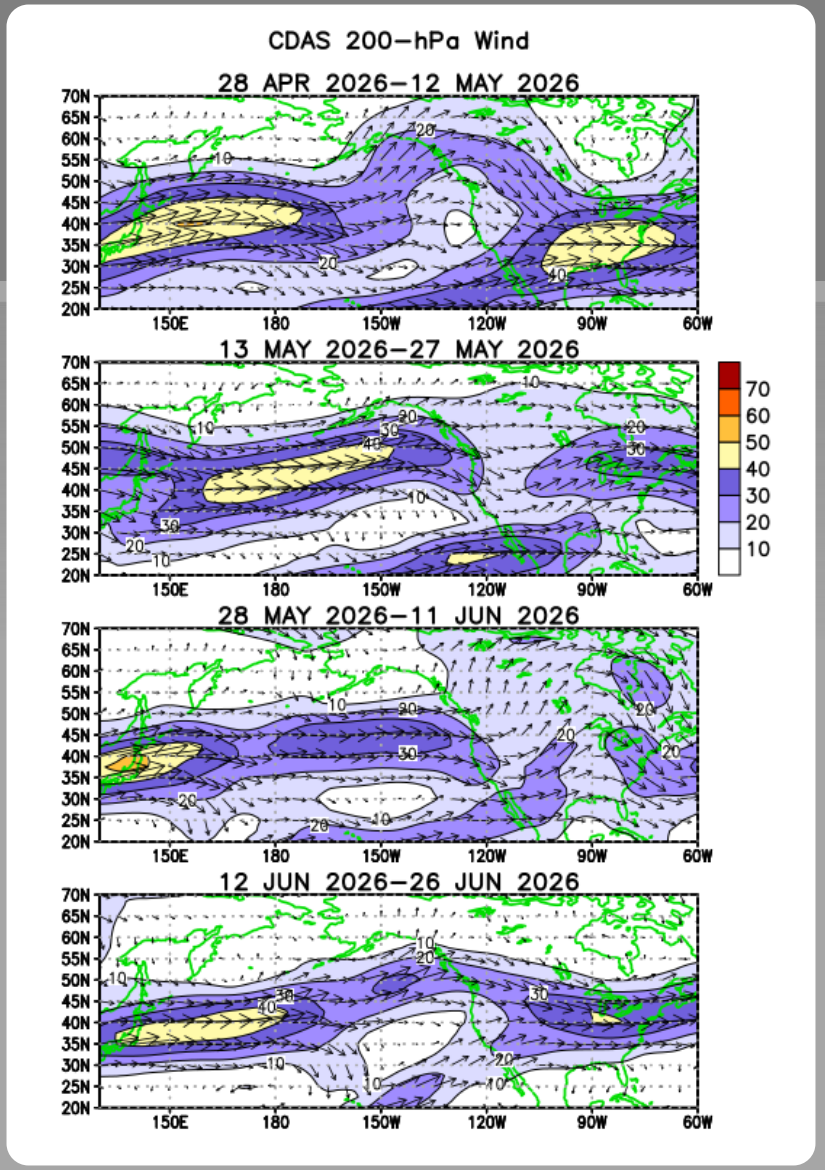

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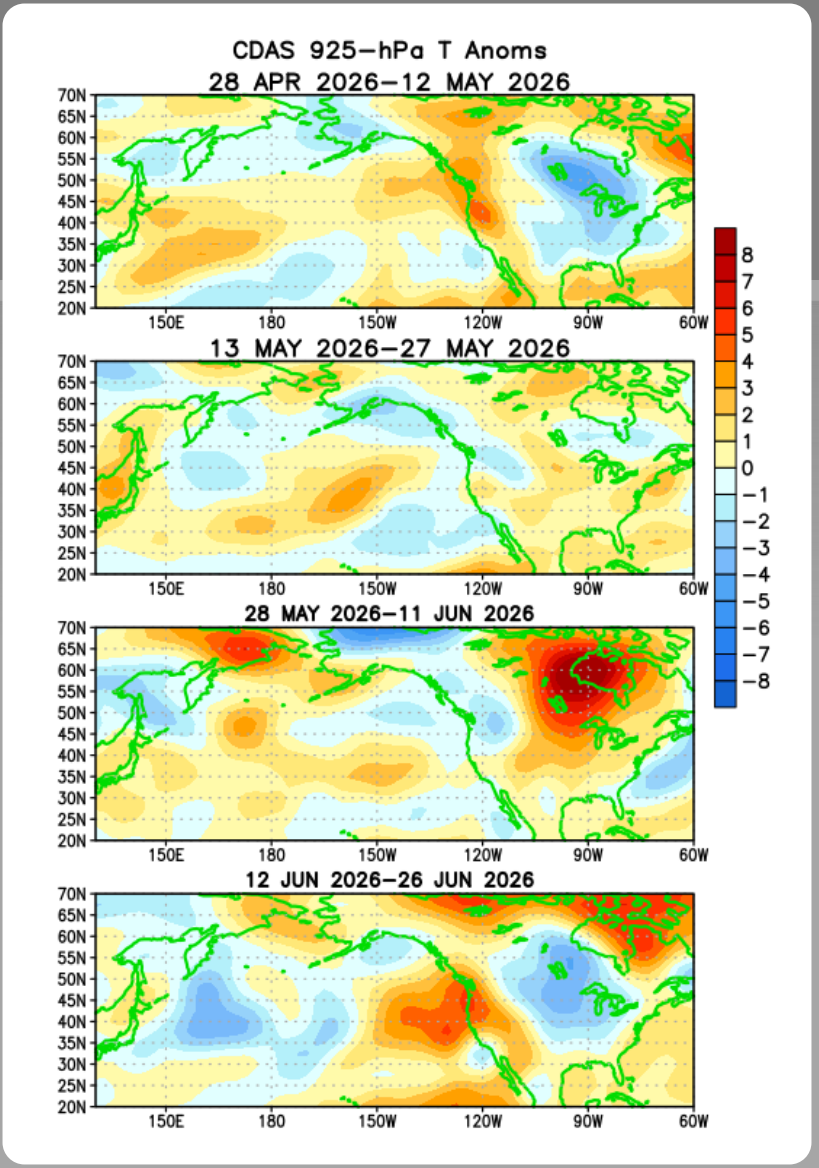
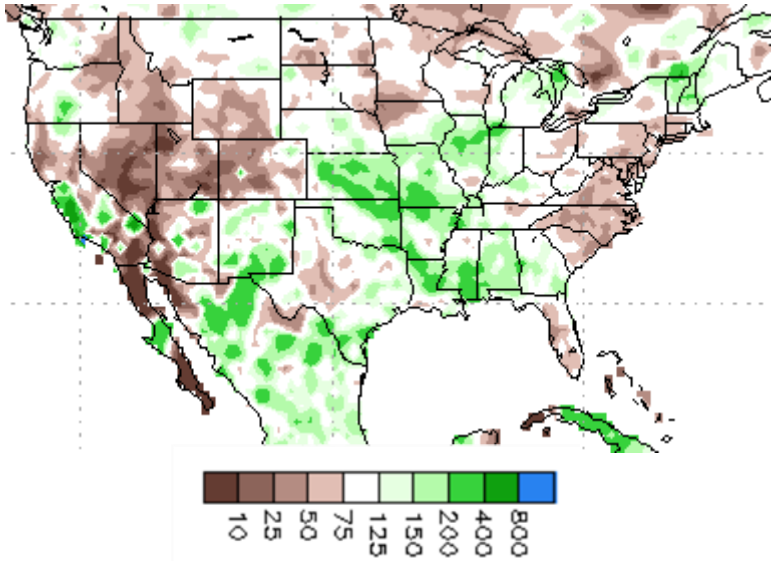


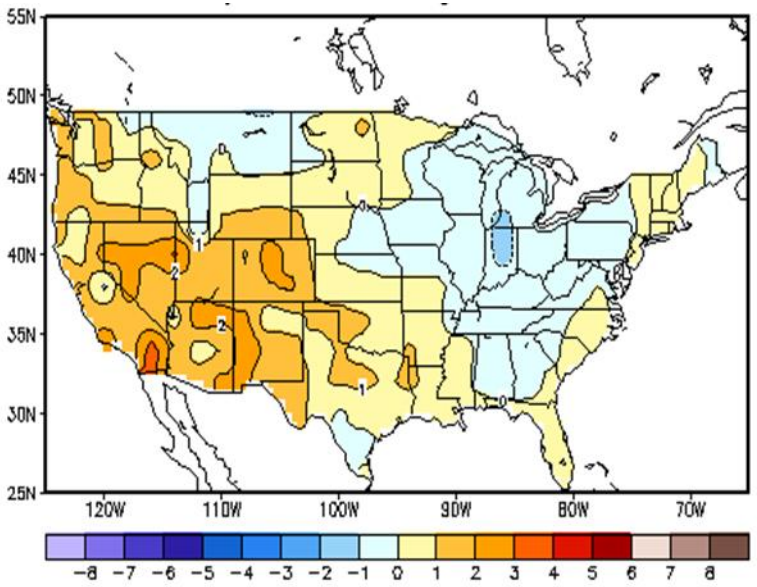
U.S. Temperature and Precipitation Departures During the Last 30 Days

End Date: 27 June 2026

Percent of Average Precipitation



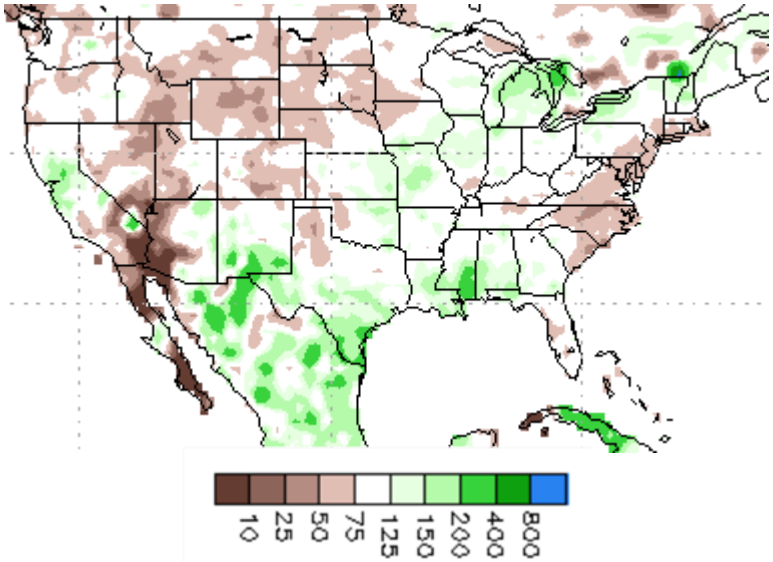
Temperature Departures (degree C)



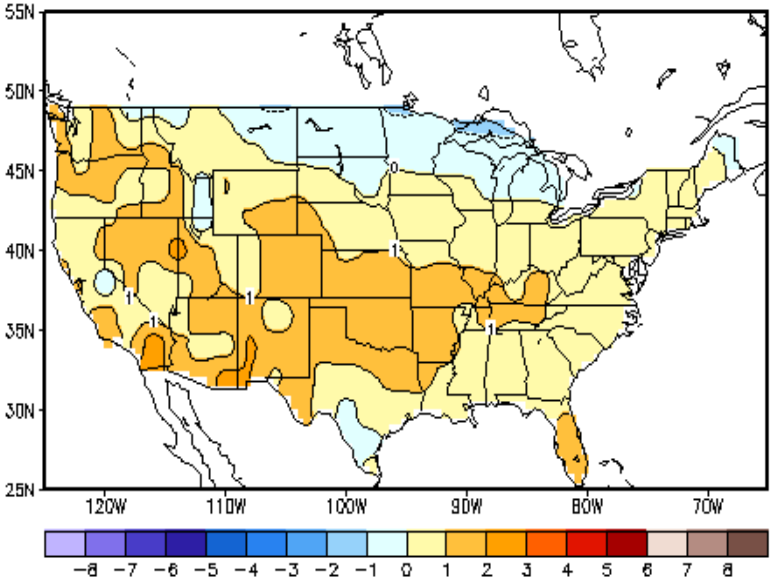
U.S. Temperature and Precipitation Departures During the Last 90 Days

End Date: 27 June 2026

Percent of Average Precipitation



Temperature Departures (degree C)

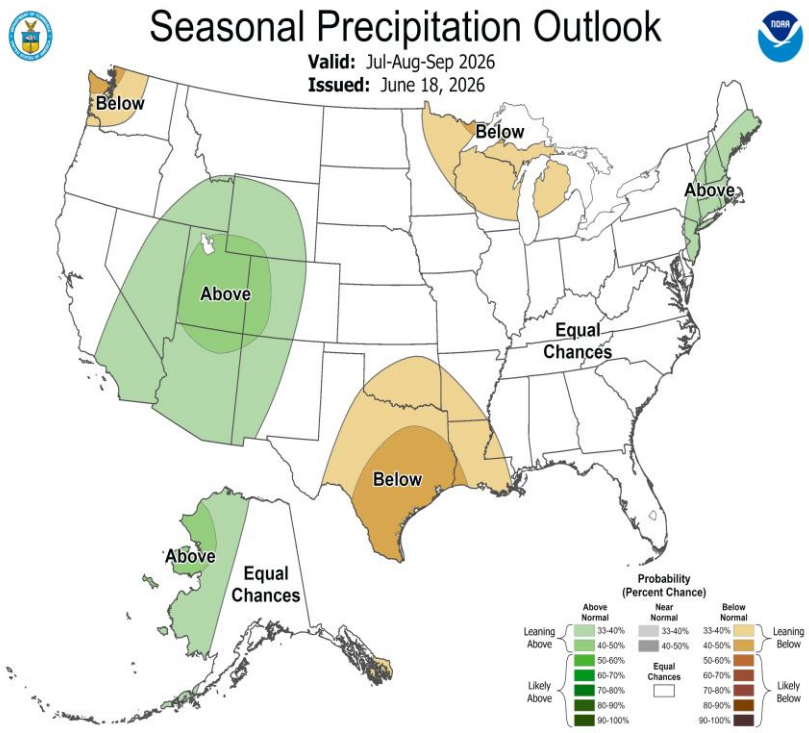


U. S. Seasonal Outlooks

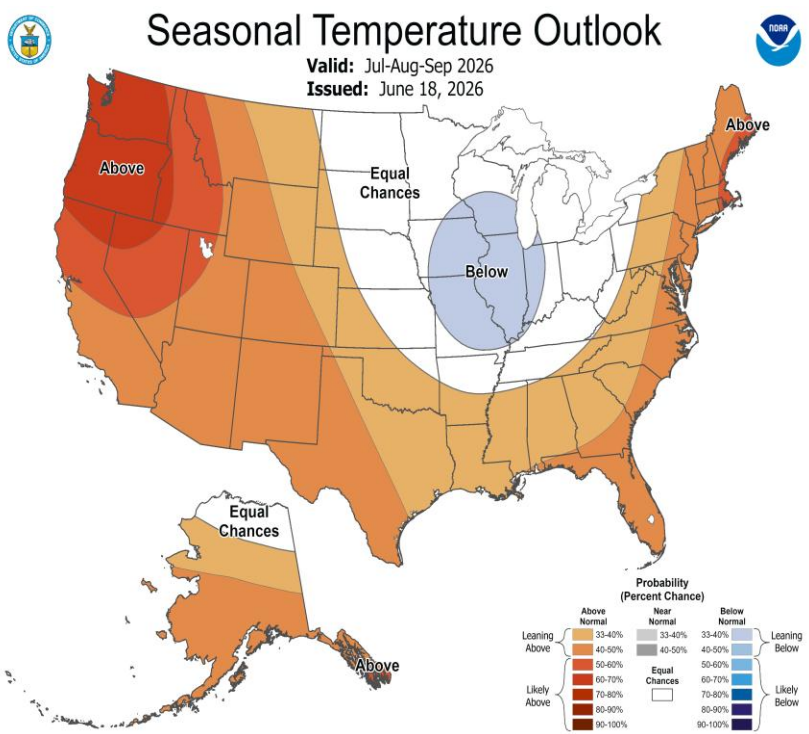
July - September 2026

The seasonal outlooks combine the effects of long-term trends, soil moisture, and, when appropriate, ENSO.

Precipitation



Temperature



Summary

ENSO Alert System Status: **El Niño Advisory**

El Niño conditions are present.*

Equatorial sea surface temperatures (SSTs) are above average across the central and eastern Pacific Ocean.

The atmospheric circulation anomalies over the equatorial Pacific Ocean are consistent with El Niño.

El Niño conditions are expected to strengthen into the Northern Hemisphere winter 2026-27.*

* Note: These statements are updated once a month (2nd Thursday of each month) in association with the ENSO Diagnostics Discussion, which can be found by clicking here.