ENSO: Recent Evolution, Current Status and Predictions

Update prepared by:
Climate Prediction Center / NCEP
2 November 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 is present.*

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

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

El Niño continues to strengthen, with a strong-to-very strong El Niño likely through January-March 2027 (remaining greater than an 83% chance).*

* 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.

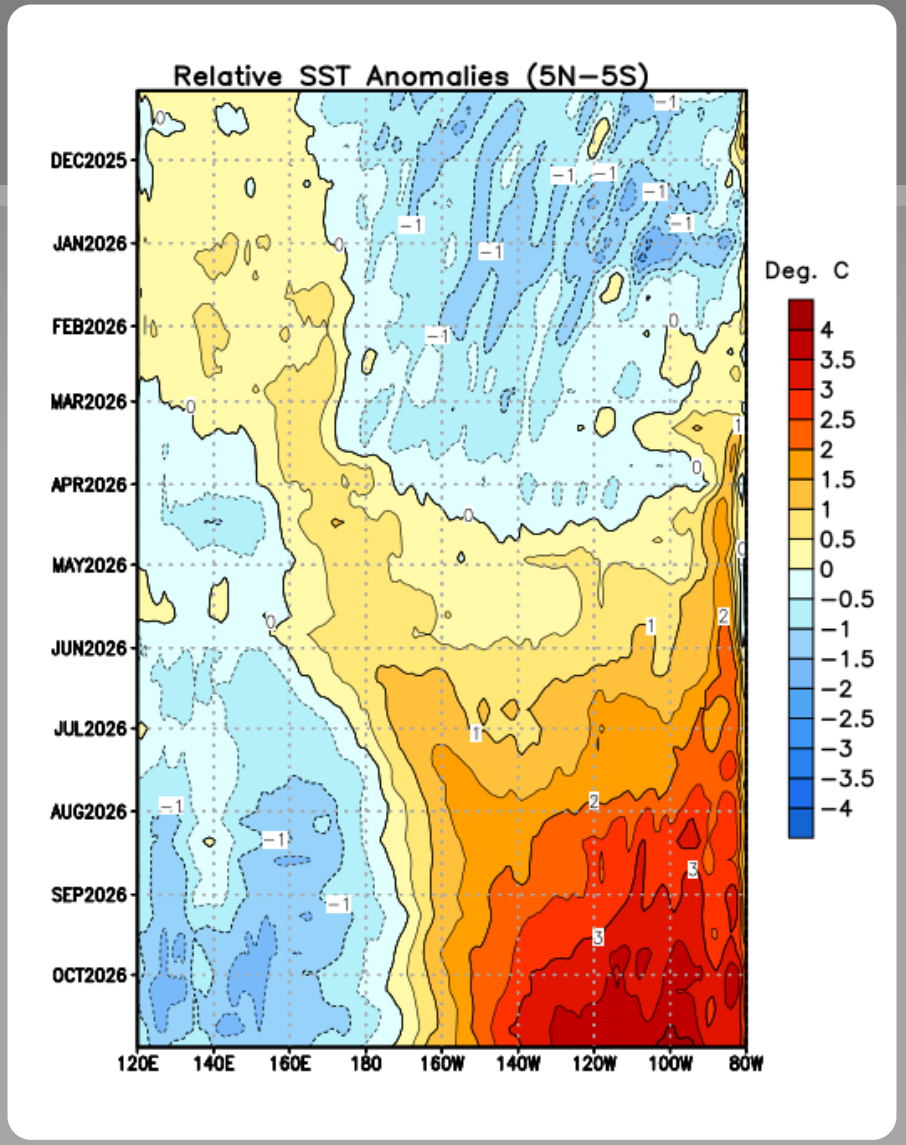
Recent Evolution of Equatorial Pacific SST Departures (°C)

Through February 2026, below-average SSTs were evident across most of the equatorial Pacific Ocean.

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

During June and July 2026, below-average equatorial SSTs expanded to the Date Line.

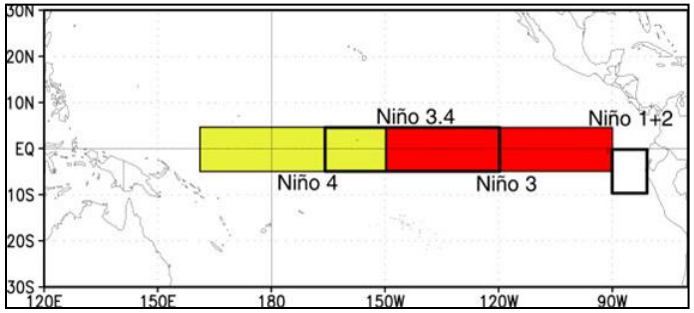
Since mid-April 2026, above-average equatorial SSTs increased across the east-central and eastern Pacific Ocean.

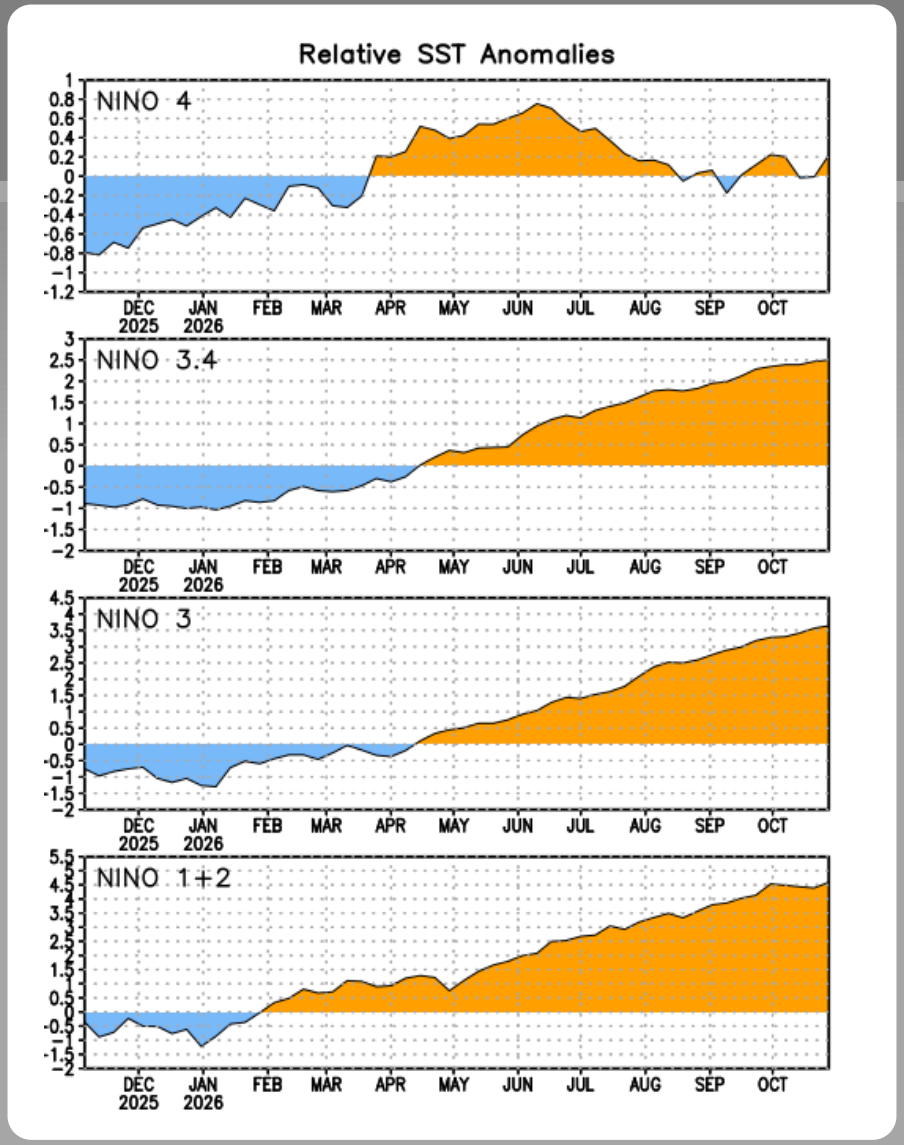


Niño Region SST Departures (ºC) Recent Evolution

The latest weekly SST departures are:

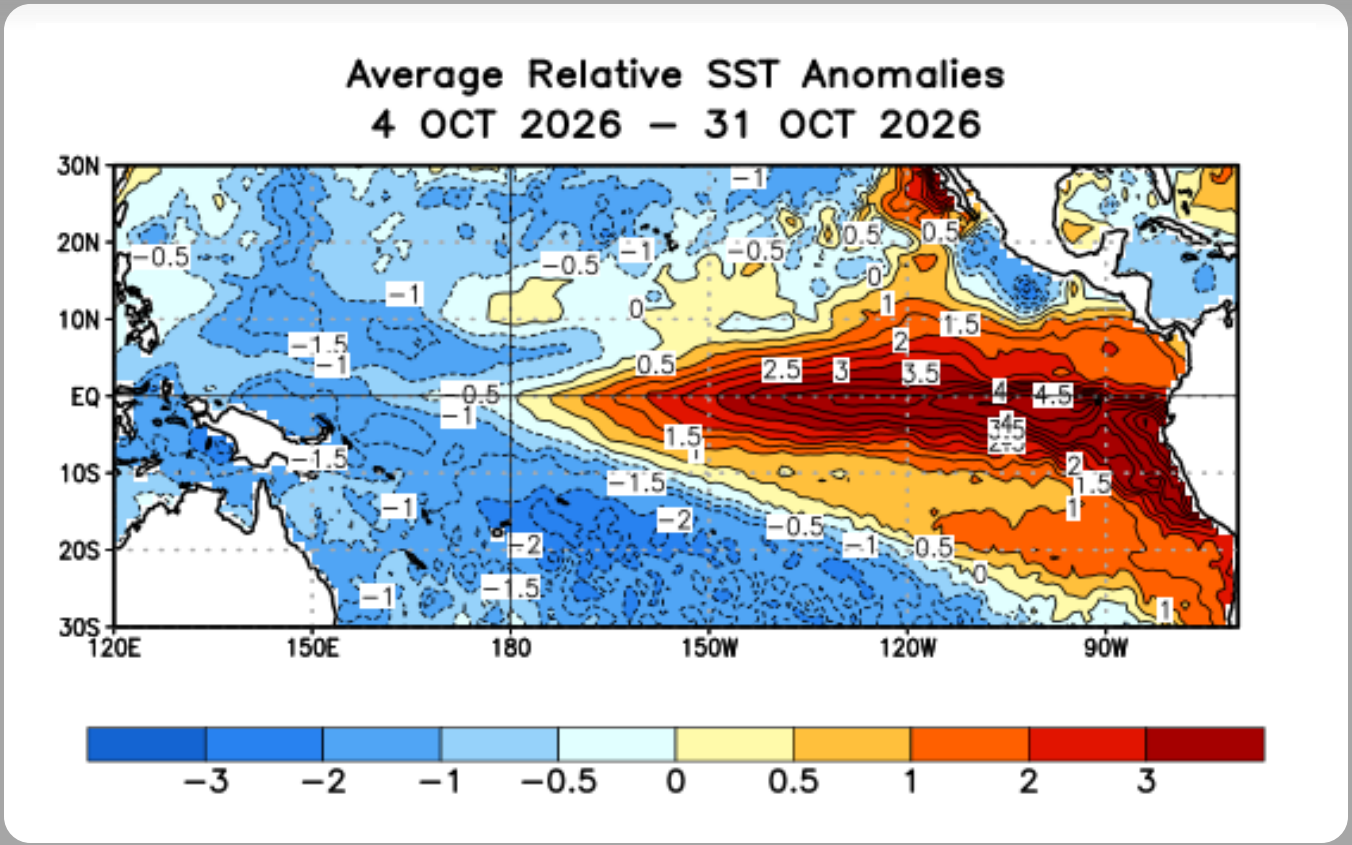
Niño 4	0.2ºC
Niño 3.4	2.5ºC
Niño 3	3.7ºC
Niño 1+2	4.6ºC





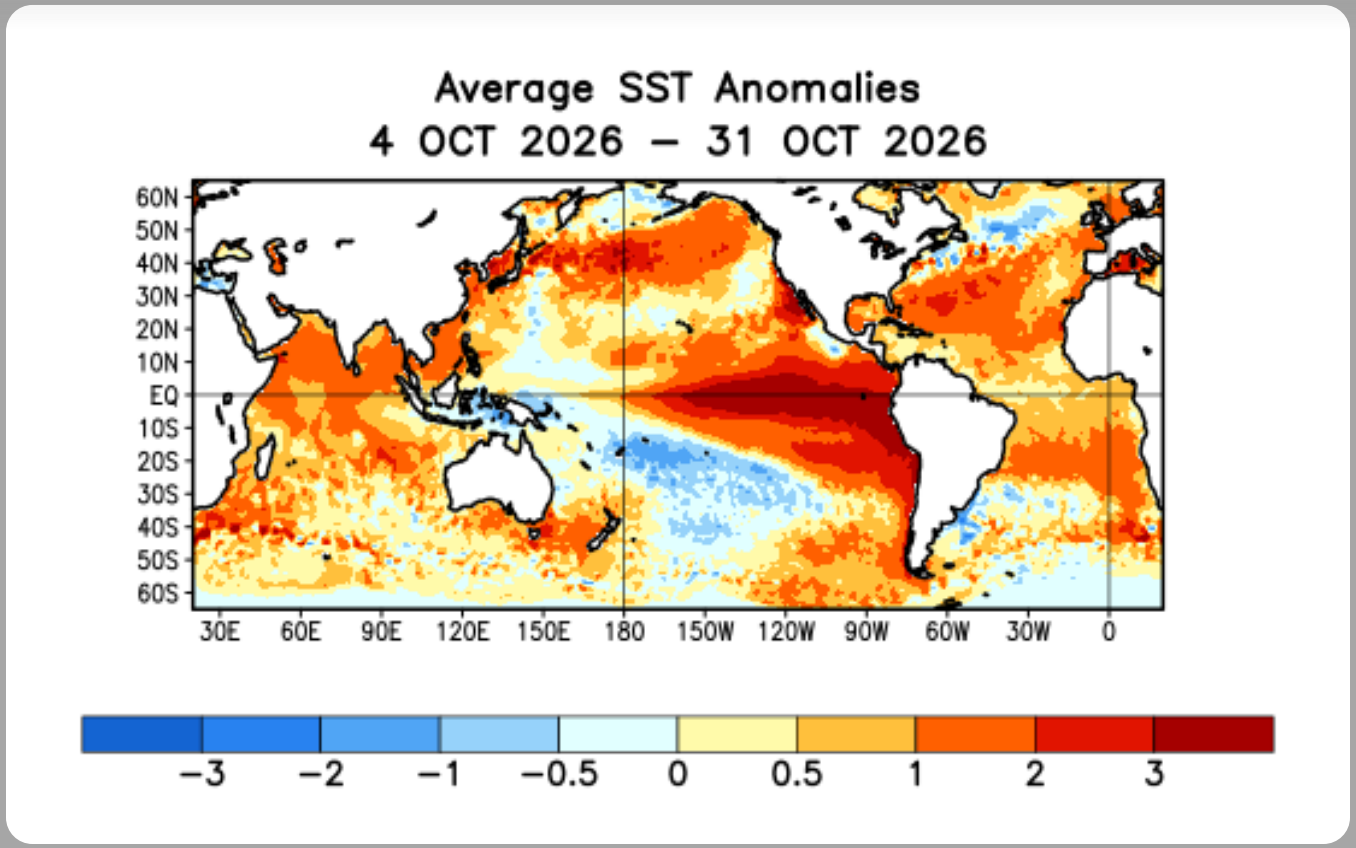
SST Departures (ºC) in the Tropical Pacific During the Last Four Weeks

In the last four weeks, equatorial SSTs were above average east of the Date Line and below average near and west of the Date Line.



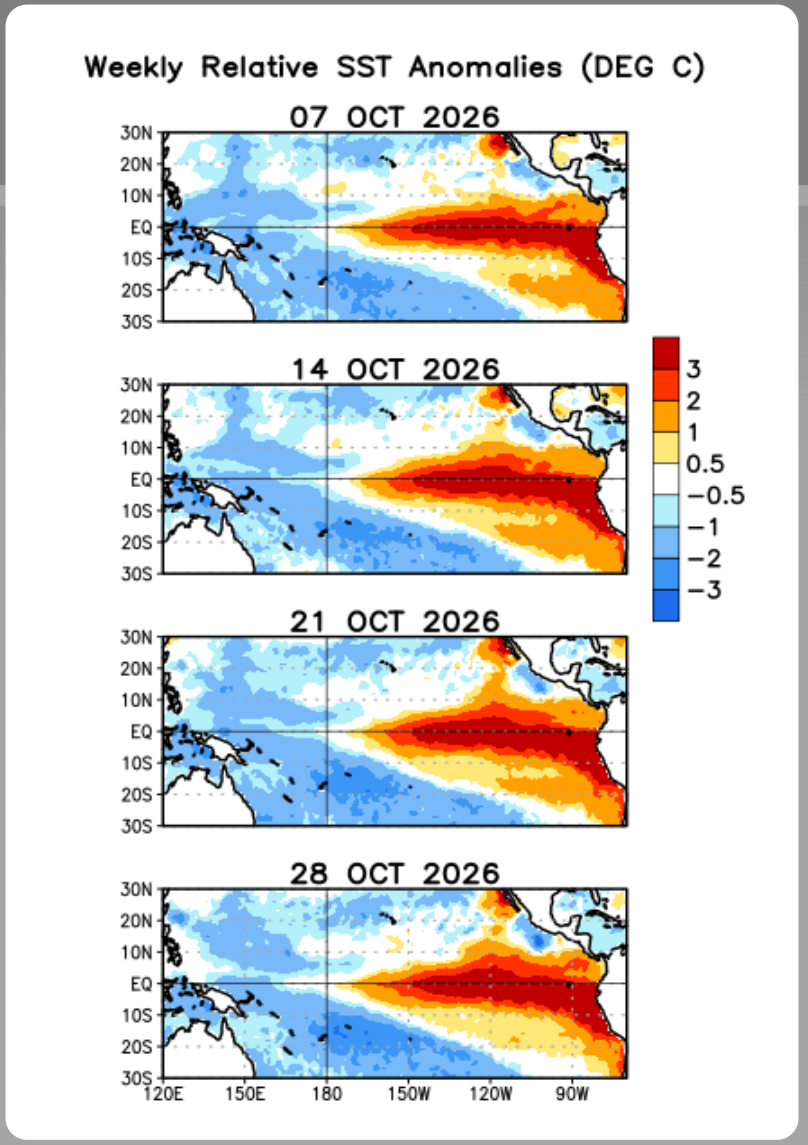
Global SST Departures (°C) During the Last Four Weeks (Traditional SST Anomalies)

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



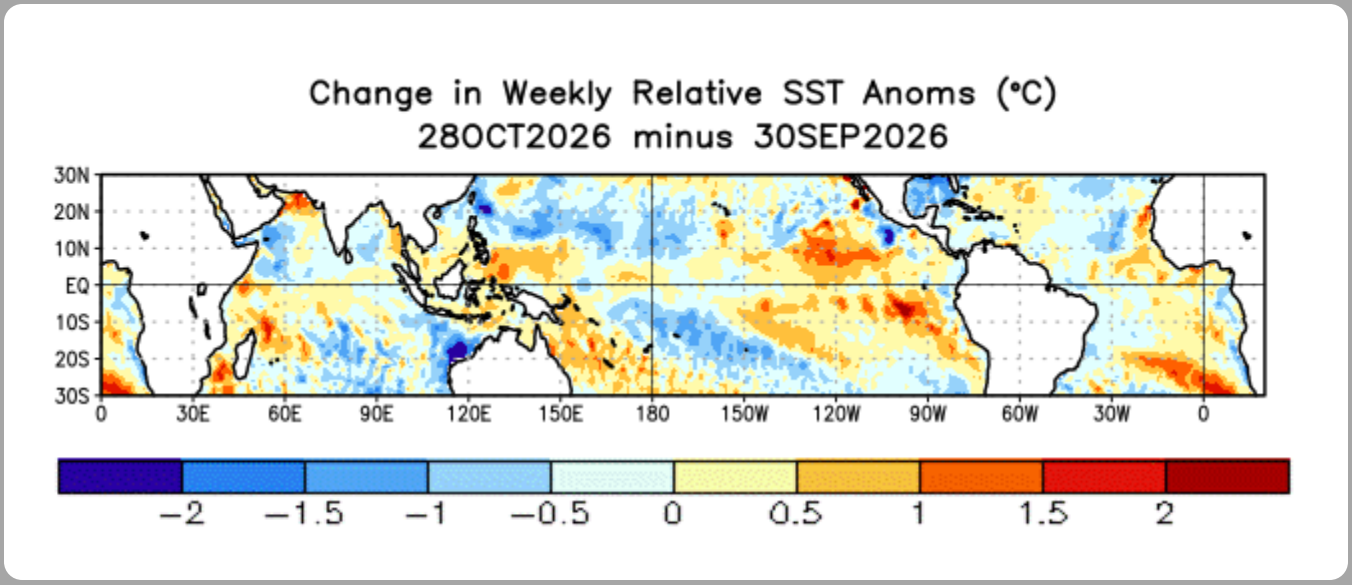
Weekly SST Departures during the Last Four Weeks

Above-average SSTs increased across the east-central and eastern equatorial Pacific Ocean, and below-average SSTs were evident near and west of the Date Line.



Change in Weekly SST Departures over the Last Four Weeks

During the last four weeks, positive equatorial SST anomaly changes were observed in the east-central Pacific Ocean, near the Maritime Continent, and in parts of the eastern Atlantic Ocean.



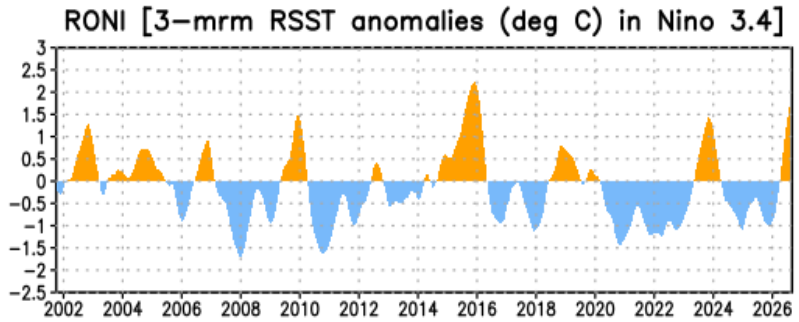
Upper-Ocean Conditions in the Equatorial Pacific

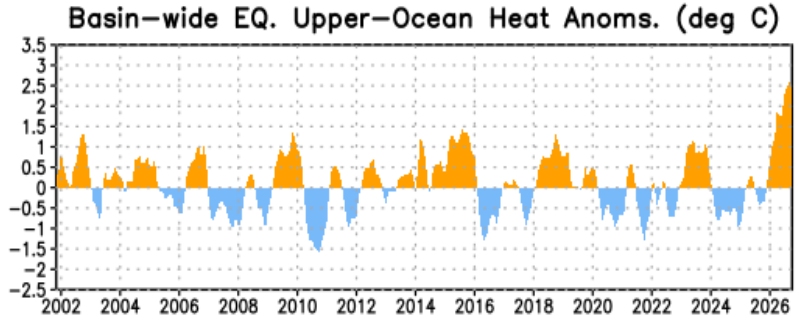
The basin-wide equatorial upper ocean (0-300 m) heat content is greatest prior to and during the early stages of a Pacific warm (El Niño) episode (compare top 2 panels), and least prior to and during the early stages of a cold (La Niña) episode.

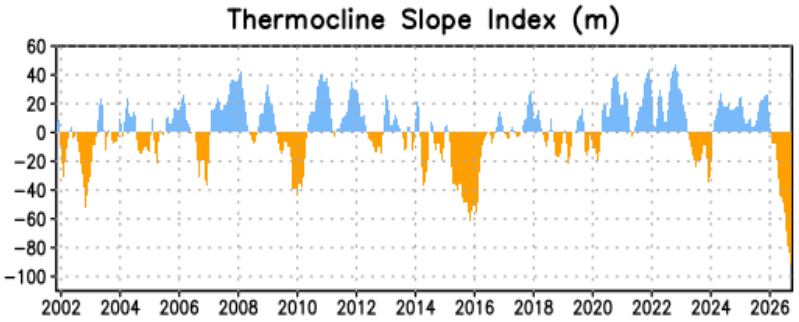
The slope of the oceanic thermocline is least (greatest) during warm (cold) episodes.

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).

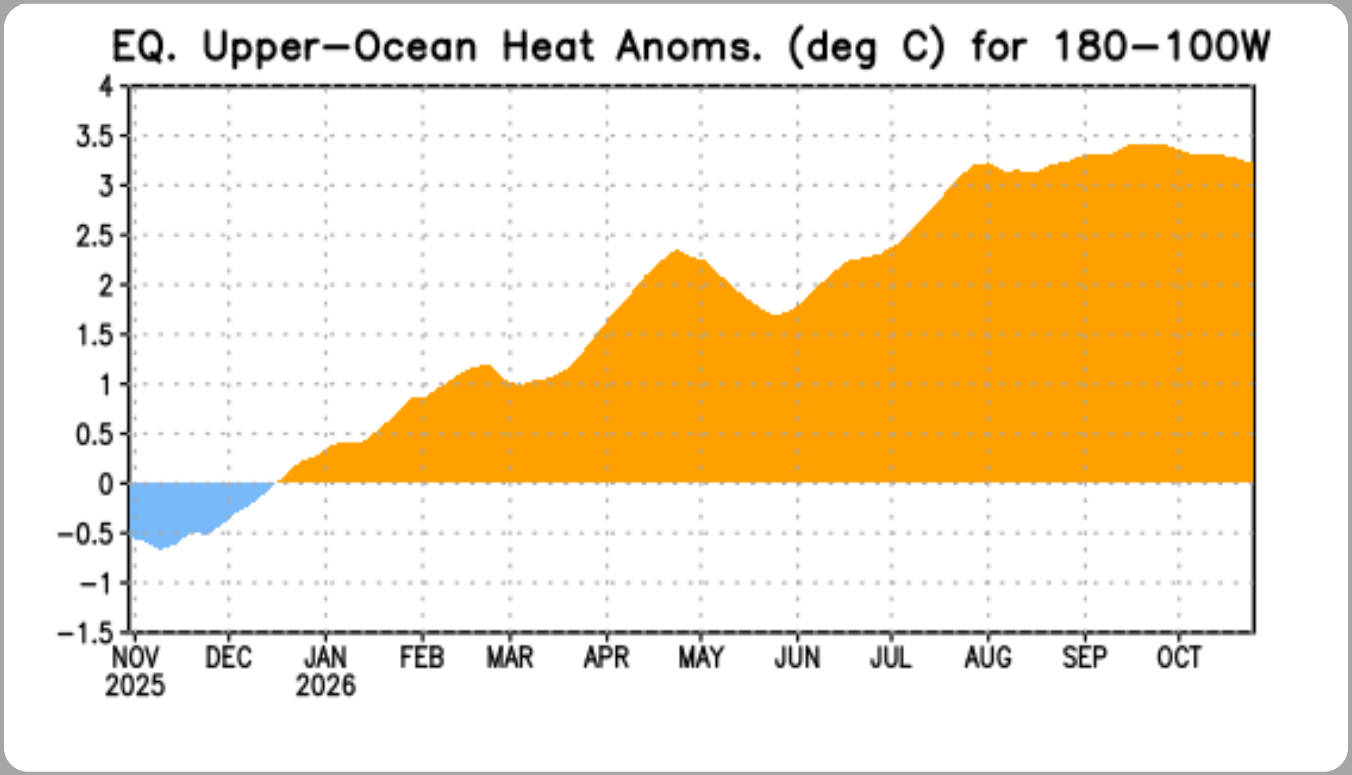






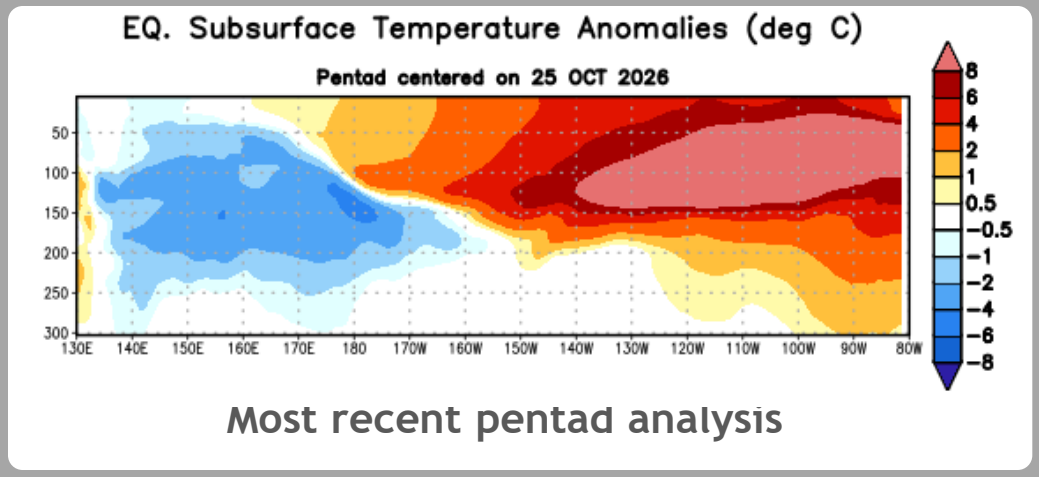
Central and Eastern Pacific Upper-Ocean (0-300 m) Weekly Average Temperature Anomalies

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 increased. From late April to late May 2026, positive anomalies decreased. Positive anomalies increased from late May 2026 to late July 2026. Since then the positive anomalies have remained steady.

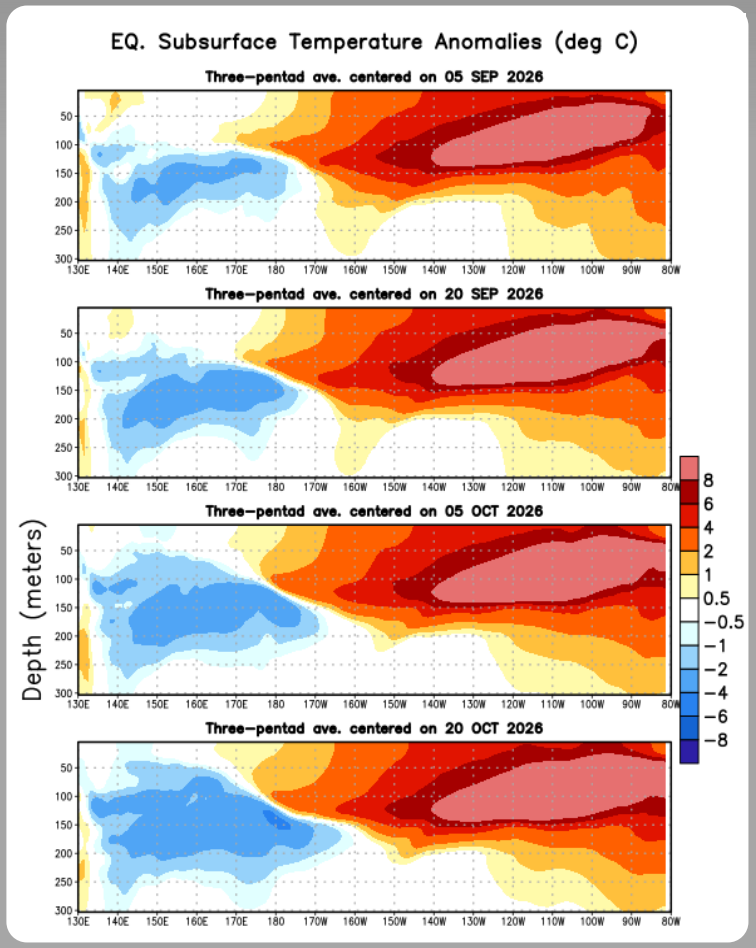


Sub-Surface Temperature Departures in the Equatorial Pacific

In the last two months, above-average subsurface temperatures have persisted across the east-central and eastern Pacific Ocean.



Most recent pentad analysis

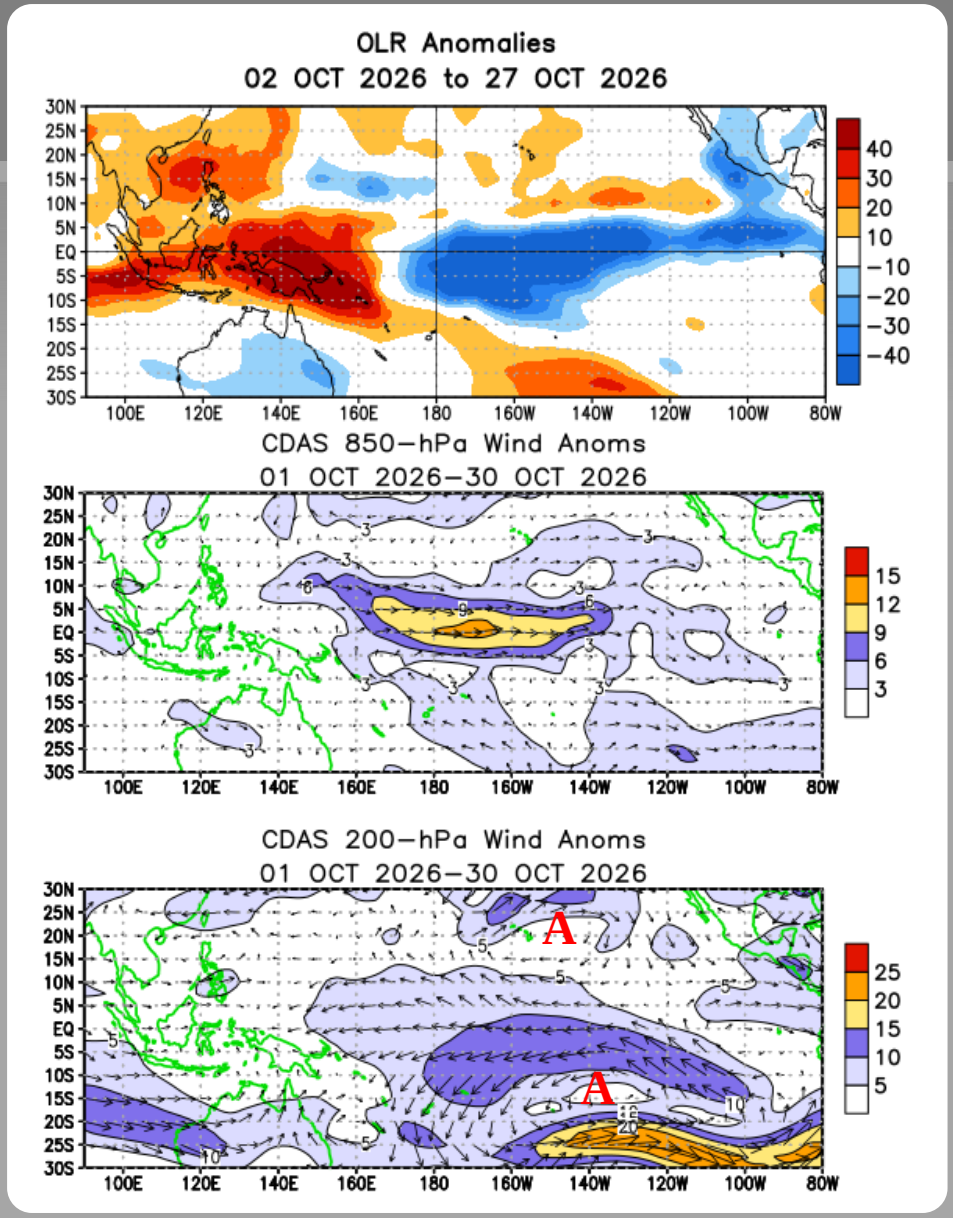


Tropical OLR and Wind Anomalies During the Last 30 Days

Below-average OLR (enhanced convection and precipitation) was evident along the equator from near the Date Line to the eastern 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 from the western to the east-central equatorial Pacific and westerly over the far eastern equatorial 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.

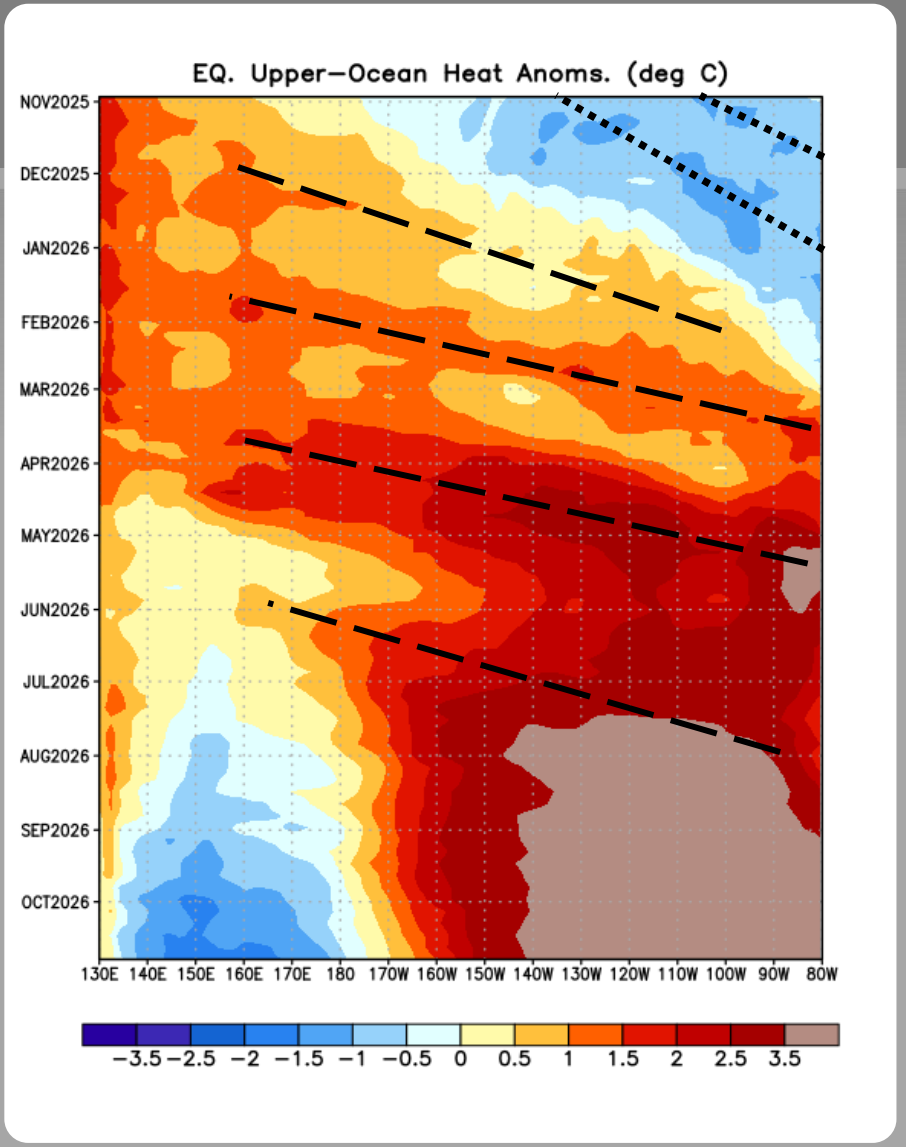
Related to this activity:

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 October 2025. Downwelling Kelvin waves were initiated in December 2025, January 2026, March 2026, and June 2026.

Currently, positive subsurface temperature anomalies persist east of the Date Line, while negative anomalies have strengthened west of the Date Line.

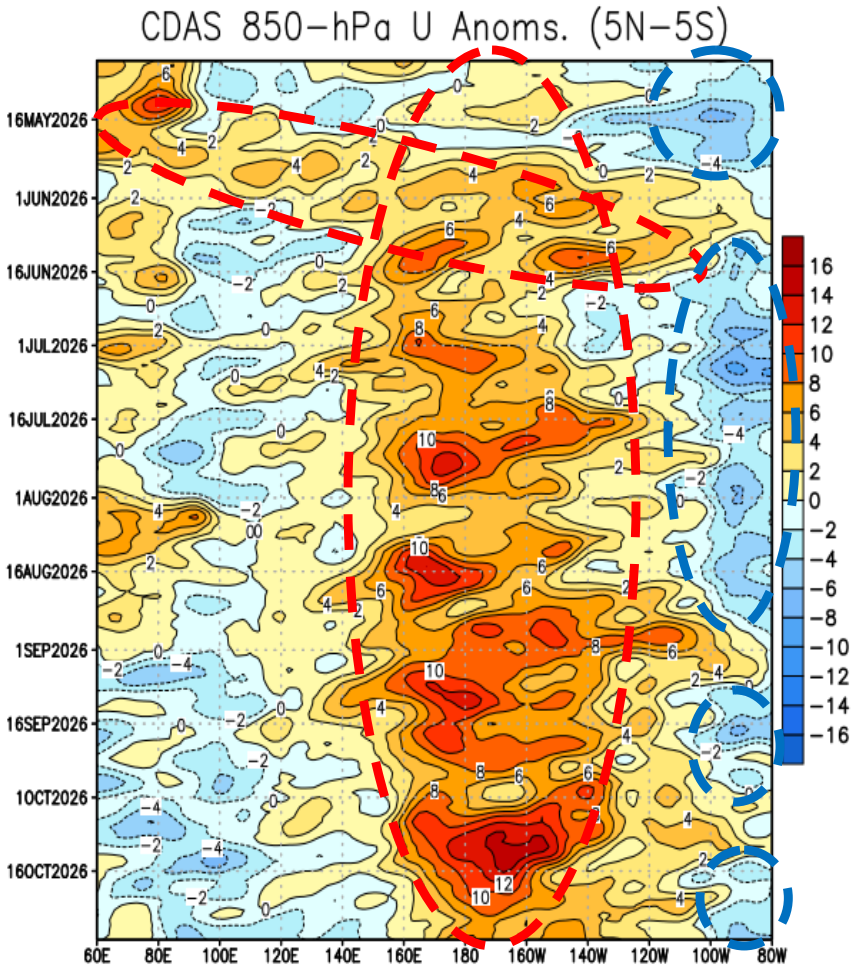


Equatorial oceanic Kelvin waves have alternating warm and cold phases. The warm phase is indicated by dashed lines. Down-welling and warming occur in the leading portion of a Kelvin wave, and up-welling and cooling occur in the trailing portion.

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

During the period, westerly wind anomalies were generally observed over the central and east-central equatorial Pacific Ocean.

Over the far eastern Pacific Ocean, easterly wind anomalies have periodically emerged.



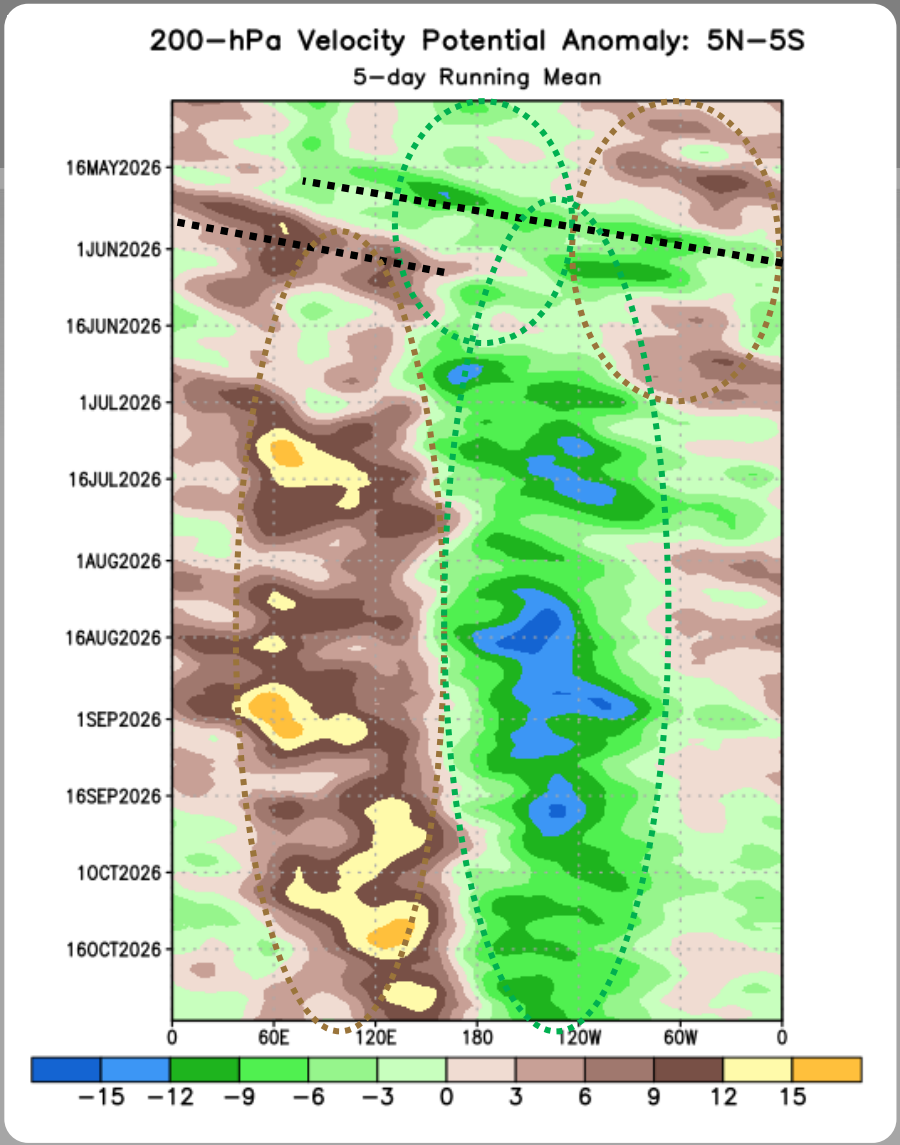
Westerly Wind Anomalies (orange/red shading)
Easterly Wind Anomalies (blue shading)

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. These anomalies expanded into the east-central Pacific in mid-May.

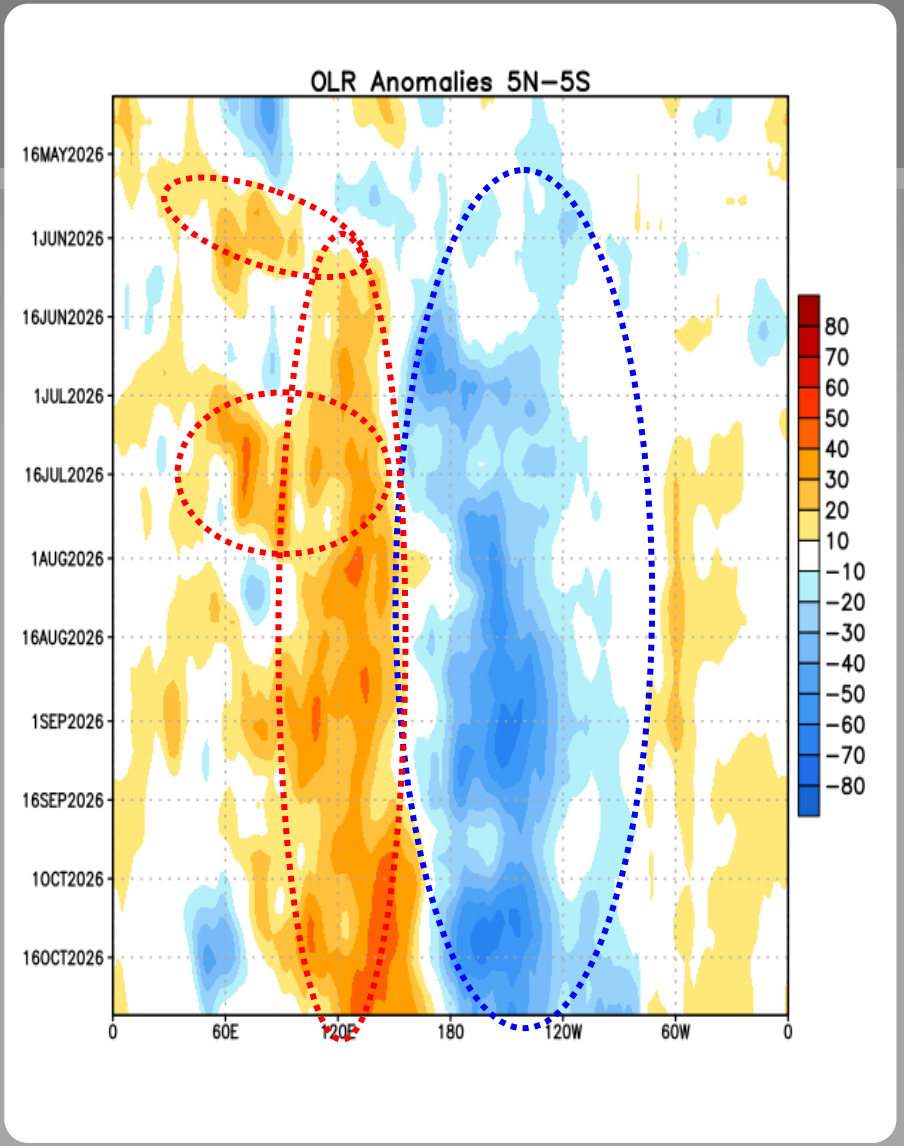
Since late May 2026, anomalous convergence has mostly persisted over the Indian Ocean and Indonesia.



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

Since June 2026, positive OLR anomalies (suppressed convection/rainfall) have persisted over Indonesia, while negative OLR anomalies (enhanced convection/rainfall) have dominated over the central to eastern 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.v6). The SST reconstruction methodology is described in Huang et al., 2025a,b)

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

8/10/26: NCEI is discontinuing ERSSTv5, so RONI values have switched to ERSSTv6. The weekly OISSTv2.1 data remains unaffected. Both tables (v5 and v6) are available here: 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.

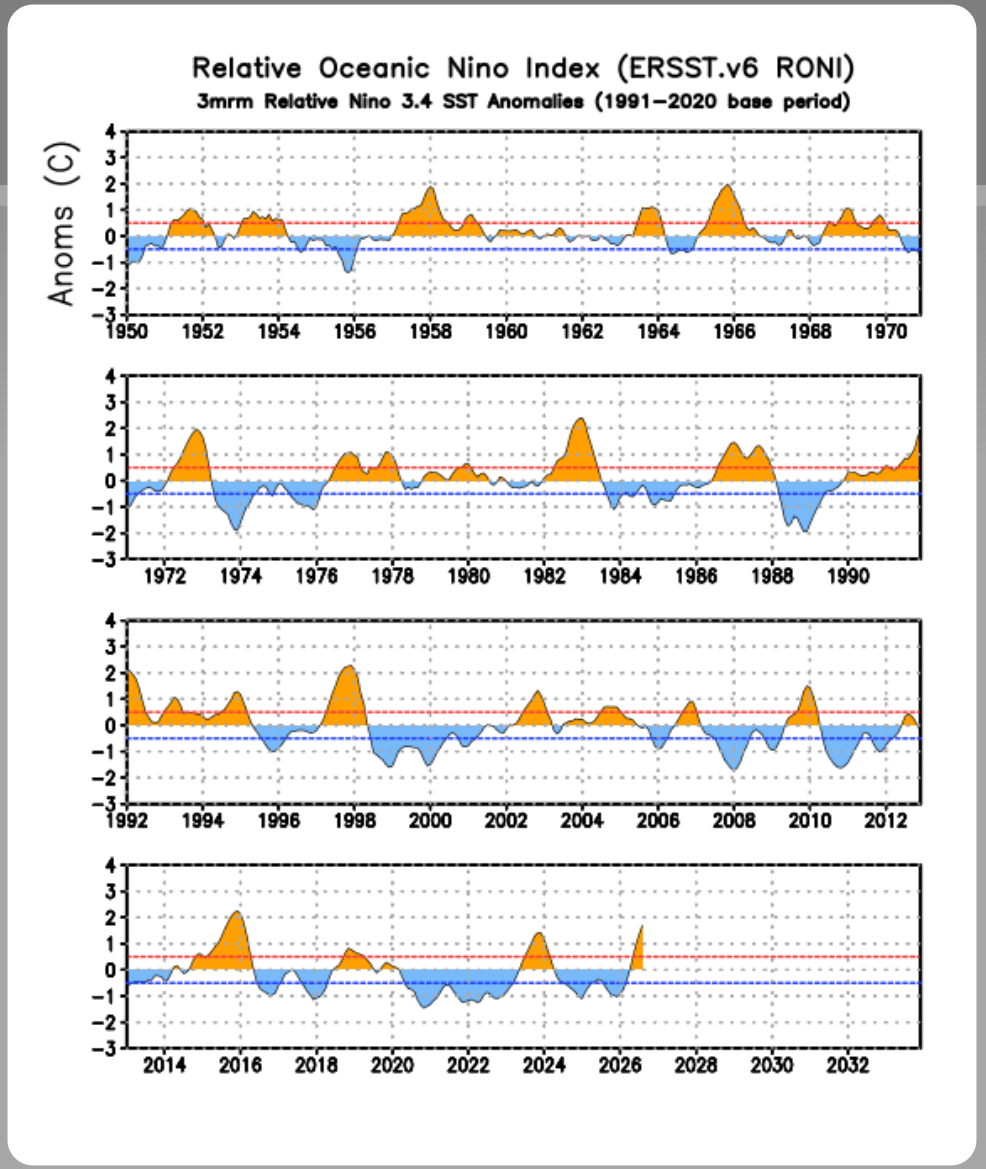
By historical standards, to be classified as a full-fledged El Niño or La Niña episode, these thresholds must be exceeded for a period of at least 5 consecutive overlapping 3-month seasons.

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 (July-September 2026) is 1.7°C.



Historical El Niño and La Niña Episodes Based on the RONI computed using ERSST.v6

Recent Pacific warm (red) and cold (blue) periods based on a threshold of +/- 0.5 °C for the Relative Oceanic Nino Index (RONI) [ERSST.v6 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.

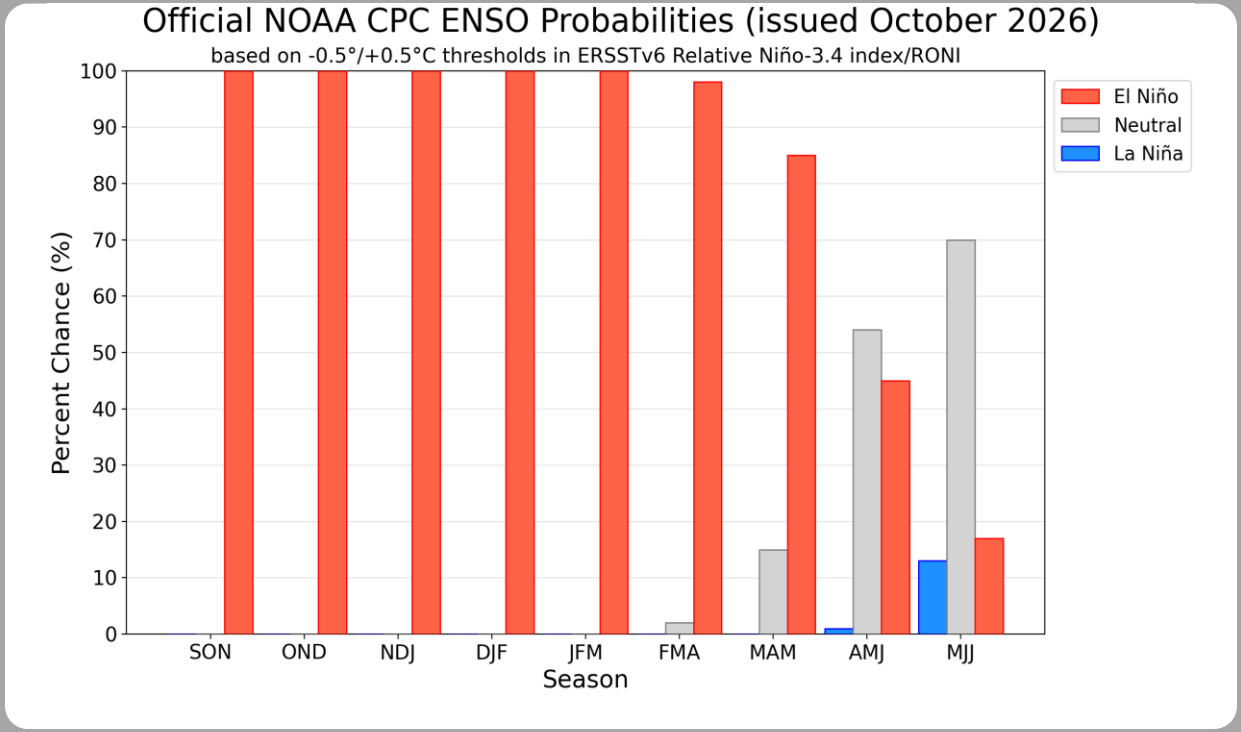
The RONI is one measure of the El Niño-Southern Oscillation, and other indices can confirm whether features consistent with a coupled ocean-atmosphere phenomenon accompanied these periods. The complete table going back to DJF 1950 can be found here.

Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2014	-0.4	-0.4	-0.1	0.1	0.2	0.0	-0.1	-0.1	0.1	0.4	0.5	0.6
2015	0.5	0.5	0.6	0.7	0.9	1.0	1.3	1.5	1.8	2.0	2.2	2.3
2016	2.1	1.8	1.3	0.7	0.1	0.4	-0.7	-0.8	-0.9	-1.0	-1.0	-0.9
2017	-0.6	-0.4	-0.2	-0.1	0.0	0.0	-0.2	-0.5	-0.6	-0.8	-1.0	-1.1
2018	-1.1	-1.0	-0.9	-0.7	-0.3	0.0	0.1	0.2	0.4	0.6	0.8	0.8
2019	0.7	0.6	0.6	0.5	0.4	0.2	0.0	-0.1	0.0	0.2	0.3	0.2
2020	0.1	0.1	0.0	-0.3	-0.5	-0.7	-0.8	-0.8	-1.2	-1.4	-1.5	-1.4
2021	-1.3	-1.2	-1.1	-0.9	-0.7	-0.6	-0.6	-0.8	-0.9	-1.1	-1.2	-1.2
2022	-1.2	-1.1	-1.2	-1.3	-1.2	-0.9	-0.9	-0.9	-1.1	-1.1	-1.1	-1.0
2023	-0.9	-0.7	-0.5	-0.3	0.0	0.3	0.5	0.8	1.0	1.3	1.4	1.4
2024	1.1	0.8	0.4	0.0	-0.3	-0.4	-0.5	-0.6	-0.7	-0.8	-0.9	-1.0
2025	-1.1	-0.8	-0.7	-0.5	-0.5	-0.4	-0.4	-0.6	-0.8	-0.9	-1.0	-1.0
2026	-0.9	-0.8	-0.4	0.0	0.5	1.0	1.4	1.7				

CPC Probabilistic ENSO Outlook

Updated: 8 October 2026

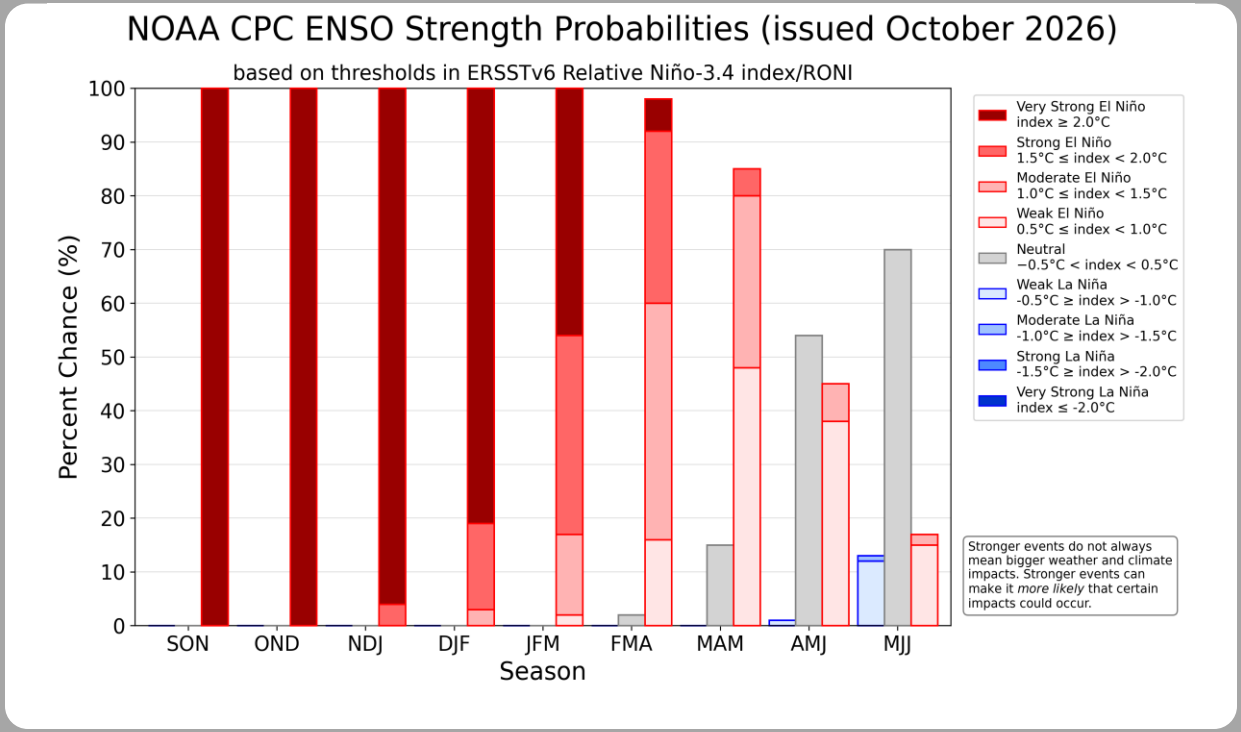
El Niño is expected to persist through March-May 2027. Chances favor ENSO-neutral in April-June and May-July 2027.



CPC Probabilistic ENSO Strength Outlook

Updated: 8 October 2026

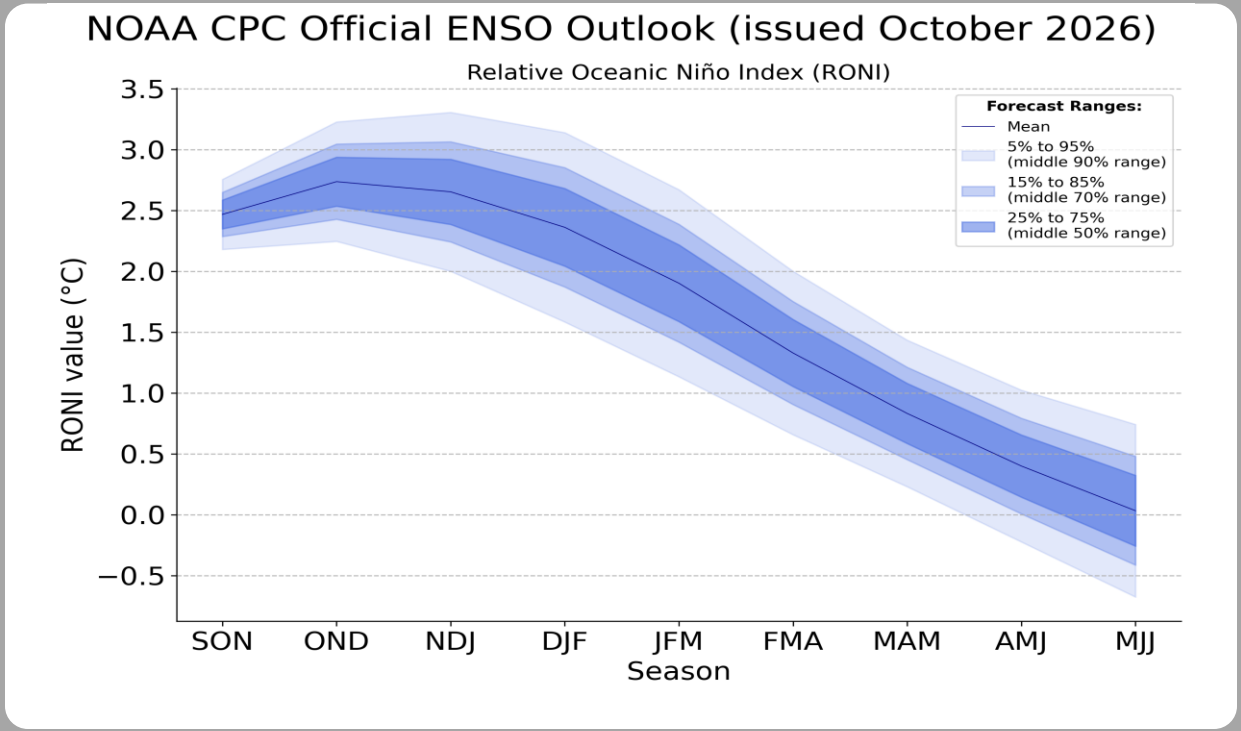
A strong-to-very strong El Niño is most likely through January-March 2027.



CPC Official ENSO Outlook

Updated: 8 October 2026

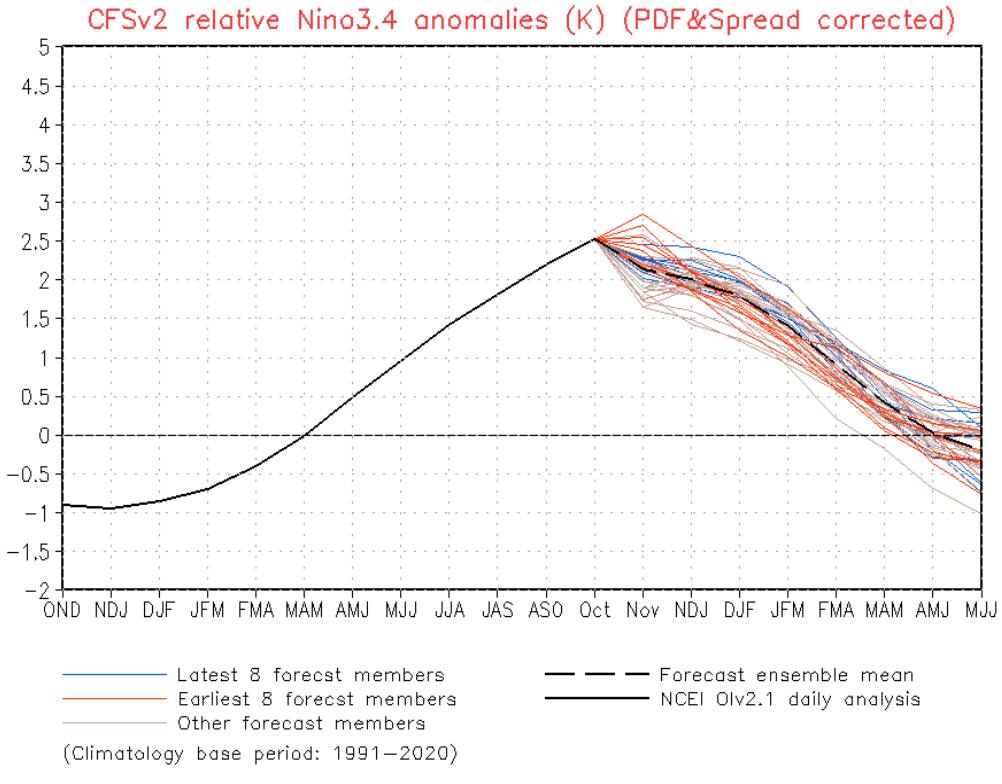
Chances remain high for a historic event that would exceed the strength of previous El Niño events dating back to 1950 (+2.5°C or more for 3-month RONI value): the chance is 54% for September-November, 83% for October-December, and 70% for November-January.

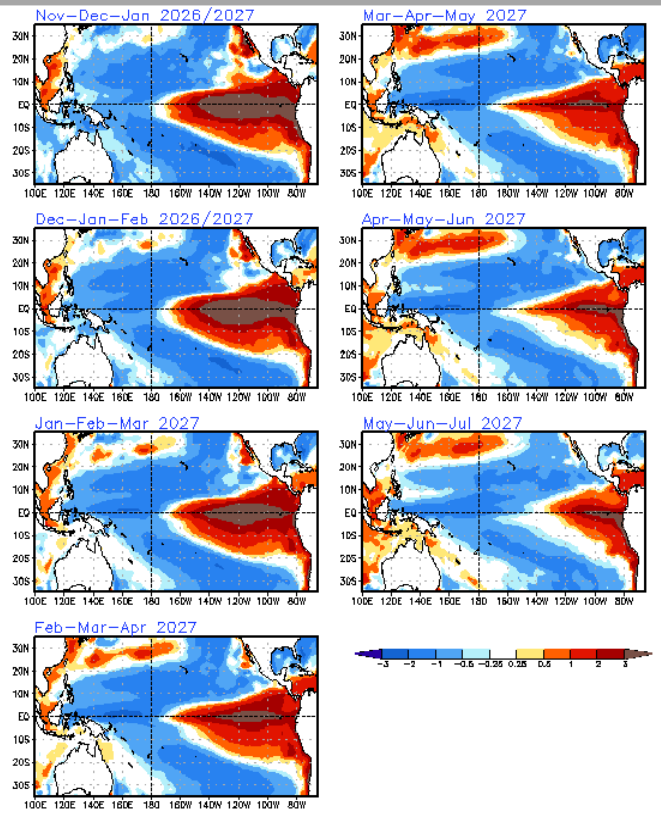


SST Outlook: NCEP CFS.v2 Forecast (PDF & Spread Corrected)

Issued: 2 November 2026

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

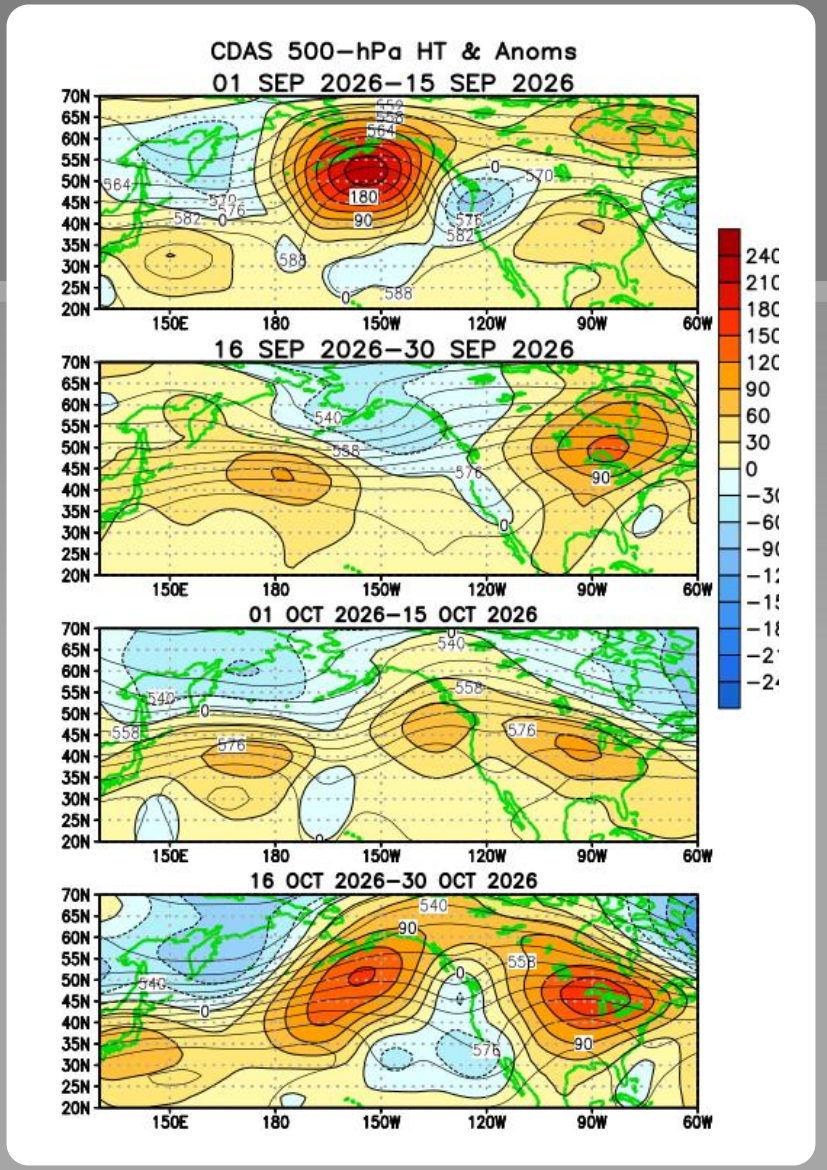




Atmospheric anomalies over the North Pacific and North America During the Last 60 Days

During September and in late October, below-average heights and temperature were evident over the eastern North Pacific Ocean and west coast of the contiguous U.S.

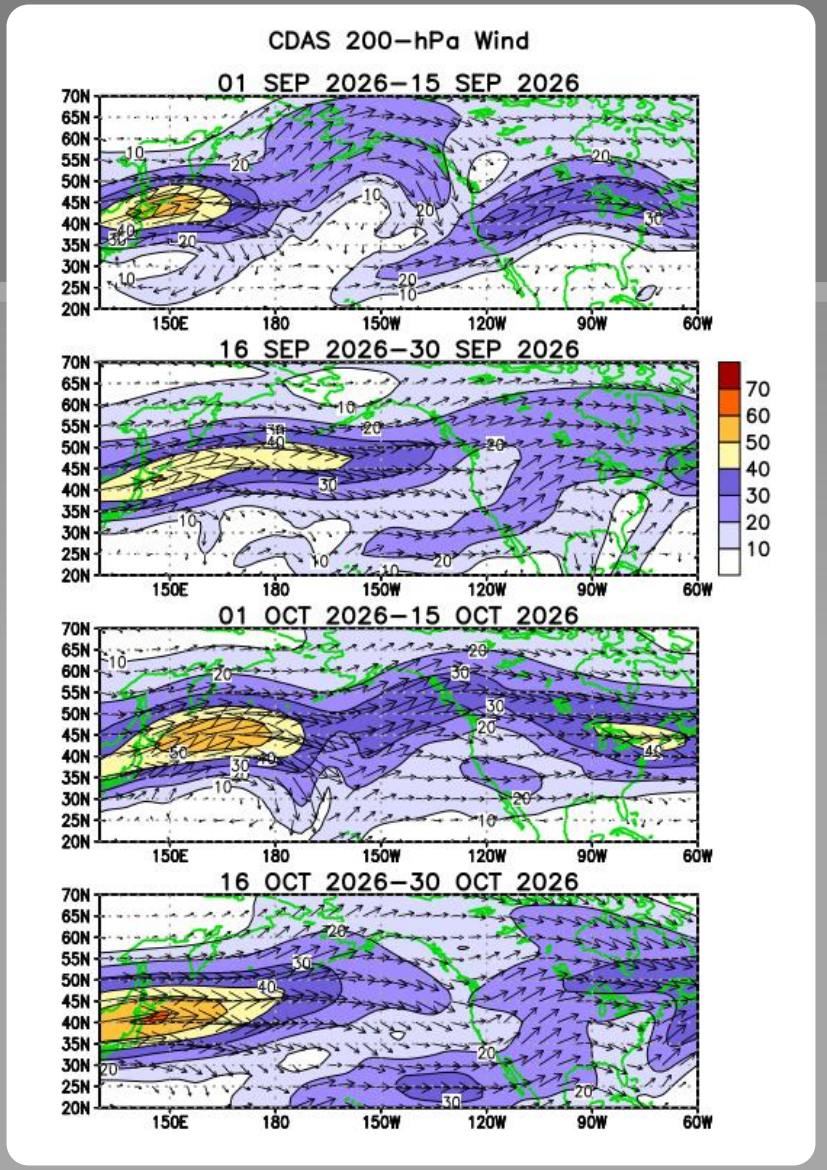
During the entire period, above-average heights and temperatures have persisted over the central contiguous U.S.



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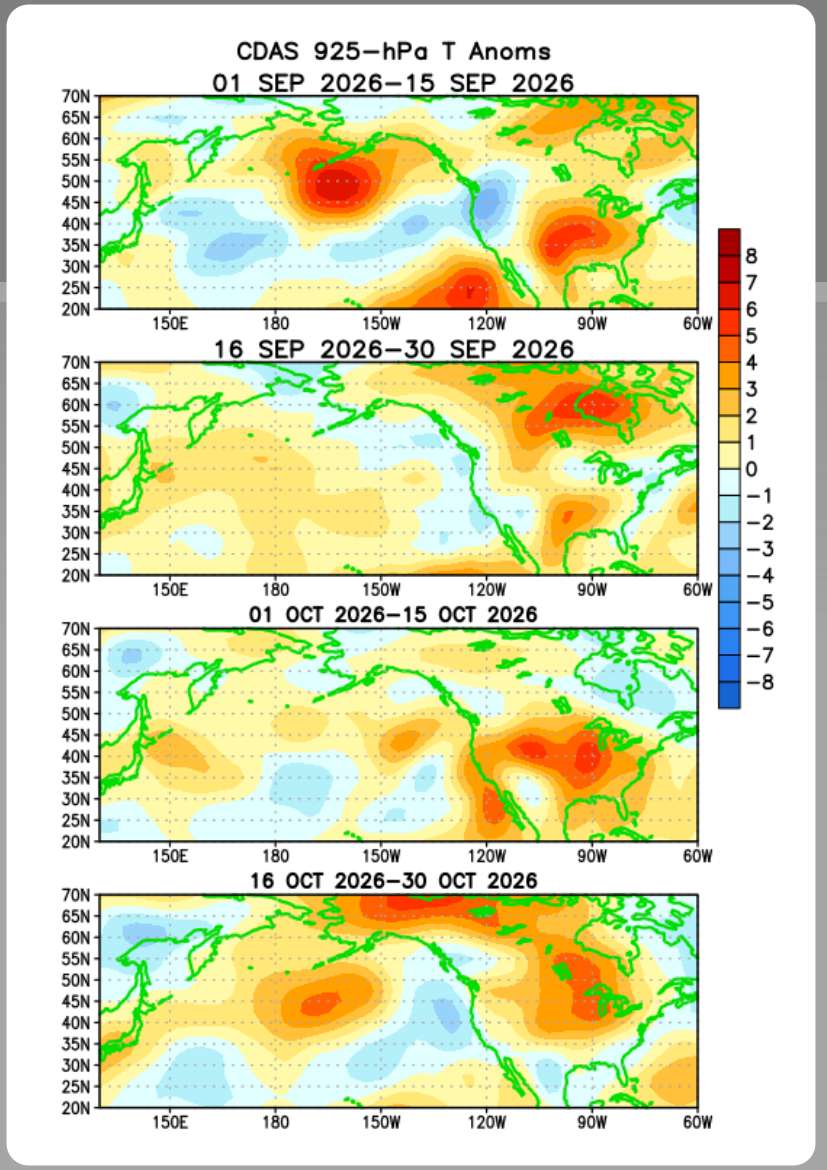
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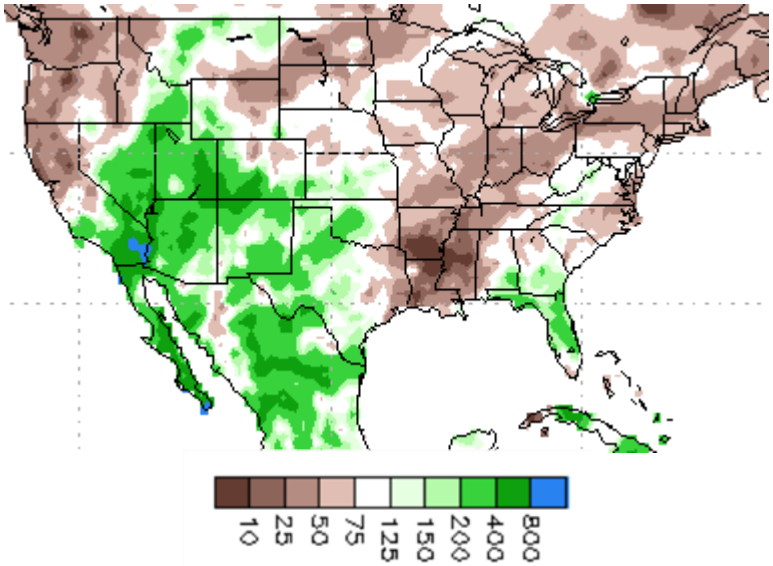
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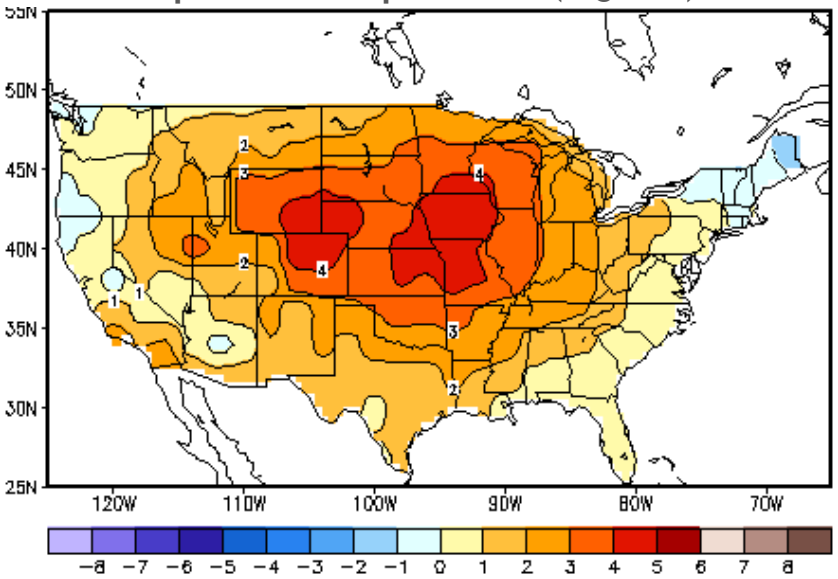
U.S. Temperature and Precipitation Departures During the Last 30 Days

End Date: 31 October 2026

Percent of Average Precipitation



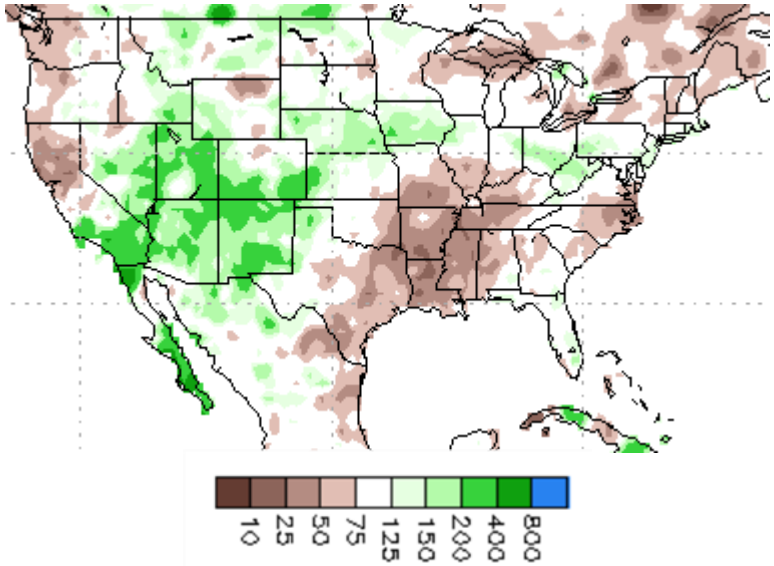
Temperature Departures (degree C)



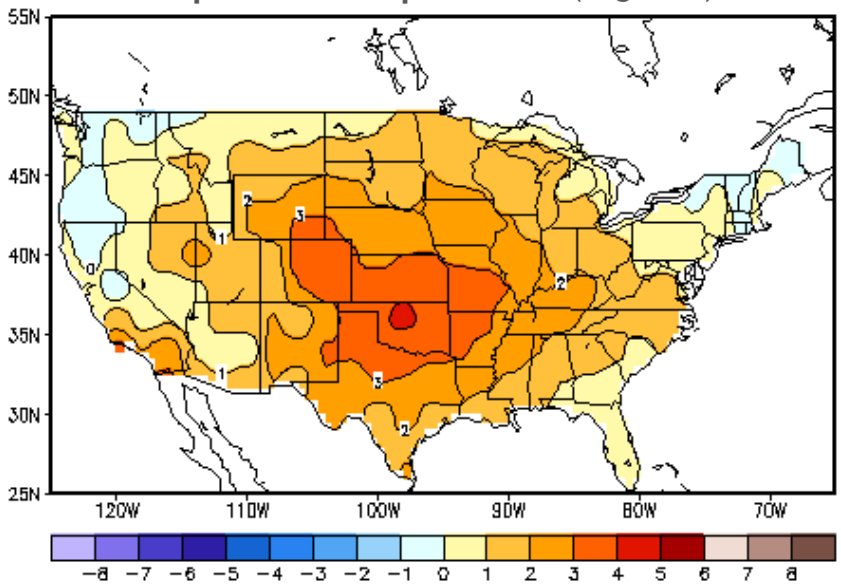
U.S. Temperature and Precipitation Departures During the Last 90 Days

End Date: 31 October 2026

Percent of Average Precipitation



Temperature Departures (degree C)

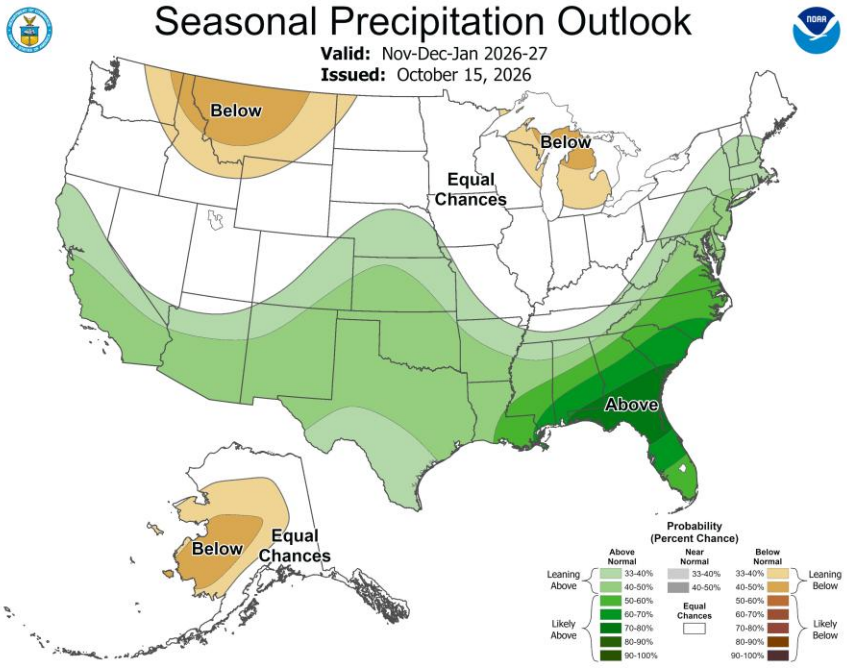


U. S. Seasonal Outlooks

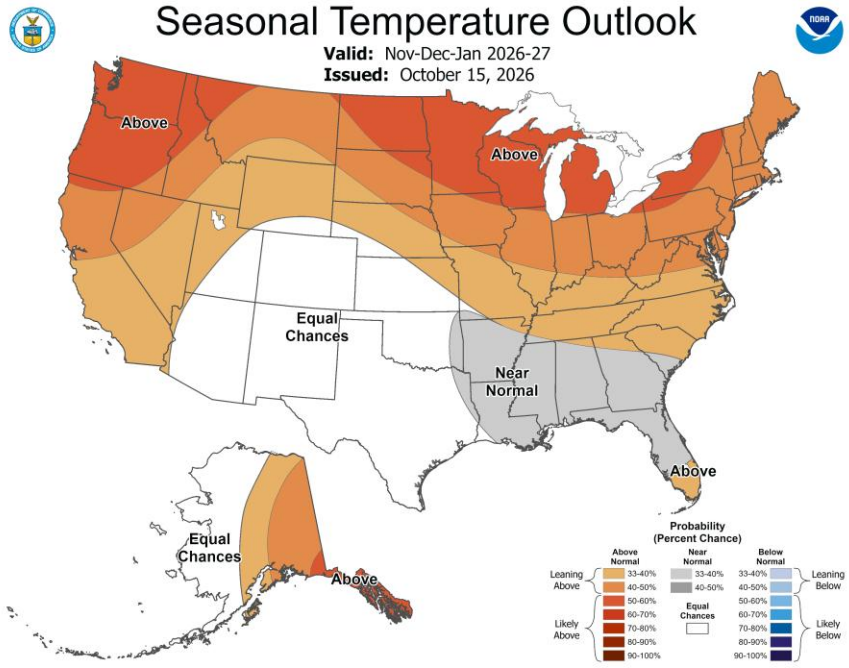
November 2026 - January 2027

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 is present.*

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

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

El Niño continues to strengthen, with a strong-to-very strong El Niño likely through January-March 2027 (remaining greater than an 83% chance).*

* 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.