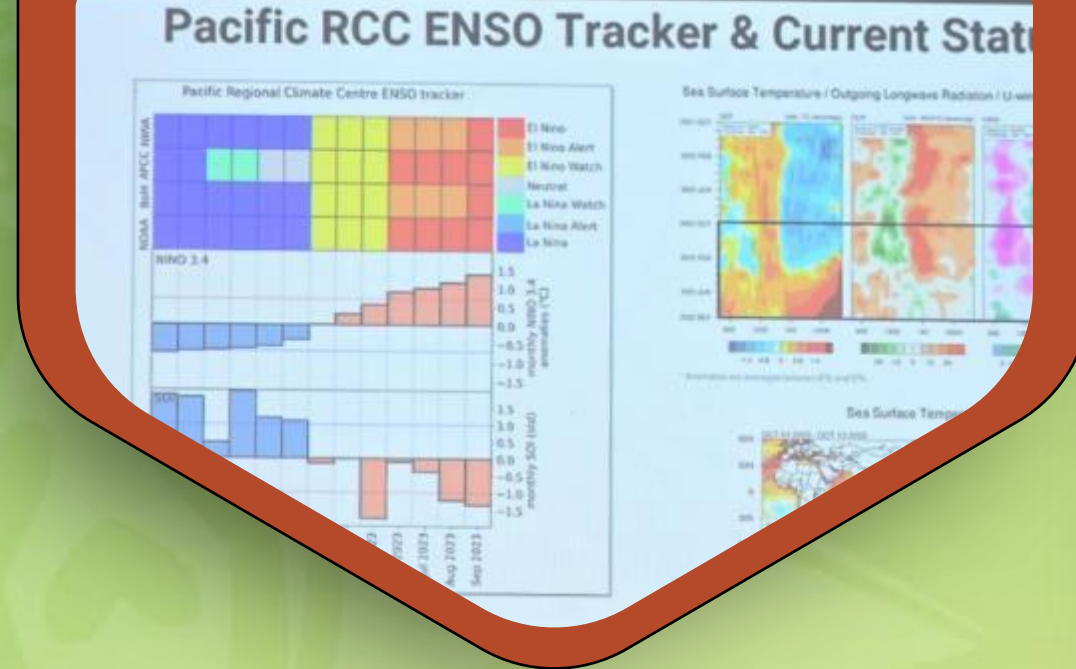




17th SESSION

PACIFIC ISLANDS CLIMATE OUTLOOK FORUM (PICOF-17)

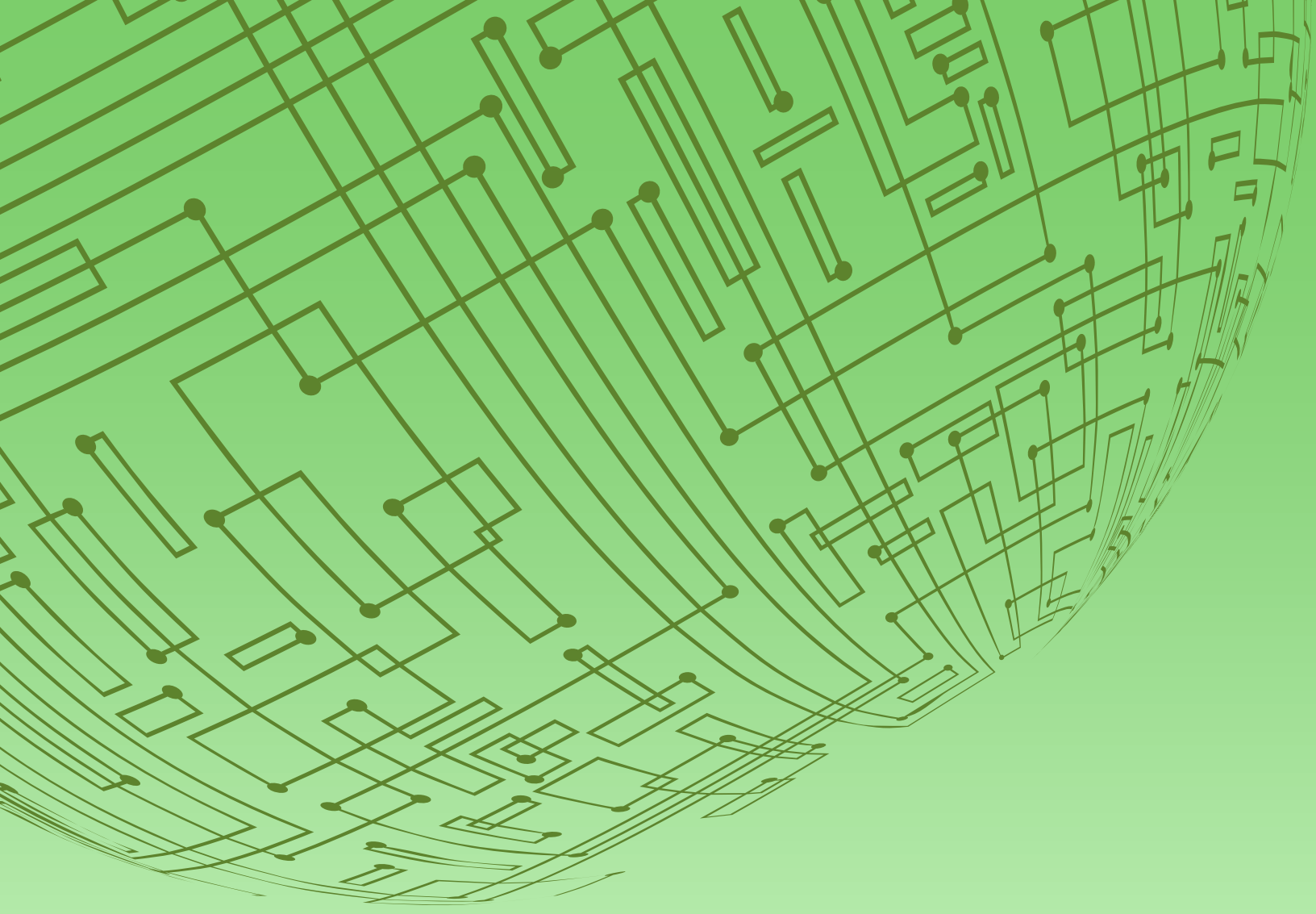
22 – 23 October, 2025

Port Vila, Vanuatu



COSPPac
Climate and Oceans Support Program in the Pacific





ENSO status and outlook

Dr. Nicolas Fauchereau (Principal Scientist, Climate & Analytics)

Dr. Hannah Marley (Climate Applications Specialist)

Earth Sciences New Zealand

Outline

1) Sea Surface Temperatures and ENSO indices

→ Relative Oceanic Niño Index (RONI)

2) Subsurface Temperature Anomalies and oceanic heat content anomalies

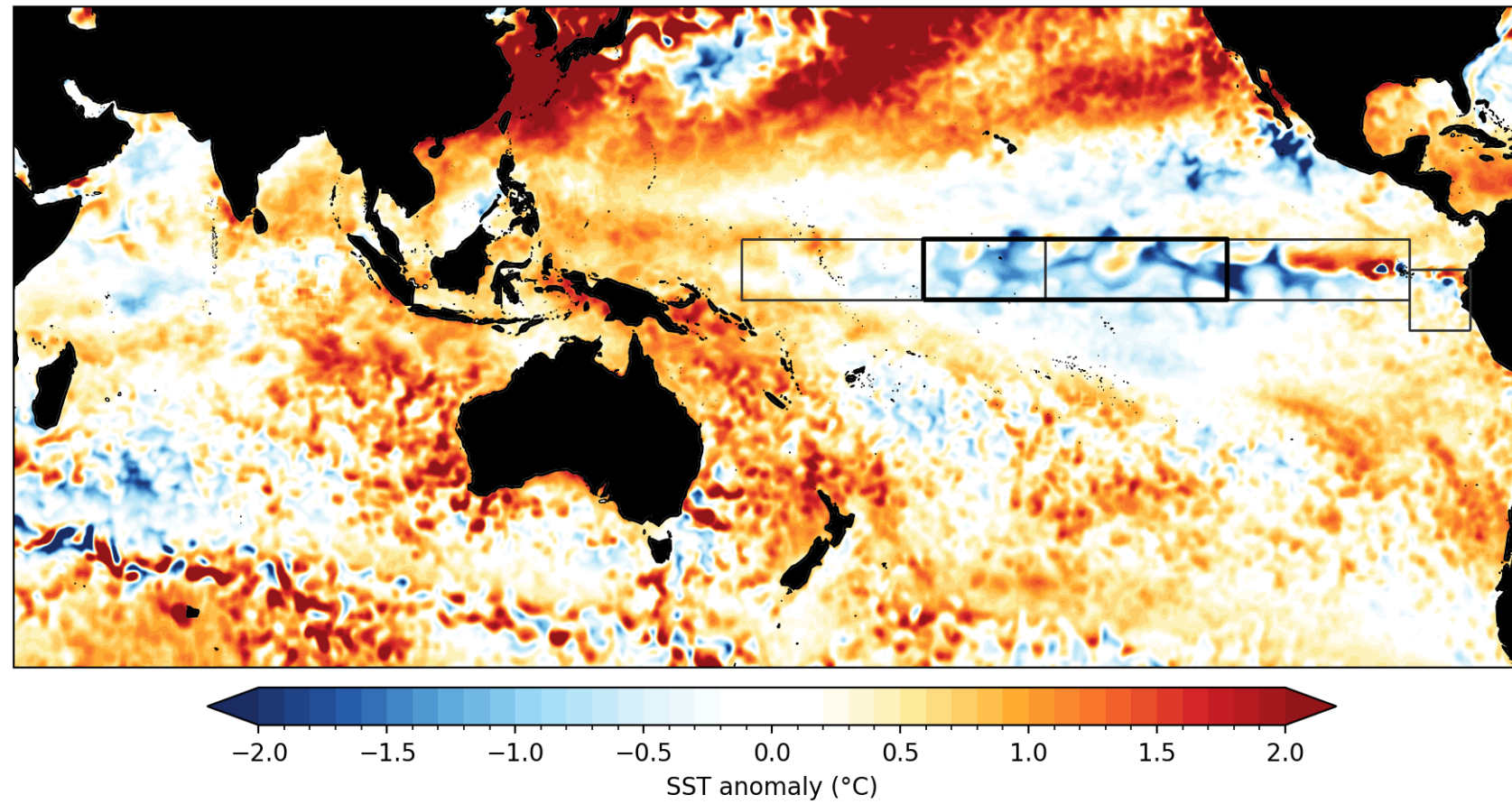
3) The atmosphere and the Southern Oscillation Index

4) Outlooks from dynamical models

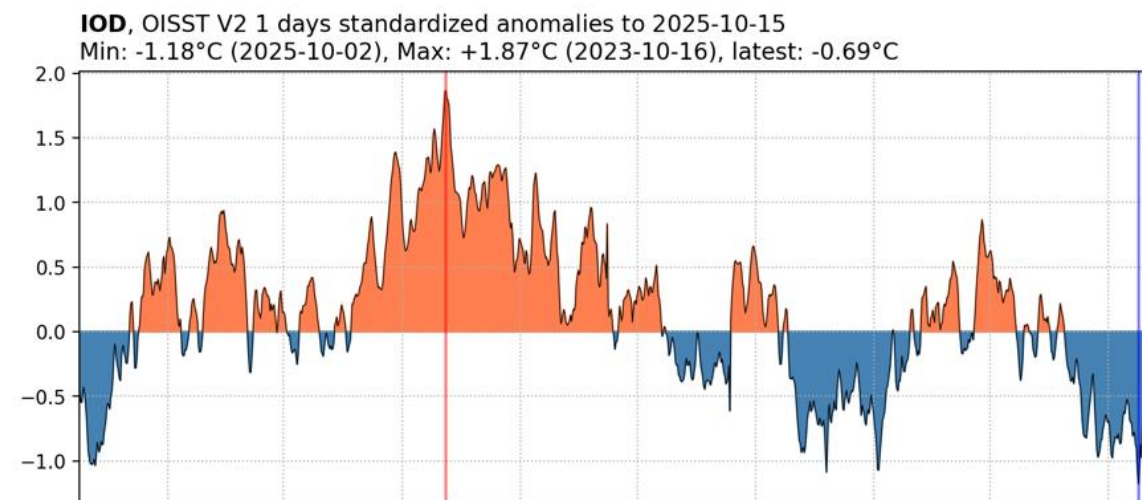
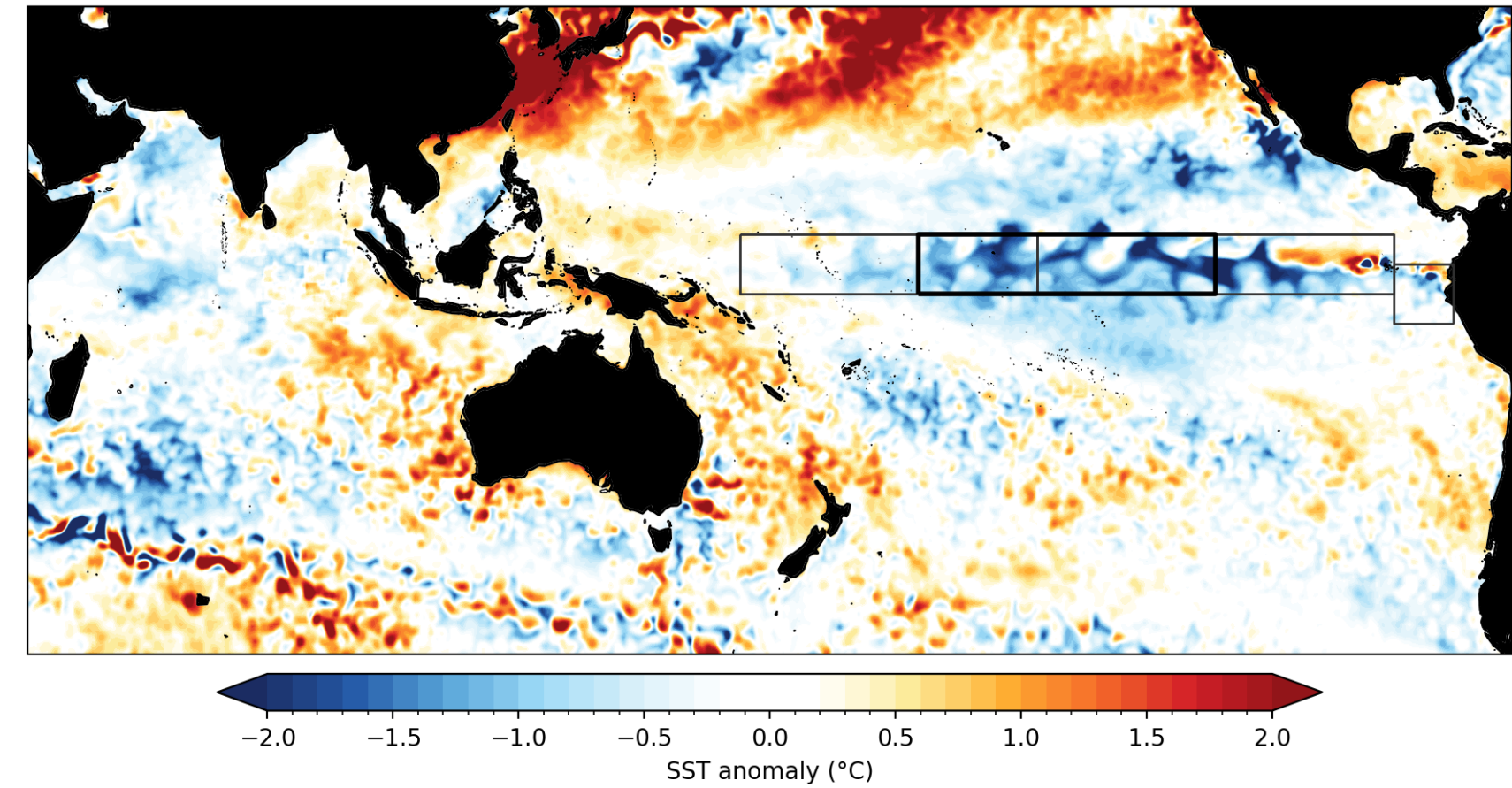
→ RONI forecasts

Sea Surface Temperatures and ENSO indices

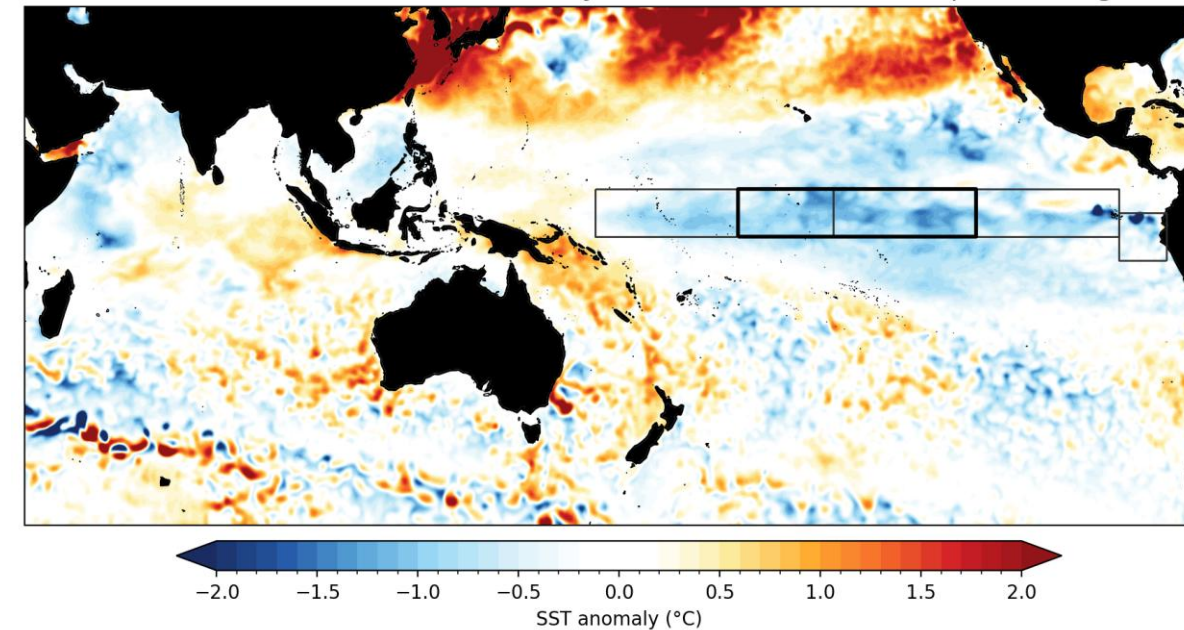
OISST v2 SST anomalies (°C), 2025-10-18



OISST v2 SST anomalies (°C), 2025-10-18, minus tropical average



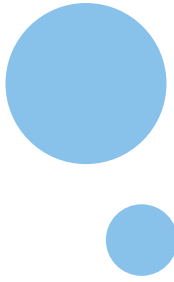
OISST v2 SST anomalies (°C), 30 days to 2025-10-18, minus tropical average



La Nina-like
patterns currently
evident in SST
anomalies

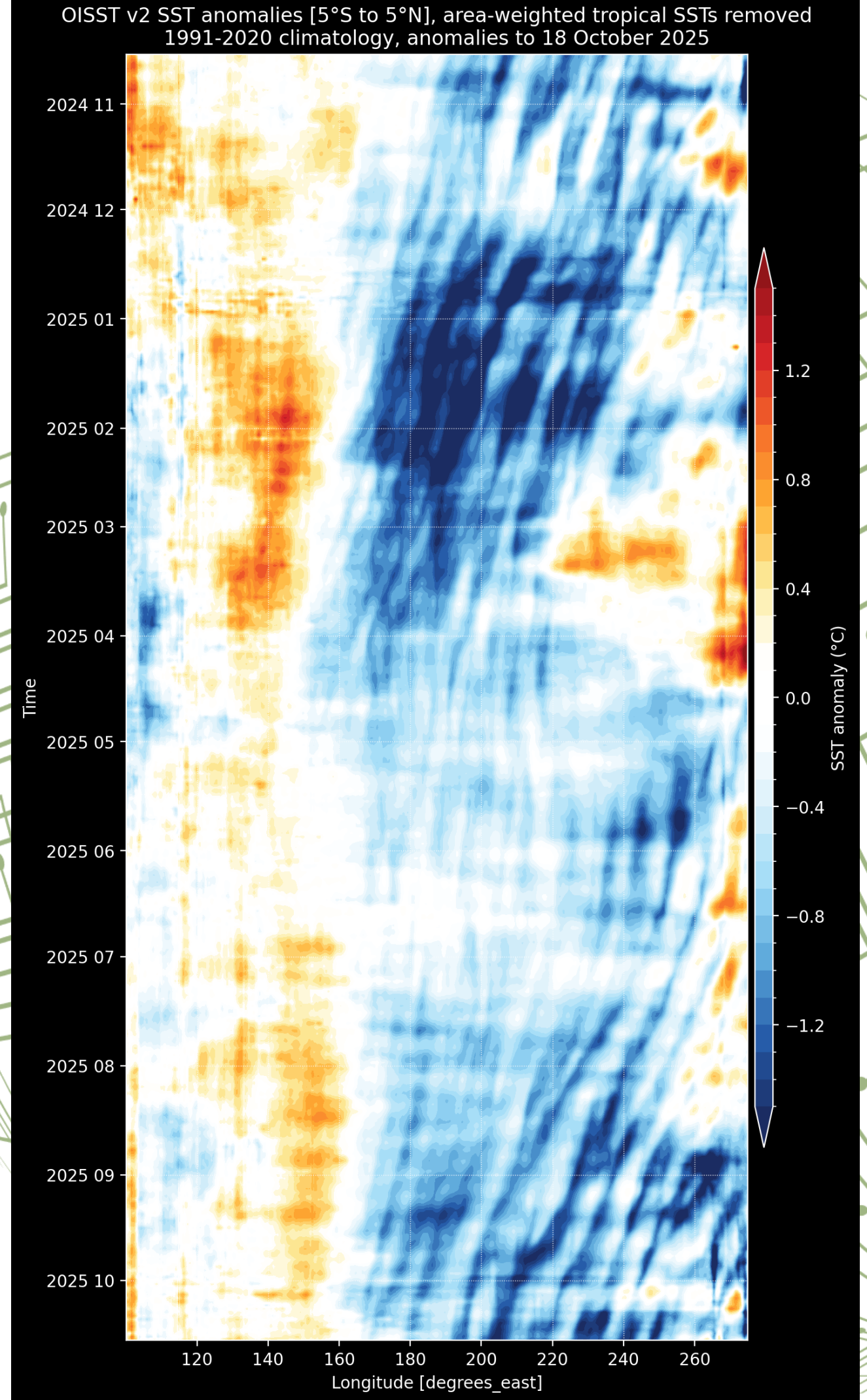
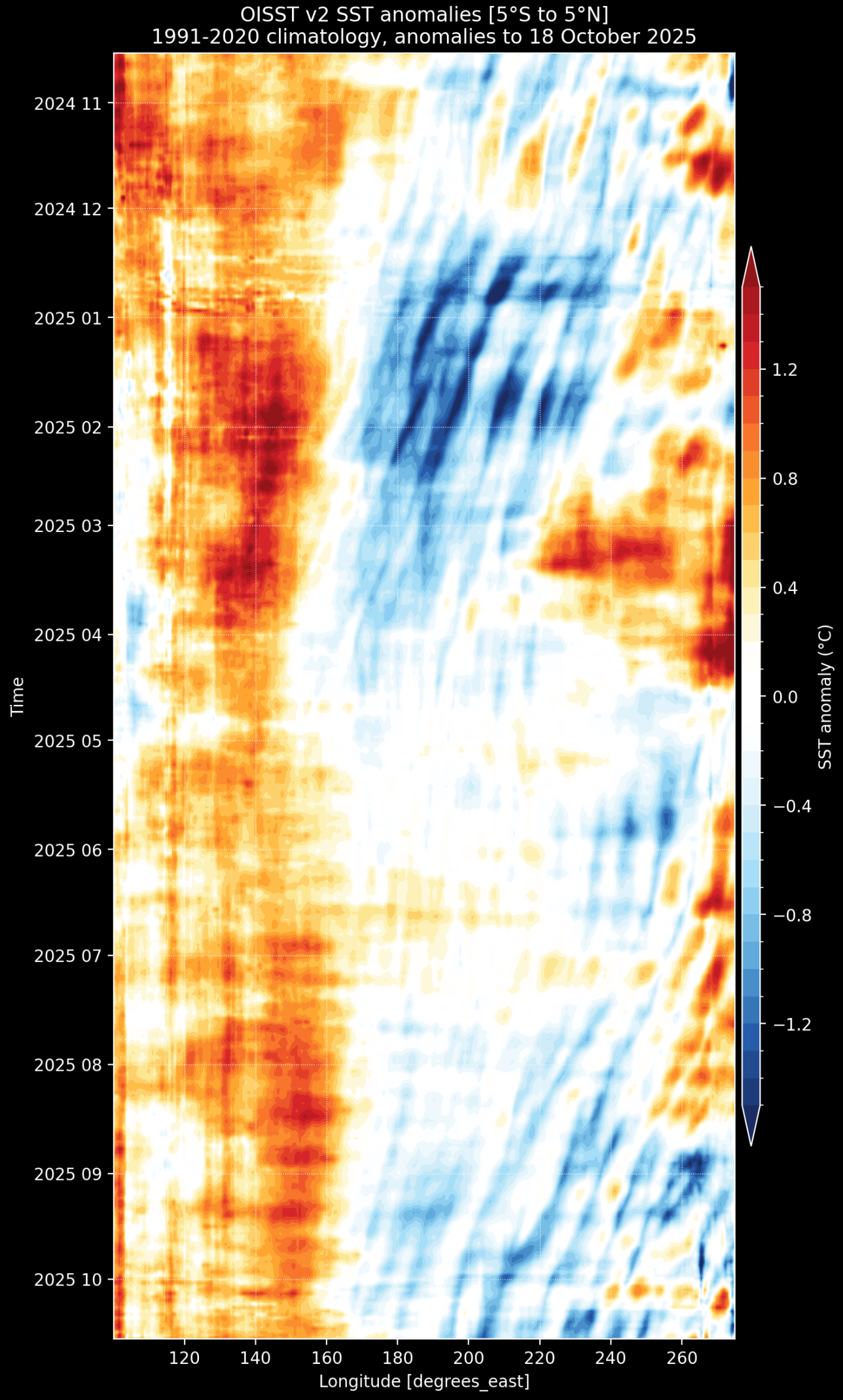
Evolution of SST anomalies along the Equator about similar to same period in 2024

‘double-dip’ La Niña likely



Current SST anomalies

Source: OISST version 2, daily



Sea Surface Temperatures and ENSO indices

SST anomalies in all Niño regions are currently **negative**

Latest 30 days value for Niño 3.4 is -0.47°C

The **Relative Oceanic Niño Index** is a better indicator of oceanic ENSO state

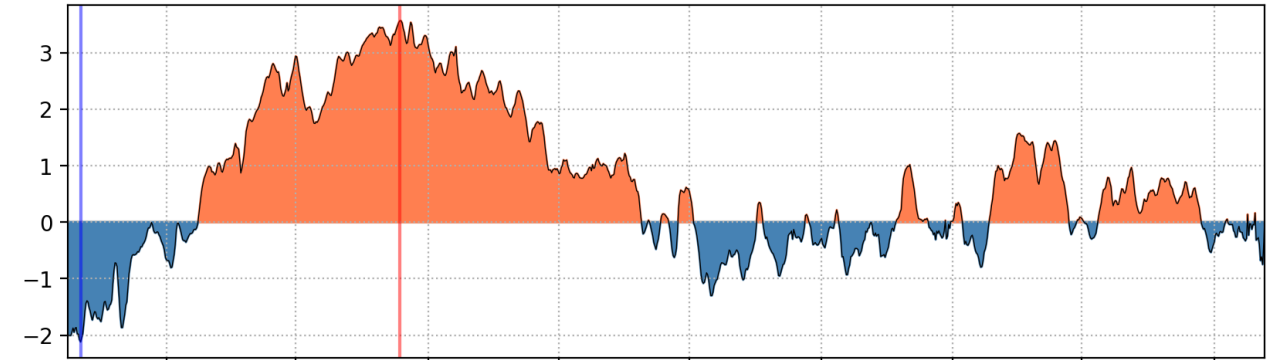
The BoM has transitioned to the **RONI** for monitoring and forecasting

See: [Relative Niño – a new way to measure El Niño–Southern Oscillation | The Bureau of Meteorology](#)

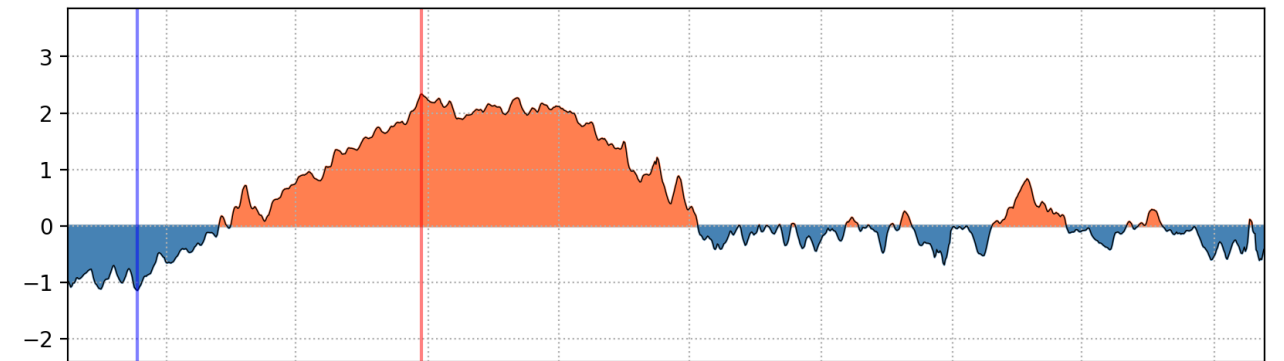
Earth Sciences New Zealand Press Release:

[Warming oceans prompt major overhaul of how we monitor El Niño and La Niña | Earth Sciences New Zealand | NIWA](#)

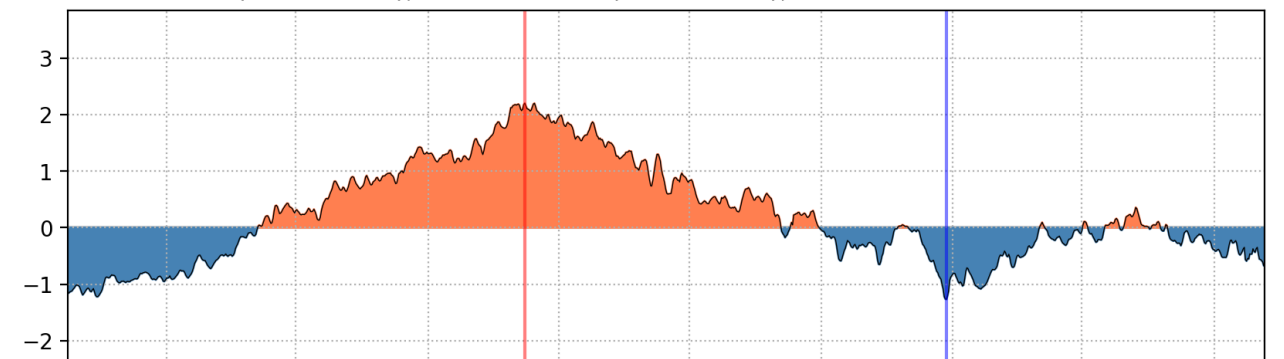
NINO 1 + 2 OISST V2 1 days anomalies to 2025-10-18
Min: -2.12°C (2022-10-13), Max: $+3.57^{\circ}\text{C}$ (2023-08-06), latest: $+0.13^{\circ}\text{C}$



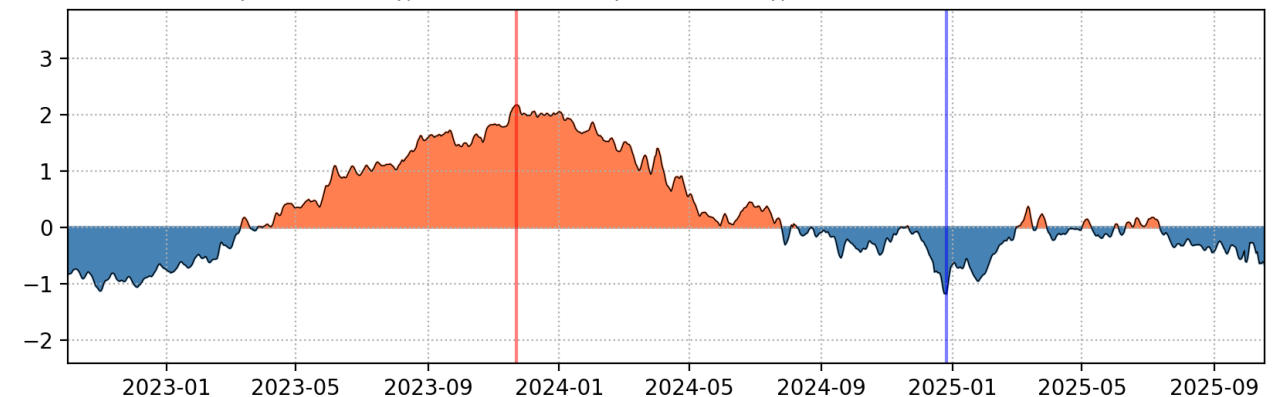
NINO 3 OISST V2 1 days anomalies to 2025-10-18
Min: -1.14°C (2022-12-05), Max: $+2.34^{\circ}\text{C}$ (2023-08-26), latest: -0.42°C



NINO 4 OISST V2 1 days anomalies to 2025-10-18
Min: -1.27°C (2024-12-26), Max: $+2.20^{\circ}\text{C}$ (2023-11-30), latest: -0.67°C



NINO 3.4 OISST V2 1 days anomalies to 2025-10-18
Min: -1.18°C (2024-12-26), Max: $+2.17^{\circ}\text{C}$ (2023-11-22), latest: -0.68°C



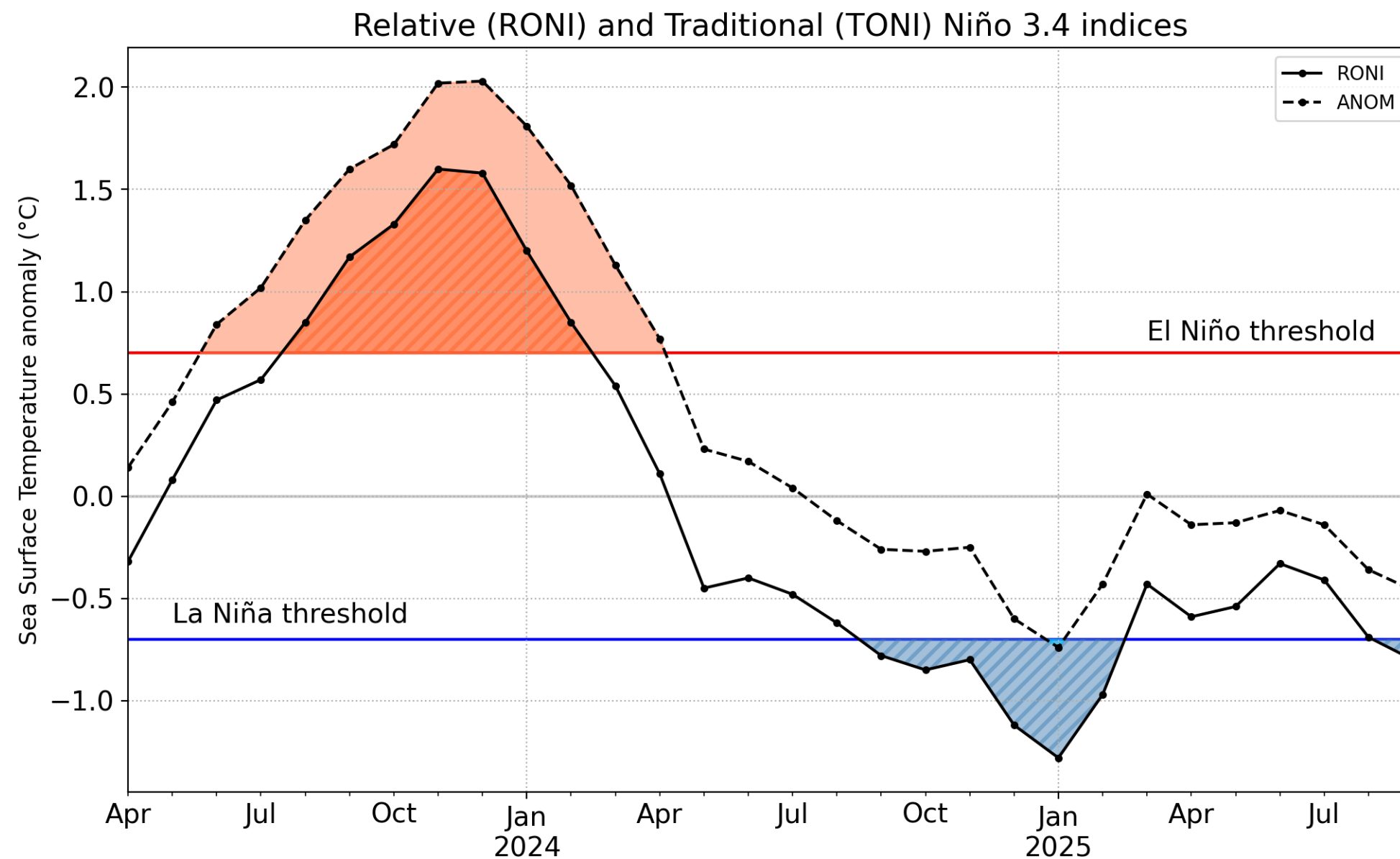
Relative Oceanic Nino Index (RONI)

OFFICIAL

RONI and TONI from the NOAA / CPC

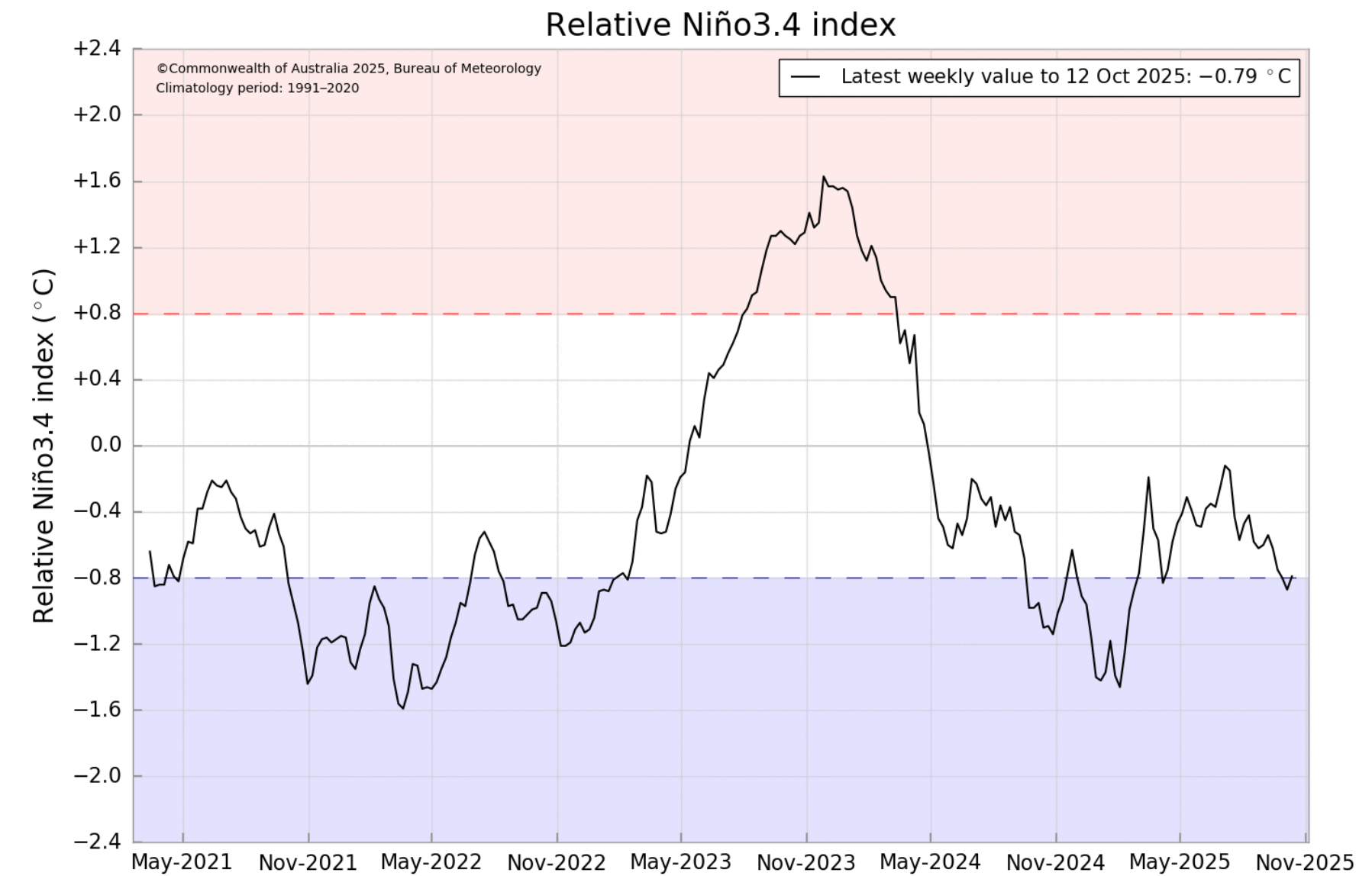
<https://www.cpc.ncep.noaa.gov/data/indices/Rnino34.ascii.txt>

<https://www.cpc.ncep.noaa.gov/data/indices/ersst5.nino.mth.91-20.ascii>



RONI from the BoM

[Southern hemisphere monitoring](#)

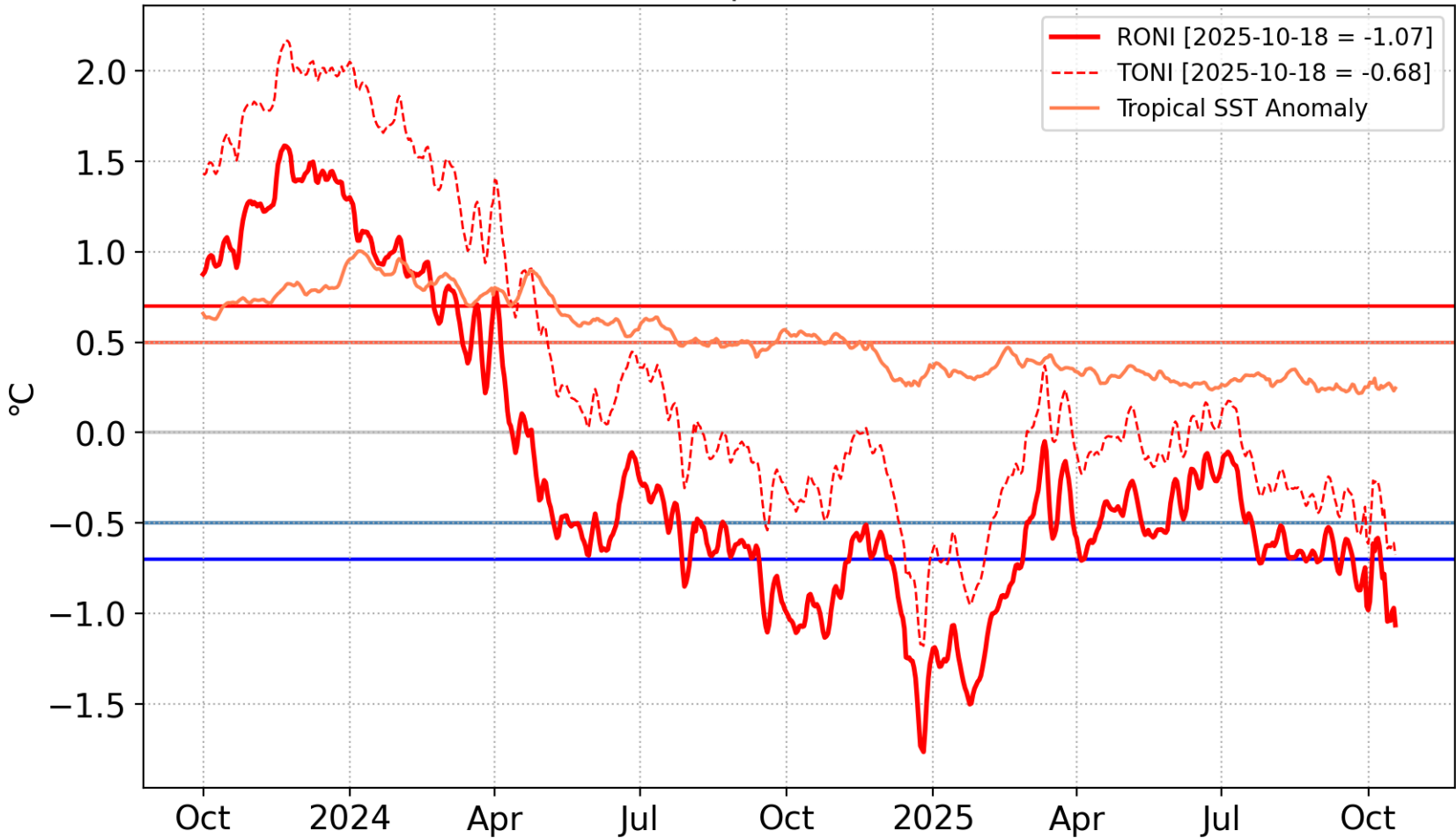


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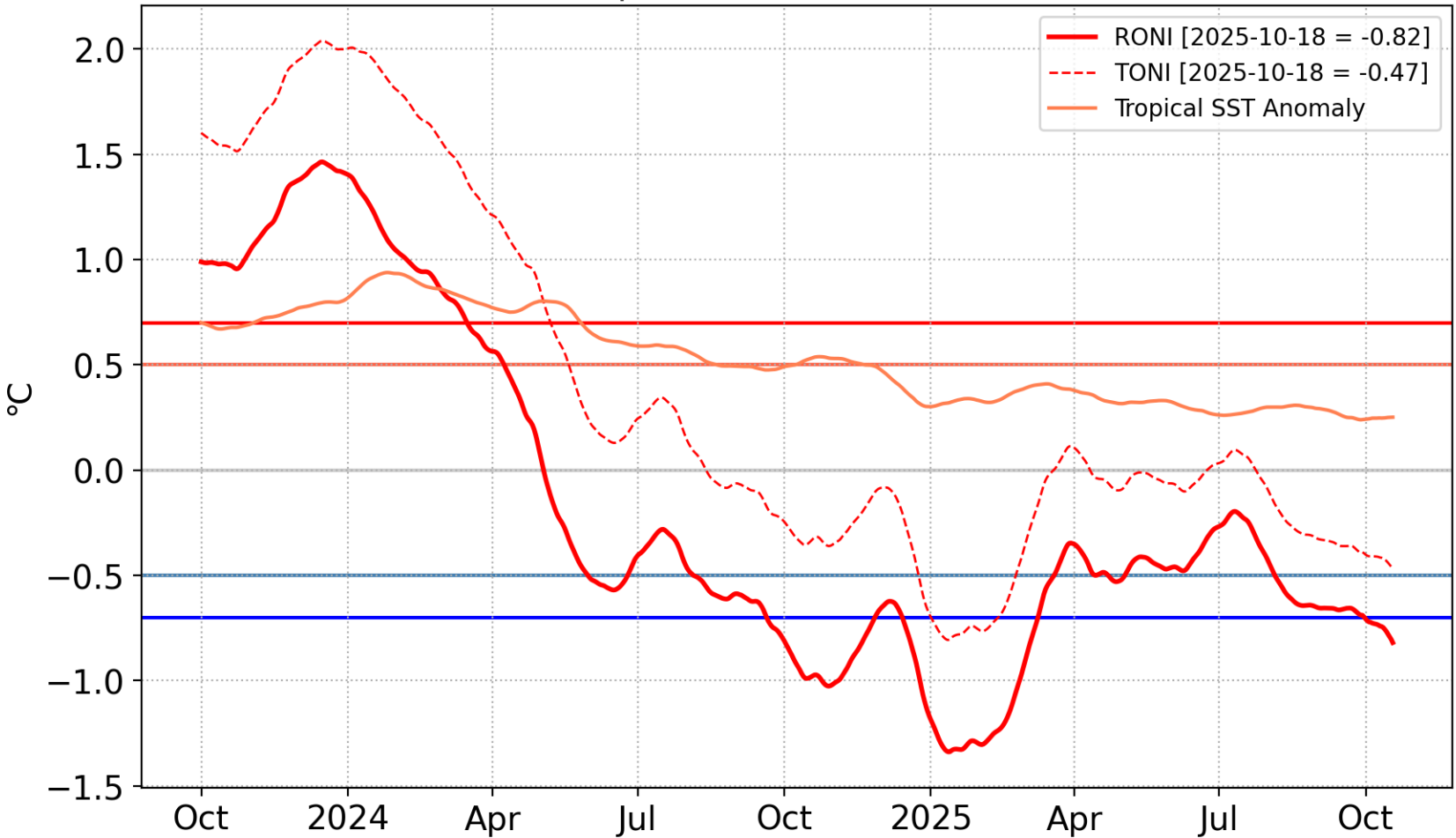
Relative Oceanic Nino Index (RONI)

OFFICIAL

Traditional Nino3.4 (TONI) and Relative Nino3.4 (RONI)
Source: OISSTv2.1 | Daily, ending 2025-10-18



Traditional Nino3.4 (TONI) and Relative Nino3.4 (RONI)
Source: OISSTv2.1 | 30 days average, ending 2025-10-18



Current SST anomalies

Source: OISST version 2, daily

OFFICIAL

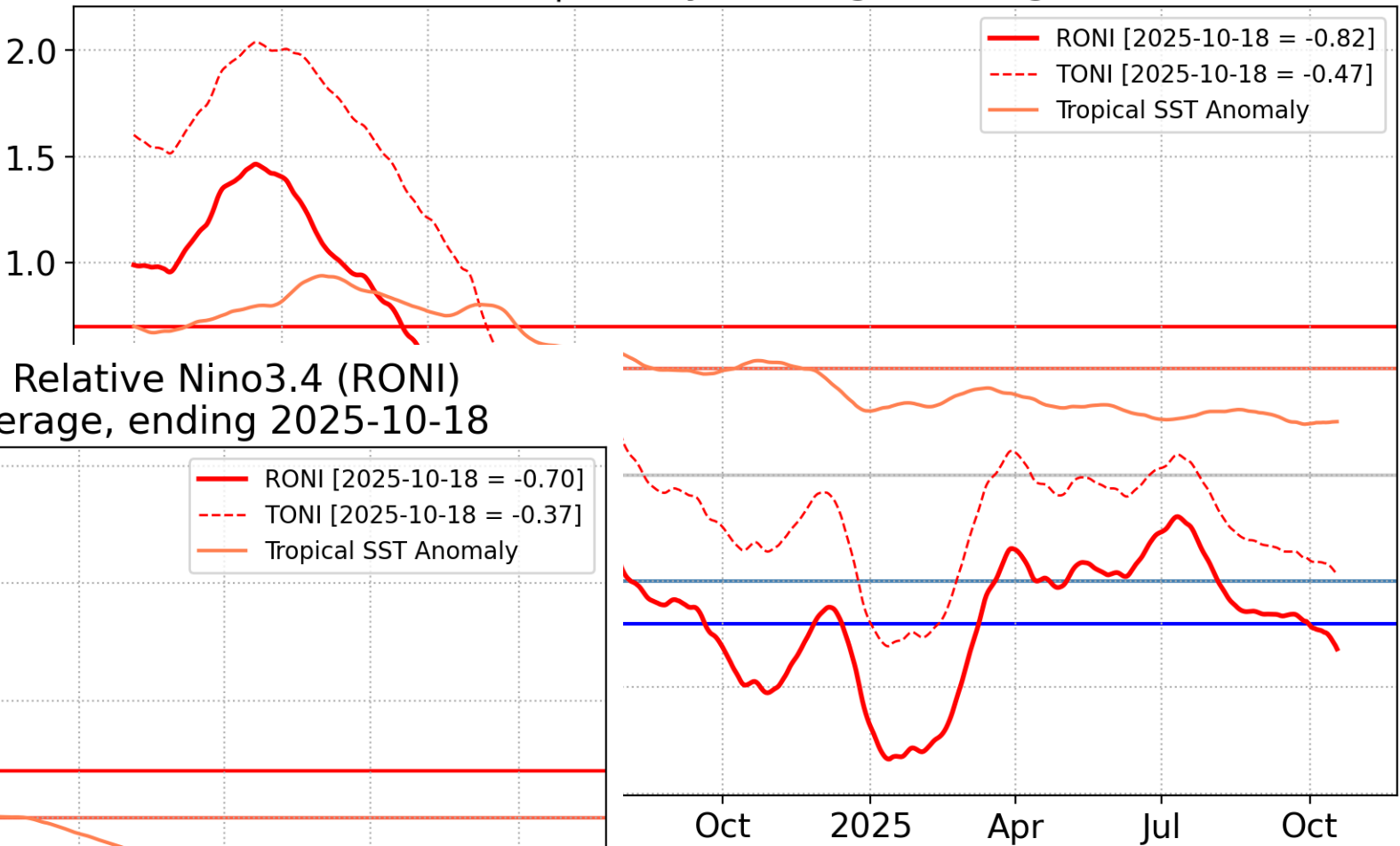
Relative Oceanic Nino Index (RONI)

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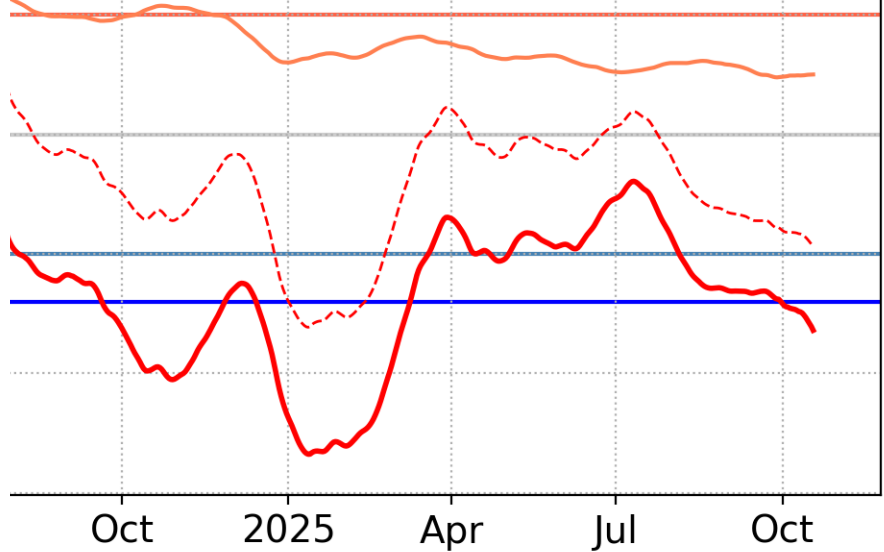
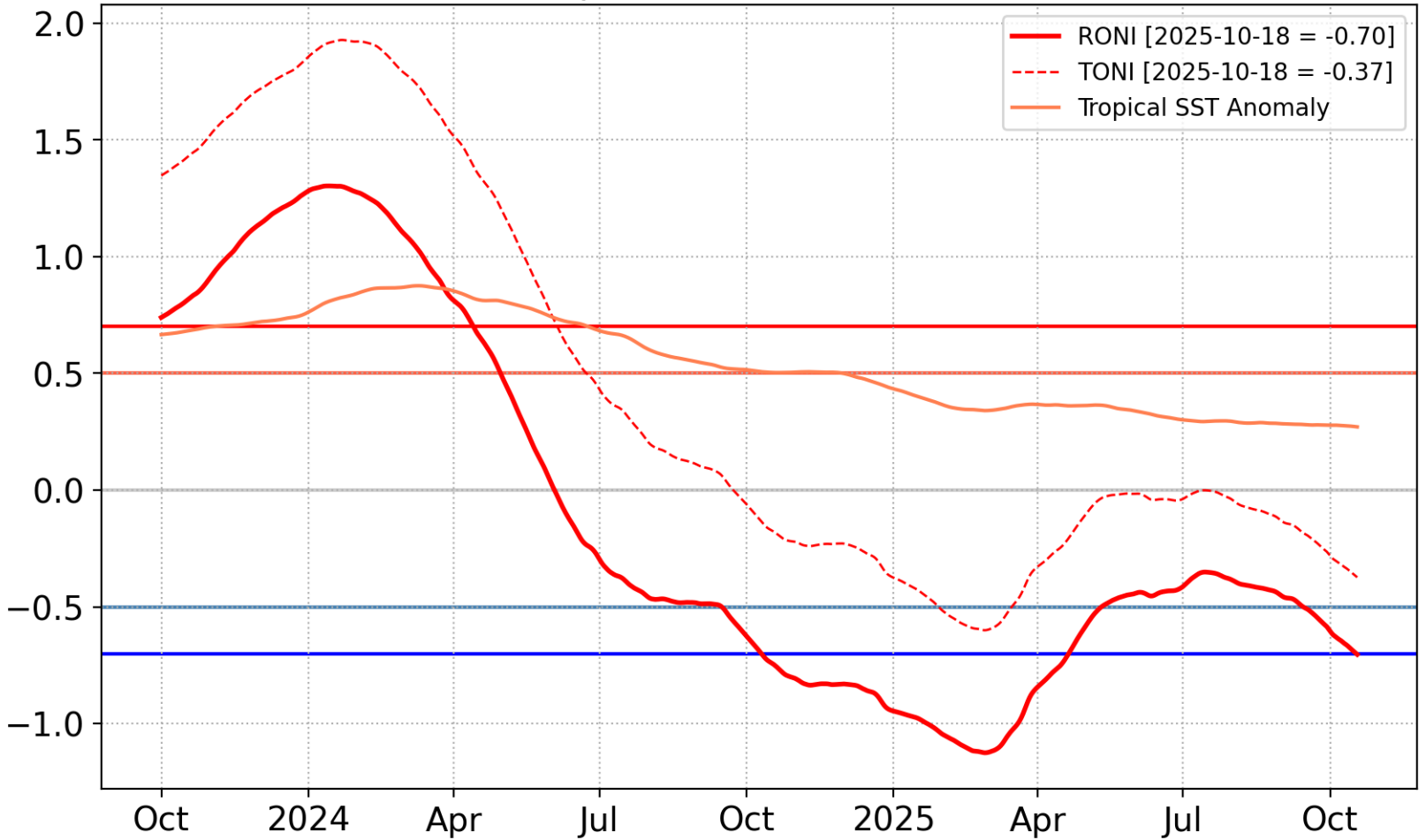
Traditional Nino3.4 (TONI) and Relative Nino3.4 (RONI)
Source: OISSTv2.1 | Daily, ending 2025-10-18



Traditional Nino3.4 (TONI) and Relative Nino3.4 (RONI)
Source: OISSTv2.1 | 30 days average, ending 2025-10-18



Traditional Nino3.4 (TONI) and Relative Nino3.4 (RONI)
Source: OISSTv2.1 | 90 days average, ending 2025-10-18



Current SST anomalies

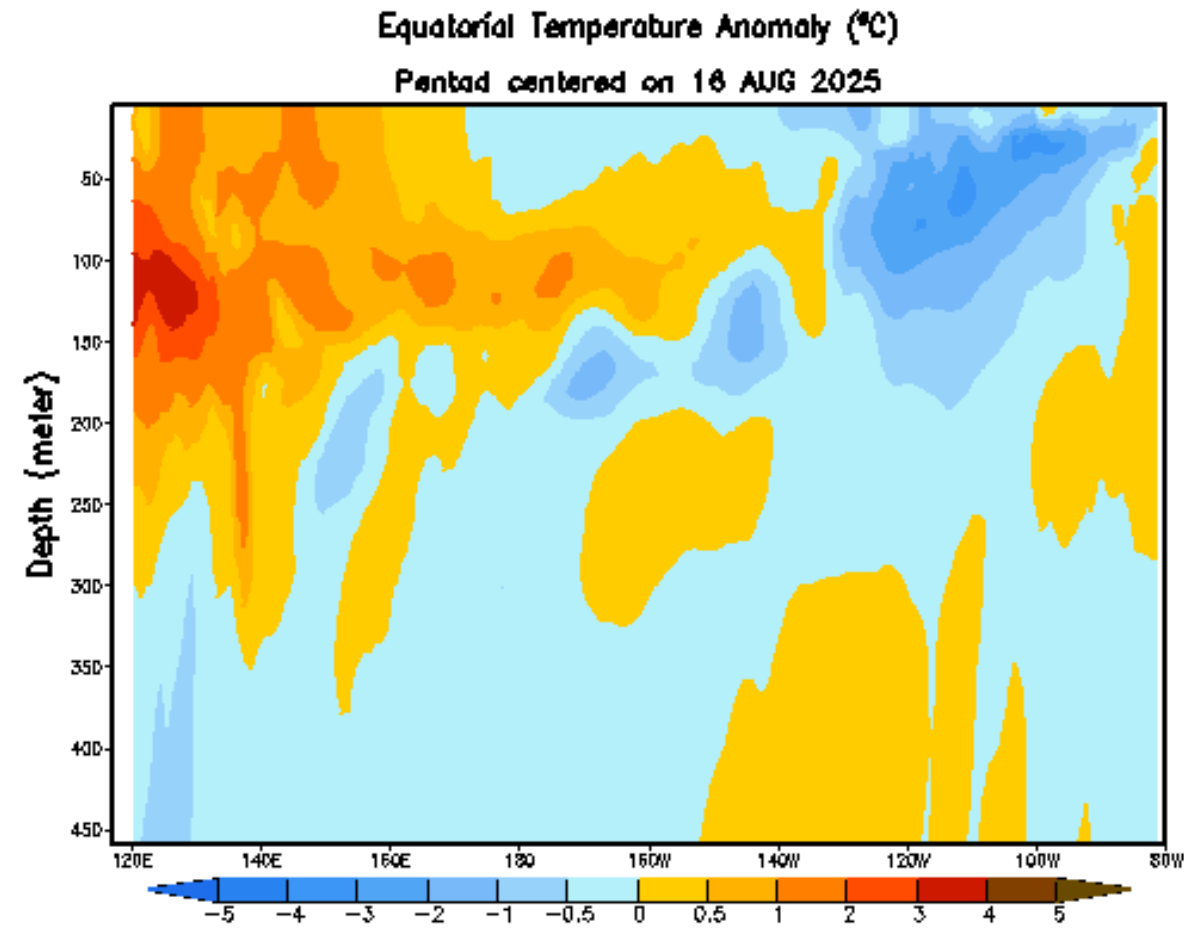
Source: OISST version 2, daily



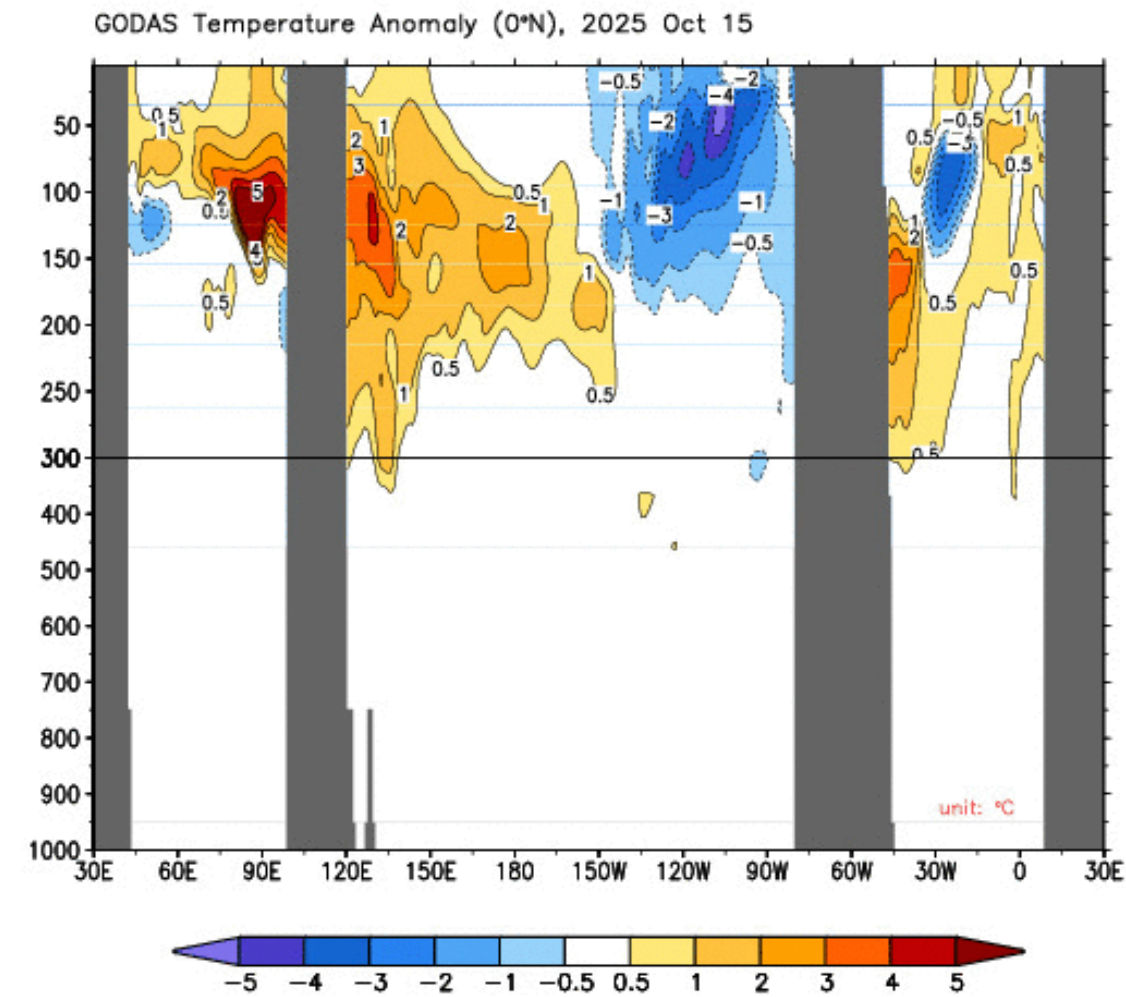
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Subsurface Temperature Anomalies and oceanic heat content anomalies

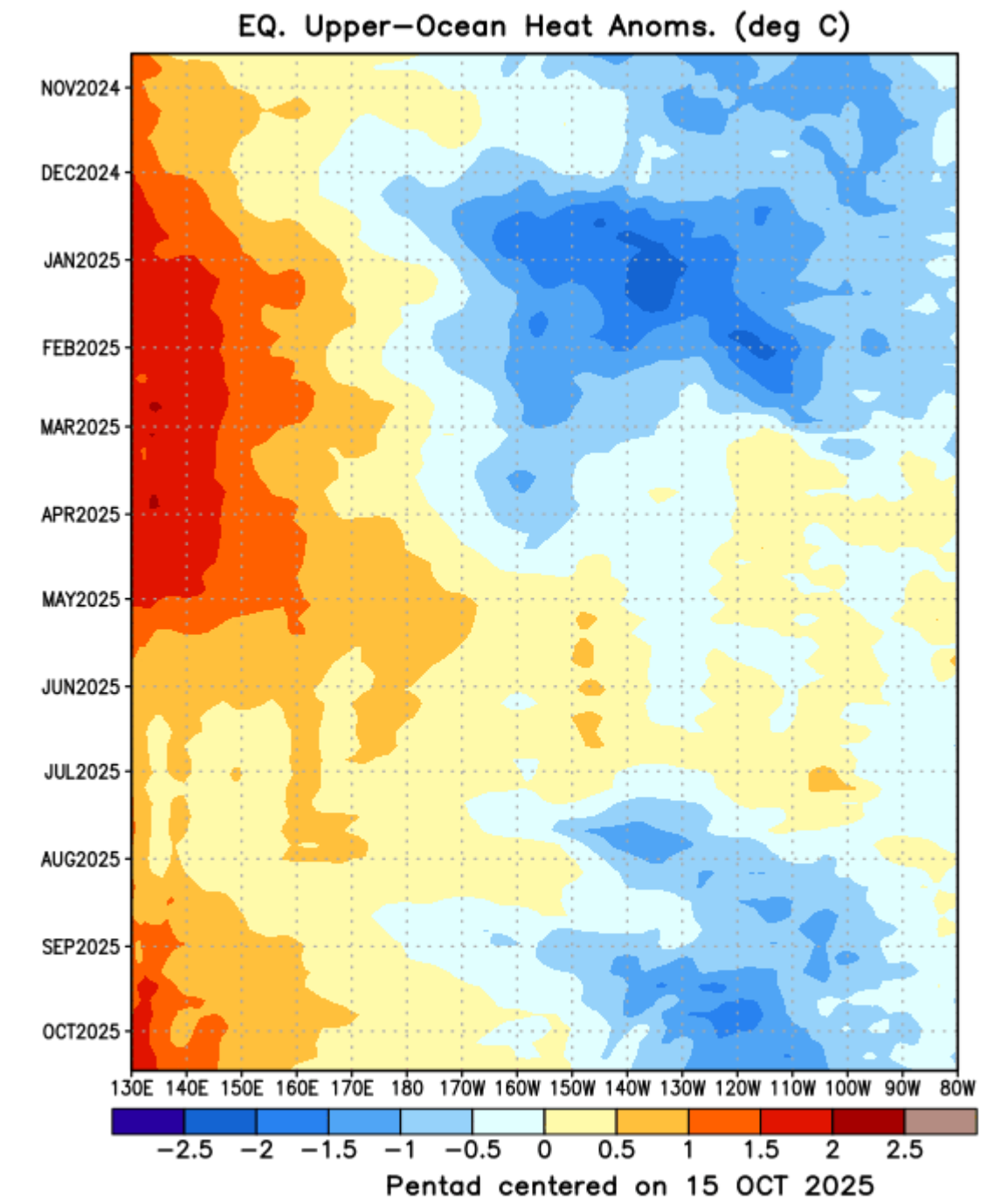
https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_update/wkxzteq.shtml



<https://www.cpc.ncep.noaa.gov/products/GODAS/pentad.shtml>

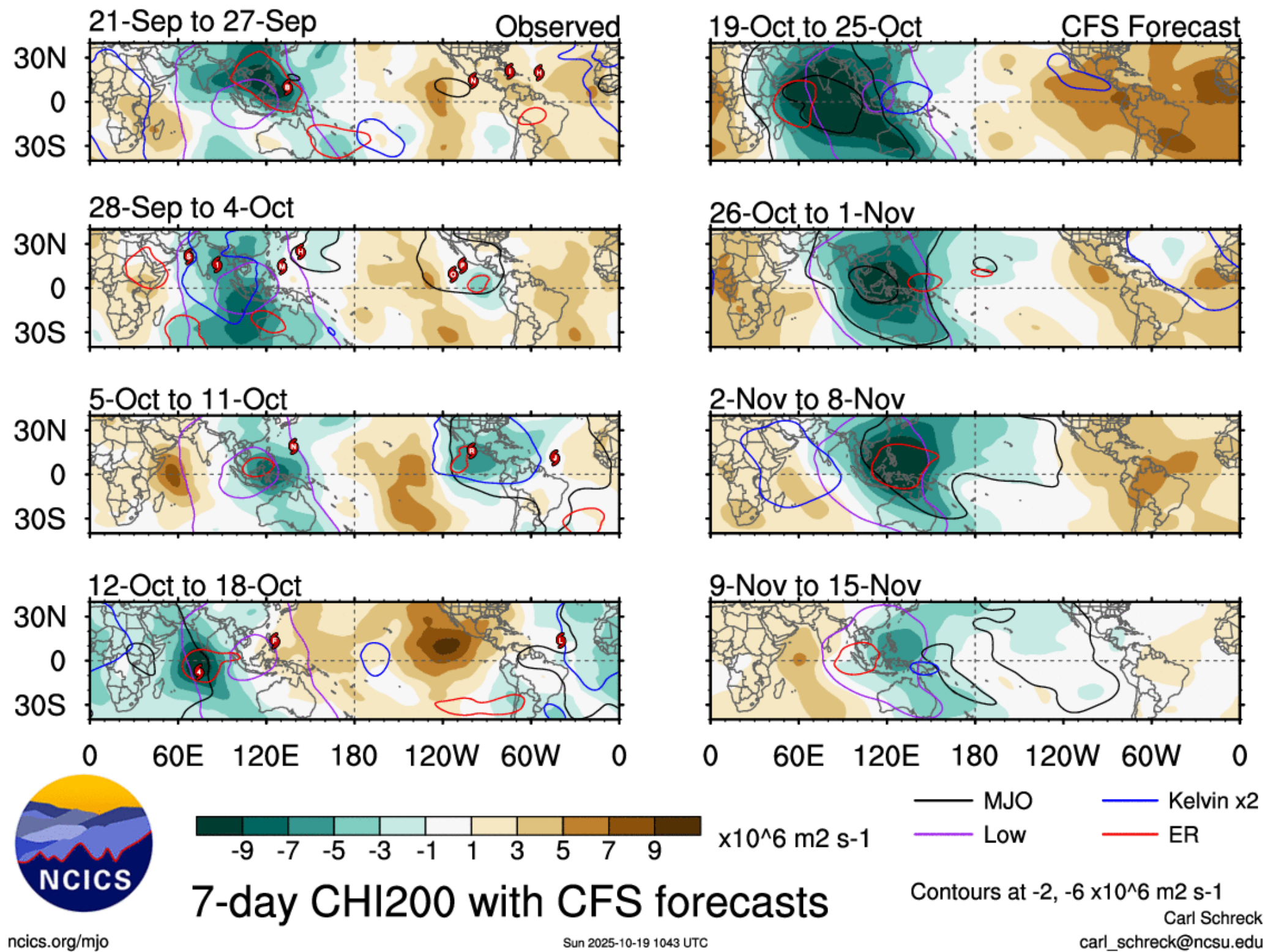
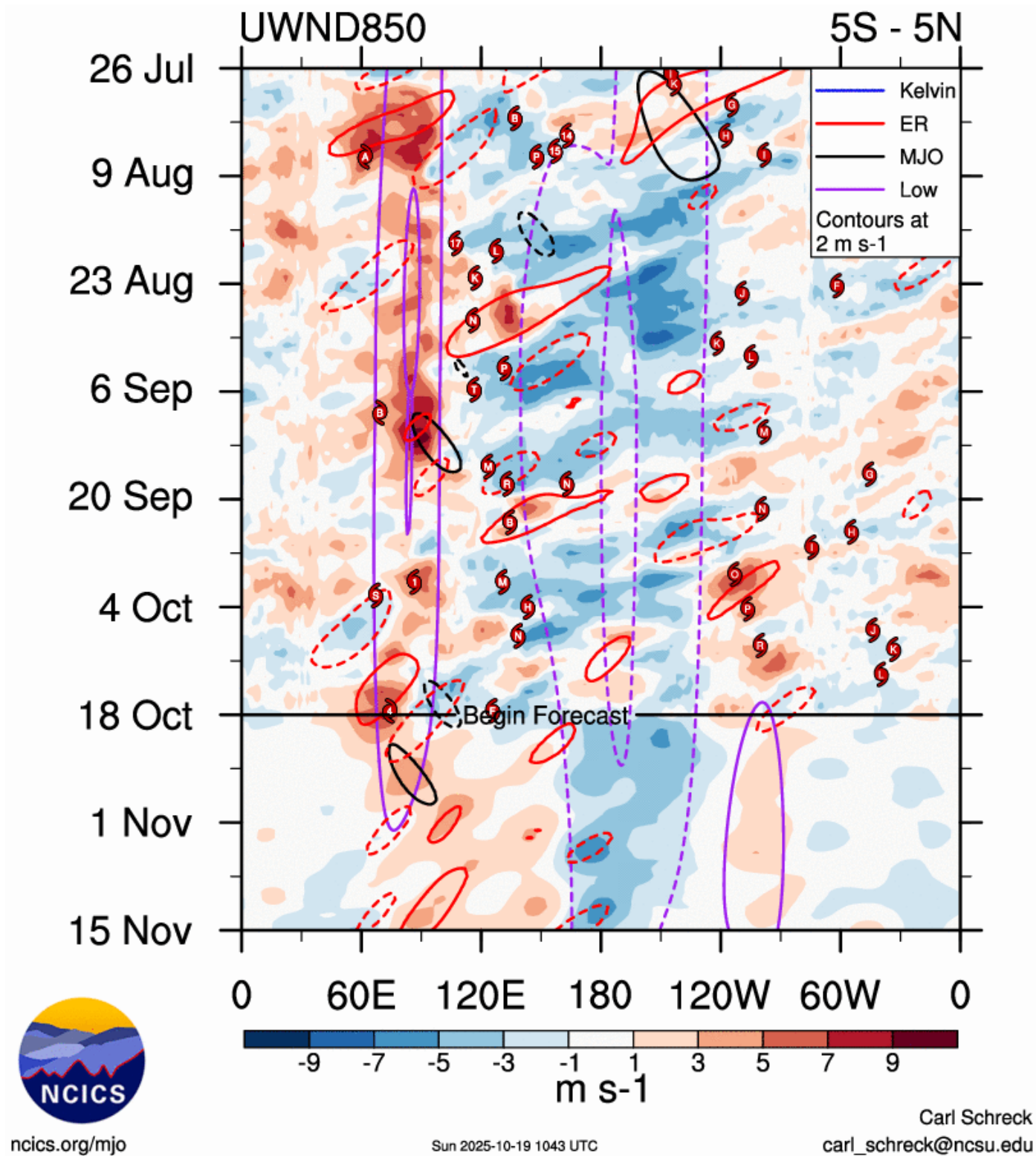


https://www.cpc.ncep.noaa.gov/products/intraseasonal/heat_tlon.shtml



The atmosphere and the Southern Oscillation Index

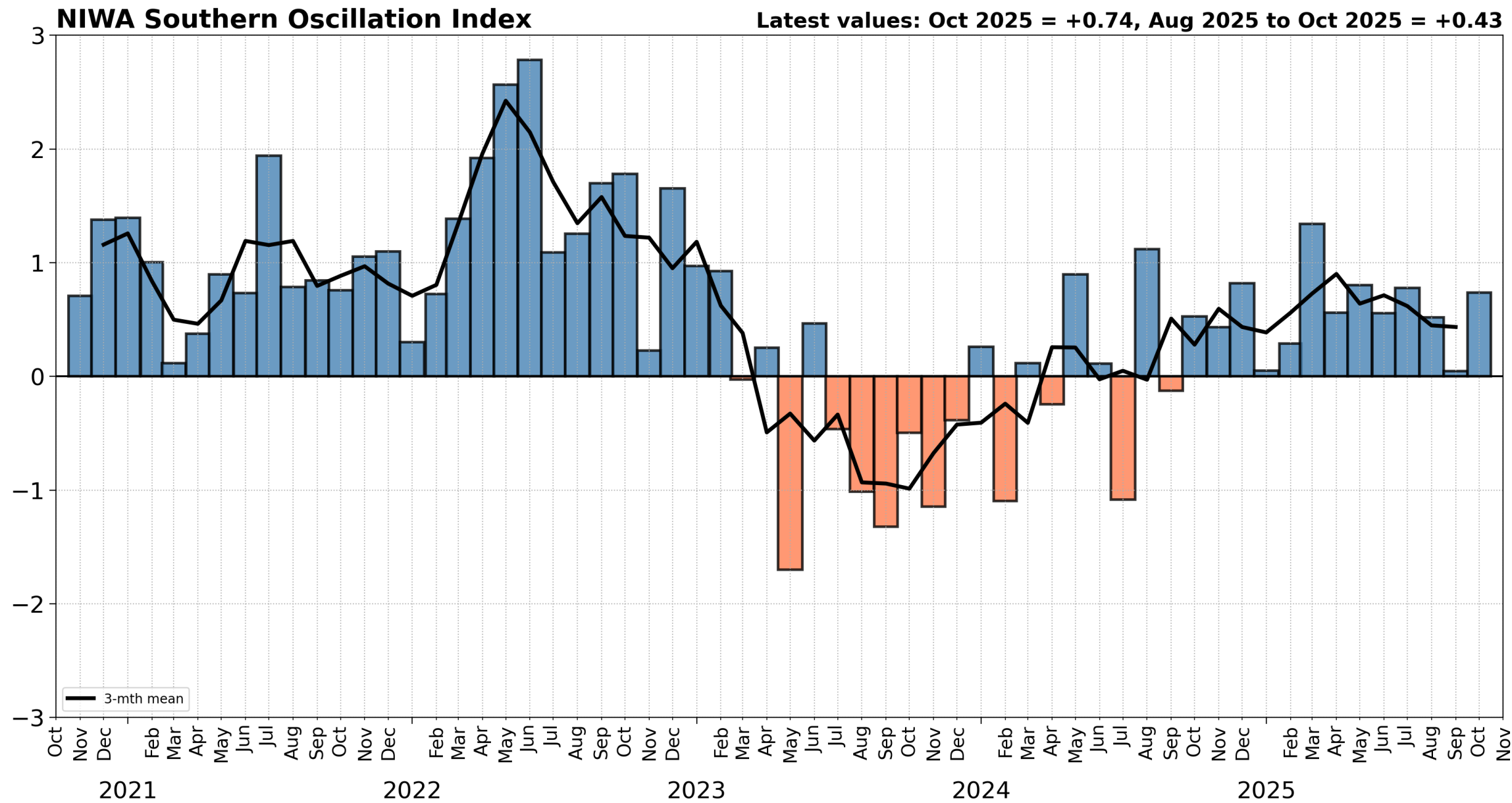
OFFICIAL



7-day CHI200 with CFS forecasts

OFFICIAL

The atmosphere and the Southern Oscillation Index



Zonal wind anomalies indicate stronger than normal Trade Winds

Large scale circulation patterns consistent with enhanced Walker Circulation

Southern Oscillation returned to more positive values in October

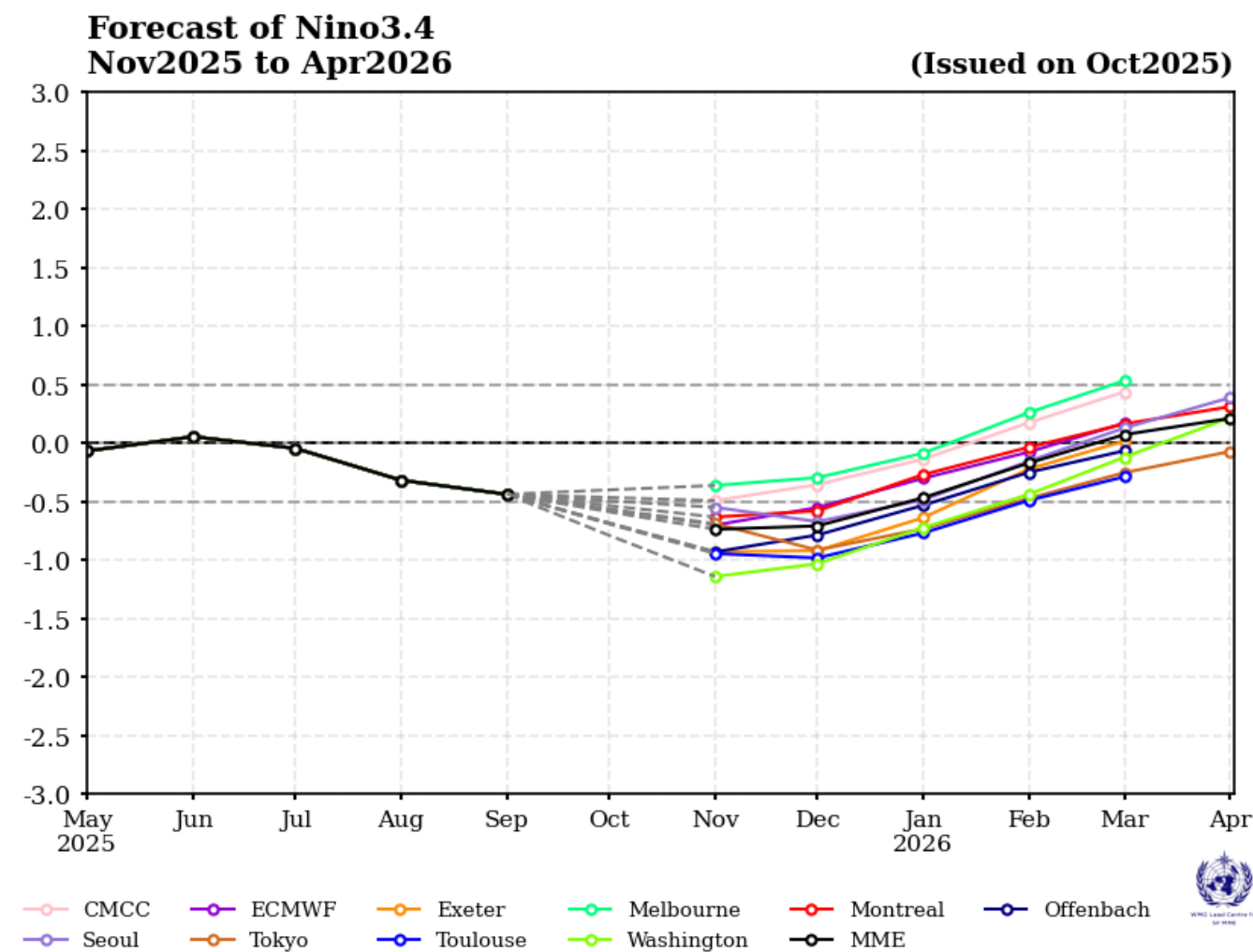
Summary:

Atmospheric anomalies patterns are consistent with La Niña-like conditions

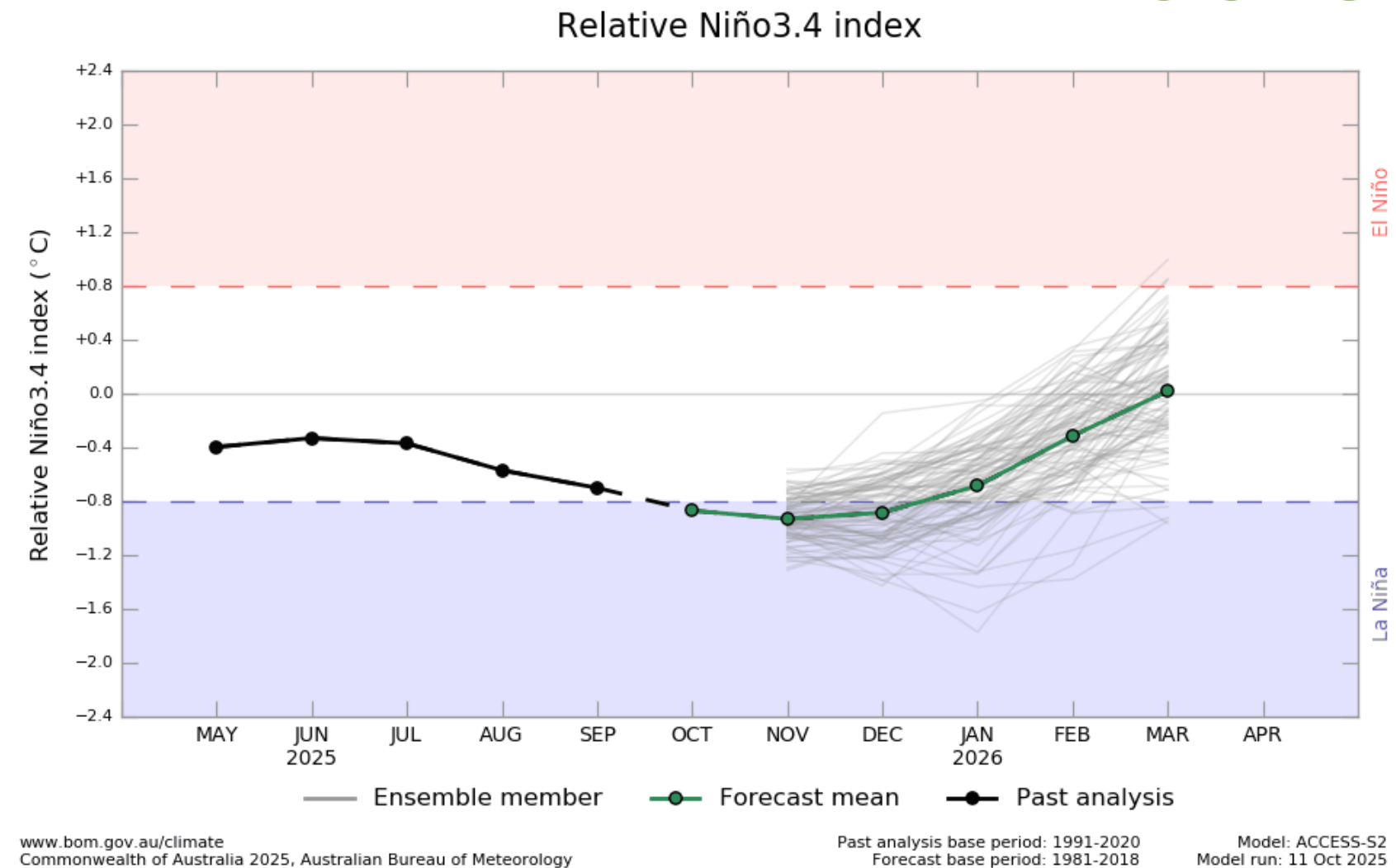
Outlooks from dynamical models

WMO LRF

https://www.wmolc.org/seasonIndicesUI/plot_Indices#



Australian BoM (ACCESS-S ensemble)

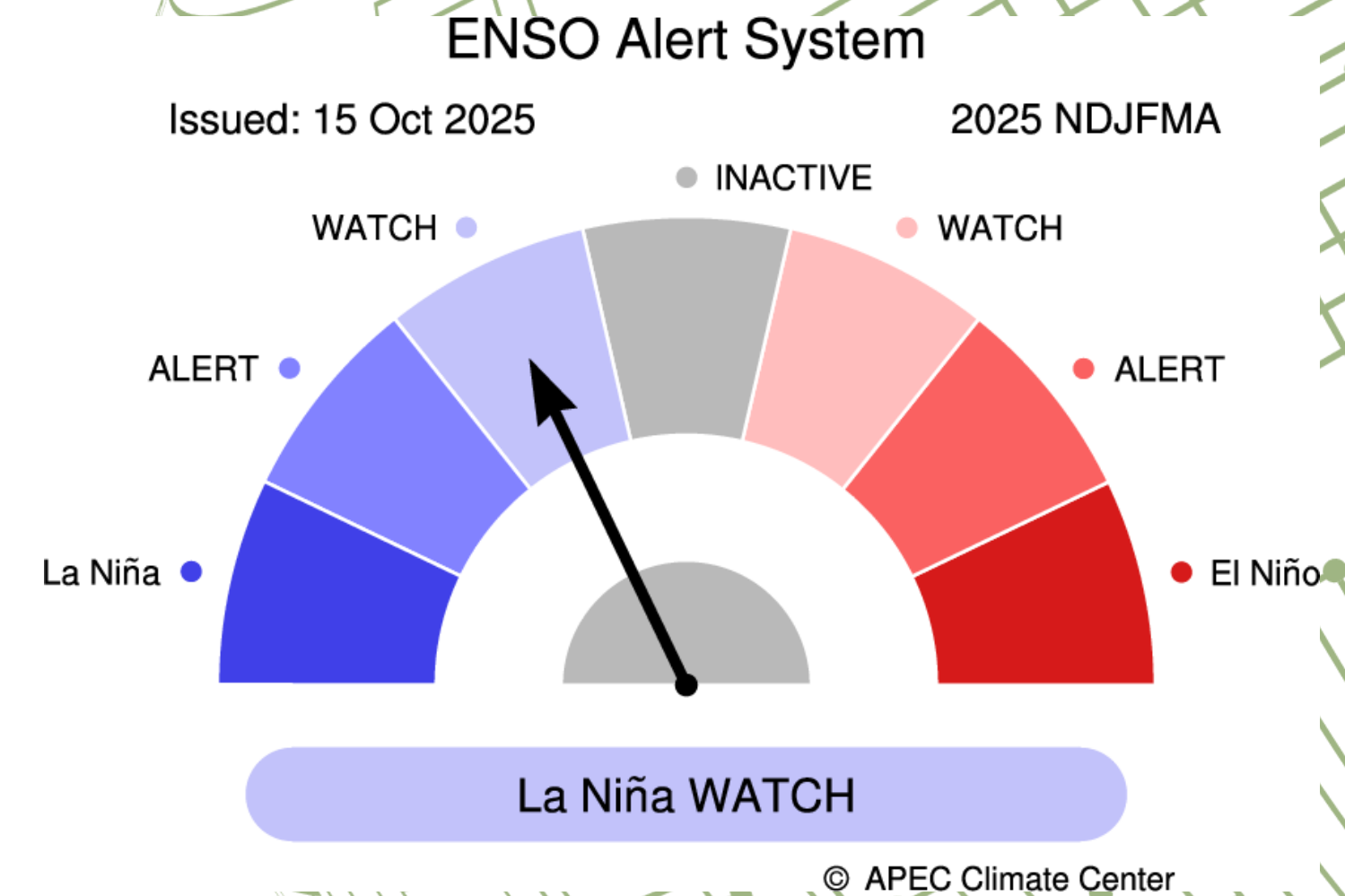
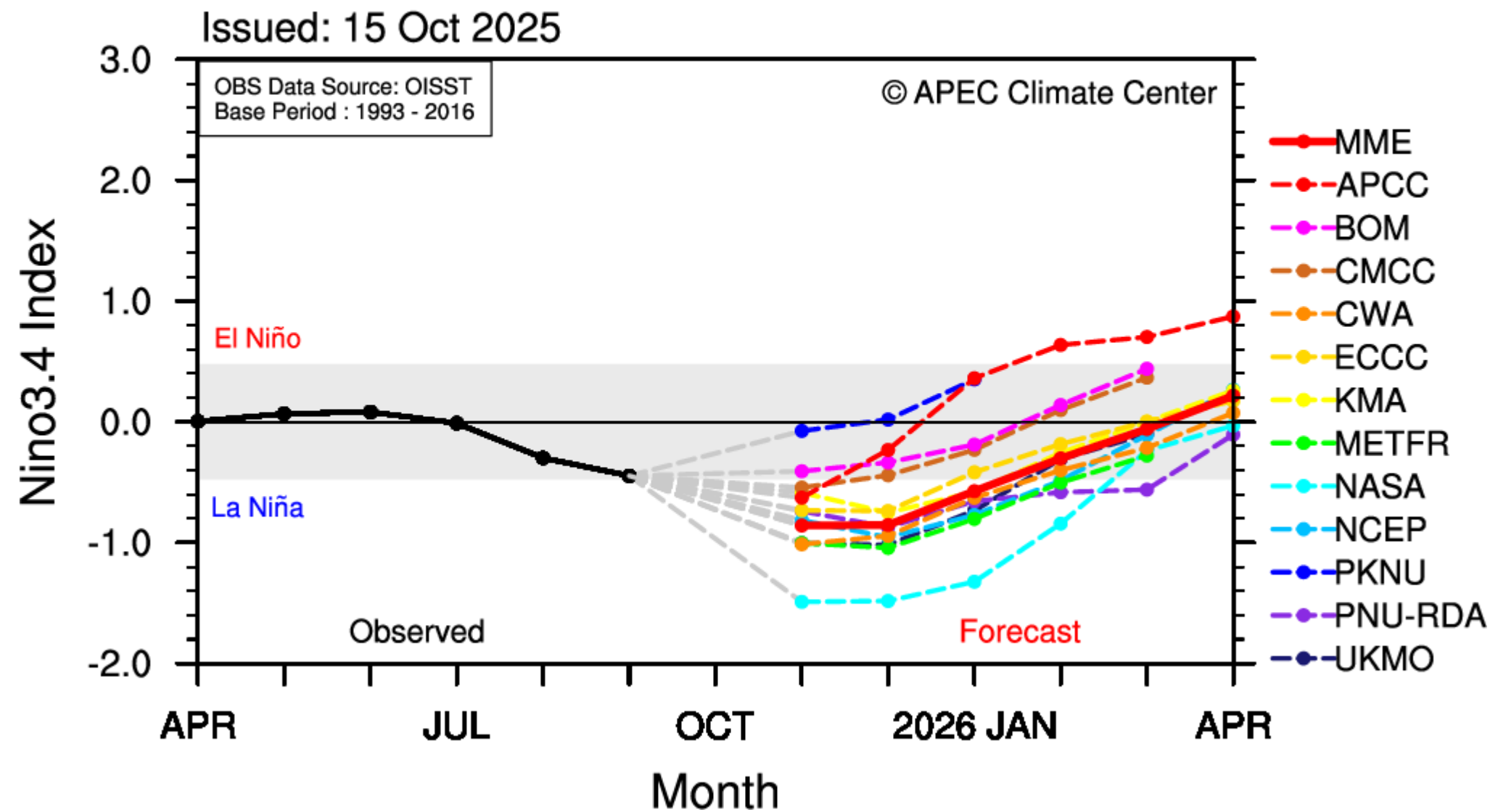


Outlooks from dynamical models

APCC

<https://www.apcc21.org/prediction/global/outlook?lang=en>

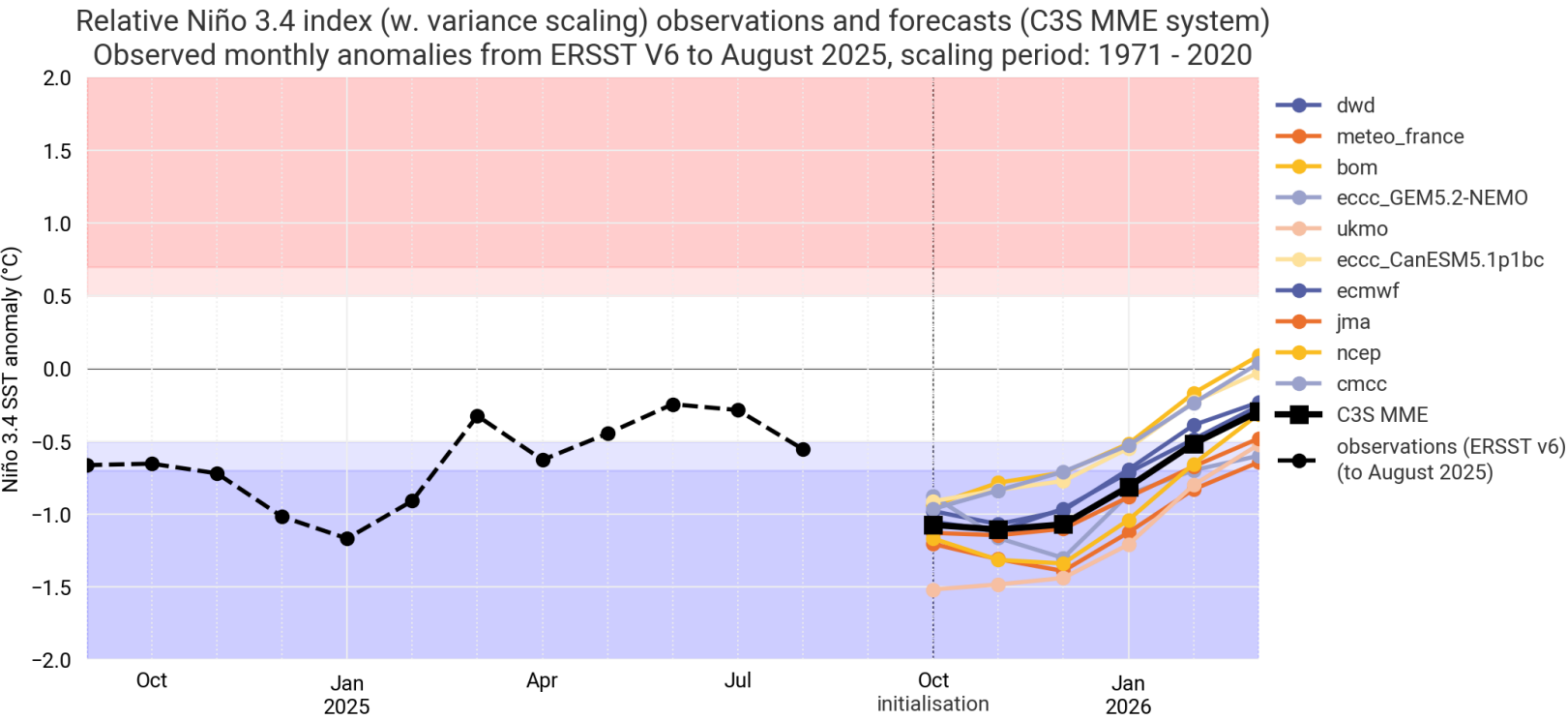
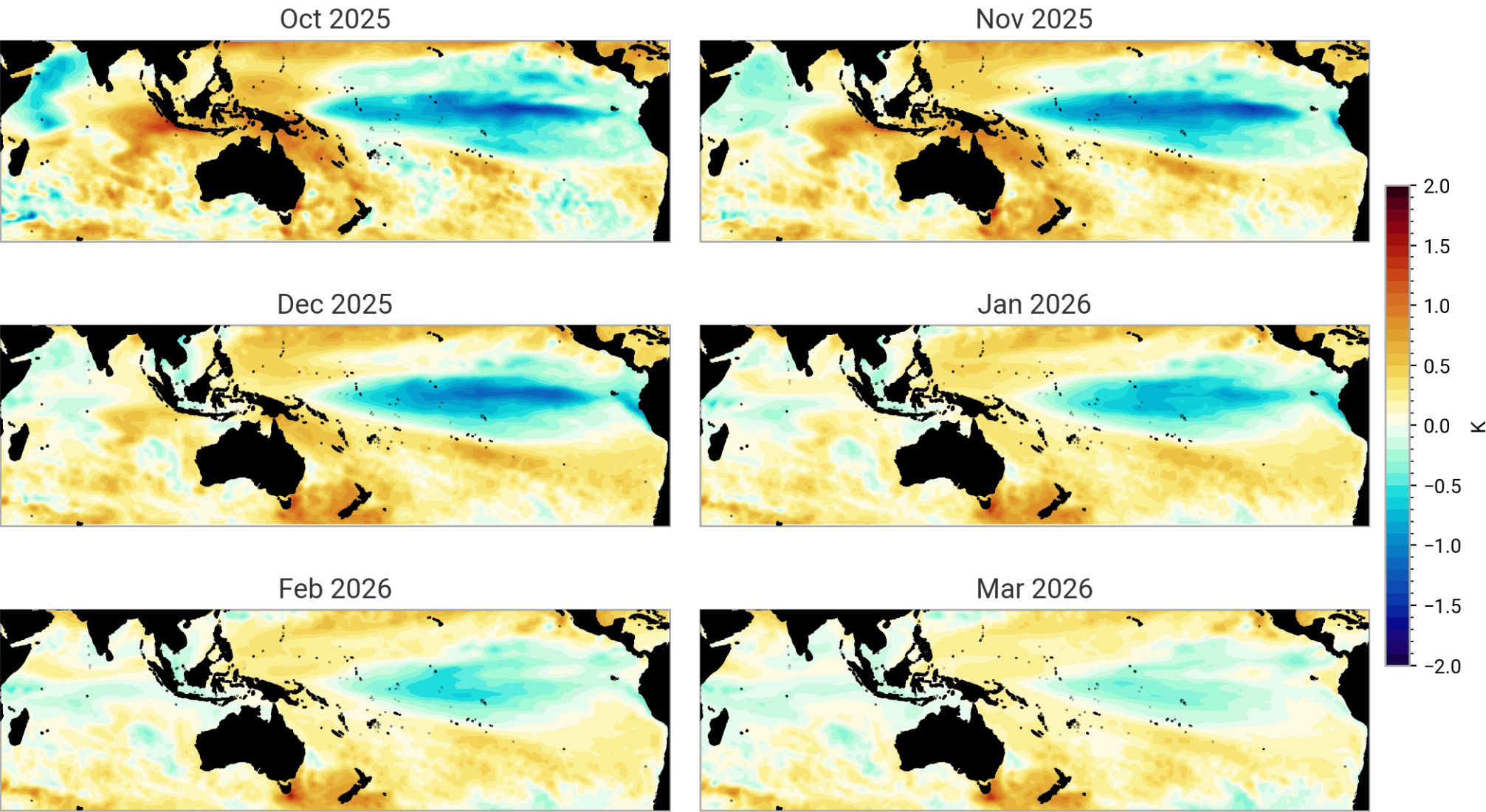
Nino3.4 Index for 2025 NDJFMA



Outlooks from dynamical models

Earth Sciences New Zealand (C3S Multi-Model Ensemble)

C3S MME SST anomalies (minus tropical average), initialised Oct 2025



ENSO (RONI) probabilities (C3S MME)

ENSO season	La Nina	Neutral	El Nino
Oct-Dec 2025	96	4	0
Nov-Jan 2026	80	20	0
Dec-Feb 2026	58	42	0
Jan-Mar 2026	35	65	0

Summary

Borderline La Niña conditions are present in the Pacific

By some measures (Relative Oceanic Niño Index), La Niña thresholds have already been crossed

NOAA / CPC declared La Niña (“*La Niña Advisory*”) earlier this month (9 October), the APCC and ESNZ latest updates indicate “La Niña Watch”

La Niña conditions very likely to become established over the next three-month period (November 2025 – January 2026)

Consensus is that this event will be short-lived, with a return to Neutral conditions likely in the first quarter of 2026

THANK YOU!

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Hanna.Marley@niwa.co.nz