

ENSO update - OCOF 209

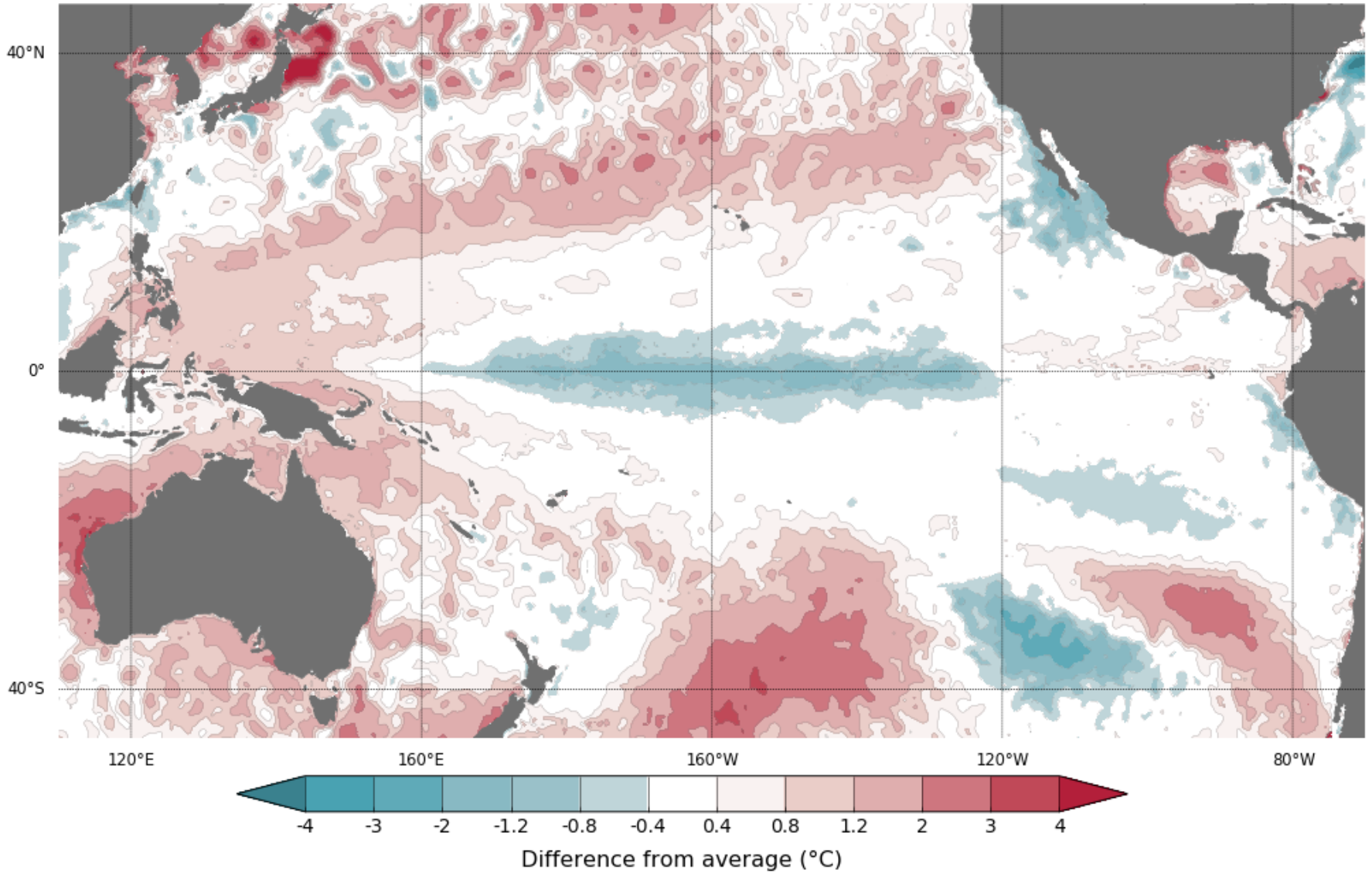
19 February 2025

ENSO Update

- The El Niño–Southern Oscillation (ENSO) has remained neutral for the past 6 months, despite changes in sea surface temperature patterns consistent with a developing La Niña.
- The El Niño–Southern Oscillation (ENSO) remains neutral. Since late December 2024, the tropical Pacific has been more La Niña-like, with signs of interaction between oceanic and atmospheric indices. However, this response has not consistently met the Bureau's La Niña thresholds.
- All international models surveyed forecast neutral ENSO (neither El Niño nor La Niña) from March until at least June.

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Difference from average sea surface temperature observations January 2025



Data: GAMSSA SST
Climatology baseline: 1991 to 2020
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<http://www.bom.gov.au/climate>

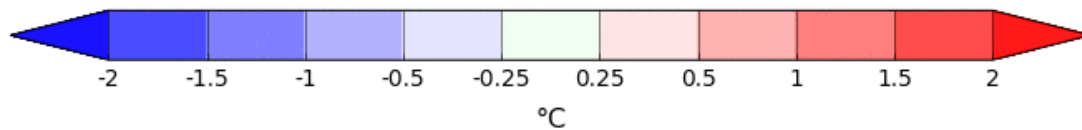
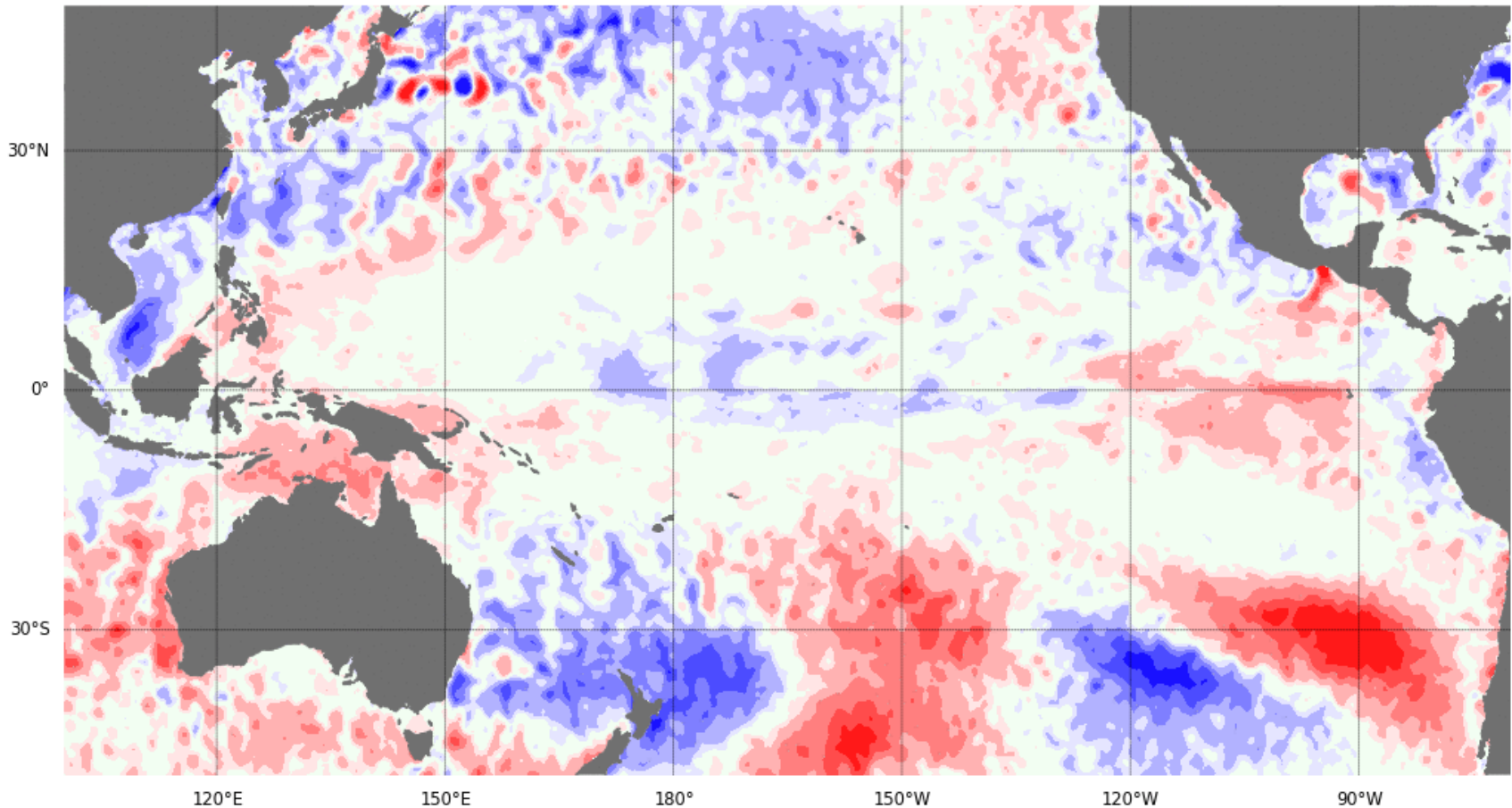
Monthly average: January 2025
Created: 03/02/2025

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January - December SSTs

Change in the monthly SST anomaly: January-2025 - December-2024



Data: GAMSSA
Climatology baseline: 1991 to 2020
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<http://www.bom.gov.au/climate>

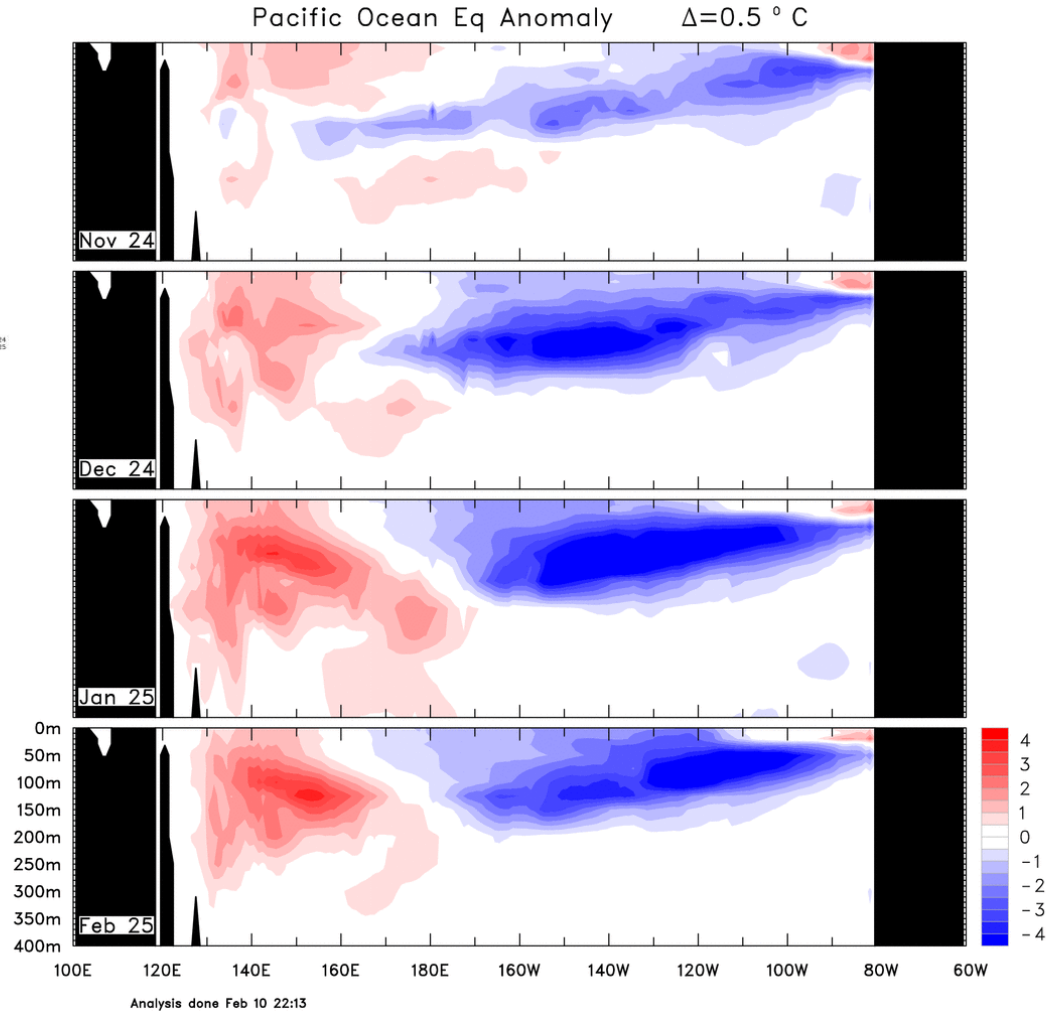
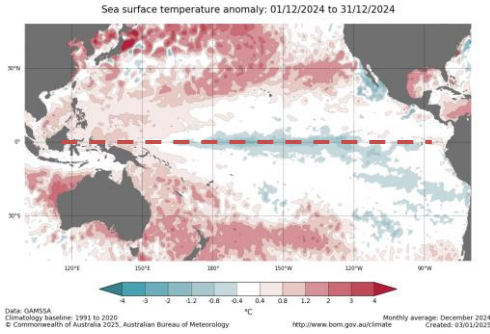
Anomaly monthly difference
Created: 03/02/2025

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Equatorial Pacific sub-surface profile

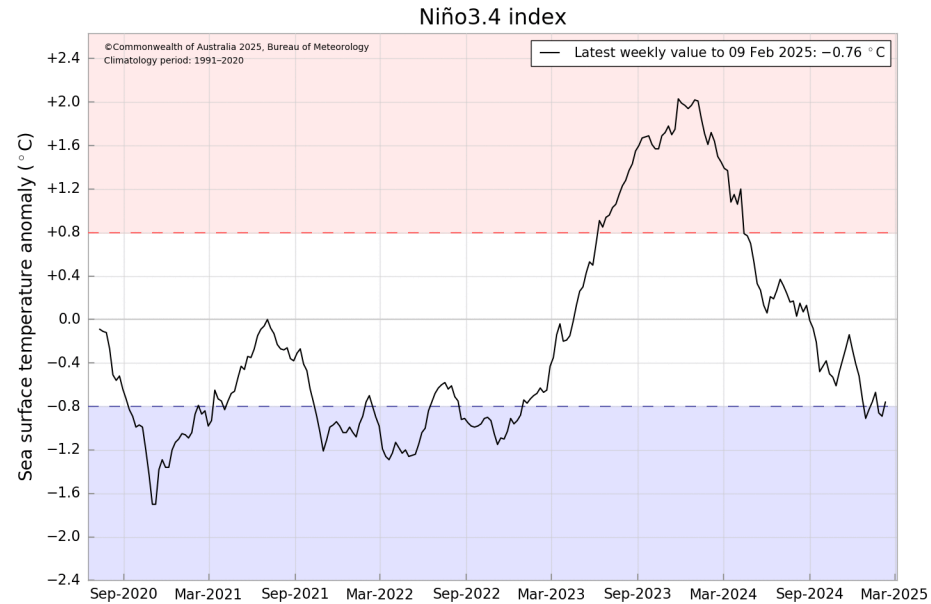
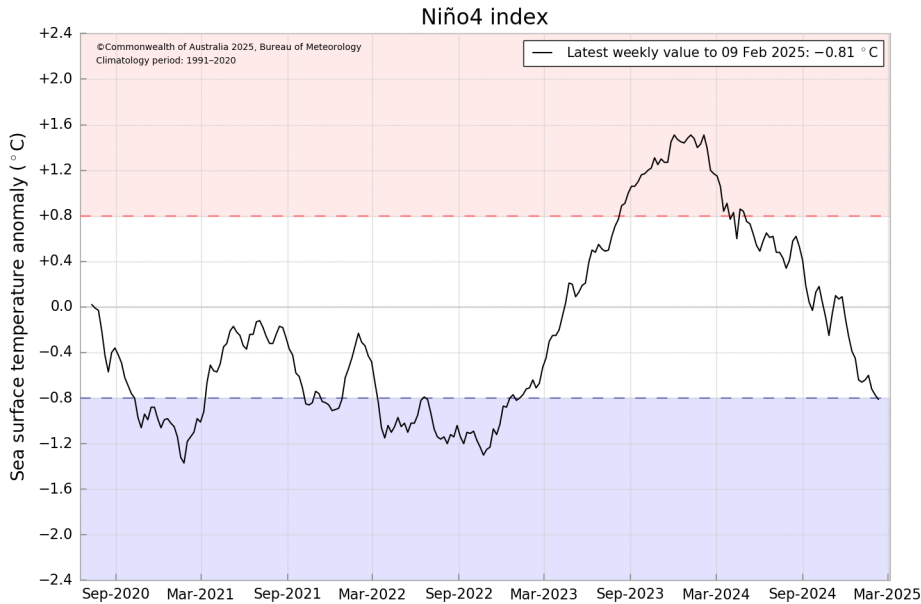
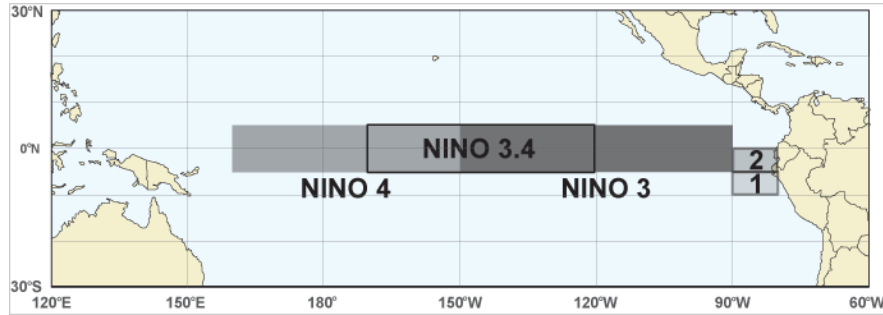
Bureau of Meteorology

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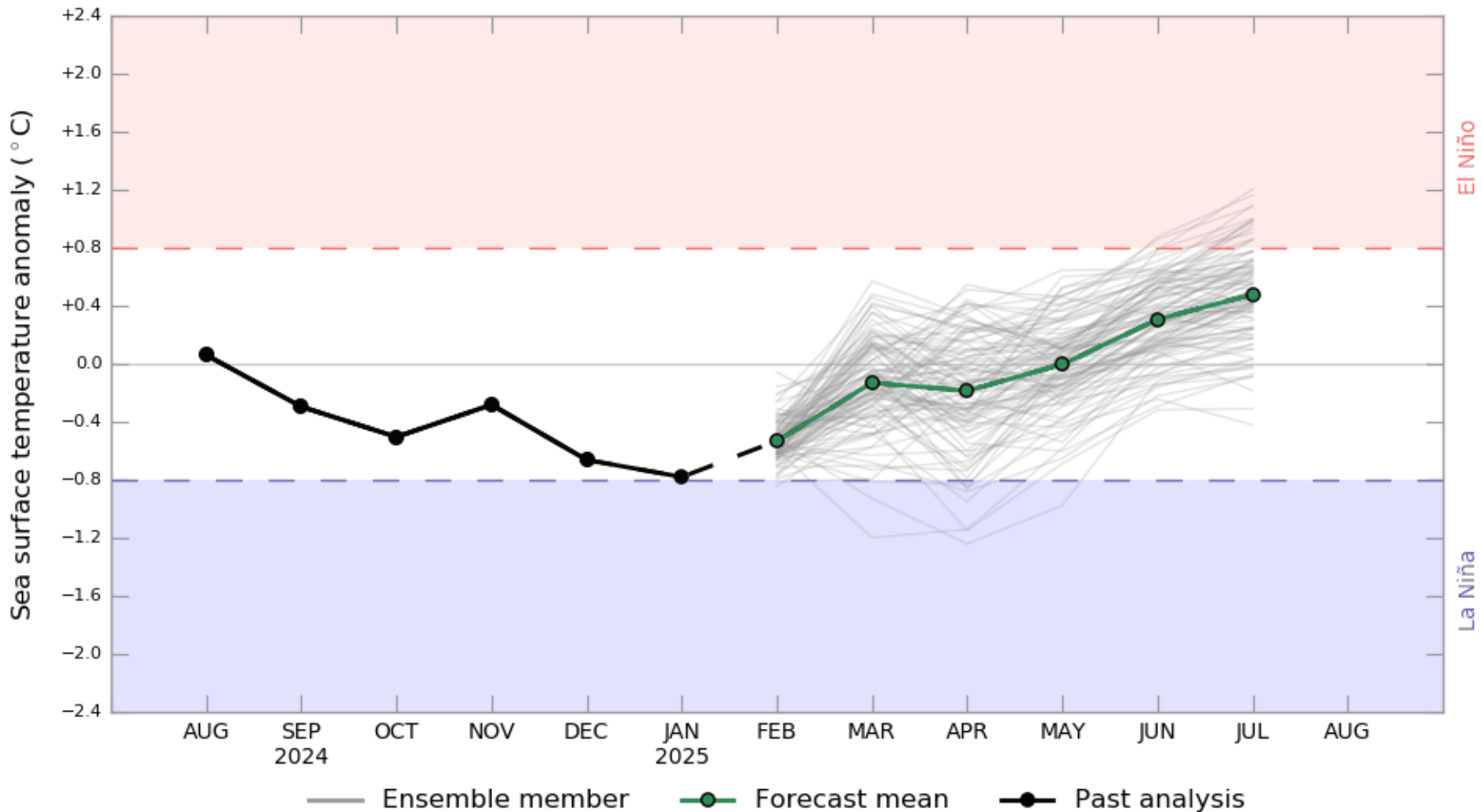
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NINO INDICES SST anomalies (°C)



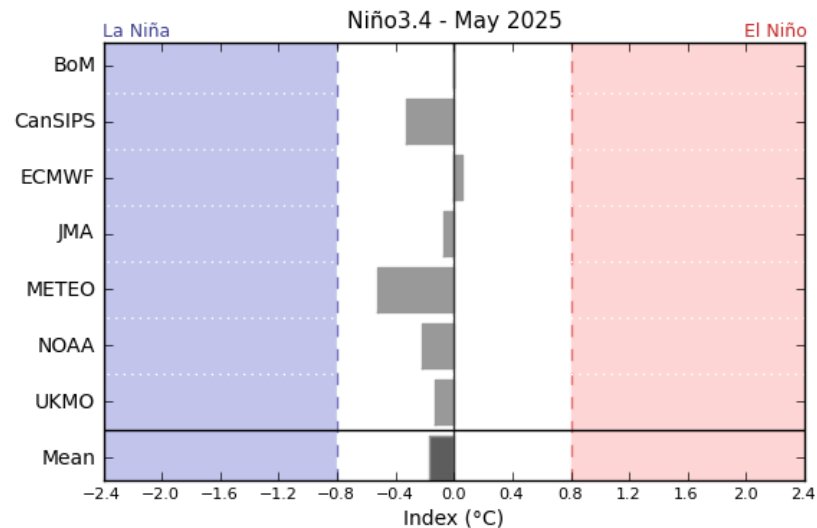
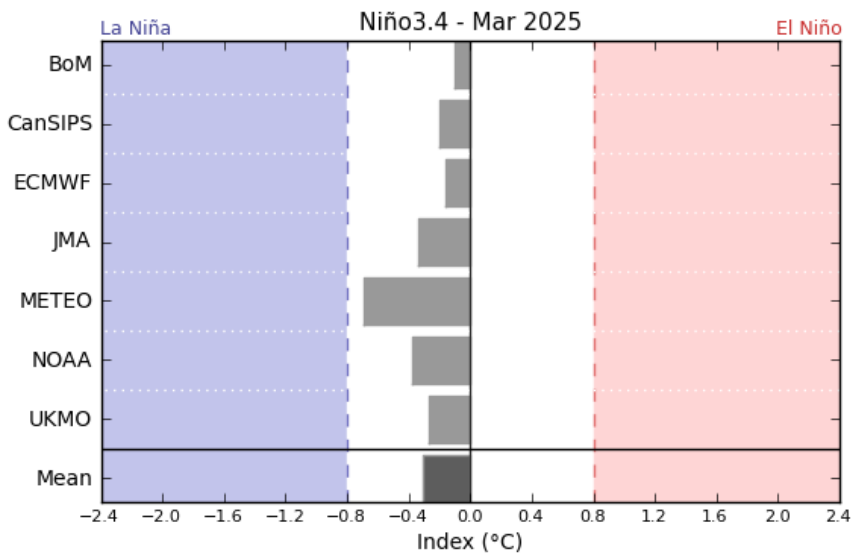
ENSO outlook

Niño3.4 index



— Ensemble member ● Forecast mean ● Past analysis

ENSO outlook

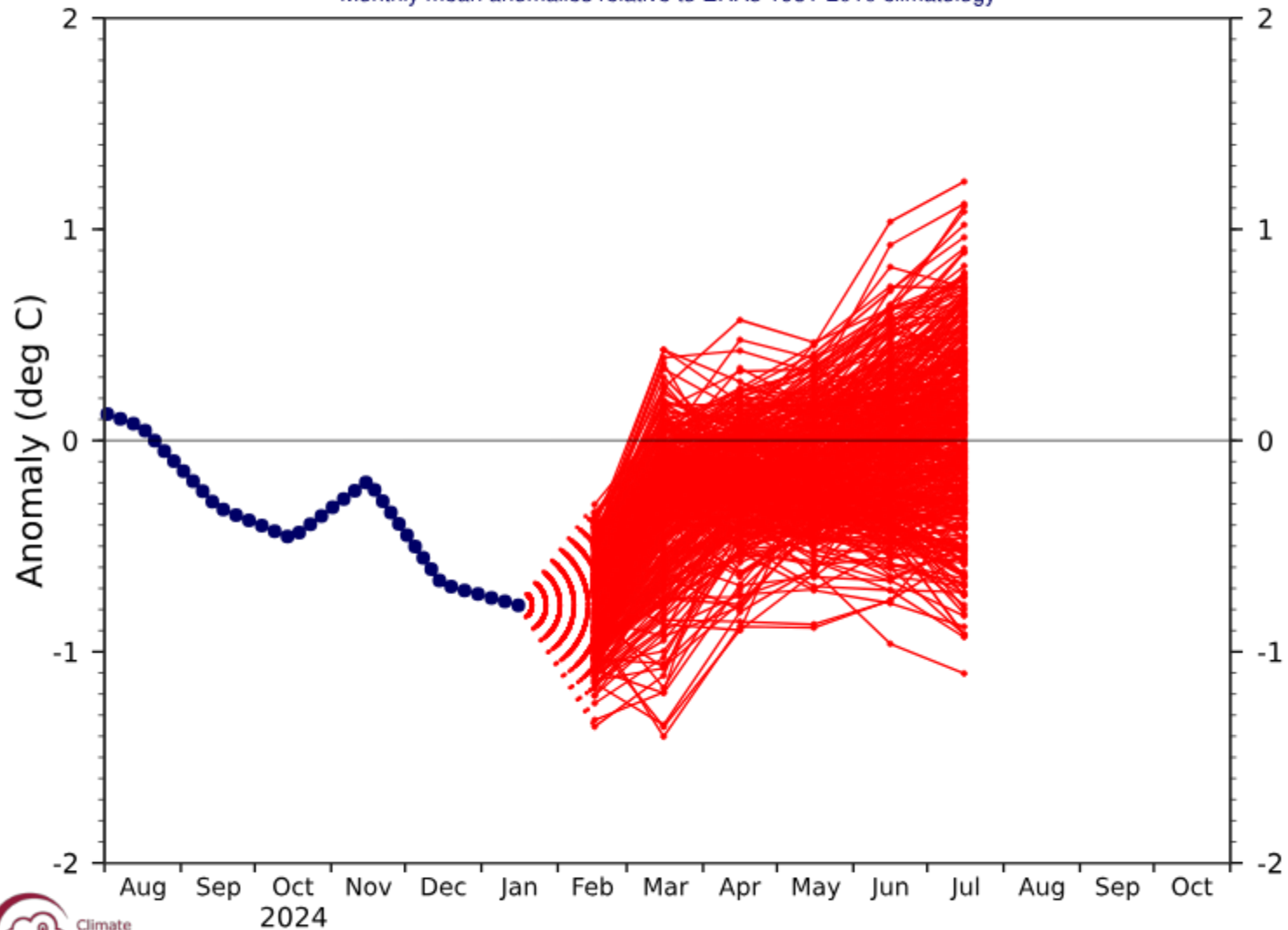


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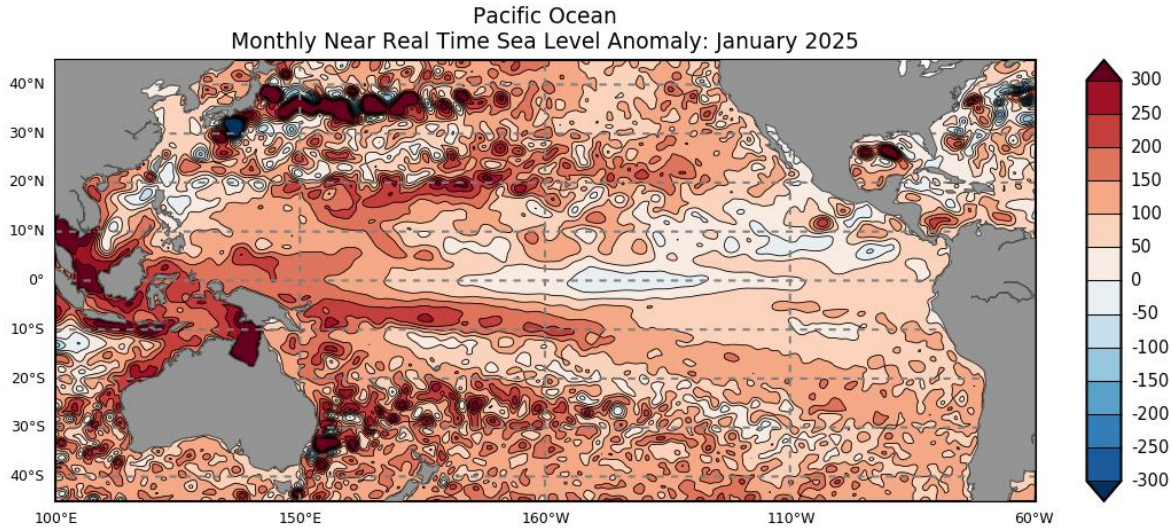
NINO3.4 SST anomaly plume

C3S multi-system forecast from 1 Feb 2025

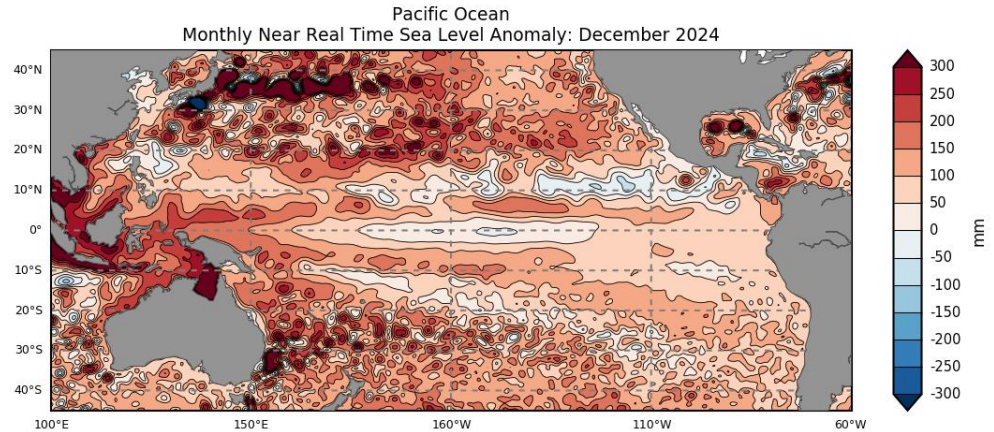
ECMWF, Met Office, Météo-France, CMCC, DWD, NCEP, JMA, ECCO
Monthly mean anomalies relative to ERA5 1981-2010 climatology



January 2024 Sea Level Anomaly



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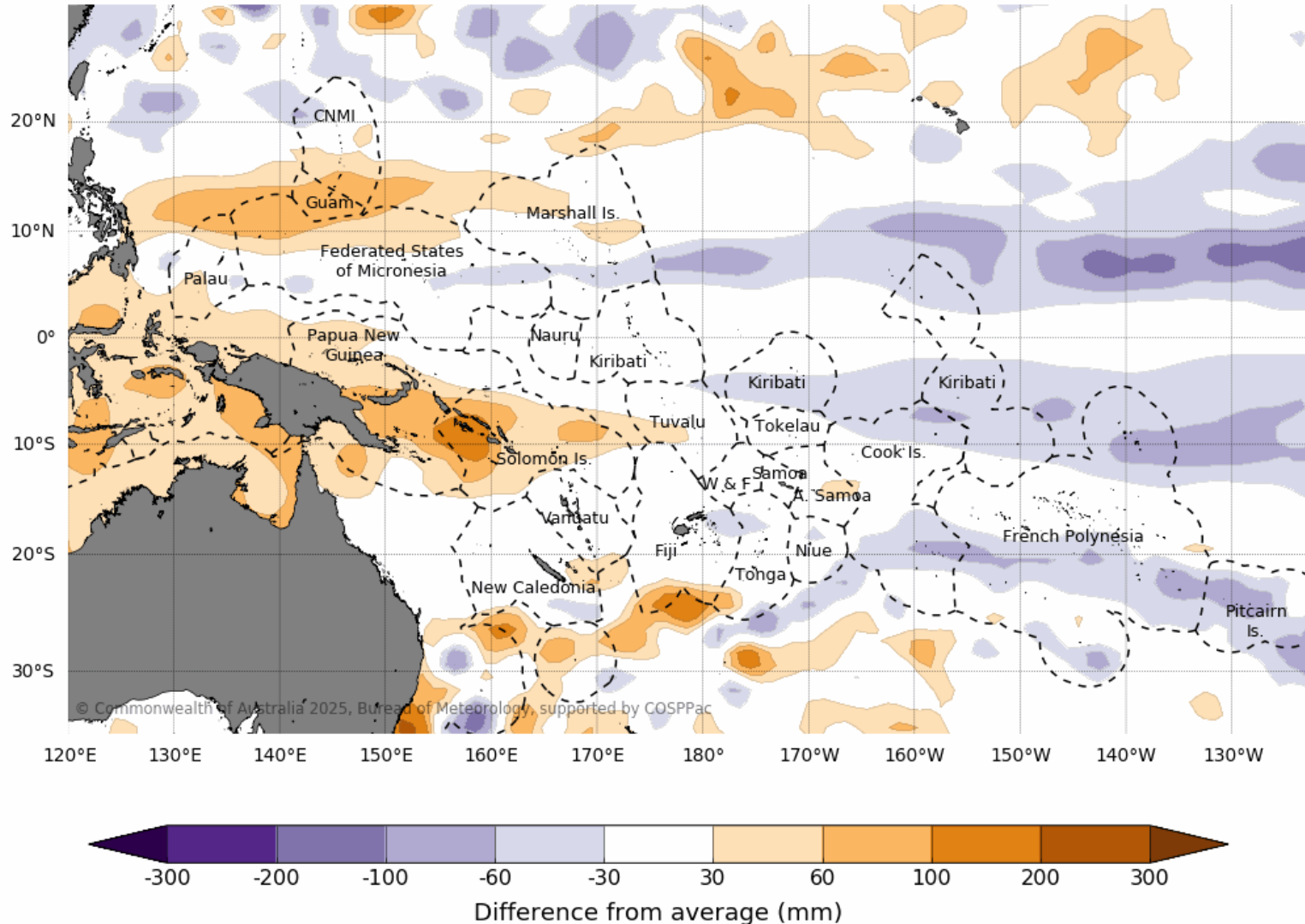
AVISO Ssalto/Duacs SLA

Seasonal Forecast: Sea Surface Height Anomaly

Difference from average sea surface height forecast for
March to May 2025

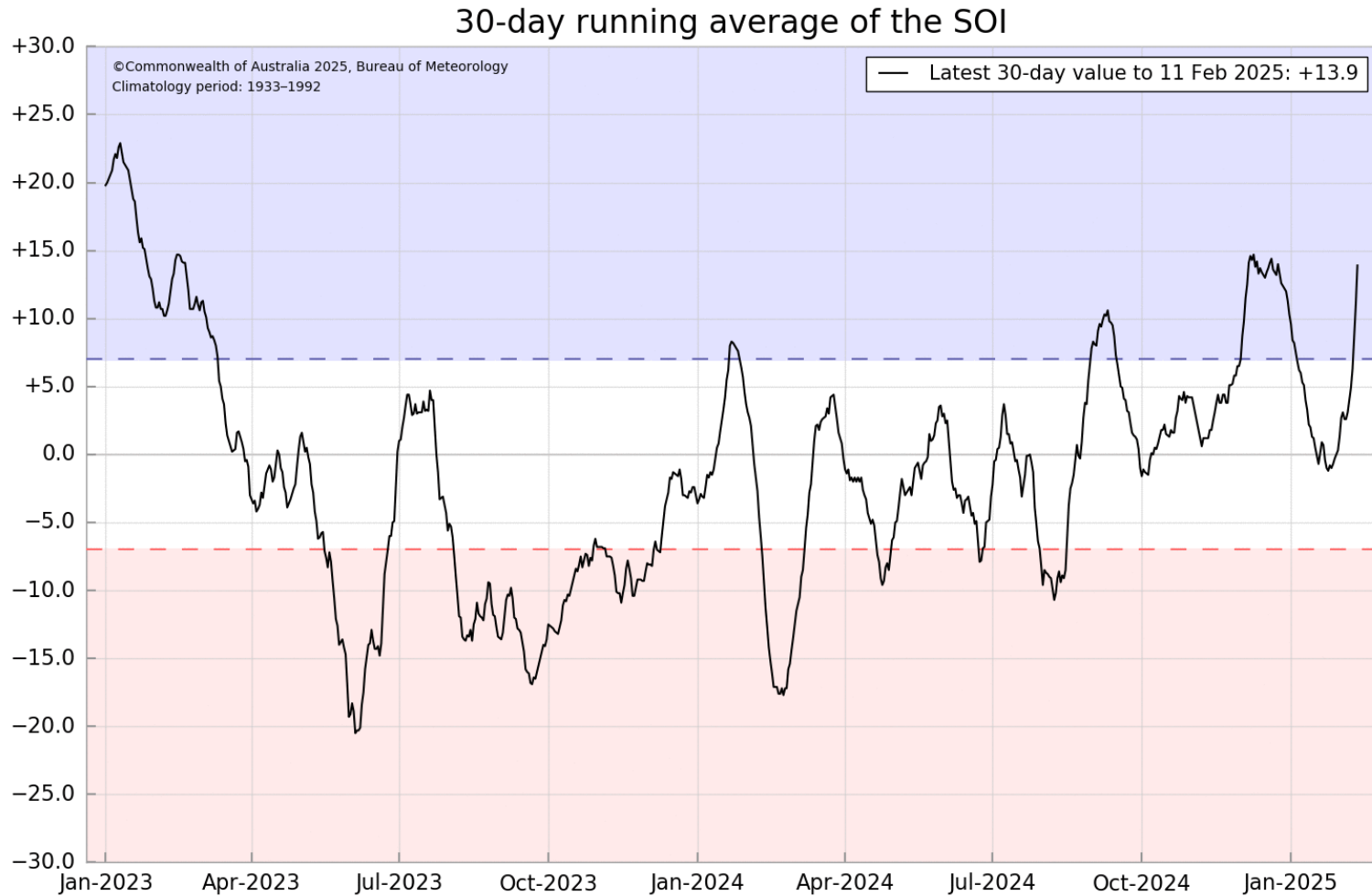
Base period: 1981-2018
Model: ACCESS-S2

Model run: 10/02/2025
Issued: 12/02/2025



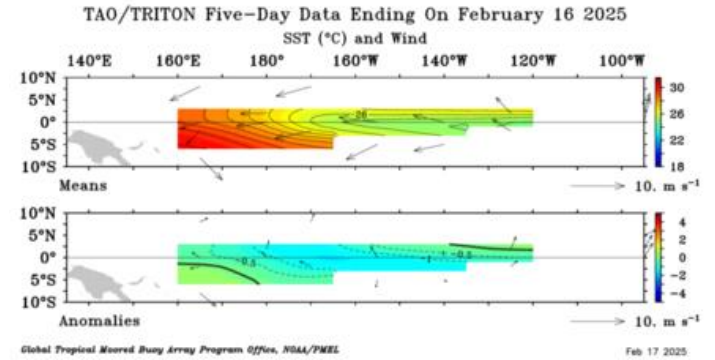
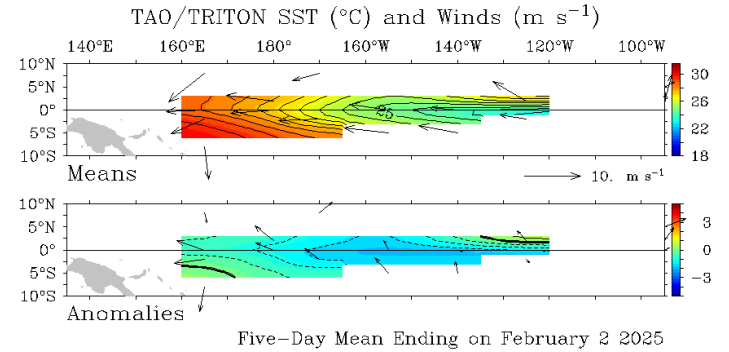
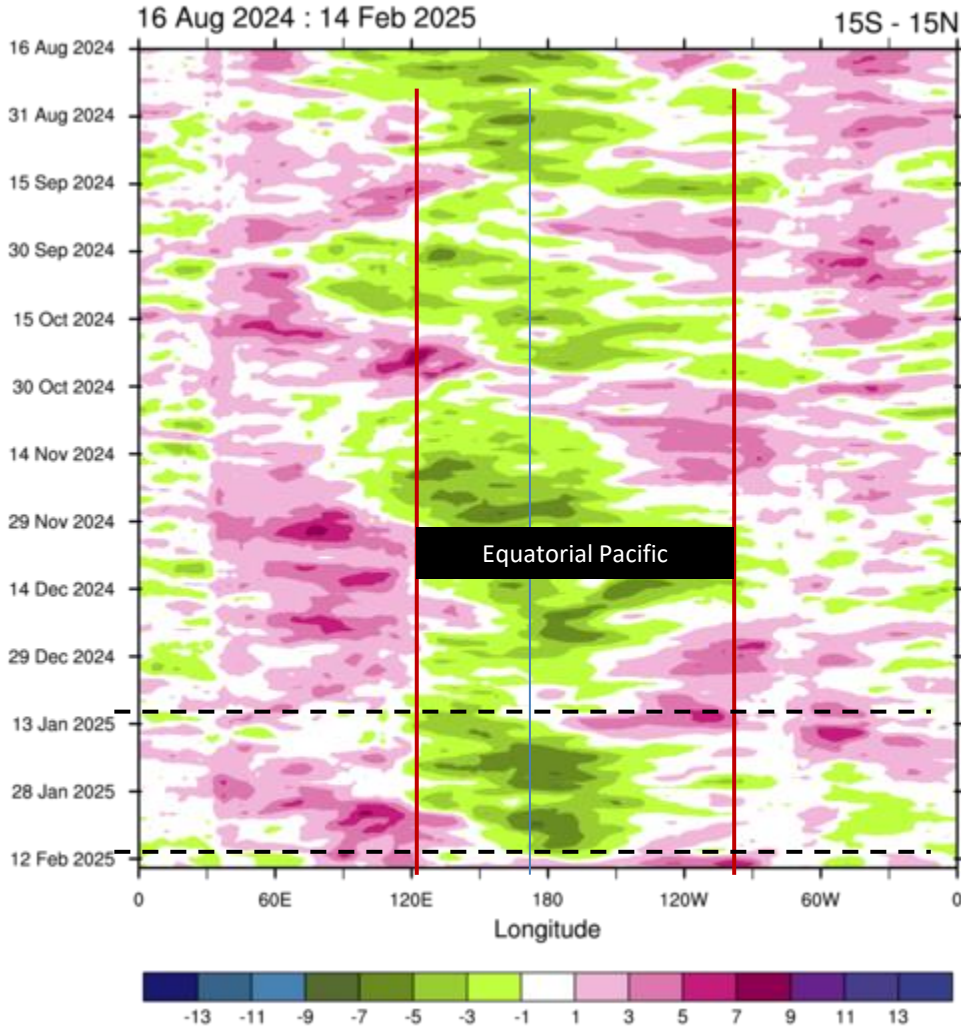
Atmosphere

Southern Oscillation Index



Equatorial Trade Winds

Westerly Wind Anomalies : m/s



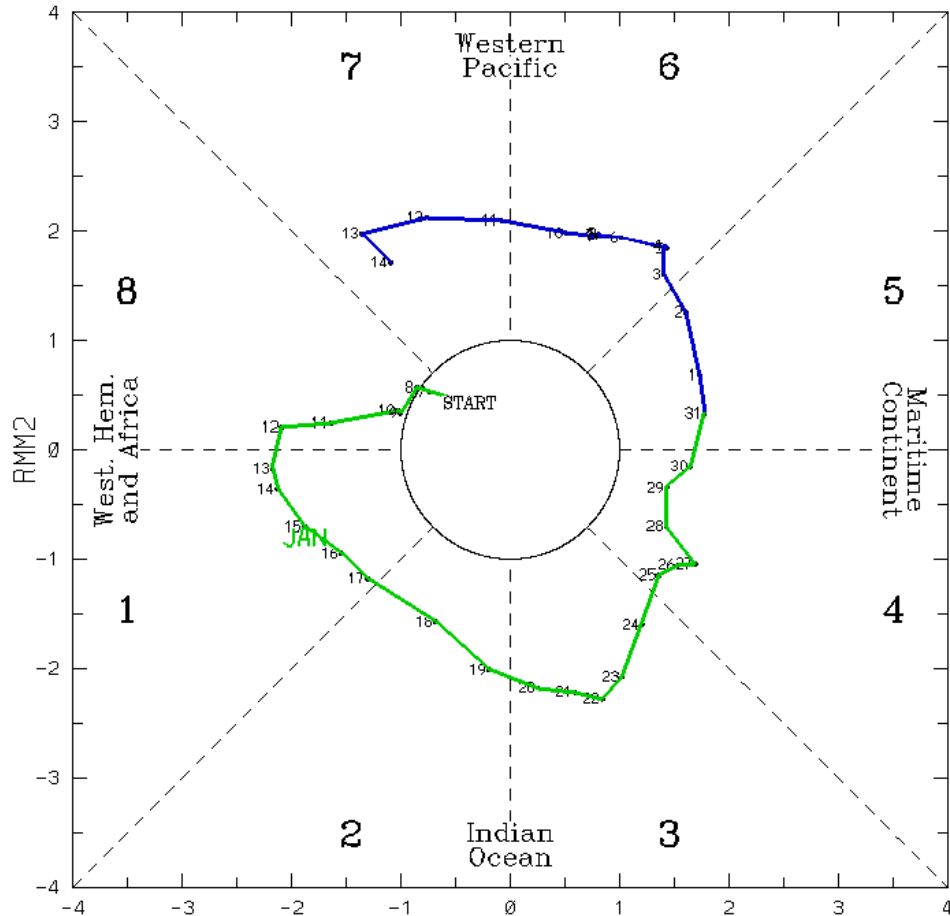
Easterly (stronger trade)

Westerly (weaker trade)

Madden-Julian Oscillation

ACCESS

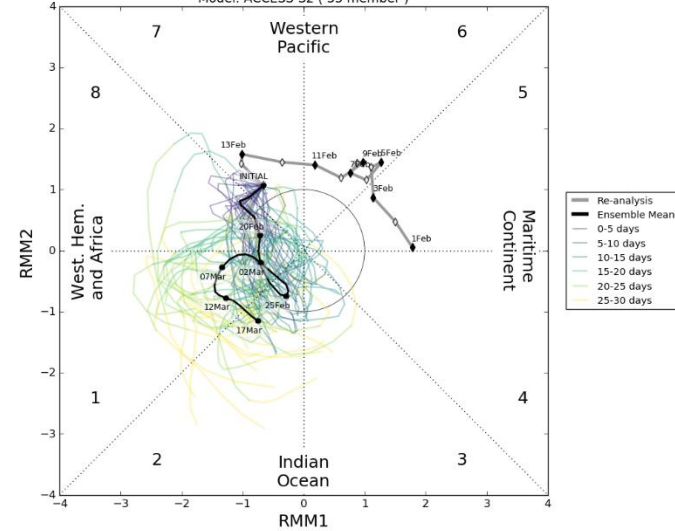
(RMM1,RMM2) phase space for 6-Jan-2025 to 14-Feb-2025



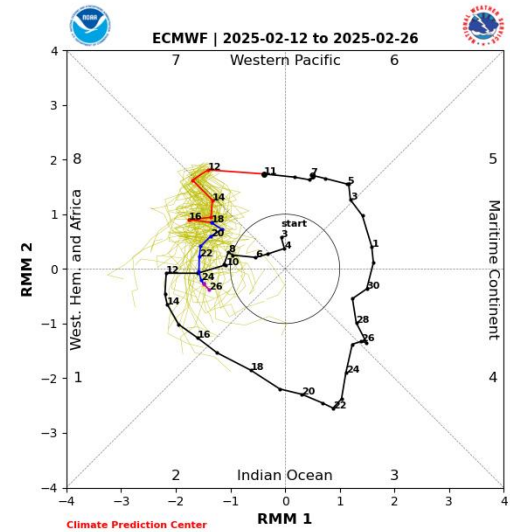
Labelled dots for each day.

Blue line is for Feb, green line is for Jan, red line is for Dec.

MJO Index Forecast initialised: 15 February 2025
Model: ACCESS-S2 (33 member)



IF



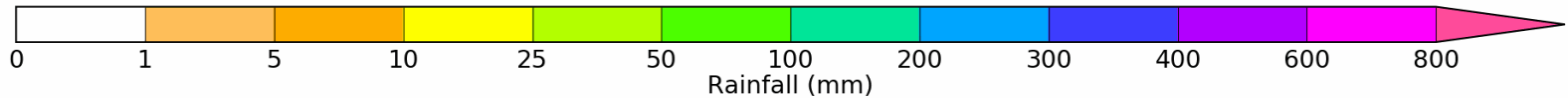
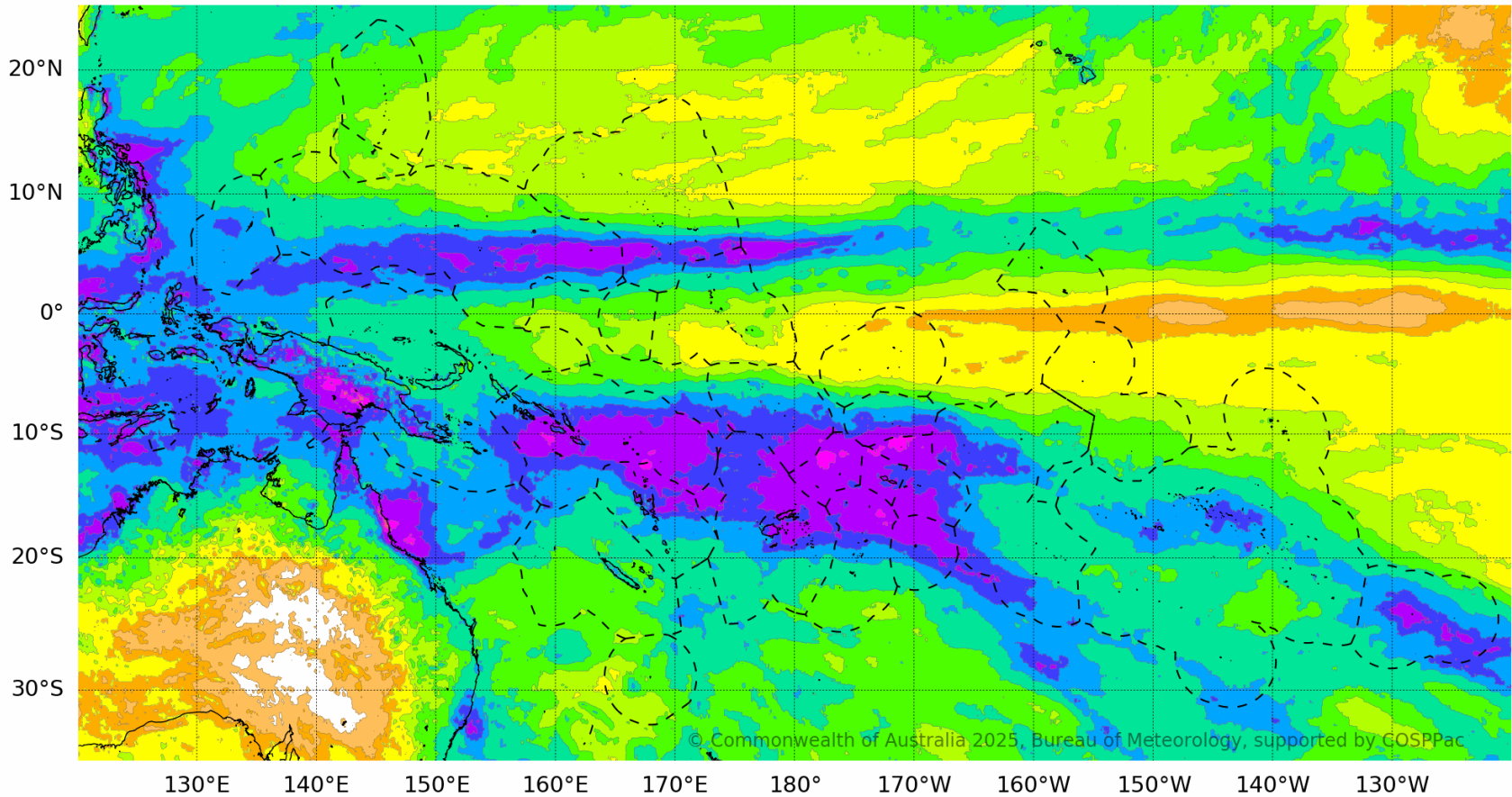
Climate Prediction Center

Satellite Rainfall January 2025

1-month total rainfall ending January 2025

Data source: MSWEP

Issued: 09/02/2025



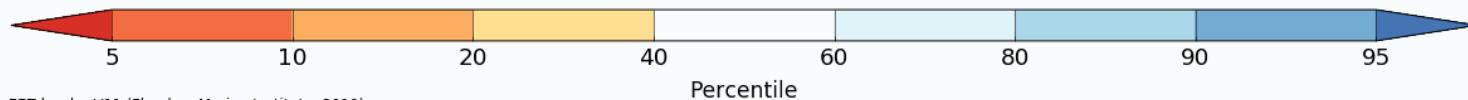
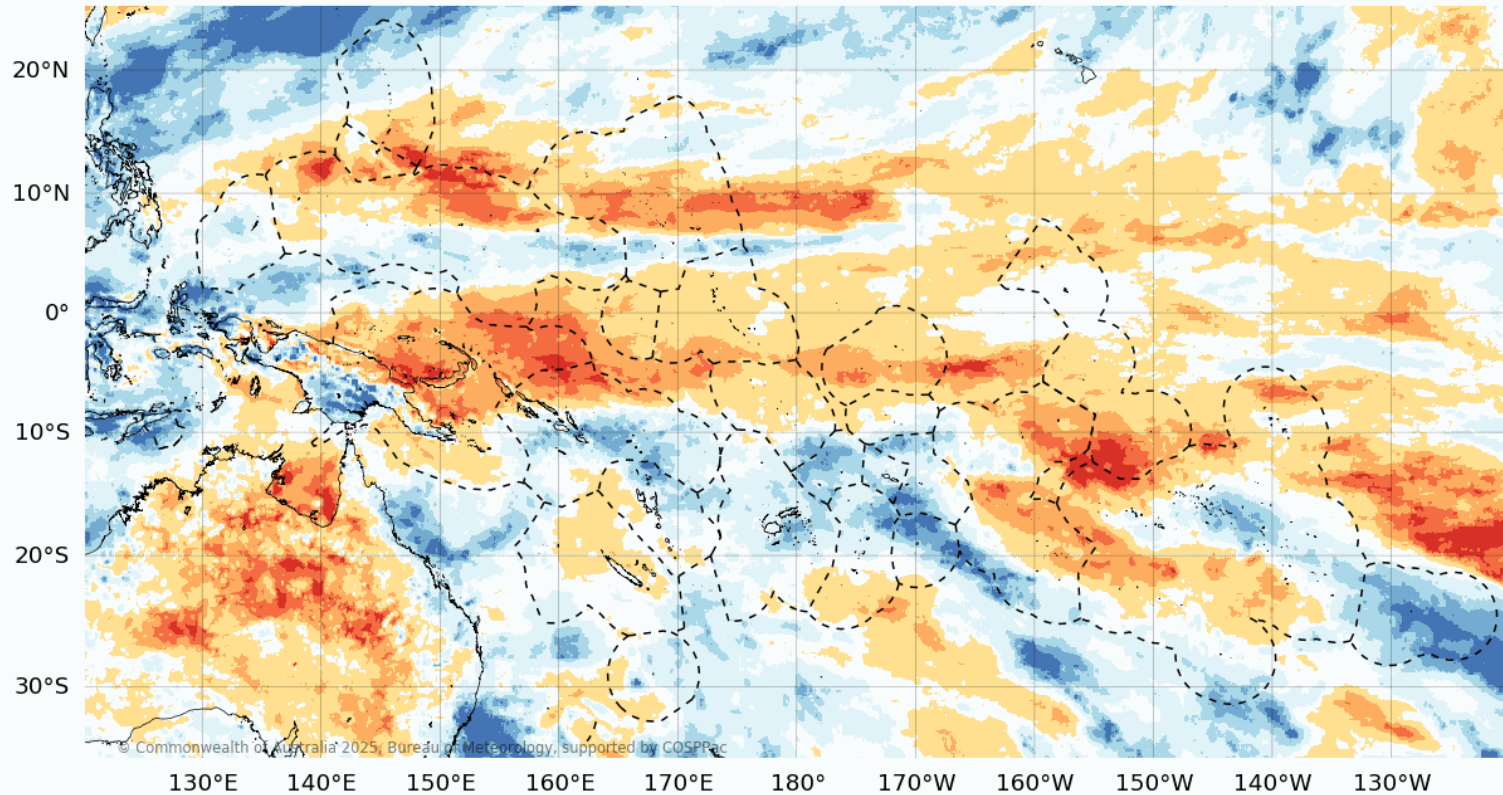
Dashed EEZ shapefile data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <http://www.marineregions.org/>.

Rainfall extremes – January 2025

Data source: MSWEP
Base period: 1981-2021

1-month Percentile to end of January 2025

Issued: 10/02/2025



-- -- EEZ border V11 (Flanders Marine Institute, 2019).

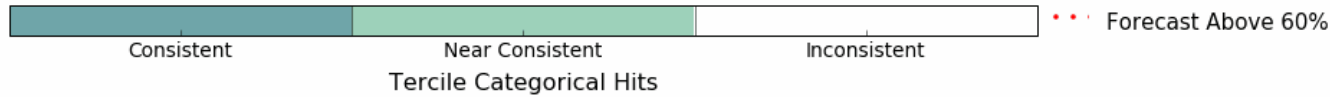
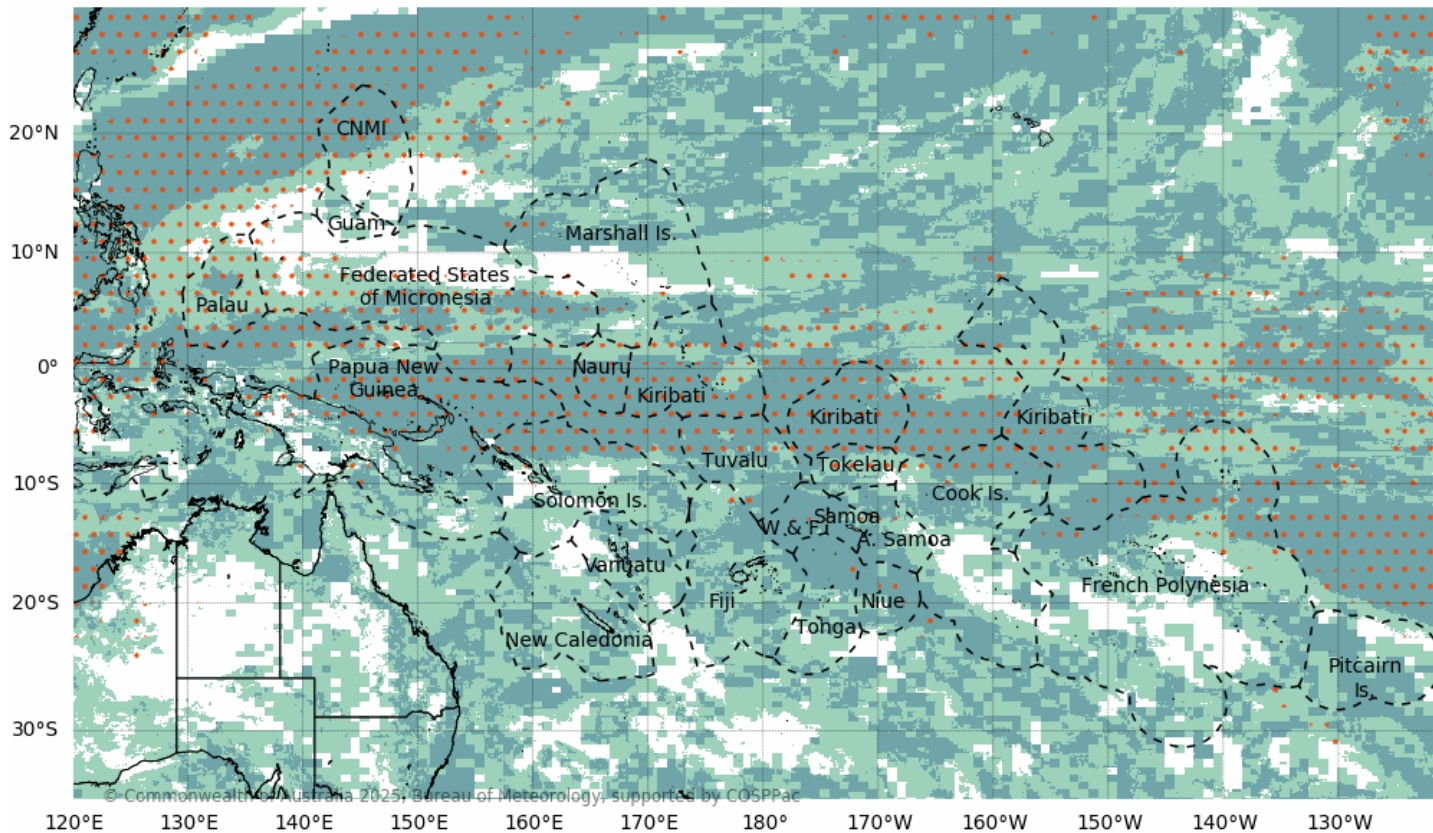
Forecast Verification: January

Near real-time tercile verification hit rate: rainfall January 2025

Data source: ACCESS-S2
Observations: MSWEP

Base period: 1981-2018

Model Run: 01/01/2025
Issued: 13/02/2025



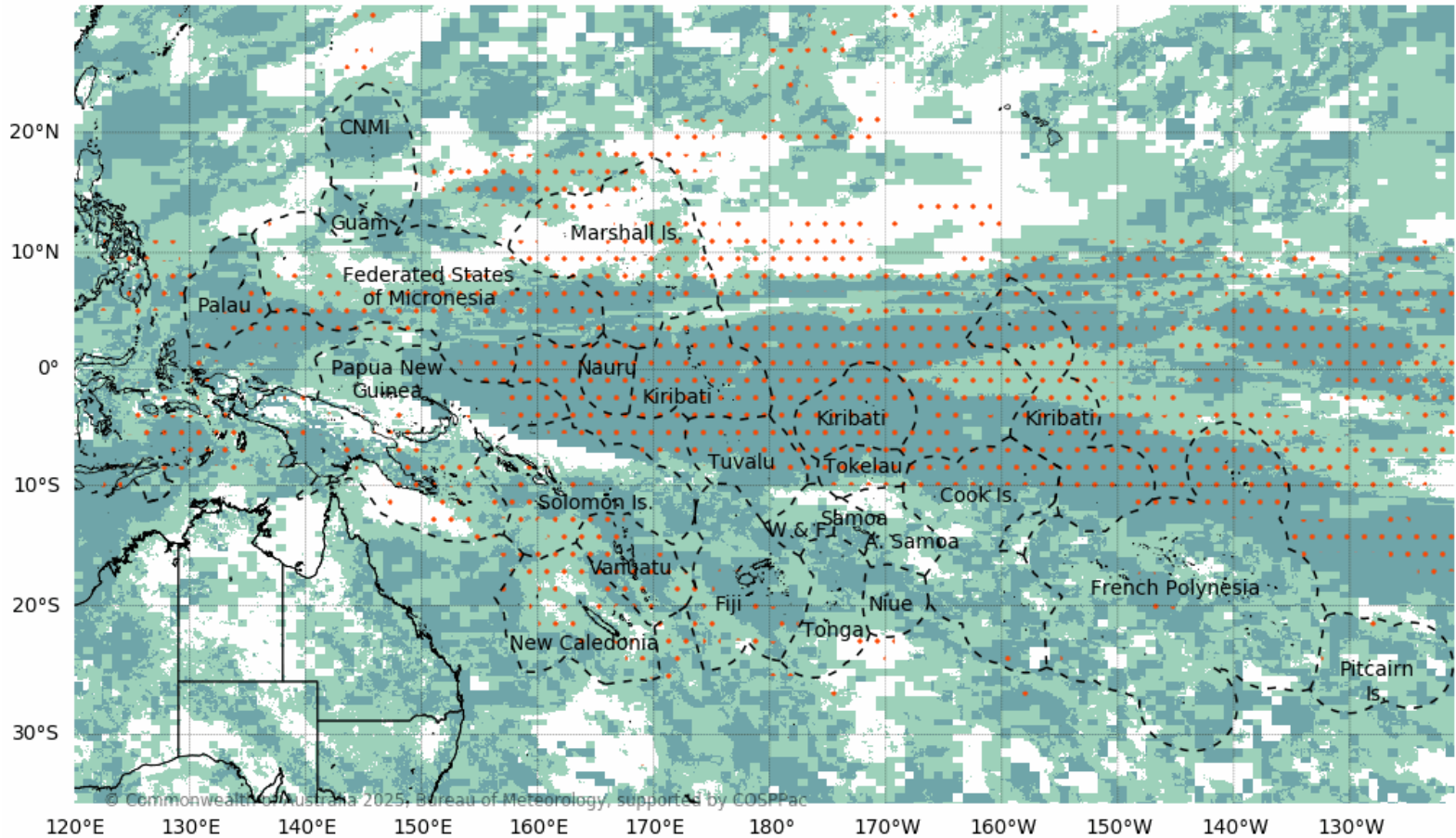
Forecast Verification: Nov-Jan

Near real-time tercile verification hit rate: rainfall November 2024 to January 2025

Data source: ACCESS-S2
Observations: MSWEP

Base period: 1981-2018

Model Run: 01/11/2024
Issued: 13/02/2025



••• Forecast Above 60%

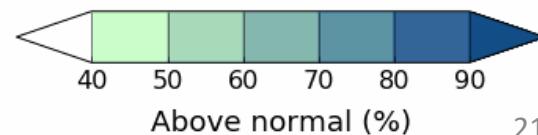
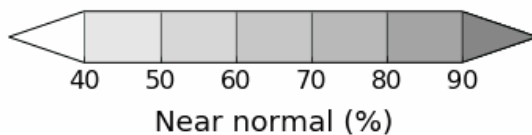
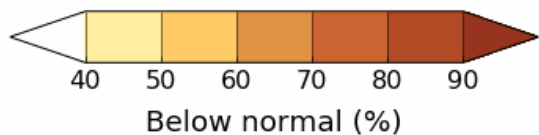
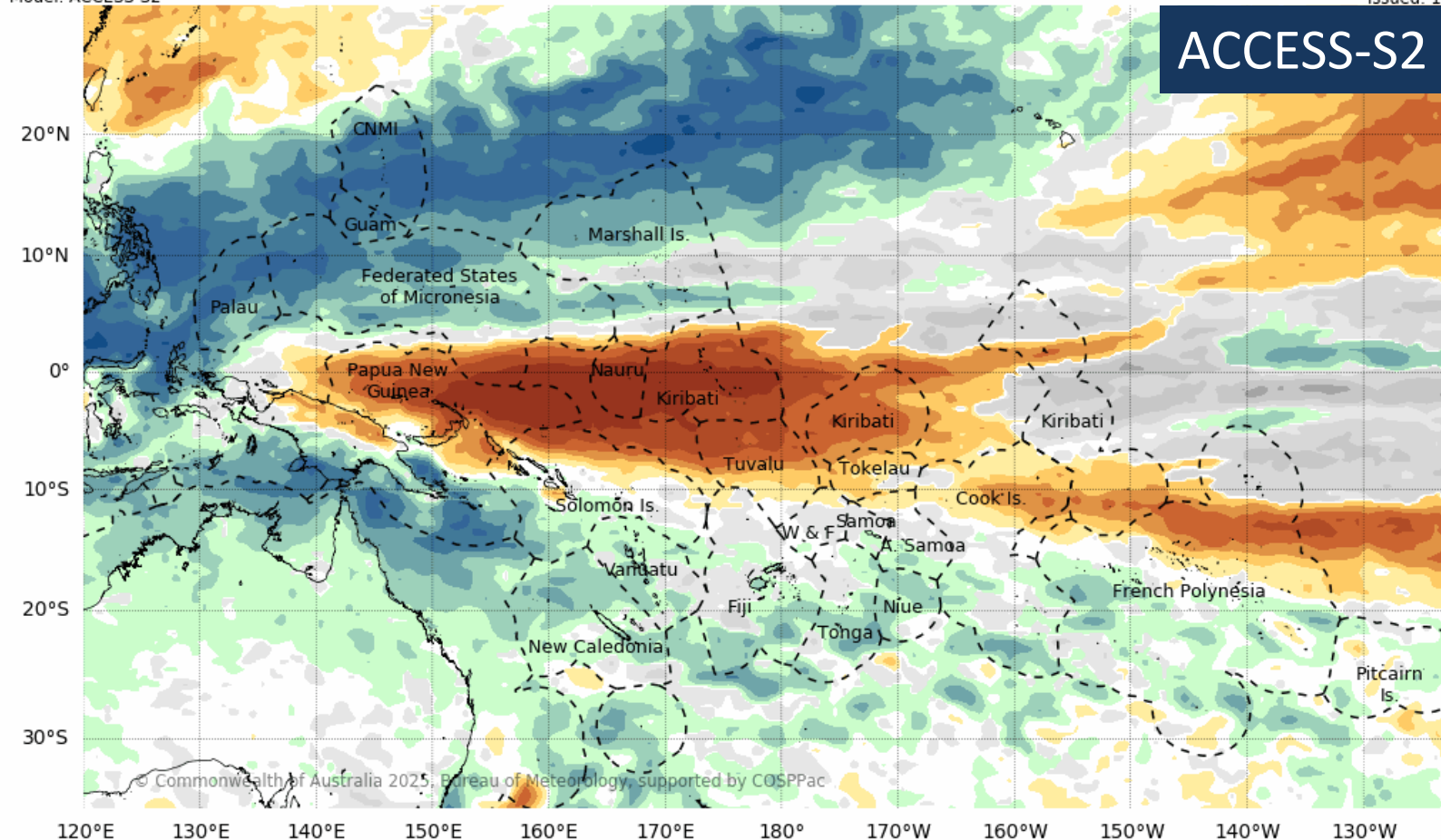
Tercile Categorical Hits

Model Rainfall Predictions (MAM)

Tercile rainfall probabilities for
March to May 2025

Base period: 1981-2018
Model: ACCESS-S2

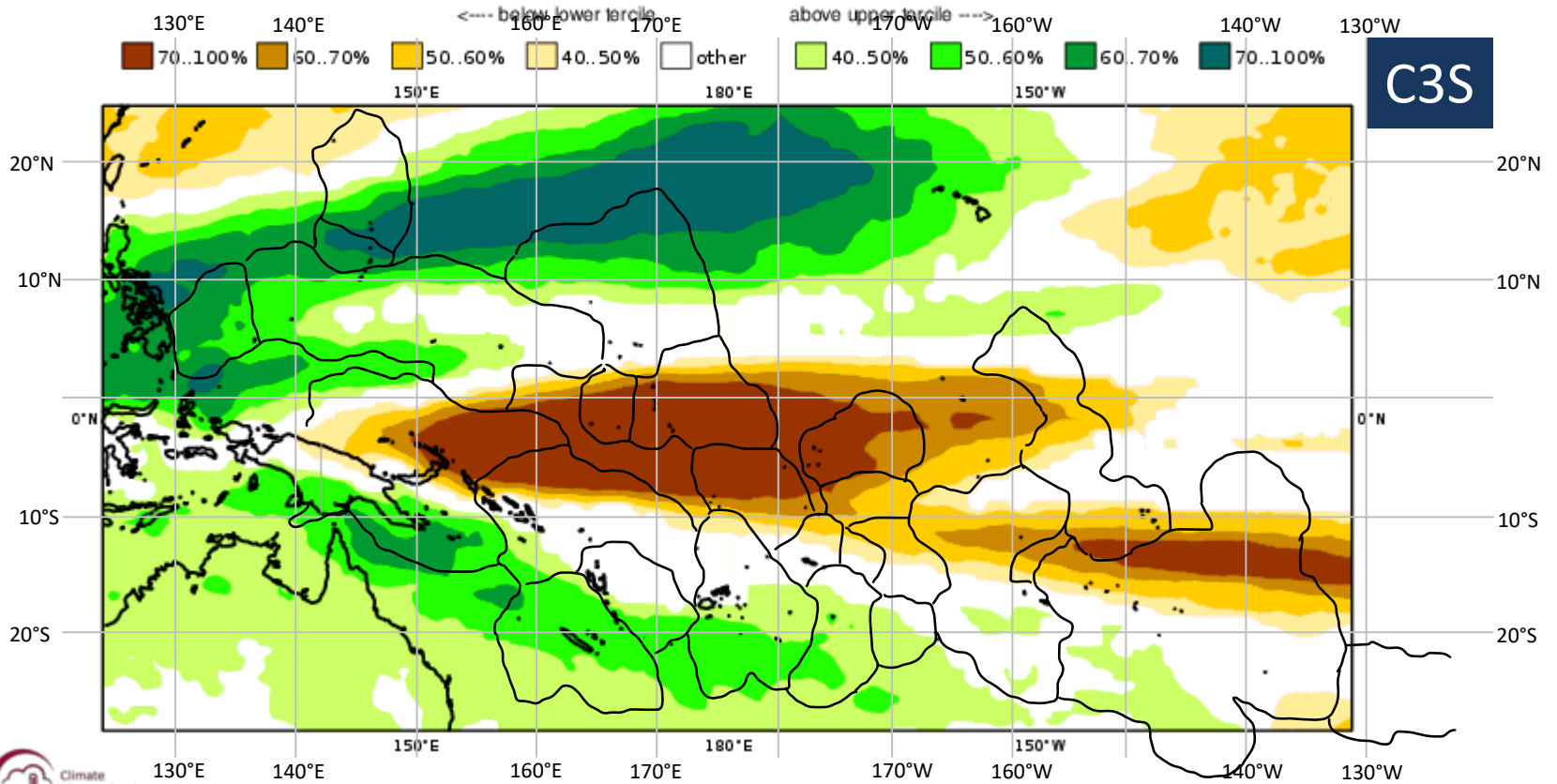
Model run: 10/02/2025
Issued: 12/02/2025



-- -- EEZ border V11 (Flanders Marine Institute, 2019).

Model Rainfall Predictions (MAM)

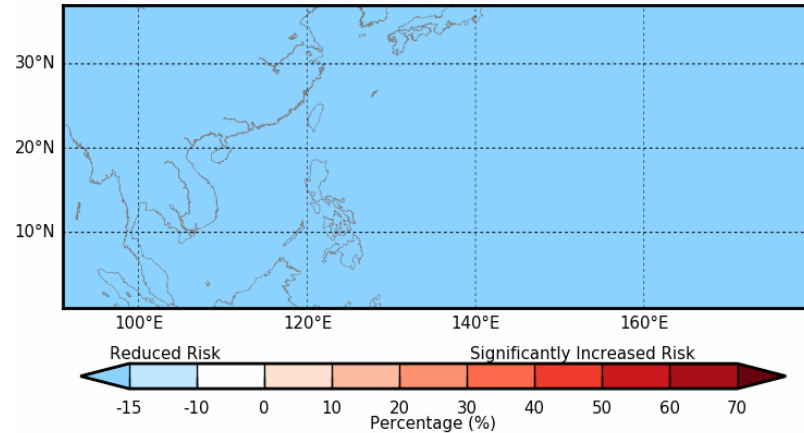
C3S multi-system seasonal forecast ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC
Prob(most likely category of precipitation) MAM 2025
Nominal forecast start: 01/02/25
Unweighted mean



2-week TC Outlooks

North Pacific

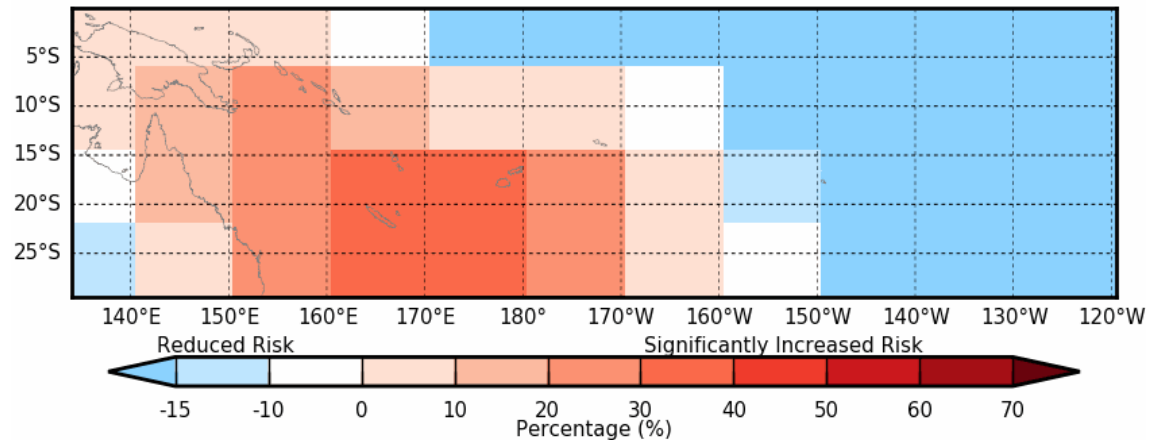
Difference from normal chance of Tropical Cyclone's in the Northern Pacific
Forecast period: 23/02/2025 - 01/03/2025



Calibrated Model anomaly probability in overlapping 15 x 20 degree boxes
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Model: ACCESS_S2 Model Run: 15/02/2025 Issued: 17/02/2025

South Pacific

Difference from normal chance of Tropical Cyclone's in the South Pacific
Forecast period: 23/02/2025 - 01/03/2025



Calibrated Model anomaly probability in overlapping 15 x 20 degree boxes
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Model: ACCESS_S2 Model Run: 15/02/2025 Issued: 17/02/2025