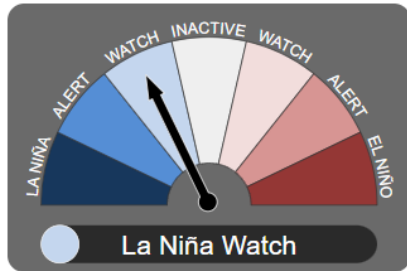


ENSO update - OCOF 202

18 July 2024

ENSO Update

ENSO and IOD remain neutral

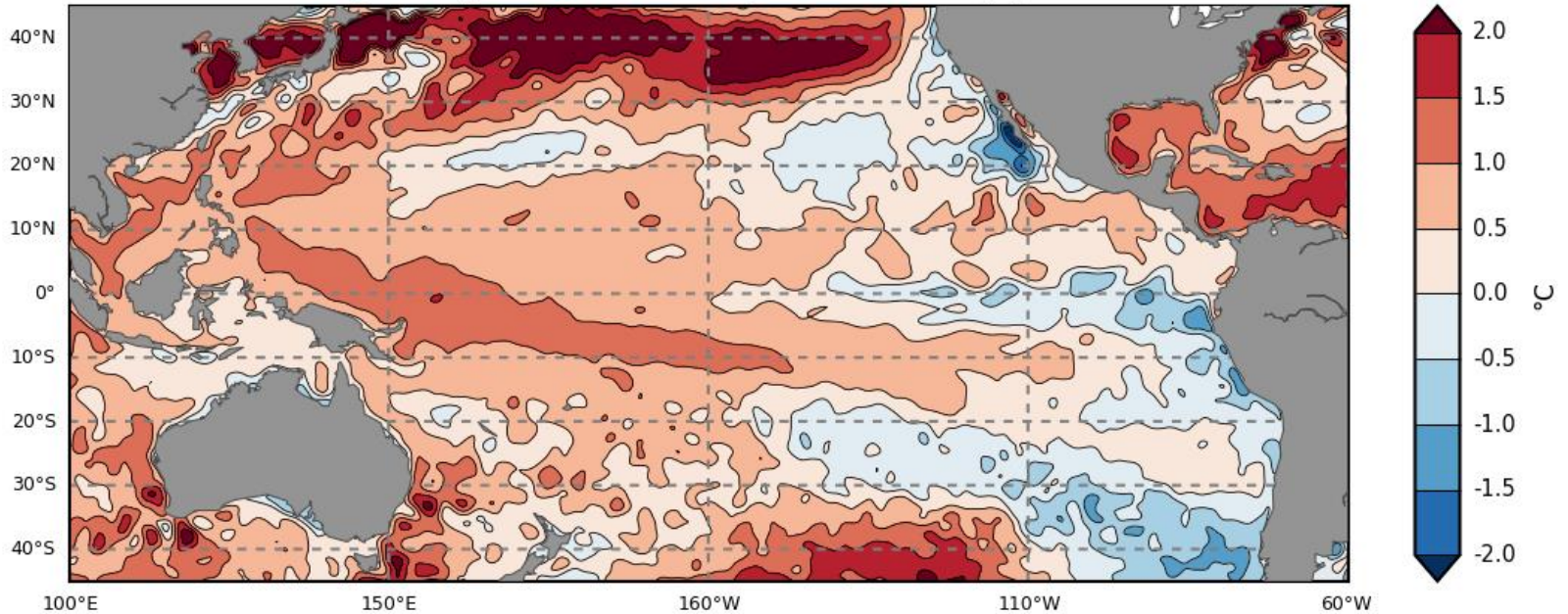


- Sea surface temperatures (SSTs) in the central Pacific have been cooling since December 2023. This surface cooling is supported by a cooler than average sub-surface in the central and eastern Pacific. During June, the rate and extent of cooling both at the surface and at depth has slowed. Cloud and surface pressure patterns are currently ENSO-neutral.
- Climate models suggest that SSTs in the central tropical Pacific are likely to continue to cool for at least the next two months. From September, four of seven climate models suggest SSTs are likely to remain at neutral ENSO levels, and the remaining three suggest the possibility of SSTs reaching La Niña levels (anomalies below -0.8 °C).
- The Bureau's ENSO Outlook is at La Niña Watch due to early signs that an event may form in the Pacific Ocean later in 2024. The chance is about 50%.

June 2024 SSTs

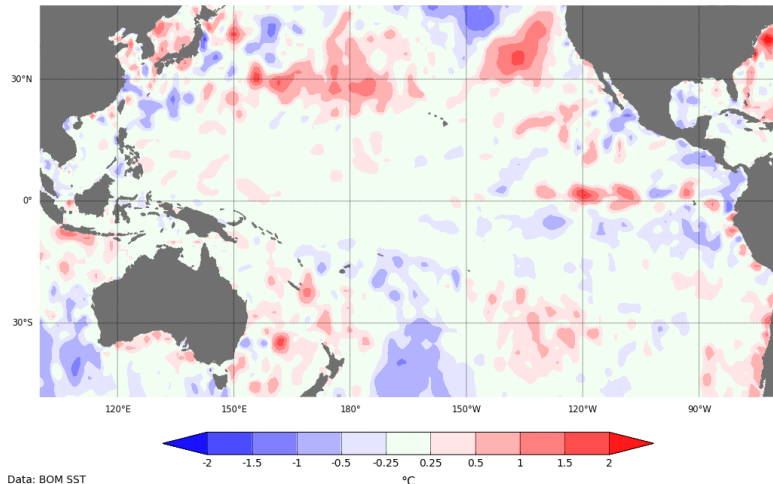
Pacific Ocean

Monthly Average Sea Surface Temperature Anomaly: June 2024



©Commonwealth of Australia 2024
Australian Bureau of Meteorology, COSPPac

Change in the monthly SST anomaly: June-2024 - May-2024

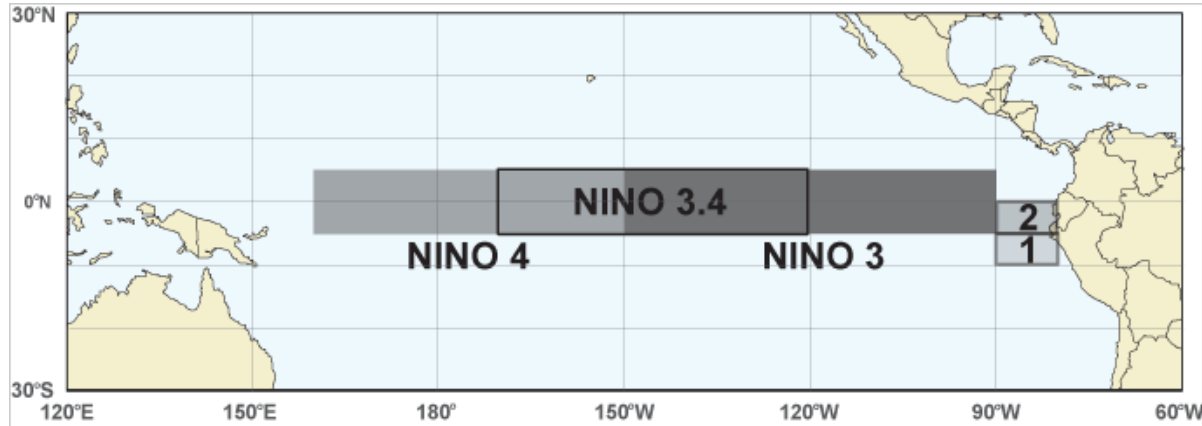


Data: BOM SST
Climatology baseline: 1961 to 1990
© Commonwealth of Australia 2024, Australian Bureau of Meteorology

<http://www.bom.gov.au/climate>

Anomaly monthly difference
Created: 08/07/2024

NINO INDICES SST anomalies (°C)

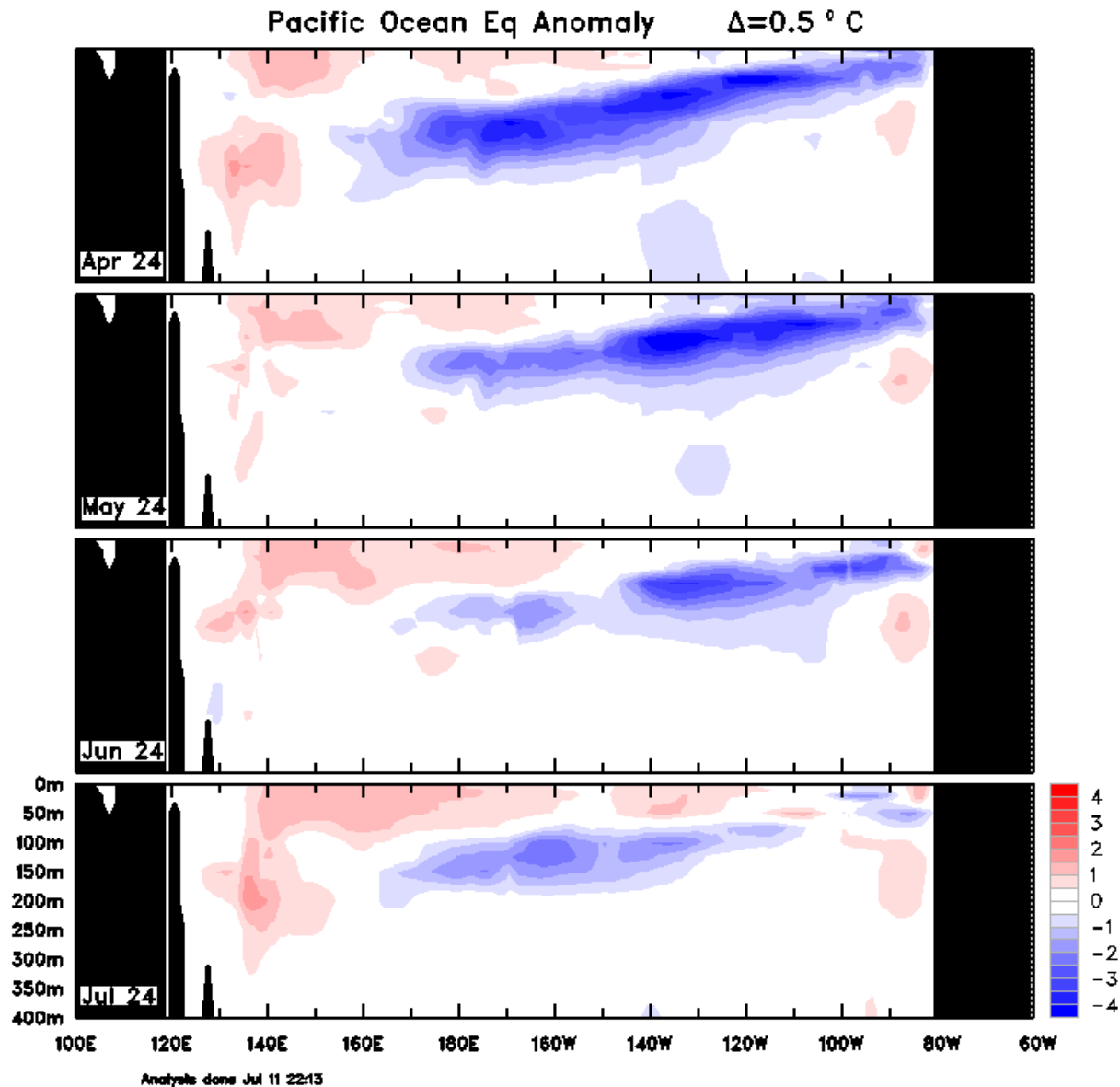


Index	May 2024	June 2024	Latest weekly
NINO3	0.0	+0.1	+0.1
NINO3.4	+0.4	+0.4	+0.3
NINO4	+0.7	+0.7	+0.7

Weekly data for the week ending 14/07/2024

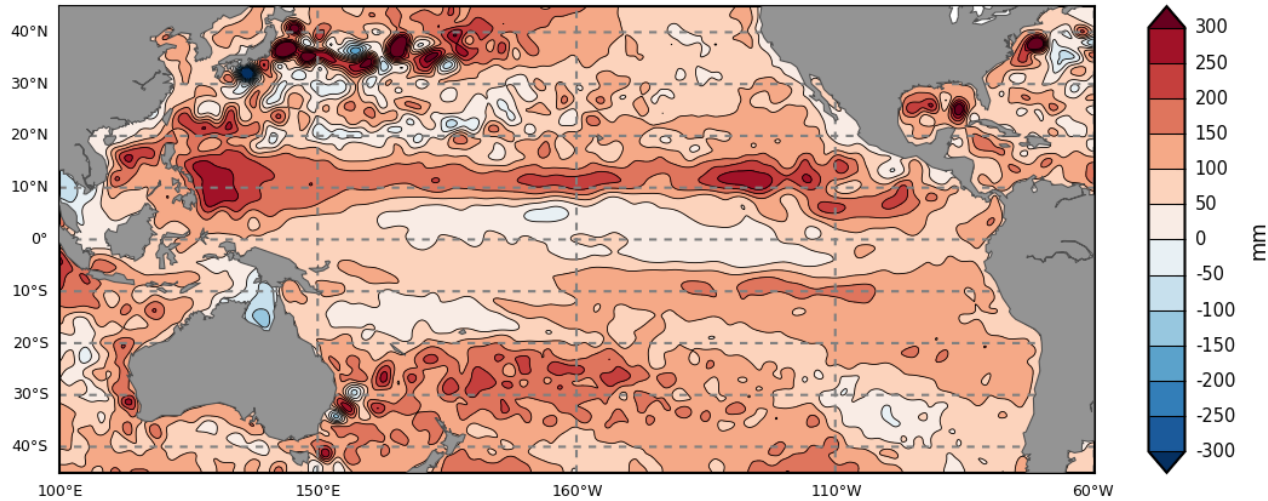
Equatorial Pacific sub-surface profile

Bureau of Meteorology

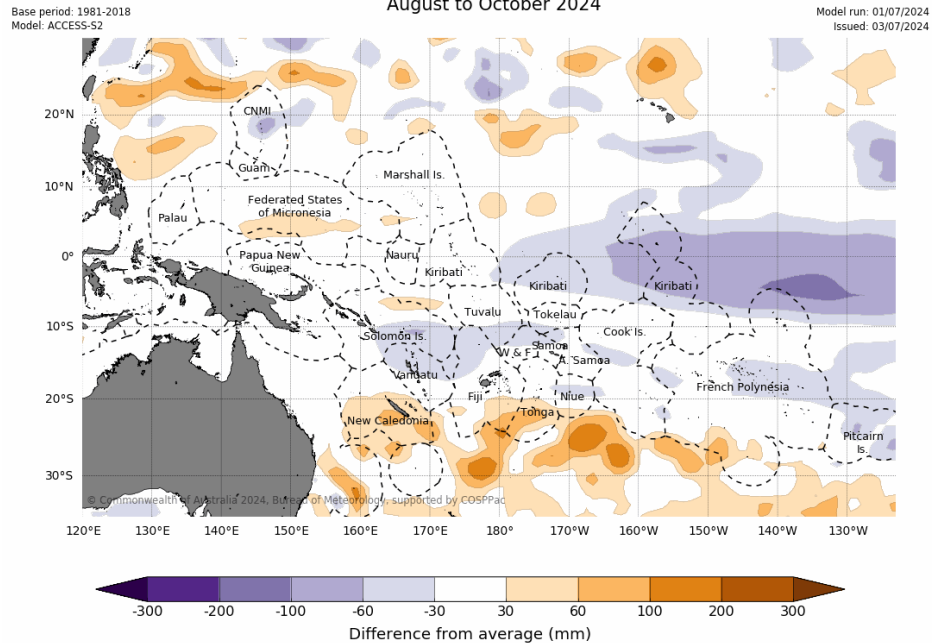


June 2024 Sea Level Anomaly

Pacific Ocean
Monthly Near Real Time Sea Level Anomaly: June 2024

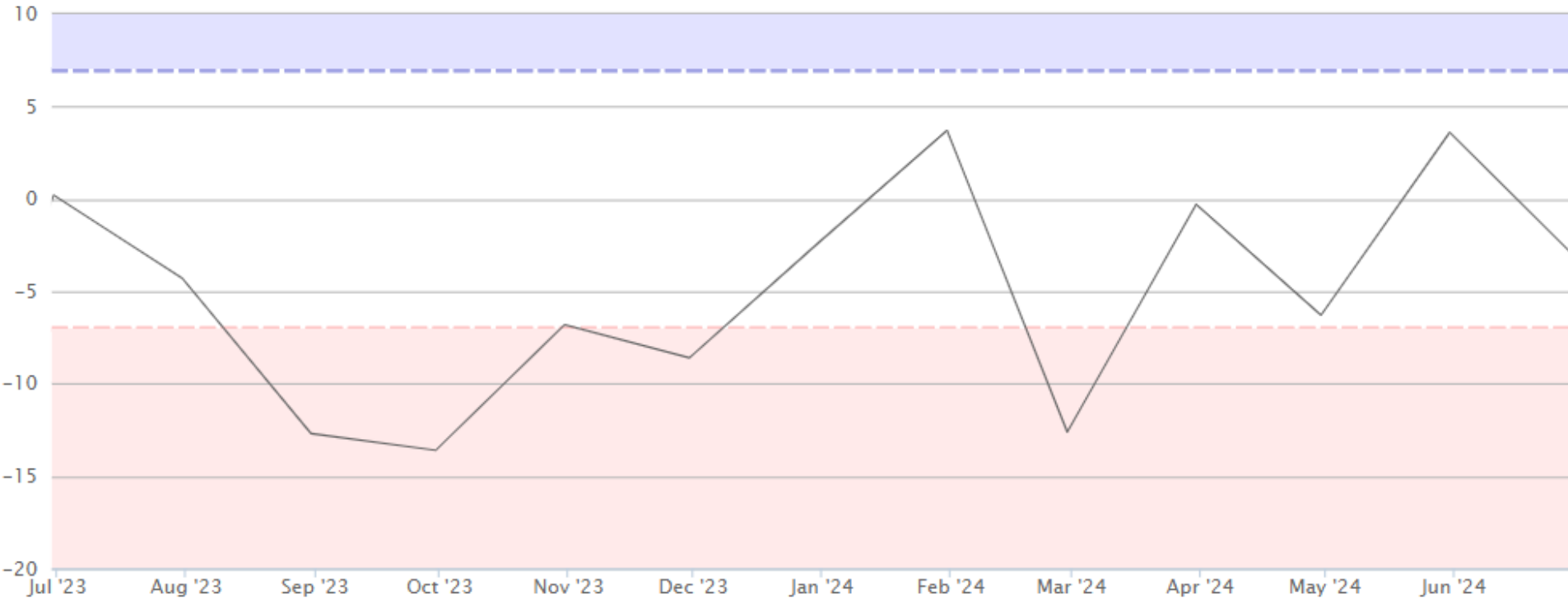


Difference from average sea surface height forecast for August to October 2024



Southern Oscillation Index

Southern Oscillation Index – monthly

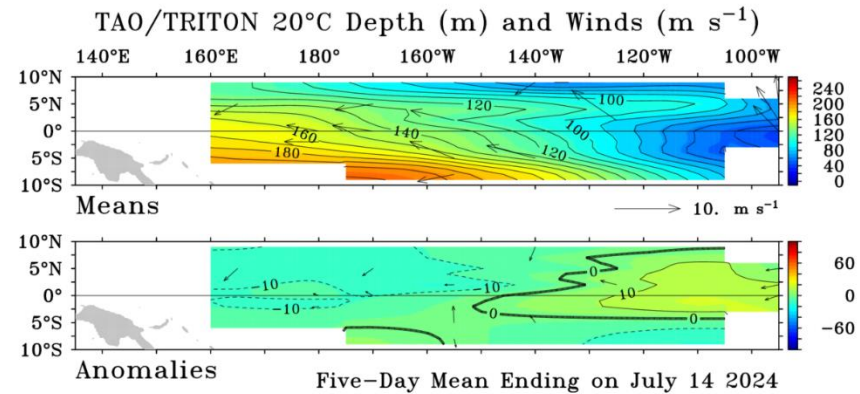
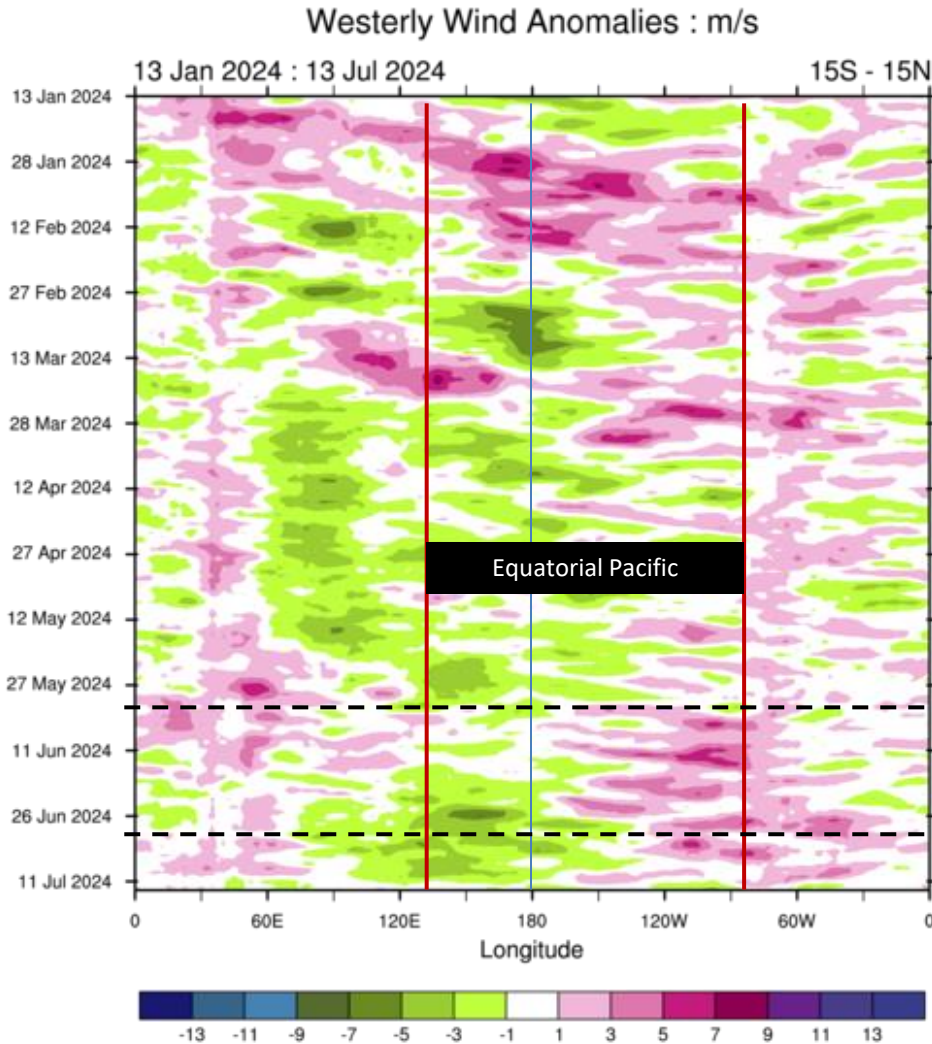


Southern Oscillation Index monthly data

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2024	+3.7	-12.6	-0.3	-6.3	+3.6	-3.1	-	-	-	-	-	-
2023	+11.8	+10.5	-2.0	+0.3	-18.5	+0.2	-4.3	-12.7	-13.6	-6.8	-8.6	-2.4

At 15 July 2024: 30-day SOI = -1; 90-day SOI = -1

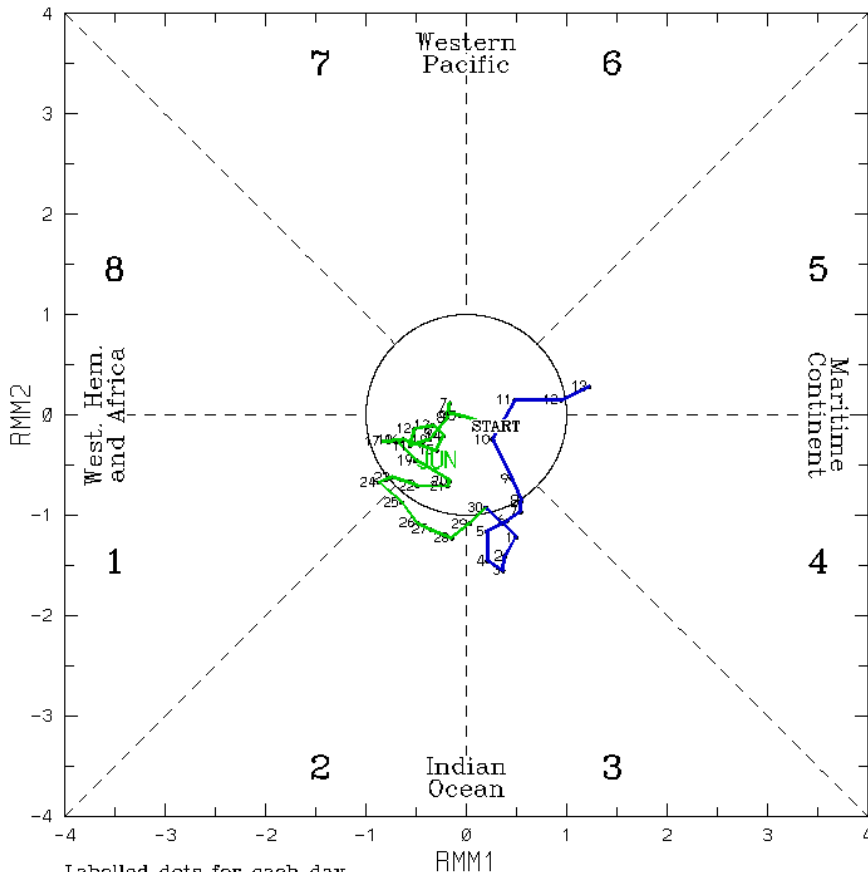
Equatorial Trade Winds



Global Tropical Moored Buoy Array Program Office, NOAA/PMEL

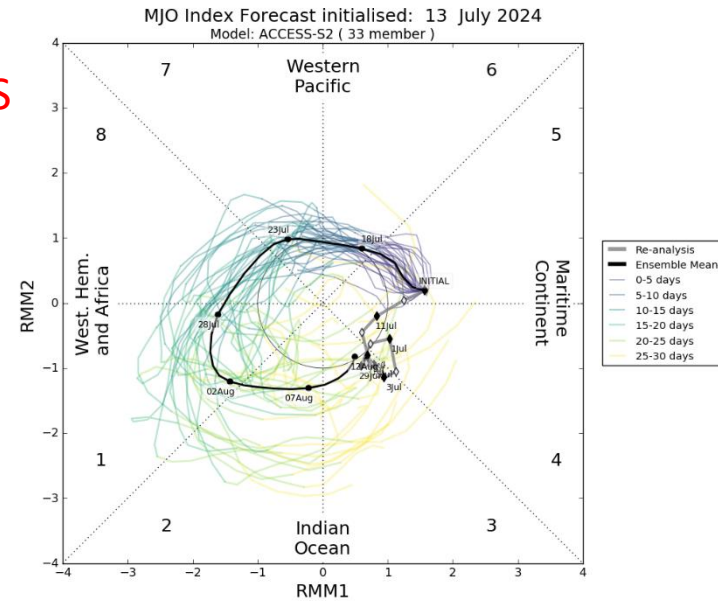
Madden-Julian Oscillation

(RMM1,RMM2) phase space for 4-Jun-2024 to 13-Jul-2024

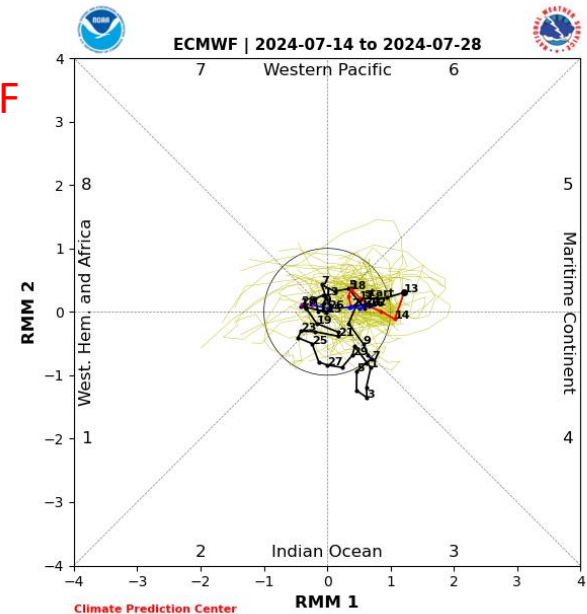


Labelled dots for each day.
Blue line is for Jul, green line is for Jun, red line is for May.

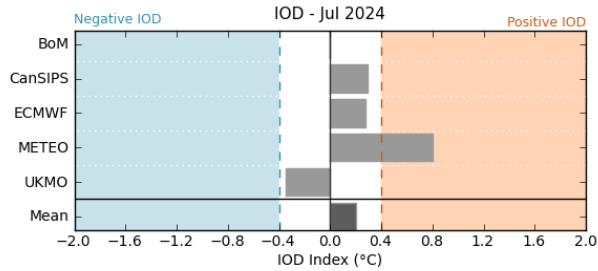
ACCESS



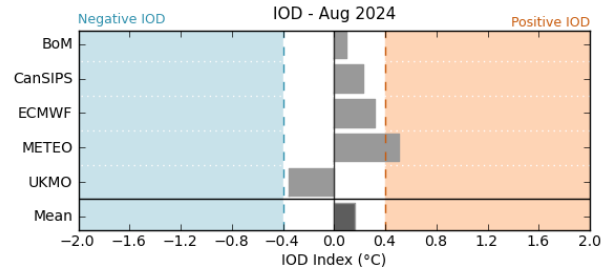
ECMWF



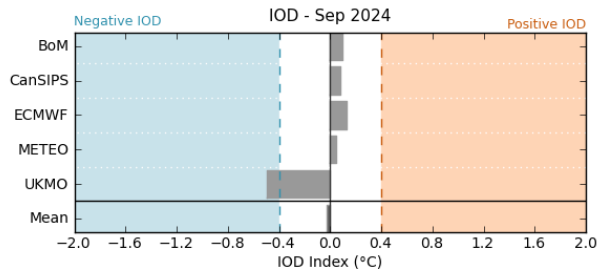
Indian Ocean Dipole (IOD)



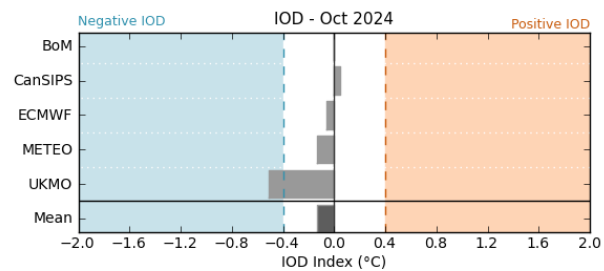
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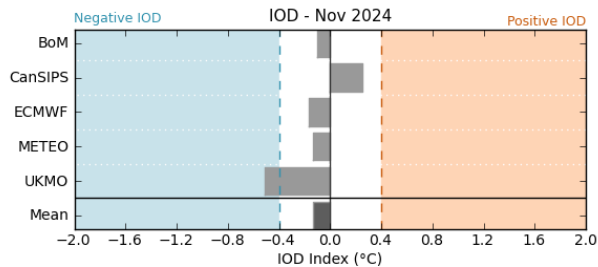
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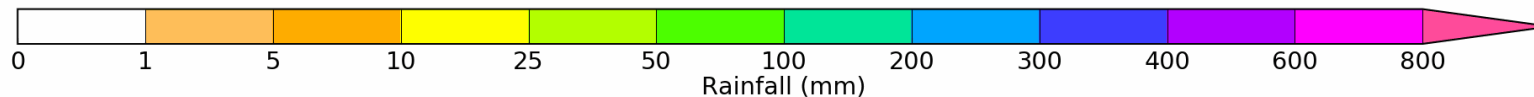
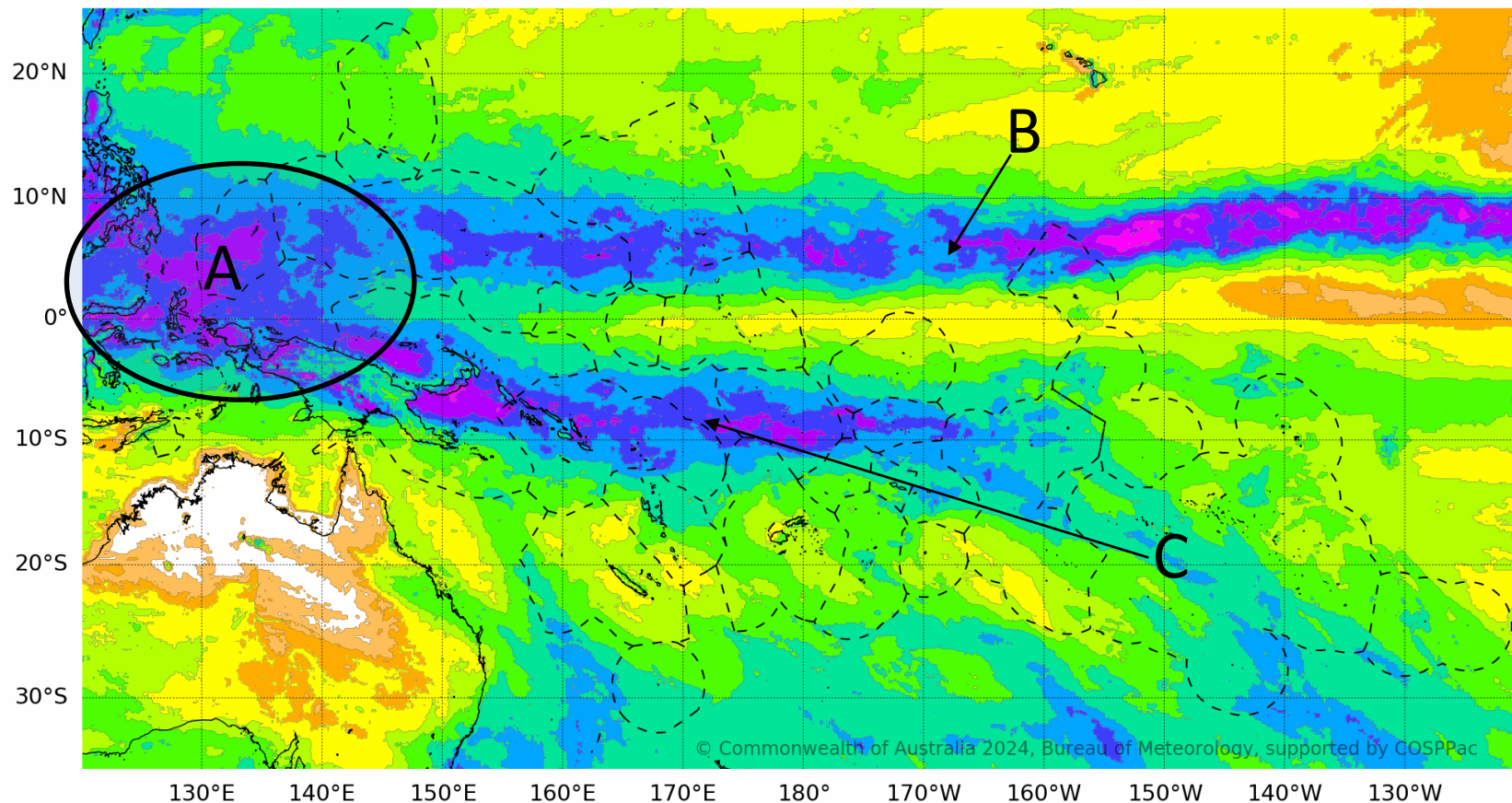
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Satellite Rainfall June 2024

1-month total rainfall ending June 2024

Data source: MSWEP

Issued: 07/07/2024



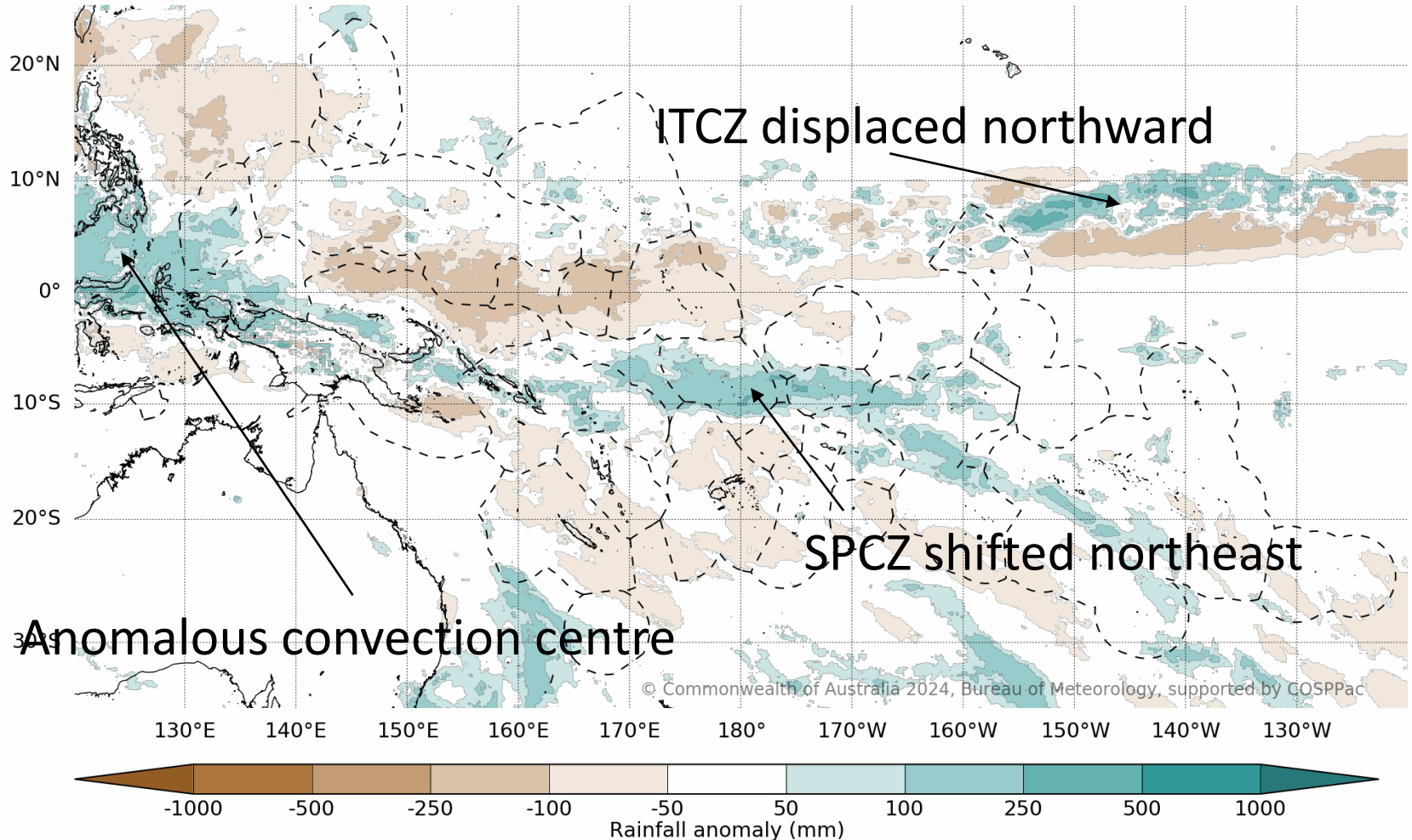
Dashed EEZ shapefile data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <http://www.marineregions.org/>.

Satellite Rainfall Anomaly June 2024

Base period: 1980-2021
Data source: MSWEP

1-month total rainfall anomaly ending June 2024

Issued: 07/07/2024

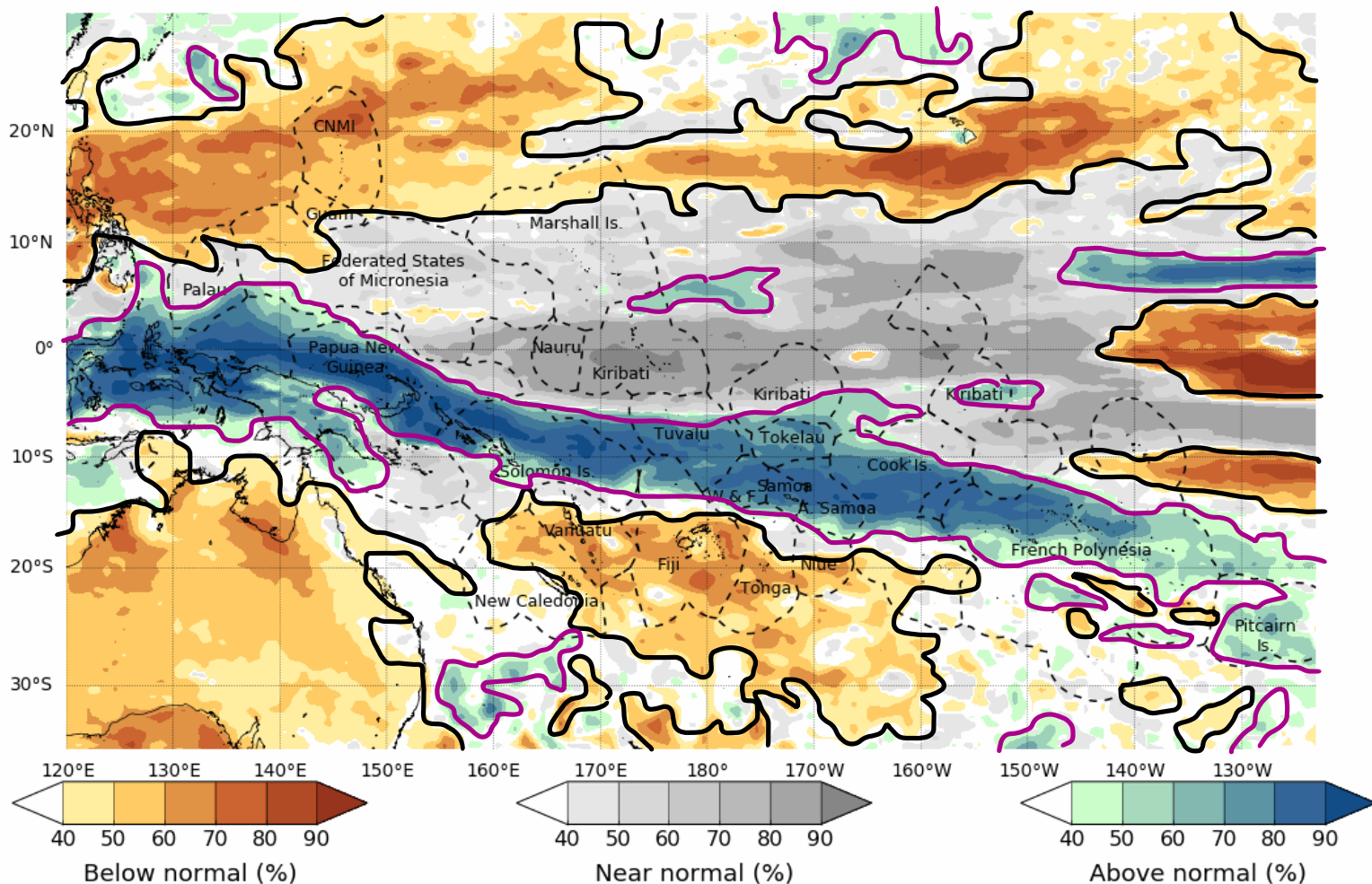


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Dashed EEZ shapefile data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <http://www.marineregions.org/>.

Forecast Verification: Apr-Jun

Tercile rainfall probabilities for
April to June 2024

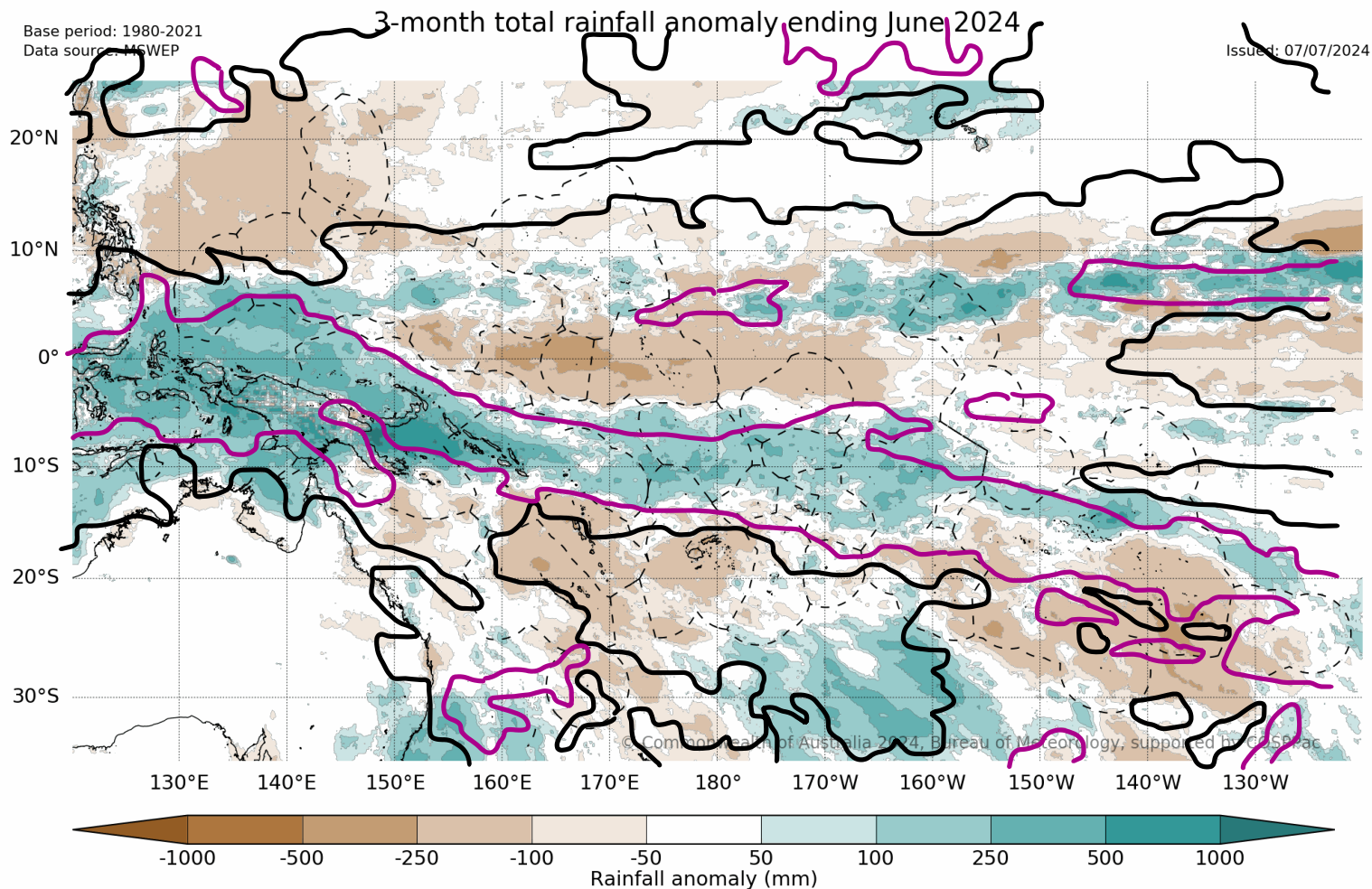


Base period: 1981-2018
Model: ACCESS-S2
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Model run: 01/04/2024
Issued: 03/04/2024

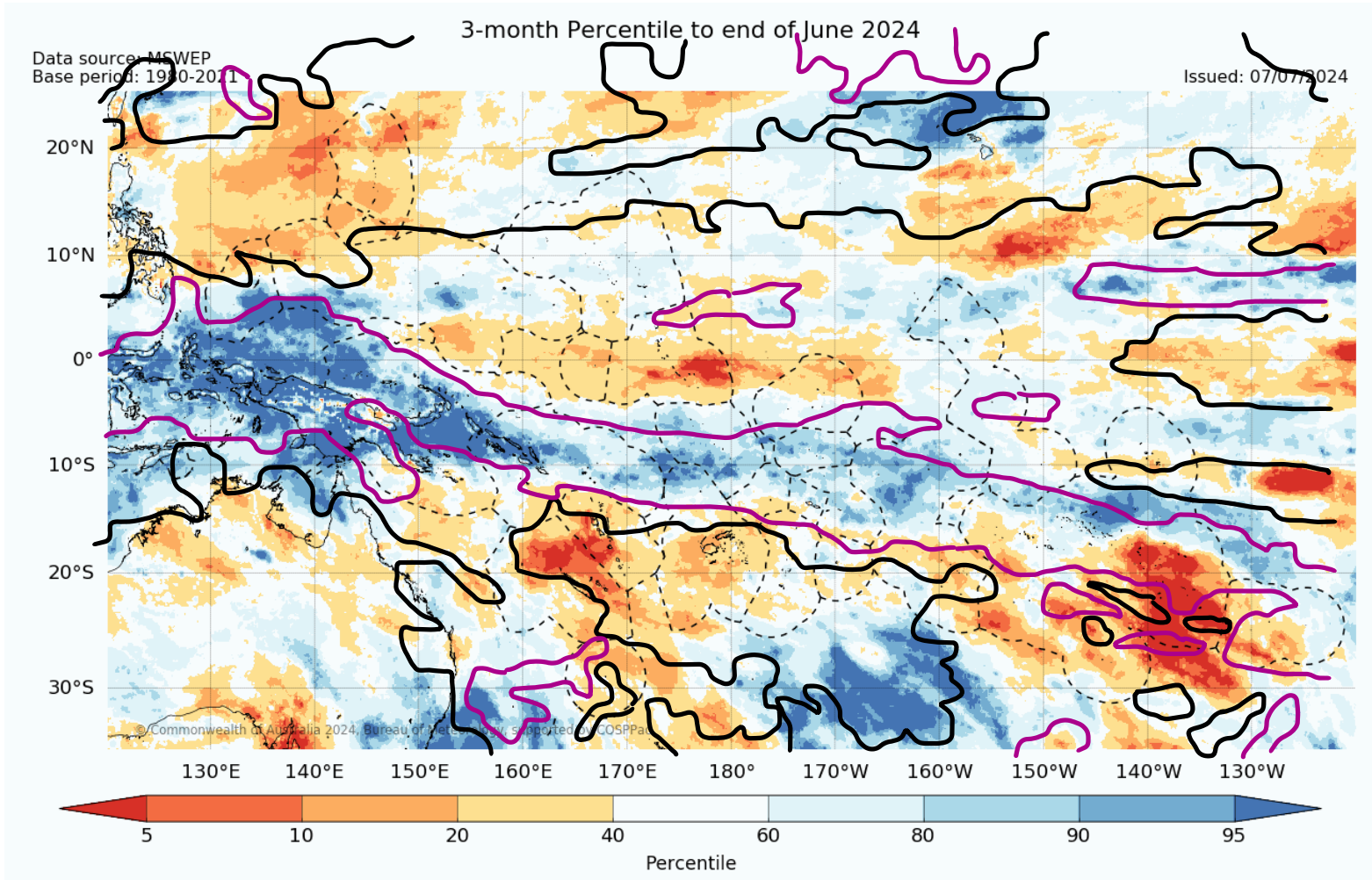
Shapefile data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <http://www.marineregions.org/>.

Forecast Verification: Apr-Jun



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/>.

Forecast Verification: Apr-Jun

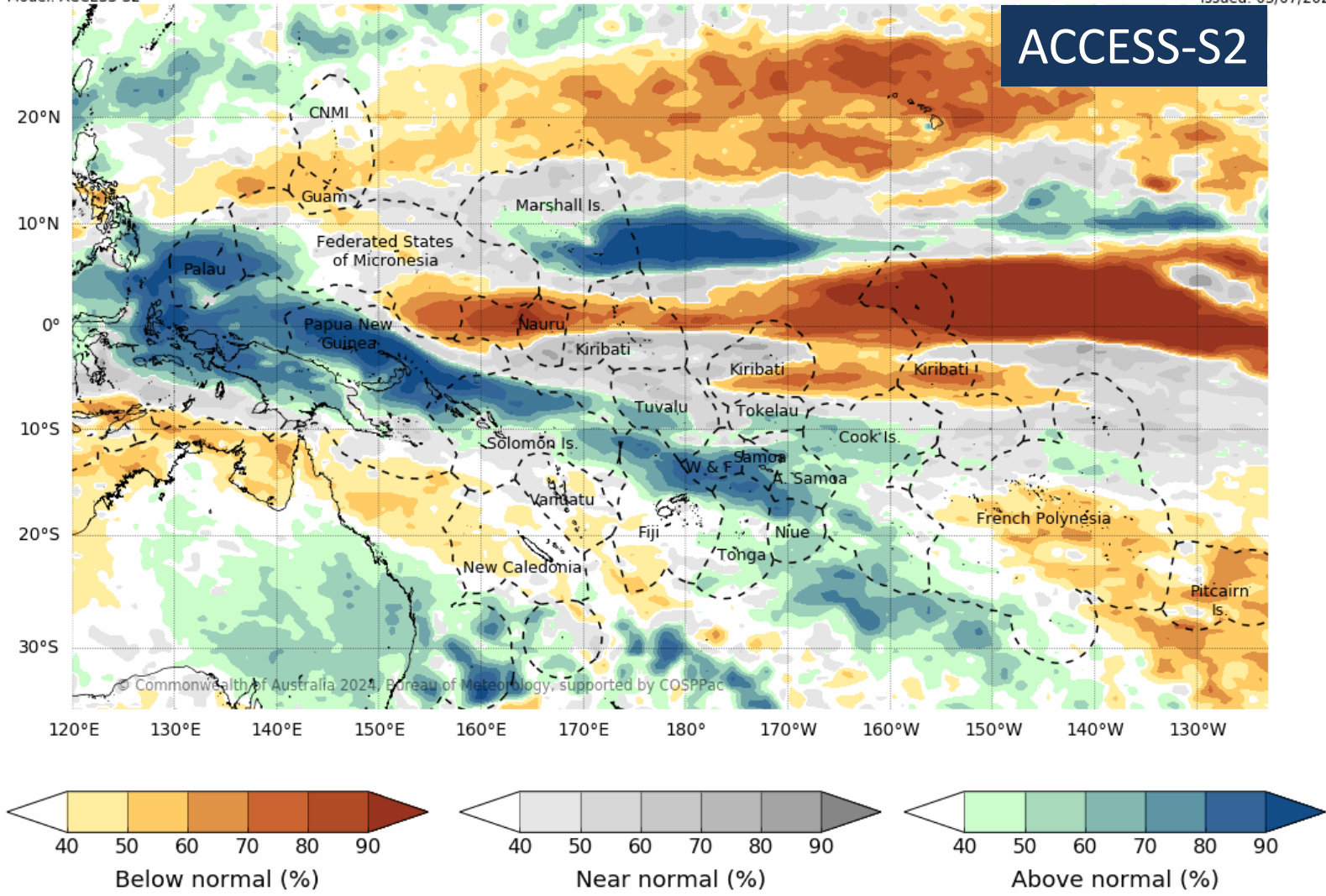


Model Rainfall Predictions (JAS)

Tercile rainfall probabilities for
July to September 2024

Base period: 1981-2018
Model: ACCESS-S2

Model run: 01/07/2024
Issued: 03/07/2024



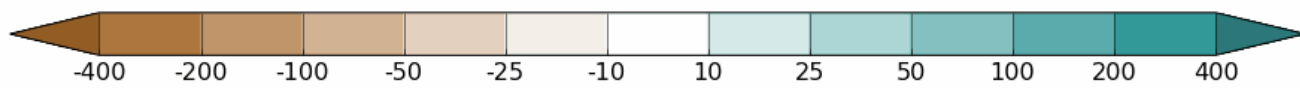
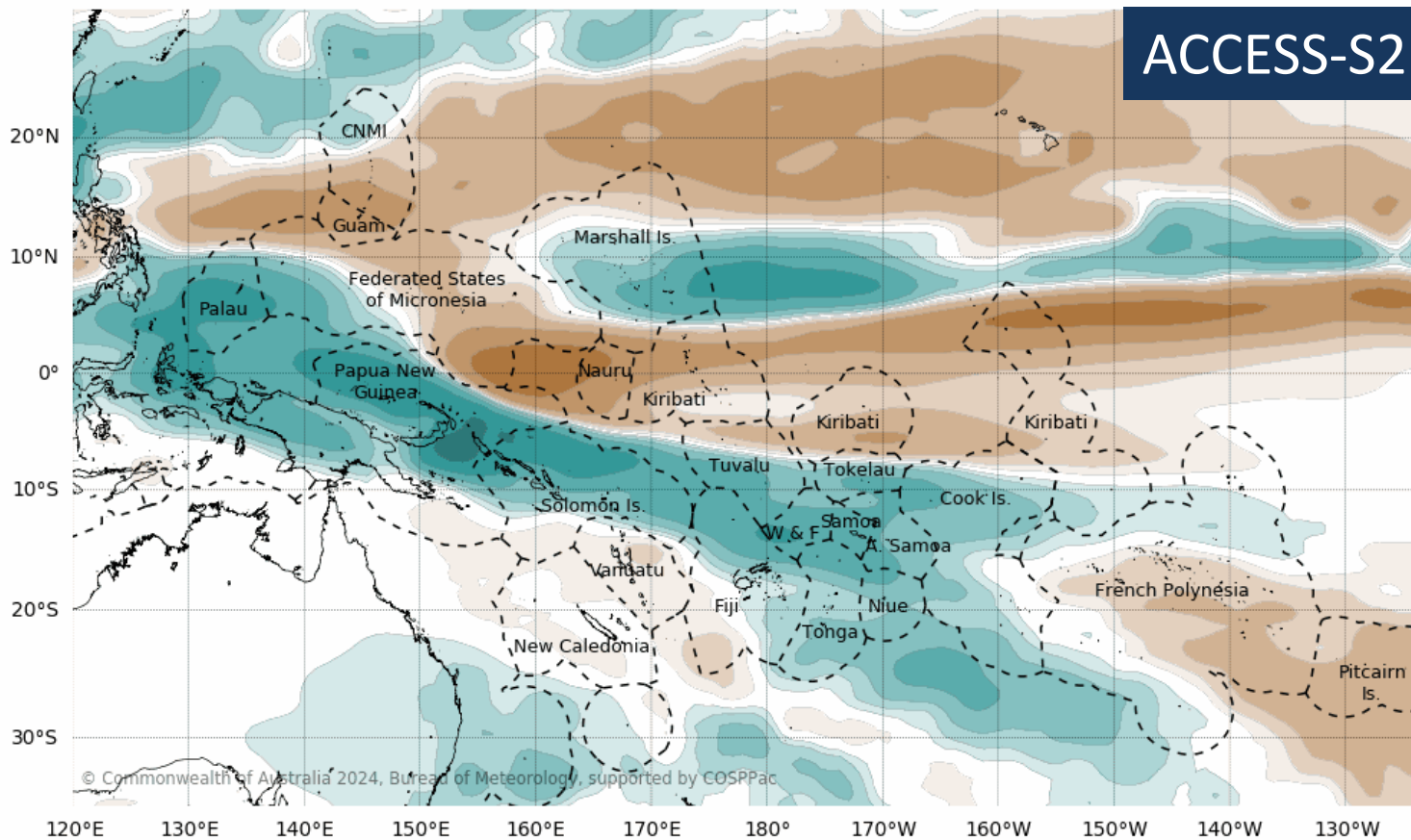
-- -- EEZ border V11 (Flanders Marine Institute, 2019).

Difference from Average (JAS)

Difference from average rainfall forecast for July to September 2024

Base period: 1981-2018
Model: ACCESS-S2

Model run: 01/07/2024
Issued: 03/07/2024



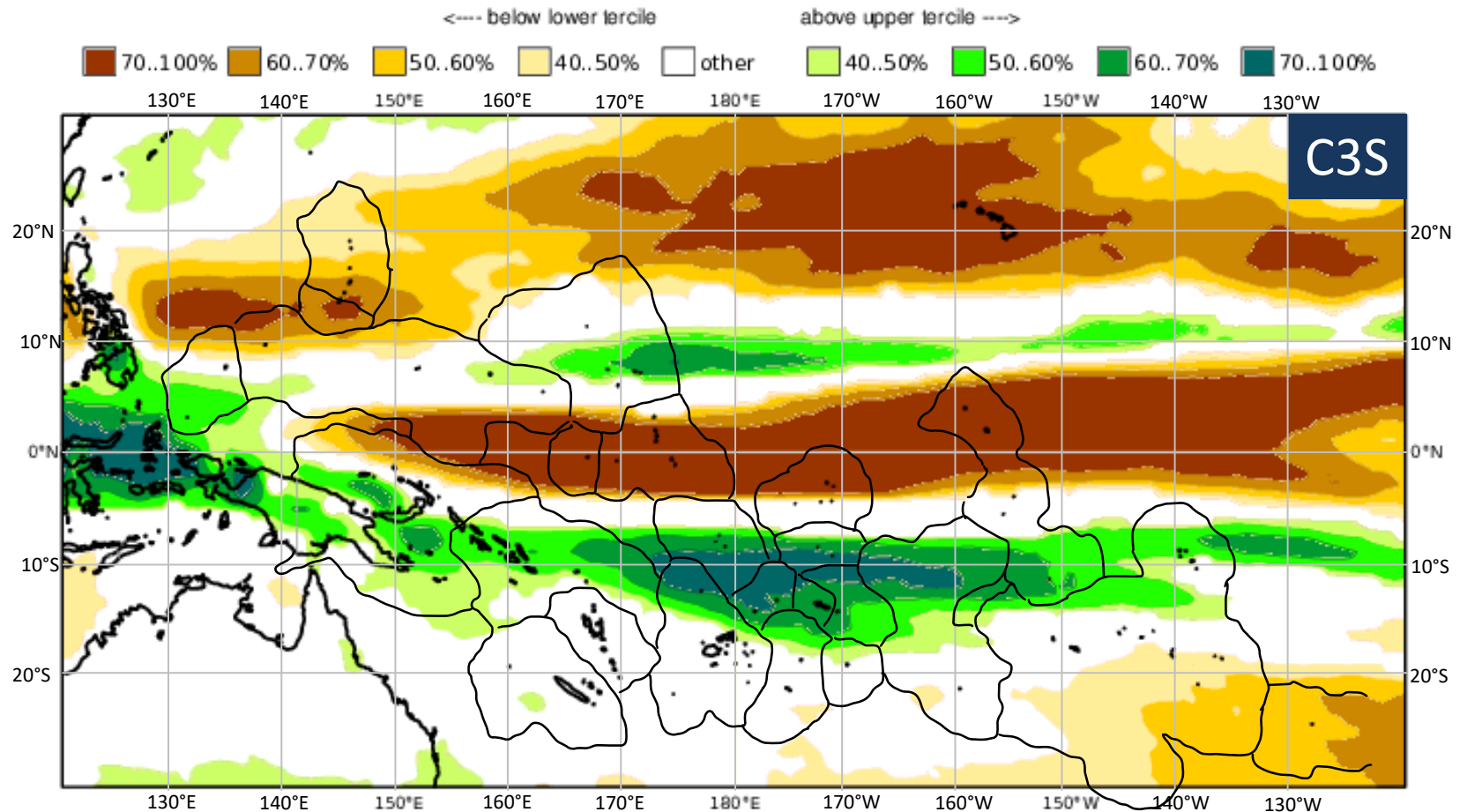
Difference from average (mm)

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

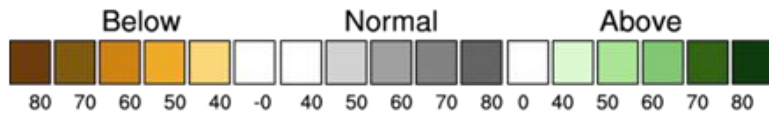
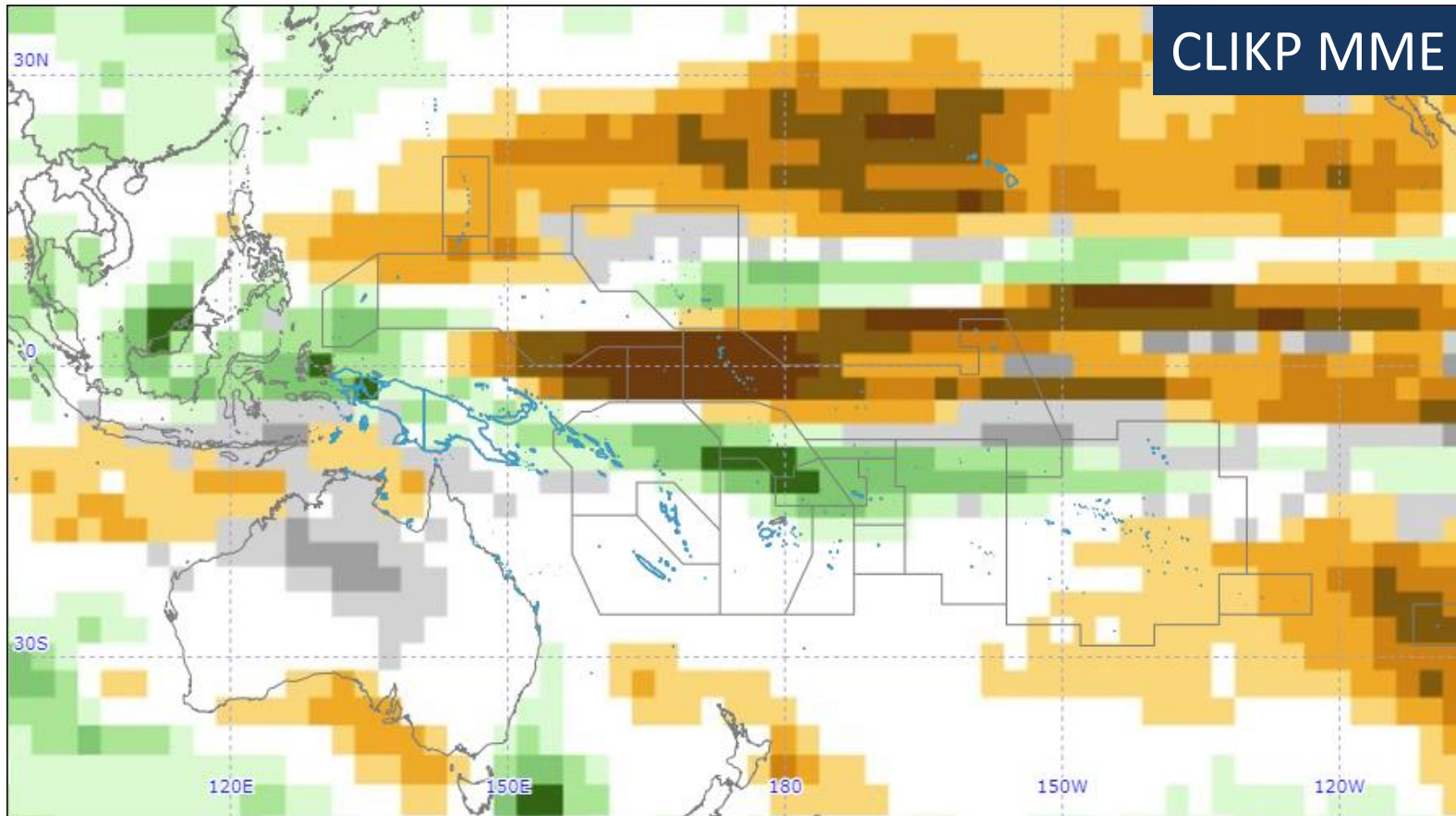
Model Rainfall Predictions (JAS)

C3S multi-system seasonal forecast ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC
 Prob(most likely category of precipitation) JAS 2024

Nominal forecast start: 01/06/24
 Unweighted mean



Model Rainfall Predictions (JAS)



Year: 2024, Season: JAS, Lead Month: 3, Method: GAUS

Model: CMCC, CWB, MSC, NASA, NCEP, PNU

Generated using CLIK® (2024-7-5)

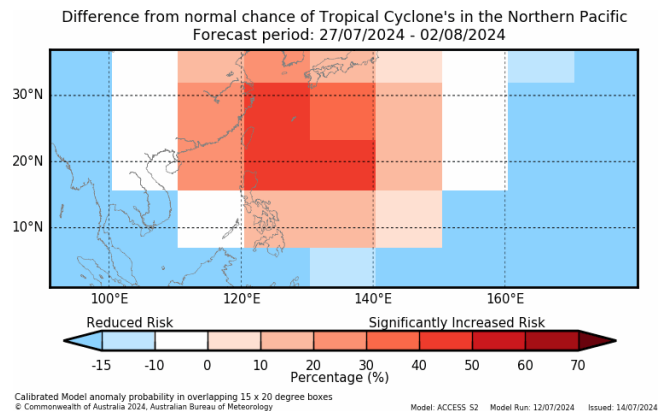
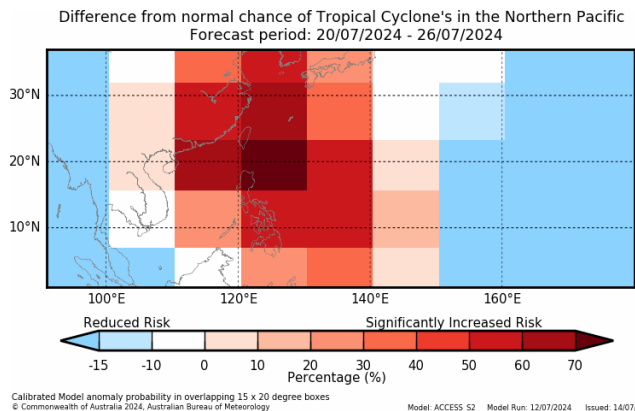
Model Rainfall Predictions (JAS)

July to September 2024			
	ACCESS-S	C3S	CLIKP
Cook Is North	Light Green	Light Blue	Light Green
Cook Is South	Light Green		
Fiji West			
Fiji Central			
Fiji East			
Fiji North			
Fiji Rotuma	Light Blue	Light Blue	Light Green
FSM West	Light Green	Yellow	
FSM Central	Light Grey		
FSM East			
Kiribati West	Yellow	Brown	Brown
Kiribati Central	Light Grey		Yellow
Kiribati East	Brown		Yellow
RMI North	Light Grey		Light Grey
RMI Central	Light Blue	Light Green	Light Green
RMI South	Light Grey		Yellow
Nauru	Yellow	Brown	Brown
Niue	Light Green		
Palau	Dark Blue		Light Green
PNG Momase	Light Green	Light Green	
PNG Is	Light Blue	Light Green	Light Green
PNG South	Light Green		
PNG Highlands	Light Blue	Light Green	Light Green
Samoa	Light Blue		
Solomon Is West	Light Blue	Light Green	Light Green
Solomon Is Central	Light Grey	Light Green	Light Green
Solomon Is East			
Tonga North	Light Blue	Light Green	Light Green
Tonga Central	Light Grey		
Tonga South	Light Green		
Tuvalu North	Light Grey		Yellow
Tuvalu Central	Light Green	Light Blue	Light Green
Tuvalu South	Light Grey	Light Blue	Light Blue
Vanuatu North			
Vanuatu South			

	41-50%	51-60%	61-70%	71-80%	81-90%	>90%
Below normal	Yellow	Yellow	Orange	Orange	Brown	Dark Brown
Near-normal	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey
Above normal	Light Green	Light Green	Light Blue	Light Blue	Dark Blue	Dark Blue

TC Outlooks

Northwest Pacific

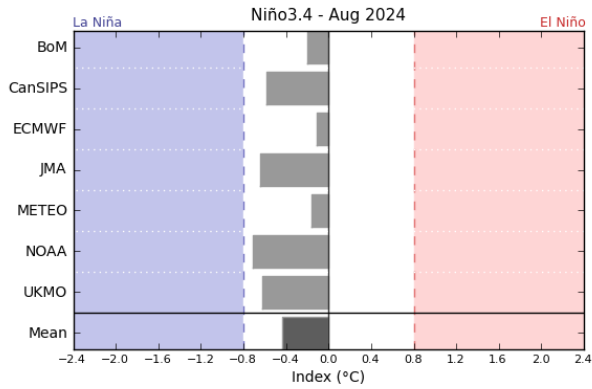


South Pacific

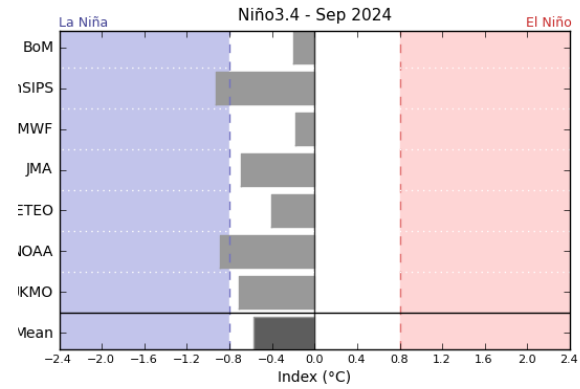
OUT OF SEASON

Calibrated Tropical Cyclone outlooks
are for November to April

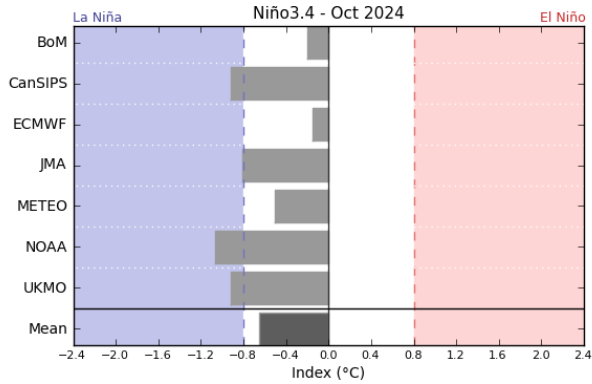
Climate Model Summary



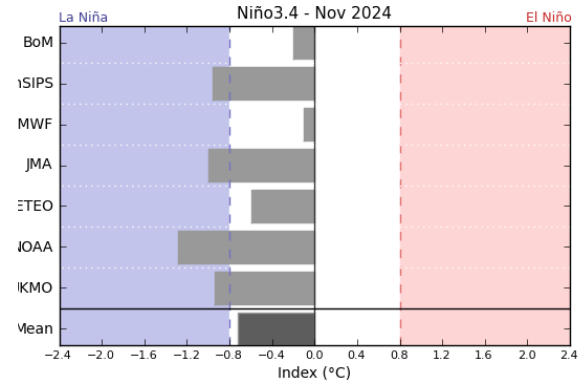
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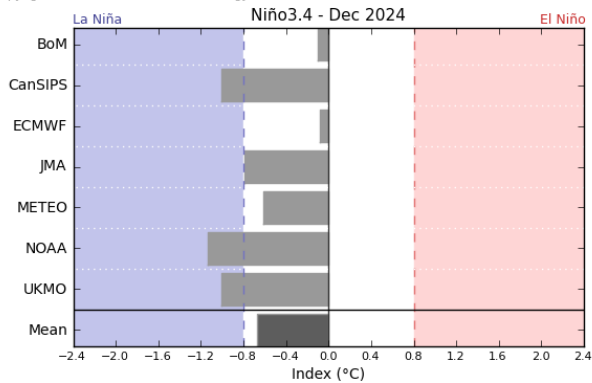
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IRI Climate Model Summary

Model Predictions of ENSO from Jun 2024

