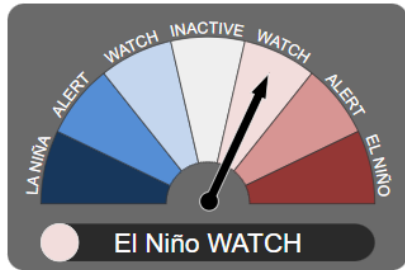


# ENSO update - OCOF 188

18 May 2023

# ENSO Update



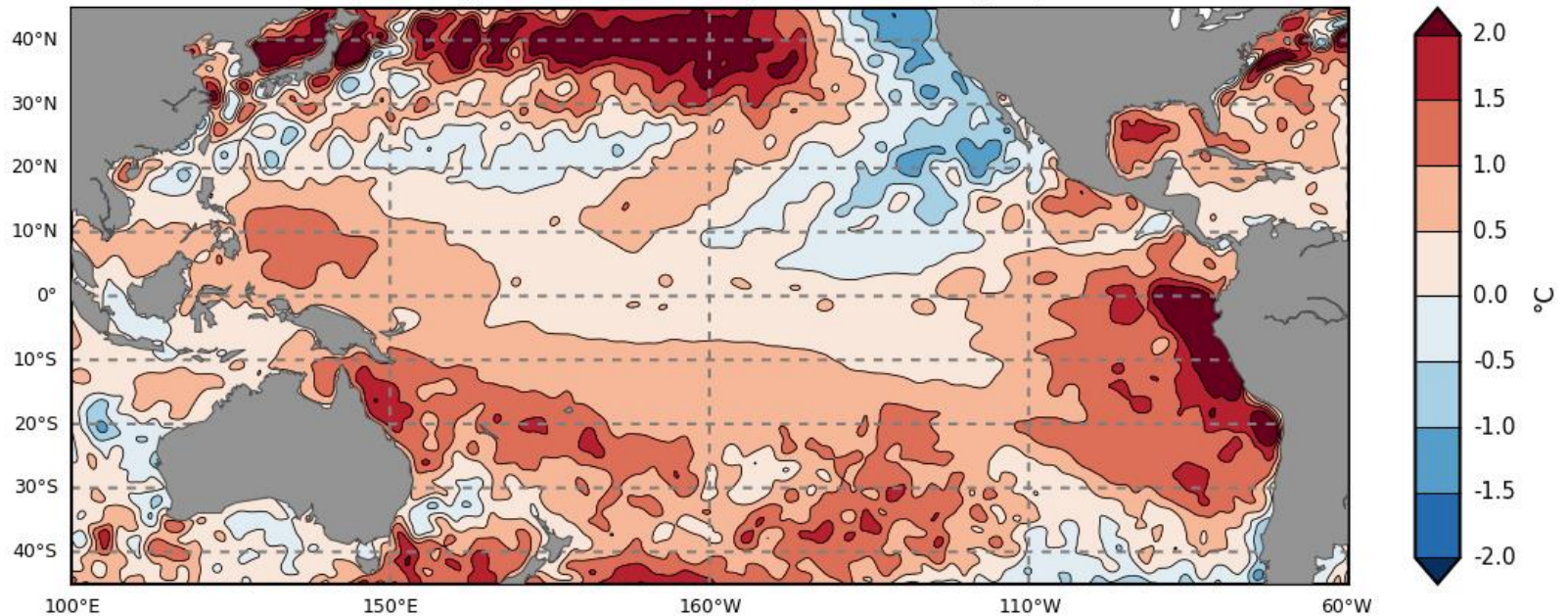
## El Niño WATCH continues

- The El Niño–Southern Oscillation (ENSO) is currently neutral (neither La Niña nor El Niño).
- The Bureau's ENSO Outlook is at El Niño WATCH. An El Niño WATCH is not a guarantee that El Niño will occur, rather it is an indication that some of the typical precursors of an event are currently observed. An El Niño WATCH means that there is around a 50% chance that El Niño will develop. This is about twice the normal likelihood of El Niño forming in any year.
- International climate models suggest further warming of the central and eastern tropical Pacific Ocean is likely. From July, six of the seven models indicate El Niño thresholds for sea surface temperatures will be met or exceeded, with all models meeting thresholds by August.

# April 2023 SSTs

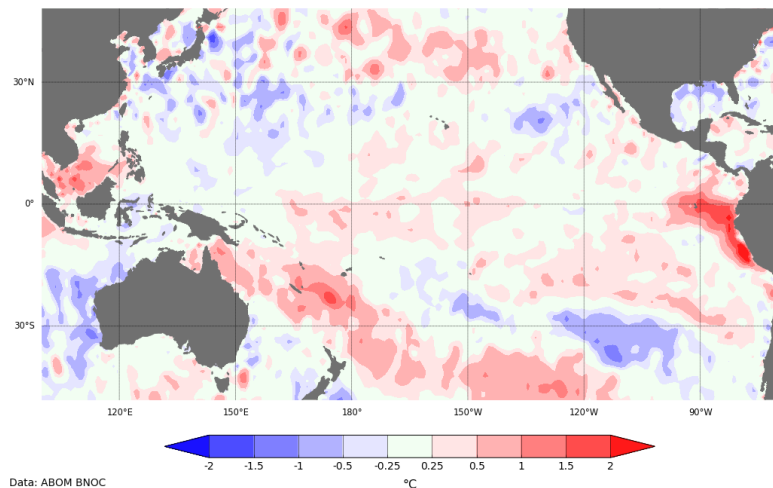
Pacific Ocean

Monthly Average Sea Surface Temperature Anomaly: April 2023



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Australian Bureau of Meteorology, COSPPac

Change in the monthly SST anomaly: April-2023 - March-2023

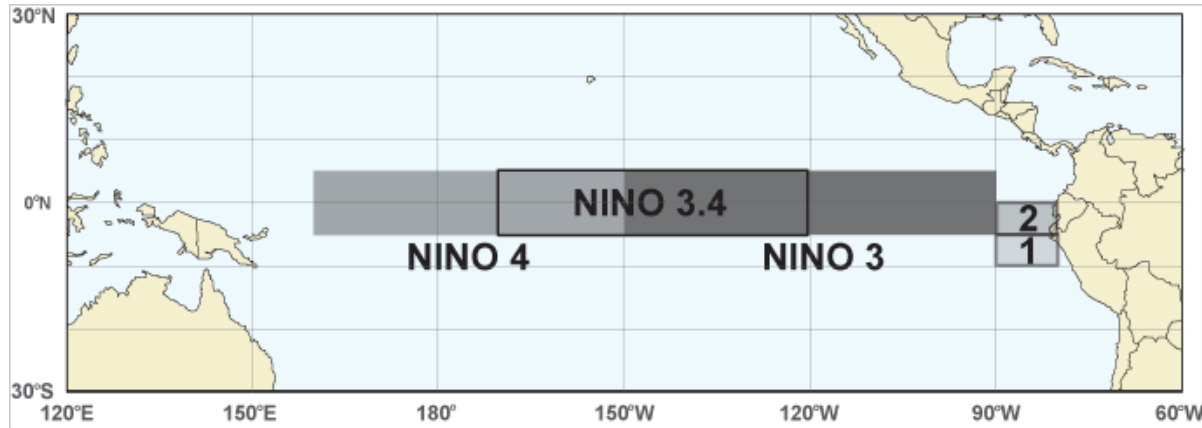


Data: ABOM BNOG  
Climatology baseline: 1961 to 1990  
© Commonwealth of Australia 2023, Australian Bureau of Meteorology

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

Anomaly monthly difference  
Created: 08/05/2023

# NINO INDICES SST anomalies (°C)

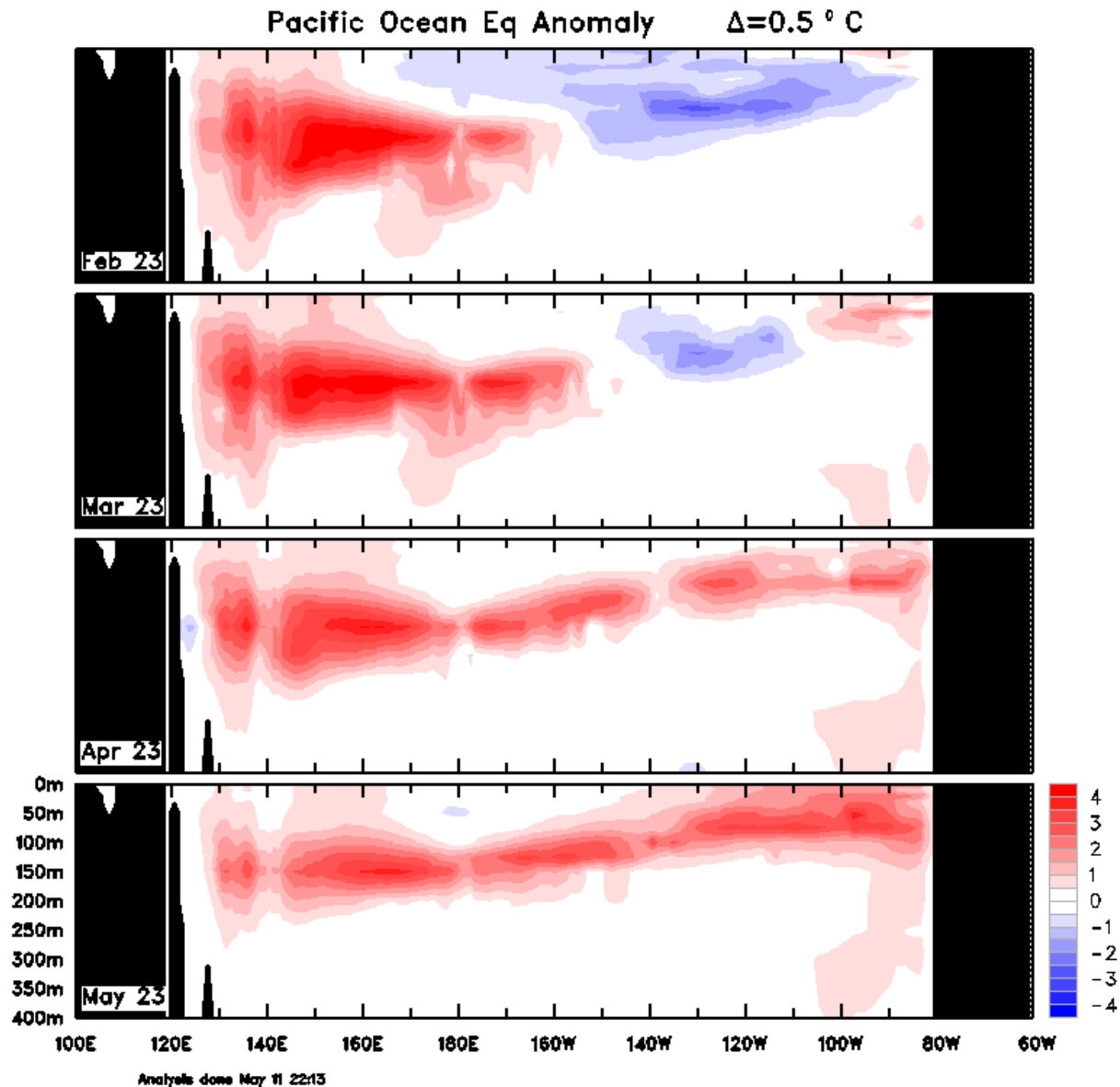


Index	Mar 2023	Apr 2023	Latest weekly
NINO3	+0.5	+0.7	+1.1
NINO3.4	+0.1	+0.3	+0.6
NINO4	0.0	+0.3	+0.4

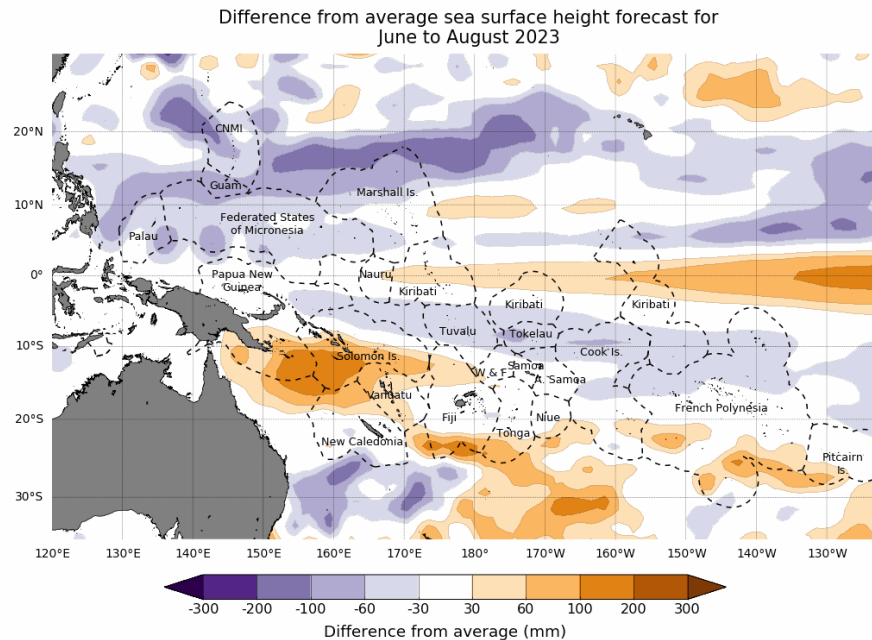
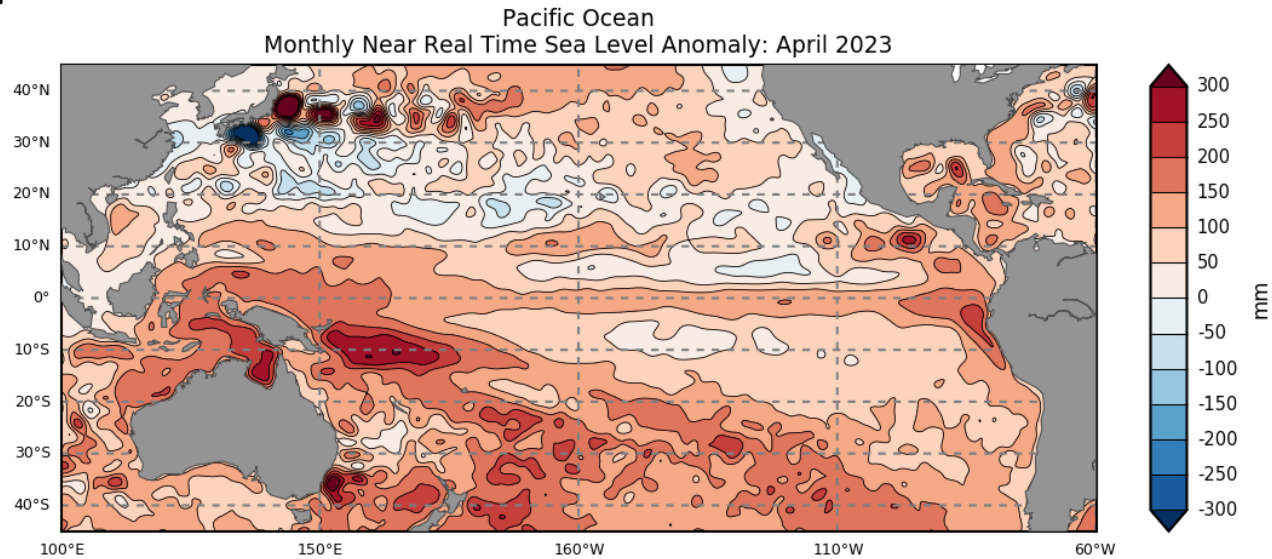
Weekly data for the week ending 14/05/2023

# Equatorial Pacific sub-surface profile

## Bureau of Meteorology

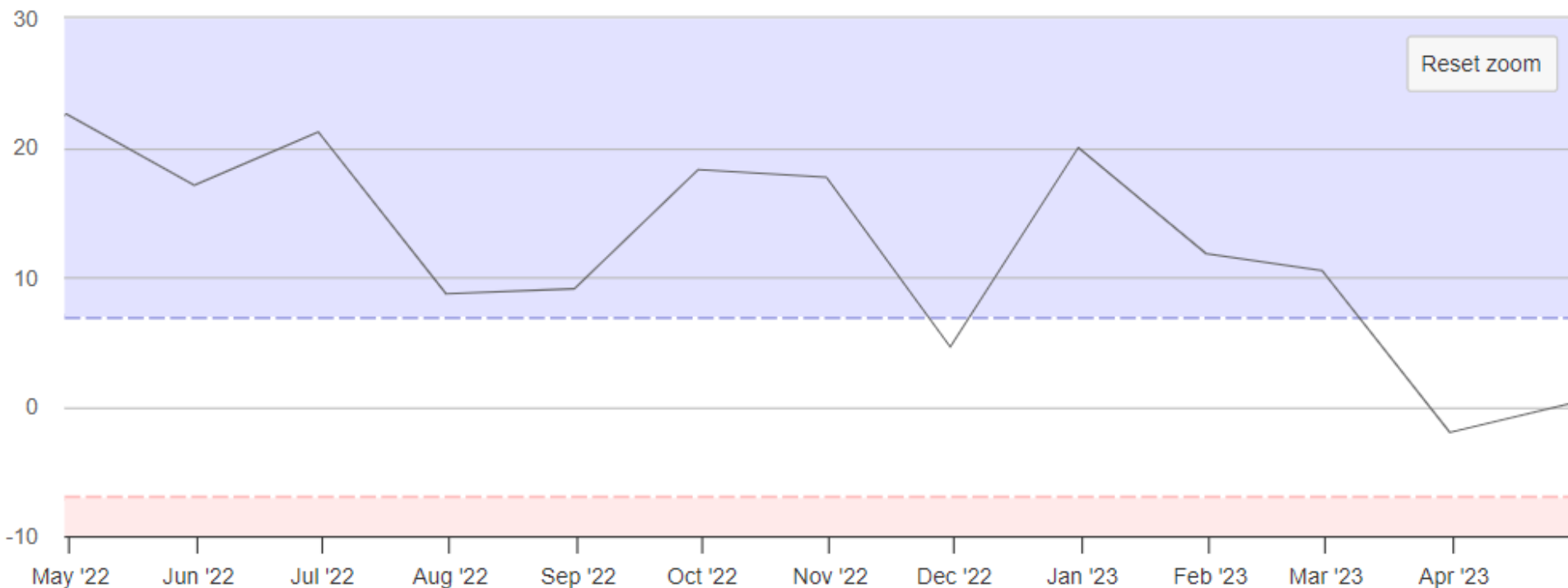


# April 2023 Sea Level Anomaly



# Southern Oscillation Index

Southern Oscillation Index - monthly



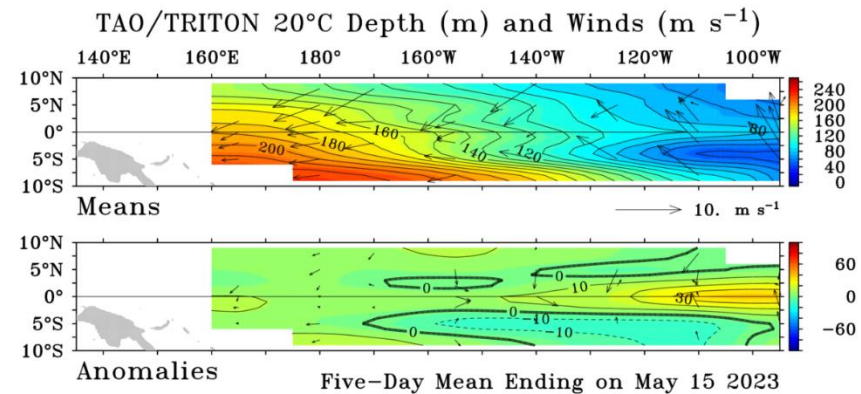
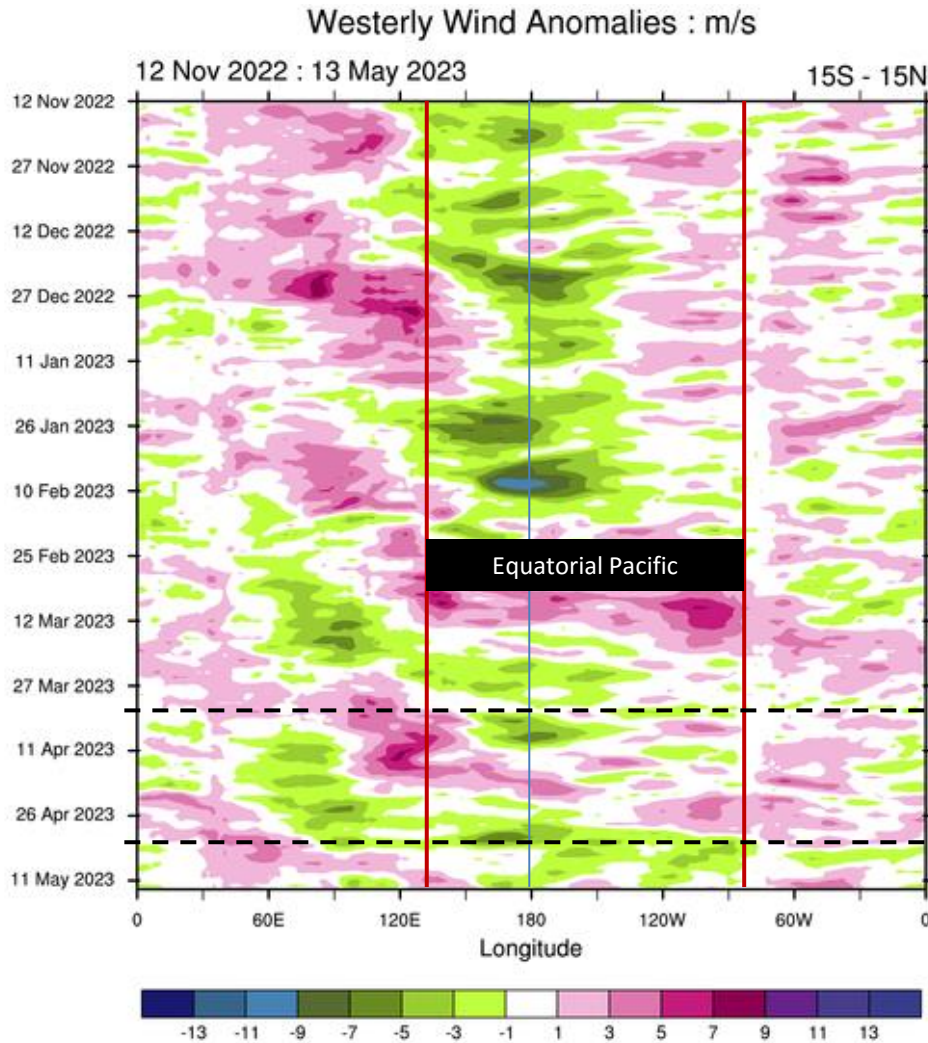
Southern Oscillation Index monthly data

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2023	+11.8	+10.5	-2.0	+0.3	-	-	-	-	-	-	-	-
2022	+4.1	+8.2	+13.8	+22.6	+17.1	+21.2	+8.7	+9.1	+18.3	+17.7	+4.6	+20.0

At 15 May 2023: 30-day SOI = -6; 90-day SOI = -1



# Equatorial Trade Winds

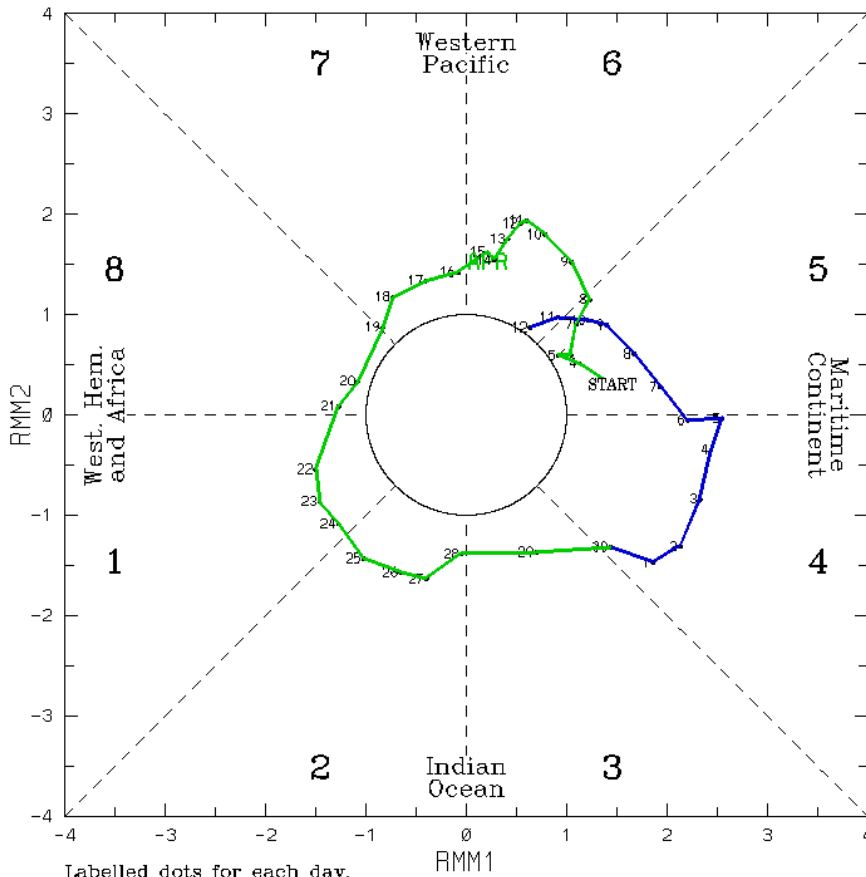


Global Tropical Moored Buoy Array Program Office, NOAA/PMEL



# Madden-Julian Oscillation

(RMM1,RMM2) phase space for 3-Apr-2023 to 12-May-2023

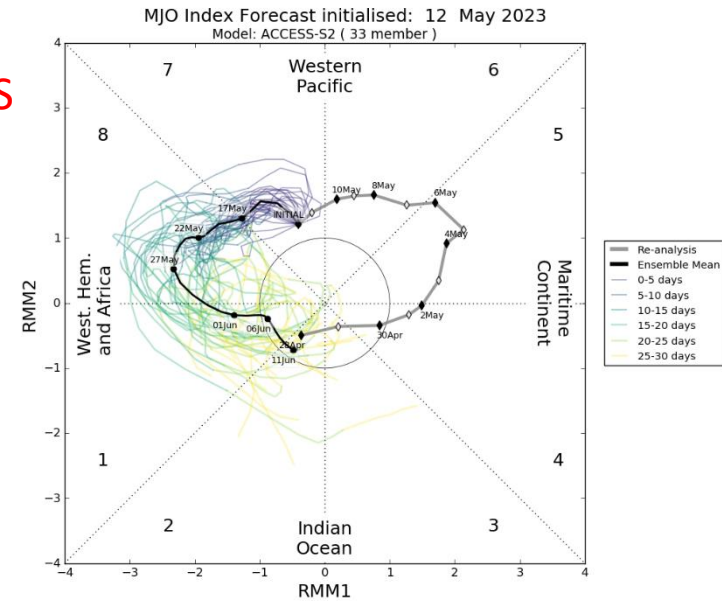


Labelled dots for each day.

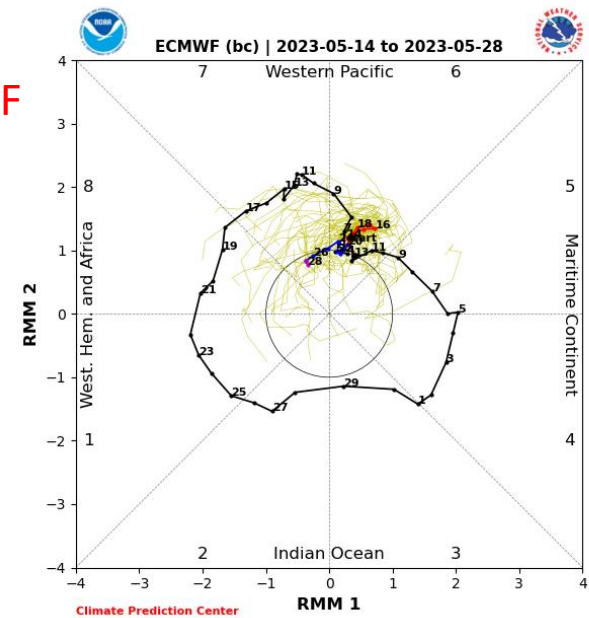
Blue line is for May, green line is for Apr, red line is for Mar.

(C) Copyright Commonwealth of Australia 2023. Bureau of Meteorology  
2023

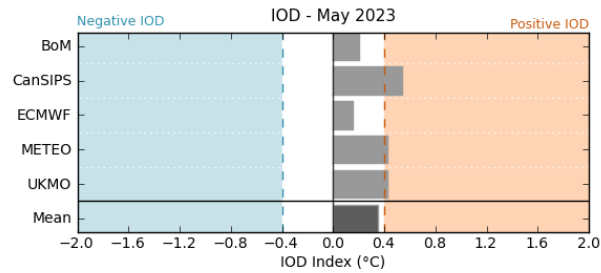
## ACCESS



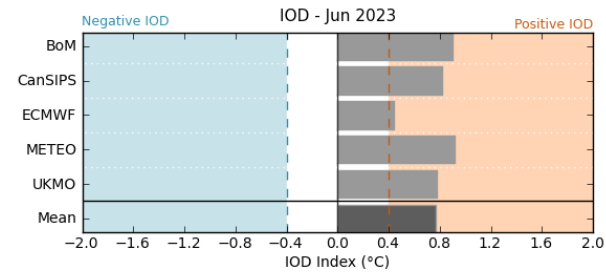
# ECMWF



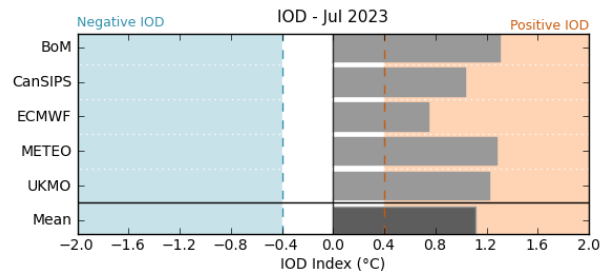
# Indian Ocean Dipole (IOD)



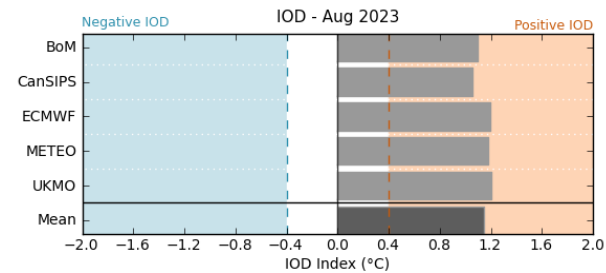
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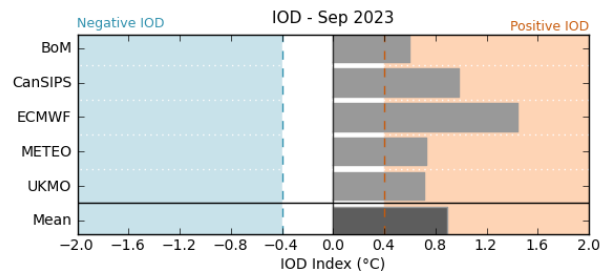
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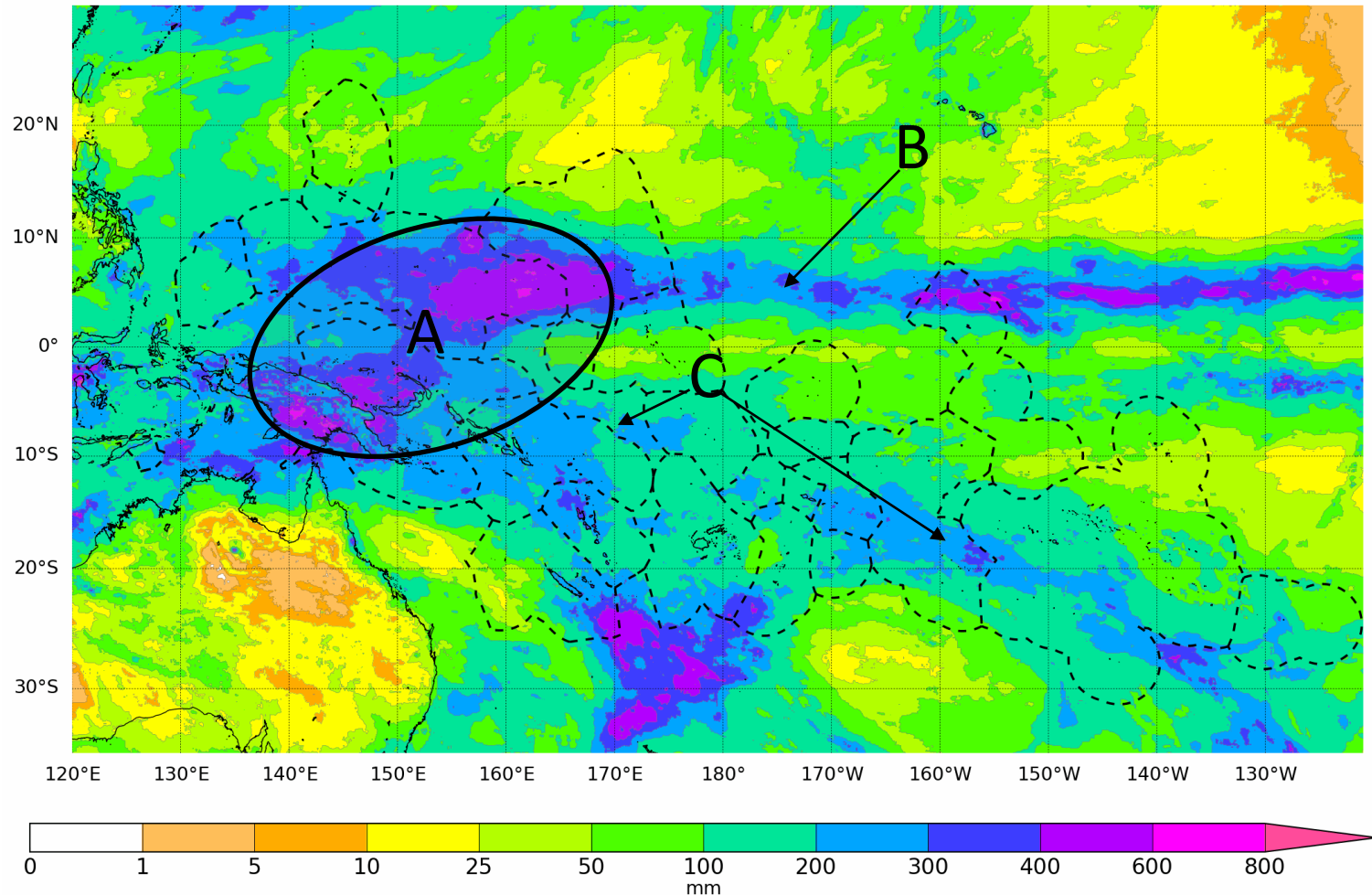
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# Satellite Rainfall April 2023

1-month total rainfall ending April 2023



Data source: MSWEP

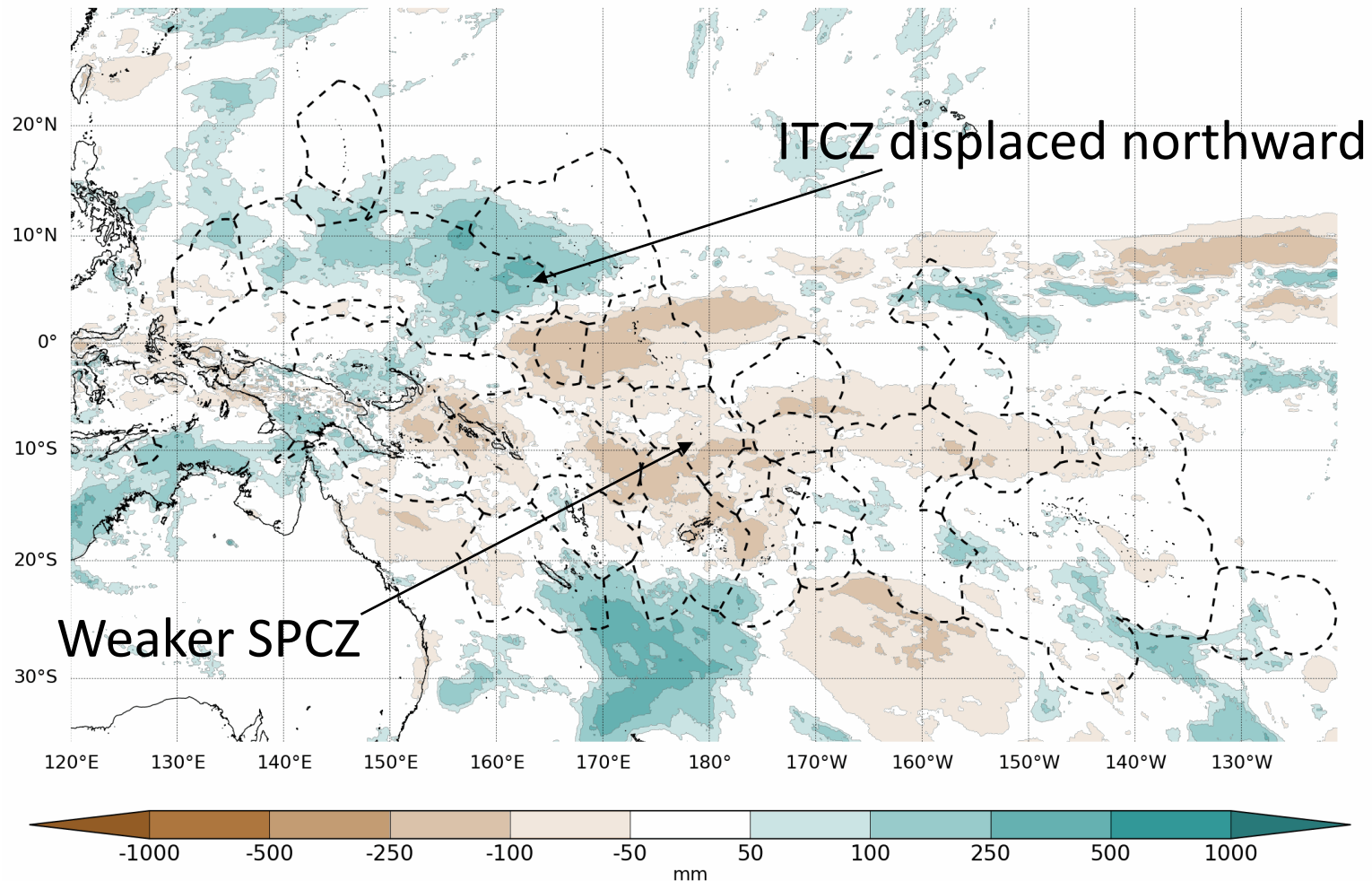
Run: 07/05/2023

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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 April 2023

1-month total rainfall anomaly ending April 2023



Data source: MSWEP

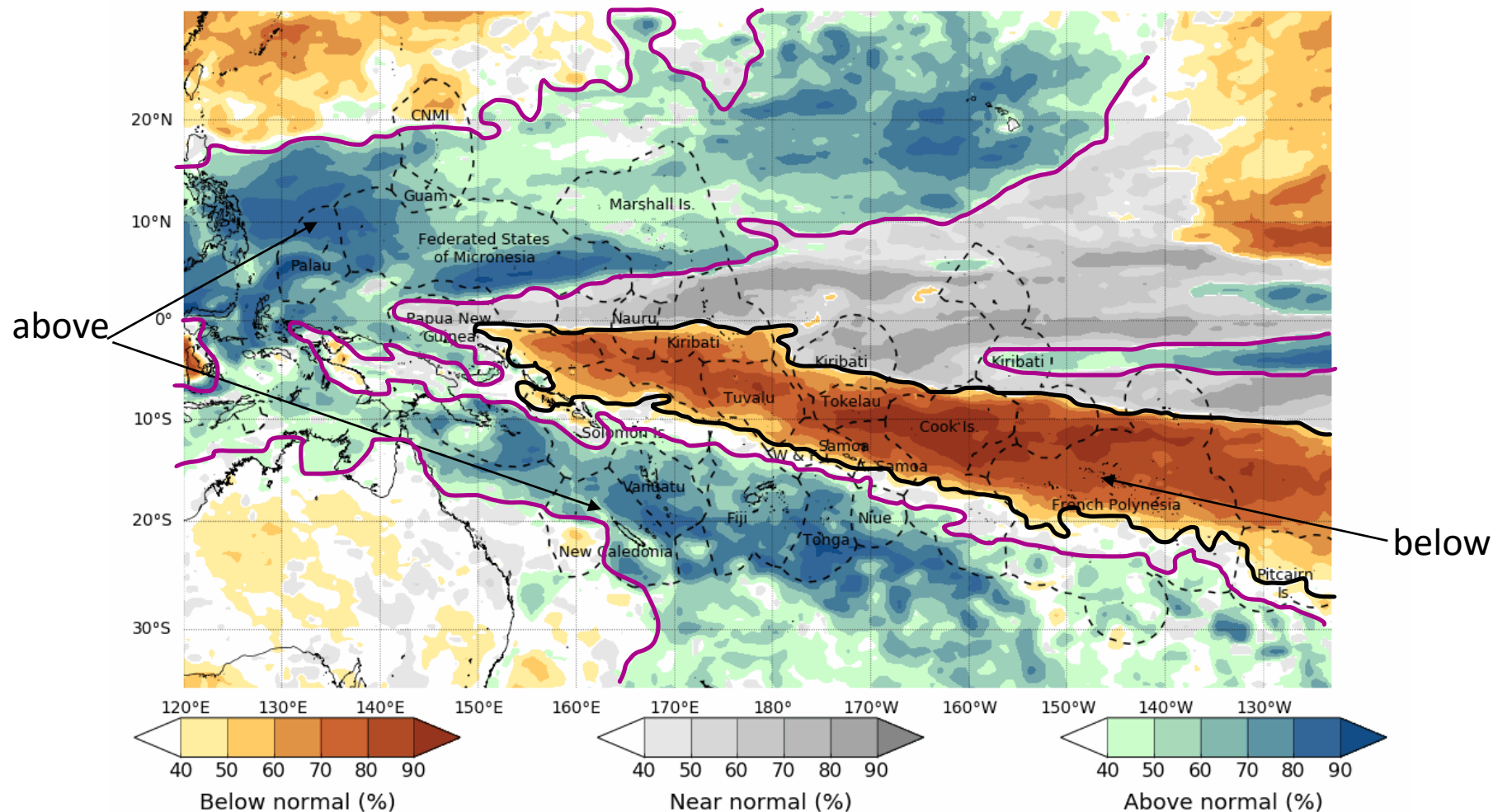
Run: 07/05/2023  
Base period: 1980-2021

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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: Feb-Apr

Tercile rainfall probabilities for  
February to April 2023



Base period: 1981-2018  
Model: ACCESS-S2  
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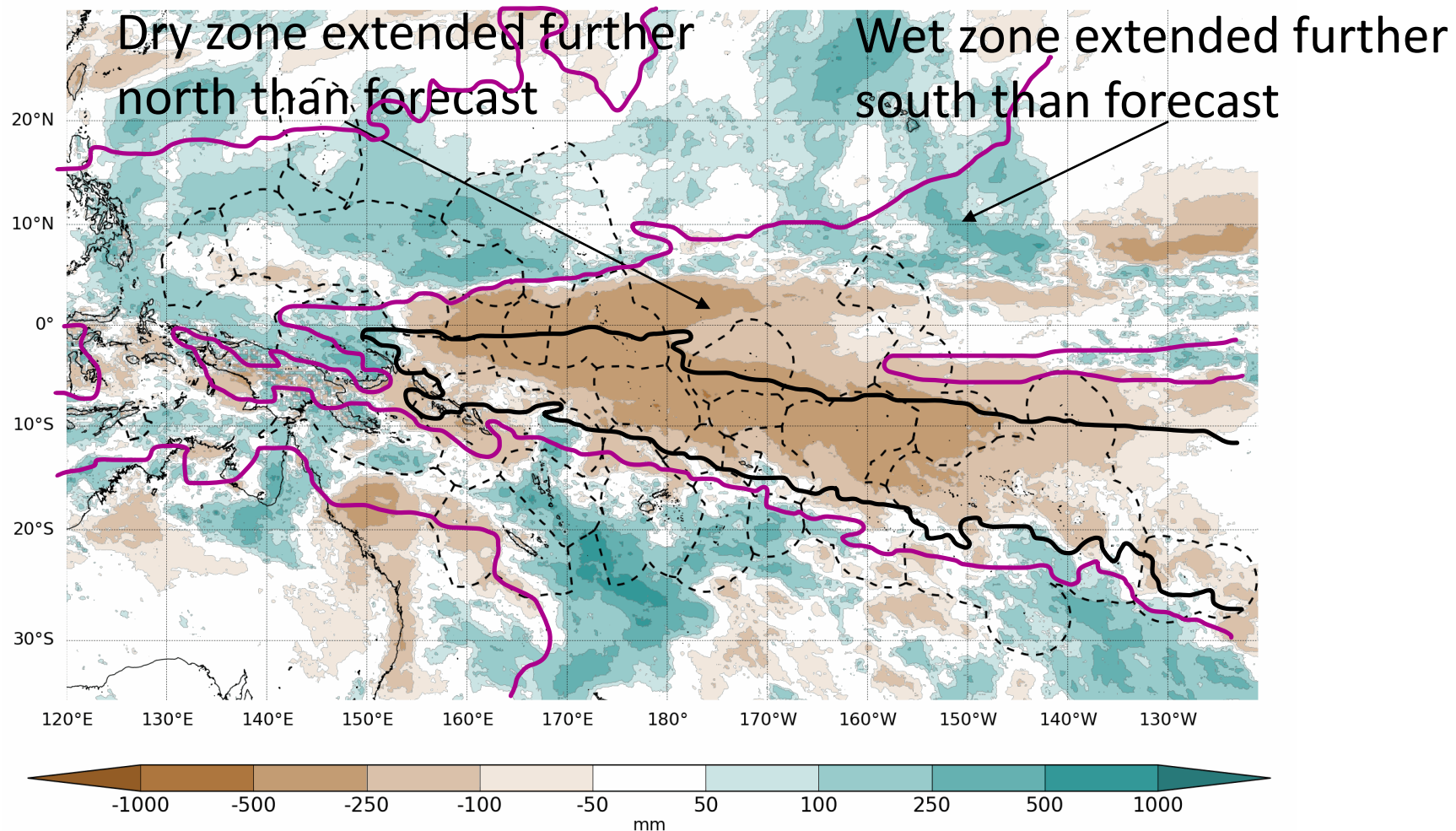
Model run: 30/01/2023  
Issued: 02/02/2023

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: Feb-Apr

3-month total rainfall anomaly ending April 2023



Data source: MSWEP

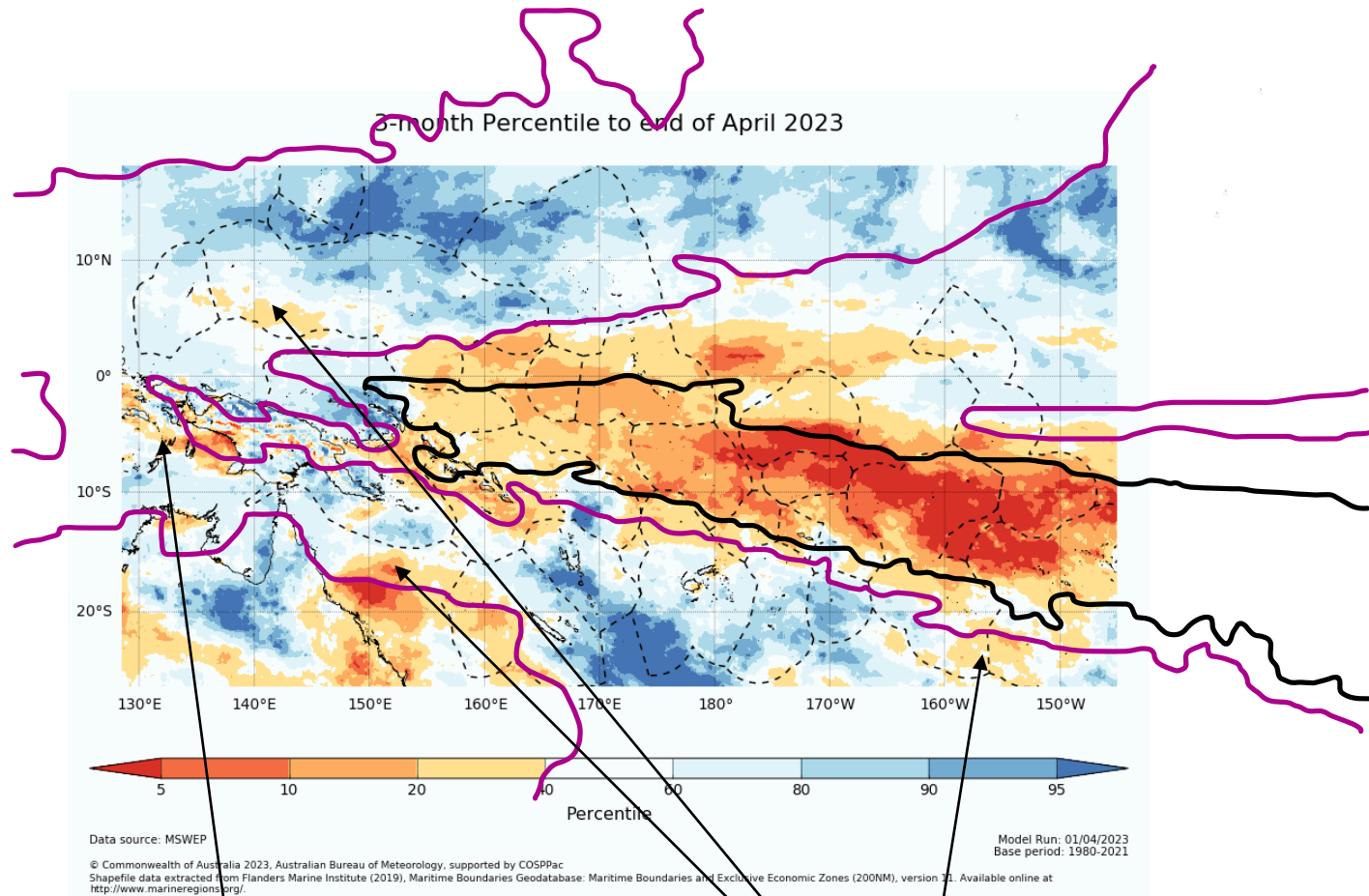
Run: 07/05/2023  
Base period: 1980-2021

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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/>.



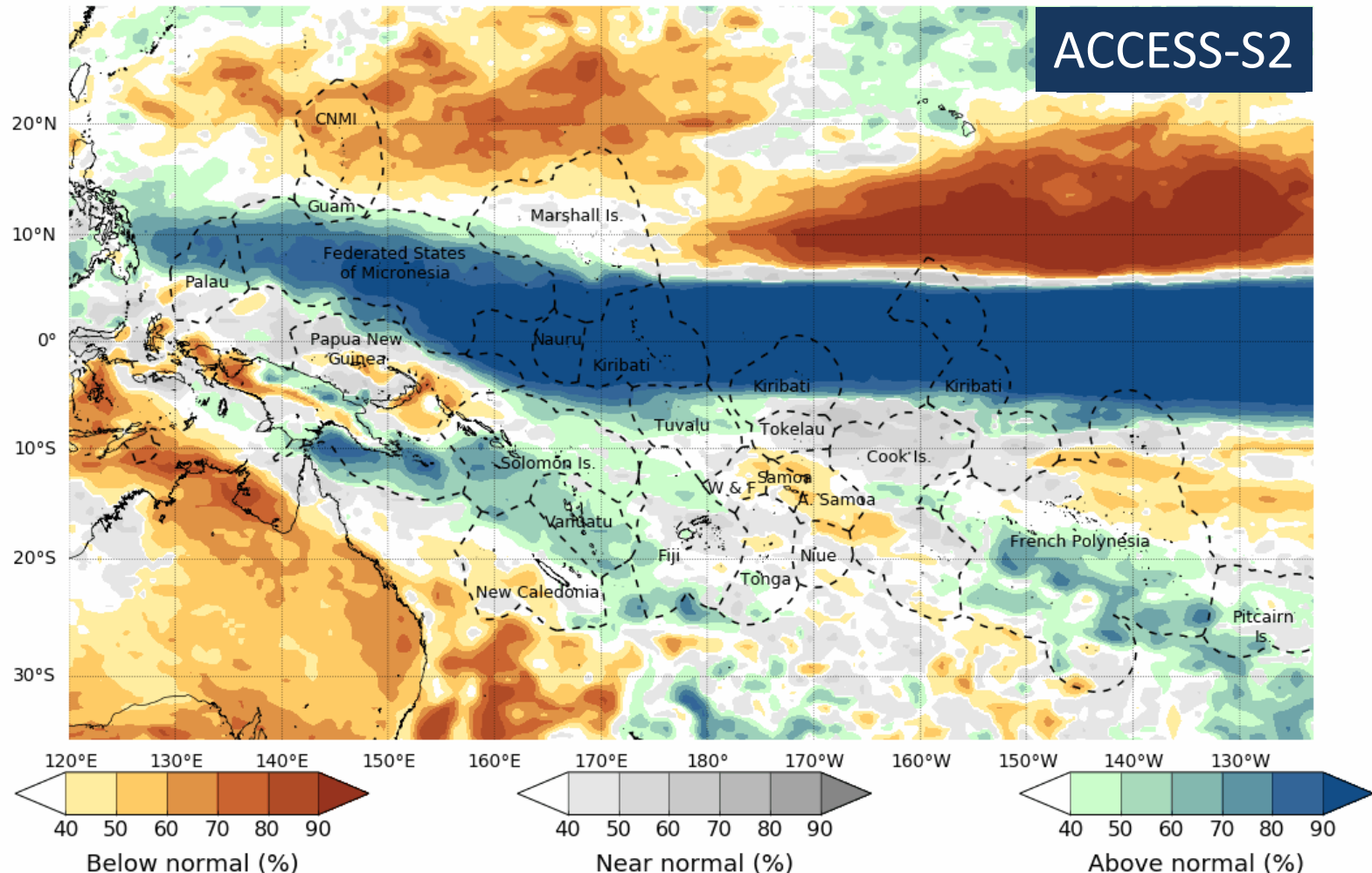
# Forecast Verification: Feb-Apr



Below average patches where above average was favoured

# Model Rainfall Predictions (MJJ)

Tercile rainfall probabilities for  
May to July 2023



Base period: 1981-2018

Model: ACCESS-S2

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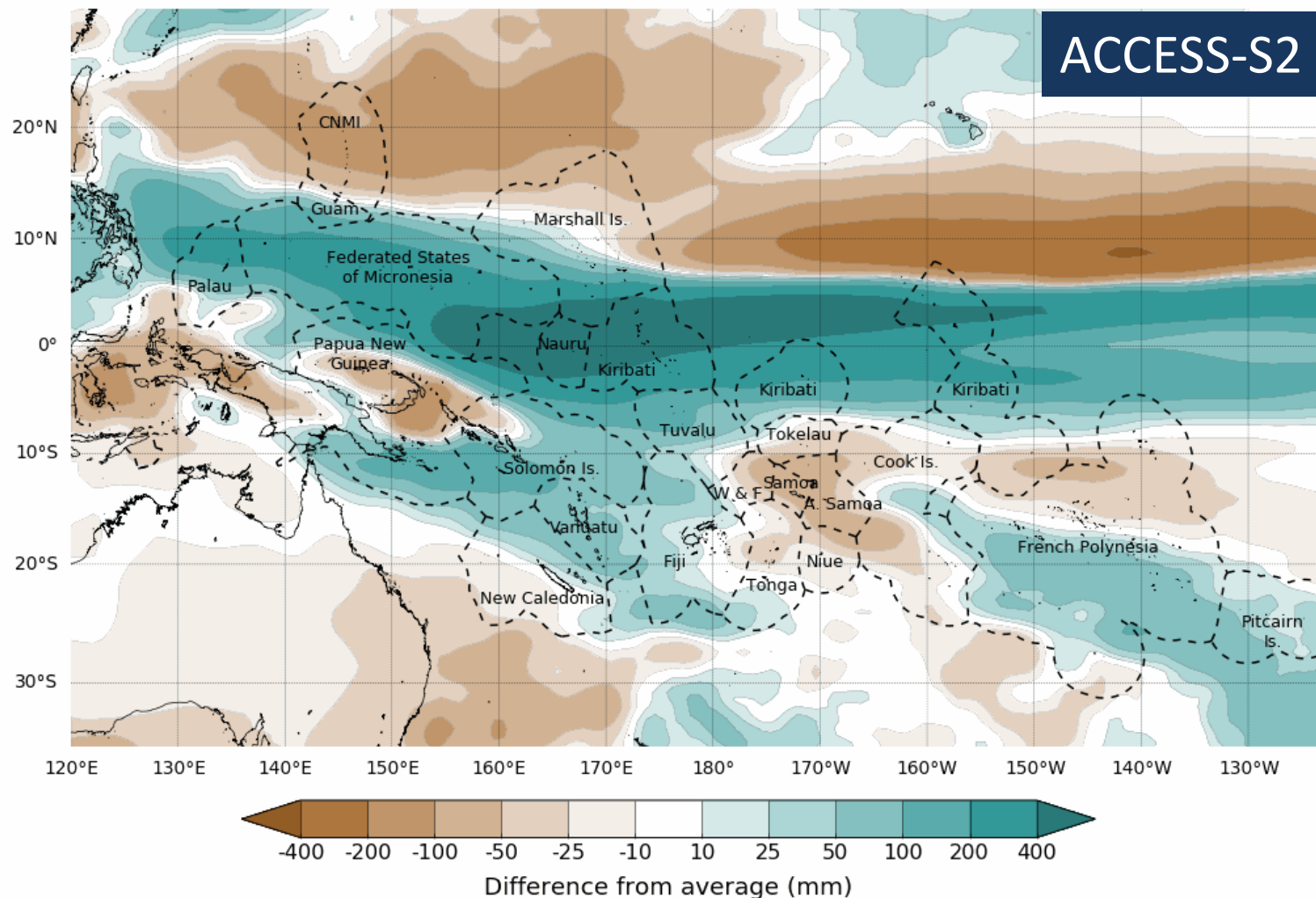
Model run: 01/05/2023

Issued: 04/05/2023

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/>.

# Difference from Average (MJJ)

Difference from average rainfall forecast for  
May to July 2023

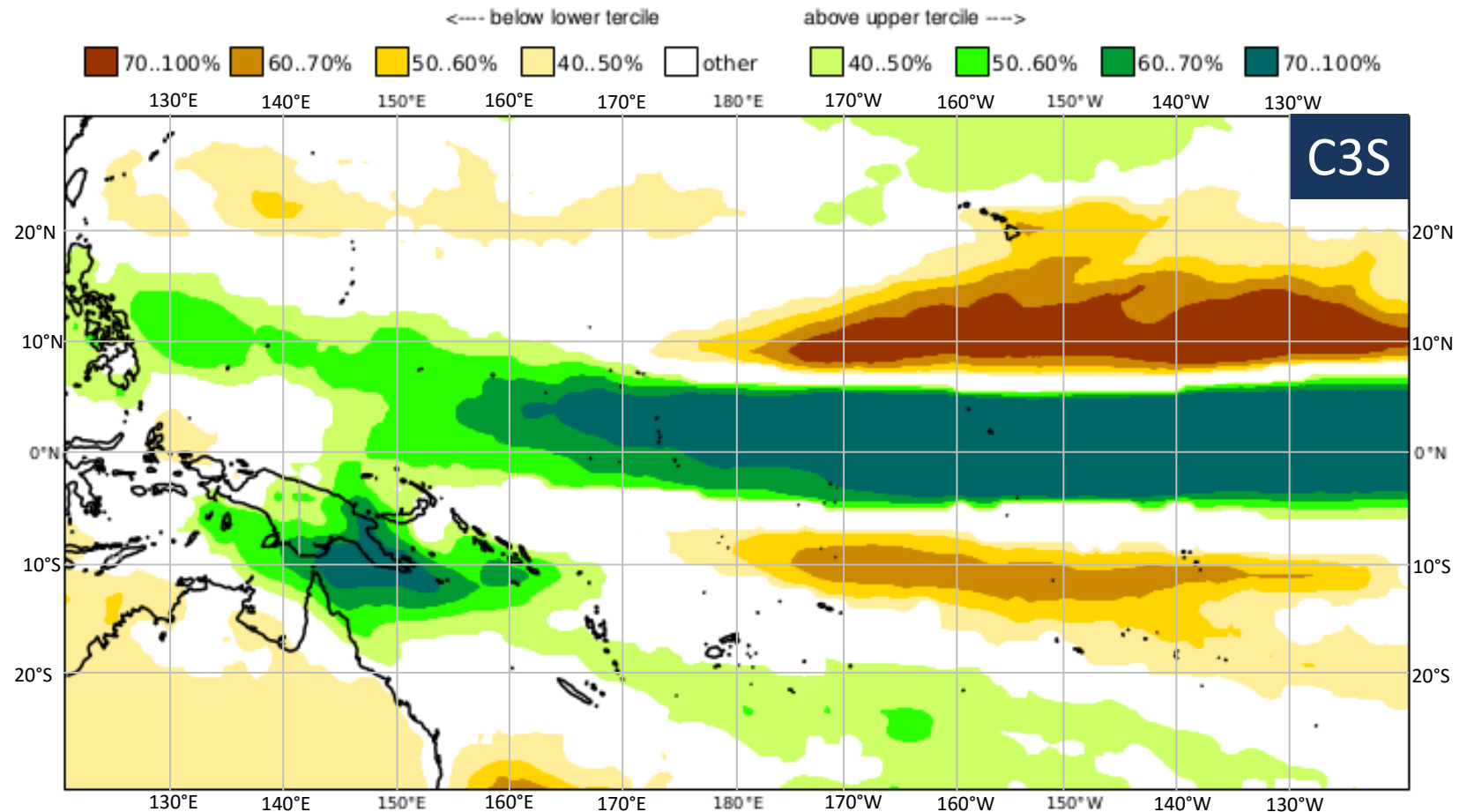


# Model Rainfall Predictions (MJJ)

C3S multi-system seasonal forecast    ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC  
Prob(most likely category of precipitation)    MJJ 2023

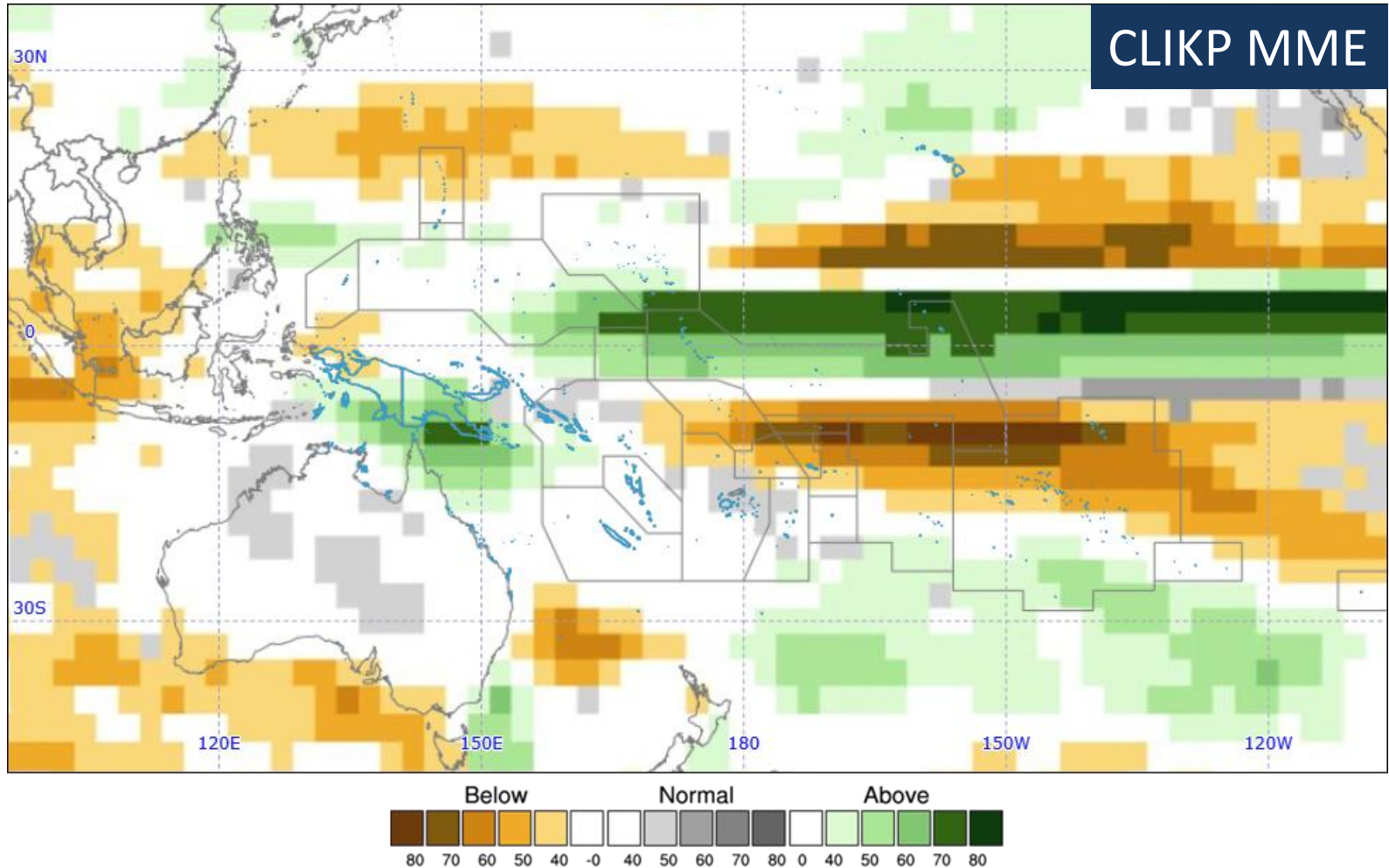
Nominal forecast start: 01/04/23

Unweighted mean





# Model Rainfall Predictions (MJJ)



Year: 2023, Season: MJJ, Lead Month: 3, Method: GAUS

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

Generated using CLIK® (2023-5-8)

© APEC Climate Center

# Model Rainfall Predictions (MJJ)

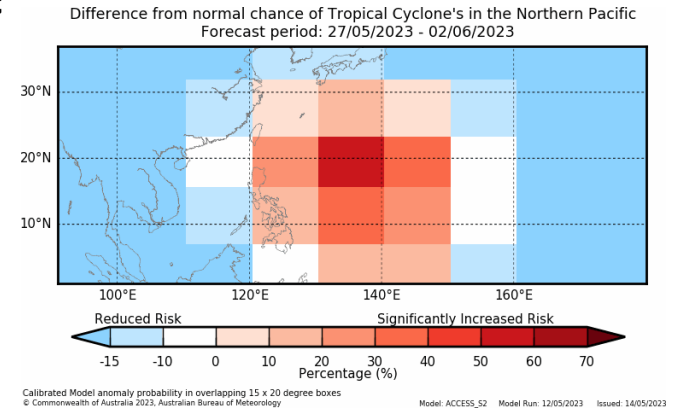
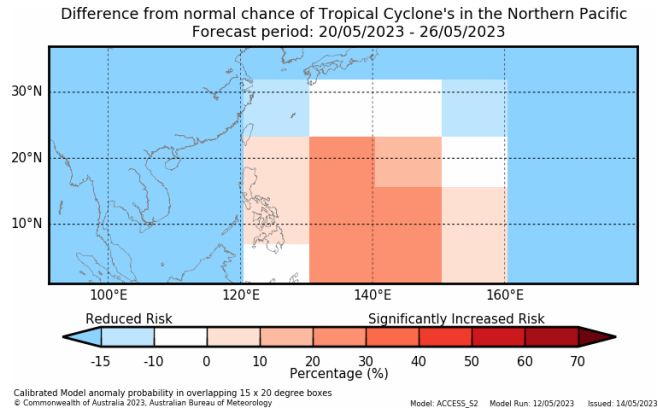
May to July 2023			
	ACCESS-S	C3S	CLIKP
Cook Is North			
Cook Is South			
Fiji West			
Fiji Central			
Fiji East			
Fiji North			
Fiji Rotuma			
FSM West			
FSM Central			
FSM East			
Kiribati West			
Kiribati Central			
Kiribati East			
RMI North			
RMI Central			
RMI South			
Nauru			
Niue			
Palau			
PNG Momase			
PNG Is			
PNG South			
PNG Highlands			
Samoa			
Solomon Is West			
Solomon Is Central			
Solomon Is East			
Tonga North			
Tonga Central			
Tonga South			
Tuvalu North			
Tuvalu Central			
Tuvalu South			
Vanuatu North			
Vanuatu South			

	41-50%	51-60%	61-70%	71-80%	81-90%	>90%
Below normal						
Near-normal						
Above normal						

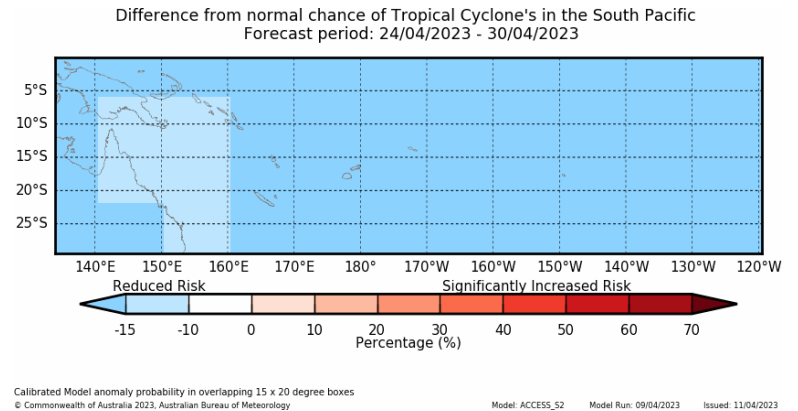
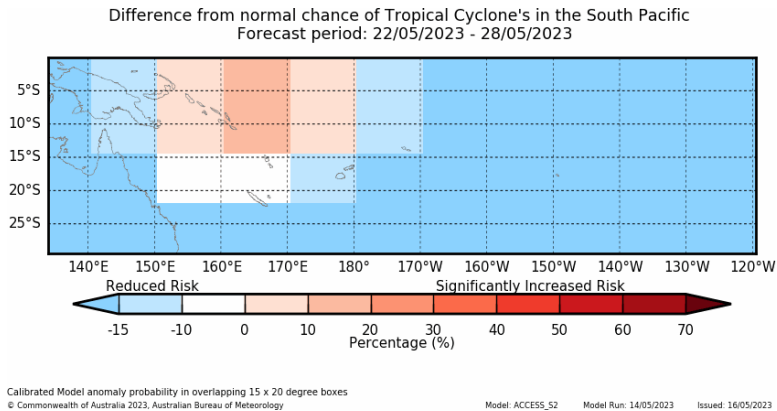


# TC Outlooks

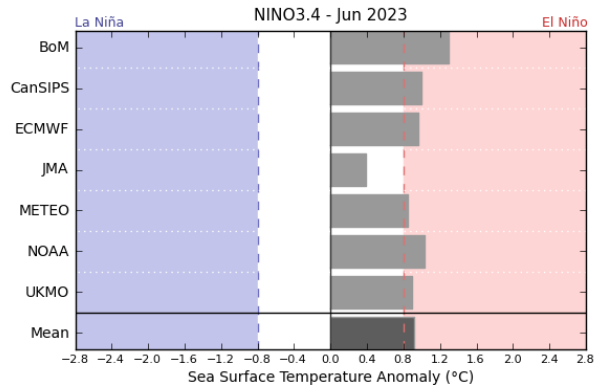
## Northwest Pacific



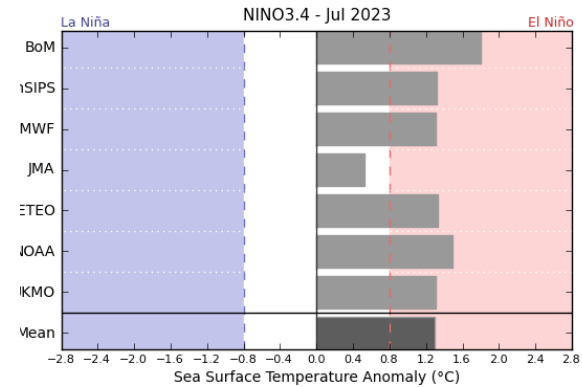
## South Pacific



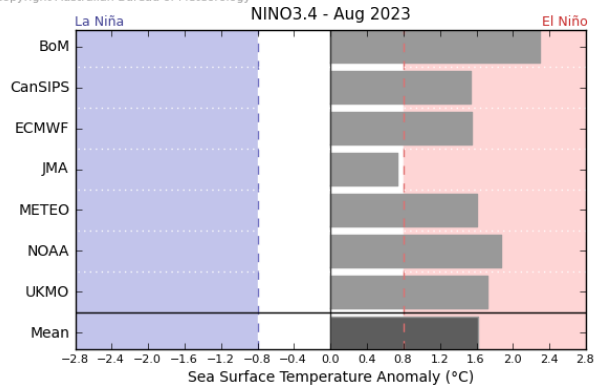
# Climate Model Summary



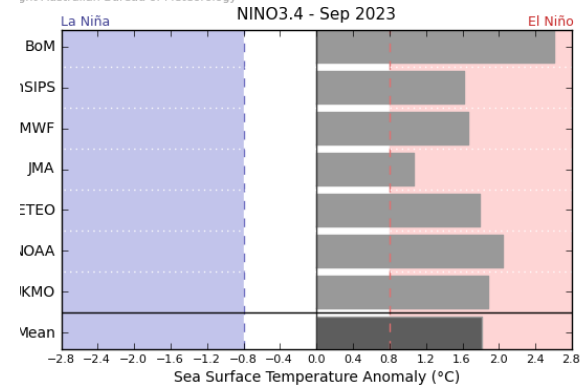
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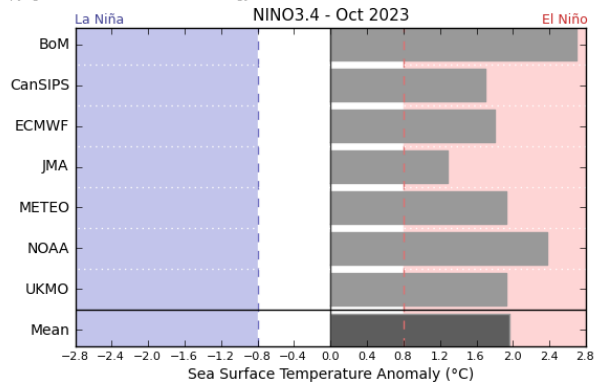
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# IRI Climate Model Summary

