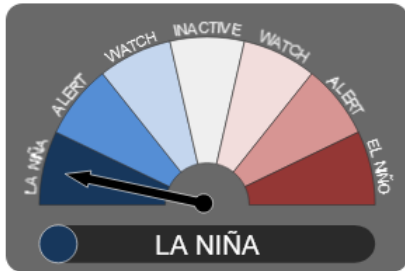


ENSO update - OCOF 184

19 January 2023

ENSO Update



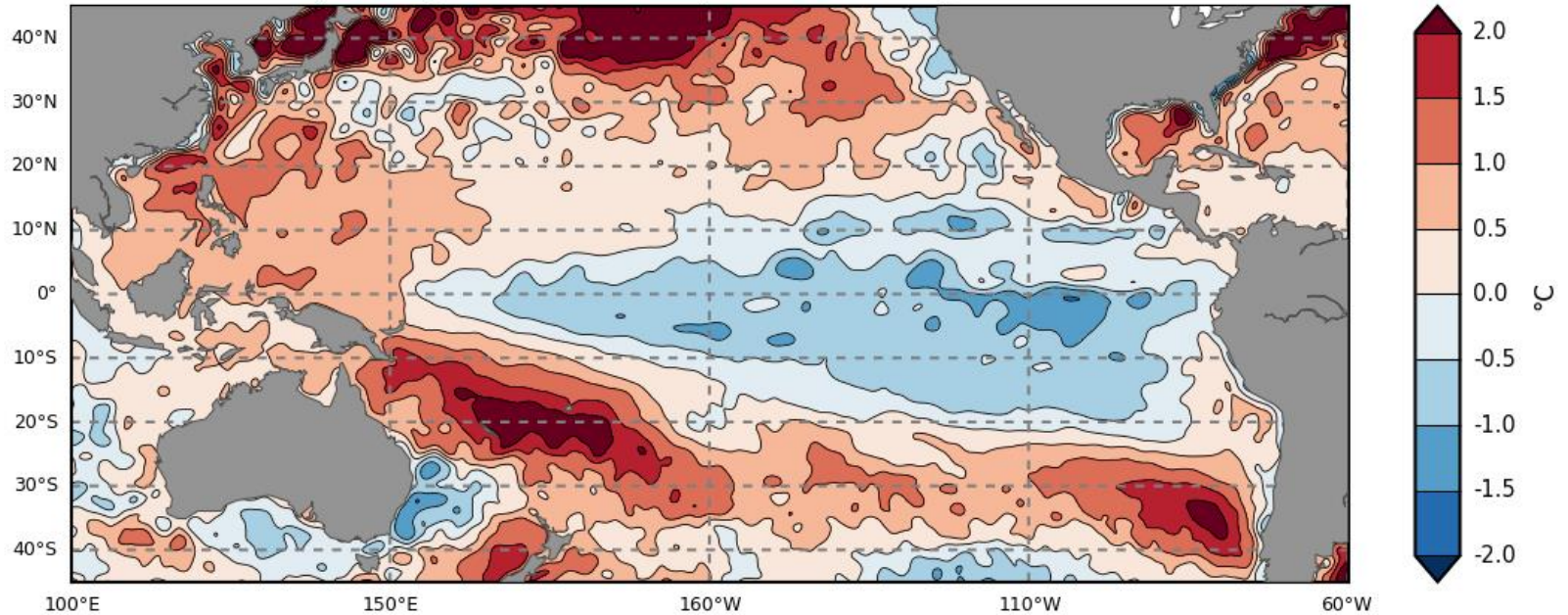
La Niña anticipated to ease over summer

- La Niña continues in the tropical Pacific.
- Though ocean temperatures have risen in recent weeks, atmospheric indicators are largely unchanged and remain at La Niña levels.
- Long-range forecasts suggest that tropical Pacific will continue to warm and be at ENSO-neutral levels (neither La Niña nor El Niño) during February, with a change in atmospheric patterns towards neutral levels likely to follow.

December 2022 SSTs

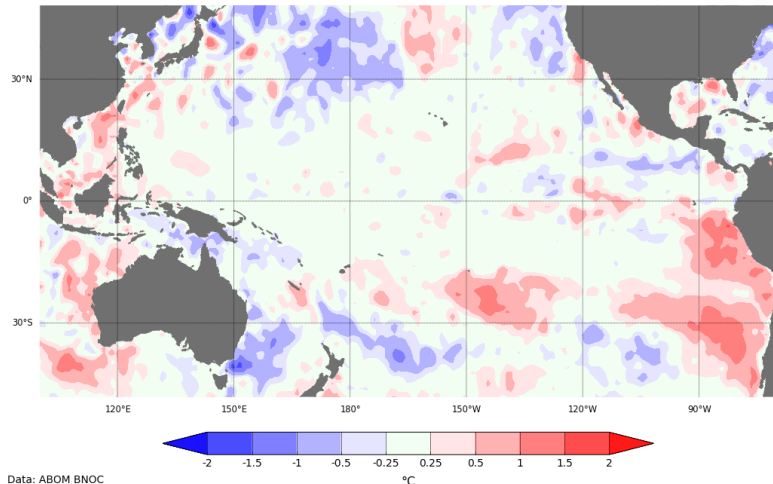
Pacific Ocean

Monthly Average Sea Surface Temperature Anomaly: December 2022



©Commonwealth of Australia 2023
Australian Bureau of Meteorology, COSPPac COMP

Change in the monthly SST anomaly: December-2022 - November-2022

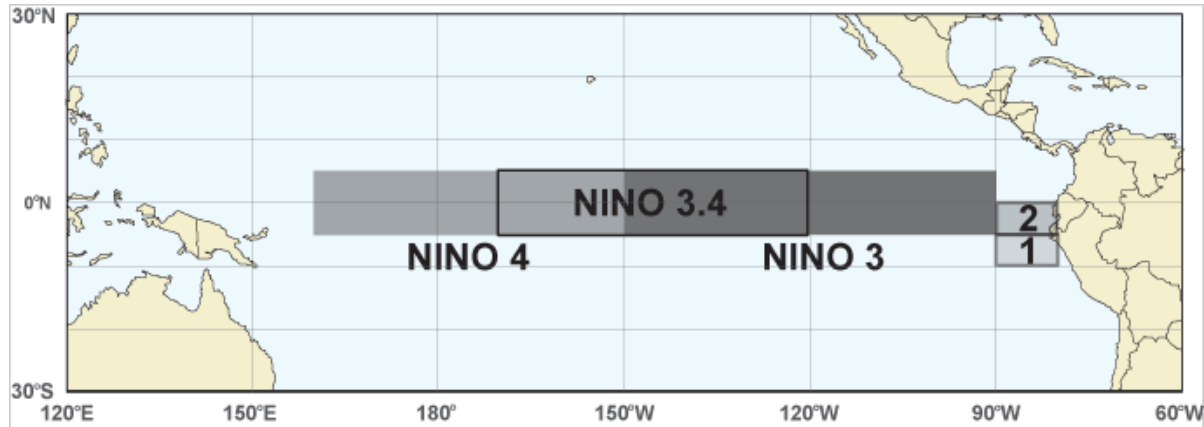


Data: ABOM BNOC
Climatology baseline: 1961 to 1990
© Commonwealth of Australia 2023, Australian Bureau of Meteorology

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

Anomaly monthly difference
Created: 02/01/2023

NINO INDICES SST anomalies (°C)

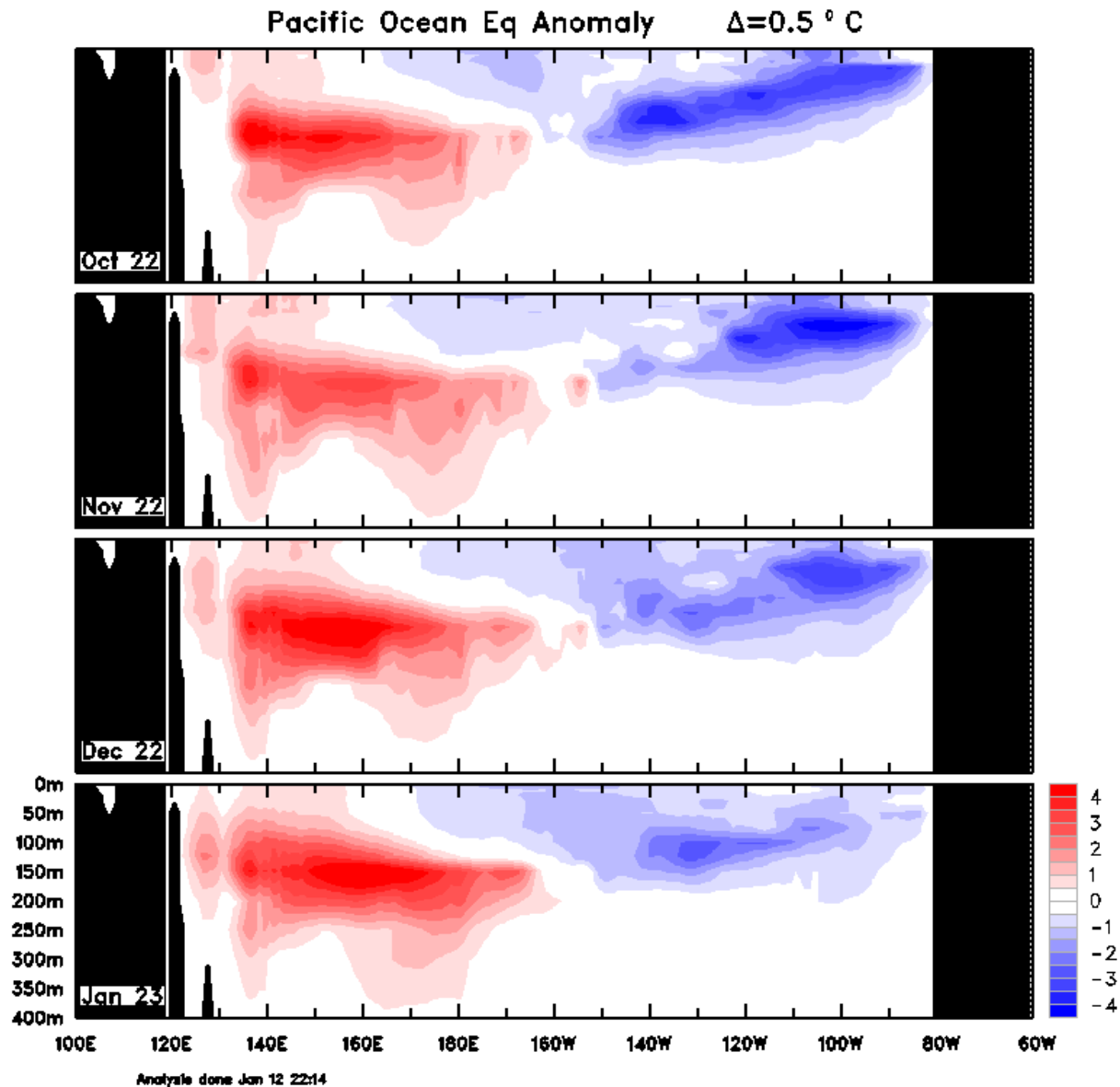


Index	Nov 2022	Dec 2022	Latest weekly
NINO3	-0.7	-0.6	-0.4
NINO3.4	-0.7	-0.6	-0.6
NINO4	-0.5	-0.5	-0.5

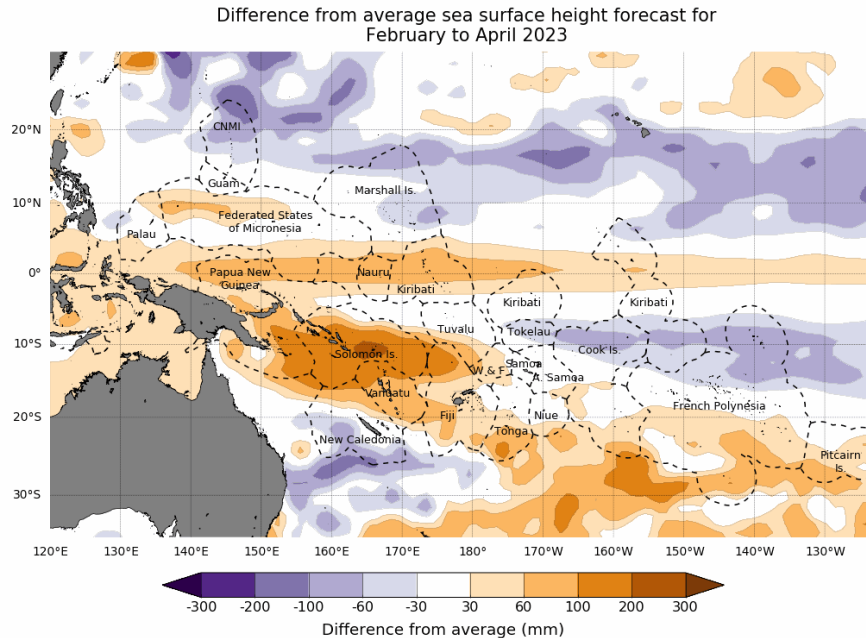
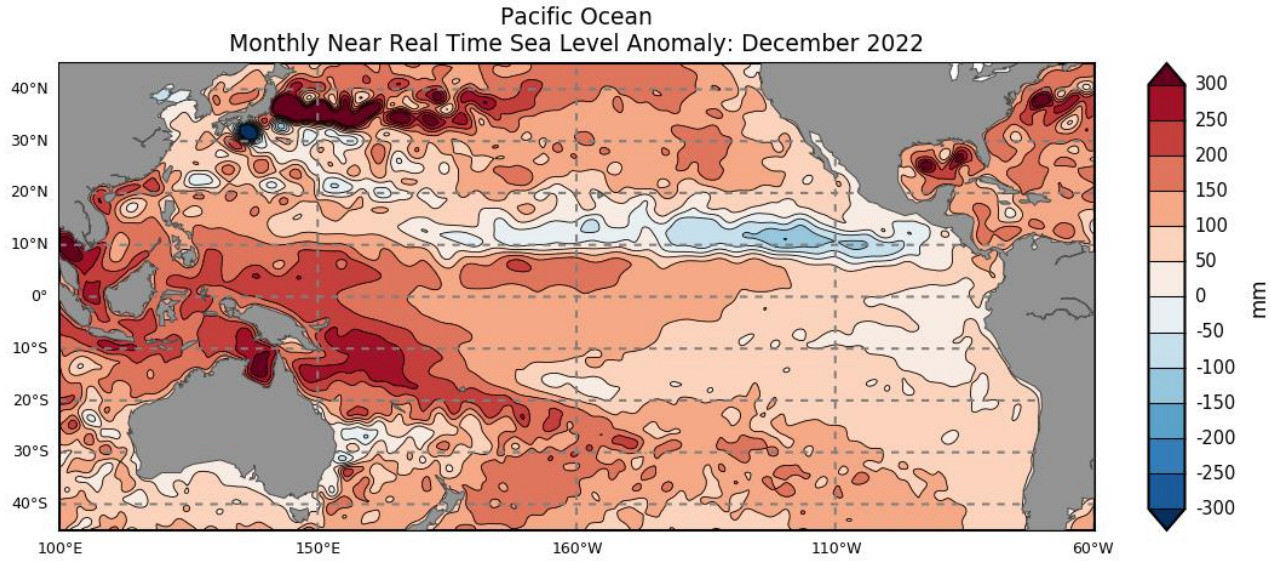
Weekly data for the week ending 15/01/2023

Equatorial Pacific sub-surface profile

Bureau of Meteorology

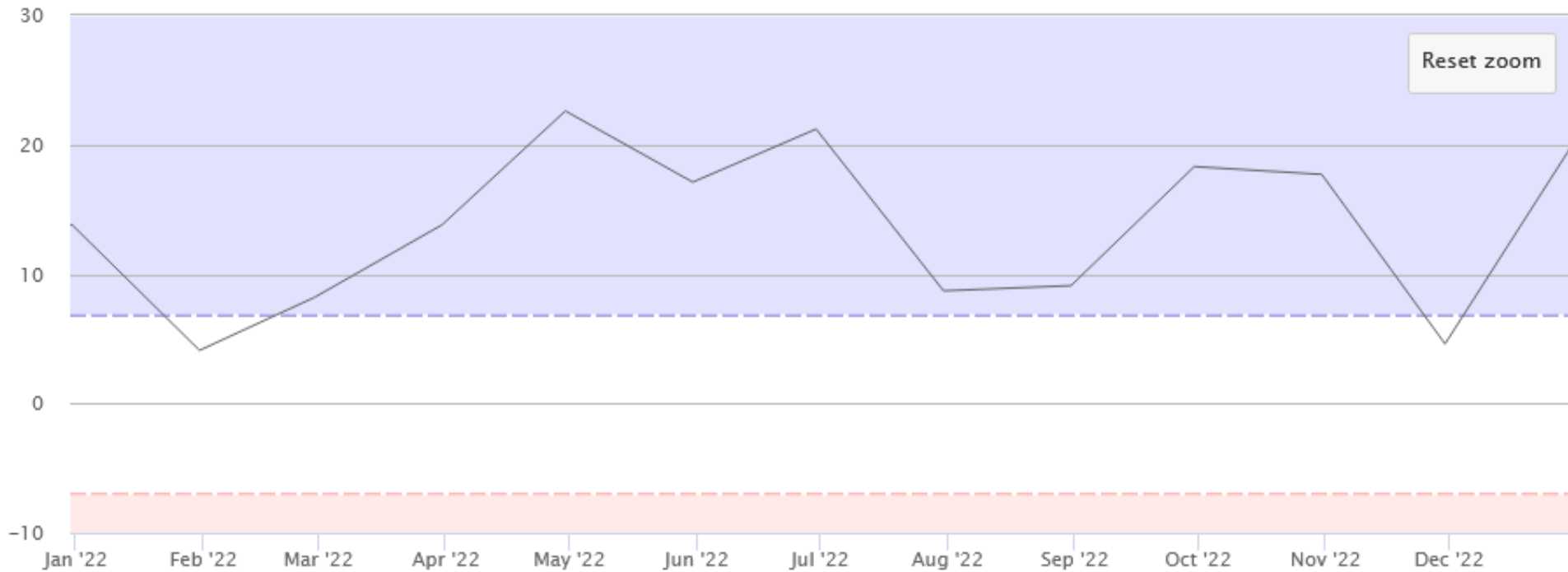


December 2022 Sea Level Anomaly



Southern Oscillation Index

Southern Oscillation Index – monthly

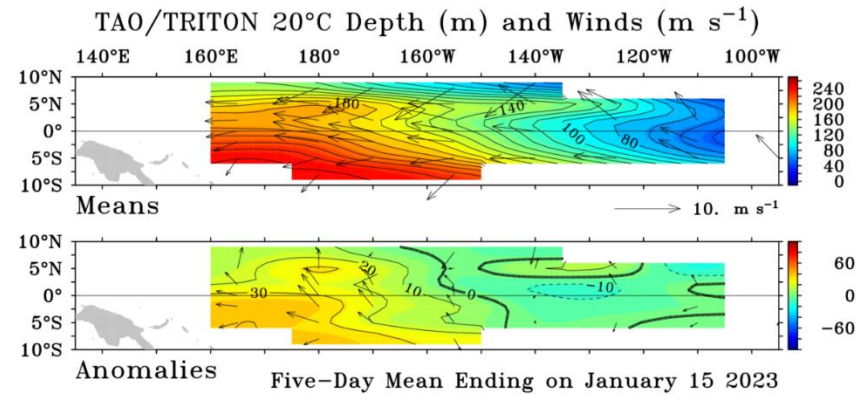
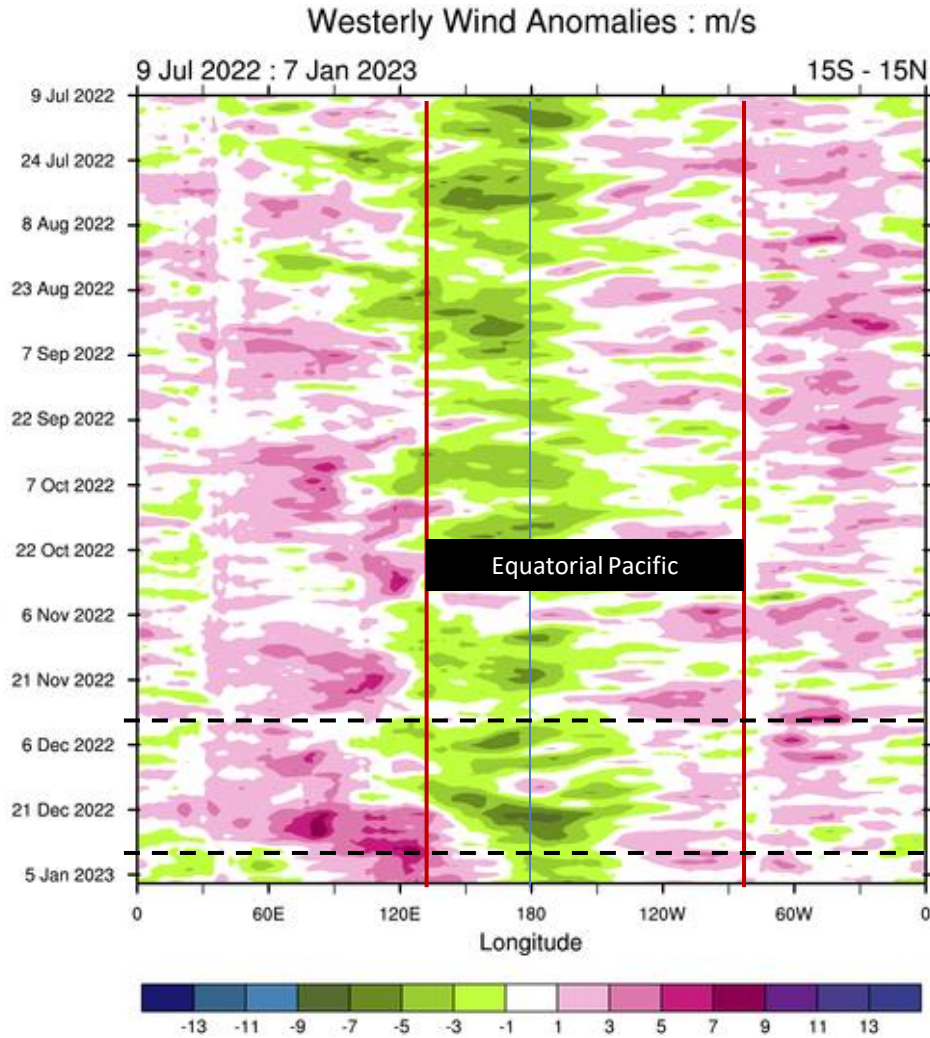


Southern Oscillation Index monthly data

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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
2021	+16.5	+11.5	-0.3	+2.0	+3.6	+2.6	+15.9	+4.6	+9.3	+6.7	+12.5	+13.8

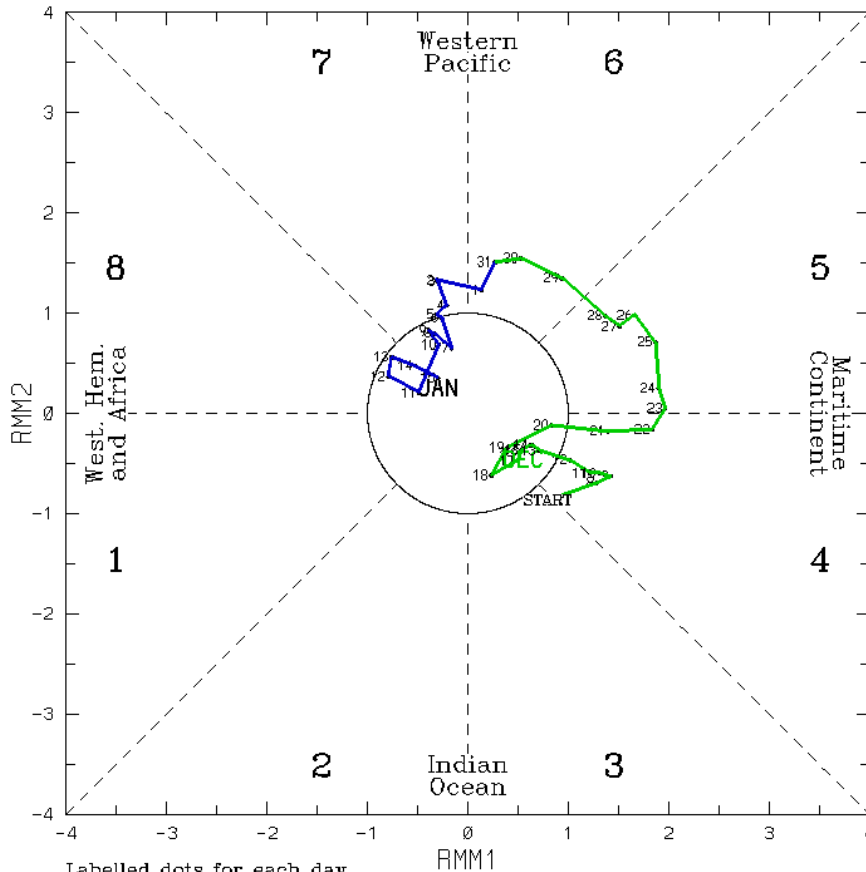
At 15 January 2023: 30-day SOI = +21; 90-day SOI = +13

Equatorial Trade Winds



Madden-Julian Oscillation

(RMM1,RMM2) phase space for 7-Dec-2022 to 15-Jan-2023

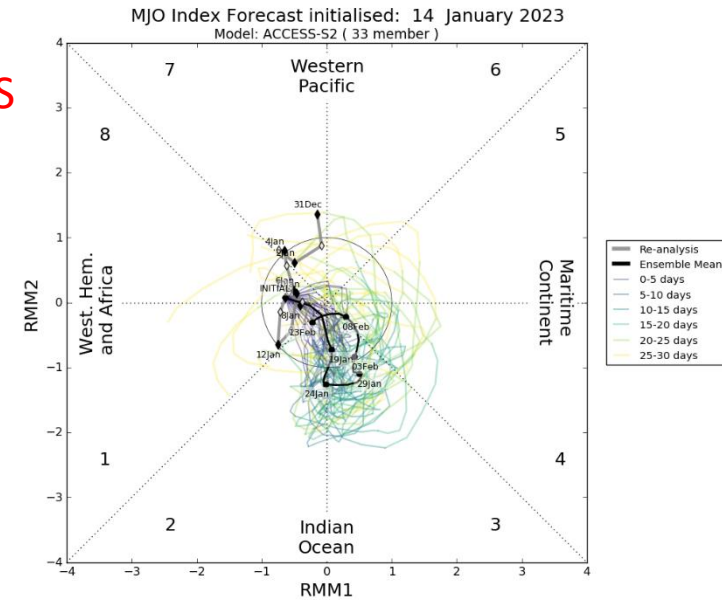


Labeled dots for each day.

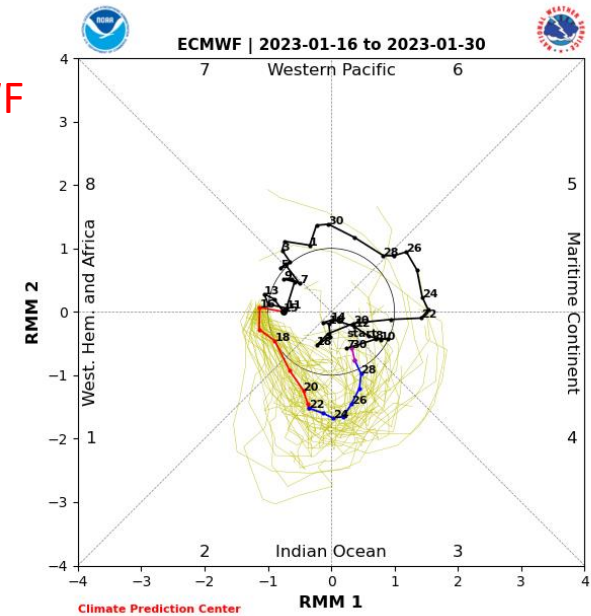
Blue line is for Jan, green line is for Dec, red line is for Nov.

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

ACCESS

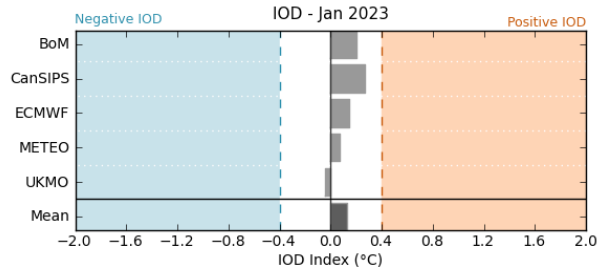


ECMWF

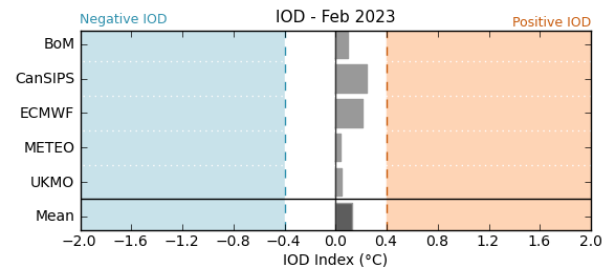


Climate Prediction Center

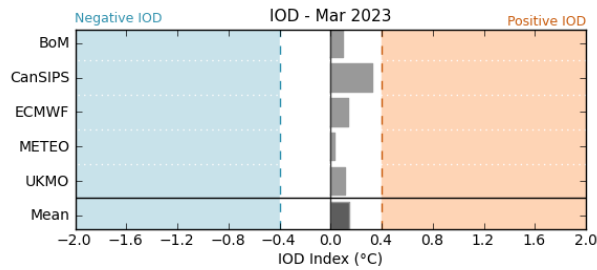
Indian Ocean Dipole (IOD)



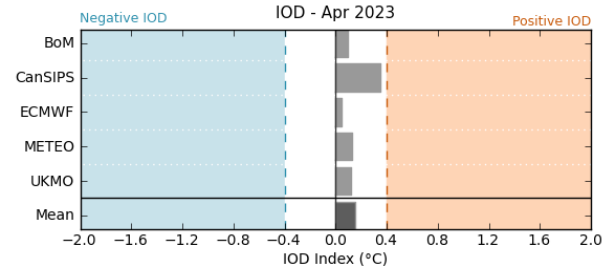
© Copyright Australian Bureau of Meteorology



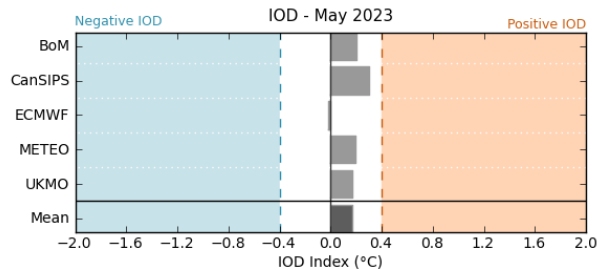
© Copyright Australian Bureau of Meteorology



© Copyright Australian Bureau of Meteorology



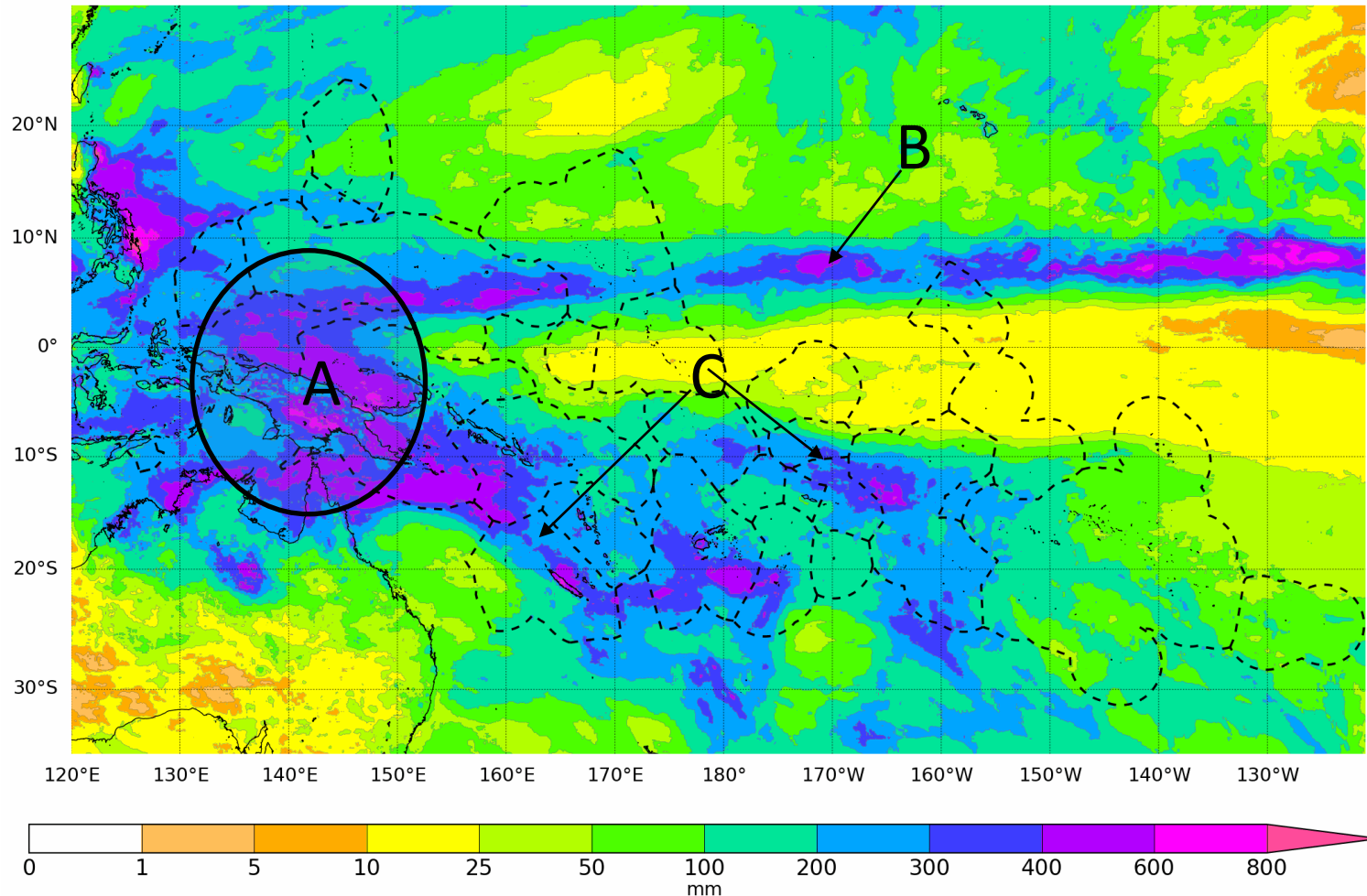
© Copyright Australian Bureau of Meteorology



© Copyright Australian Bureau of Meteorology

Satellite Rainfall December 2022

1-month total rainfall ending December 2022



Data source: MSWEP

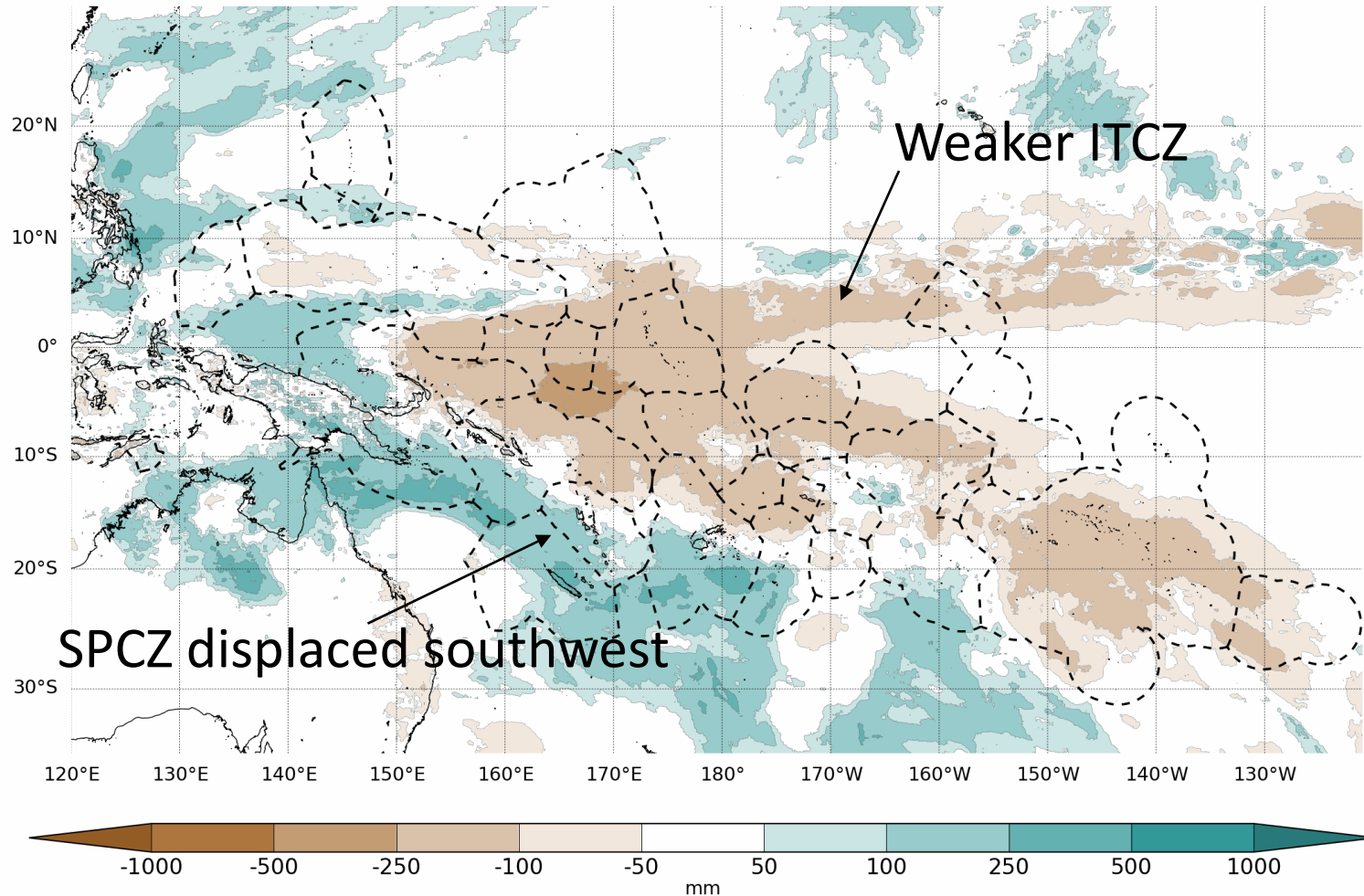
Run: 07/01/2023

© Commonwealth of Australia 2023, Australian Bureau of Meteorology, supported by COSPPac

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 December 2022

1-month total rainfall anomaly ending December 2022



Data source: MSWEP

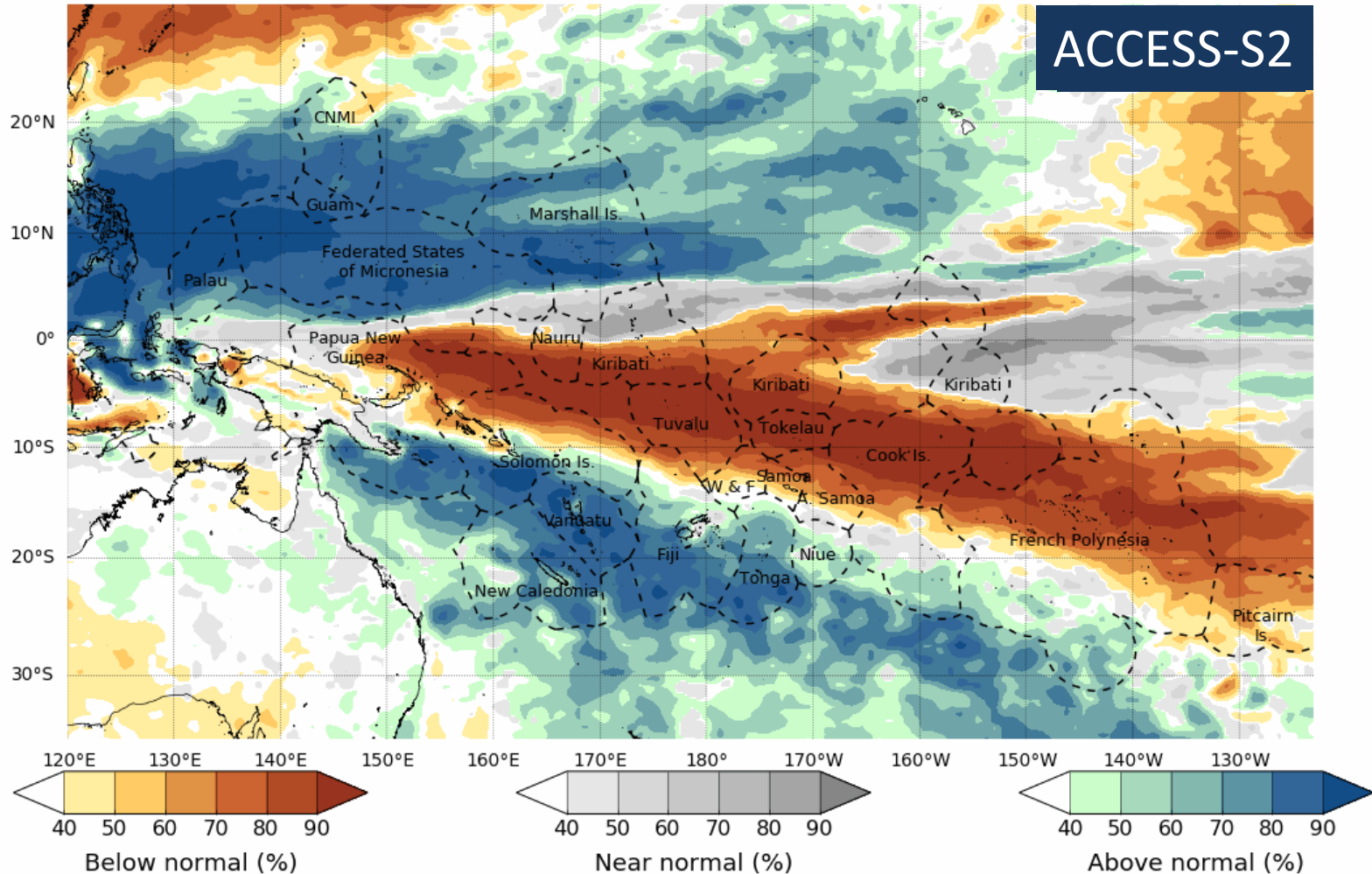
Run: 07/01/2023
Base period: 1980-2021

© Commonwealth of Australia 2023, Australian Bureau of Meteorology, supported by COSPPac

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/>.

Model Rainfall Predictions (JFM)

Tercile rainfall probabilities for
January to March 2023



Base period: 1981-2018
Model: ACCESS-S2

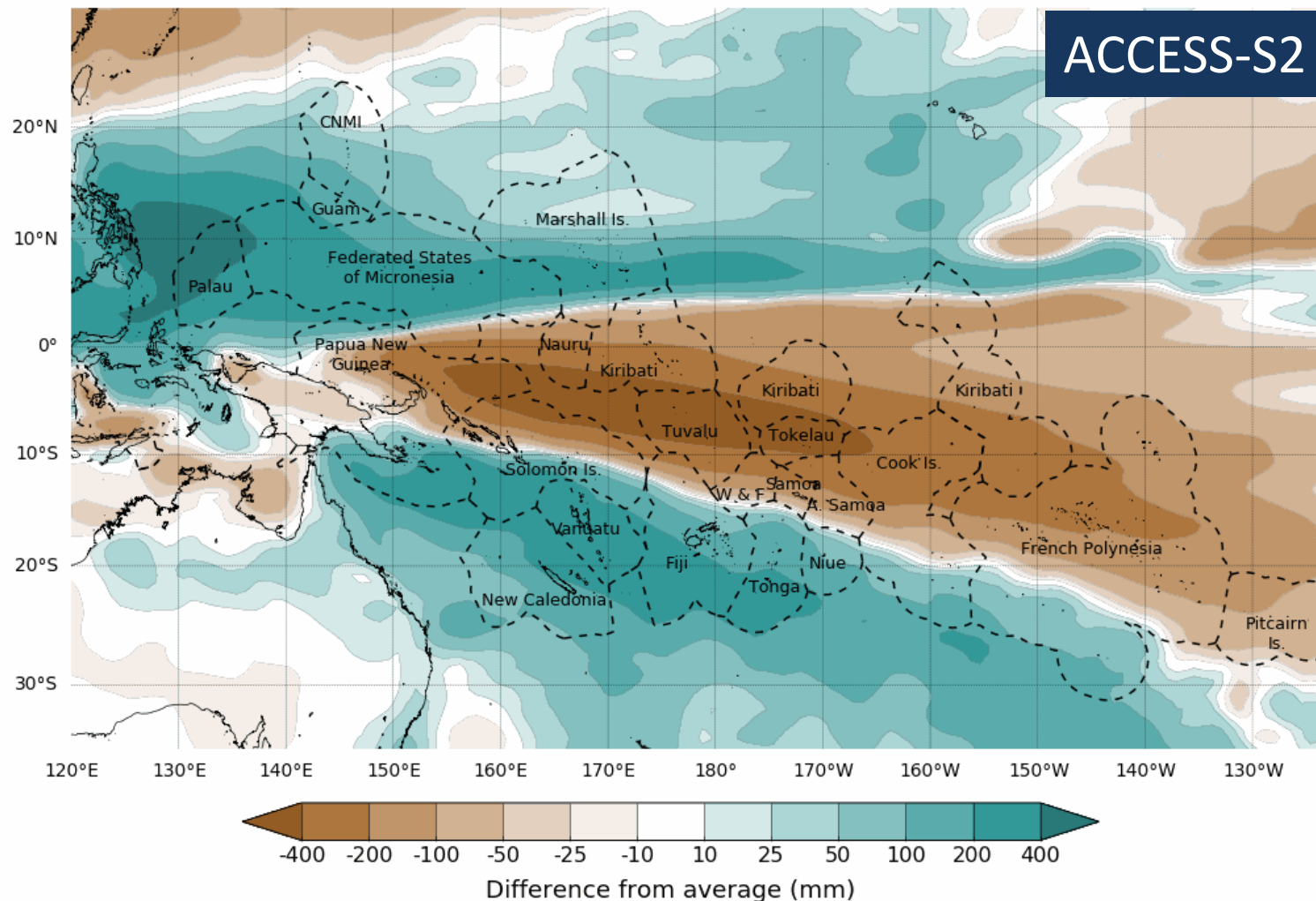
© Commonwealth of Australia 2023, Australian Bureau of Meteorology

Model run: 31/12/2022
Issued: 02/01/2023

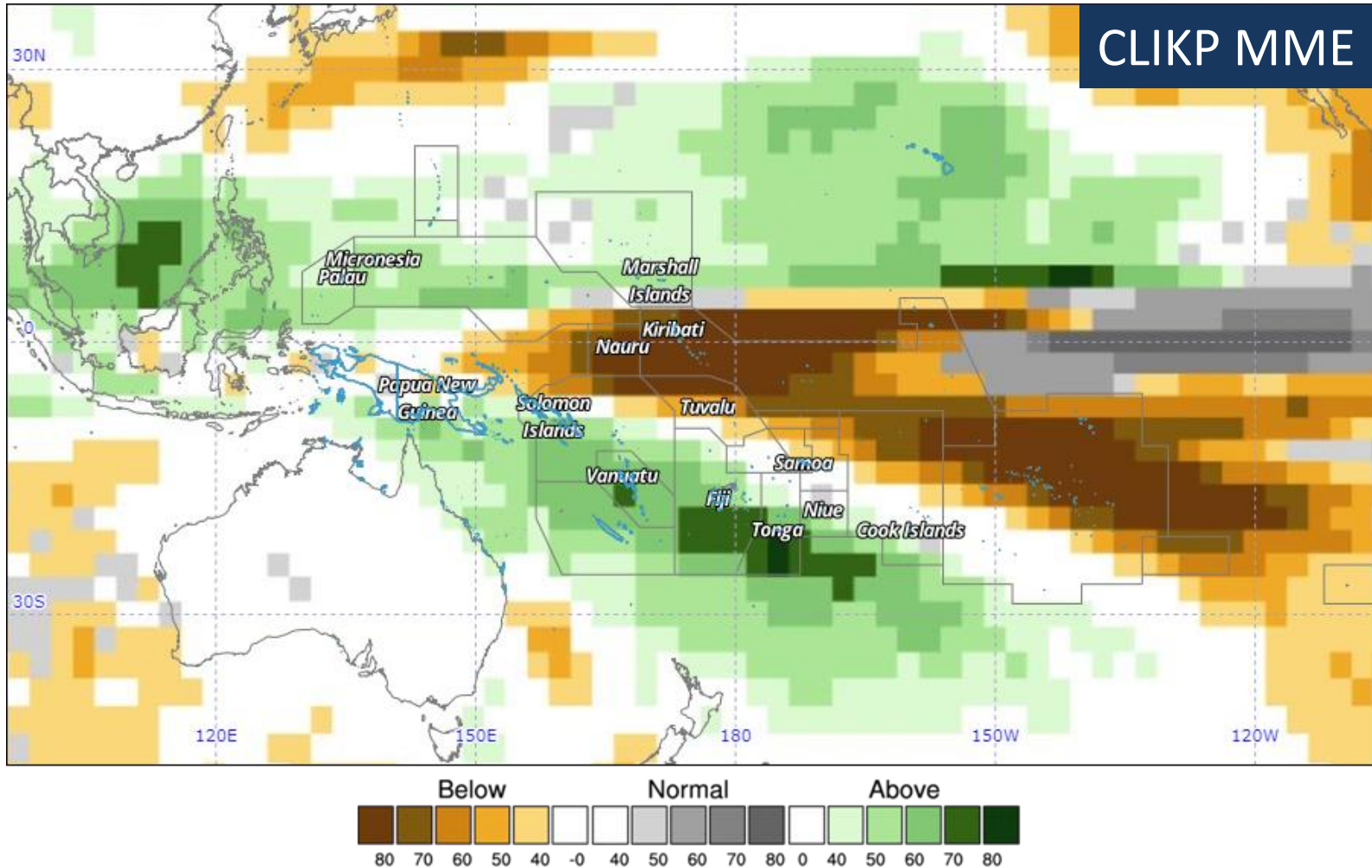
Shapefile data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <http://www.marinerregions.org/>.

Difference from Average (JFM)

Difference from average rainfall forecast for
January to March 2023



Model Rainfall Predictions (JFM)



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

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

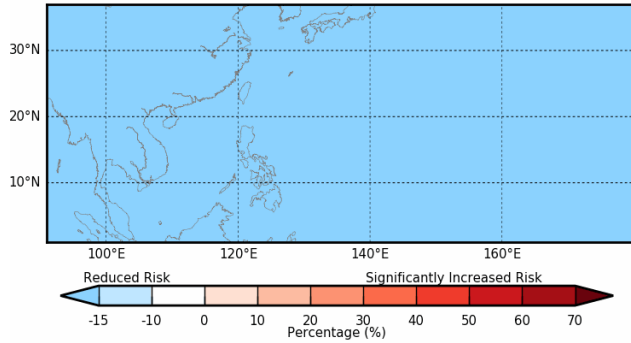
Generated using CLIK® (2023-1-4)

© APEC Climate Center

TC Outlooks

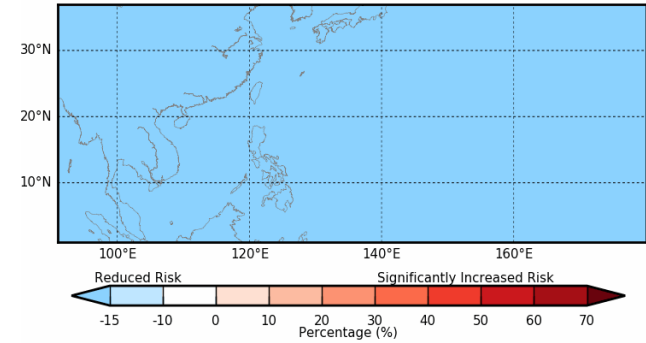
Northwest Pacific

Difference from normal chance of Tropical Cyclone's in the Northern Pacific
Forecast period: 23/01/2023 - 29/01/2023



Calibrated Model anomaly probability in overlapping 15 x 20 degree boxes
© Commonwealth of Australia 2023, Australian Bureau of Meteorology Model: ACCESS_S2 Model Run: 15/01/2023 Issued: 17/01/2023

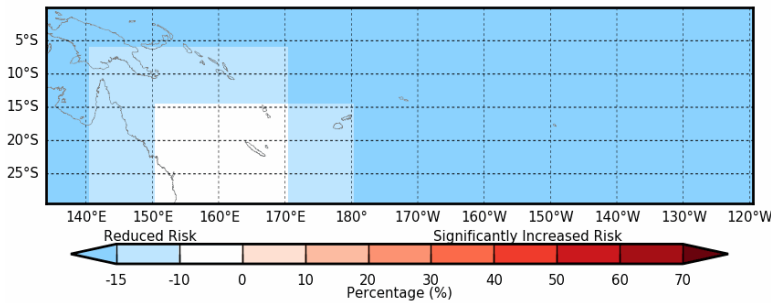
Difference from normal chance of Tropical Cyclone's in the Northern Pacific
Forecast period: 30/01/2023 - 05/02/2023



Calibrated Model anomaly probability in overlapping 15 x 20 degree boxes
© Commonwealth of Australia 2023, Australian Bureau of Meteorology Model: ACCESS_S2 Model Run: 15/01/2023 Issued: 17/01/2023

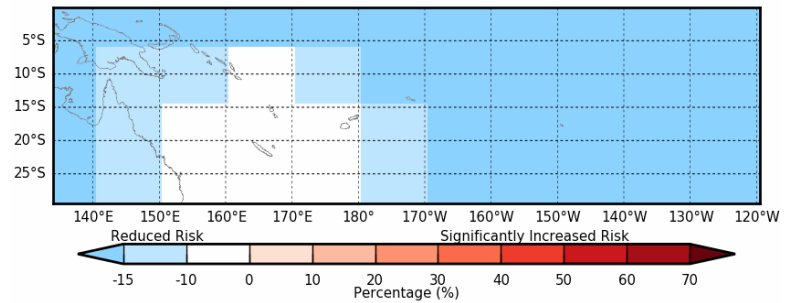
South Pacific

Difference from normal chance of Tropical Cyclone's in the South Pacific
Forecast period: 23/01/2023 - 29/01/2023



Calibrated Model anomaly probability in overlapping 15 x 20 degree boxes
© Commonwealth of Australia 2023, Australian Bureau of Meteorology Model: ACCESS_S2 Model Run: 15/01/2023 Issued: 17/01/2023

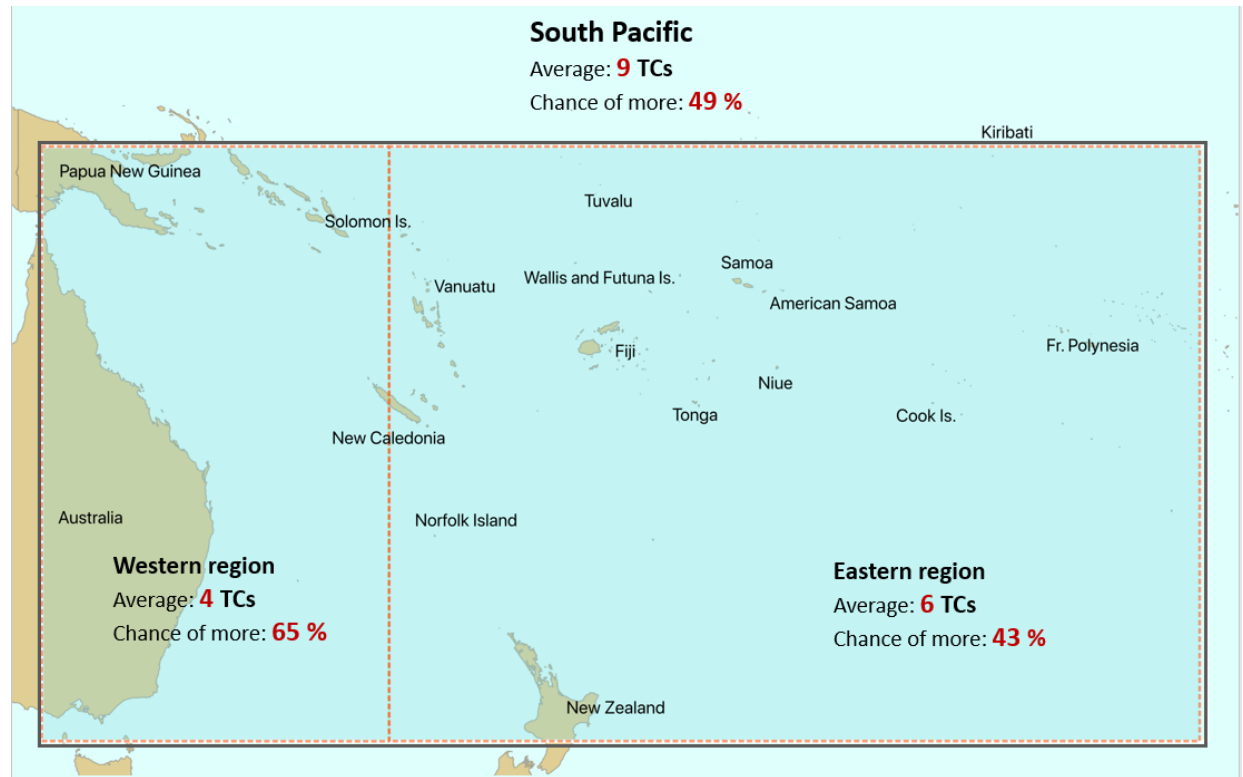
Difference from normal chance of Tropical Cyclone's in the South Pacific
Forecast period: 30/01/2023 - 05/02/2023



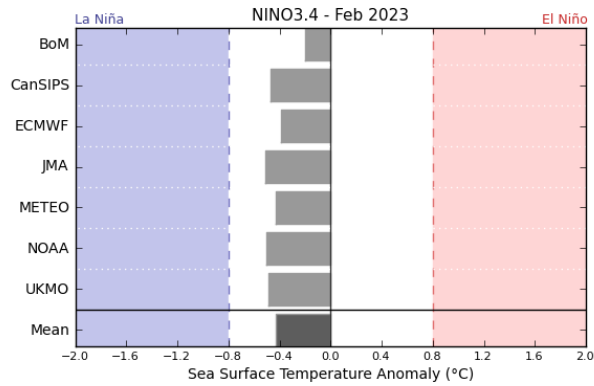
Calibrated Model anomaly probability in overlapping 15 x 20 degree boxes
© Commonwealth of Australia 2023, Australian Bureau of Meteorology Model: ACCESS_S2 Model Run: 15/01/2023 Issued: 17/01/2023

Bureau's South Pacific TC Outlook

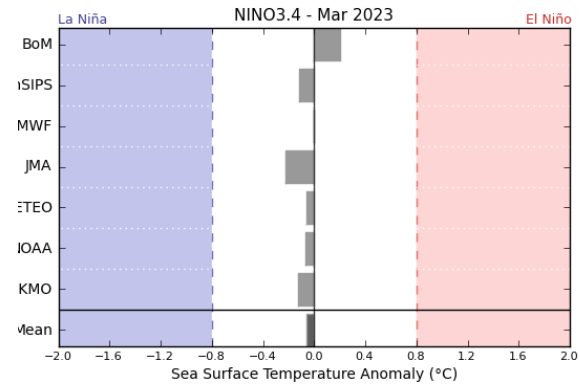
- An above-average number of tropical cyclones is likely (65% likelihood) in the western South Pacific region this season, with model accuracy historically being moderate.
- A close-to-average to below-average number of tropical cyclones is expected for the eastern South Pacific, but model accuracy is historically very low for this region.



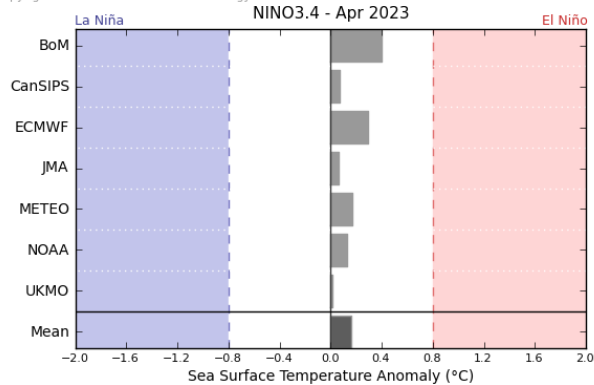
Climate Model Summary



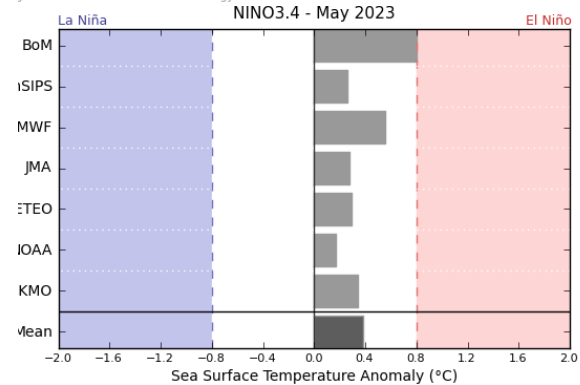
© Copyright Australian Bureau of Meteorology



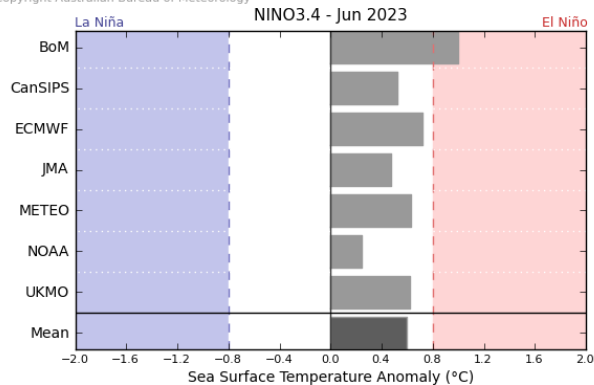
jht Australian Bureau of Meteorology



© Copyright Australian Bureau of Meteorology



jht Australian Bureau of Meteorology



© Copyright Australian Bureau of Meteorology

IRI Climate Model Summary

