ENSO update - OCOF 185

15 February 2023

ENSO Update



Climate drivers in transition

- La Niña continues in the tropical Pacific.
- While oceanic indicators, including sea surface temperatures (SSTs), have weakened to ENSO-neutral values, the atmosphere has been slower to respond and remains La Niña-like.
- All models anticipate SSTs in the central Pacific Ocean will warm further but remain at neutral levels (neither La Niña nor El Niño) until at least mid-autumn. As accuracy is generally lower for long-range ENSO forecasts made during summer, ENSO outlooks that extend past autumn should be viewed with caution.

January 2023 SSTs

Monthly Average Sea Surface Temperature Anomaly: January 2023



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Change in the monthly SST anomaly: January-2023 - December-2022



NINO INDICES SST anomalies (°C)



Index	Dec 2022	Jan 2023	Latest weekly
NINO3	-0.6	-0.4	-0.1
NINO3.4	-0.6	-0.6	-0.5
NINO4	-0.5	-0.5	-0.5

Weekly data for the week ending 12/02/2023

Equatorial Pacific sub-surface profile Bureau of Meteorology



January 2023 Sea Level Anomaly



Difference from average sea surface height forecast for March to May 2023



Southern Oscillation Index

Southern Oscillation Index - monthly



			,									
Year	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2023	+11.8	-	-	-	-	-	-	-	-	-	-	-
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 12 February 2023: 30-day SOI = +13; 90-day SOI = +15

Equatorial Trade Winds



Madden-Julian Oscillation



Indian Ocean

0

RMM 1

3

2

2

-2

-3

Climate Prediction Center

-1

_/

(RMM1,RMM2) phase space for 2-Jan-2023 to 10-Feb-2023 Western Pacific 7 З 2 8 START 1 Hem. Africa **R**MM2 Ø West. and -1 1 -2 -3 2 Indian Ocean -4 -4 -3 -2 -1 ø 1 RMM1 Labelled dots for each day. Blue line is for Feb, green line is for Jan, red line is for Dec. (C) Copyright Commonwealth of Australia2023. Bureau of Meteorology

Indian Ocean Dipole (IOD)





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Satellite Rainfall January 2023

1-month total rainfall ending January 2023



Data source: MSWEP

Run: 07/02/2023

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Satellite Rainfall Anomaly January 2023



Data source: MSWEP

Run: 07/02/2023 Base period: 1980-2021

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Tercile rainfall probabilities for February to April 2023



Model: ACCESS-S2

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Difference from Average (FMA)



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Year: 2023, Season: FMA, Lead Month: 3, Method: GAUS Model: APCC, CMCC, CWB, MSC, NASA, NCEP, PNU

Generated using CLIK® (2023-2-7)

February to April 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



Difference from normal chance of Tropical Cyclone's in the South Pacific Forecast period: 18/02/2023 - 24/02/2023

Calibrated Model anomaly probability in overlapping 15 x 20 degree boxes © Commonwealth of Australia 2023, Australian Bureau of Meteorology Model: ACCESS_52 Model Run: 10.02/2023 Issued: 12.02/2023

5°S 10°S 15°S 0 20°5 25°S 140°E 150°E 160°E 1809 170°W 160°W 150°W 140°W 130°W 120°W 170°E Reduced Risk Significantly Increased Risk 20 30 Percentage (%) -15 -10 0 10 40 50 60 70

Difference from normal chance of Tropical Cyclone's in the South Pacific

Forecast period: 25/02/2023 - 03/03/2023

Calibrated Model anomaly probability in overlapping 15 x 20 degree boxes © Commonwealth of Australia 2023, Australian Bureau of Meteorology Mo

Model: ACCESS_52 Model Run: 10/02/2023 Issued: 12/02/2023

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







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IRI Climate Model Summary

