ENSO update - OCOF 164

19 May 2021

ENSO Update

Climate Driver Update

Climate drivers in the Pacific, Indian and Southern oceans and the Tropics

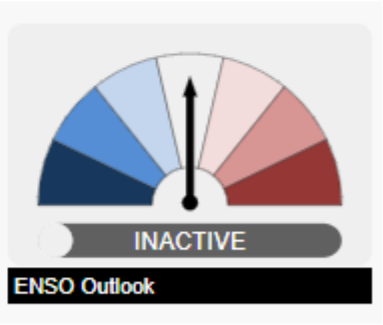
Issued **11 May 2021** Next issue **25 May 2021**

Overview | Pacific Ocean | Indian Ocean | Southern Ocean | Tropics

Summary | Sea surface

Southern Annular Mode positive, El Niño–Southern Oscillation neutral

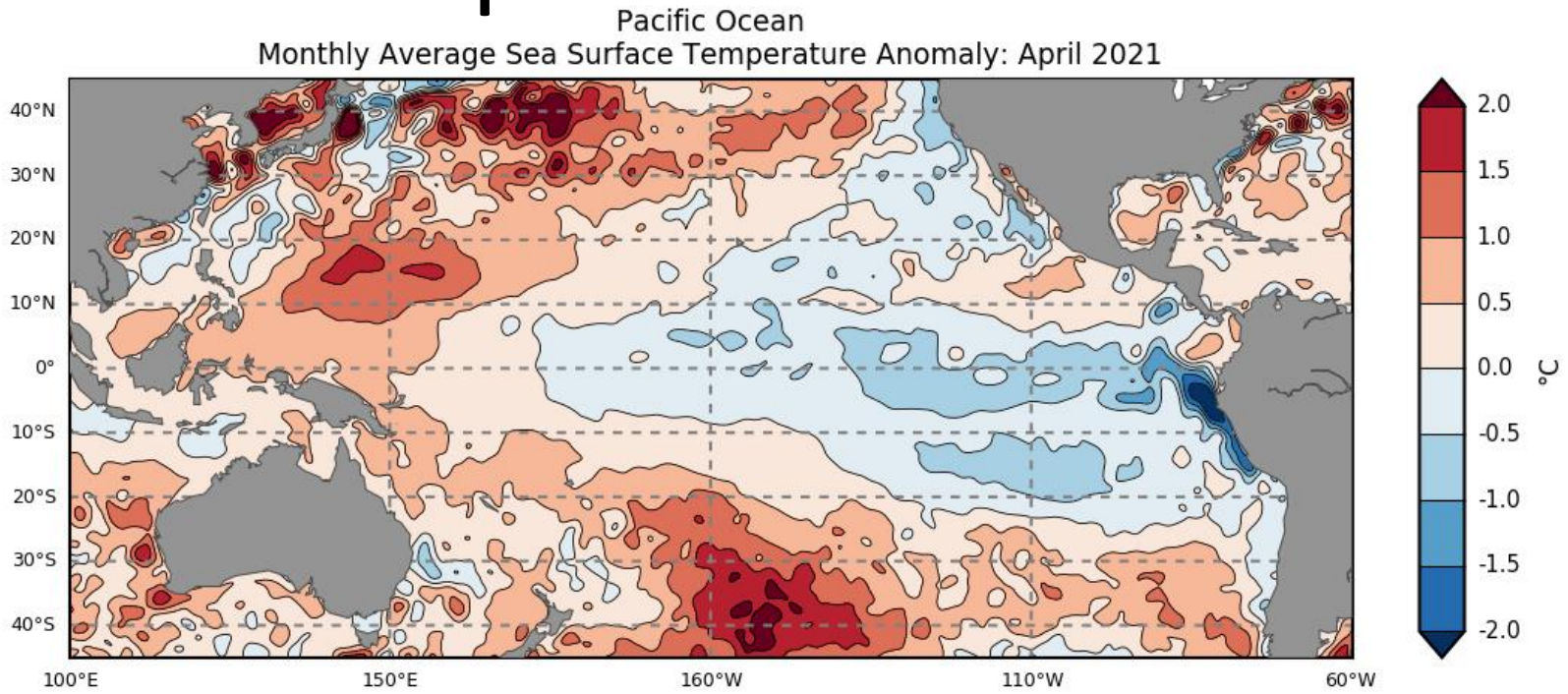
The El Niño–Southern Oscillation (ENSO) continues at neutral levels. Climate model outlooks currently indicate this neutral phase will last at least until October.



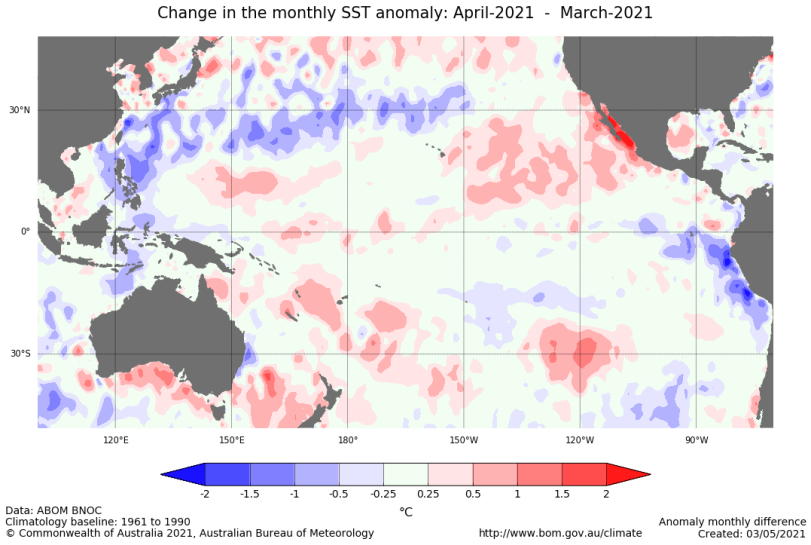
Oceanic indicators of ENSO persist at neutral levels, with Pacific sea surface temperatures close to the long-term average across most of the equatorial region. Beneath the surface, temperatures are near-average, with slightly warmer than average waters across much of the sub-surface. Atmospheric indicators such as the Southern Oscillation Index (SOI) and cloud patterns are also close to average. Trade winds have been stronger than average in the far west, but near average elsewhere.

The Madden–Julian Oscillation (MJO) is over the Indian Ocean region. It is forecast to move eastwards across Australian longitudes over the coming fortnight. When the MJO is active over the eastern Indian Ocean and Australian longitudes at this time of year, above average rainfall is more likely over the Maritime Continent to Australia's north. Additionally, it typically acts to strengthen easterly winds on Queensland's tropical east coast and increase temperatures across tropical Australia.

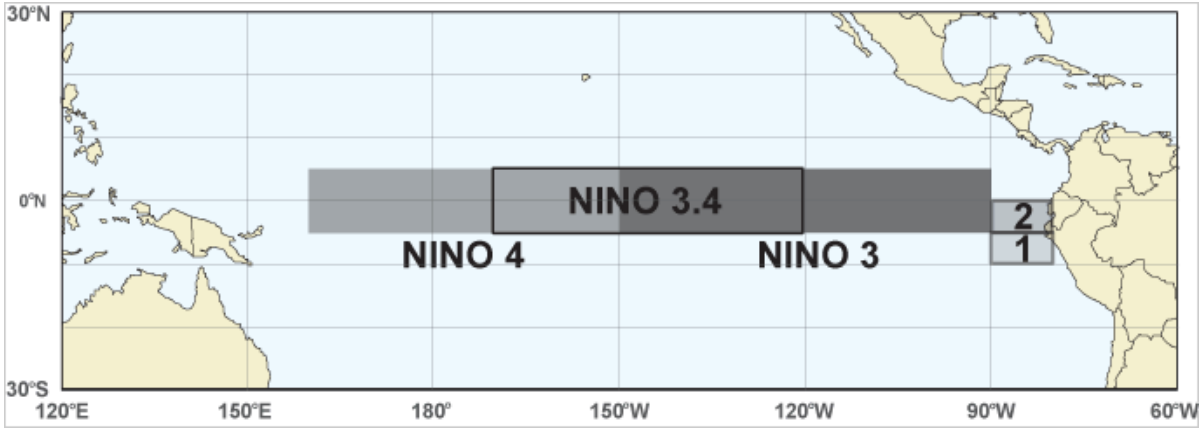
April 2021 SSTs



Geoscience Energy and Maritime Division, COSPPac SPP



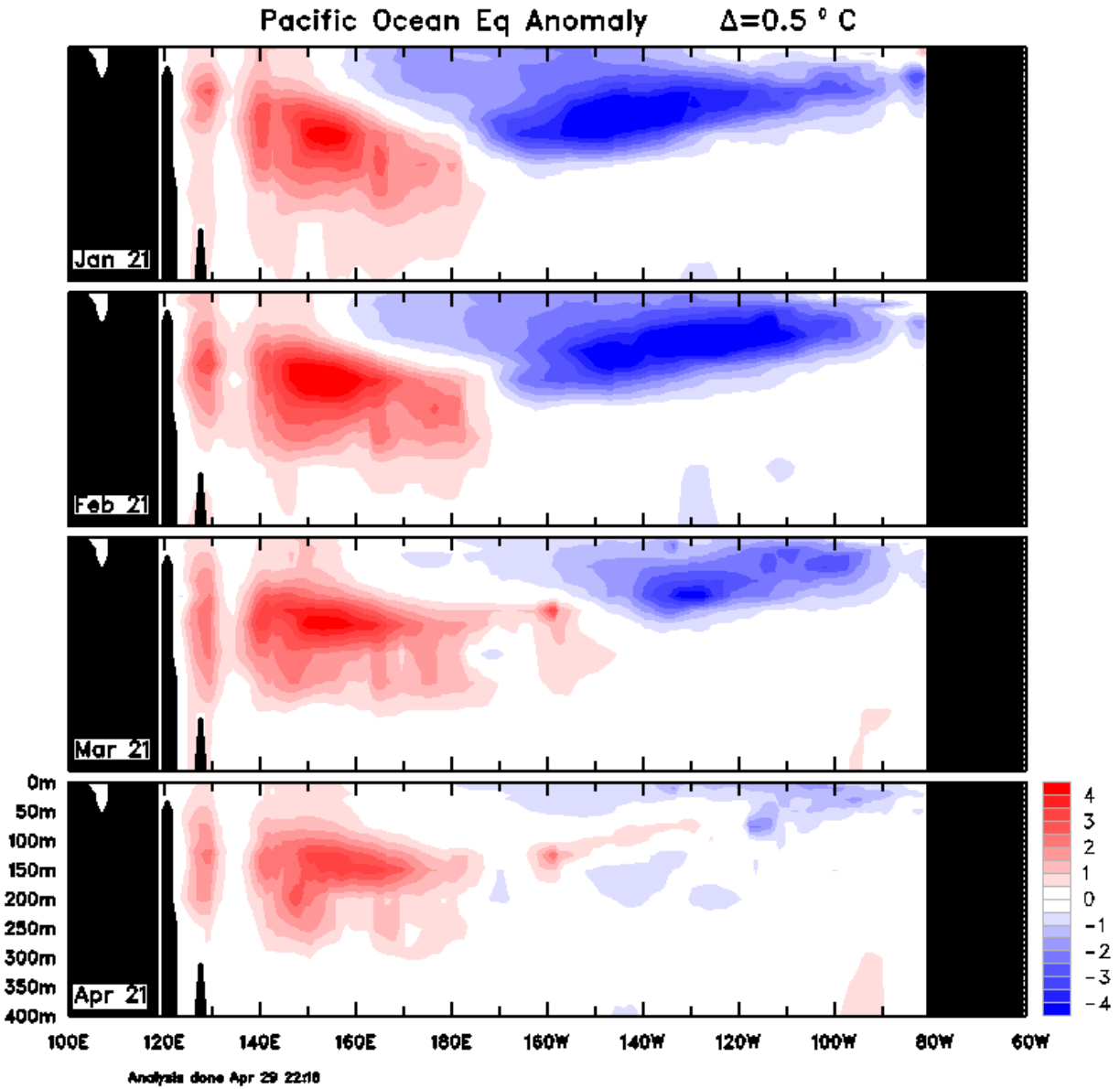
NINO INDICES SST anomalies (°C)



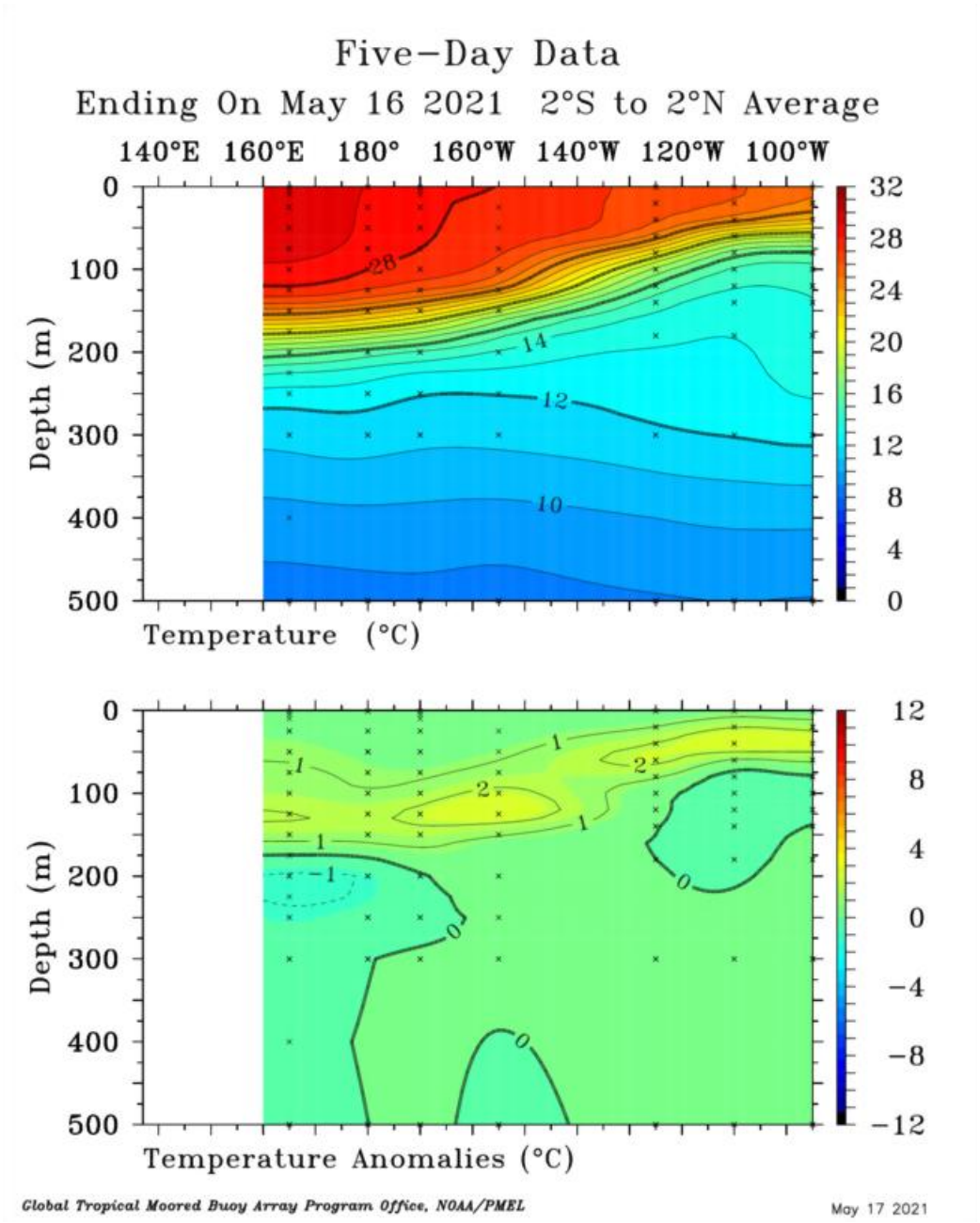
Index	Mar 2021	Apr 2021	Latest weekly
NINO3	–0.3	–0.4	–0.3
NINO3.4	–0.4	–0.3	–0.2
NINO4	–0.3	–0.1	+0.1

Weekly data for the week ending 16/05/2021

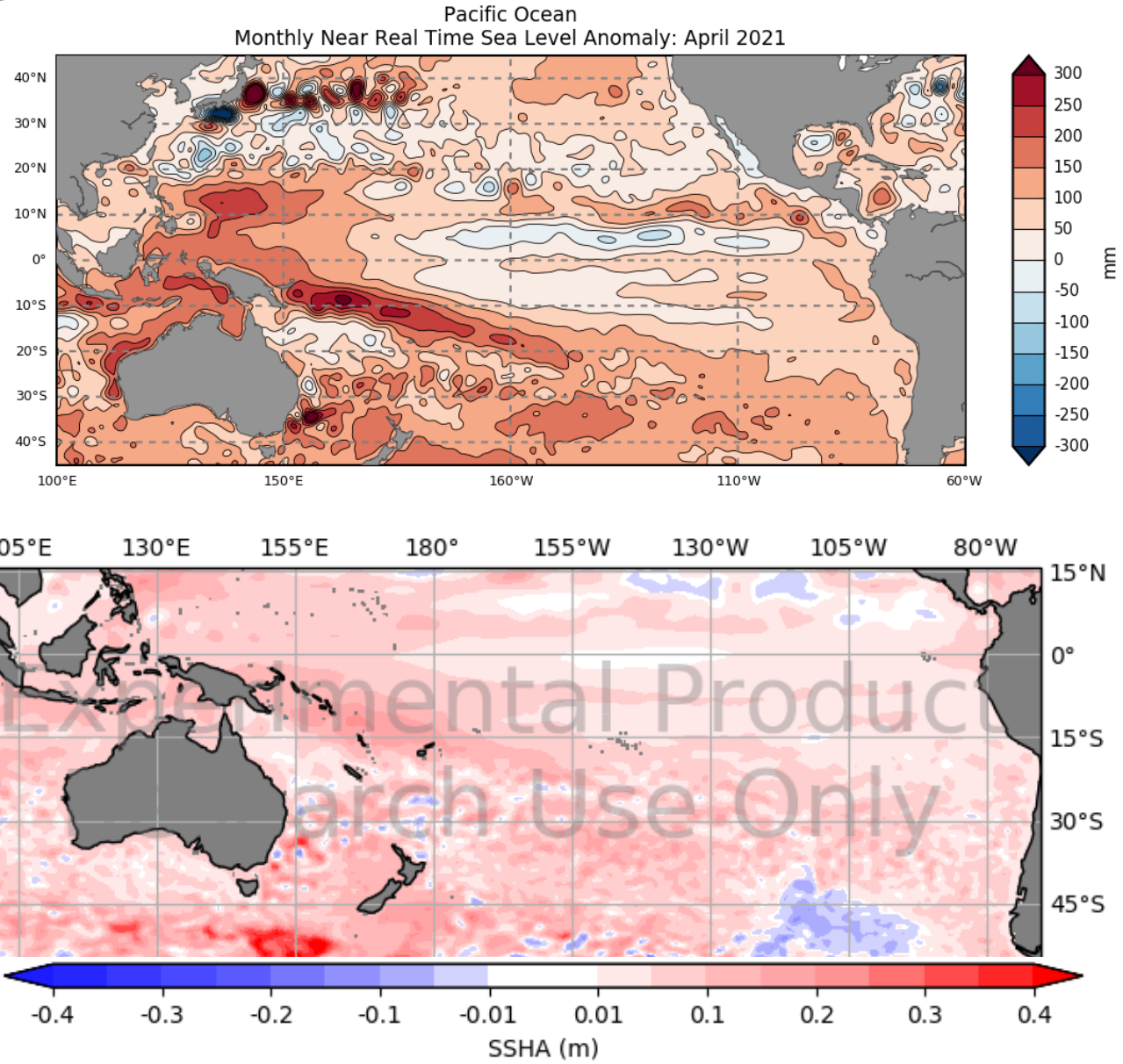
Equatorial Pacific sub-surface profile
Bureau of Meteorology



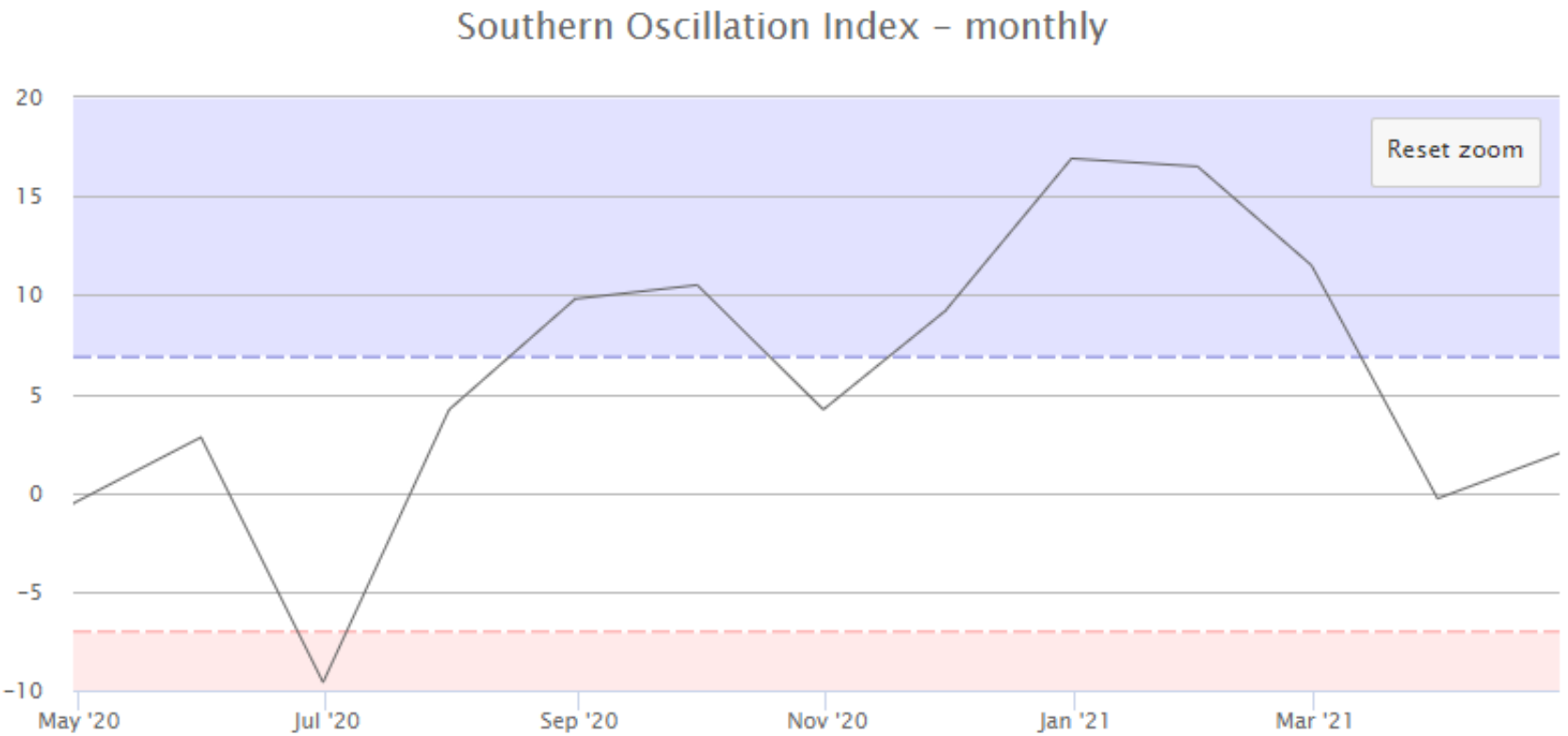
Equatorial Pacific sub-surface profile



April 2021 Sea Level Anomaly



Southern Oscillation Index

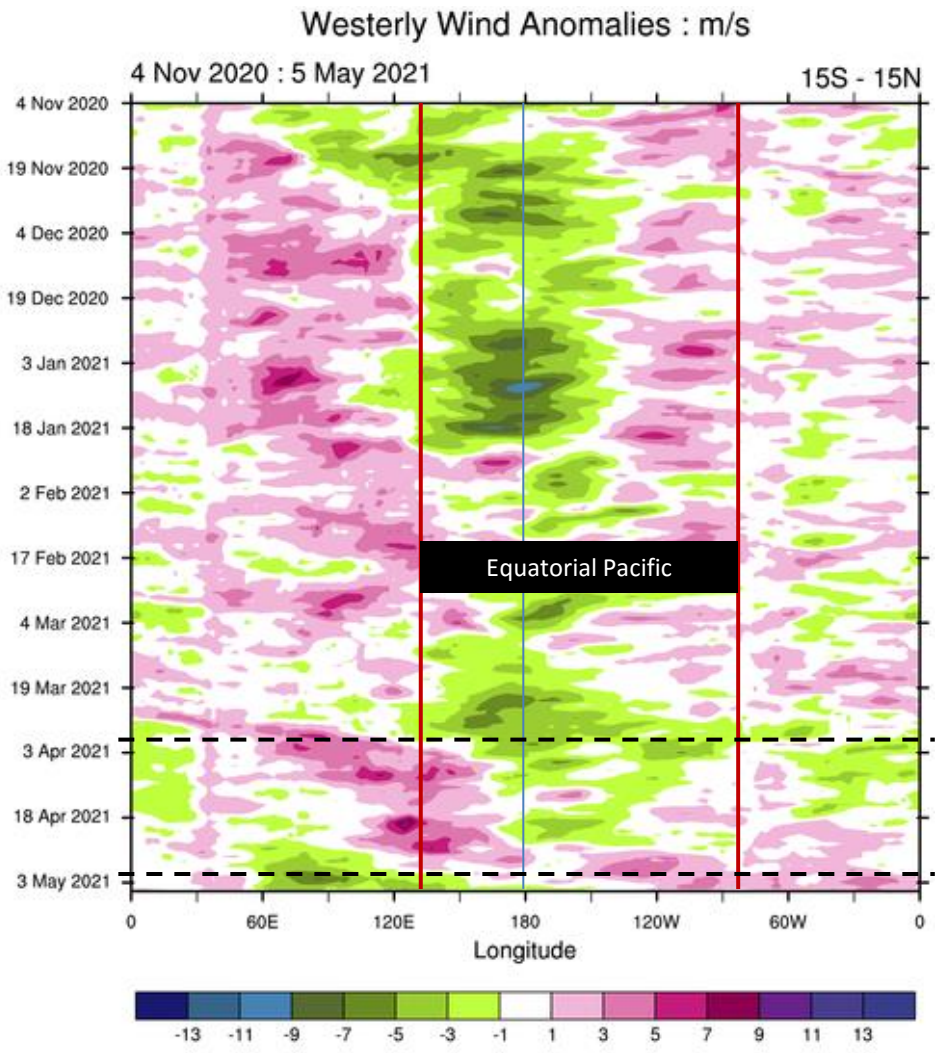


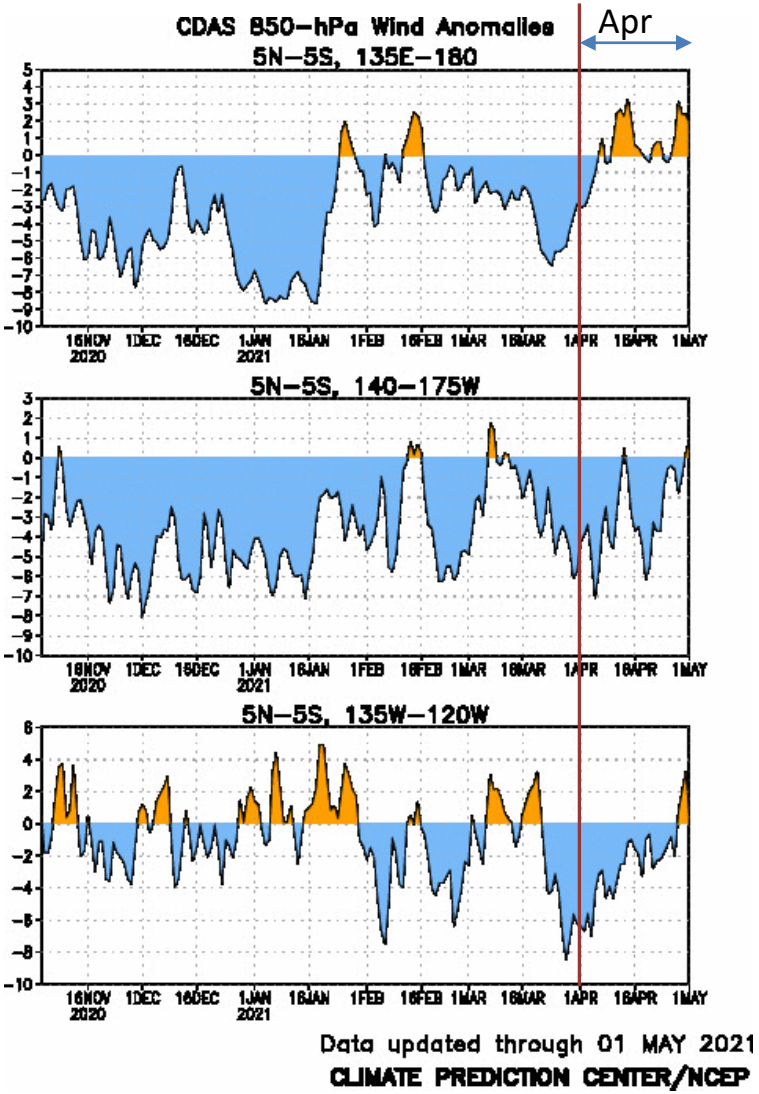
Southern Oscillation Index monthly data

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	+16.5	+11.5	−0.3	+2.0	-	-	-	-	-	-	-	-
2020	+1.3	−2.2	−5.2	−0.5	+2.8	−9.6	+4.2	+9.8	+10.5	+4.2	+9.2	+16.9

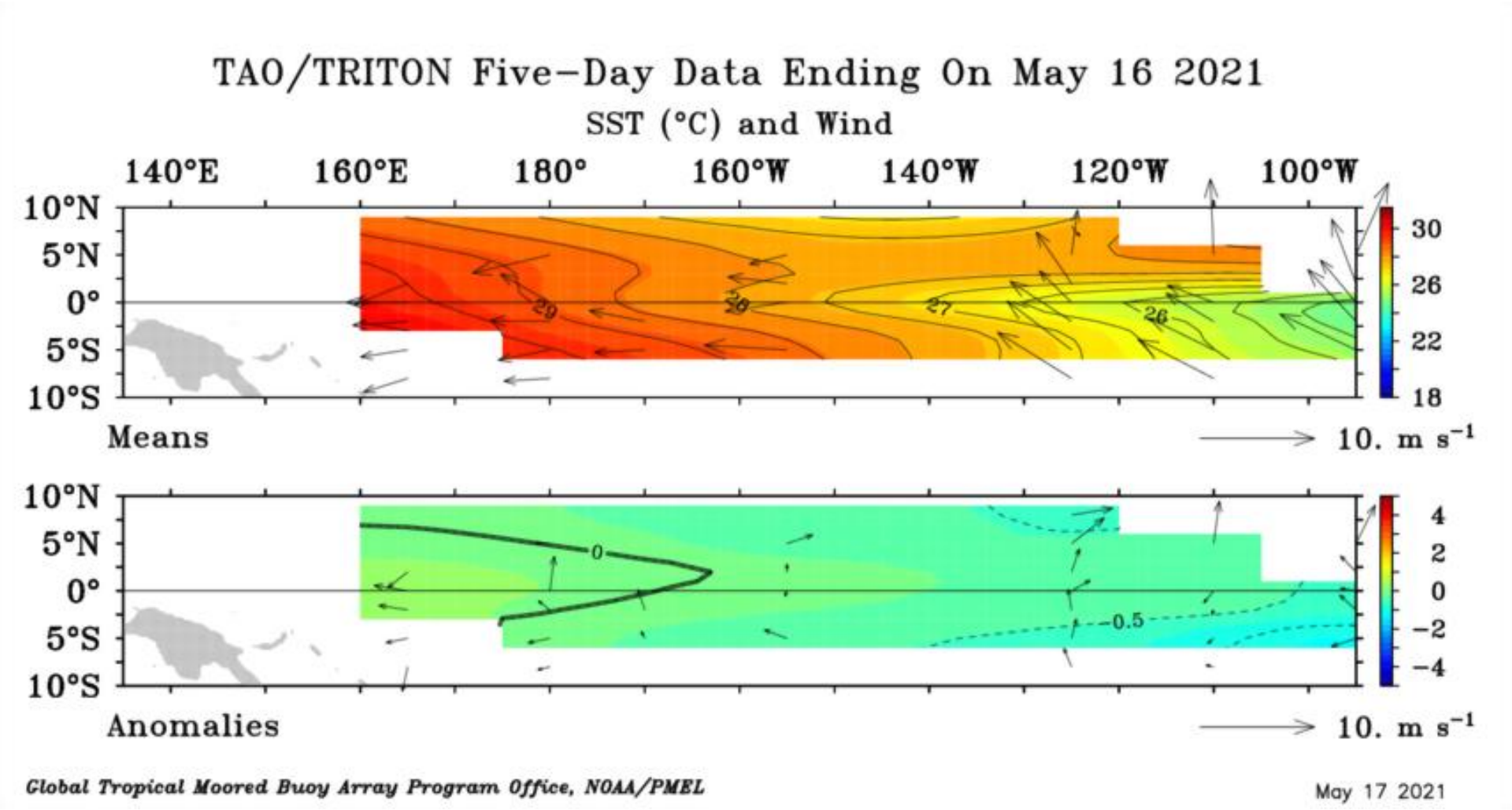
At 16 May 2021: 30-day SOI = +7; 90-day SOI = +4

Equatorial Trade Winds



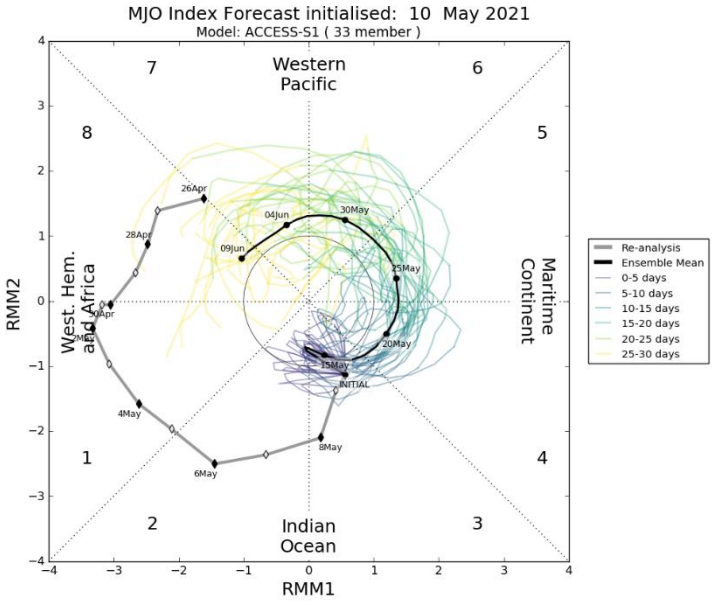


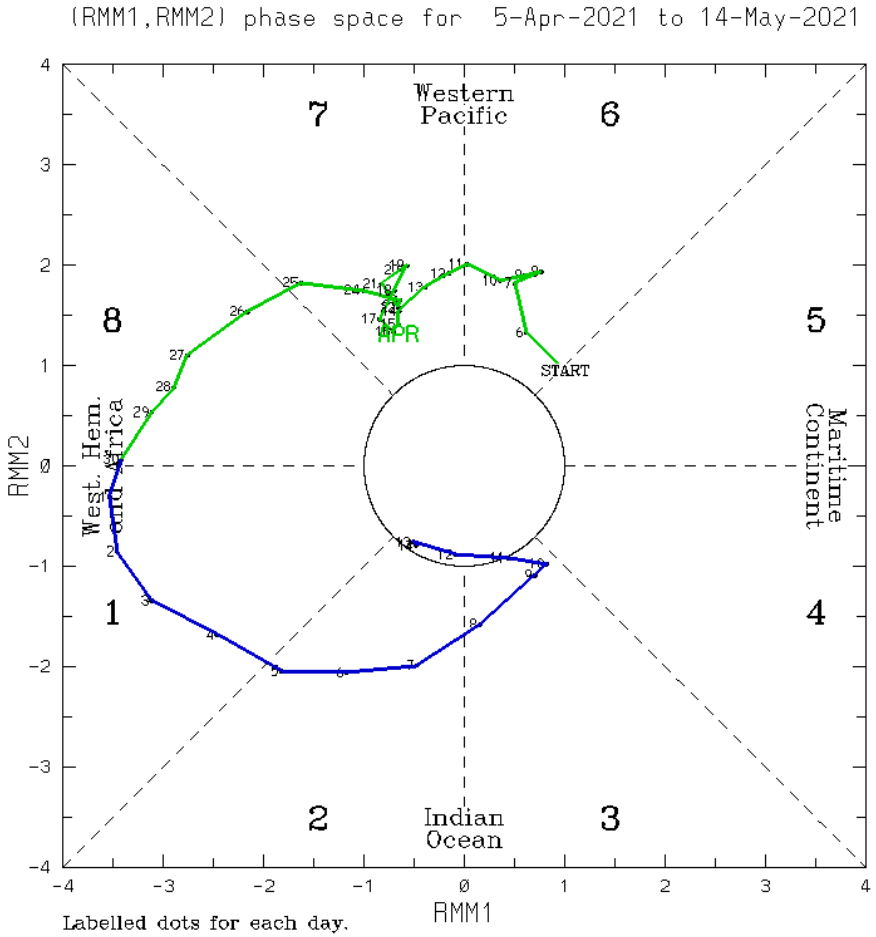
Equatorial Trade Winds



Madden-Julian Oscillation

ACCESS

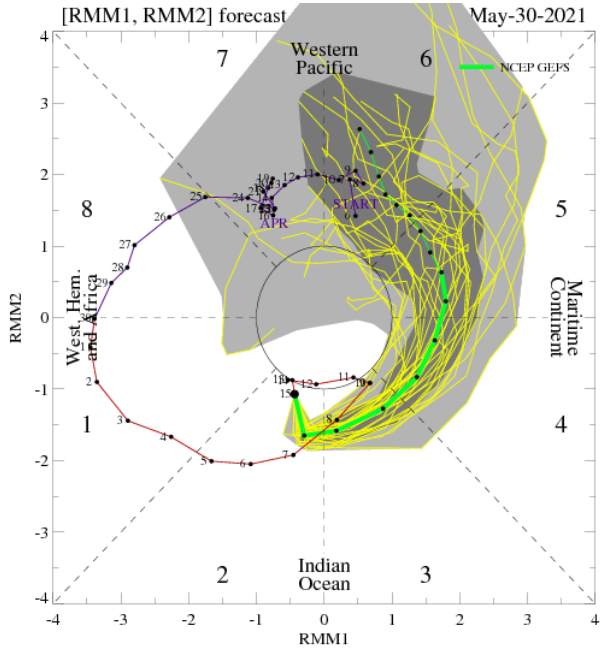




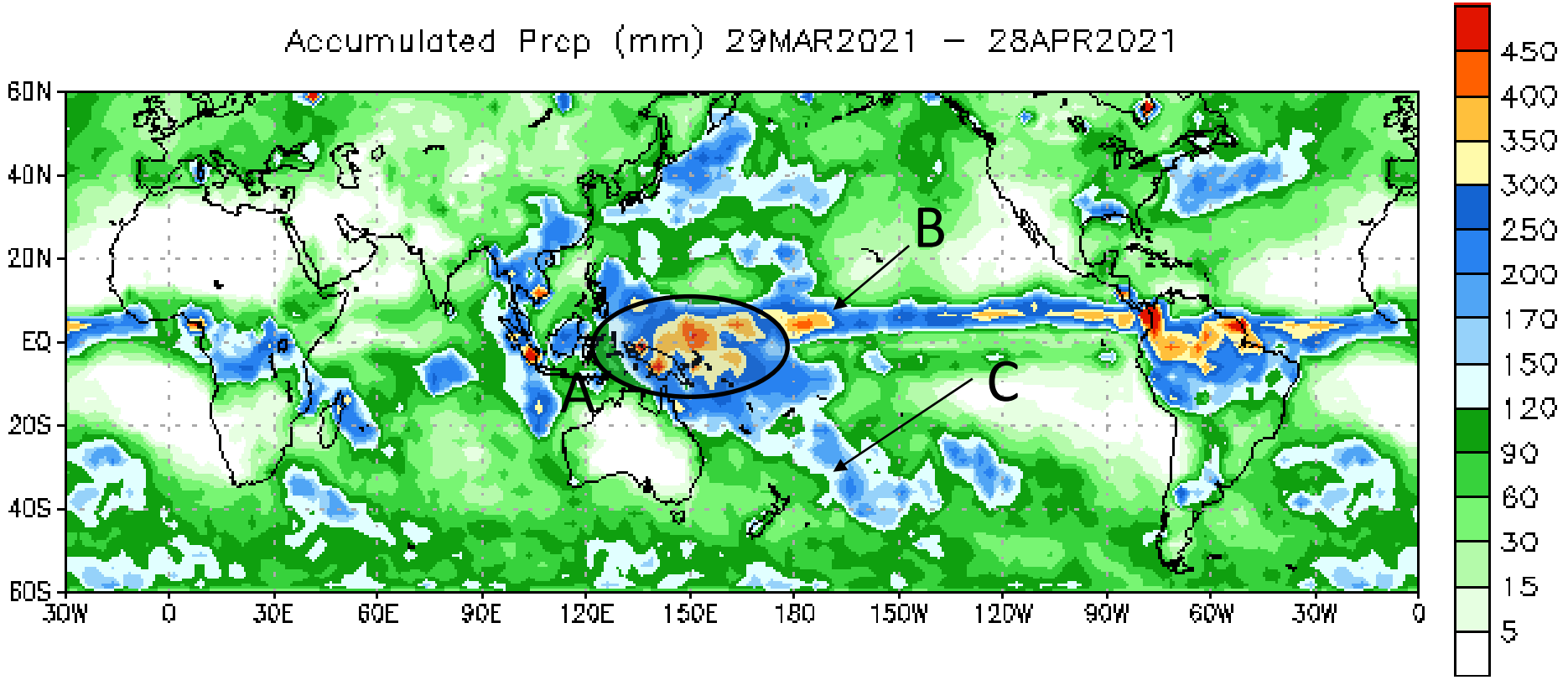
Labelled dots for each day.
Blue line is for May, green line is for Apr, red line is for Mar.

2021

NCEP

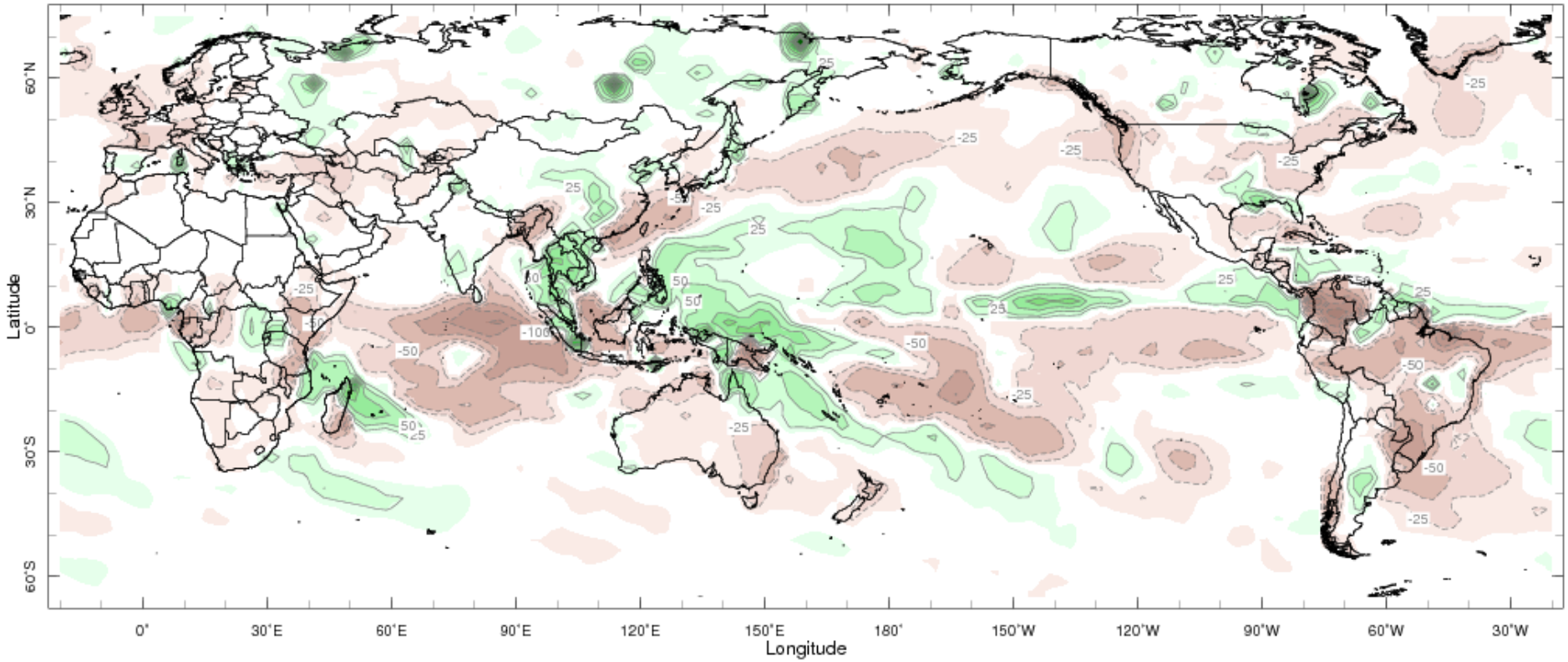


Satellite Rainfall April 2021



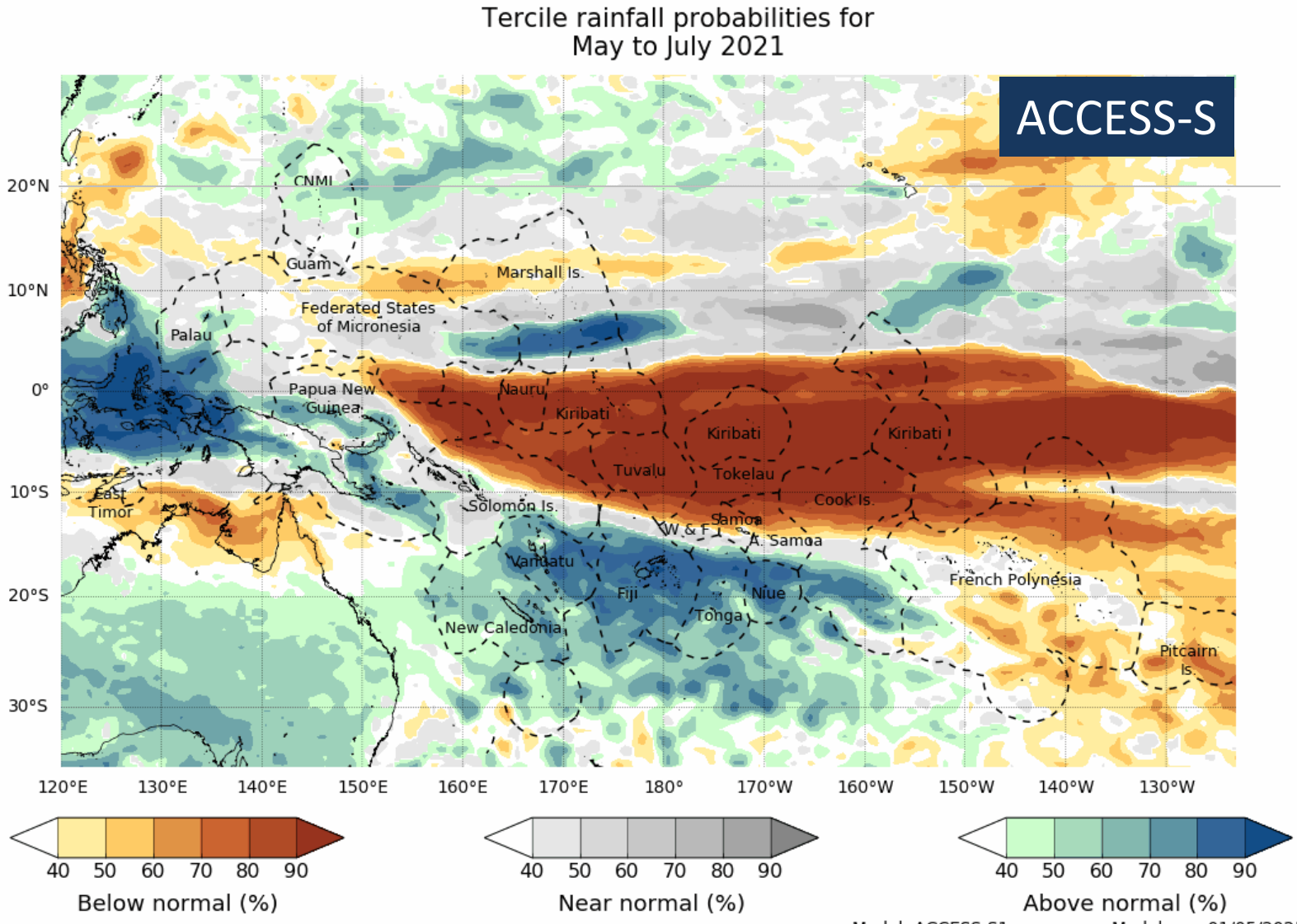
Data Source: NCEP CMAP Precipitation

Satellite Rainfall Anomaly April 2021



Units = mm per month

Model Rainfall Predictions (MJJ)

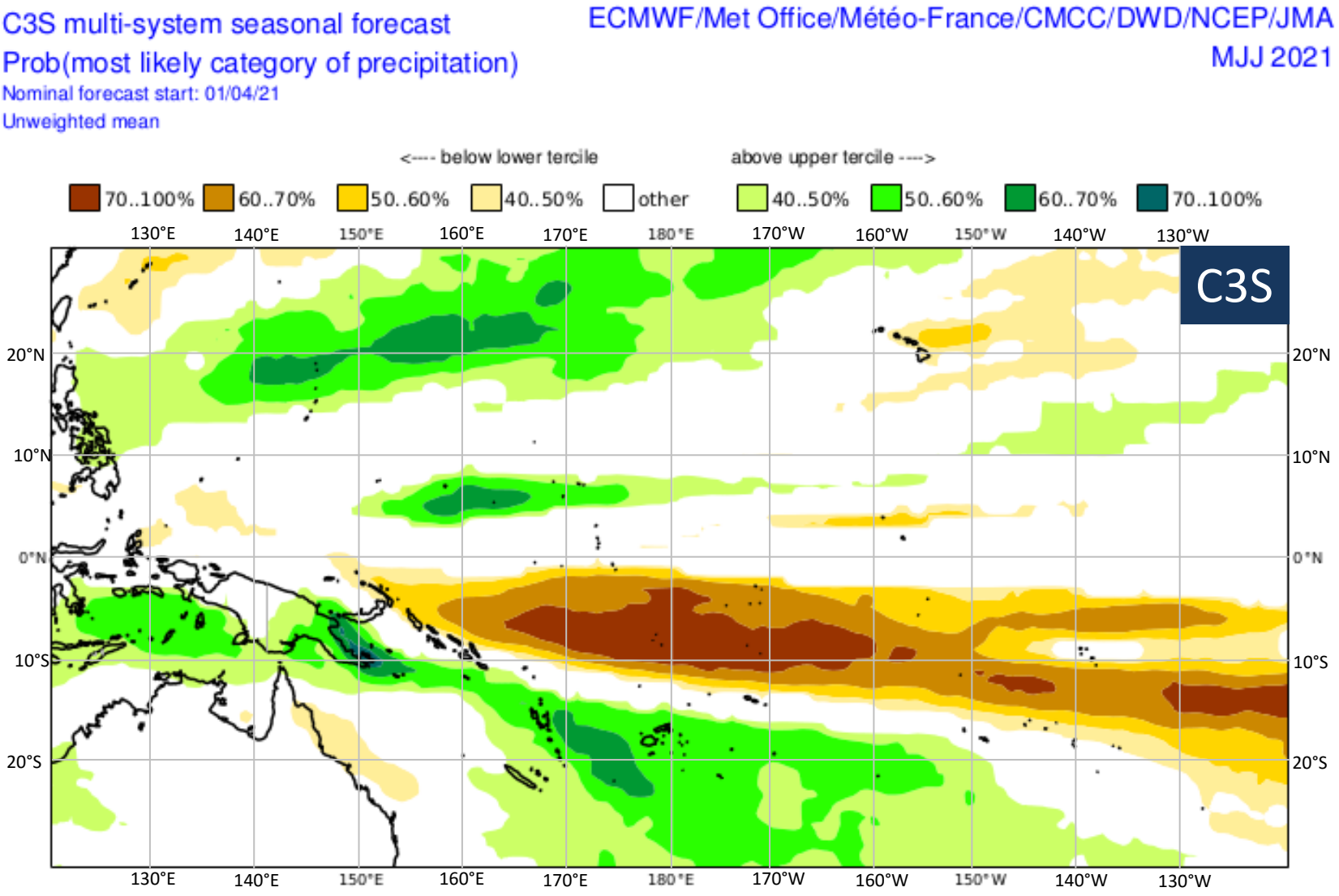


Model: ACCESS-S1 Model run: 01/05/2021

Base period: 1990-2012 Issued: 03/05/2021

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 (MJJ)



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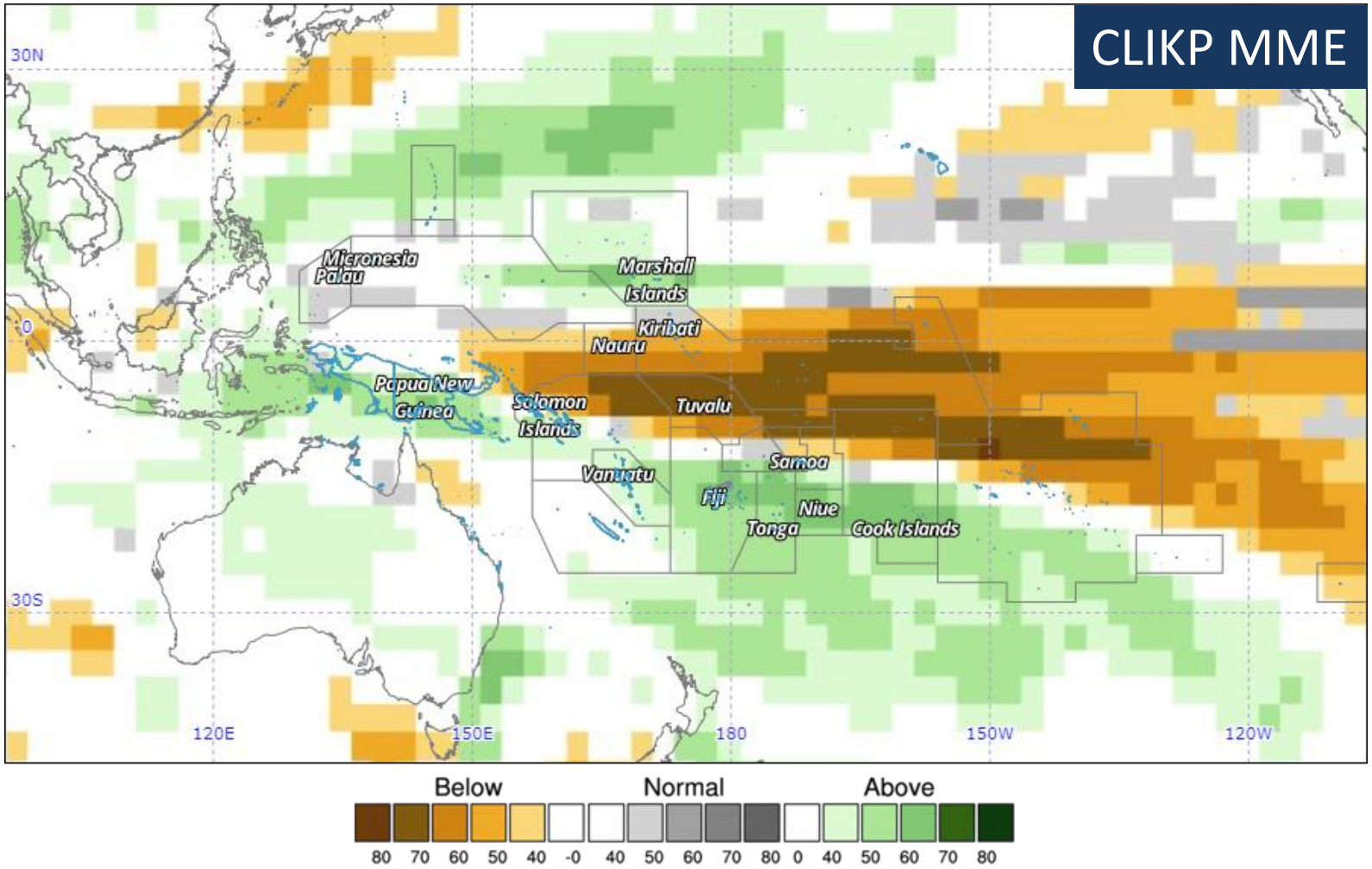


Year: 2021, Season: MJJ, Lead Month: 3, Method: GAUS

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

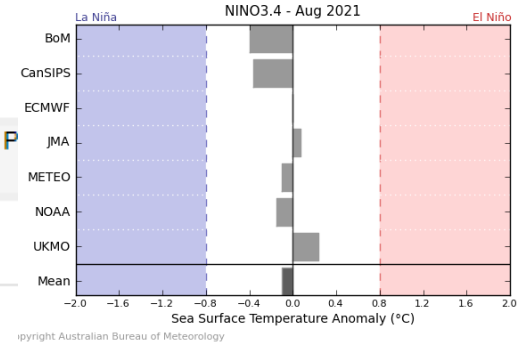
Generated using CLIKⓅ (2021-5-7)

Model Rainfall Predictions (MJJ)

	May-July 2021		
	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			
Marshall Is			
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						

Climate Model Summary for June to October 2021



Issued **12 May 2021** Next issue **15 June 2021**

Australian climate is influenced by temperature patterns in the Pacific and Indian Oceans. This page provides information on P
Ocean outlooks for the coming six months based on a survey of international climate models.

Overview | Pacific Ocean | Indian Ocean | Bureau model | Models | Related information

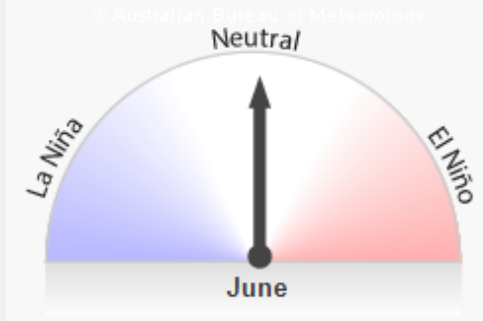
Neutral El Niño-Southern Oscillation for winter

The El Niño-Southern Oscillation (ENSO) is neutral. Model outlooks (which forecast the oceanic component of ENSO) indicate the central tropical Pacific (NINO3.4) will remain at ENSO-neutral levels until at least early spring. A neutral ENSO state has little influence on the Australian climate.

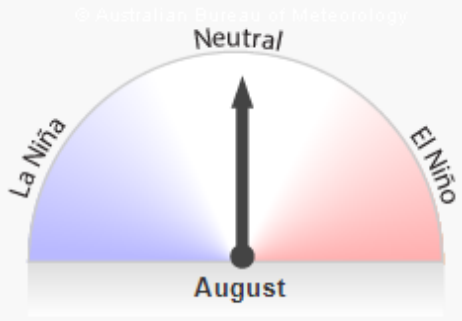
The Indian Ocean Dipole (IOD) is currently neutral with most models favouring a neutral outlook for the end of autumn and early winter. Three out of the five models surveyed indicate the possibility of negative IOD thresholds being reached during winter and spring. Model accuracy is generally lower at this time of the year than at other times, so longer lead outlooks should be viewed with caution.

Further details: Climate Driver Update | Climate Outlooks

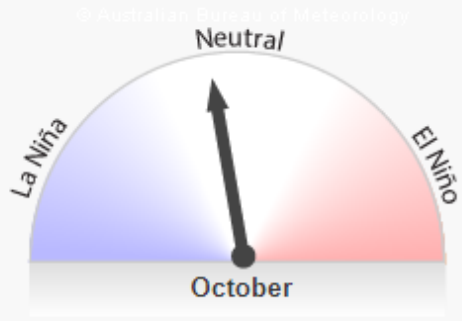
Average of international model outlooks for NINO3.4



SST anomaly: −0.1 °C



SST anomaly: −0.1 °C



SST anomaly: −0.3 °C

Climate Model Summary