

# ENSO update - OCOF 163

14 April 2021

# ENSO Update

## Climate Driver Update

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

🕒 Issued **30 March 2021** Next issue **13 April 2021**

Overview

Pacific Ocean

Indian Ocean

Southern Ocean

Tropics

Summary

Sea surface

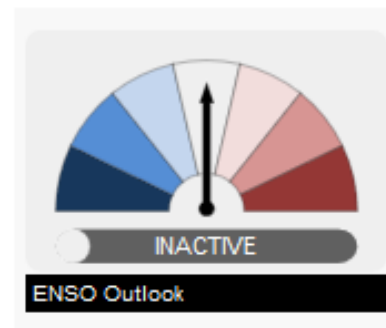
### La Niña 2020–21 fades as El Niño–Southern Oscillation returns to neutral

The Bureau's *ENSO Outlook* has moved from LA NIÑA to INACTIVE as most El Niño–Southern Oscillation (ENSO) indicators have now returned to neutral levels. Climate model outlooks suggest the Pacific will remain at neutral ENSO levels at least until the winter.

Tropical Pacific Ocean sea surface temperatures have persisted at ENSO-neutral values for several weeks. Below the surface, much of the tropical Pacific is now at near average temperatures. Atmospheric indicators are also generally at neutral ENSO levels. The Southern Oscillation Index (SOI) is close to zero, while trade winds are currently being enhanced by the Madden–Julian Oscillation (MJO). Only cloudiness near the Date Line continues to show a weak La Niña-like signature.

These changes are consistent with climate model outlooks, which have indicated a return to ENSO neutral during the southern hemisphere autumn, with little indication of a return to La Niña patterns in the coming months. A return to ENSO neutral conditions in autumn is also typical of the life cycle of ENSO events. All models indicate ENSO will remain neutral until at least the end of the southern winter.

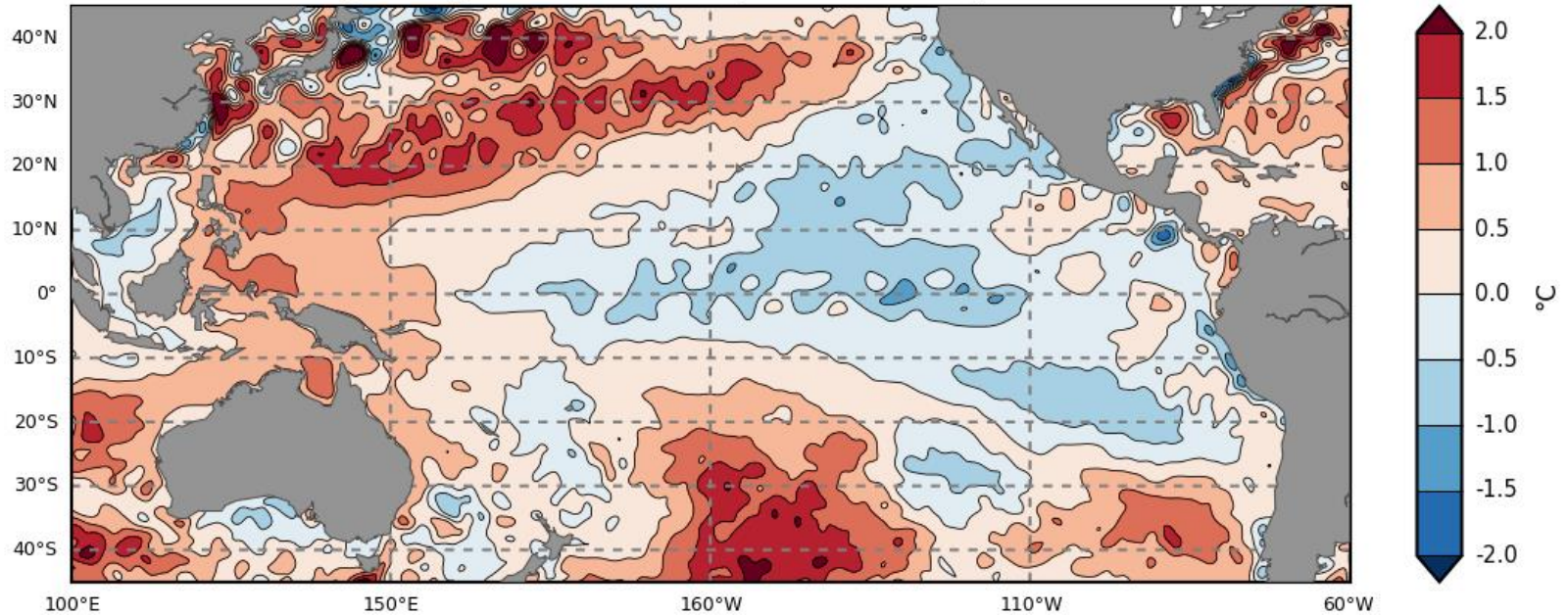
The Madden–Julian Oscillation (MJO) is currently the strongest climate driver influencing Australia. The MJO has moved into the Australian region at moderate strength and is expected to bring increased cloudiness and rainfall to far northern Australia and the broader Maritime Continent over the next week or two. This also brings an increased risk of tropical low/cyclone activity.



# March 2021 SSTs

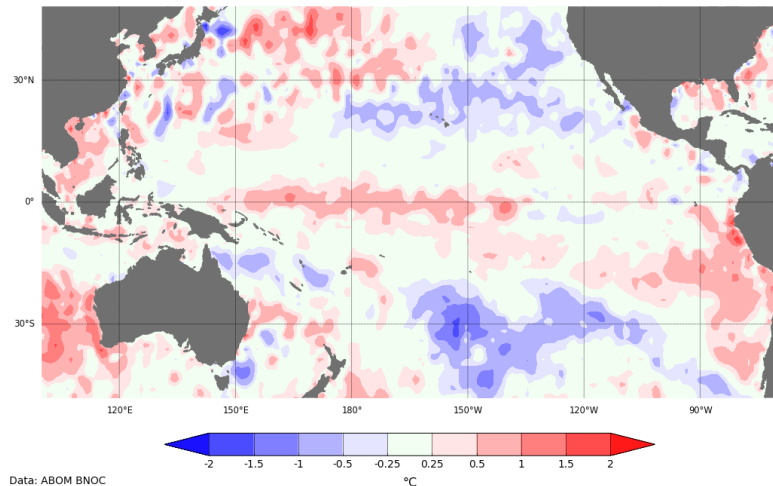
Pacific Ocean

Monthly Average Sea Surface Temperature Anomaly: March 2021



©Pacific Community (SPC) 2021  
Geoscience Energy and Maritime Division, COSPPac SPP

Change in the monthly SST anomaly: March-2021 - February-2021

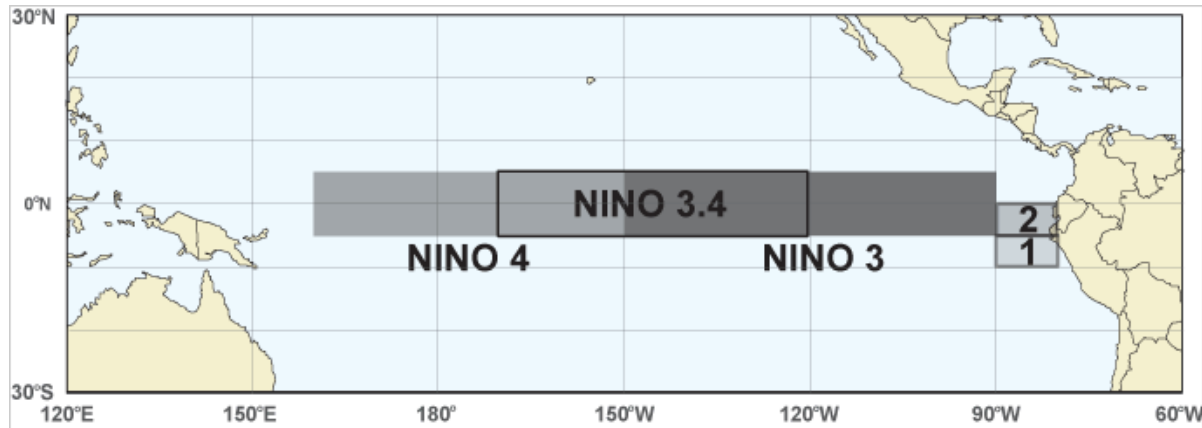


Data: ABOM BNOG  
Climatology baseline: 1961 to 1990  
© Commonwealth of Australia 2021, Australian Bureau of Meteorology

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

Anomaly monthly difference  
Created: 05/04/2021

# NINO INDICES SST anomalies (°C)

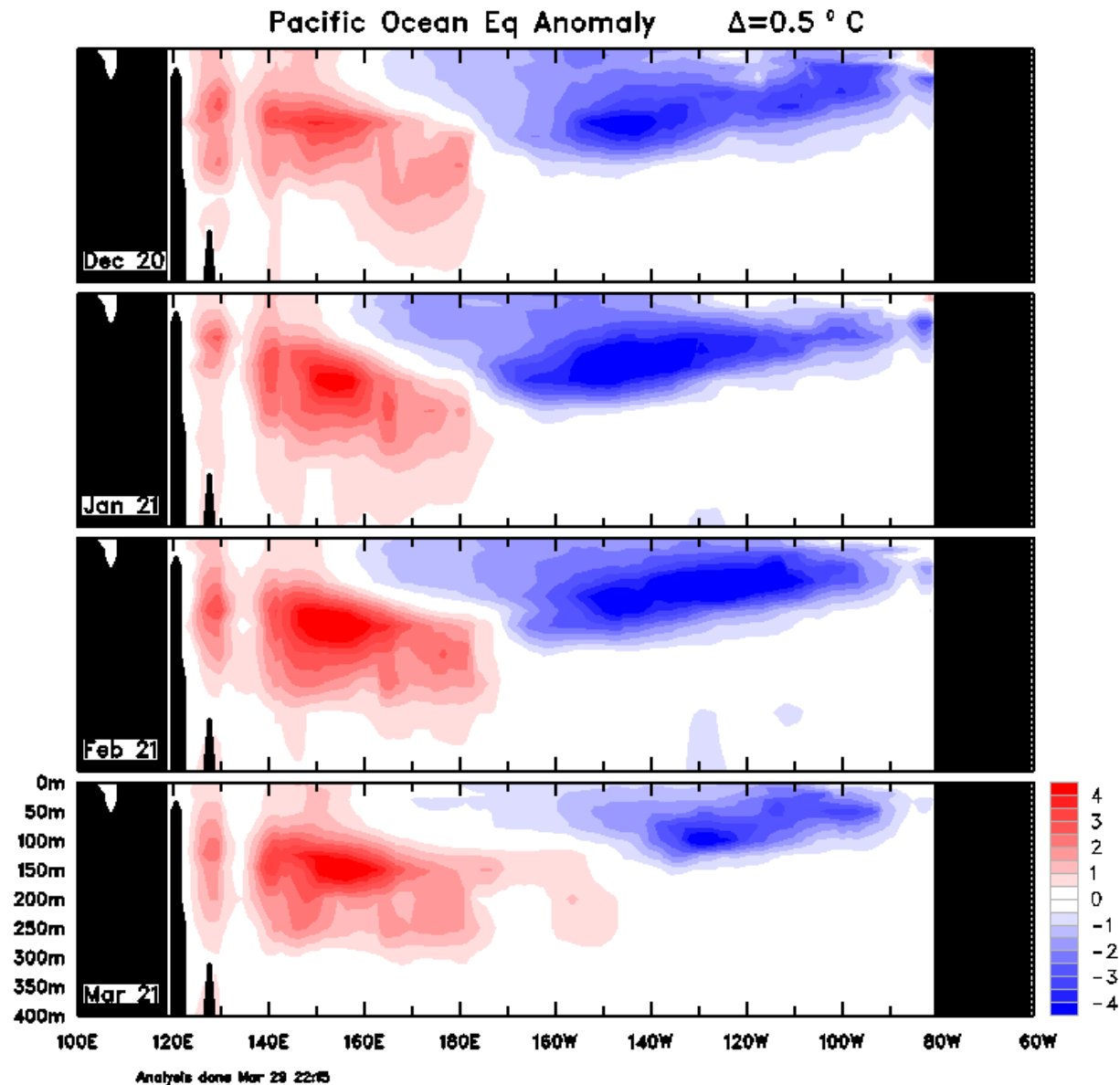


Index	Feb 2021	Mar 2021	Latest weekly
NINO3	-0.4	-0.3	-0.3
NINO3.4	-0.7	-0.4	-0.3
NINO4	-0.8	-0.3	-0.1

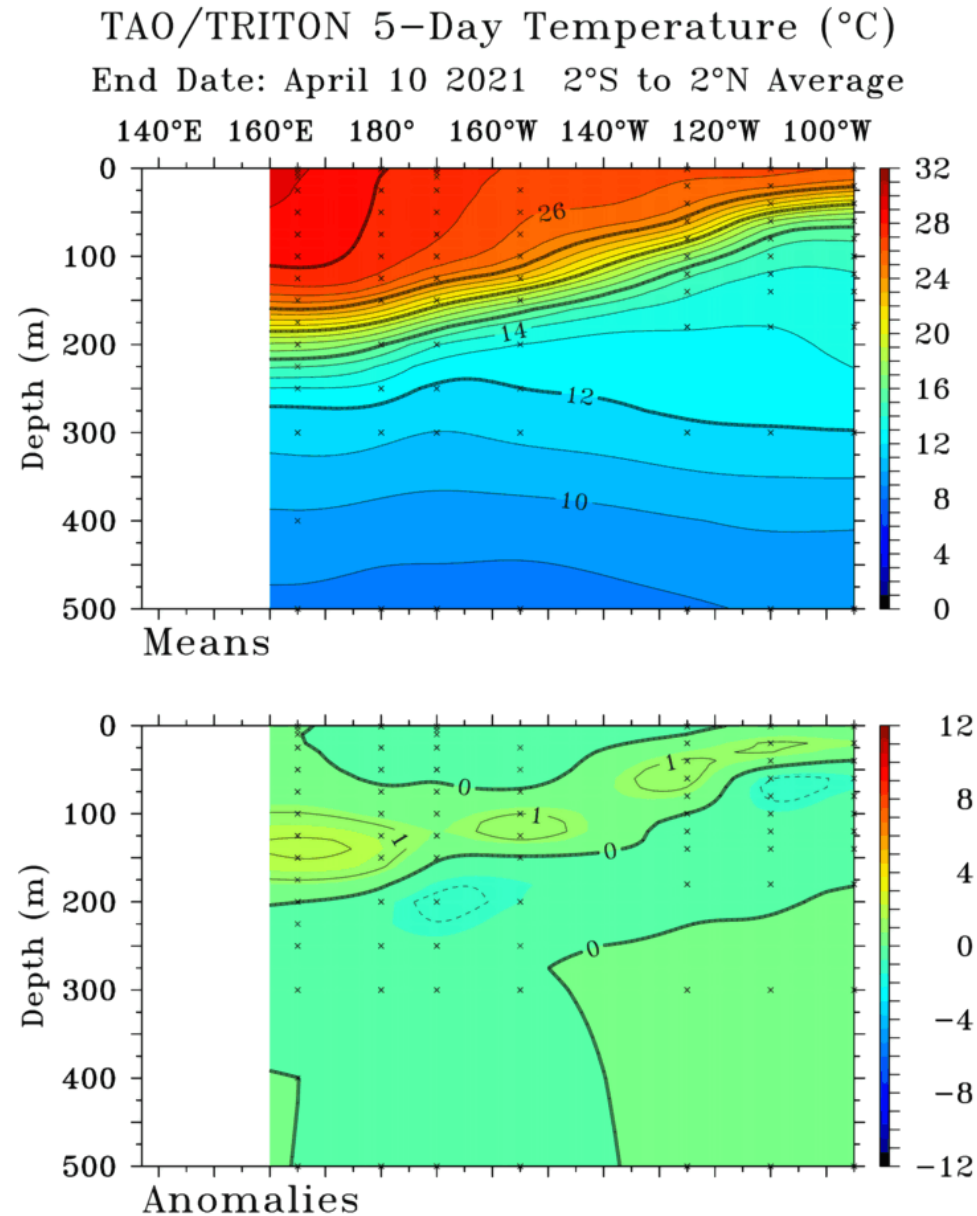
Weekly data for the  
week ending 11/04/2021

# Equatorial Pacific sub-surface profile

## Bureau of Meteorology

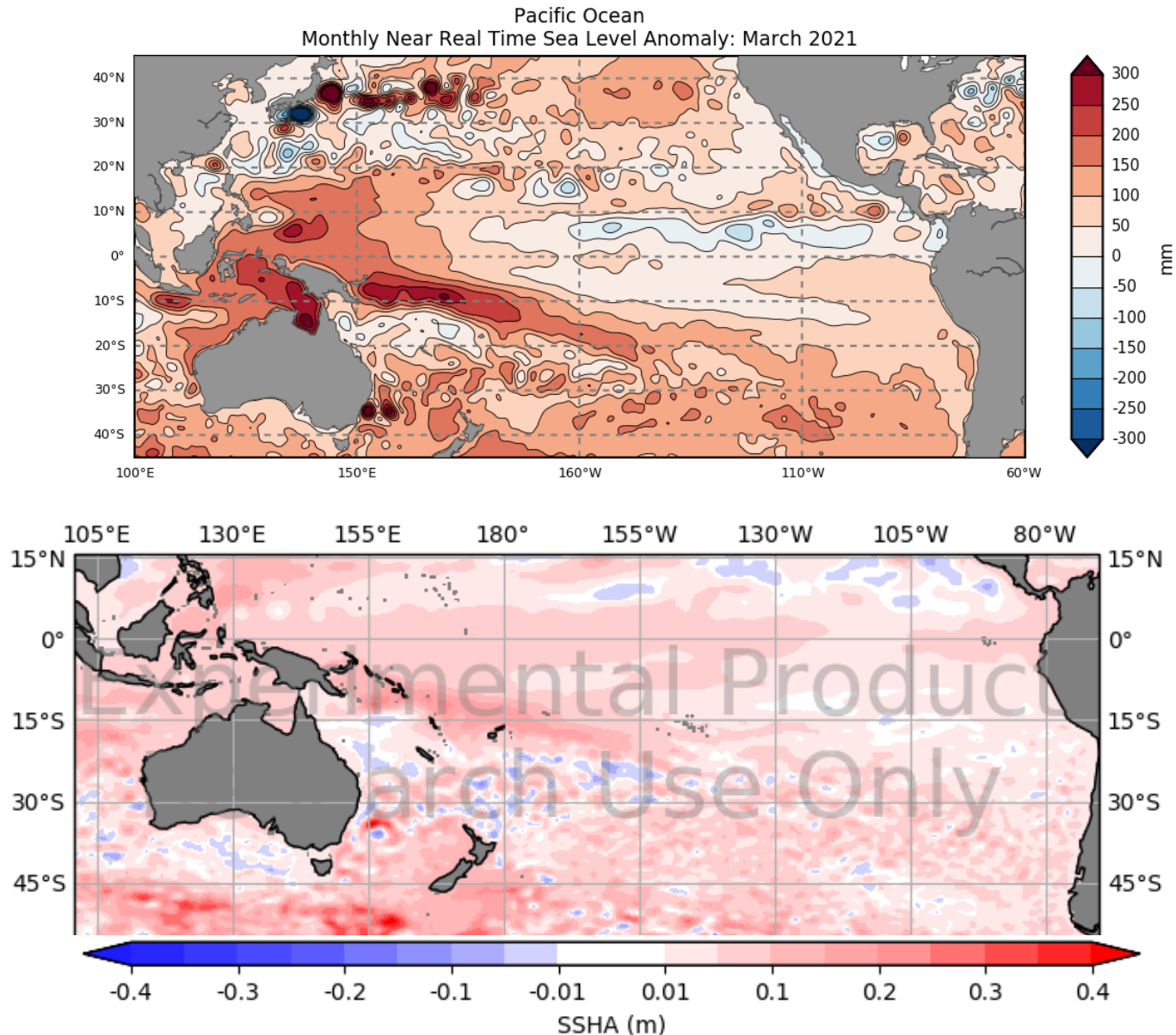


# Equatorial Pacific sub-surface profile



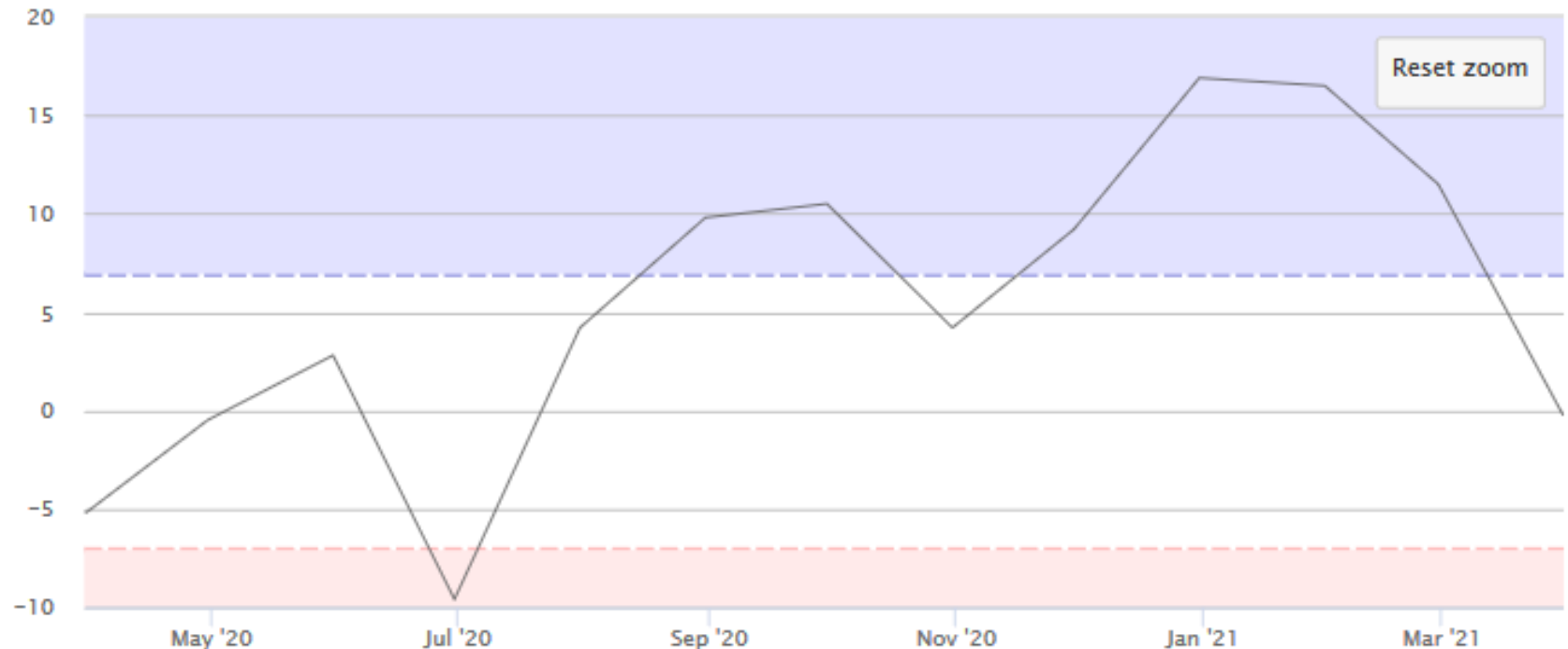


# March 2021 Sea Level Anomaly



# Southern Oscillation Index

Southern Oscillation Index – monthly

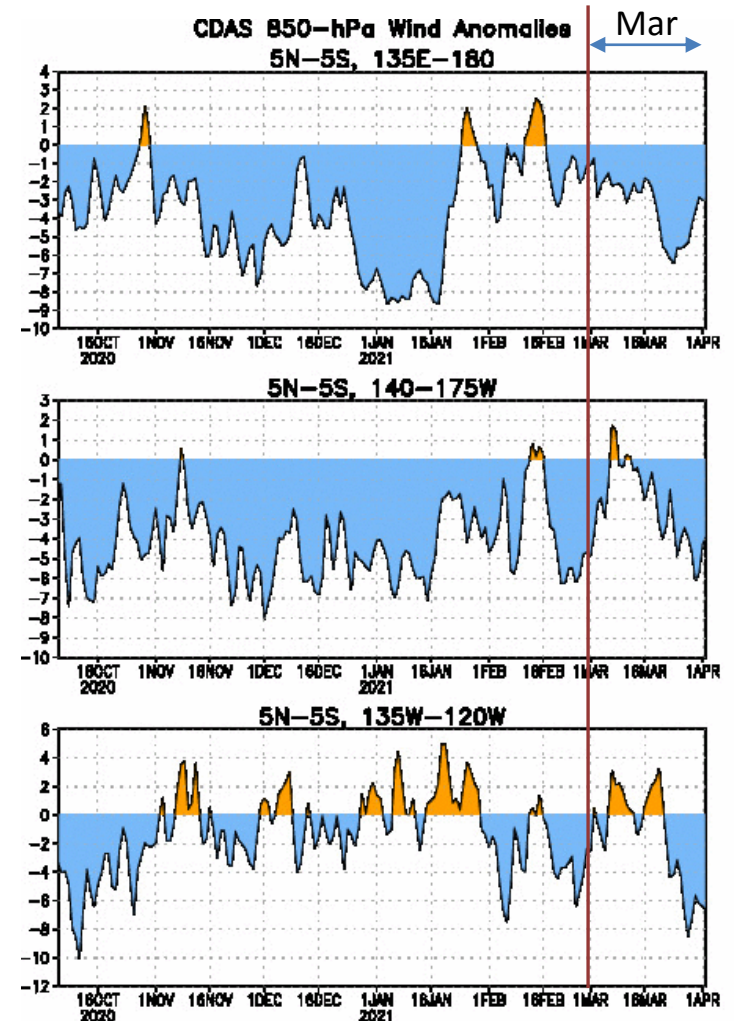
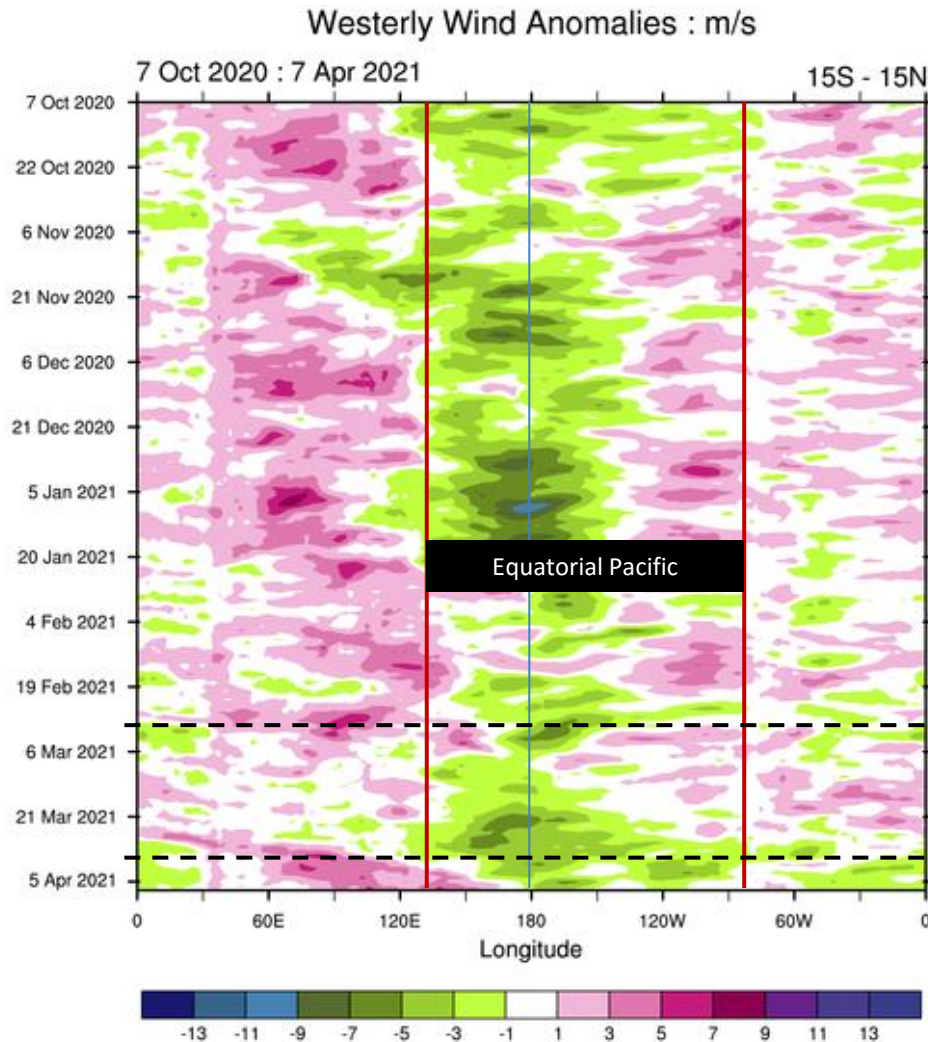


Southern Oscillation Index monthly data												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	+16.5	+11.5	-0.3	-	-	-	-	-	-	-	-	-
2020	+1.3	-2.2	-5.2	-0.5	+2.8	-9.6	+4.2	+9.8	+10.5	+4.2	+9.2	+16.9

At 11 April 2021: 30-day SOI = +2; 90-day SOI = +8



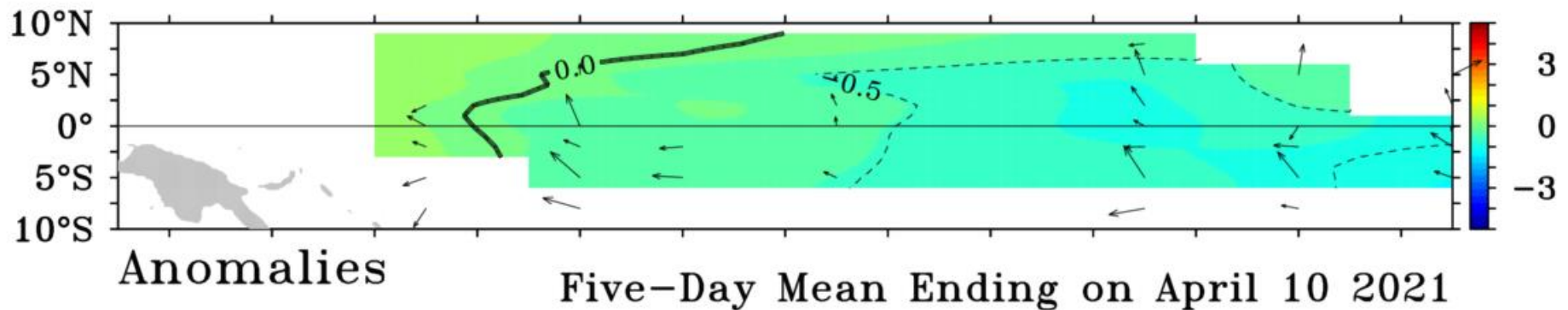
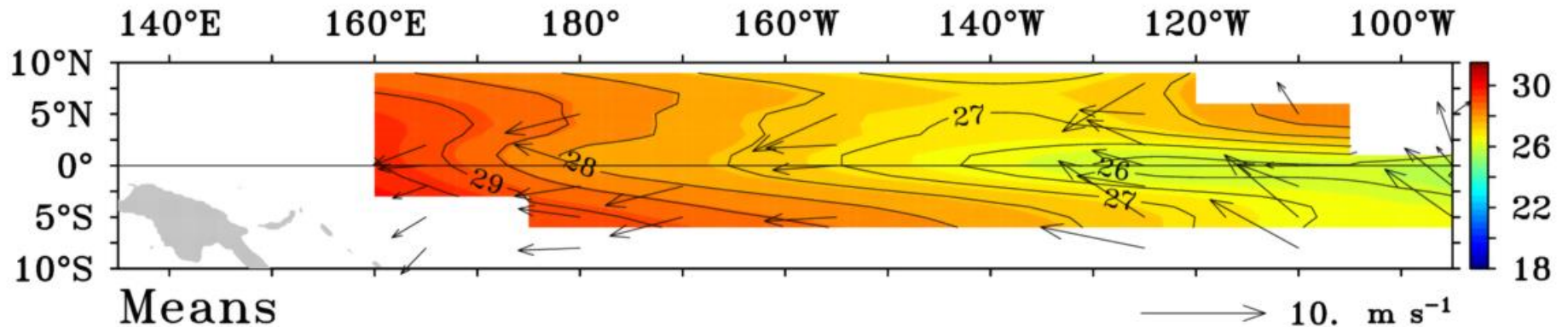
# Equatorial Trade Winds



Data updated through 02 APR 2021  
CLIMATE PREDICTION CENTER/NCEP

# Equatorial Trade Winds

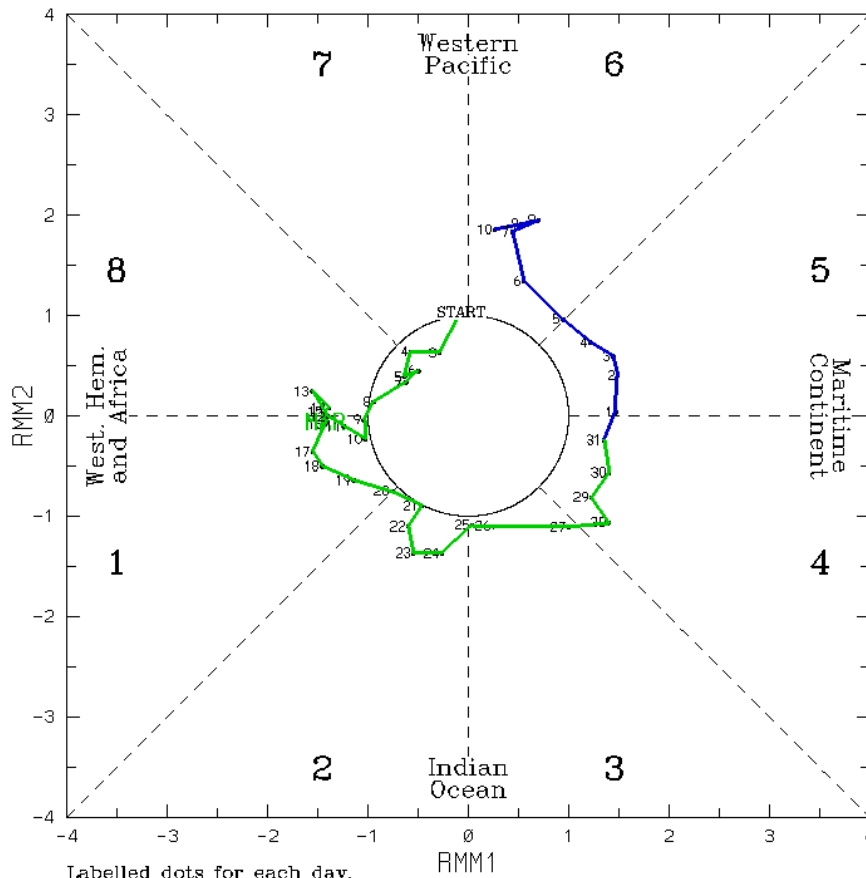
TAO/TRITON SST ( $^{\circ}\text{C}$ ) and Winds ( $\text{m s}^{-1}$ )



Global Tropical Moored Buoy Array Program Office, NOAA/PMEL

# Madden-Julian Oscillation

(RMM1,RMM2) phase space for 2-Mar-2021 to 10-Apr-2021

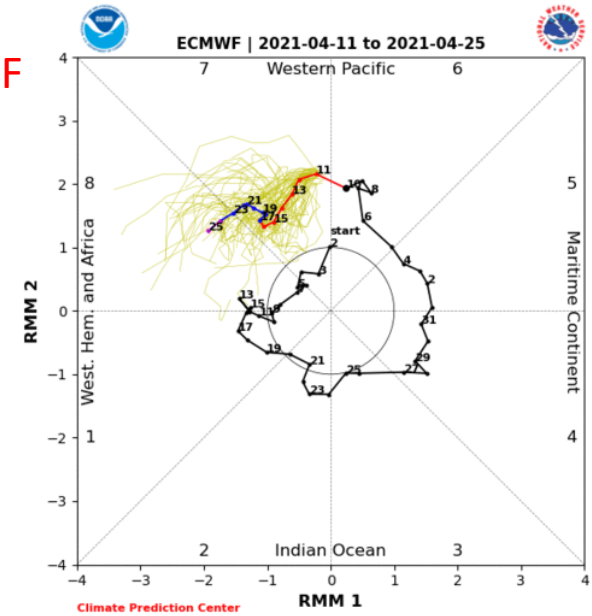


Labelled dots for each day.

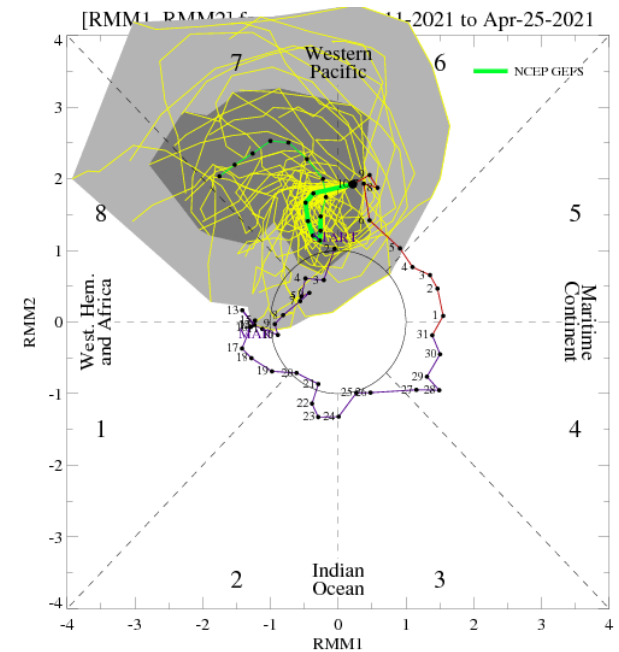
Blue line is for Apr, green line is for Mar, red line is for Feb.

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2021

ECMWF

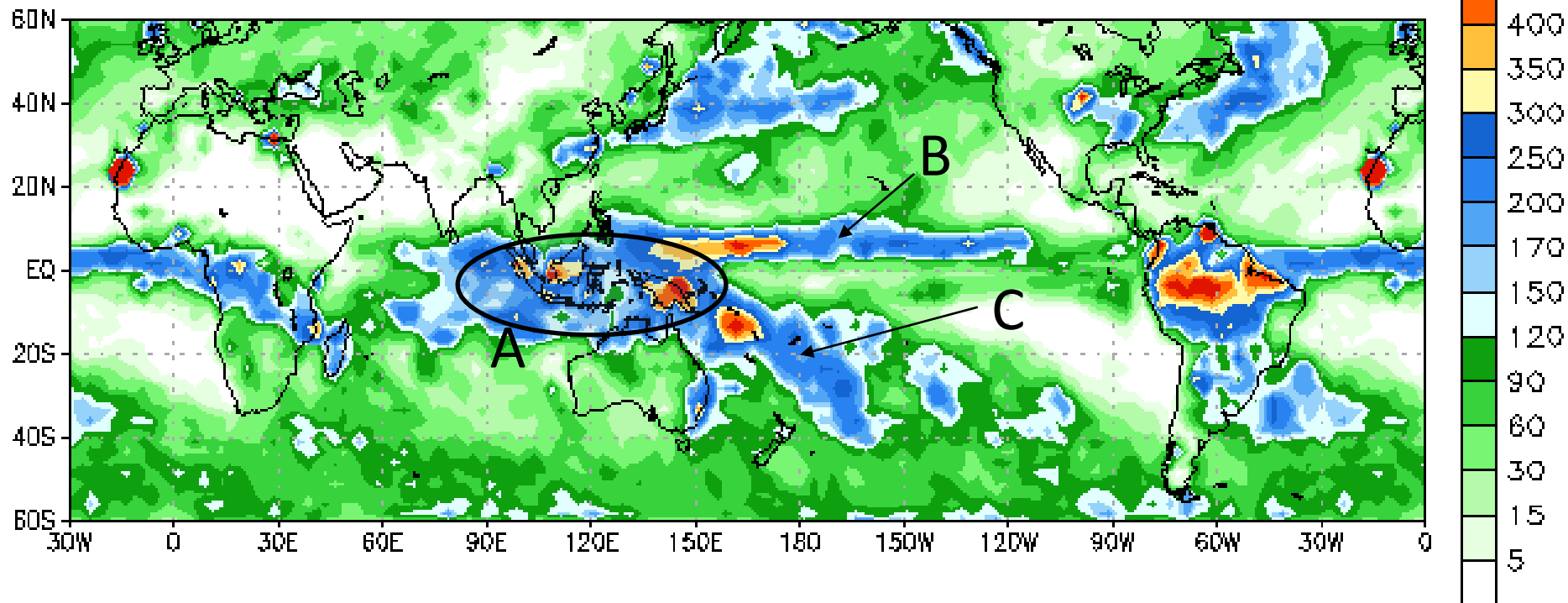


NCEP



# Satellite Rainfall March 2021

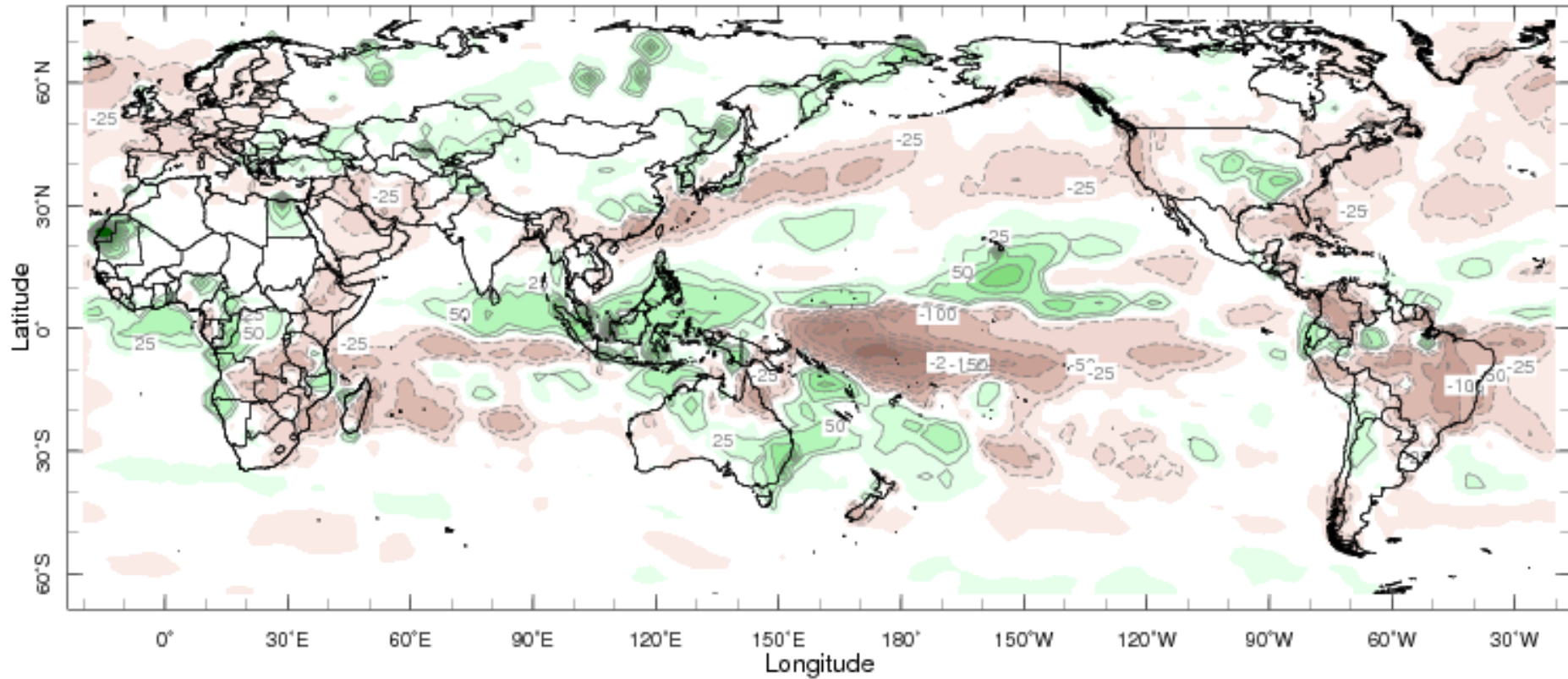
Accumulated Precip (mm) 27FEB2021 – 29MAR2021



Data Source: NCEP CMAP Precipitation



# Satellite Rainfall Anomaly March 2021

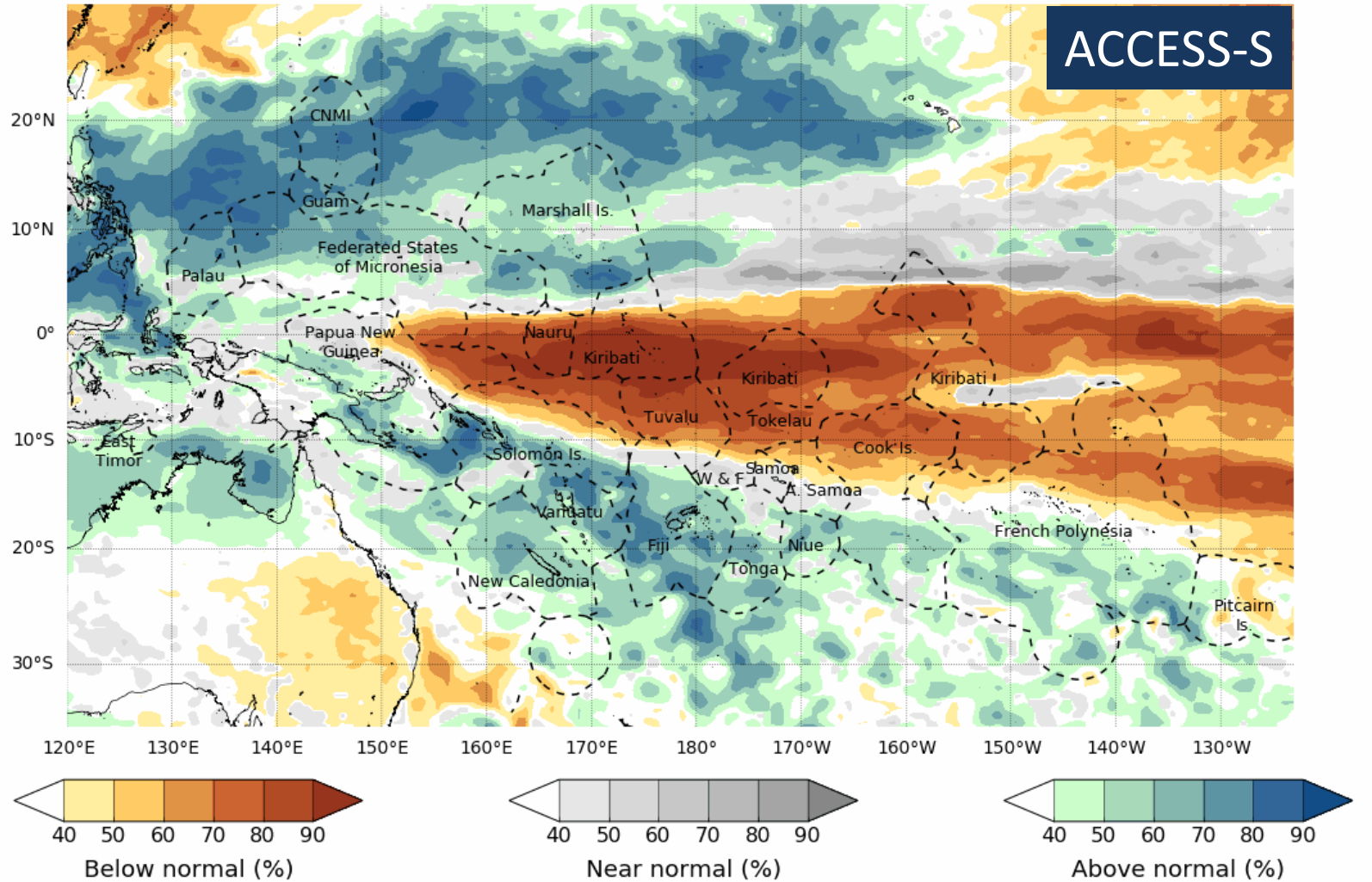


Mar 2021

Units = mm per month

# Model Rainfall Predictions (AMJ)

Tercile rainfall probabilities for  
April to June 2021



# Model Rainfall Predictions (AMJ)

C3S multi-system seasonal forecast

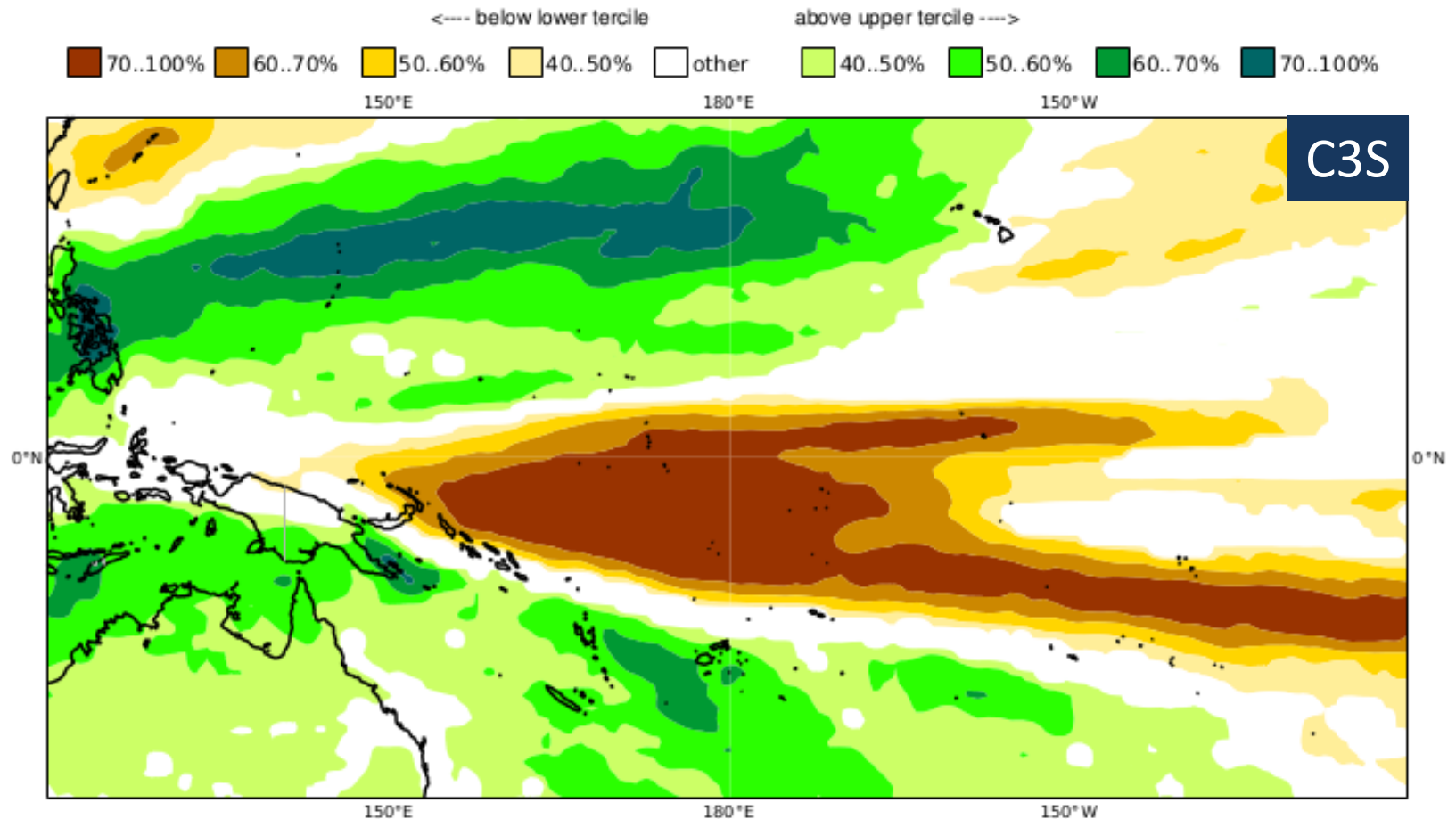
ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA

Prob(most likely category of precipitation)

AMJ 2021

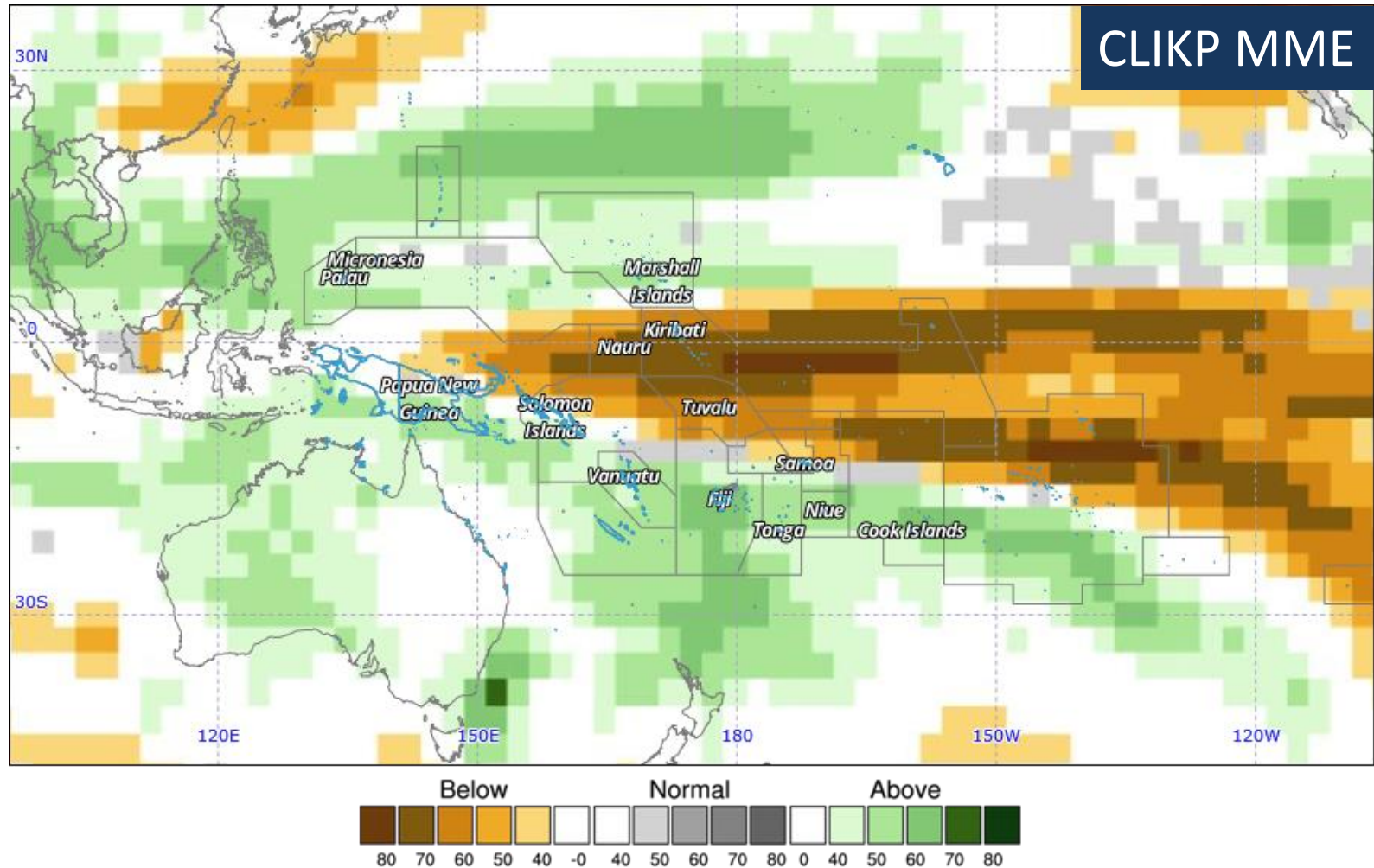
Nominal forecast start: 01/03/21

Unweighted mean





# Model Rainfall Predictions (AMJ)



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

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

Generated using CLIK® (2021-4-6)

© APEC Climate Center

# Model Rainfall Predictions (AMJ)

	Apr-June 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						

Note the inclusion of FSM and Nauru

# Climate Model Summary for May to September 2021

🕒 Issued 12 April 2021    Next issue 12 May 2021

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

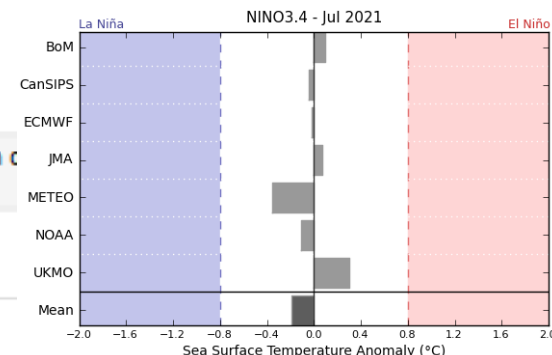
[Overview](#)[Pacific Ocean](#)[Indian Ocean](#)[Bureau model](#)[Models](#)[Related information](#)

## Neutral El Niño-Southern Oscillation for winter

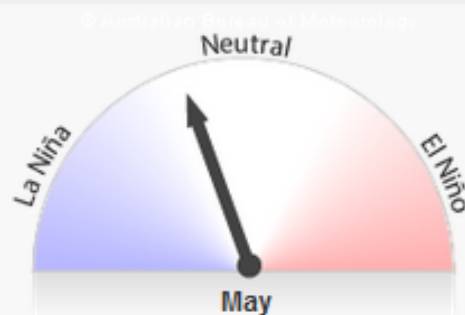
The El Niño-Southern Oscillation (ENSO) is neutral. Model outlooks (which forecast the oceanic component of ENSO) indicate the central tropical Pacific (NINO3.4) will remain at ENSO-neutral levels until at least early spring. A neutral ENSO state has little influence on the Australian climate.

The Indian Ocean Dipole (IOD) is currently neutral with models favouring a neutral outlook for autumn and early winter. Model accuracy is generally lower at this time of the year than at other times, so longer lead outlooks at this time of the year should be viewed with caution.

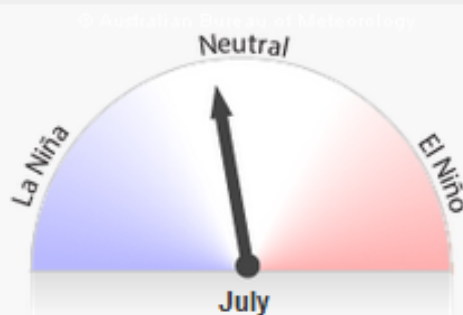
Further details: [Climate Driver Update](#) | [Climate Outlooks](#)



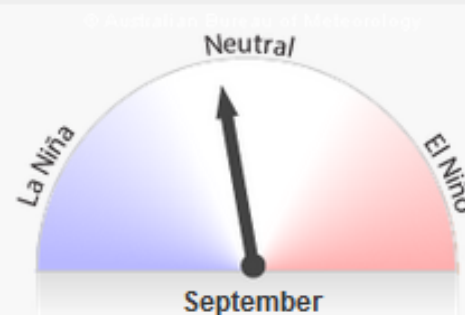
## Average of international model outlooks for NINO3.4



SST anomaly: -0.4 °C



SST anomaly: -0.2 °C



SST anomaly: -0.3 °C

# Climate Model Summary

