

# ENSO update - OCOF 150

18 March 2020

# ENSO Wrap-up

## ENSO Wrap-Up

Current state of the Pacific and Indian oceans

Issued 17 March 2020 Next issue 31 March 2020

Overview

Sea surface

Sea sub-surface

SOI

Trade winds

Cloudiness

Outlooks

Indian Ocean



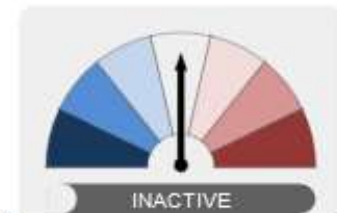
### ENSO and IOD likely to remain neutral through southern winter

Australia's major climate drivers—the El Niño–Southern Oscillation (ENSO) and the Indian Ocean Dipole (IOD)—are likely to remain neutral through the southern winter.

Indicators of ENSO including the Southern Oscillation Index (SOI), trade winds, cloudiness near the Date Line, and sea surface and sub-surface temperatures in the tropical Pacific Ocean are all at neutral levels.

Warmer than average ocean temperatures in the Pacific, near to and west of the Date Line, have enhanced cloudiness in the region. This pattern would typically reduce rainfall over northeast Australia. However, waters are also warmer than average around northern Australia and in the eastern Indian Ocean, which would typically increase rainfall over large parts of Australia.

Six of the eight climate models surveyed by the Bureau indicate that ENSO is likely to stay neutral through the southern hemisphere winter, meaning it will have limited influence on Australian and global climate in the coming months. The remaining two models suggest La Niña conditions may develop during winter. ENSO predictions made during autumn tend to have lower accuracy than predictions made at other times of the year. This means that current ENSO forecasts beyond May should be used with some caution.



ENSO Outlook

BUREAU OF METEOROLOGY

### Understanding the IOD

Australian climate drivers

Information and video about Indian Ocean Dipole

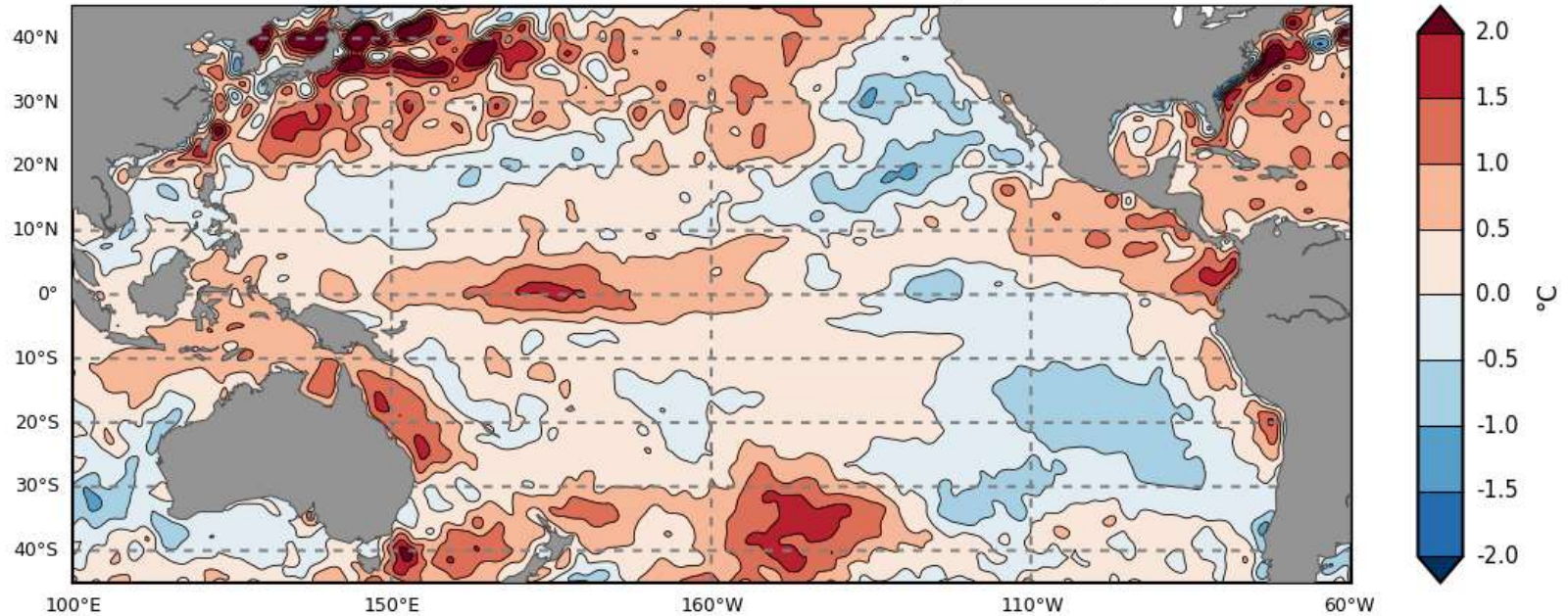
INDIAN OCEAN DIPOLE IN AUSTRALIA

WHAT IS IT?

# February 2020 SSTs

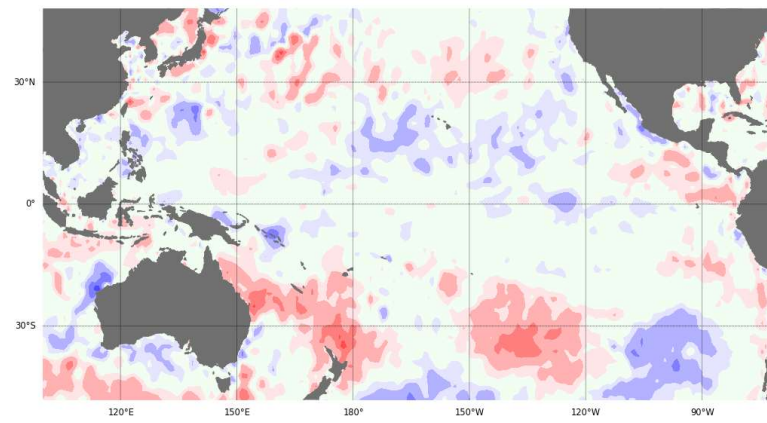
Pacific Ocean

Monthly Average Sea Surface Temperature Anomaly: February 2020



©Pacific Community (SPC) 2020  
Geoscience Energy and Maritime Division, COSPPac SPP

Change in the monthly SST anomaly: February-2020 - January-2020

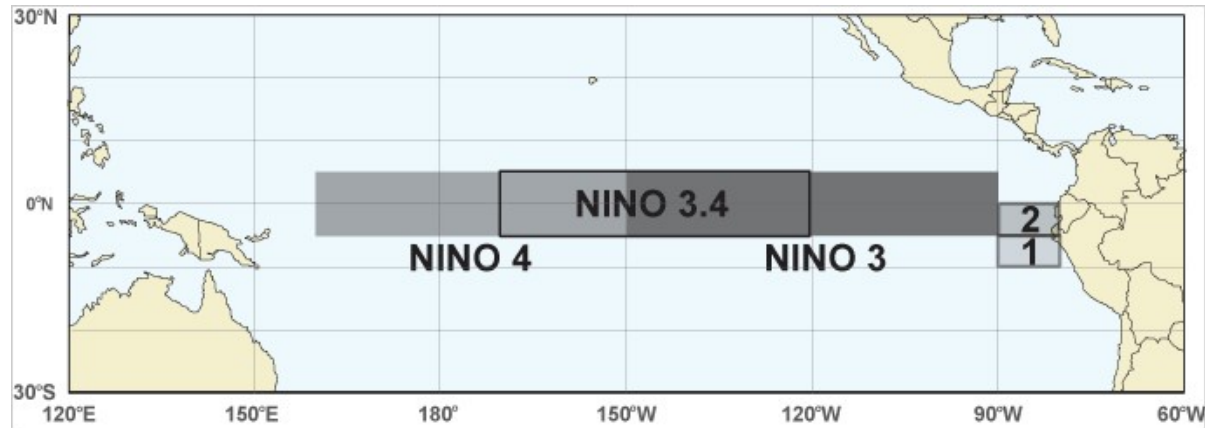


Data: ABOM BNOG  
Climatology baseline: 1961 to 1990  
© Commonwealth of Australia 2020, Australian Bureau of Meteorology

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

Anomaly monthly difference  
Created: 02/03/2020

# NINO SST anomalies (°C)

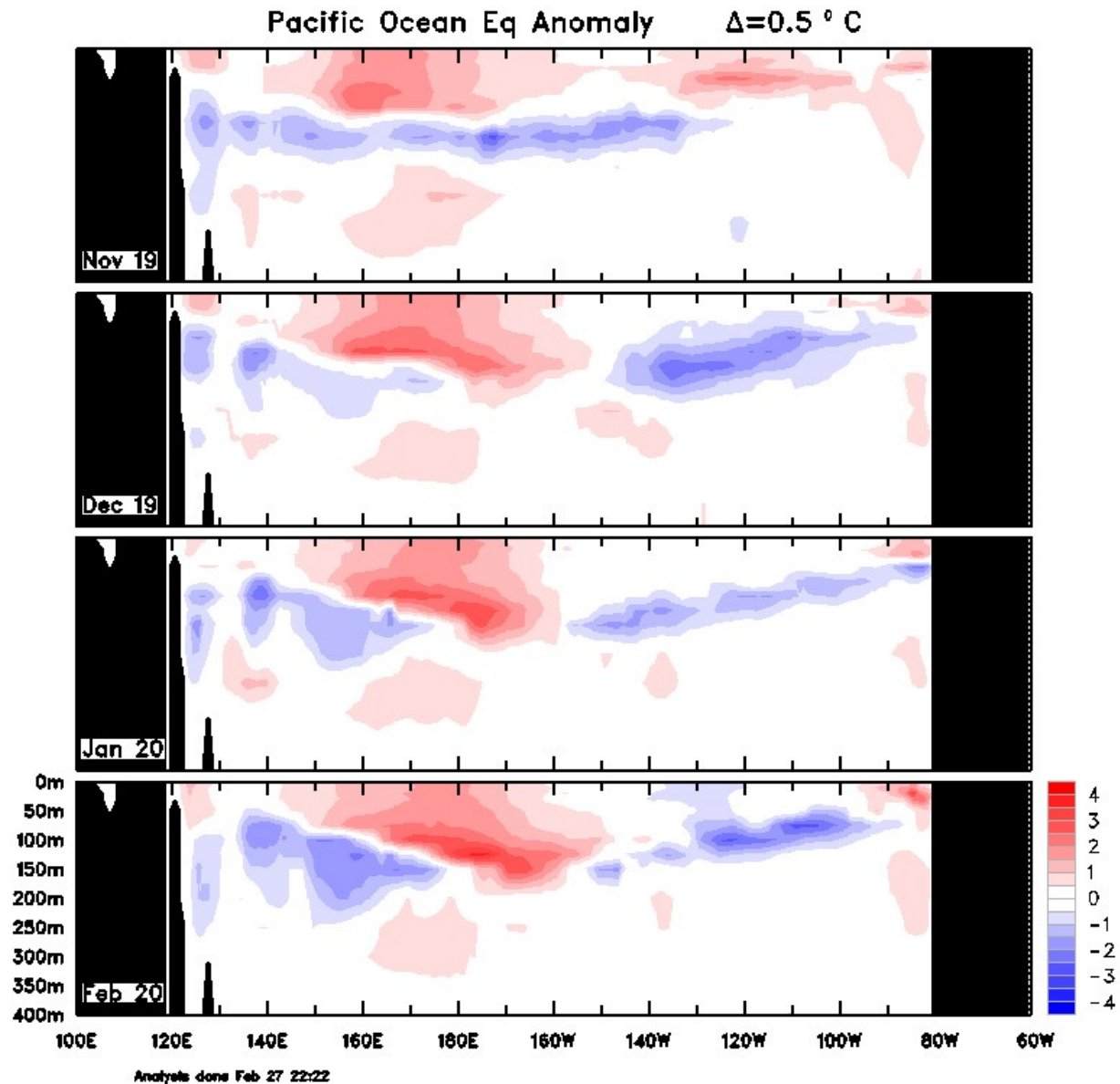


Index	Jan 2020	Feb 2020	Latest weekly
NINO3	+0.3	+0.1	+0.4
NINO3.4	+0.5	+0.3	+0.4
NINO4	+0.8	+0.8	+0.8

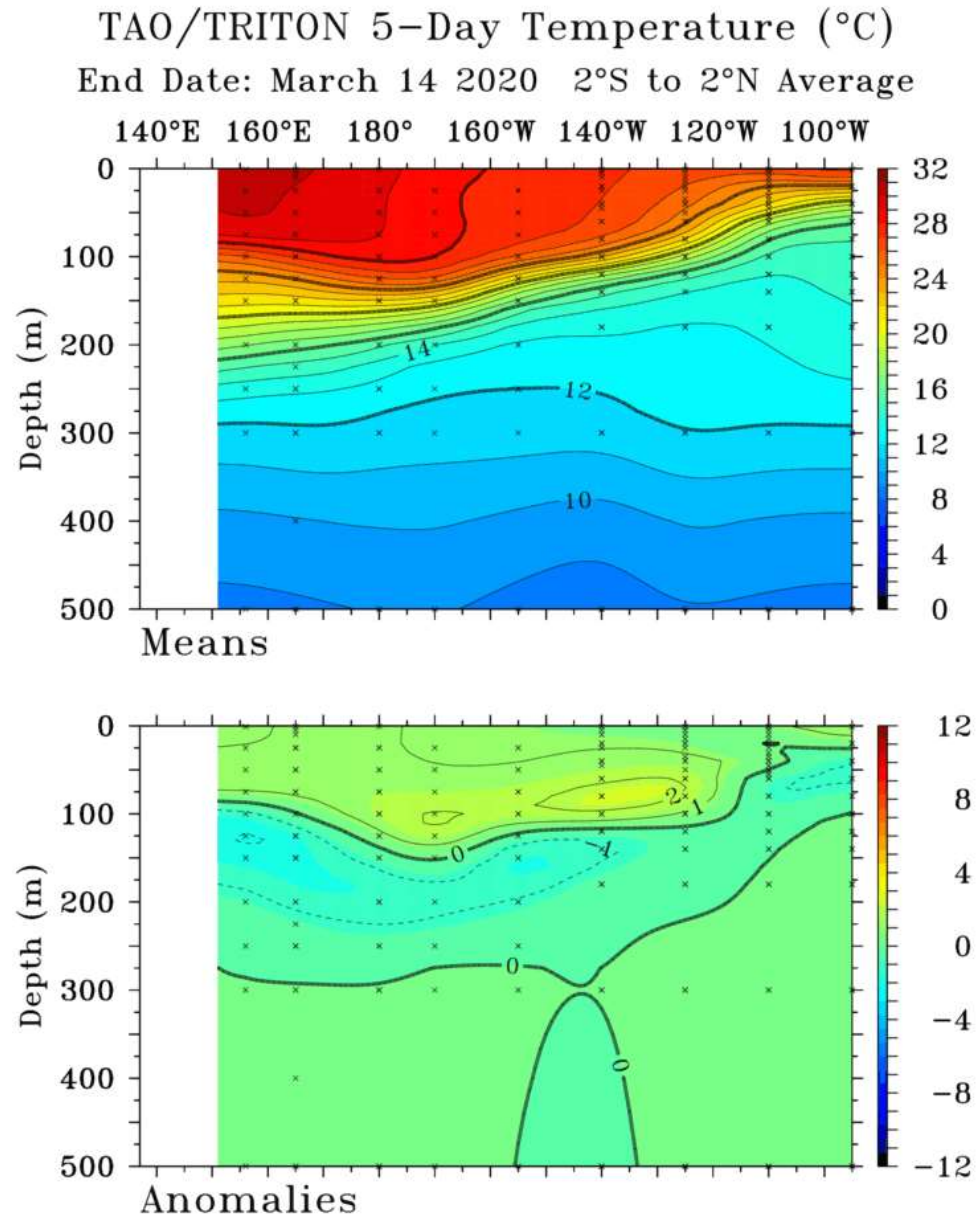
Weekly data for the week ending 15/03/2020

# Equatorial Pacific sub-surface profile

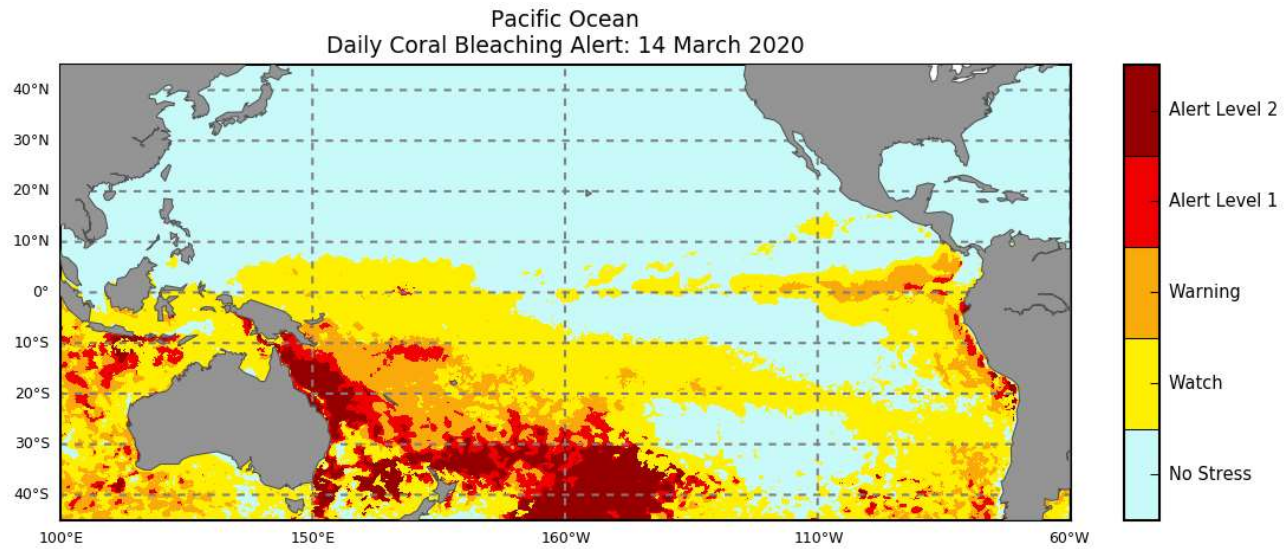
## Bureau of Meteorology



# Equatorial Pacific sub-surface profile

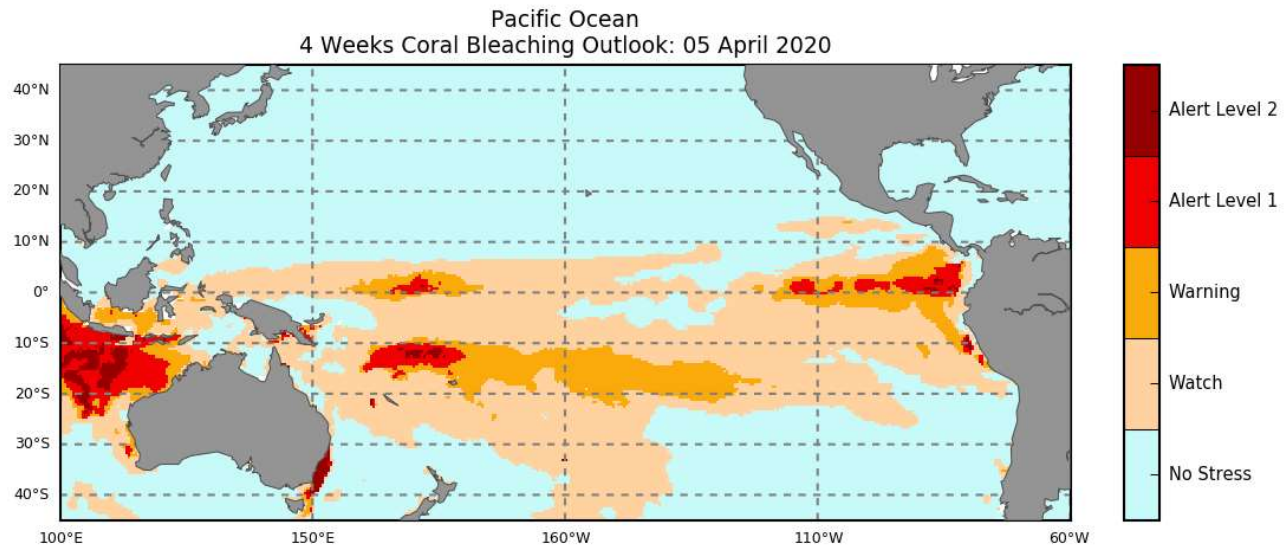


# Coral Bleaching Status



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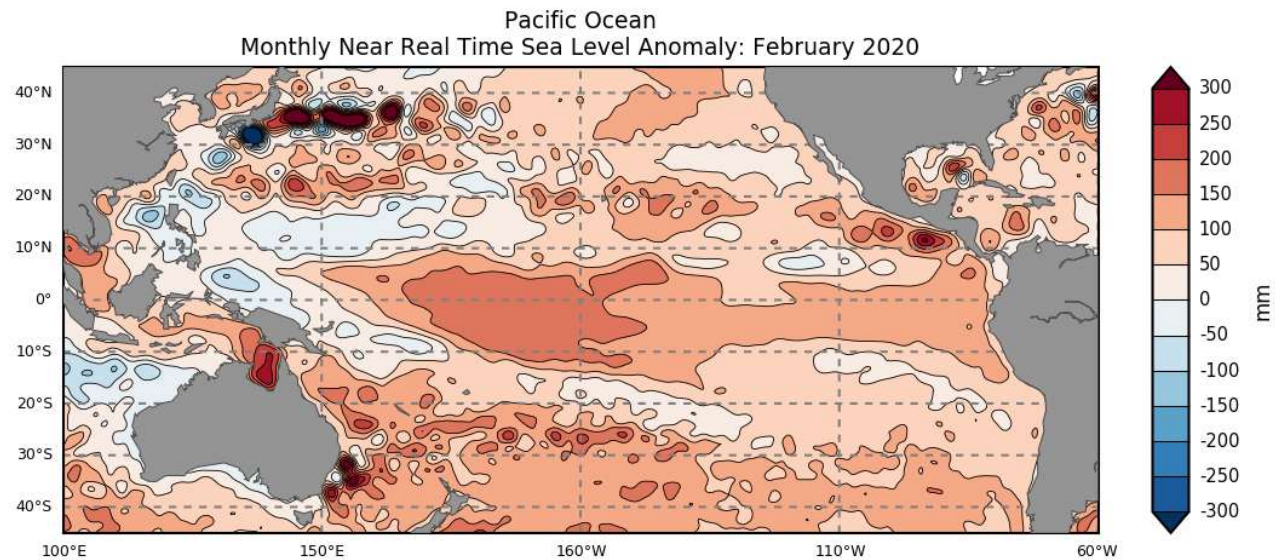
NOAA Coral Reef Watch



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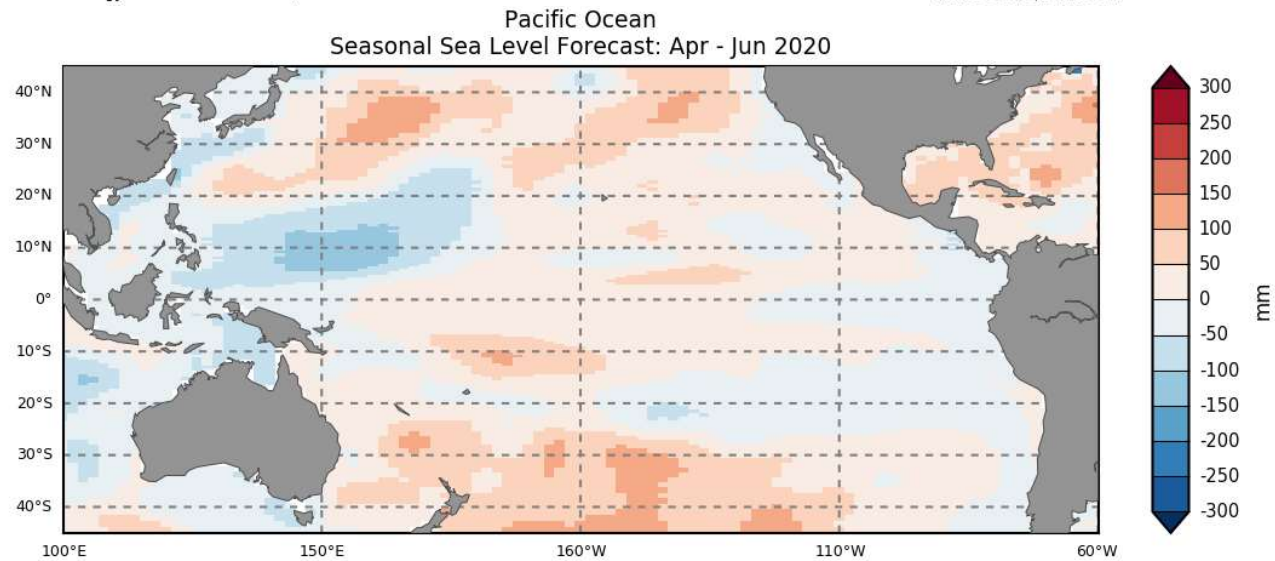
NOAA Coral Reef Watch

# February 2020 Sea Level Anomaly



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AVISO Ssalto/Duacs SLA

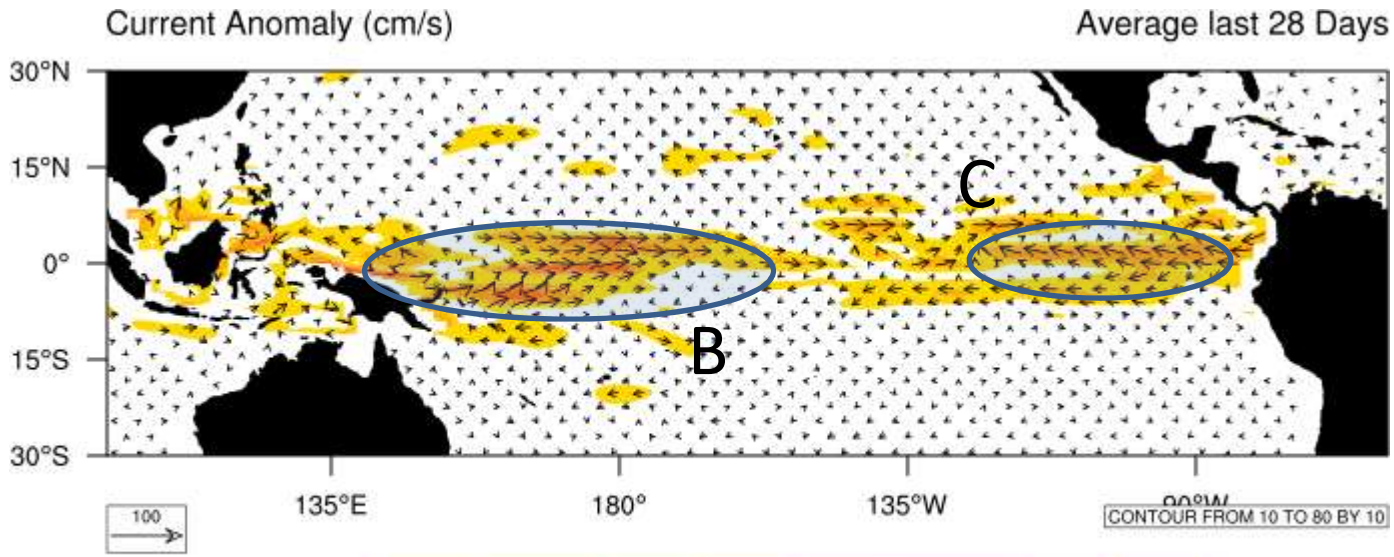
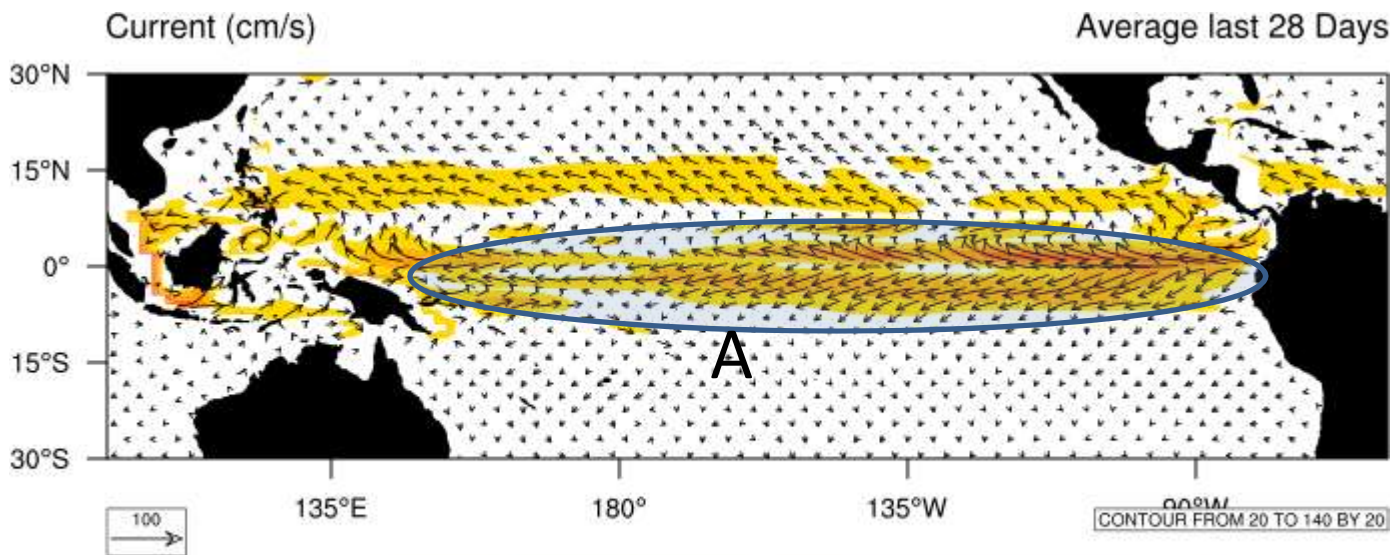


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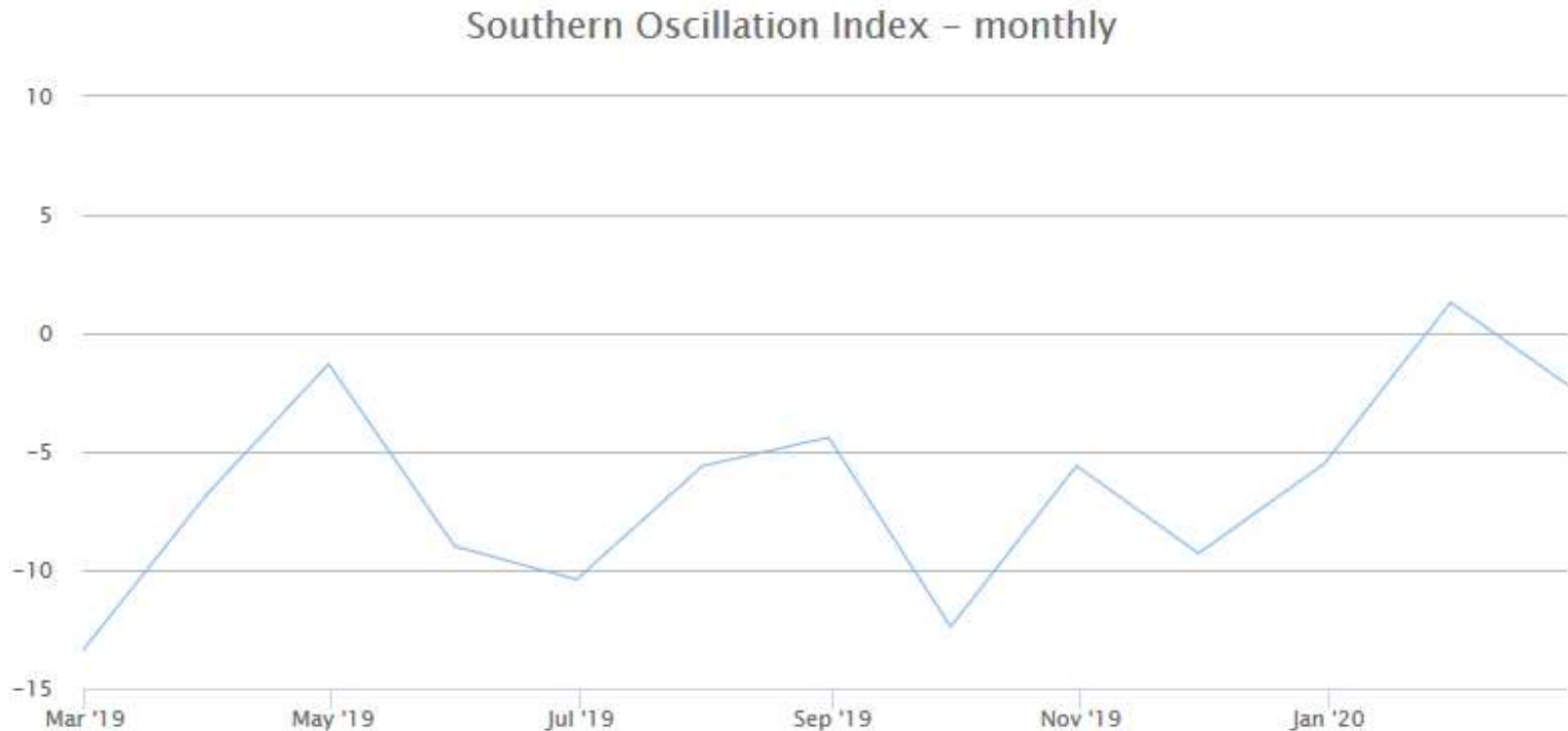
POAMA Forecast



# Ocean Currents at 17 March 2020



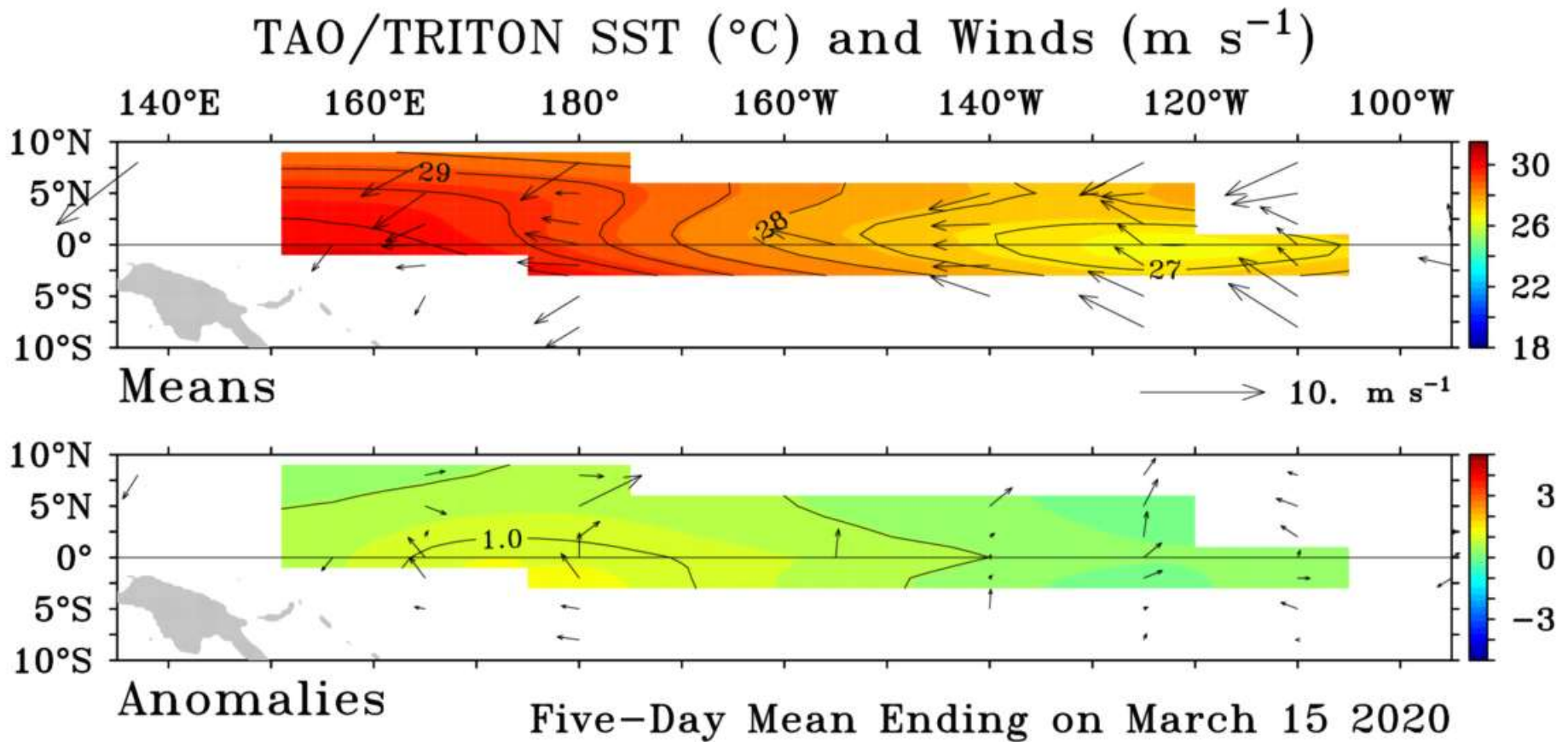
# Southern Oscillation Index



Southern Oscillation Index monthly data												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	+1.3	-2.2	-	-	-	-	-	-	-	-	-	-
2019	-0.6	-13.5	-6.8	-1.3	-9.0	-10.4	-5.6	-4.4	-12.4	-5.6	-9.3	-5.5

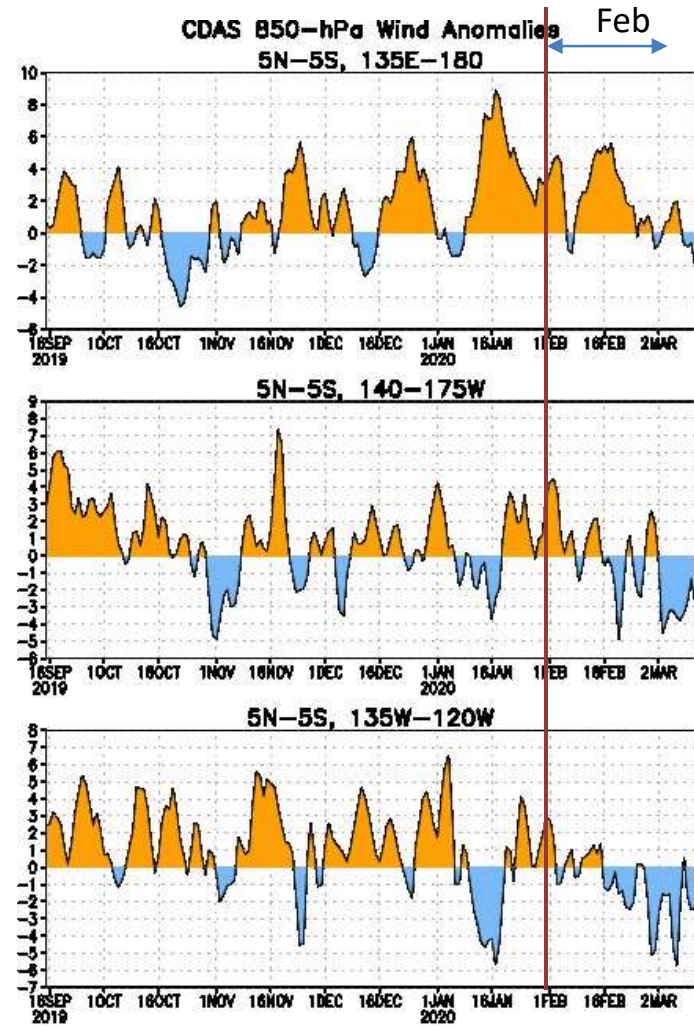
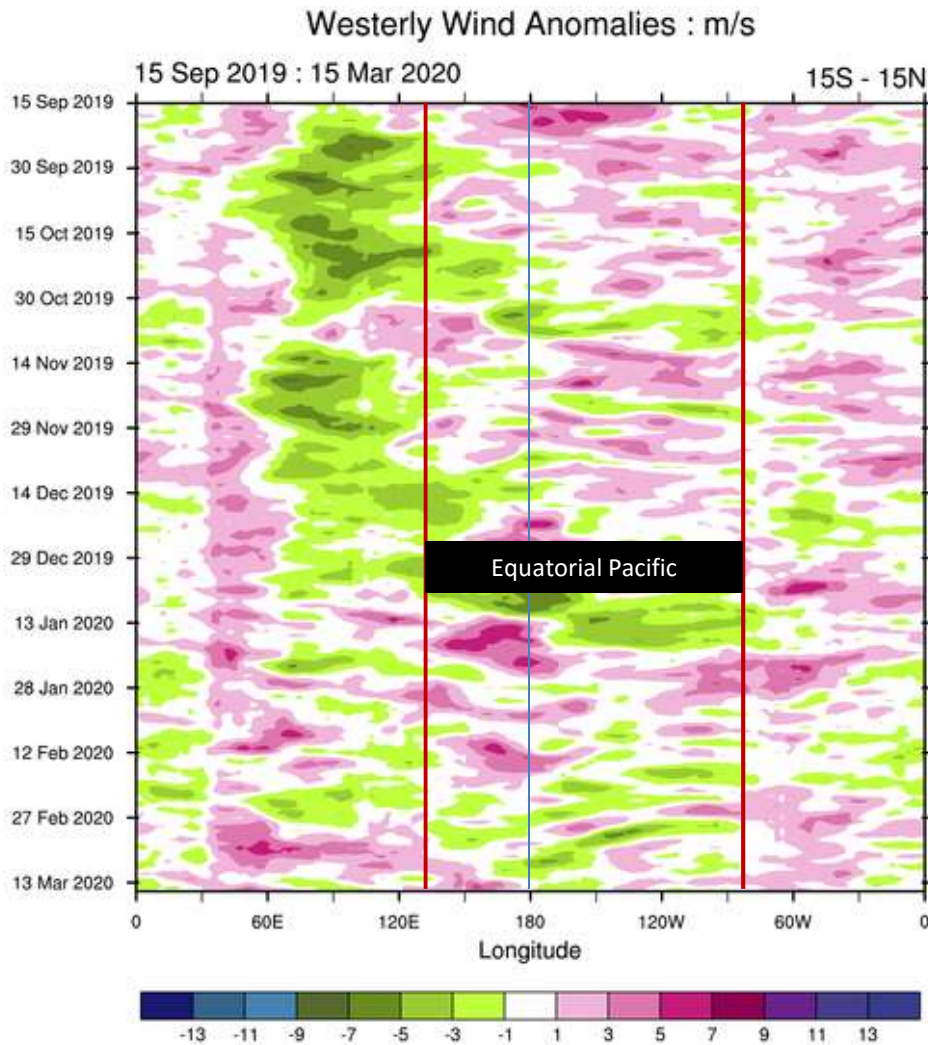
At 15 March 2020: 30-day SOI = 0; 90-day SOI = -2

# Equatorial Trade Winds



*Global Tropical Moored Buoy Array Program Office, NOAA/PMEL*

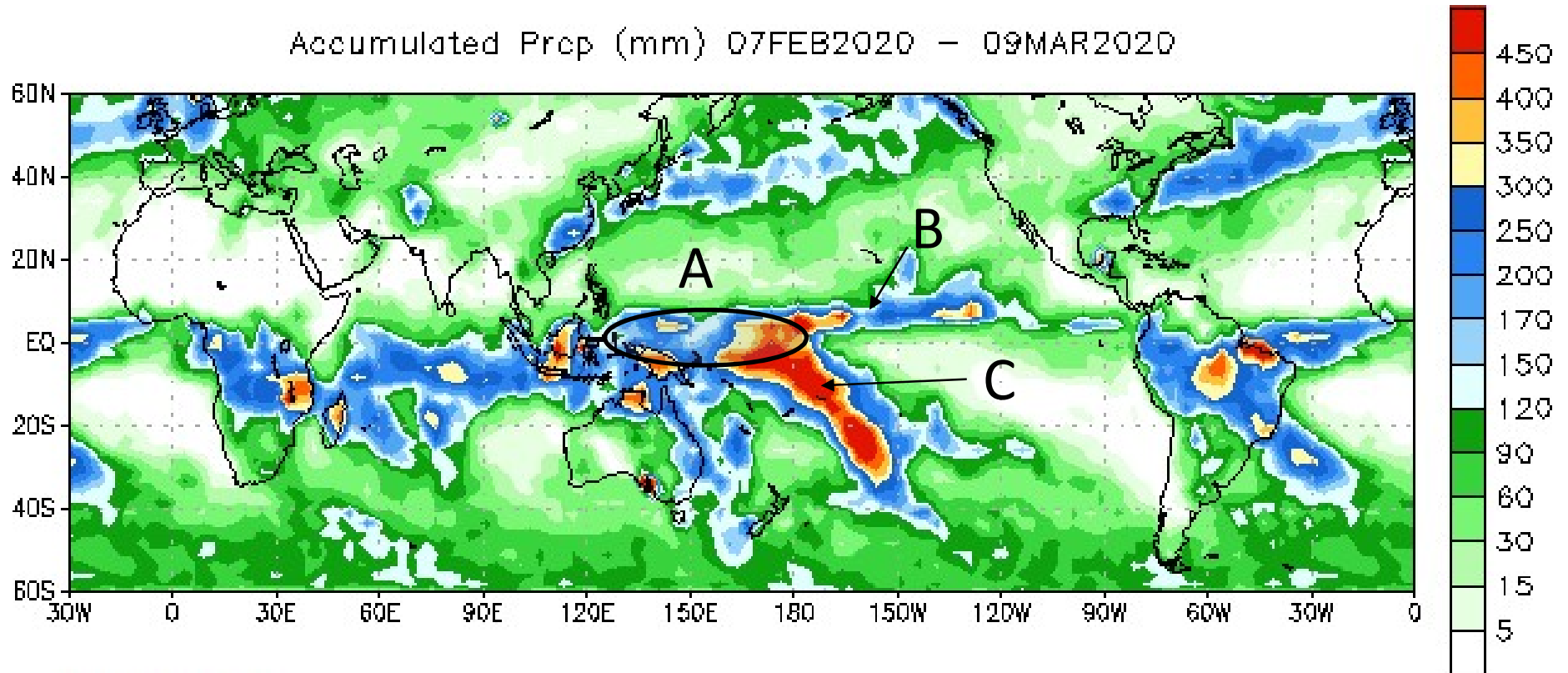
# Equatorial Trade Winds



Data updated through 12 MAR 2020  
CLIMATE PREDICTION CENTER/NCEP

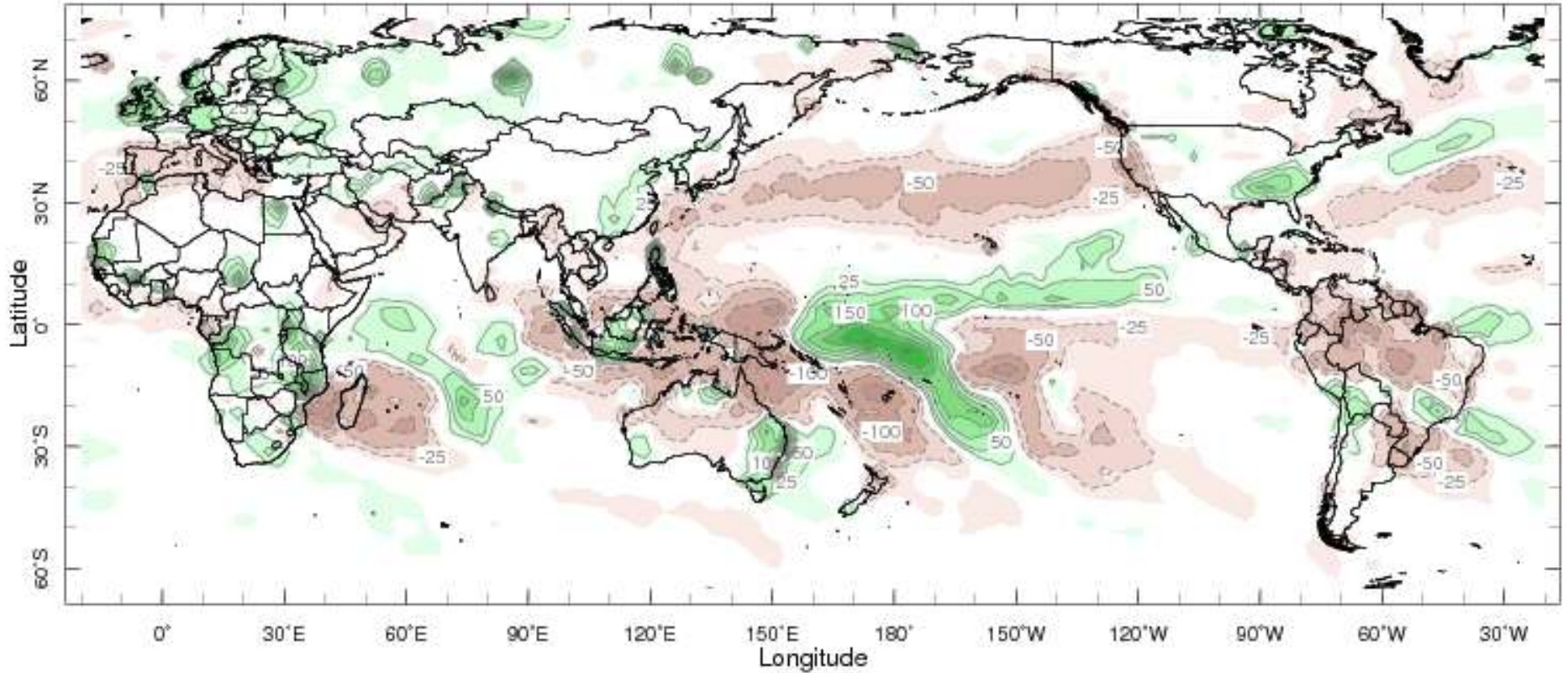
# Satellite Rainfall

Accumulated Precip (mm) 07FEB2020 - 09MAR2020



Data Source: NCEP CMAP Precipitation

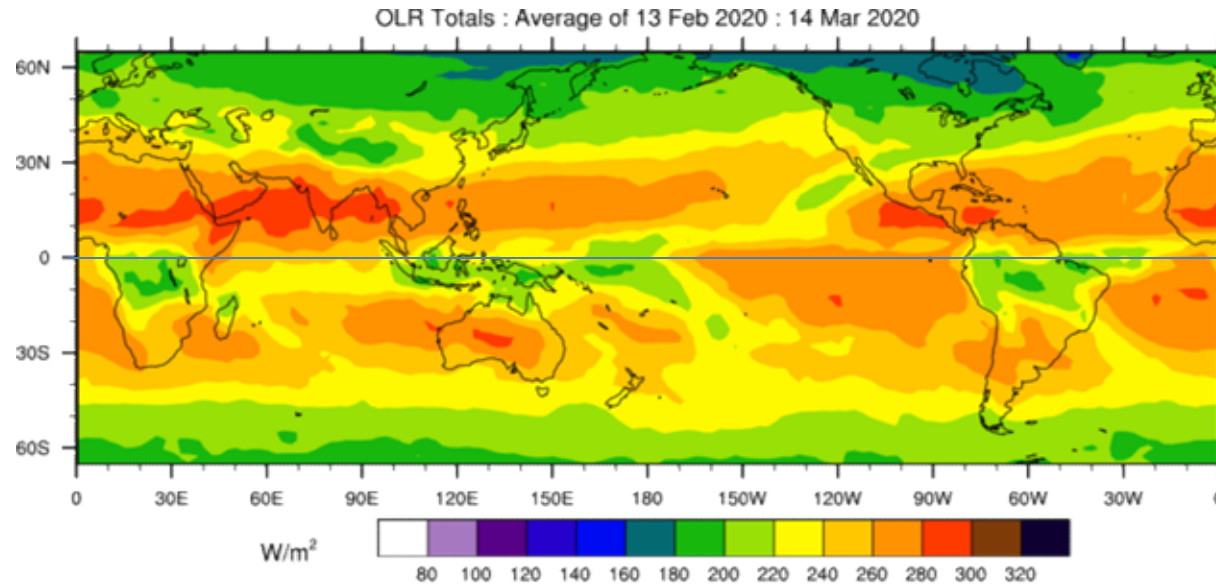
# Satellite Rainfall Anomaly



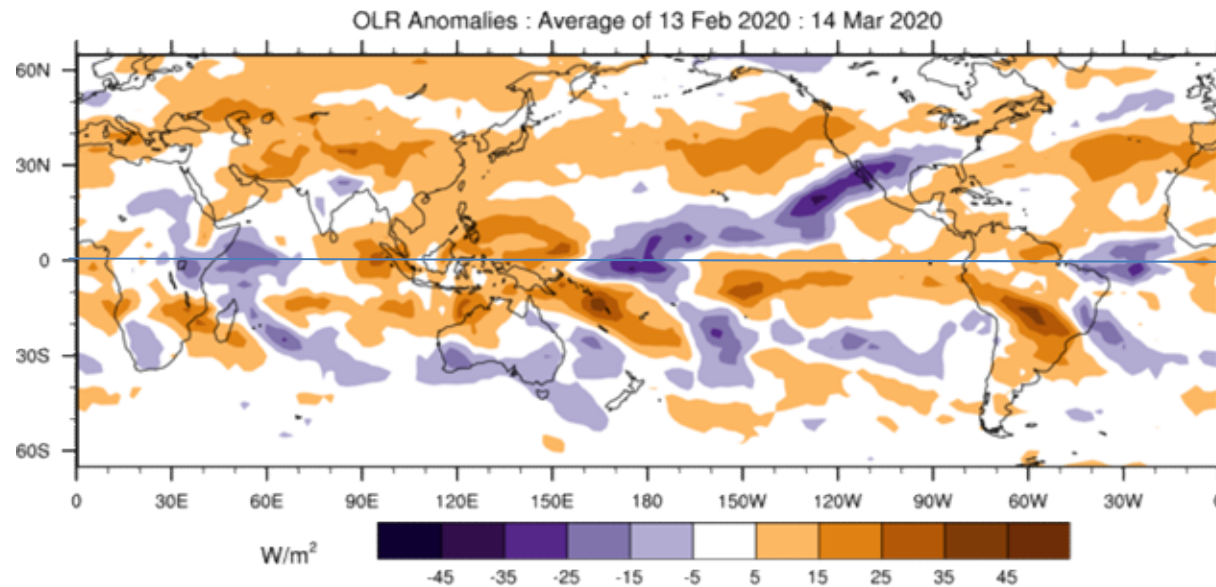
Feb 2020

Units = mm per month

# Outgoing Longwave Radiation (OLR)

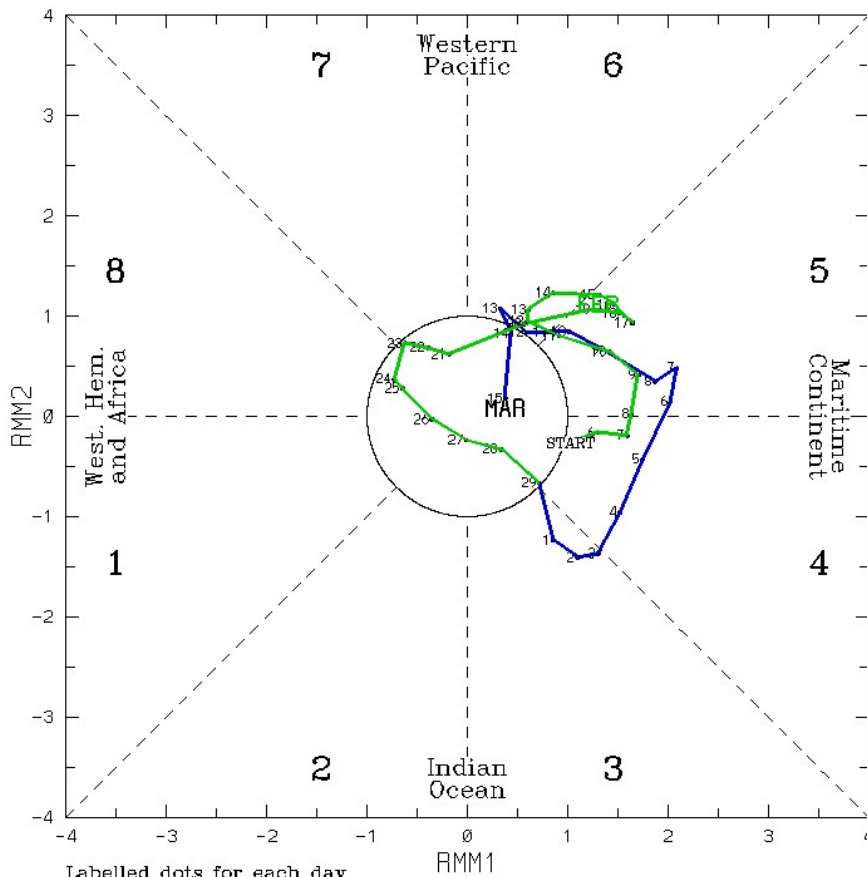


30 Days



# Madden-Julian Oscillation

(RMM1, RMM2) phase space for 5-Feb-2020 to 15-Mar-2020



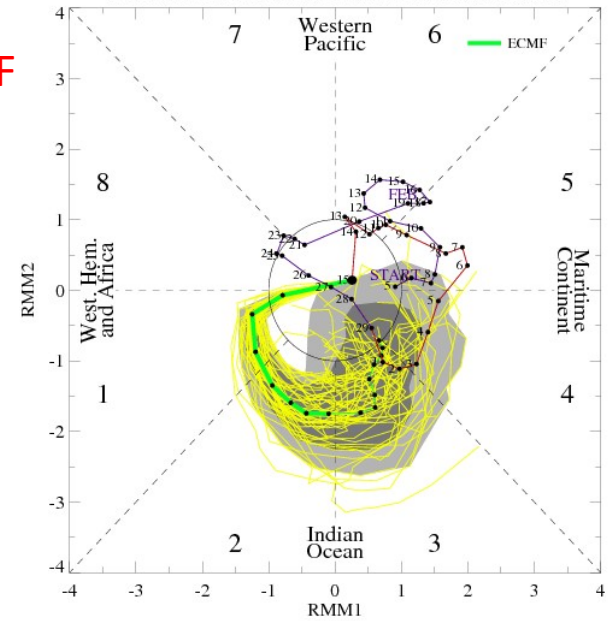
Labelled dots for each day.

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

(C) Copyright Commonwealth of Australia 2020. Bureau of Meteorology  
2020

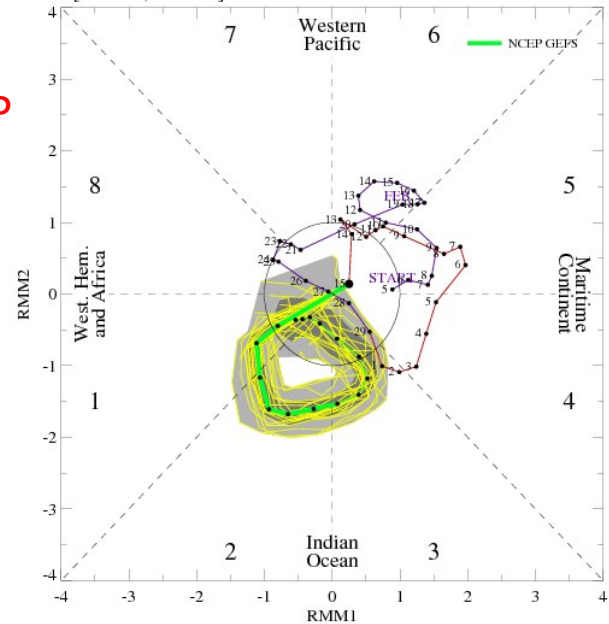
ECMWF

MJO Index Forecast for 16Mar2020-30Mar2020



NCEP

[RMM1, RMM2] forecast for Mar-16-2020 to Mar-30-2020

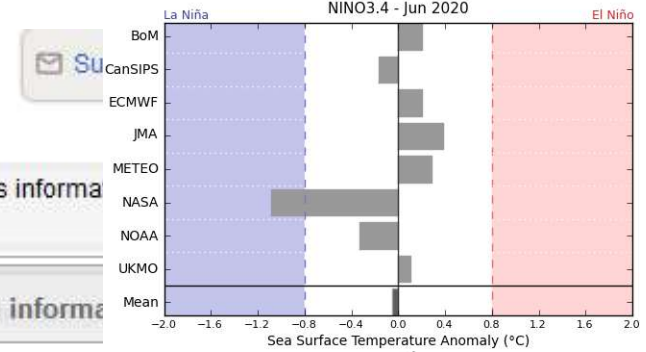




# Climate Model Summary for April to August 2020

Issued 12 March 2020 Updated 17 March 2020 Next issue 14 April 2020

Australian climate is influenced by temperature patterns in the Pacific and Indian Oceans. This page provides information on the current state of the Indian Ocean Dipole (IOD) and the El Niño–Southern Oscillation (ENSO). 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

## IOD and ENSO likely to remain neutral until at least mid-winter

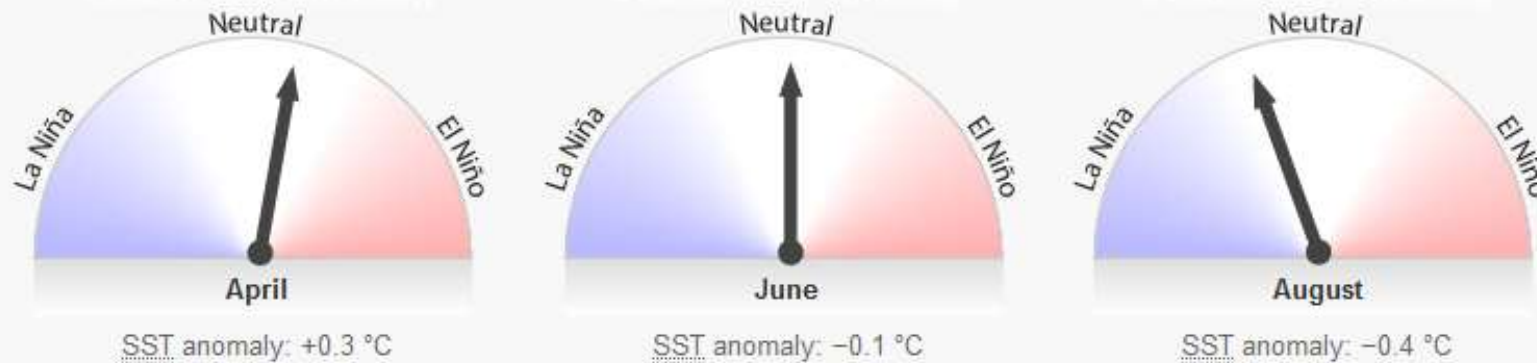
The Indian Ocean Dipole (IOD) is currently neutral. Outlooks suggest it will remain at neutral levels through the southern autumn and into winter. The IOD typically has little impact on Australian climate during summer and early autumn - but can start to influence rainfall and temperature patterns from May.

The El Niño–Southern Oscillation (ENSO) is also neutral, however warmer than average sea surface temperatures in the western tropical Pacific may be contributing to some changes in weather patterns over the region. The latest outlooks from the surveyed models suggest that an ENSO-neutral state is the most likely scenario until at least mid-winter 2020.

The neutral IOD and ENSO outlook suggests that other drivers/influences are likely to play a bigger role in Australian rainfall/temperature patterns in the coming months.

Further details: [ENSO Wrap-Up](#) (ENSO and IOD); [Climate Outlooks](#)

### Average of international model outlooks for NINO3.4



# Climate Model Summary

