

ENSO update - OCOF 148

15 January 2020

ENSO Wrap-up

ENSO Wrap-Up

Current state of the Pacific and Indian oceans

🕒 Issued 7 January 2020 Next issue 21 January 2020

Overview

Sea surface

Sea sub-surface

SOI

Trade winds

Cloudiness

Outlooks

Indian Ocean



Indian Ocean Dipole returns to neutral

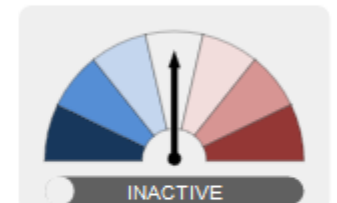
The Indian Ocean Dipole (IOD) has returned to neutral after one of the strongest positive IOD events to impact Australia in recent history. The IOD is expected to remain neutral in the coming months, meaning that it will have little influence on Australian and global climate.

However, the IOD's legacy of widespread warm and dry conditions during the second half of 2019 primed the Australian landscape for bushfire weather and heatwaves this summer.

In the Pacific Ocean, although indicators of the El Niño–Southern Oscillation (ENSO) are neutral, the tropical ocean near and to the west of the Date Line remains warmer than average, potentially drawing some moisture away from Australia.

Most climate models indicate ENSO will remain neutral until at least the end of the southern hemisphere autumn, meaning it will have limited influence on Australian and global climate.

When the IOD and ENSO are neutral, Australia's climate can be influenced by more local or short-term climate drivers. The Bureau's [Climate Outlook](#) for the weeks, months and seasons ahead include all the climate influences on Australian weather.



ENSO Outlook

BUREAU OF METEOROLOGY
Understanding the IOD

Australian climate drivers

Information and video about Indian Ocean Dipole

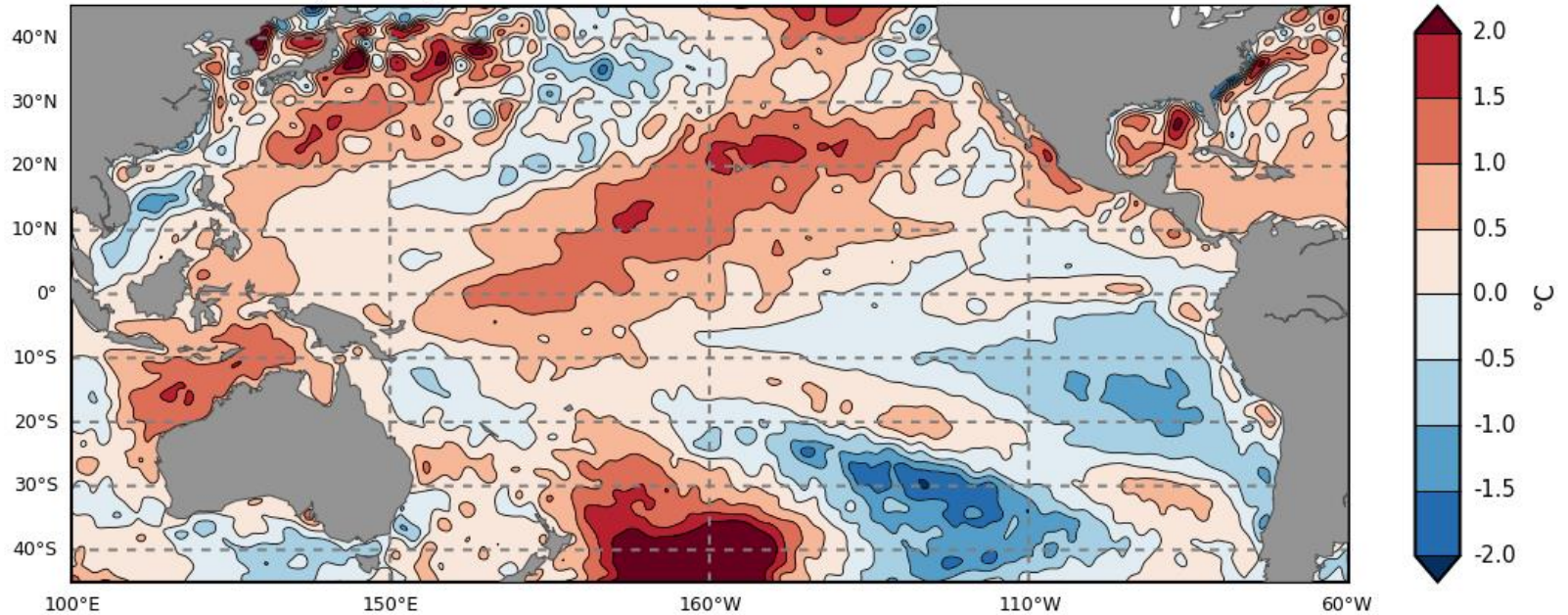
INDIAN OCEAN DIPOLE IN AUSTRALIA

WHAT IS IT?

December 2019 SSTs

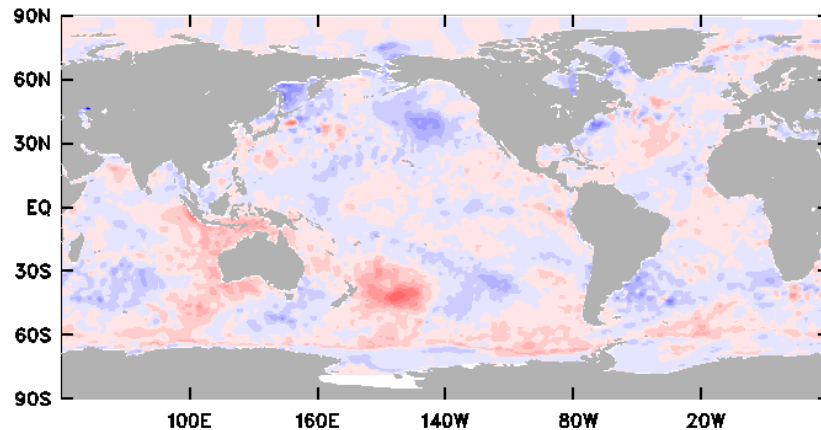
Pacific Ocean

Monthly Average Sea Surface Temperature Anomaly: December 2019

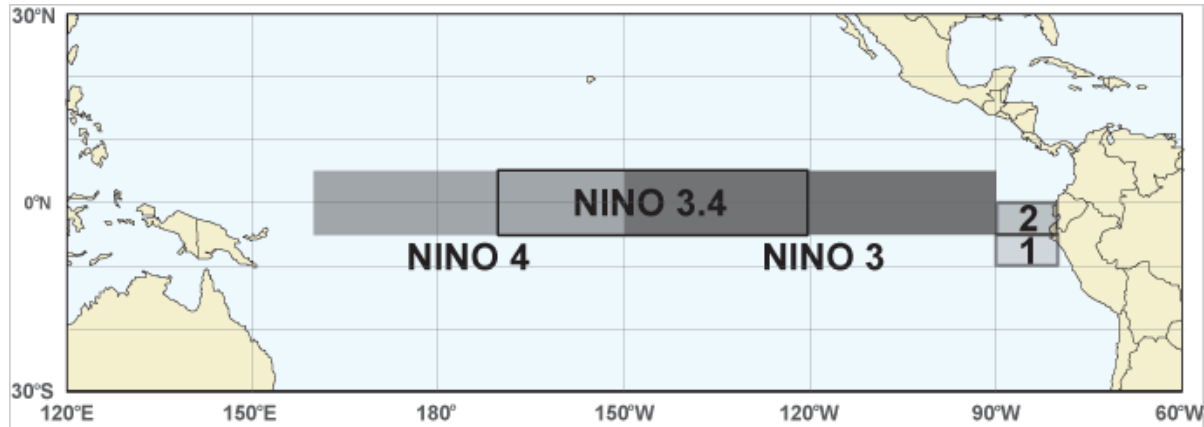


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Difference between Dec 2019 and Nov 2019



NINO SST anomalies (°C)

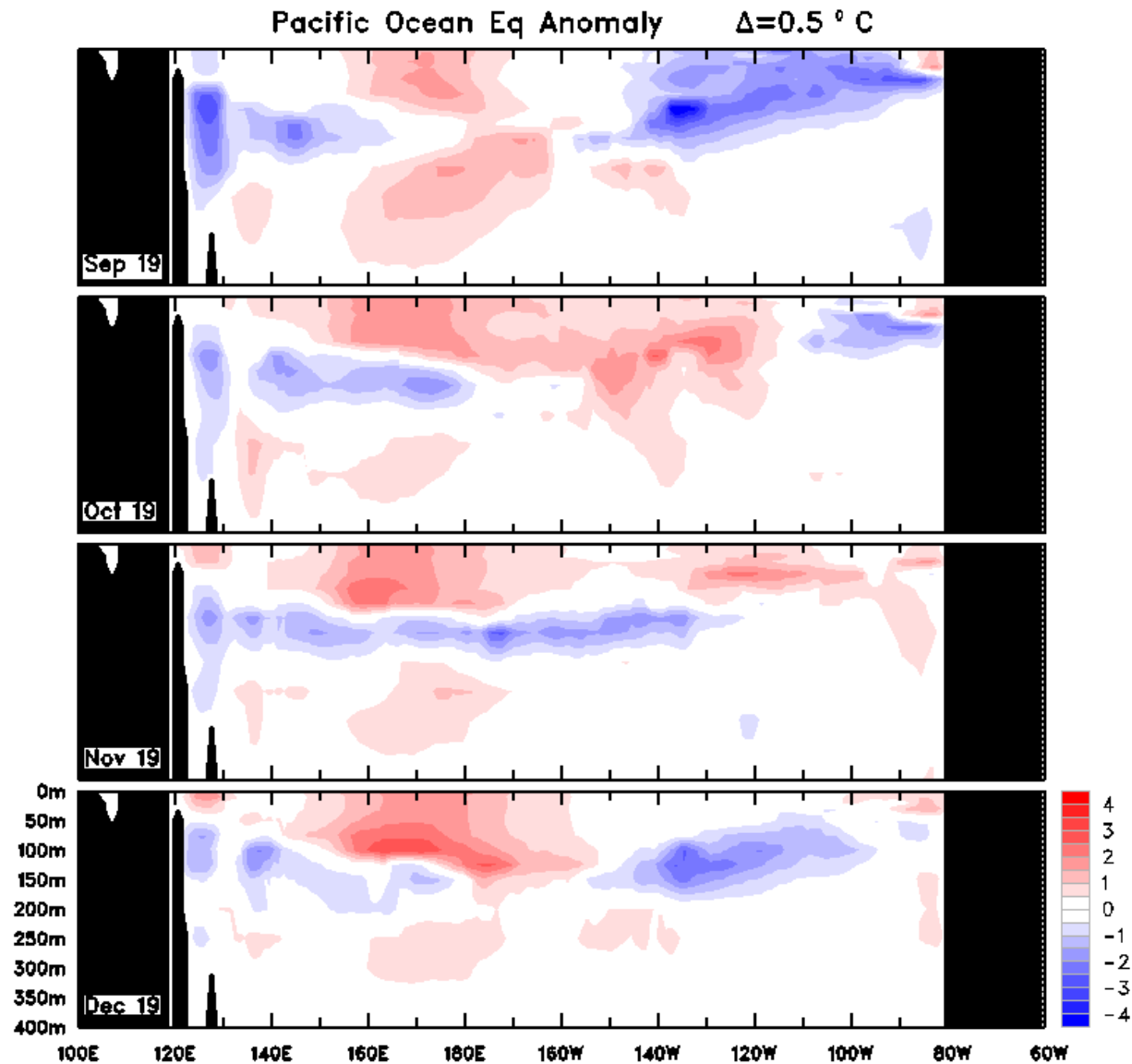


Index	Nov 2019	Dec 2019	Latest weekly
NINO3	+0.5	+0.4	+0.4
NINO3.4	+0.6	+0.4	+0.5
NINO4	+0.9	+0.8	+0.8

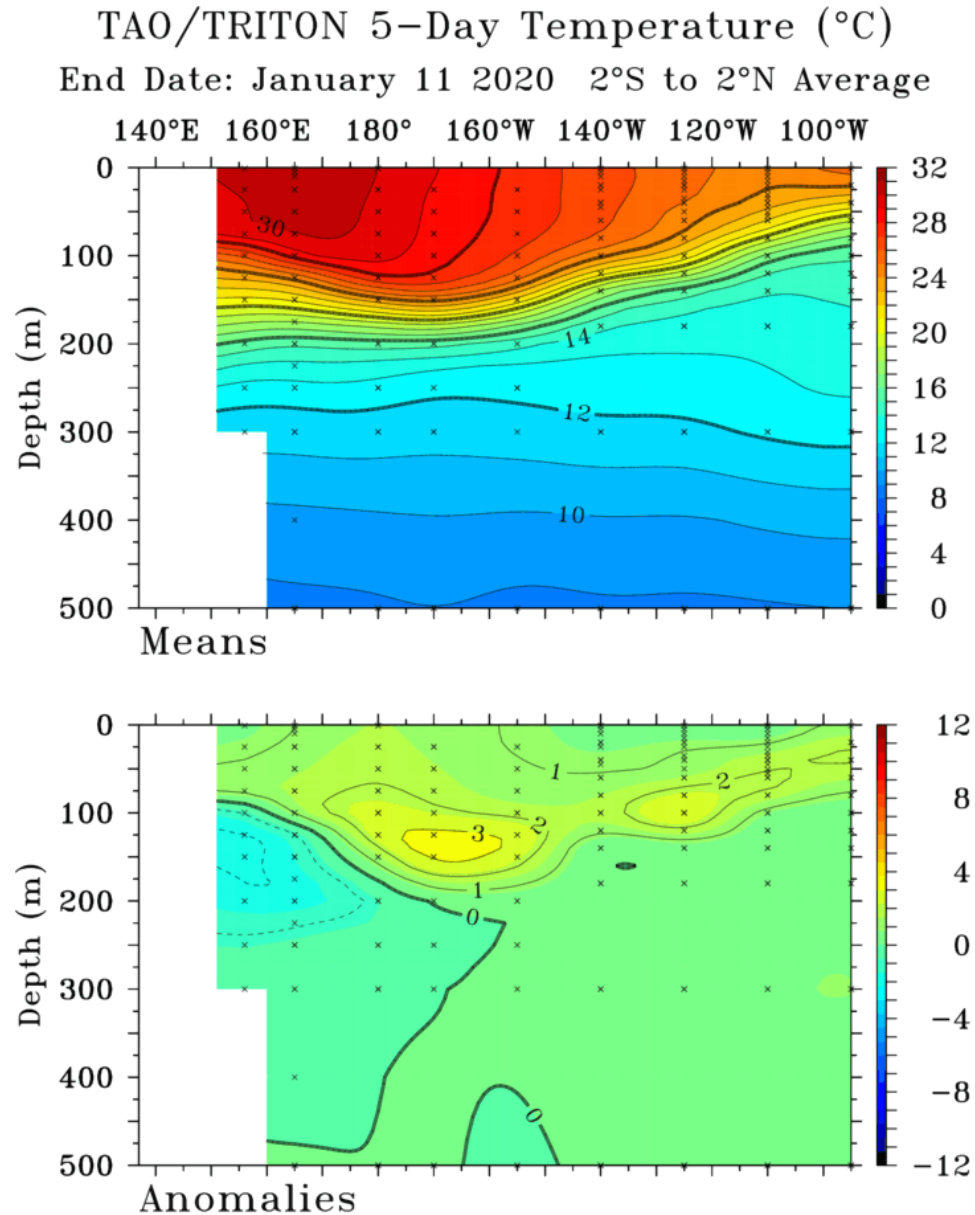
Weekly data for the week ending 12/01/2020

Equatorial Pacific sub-surface profile

Bureau of Meteorology

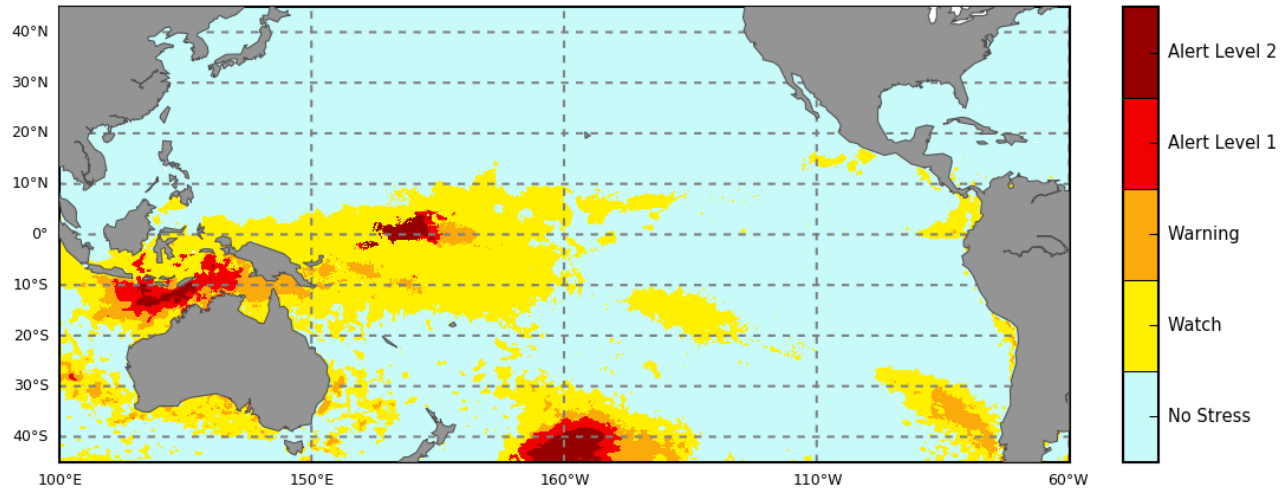


Equatorial Pacific sub-surface profile



Coral Bleaching Status

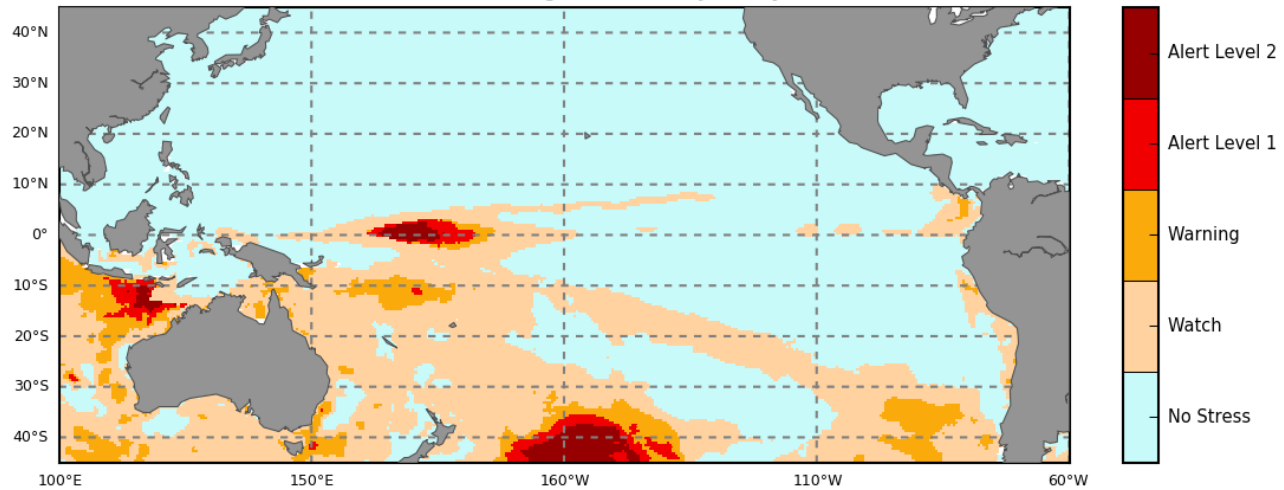
Pacific Ocean
Daily Coral Bleaching Alert: 07 January 2020



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NOAA Coral Reef Watch

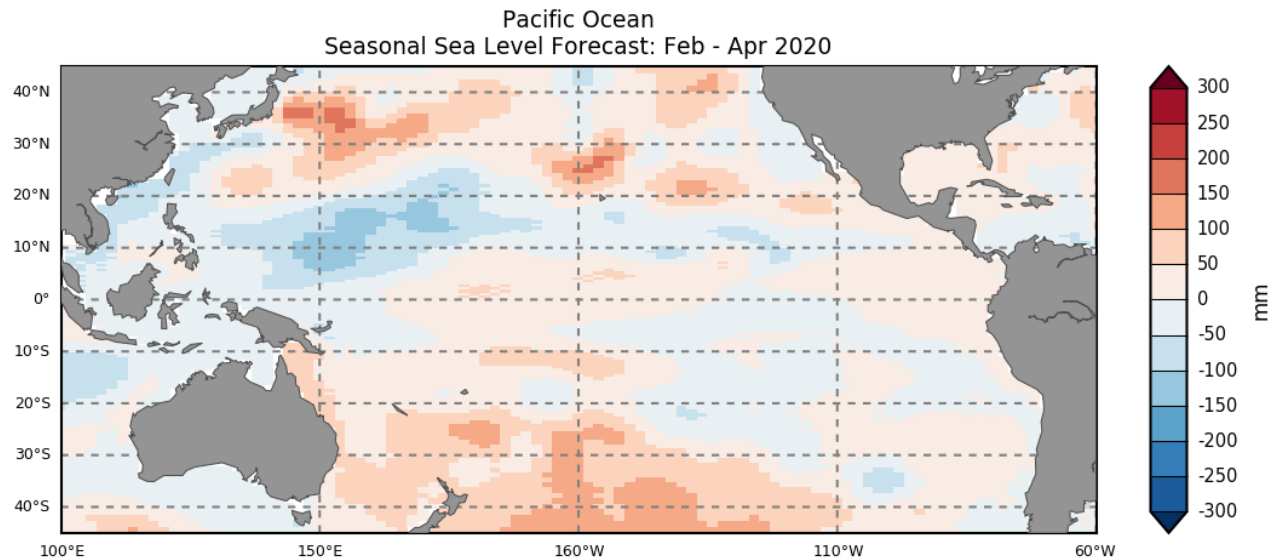
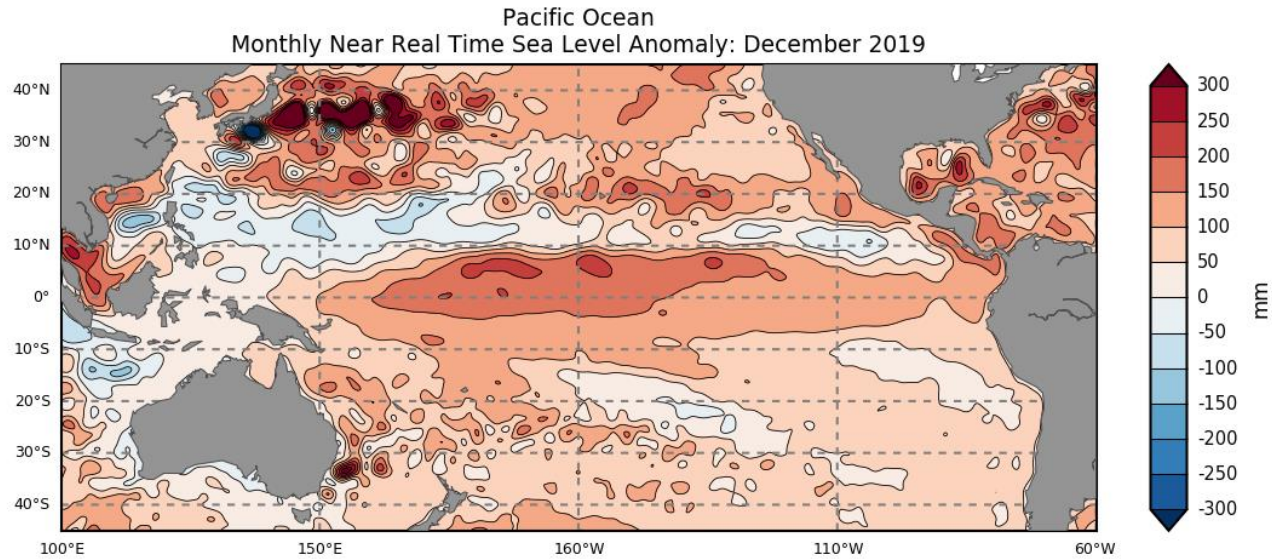
Pacific Ocean
4 Weeks Coral Bleaching Outlook: 12 January 2020



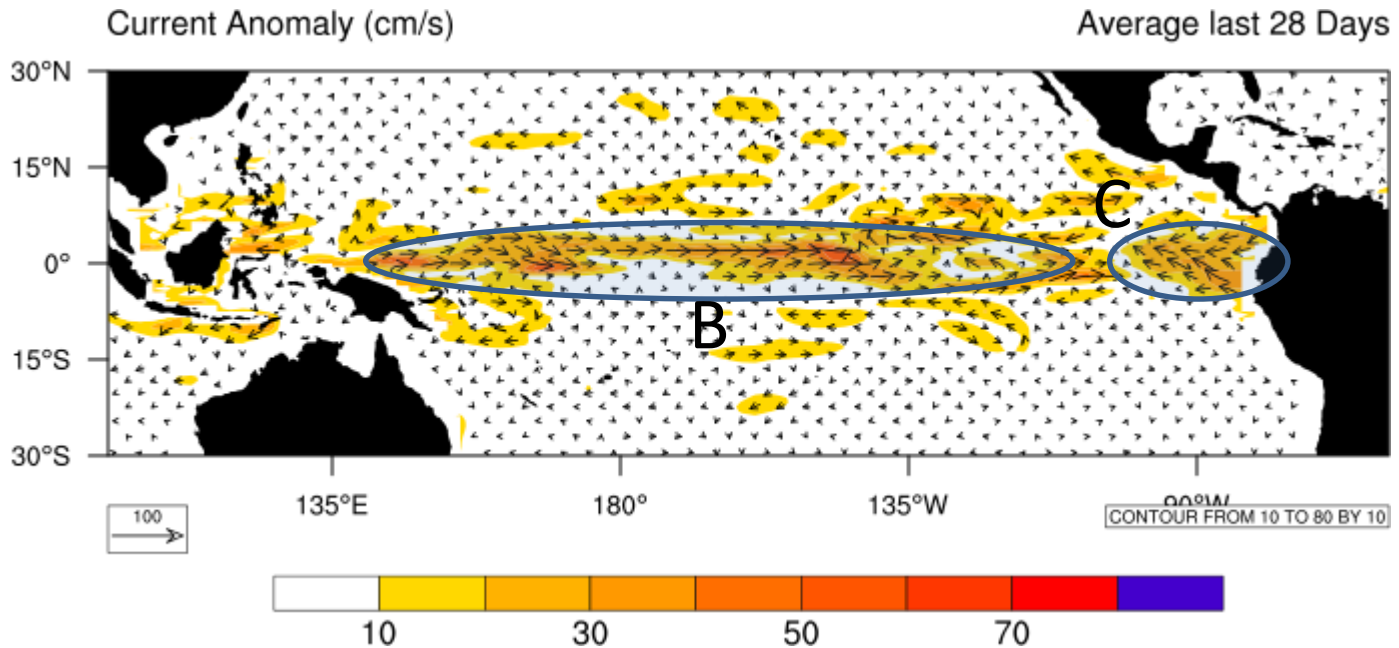
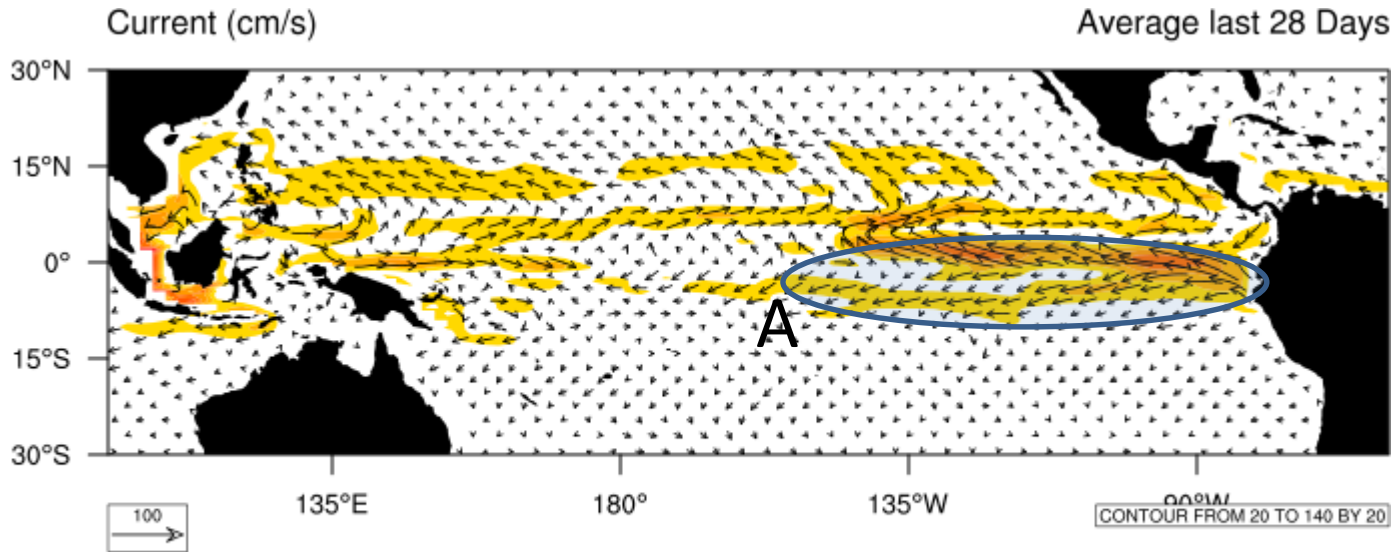
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NOAA Coral Reef Watch

December 2019 Sea Level Anomaly

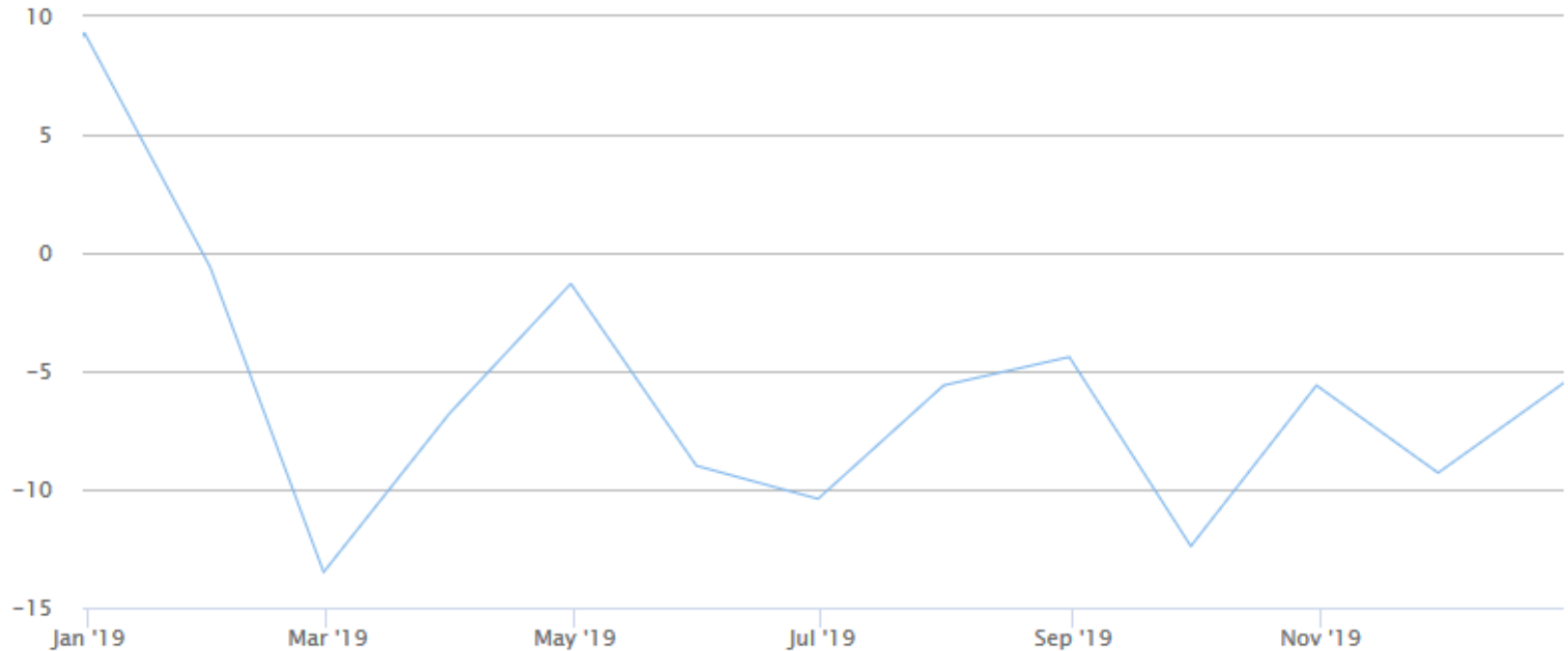


Ocean Currents at 10 January 2020



Southern Oscillation Index

Southern Oscillation Index – monthly

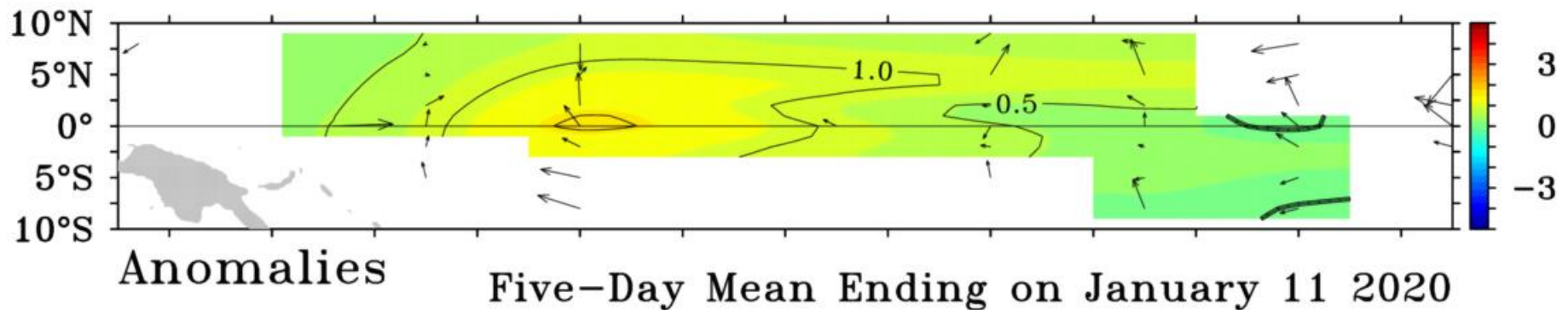
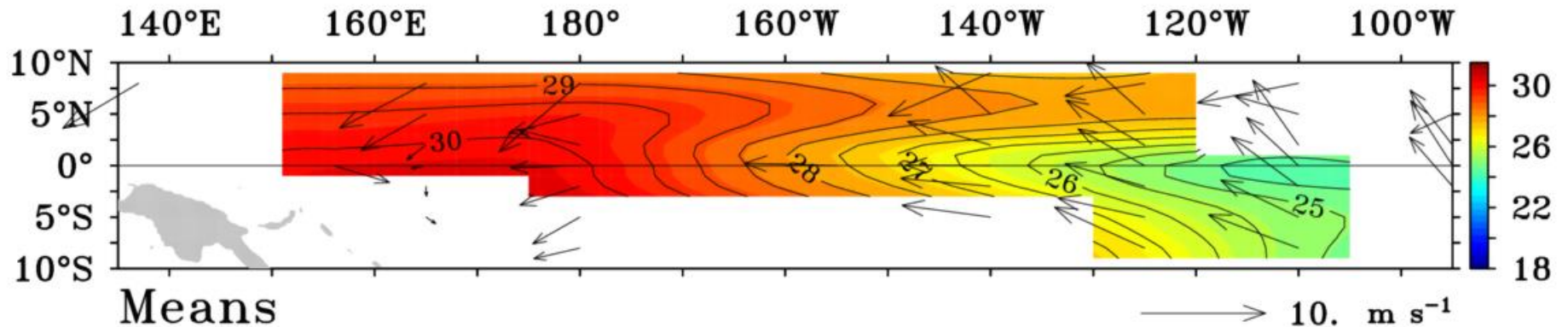


Southern Oscillation Index monthly data												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	-0.6	-13.5	-6.8	-1.3	-9.0	-10.4	-5.6	-4.4	-12.4	-5.6	-9.3	-5.5
2018	8.9	-6.0	10.5	4.5	2.1	-5.5	1.6	-6.9	-10.0	3.0	-0.1	9.3

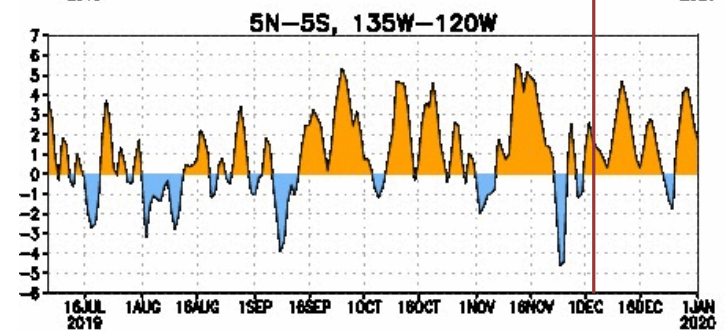
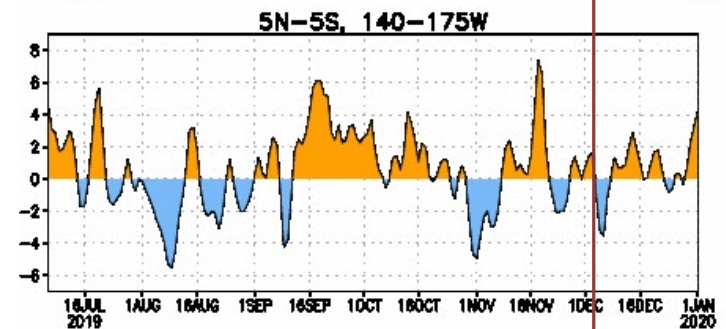
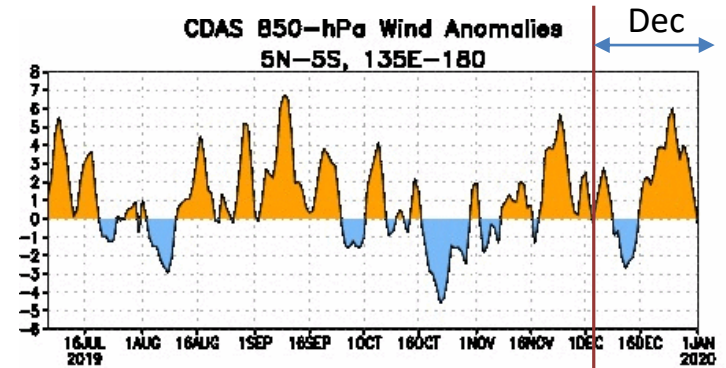
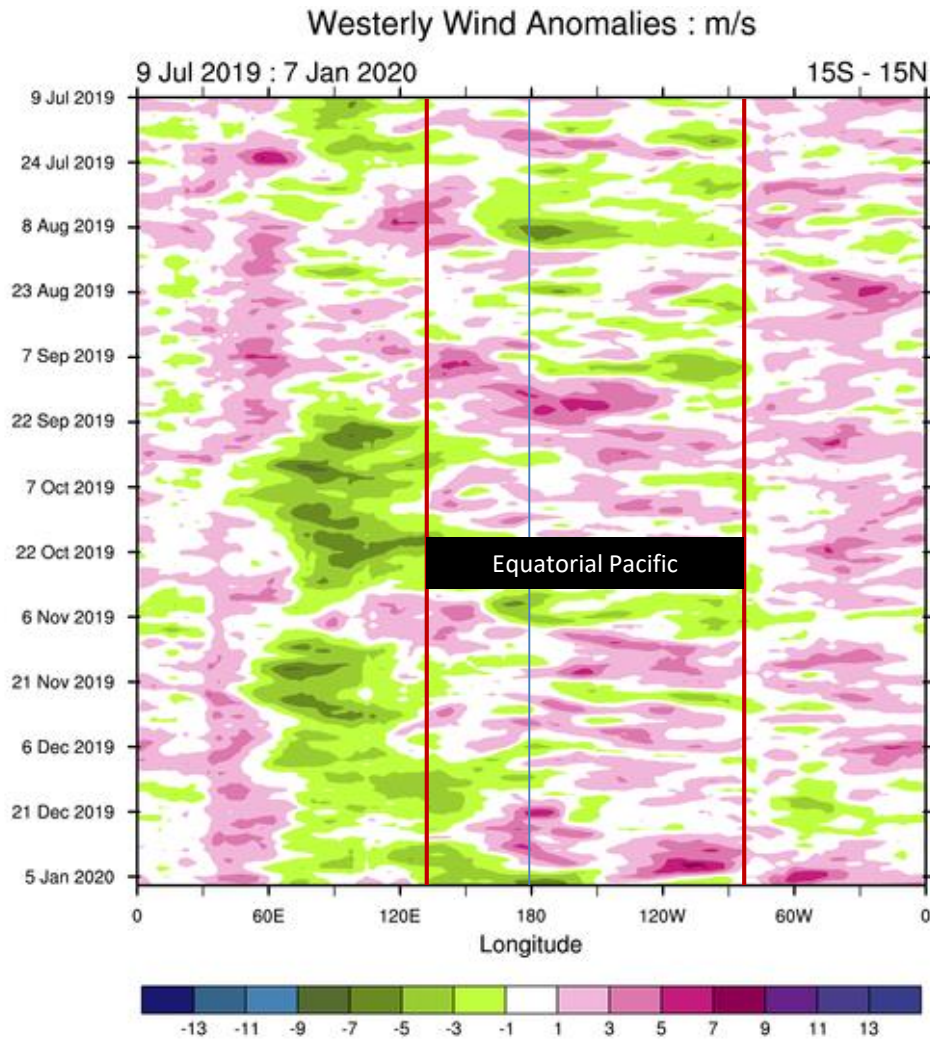
At 11 January 2020: 30-day SOI = -5; 90-day SOI = -5

Equatorial Trade Winds

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



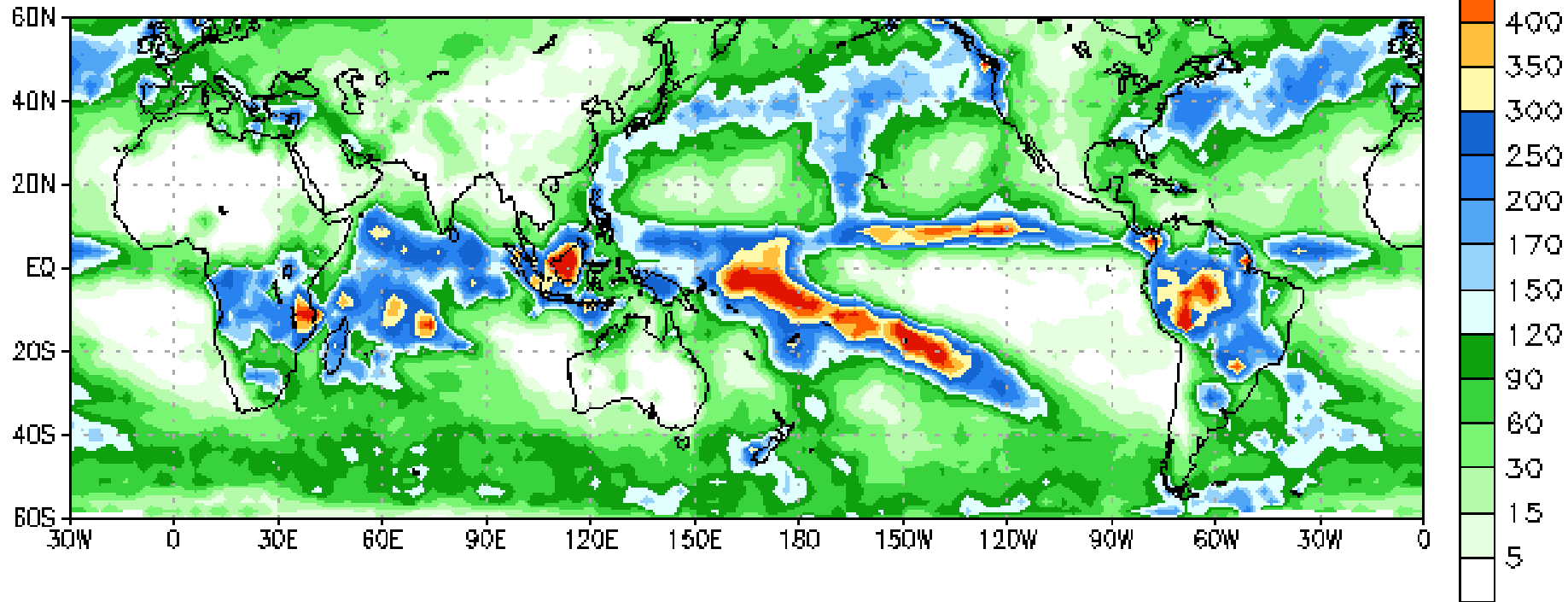
Equatorial Trade Winds



Data updated through 01 JAN 2020
CLIMATE PREDICTION CENTER/NCEP

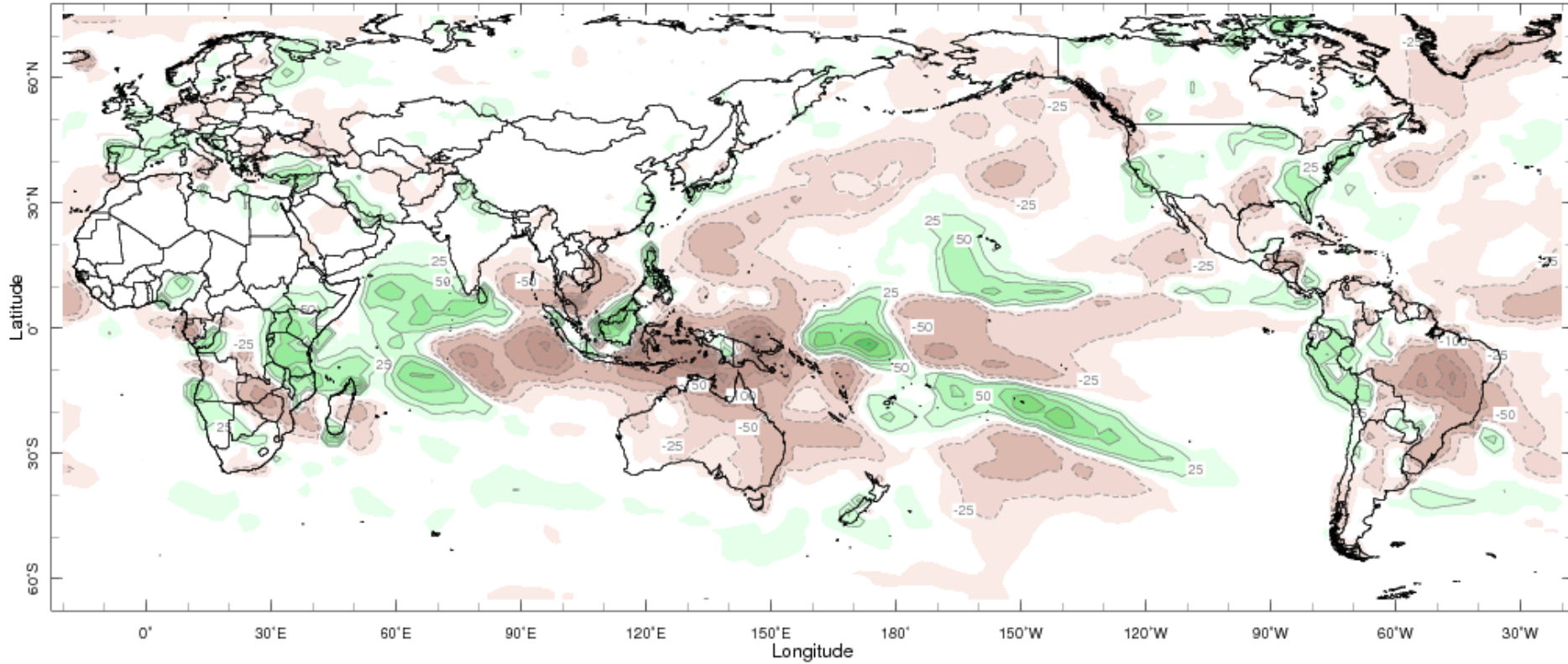
Satellite Rainfall

Accumulated Prep (mm) 29NOV2019 – 29DEC2019



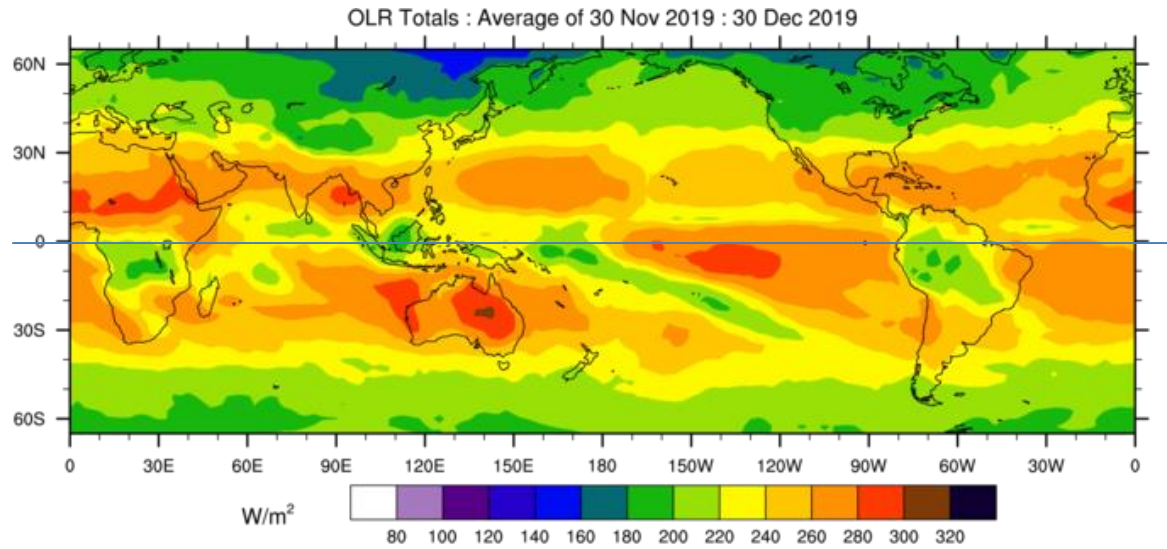
Data Source: NCEP CMAP Precipitation

Satellite Rainfall

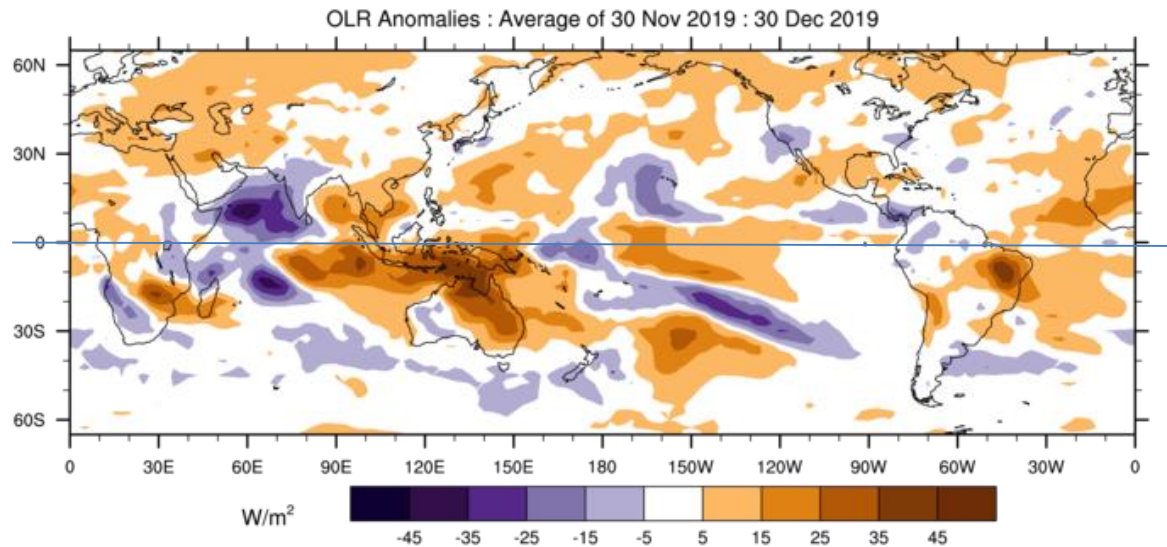


Dec 2019

Outgoing Longwave Radiation (OLR)

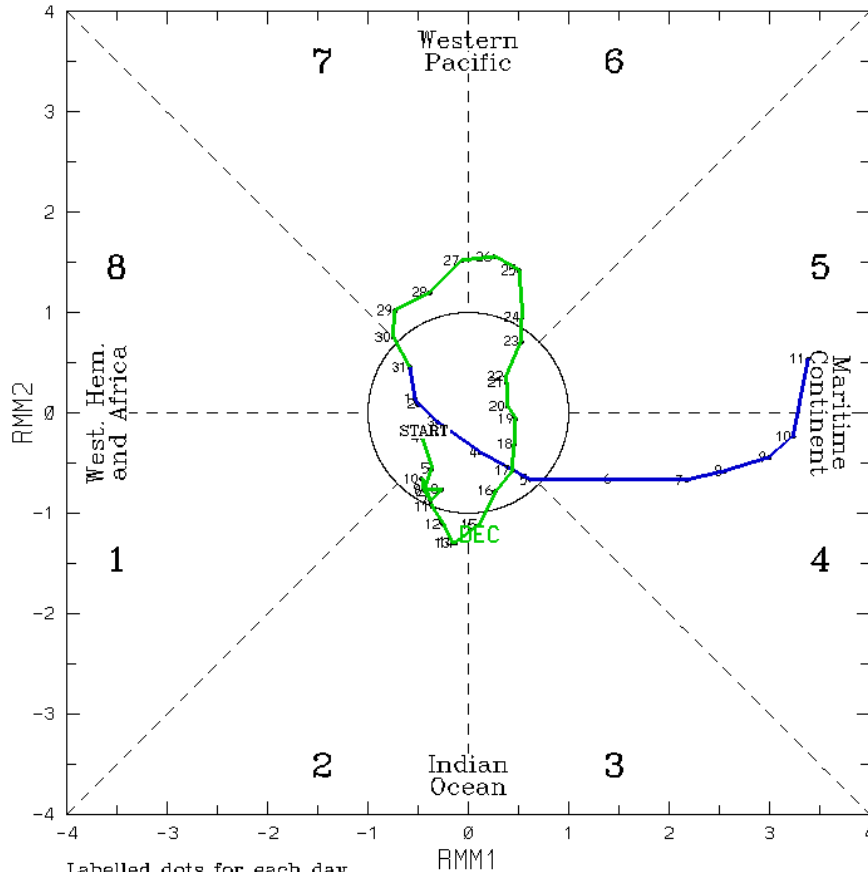


30 Days



Madden-Julian Oscillation

(RMM1, RMM2) phase space for 3-Dec-2019 to 11-Jan-2020

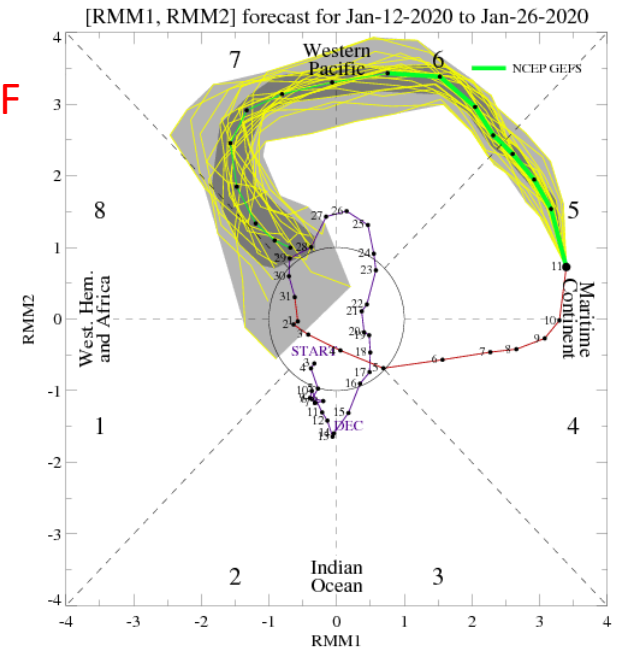


Labelled dots for each day.

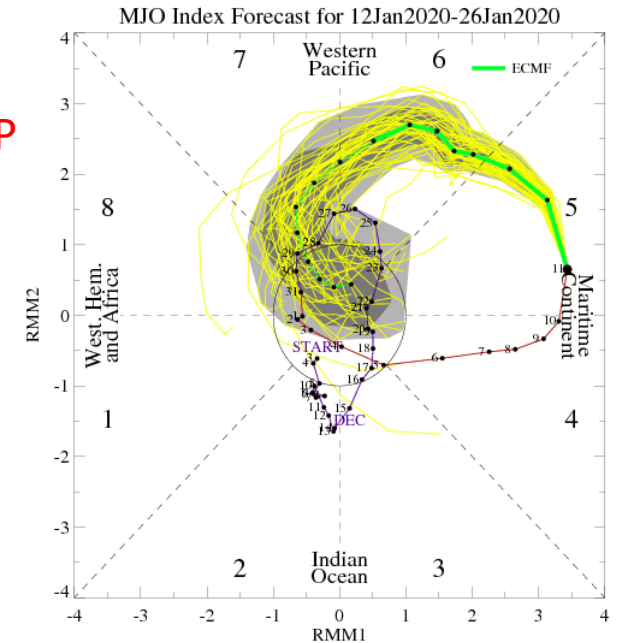
Blue line is for Jan, green line is for Dec, red line is for Nov.

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2020

ECMWF



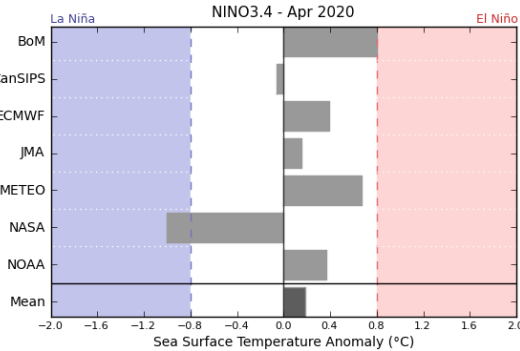
NCEP



Climate Model Summary for February to June 2020

Issued 13 January 2020 Next issue 12 February 2020

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



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

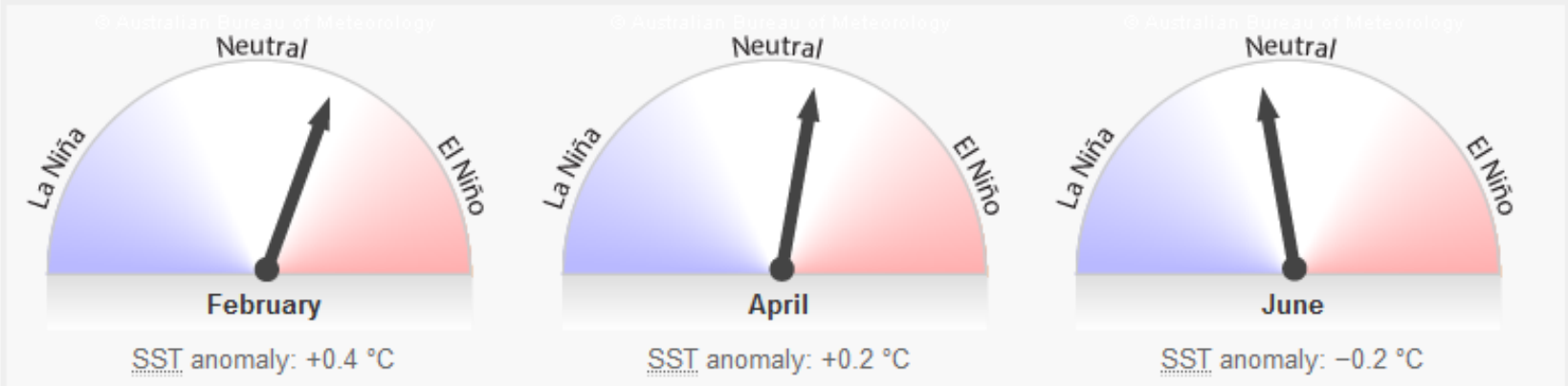
IOD and ENSO likely to be neutral for first quarter of 2020

The strong positive Indian Ocean Dipole (IOD) event of 2019 has ended. This positive IOD event resulted in widespread drier and warmer than average conditions across much of Australia and nearby regions such as Indonesia, with its decay occurring about a month later than usual. The IOD typically has little impact on Australian climate during summer and early autumn.

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 through autumn 2020.

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

Average of international model outlooks for NINO3.4



Climate Model Summary

