

# ENSO update - OCOF 156

15 September 2020

# ENSO Update

## Climate Driver Update

Climate drivers in the [Pacific](#), [Indian](#) and [Southern](#) oceans and the [Tropics](#)

🕒 Issued **1 September 2020** Next issue **15 September 2020**

Overview

Pacific Ocean

Indian Ocean

Southern Ocean

Tropics

Summary

Sea surface

### La Niña and negative Indian Ocean Dipole remain likely during spring

Recent cooling of the surface of the tropical Pacific Ocean, changes in tropical weather patterns, and continued ocean cooling forecast by climate models suggest La Niña could become established in spring 2020.

The Bureau's [ENSO Outlook](#) remains at La Niña ALERT. This means the chance of La Niña forming in 2020 is around 70%—roughly three times the average likelihood.

While most key indicators remain within ENSO-neutral range, there have been further signs of La Niña development in the past fortnight. The central tropical Pacific Ocean has continued to cool and trade winds remain stronger than average, while the Southern Oscillation Index (SOI) has exceeded La Niña thresholds in recent days. Equatorial cloudiness near the Date Line also remains below average.

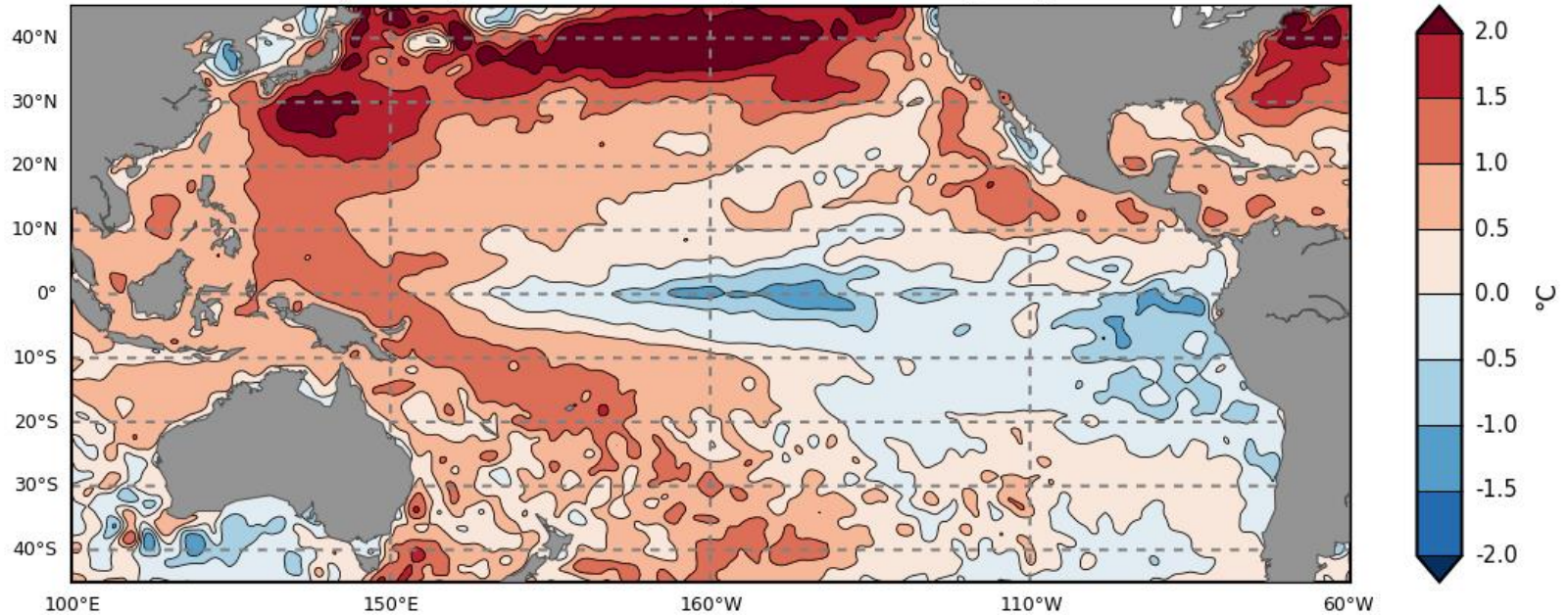
All of the surveyed international climate models surveyed anticipate further cooling of the tropical Pacific Ocean. Five of the eight models reach or exceed La Niña thresholds during October, with six models indicating that if La Niña forms it is likely to persist into December.



# August 2020 SSTs

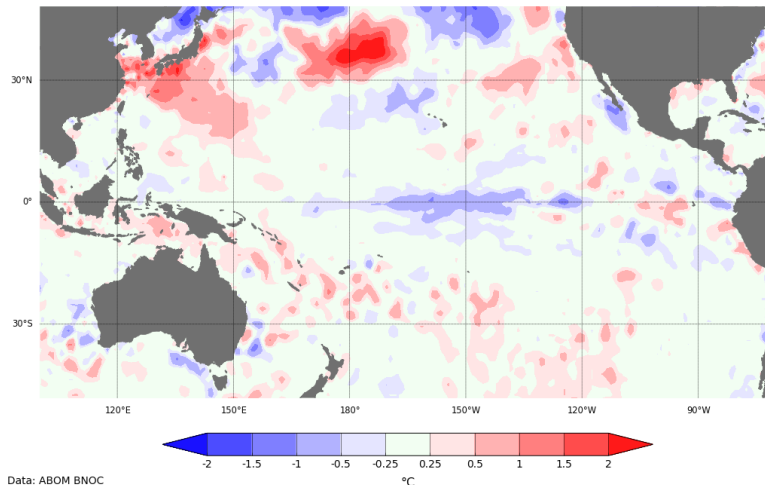
Pacific Ocean

Monthly Average Sea Surface Temperature Anomaly: August 2020



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

Change in the monthly SST anomaly: August-2020 - July-2020

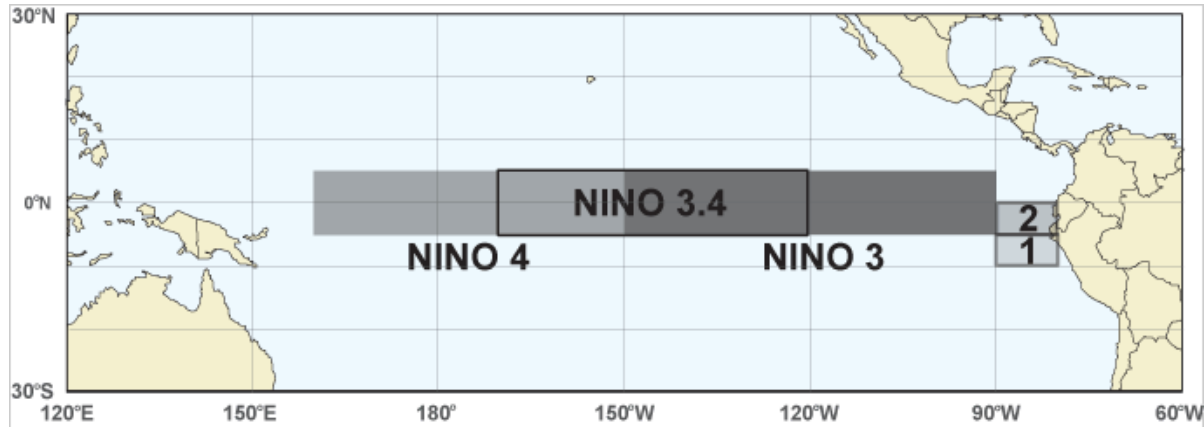


Data: ABOM BNOG  
Climatology baseline: 1961 to 1990  
© Commonwealth of Australia 2020, Australian Bureau of Meteorology

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

Anomaly monthly difference  
Created: 07/09/2020

# NINO SST anomalies (°C)

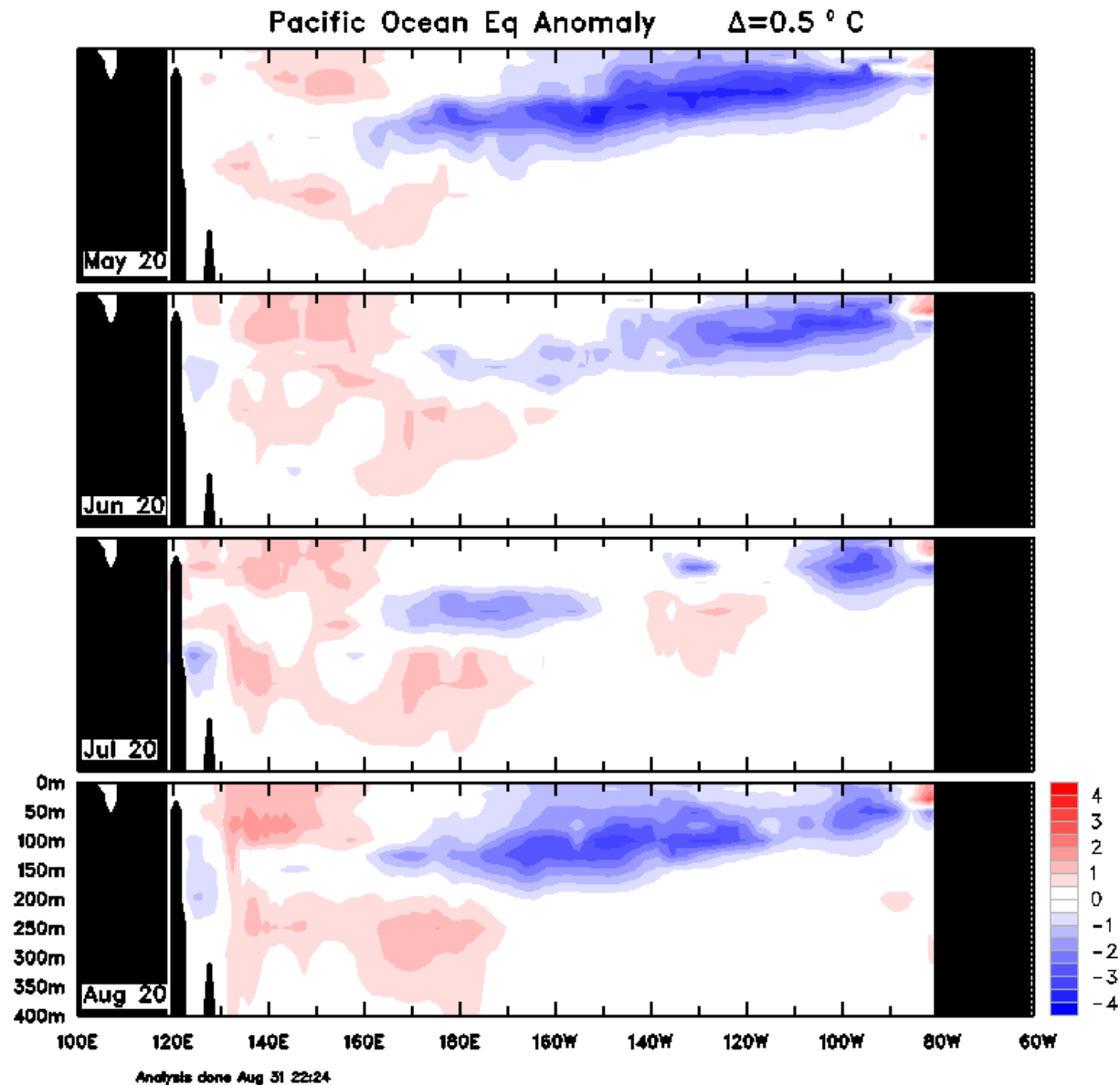


Index	July 2020	Aug 2020	Latest weekly
NINO3	-0.3	-0.4	-0.8
NINO3.4	0.0	-0.4	-0.7
NINO4	+0.2	-0.1	-0.2

Weekly data for the week ending 13/09/2020

# Equatorial Pacific sub-surface profile

## Bureau of Meteorology

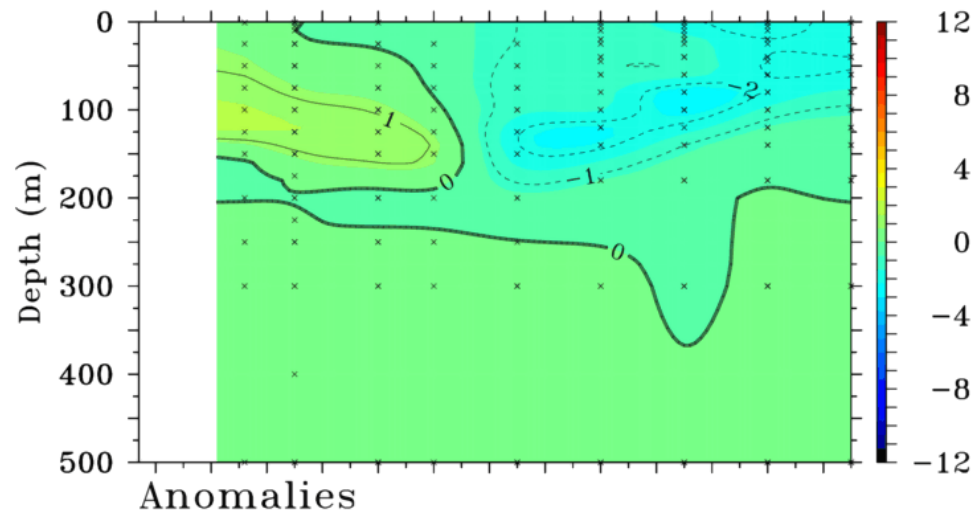
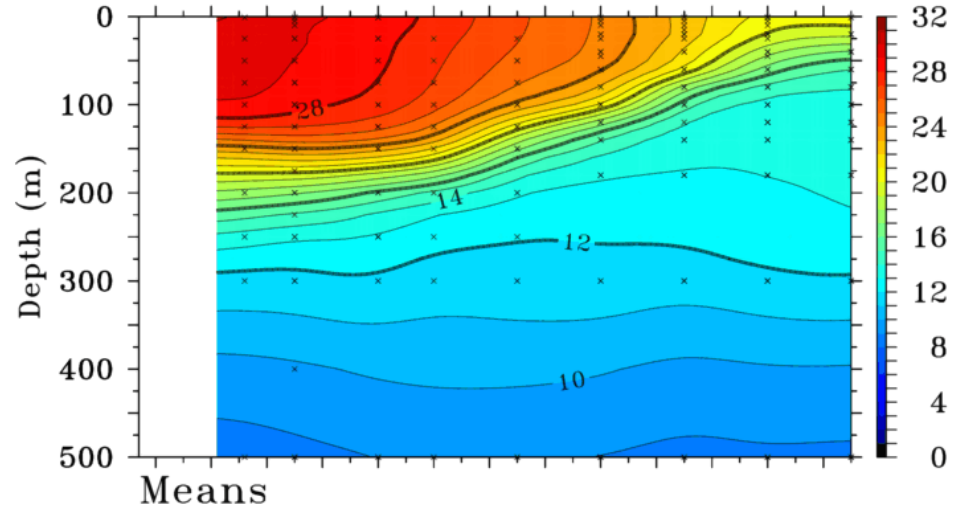


# Equatorial Pacific sub-surface profile

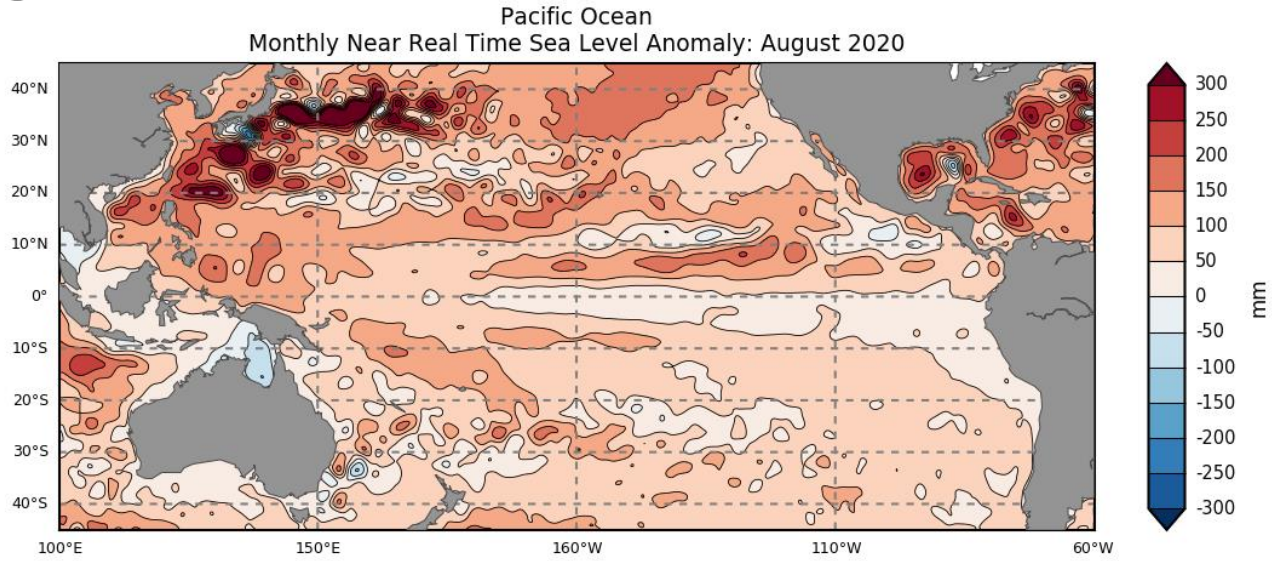
TAO/TRITON 5-Day Temperature ( $^{\circ}\text{C}$ )

End Date: September 12 2020 2 $^{\circ}\text{S}$  to 2 $^{\circ}\text{N}$  Average

140 $^{\circ}\text{E}$  160 $^{\circ}\text{E}$  180 $^{\circ}$  160 $^{\circ}\text{W}$  140 $^{\circ}\text{W}$  120 $^{\circ}\text{W}$  100 $^{\circ}\text{W}$

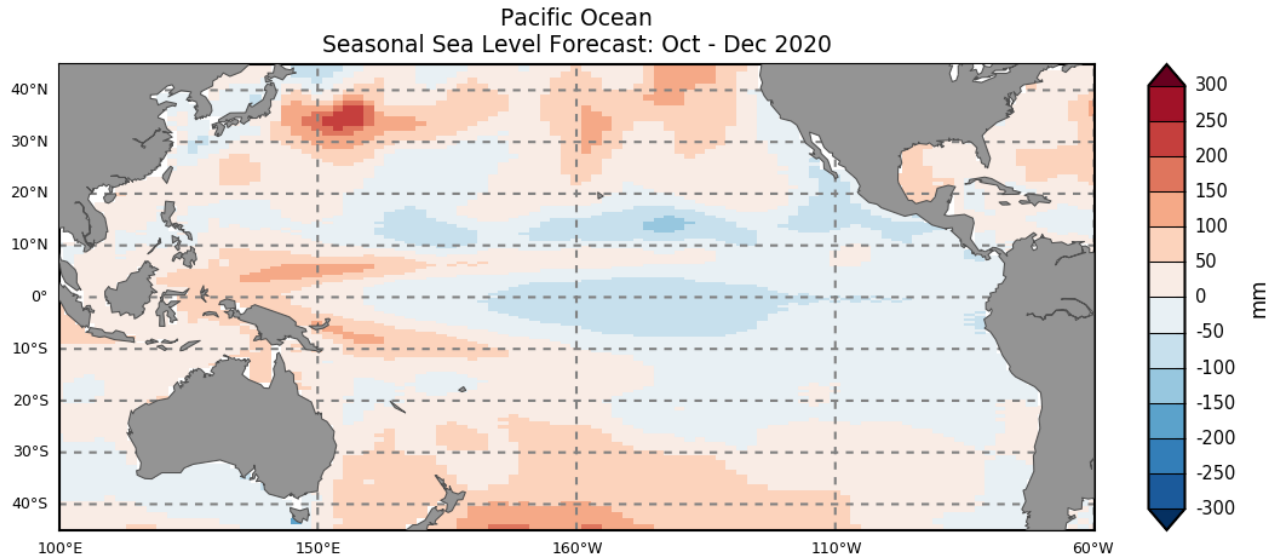


# August 2020 Sea Level Anomaly



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

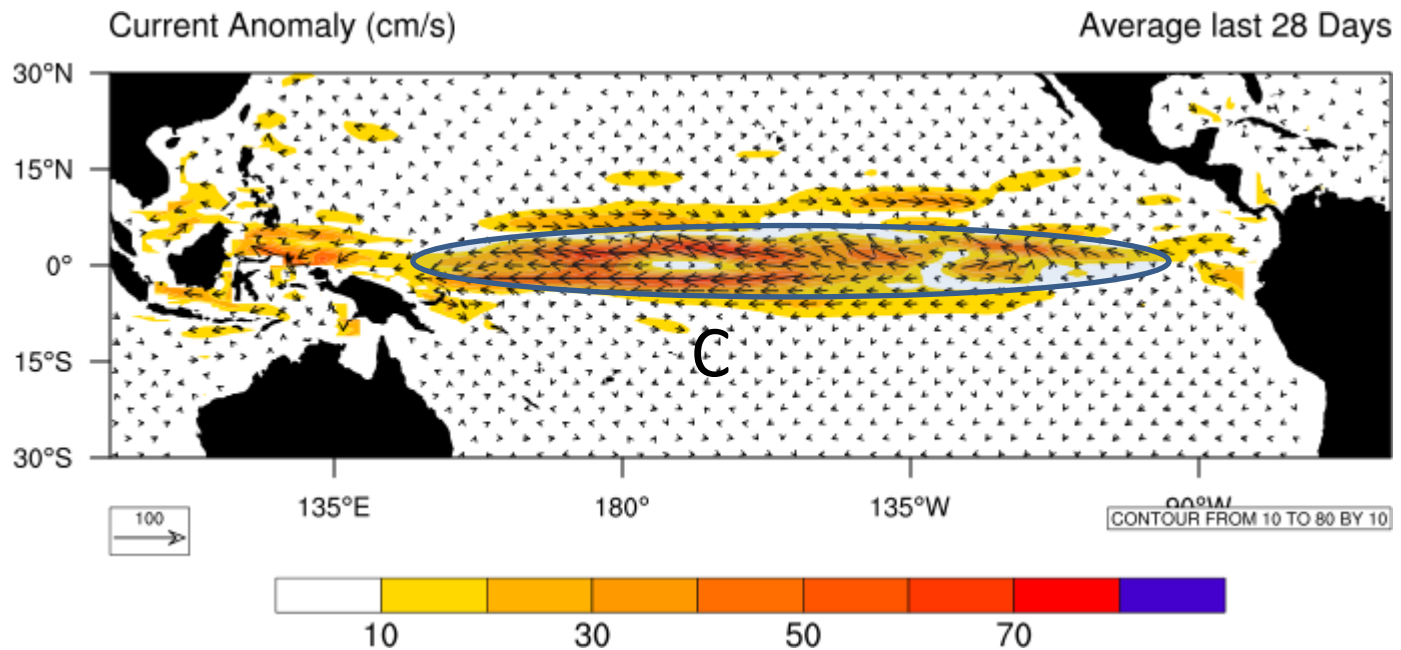
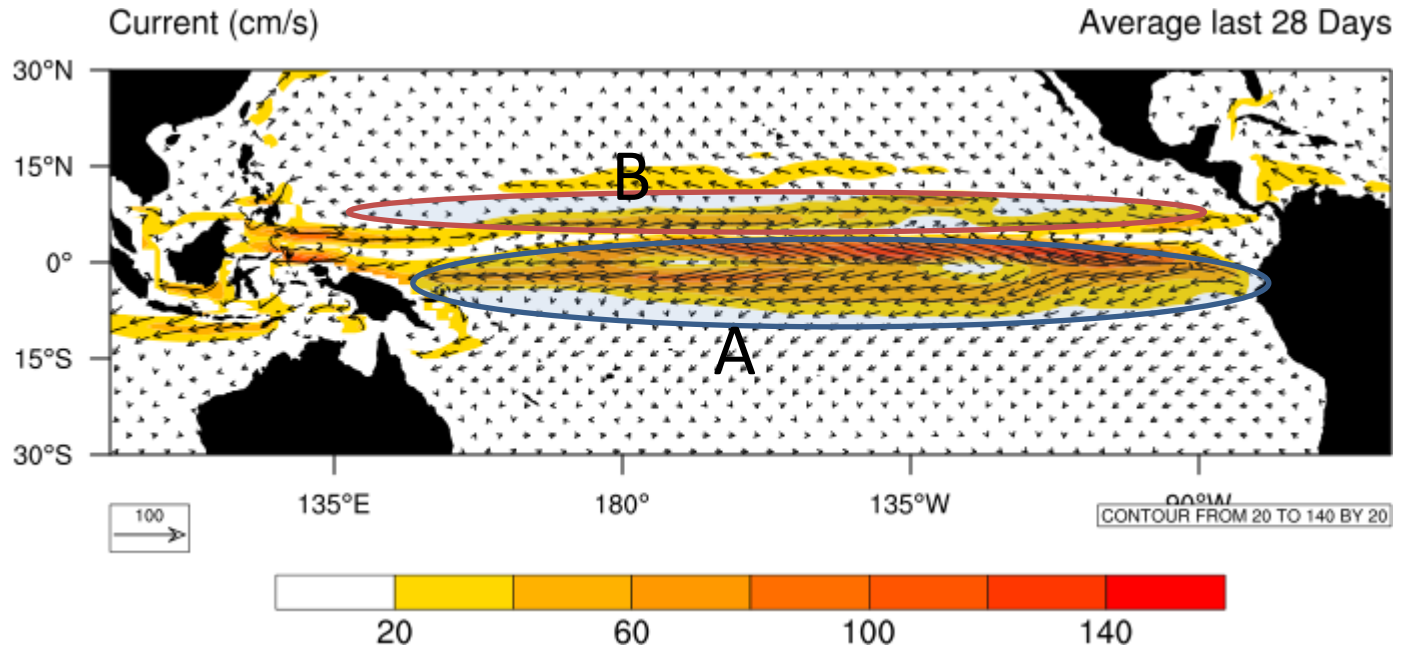
AVISO Ssalto/Duacs SLA



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

POAMA Forecast

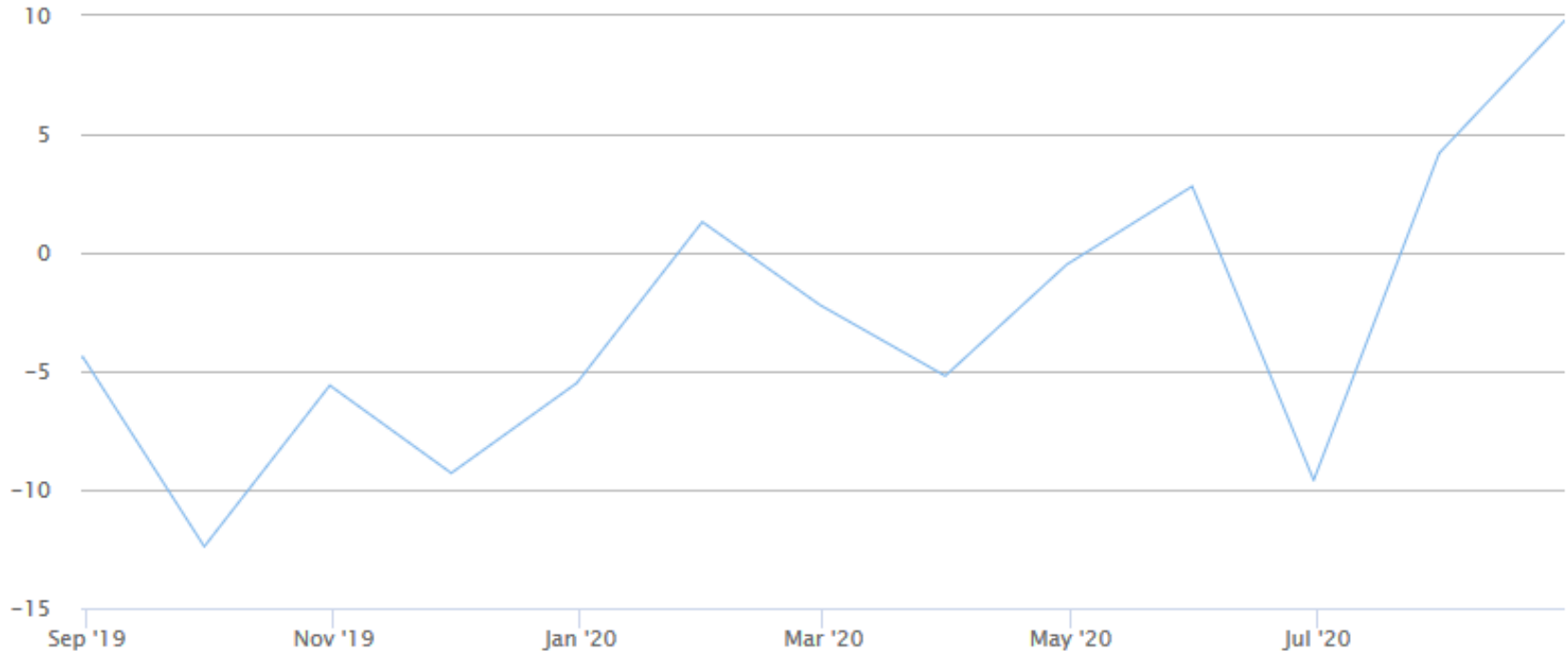
# Ocean Currents at 10 September 2020





# Southern Oscillation Index

Southern Oscillation Index – monthly

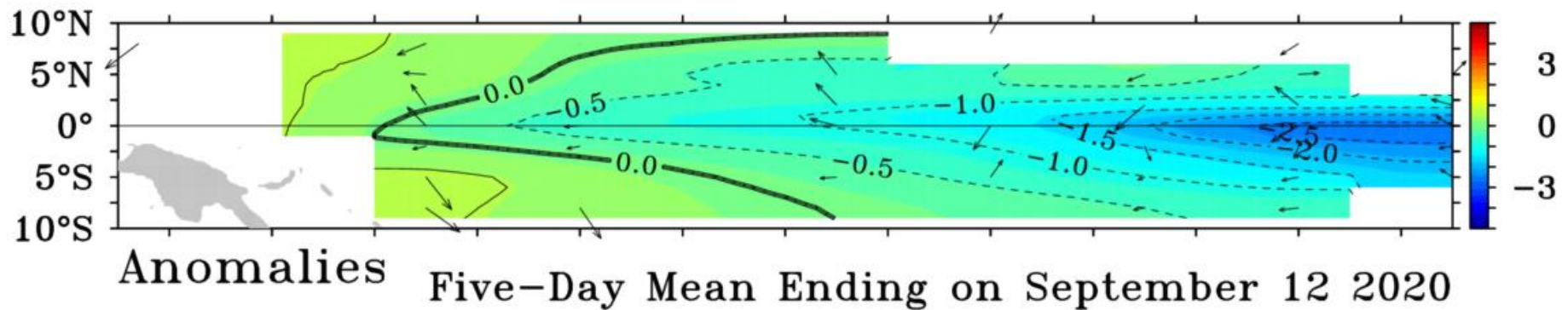
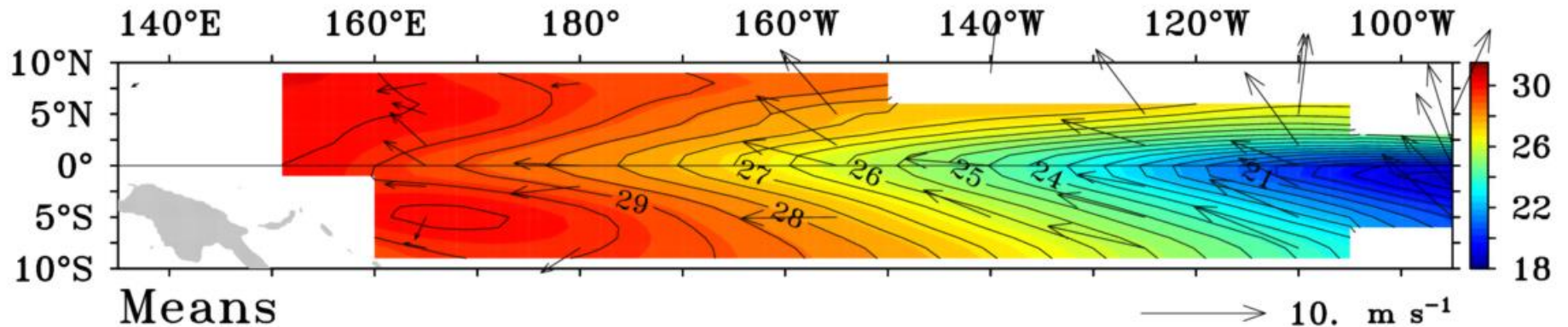


Southern Oscillation Index monthly data												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	+1.3	-2.2	-5.2	-0.5	+2.8	-9.6	+4.2	+9.8	-	-	-	-
2019	-0.6	-13.5	-6.8	-1.3	-9.0	-10.4	-5.6	-4.4	-12.4	-5.6	-9.3	-5.5

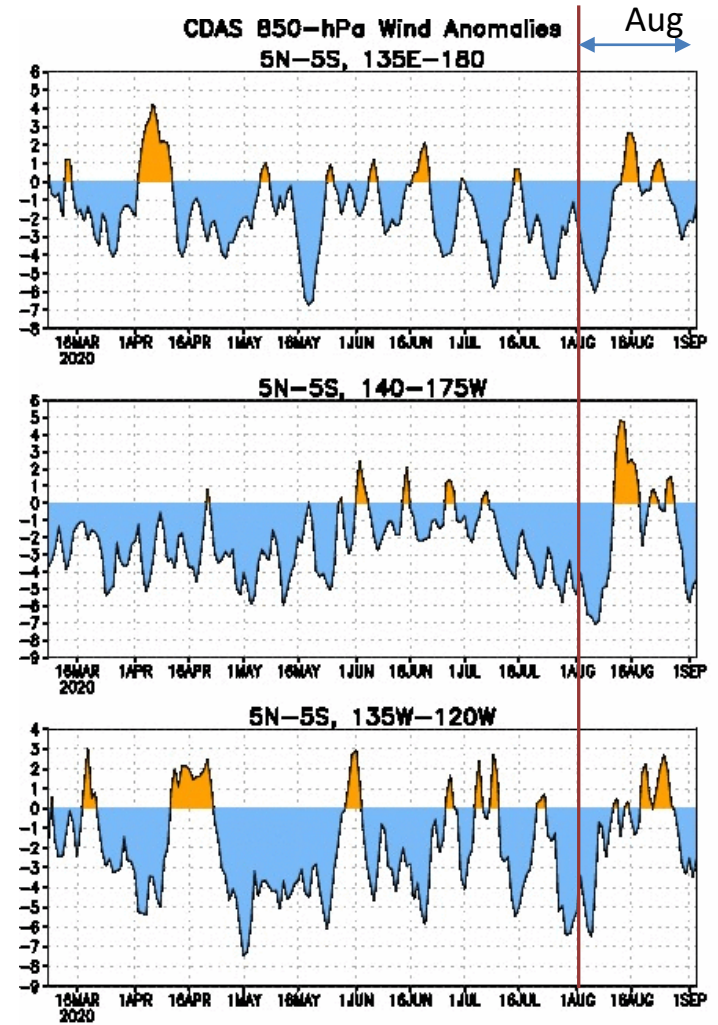
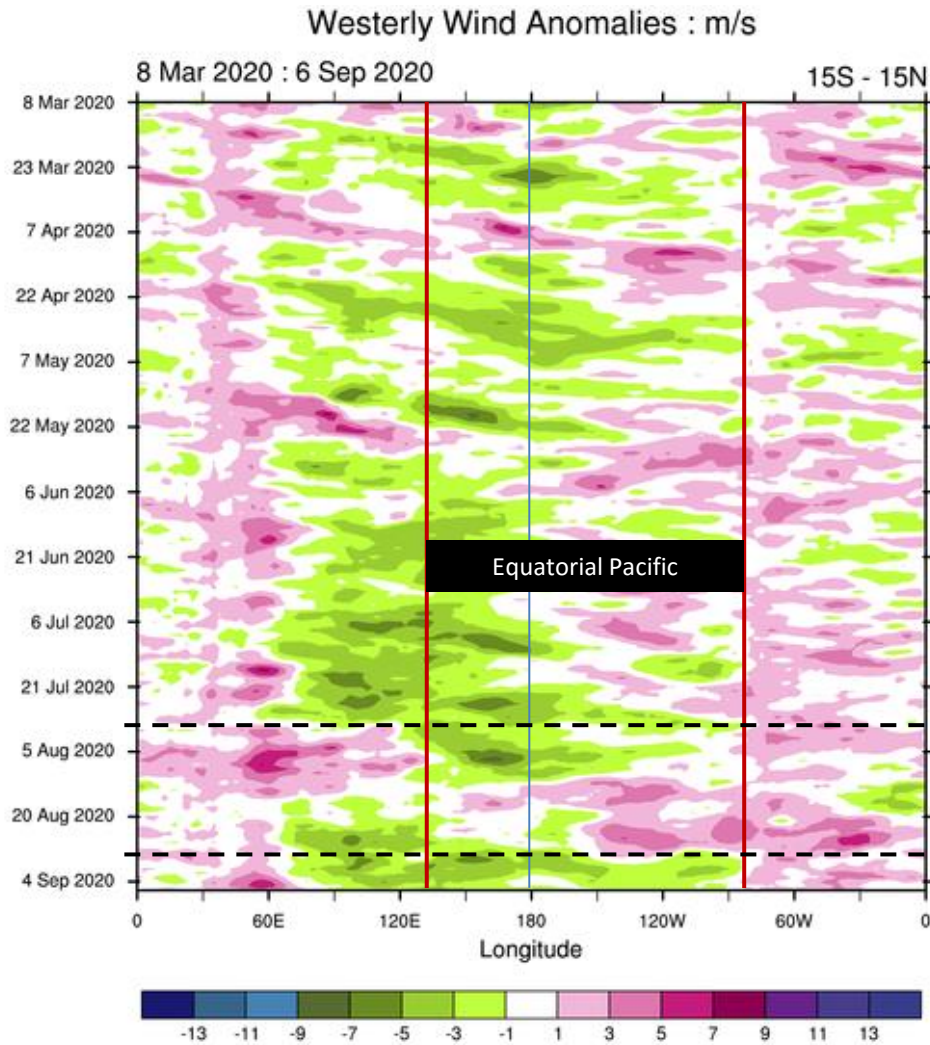
At 12 September 2020: 30-day SOI = +10; 90-day SOI = +5

# Equatorial Trade Winds

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



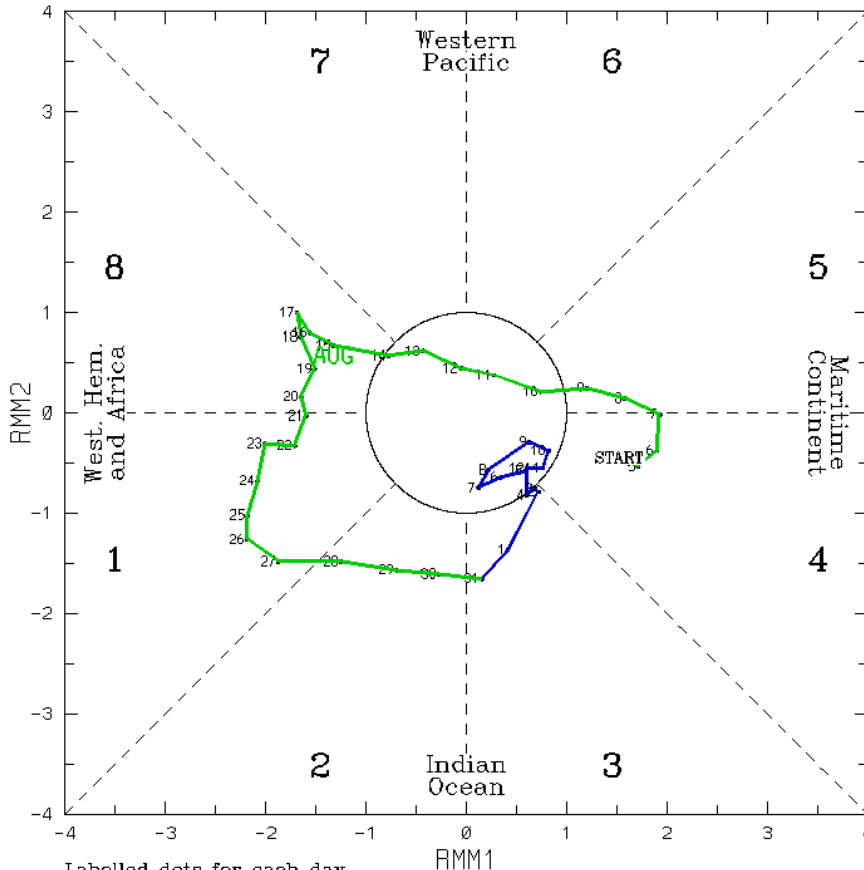
# Equatorial Trade Winds



Data updated through 03 SEP 2020  
**CLIMATE PREDICTION CENTER/NCEP**

# Madden-Julian Oscillation

(RMM1, RMM2) phase space for 4-Aug-2020 to 12-Sep-2020

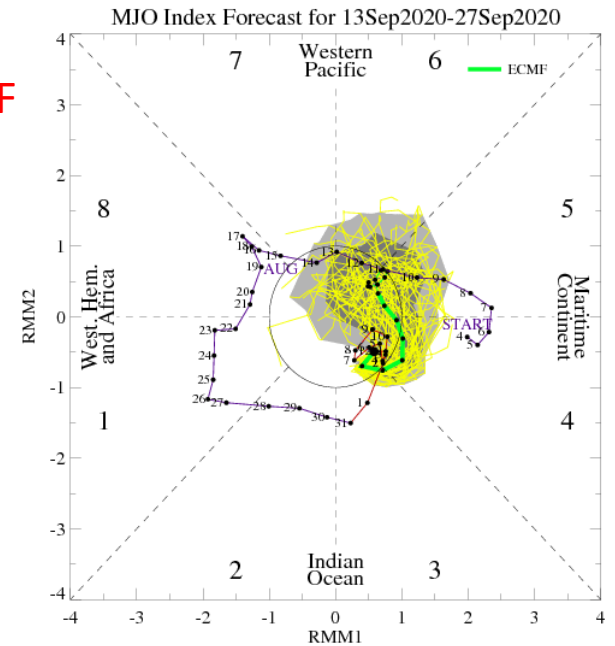


Labelled dots for each day.

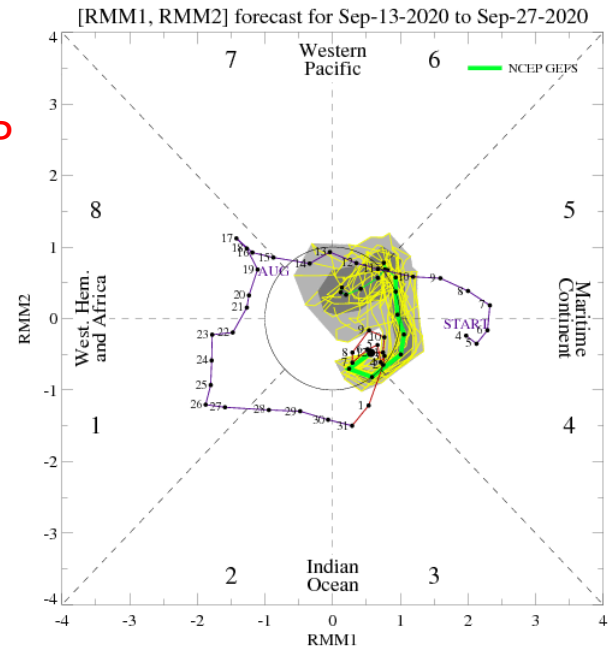
Blue line is for Sep, green line is for Aug, red line is for Jul.

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2020

ECMWF

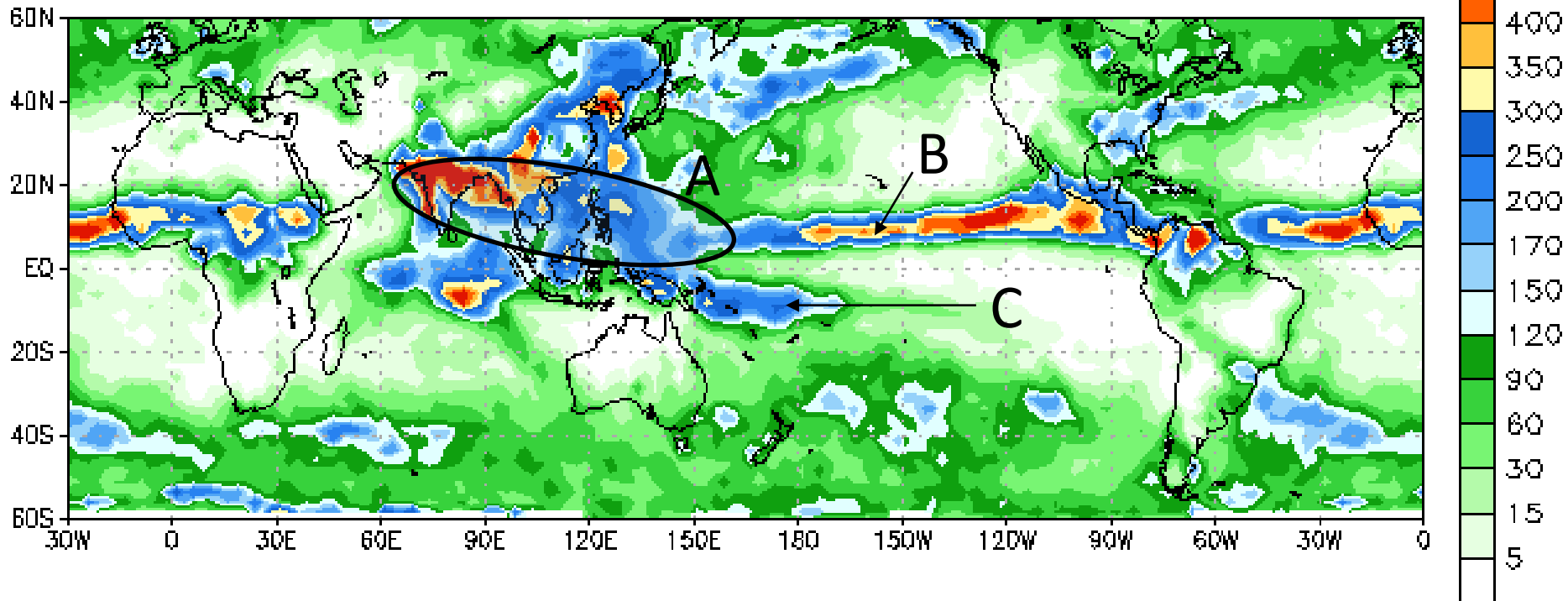


NCEP



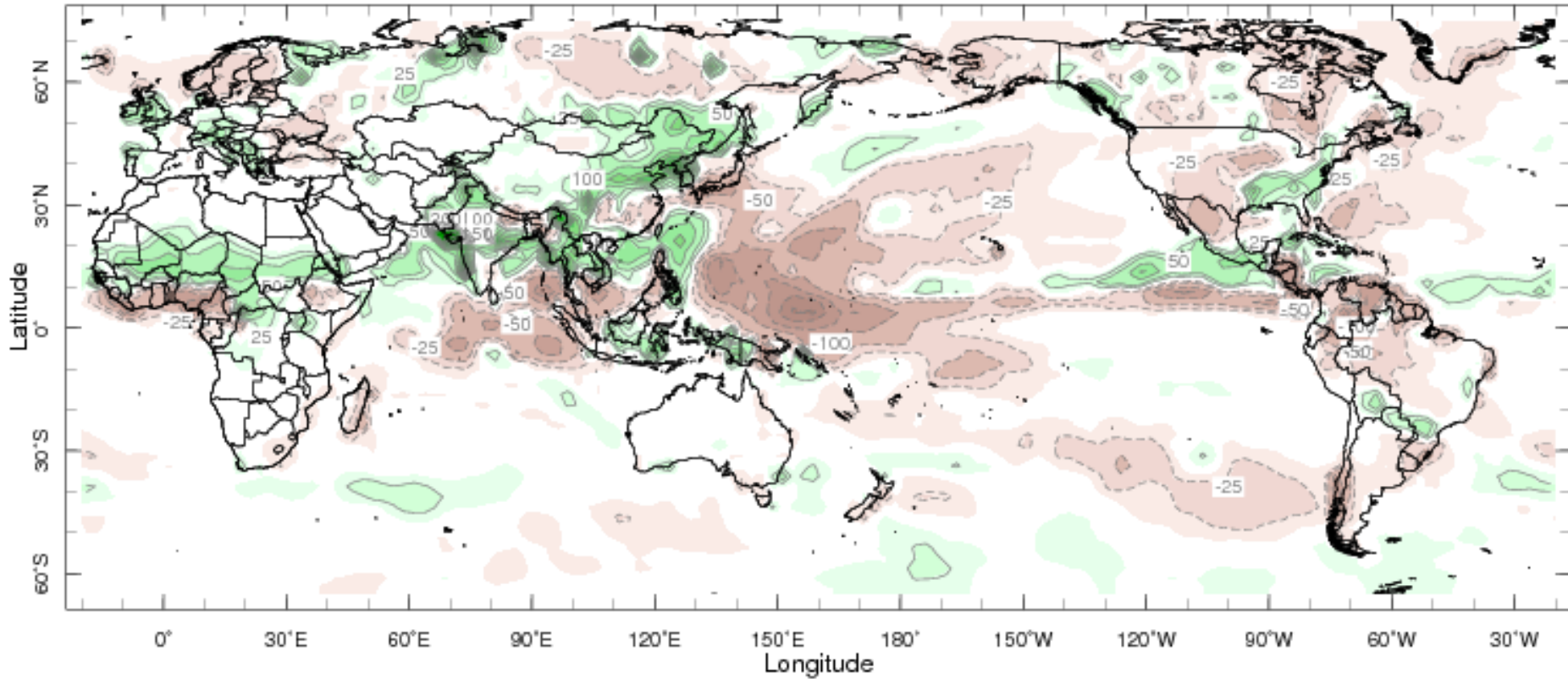
# Satellite Rainfall

Accumulated Prop (mm) 01AUG2020 - 31AUG2020



Data Source: NCEP CMAP Precipitation

# Satellite Rainfall Anomaly



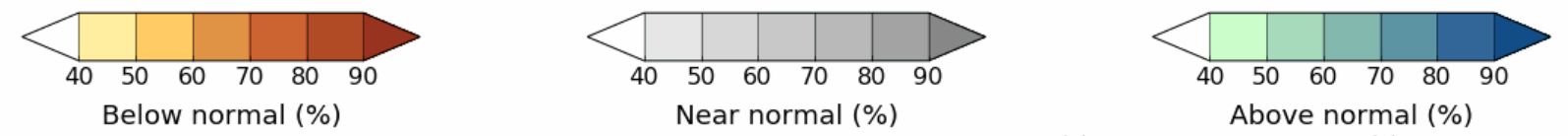
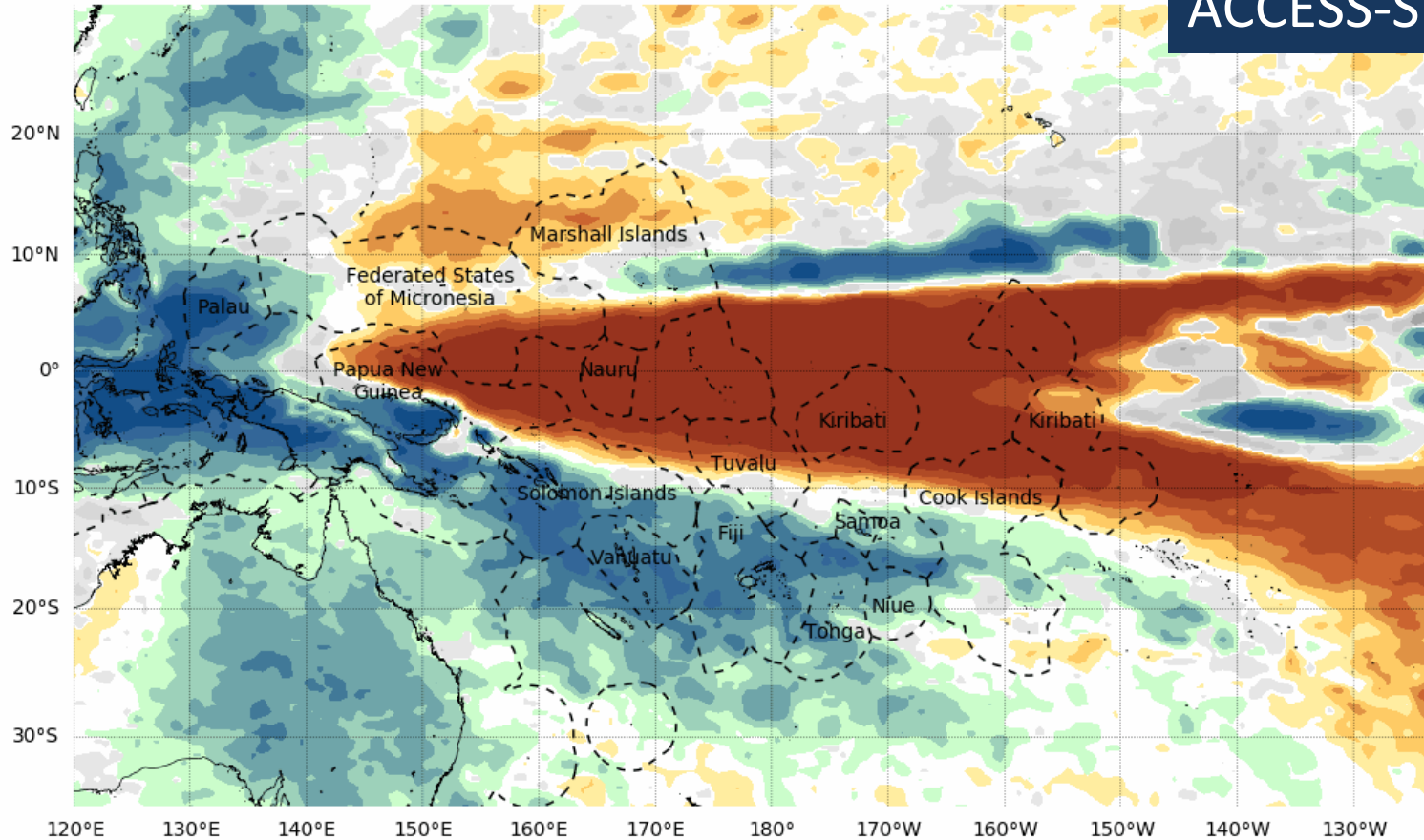
Aug 2020

Units = mm per month

# Model Rainfall Predictions (SON)

Tercile rainfall probabilities for  
September to November 2020

ACCESS-S



Model: ACCESS-S1      Model run: 31/08/2020  
Base period: 1990-2012      Issued: 03/09/2020

# Model Rainfall Predictions (SON)

C3S multi-system seasonal forecast

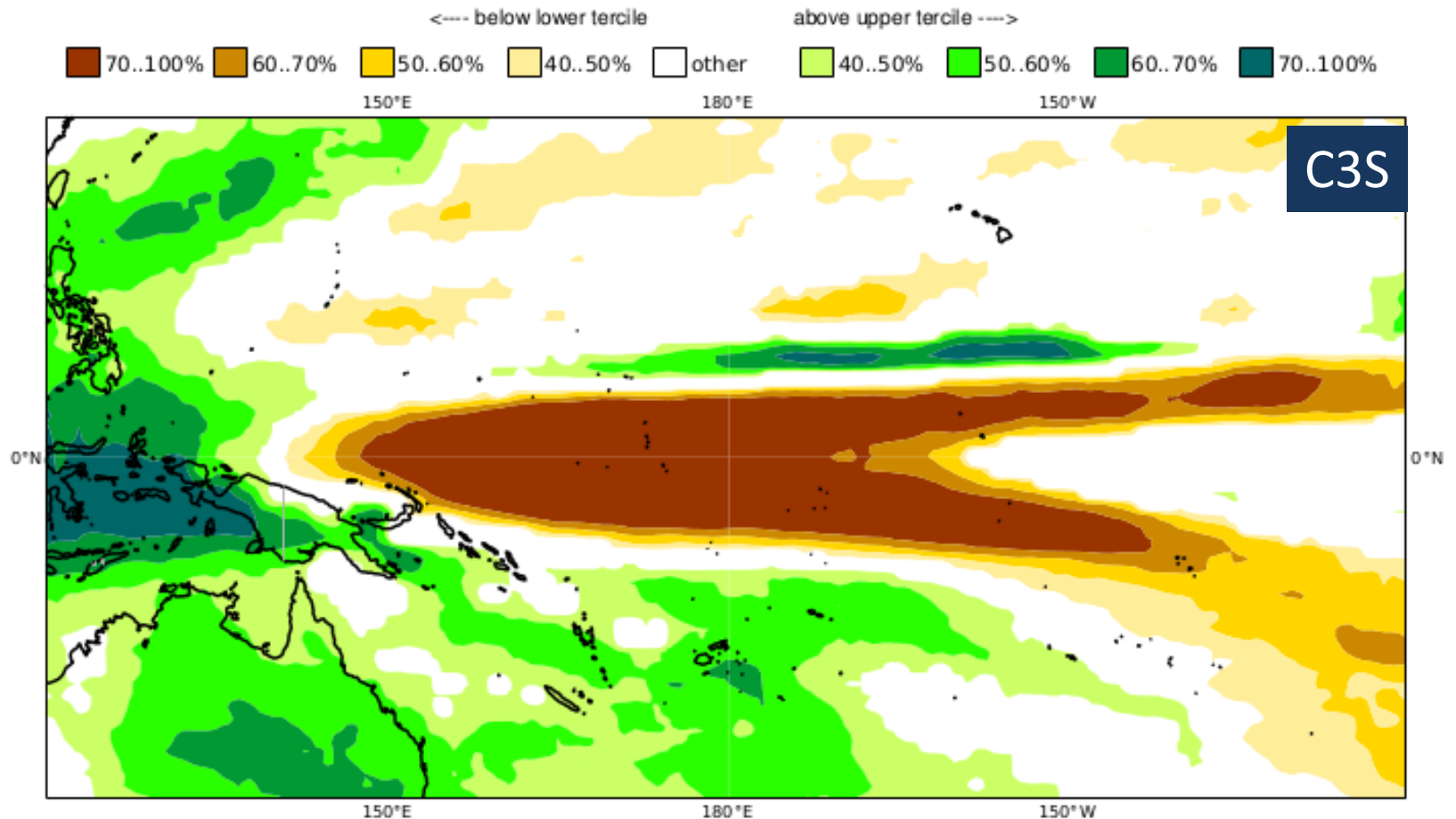
ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP

Prob(most likely category of precipitation)

SON 2020

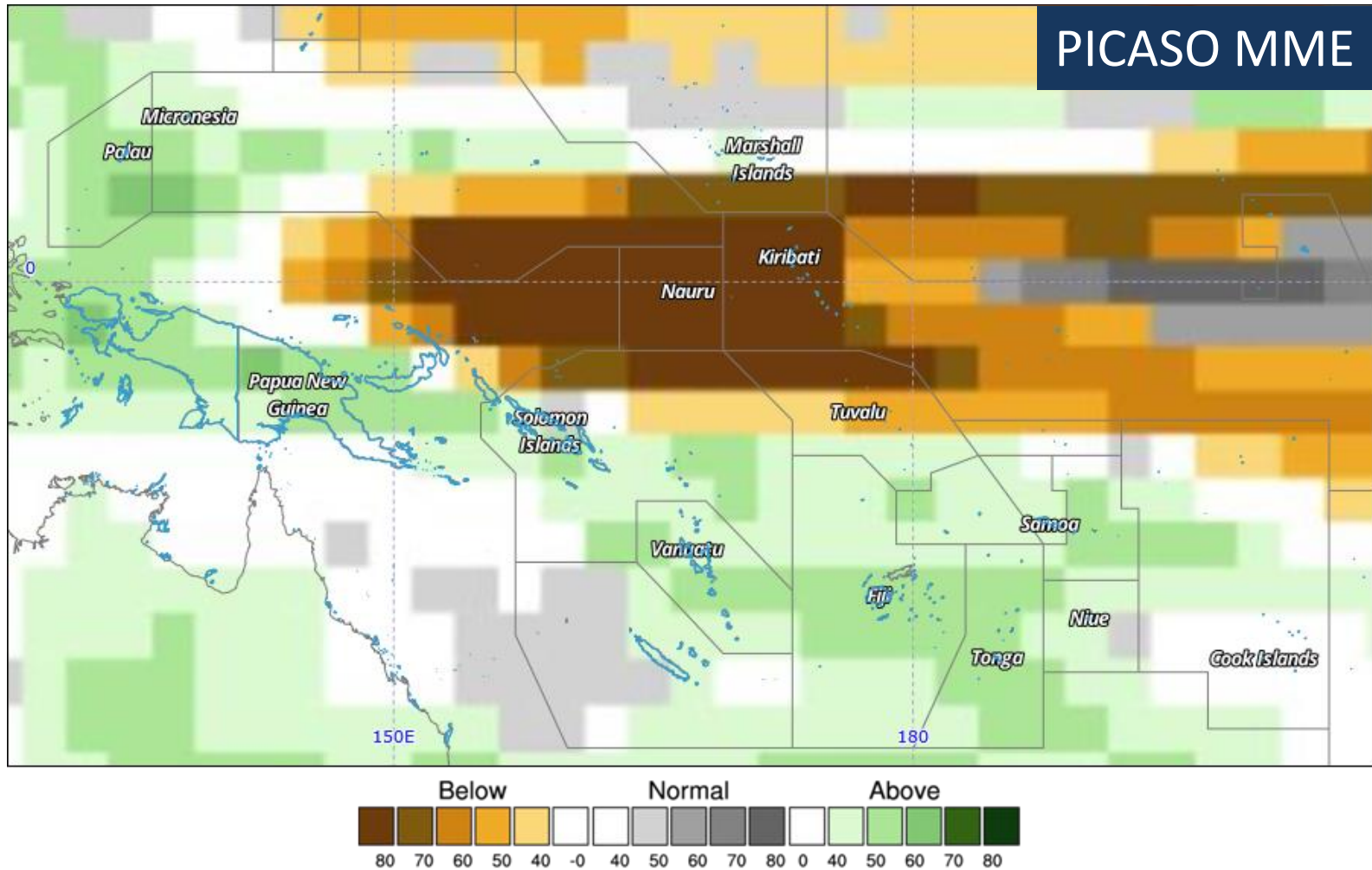
Nominal forecast start: 01/08/20

Unweighted mean





# Model Rainfall Predictions (SON)



Year: 2020, Season: SON, Lead Month: 3, Method: GAUS

Model: APCC, CMCC, MSC, NASA, NCEP, PNU, POAMA

Generated using CLIK® (2020-9-8)

© APEC Climate Center

# Model Rainfall Predictions (SON)

	September-November 2020		
	ACCESS-S	C3S	PICASO
Cook Is Nth	Dark Red	Yellow	Orange
Cook Is Sth			
Fiji West	Light Green	Light Green	Light Green
Fiji Central	Dark Blue		
Fiji East	Dark Blue	Light Green	
Fiji Nth	Dark Blue	Light Green	
Fiji Rotuma	Light Green	Light Green	Light Green
Kiribati West	Dark Red	Dark Red	Dark Red
Kiribati Central	Dark Red	Dark Red	Orange
Kiribati East	Dark Red	Orange	Grey
Marshall Is	Light Green	Light Green	
Niue	Light Green		Light Green
Palau	Dark Blue		Light Green
PNG Momase	Light Green	Light Green	Light Green
PNG Is	Dark Blue		
PNG Sth	Light Green	Light Green	Light Green
PNG Highlands	Dark Blue	Light Green	Light Green
Samoa	Light Green	Light Green	Light Green
Solomon Is West	Dark Blue		Light Green
Solomon Is Central	Dark Blue		Grey
Solomon Is East	Light Green	Light Green	Light Green
Tonga Nth	Dark Blue	Light Green	Light Green
Tonga Central	Light Green	Light Green	Light Green
Tonga Sth	Light Green	Light Green	Light Green
Tuvalu Nth	Dark Red	Orange	Orange
Tuvalu Sth	Grey		Light Green
Vanuatu Nth	Dark Blue	Light Green	Light Green
Vanuatu Sth	Dark Blue	Light Green	Light Green

	41-50%	51-60%	61-70%	71-80%	81-90%	>90%
Below normal	Yellow	Orange	Dark Orange	Red-Orange	Dark Red	Dark Red
Near-normal	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey	Light Grey
Above normal	Light Green	Light Green	Light Green	Light Blue	Dark Blue	Dark Blue

# Climate Model Summary for October to February 2021

Issued 14 September 2020 Next issue 12 October 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

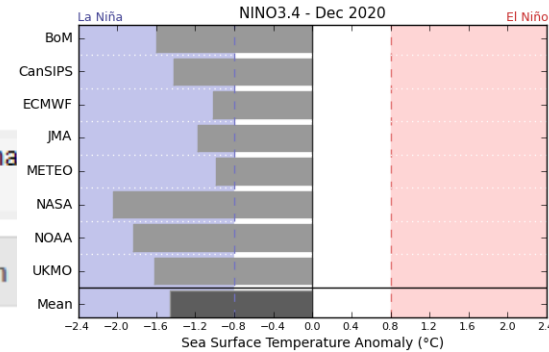
Pacific Ocean

Indian Ocean

Bureau model

Models

Related information



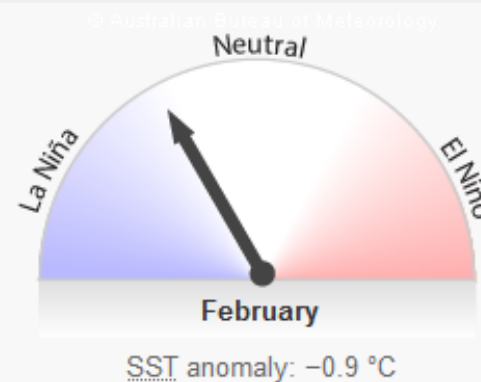
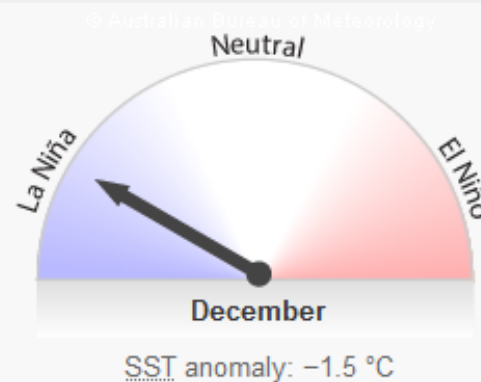
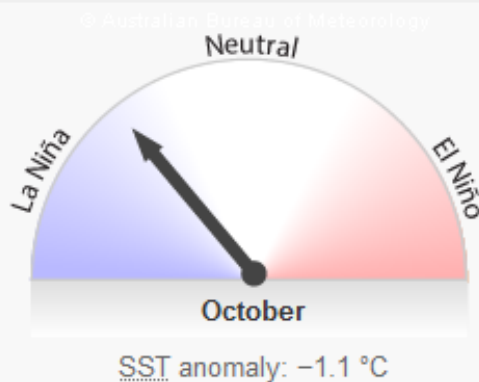
## La Niña increasingly likely for remainder of 2020

The El Niño–Southern Oscillation (ENSO) is moving closer to La Niña. The Bureau's La Niña ALERT remains in place, as the tropical Pacific Ocean continues to cool towards values consistent with La Niña. All models now anticipate La Niña thresholds to be exceeded from October, and sustained until the end of 2020, with most extending these values into early 2021. La Niña events typically enhance spring rainfall in northern, central and eastern Australia.

The Indian Ocean Dipole (IOD) is currently neutral. Five of the six surveyed models indicate IOD index values consistent with a negative IOD could develop in October, with three models maintaining these values into November. However, it is unclear at this stage whether the negative values will be sustained for long enough to be considered a negative IOD event. A negative IOD typically brings above average spring rainfall to parts of southern and central Australia.

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

## Average of international model outlooks for NINO3.4



# Climate Model Summary

