



# Vanuatu Ocean Outlook

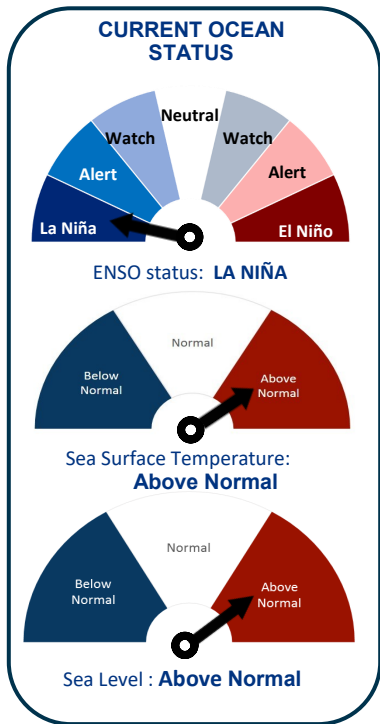
## Vanuatu Meteorology & Geo-Hazards Department



Issue 17

October 2020

### Ocean Summary:



- **LA NIÑA** has fully established in the region. La Niña conditions generally result in above average rainfall over much of Vanuatu. This La Niña event is likely to continue into at least the first quarter of 2021. All ENSO indicators generally remain within La Niña levels except the Southern Oscillation Index (SOI). SOI has moved back into neutral values, most likely due to passing of an MJO event. The SOI is expected to return to La Niña levels in the coming weeks.
- This La Niña event is likely to peak in December, and could possibly reach levels similar to the 2010-12 La Niña. However, it is likely to be short-lived. With the upcoming cyclone season which officially runs from 1<sup>st</sup> November 2020 to 30<sup>th</sup> April 2021, Vanuatu should expect 2–4 Tropical Cyclones over its area of responsibility. VMGD wishes to advise the general public to remain vigilant and well prepared at all times for any tropical cyclones and La Niña impacts that would follow.
- **Luganville Harbour:** Lowest Tide: 0.24m on 19<sup>th</sup> October. at 12:09 am. Highest tide: 1.89m on 17<sup>th</sup> October at 04:59 pm.
- **Port Vila Harbour:** Lowest Tide: 0.23m on 20<sup>th</sup> October. at 01:50 am. Highest tide: 1.63m on 19<sup>th</sup> October at 05:55 pm.

### Sea Surface Temperatures (SST) Outlook: November 2020 to January 2021

Sea surface temperatures have been significantly above normal over the northern region in September. Up to 1.5°C above average SST was observed over Santo, and the Malampa Province. SSTs are expected to remain above normal for the Nov. 2020 to Jan 2021 period.

**Application:** Different species of fish are sometimes known to be found at

Common name	Species	All occurrences (°C)	Abundant occurrences (°C)
Skipjack	Katsuwonus pelamis	17-30	20-29
Yellowfin	Thunnus albacares	18-31	20-30
Bigeye	T.obesus	11-29	13-27
Albacore	T. alalunga	13-25	15-21
Southern	Bluefin T.maccoyii	10.5-21	17-20

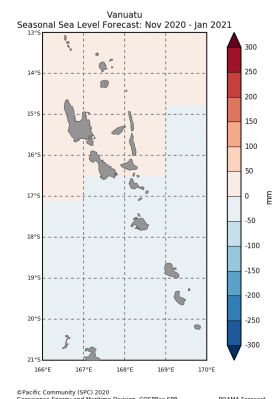
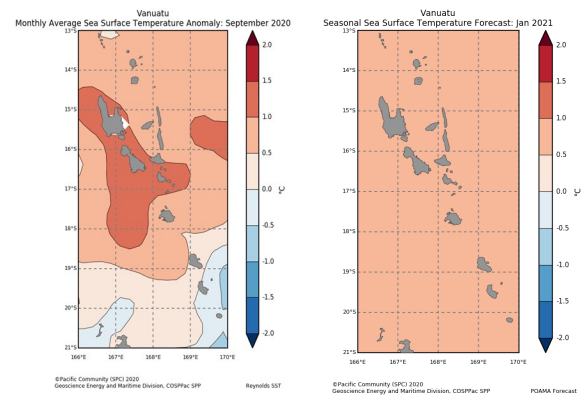
certain temperatures.

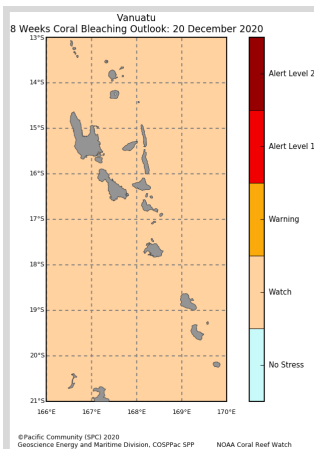
### Sea Level (SL) Outlook: November 2020 to January 2021

Sea Level is likely to be slightly above normal over the northern region, and slightly below normal over the southern region.

#### Application

- High tides at higher sea level could cause inundation of waves overland (seas-flooding) during bad weather / windy conditions causing rough seas.
- Low tides at lower sea level could reduce sea level over wharfs and docks, and could also expose coral reefs further during low tides.



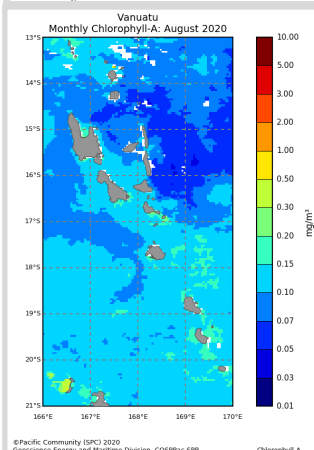


## Coral Reef Outlook: December 2020

Coral Bleaching level is expected to increase from No Stress to WATCH within the next 8 weeks until 20 December 2020. This means *low level thermal stress* is expected over Vanuatu waters during this time.

### Application

- Coral reef provide food for fishes and shells. When there is coral bleaching, the coral can die and the whole food chain is affected.
- Limiting fishing in the region can increase fish populations, which in turn maximizes the consumption of plant growth and limits their impact on the corals. (Marshall and Schuttenberg, 2006).

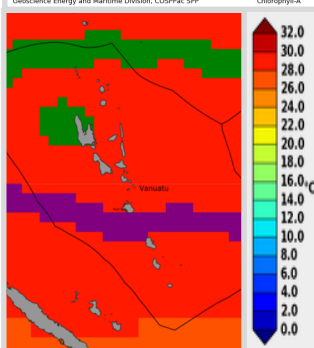


## Monthly Chlorophyll

Chlorophyll concentration have decreased over Vanuatu since July 2020. Up to 0.15 mg/m<sup>3</sup> of chlorophyll (*blue colour*) dominated most of the islands, with much less concentration evident over the Torba and Penama group.

### Application

- Fishermen targeting smaller pelagic (open sea) fish may be interested in the chlorophyll concentration.
- Filter feeders (i.e. oysters, mussels, clams, scallops) thrive in high chlorophyll concentrations.
- Crown of thorns spawning is likely to be more successful under high chlorophyll concentrations.



## The Convergence Zone Outlook: November 2020—January 2021

The *green line* is the average position of the *Warm pool –cold tongue Convergence zone*.

The *purple line* is the edge of the *Warm pool –cold tongue Convergence zone*.

Forecast shows this Convergence Zone will shift south, crossing Vanuatu waters in January 2021.

### Application:

Along the eastern edge of Warm pool-cold tongue Convergence zone is rich with nutrient which support high abundance of tuna.

## Top Highest and Lowest Tides for October 2020 to December 2020: Luganville & Port Vila Harbour

Luganville Harbour						Port Vila Harbour					
Lowest Tide	Date	Time (VUT)	Highest Tide	Date	Time (VUT)	Lowest Tide	Date	Time (VUT)	Highest Tide	Date	Time (VUT)
0.24m	19 Oct	12:09 am	1.89m	17 Oct	04:59 am	0.23m	20 Oct	01:50 am	1.63m	17 Oct	05:55 pm
0.16m	16 Nov	11:58 pm	1.94m	15 Nov	04:30 am	0.14m	17 Nov	12:46 am	1.66m	15 Nov	05:20 pm
0.12m	15 Dec	11:48 pm	1.92m	14 Dec	04:13 pm	0.12m	16 Dec	12:35 am	1.63m	14 Dec	04:56 pm

## Moon Phases for October 2020 to December 2020

New Moon ●	First Quarter ◐	Full Moon ○	Last Quarter ◑
		2nd October	10th October
17th October	24th October	1st November	9th November
15th November	22nd November	30th November	8th December
15 December	22 December	30th December	