

January Ocean Summary:

- The El Niño–Southern Oscillation (ENSO) is neutral.
- The Southern Oscillation Index (SOI) value for January 2020 was +8.
- Sea Surface temperatures over Vanuatu was normal in January.
- Trade winds were close to average across the tropical Pacific.
- Luganville Harbour : *Lowest Tide: 0.17m on 13th Jan. at 00:33am. Highest tide: 1.82m on 12th Jan. at 05:40pm.*
- Port Vila Harbour : *Lowest Tide: 0.18m on 12th Jan. at 00:42am. Highest tide: 1.55m on 11th Jan. at 05:44pm.*

Ocean Outlook (March 2020 to May 2020)

- Normal sea surface temperatures are expected over Vanuatu for the next three months. Normal sea surface temperature anomaly ranges from -0.5°C to $+0.5^{\circ}\text{C}$.
- Normal sea level are expected over Vanuatu for the next three months. Normal sea level anomaly ranges from -50 mm to $+50$ mm.

Sea Surface Temperatures

SSTs over Vanuatu in January was normal. Temperatures observed over the northern islands was 29.0°C – 30.0°C , and 28.0°C to 29.0°C was observed over the central islands, while the southern islands experienced 27.0°C – 28.0°C . Normal SSTs are forecasted for March 2020.

Application:

Different species of fish are sometimes know to be found at certain temperatures.

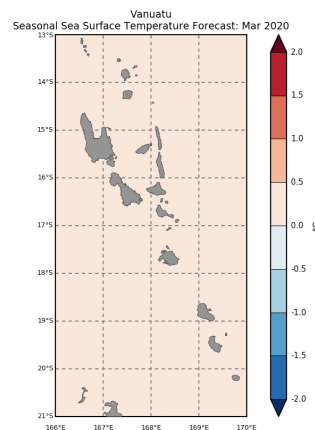
Common name	Species	All occurrences (C)	Abundant occurrences (C)
Skipjack	Katsuwonus pelamis	17-30	20-29
Yellowfin	Thunnus albacares	18-31	20-30
Bigeye	T.obesus	11-29	13-27
Albacore	T. alalunga	13-25	15-21
Southern	Bluefin T.maccoyii	10.5-21	17-20

Sea Level

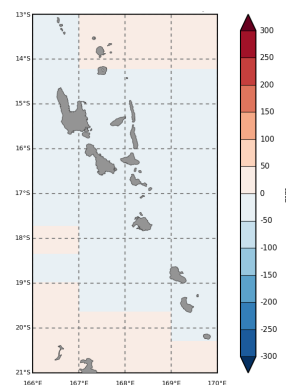
SL level was slightly higher in January. Most of the central and southern islands experienced SL of up to 150 mm above its normal height. Normal SL is forecasted for the next three months.

Application

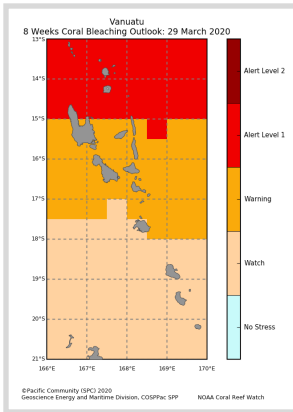
- High tides at higher sea level can cause inundation of waves overland (seas-flooding) during bad weather / windy conditions causing rough seas.



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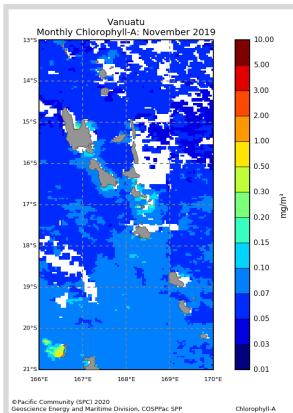


Coral Reef Watch

Coral Reef Watch is issued for Vanuatu as of February 2020. Coral Reef Outlook for March 2020 shows **Alert level 1** is in place for Torba, **Coral Bleaching Warning** is in place for Sanma, Penama, Malampa and parts of Shefa, and **Coral Bleaching Watch** is in place for Tafea.

Application

- Coral reef provide food for fishes and shells. When there is coral bleaching, the corals 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).

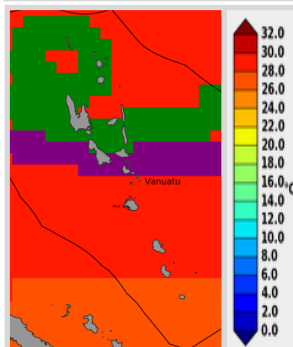


Monthly Chlorophyll

Low chlorophyll concentration (blue colour) was observed over Vanuatu waters in November 2019. Latest data for January 2020 shows a steady decline in CC in Vanuatu waters.

Application

- Fishermen targeting smaller pelagic (open sea) fish may be interested in the chlorophyll concentration.



Sea Surface Temperature With Convergence Zone

The **green** line is the average position of the *Warm pool-cold tongue Convergence zone*. For March 2020, models predict it (edge of *warm pool-cold tongues convergence zone*) (**purple line**) will shift further south from its current position, covering most of the Malampa group and parts of Shefa.

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 March 2020 to May 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)
0.08 m	9 Mar	11:07 pm	1.82 m	9 Mar	04:31 pm	0.20 m	9 Mar	11:59 pm	1.55 m	10 Mar	06:13 pm
0.15 m	6 Apr	09:59 pm	1.77 m	9 Apr	05:28 am	1.55 m	11 Mar	07:01 pm	1.55 m	12 Mar	07:41 am
0.15 m	7 Apr	10:38 pm	1.79 m	7 May	04:19 am	0.25 m	10 Apr	01:31 pm	1.57 m	9 Apr	06:24 am
0.12 m	8 May	11:34 am	1.79 m	8 May	04:59 am	1.55 m	7 May	05:09 am	1.55 m	8 May	05:49 am

Moon Phases for March 2020 to May 2020

New Moon ●	First Quarter ◐	Full Moon ○	Last Quarter ◑
	3rd March	10th March	16th March
24th March	1st April	8th April	15th April
23rd April	1st May	7th May	15th May
23rd May	30th May		