

Vanuatu Ocean Outlook

Vanuatu Meteorology & Geo-Hazards Department

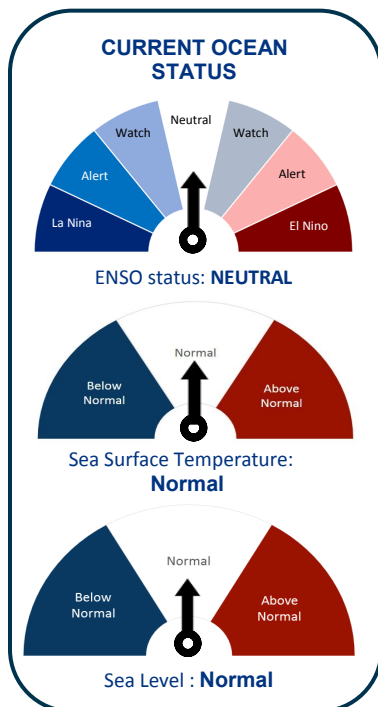


Photo: Albert W.

April 2020

Issue 11

Ocean Summary:



- The El Niño–Southern Oscillation (ENSO) remains neutral.
 - The Southern Oscillation Index (SOI) value for the 30 days ending 12th April was -7.0 . The 90 day value was -2.8 . Both values remain within the ENSO neutral range.
 - March began with above average Sea Surface Temperatures (SST) over Vanuatu. Temperatures reached 30°C – 31°C over the northern islands and parts of the central islands. On the 14th, Tropical Cyclone Gretel formed west of Vanuatu and intensified into a Category 2 cyclone before moving over New Caledonia. The system caused SSTs to drop back to normal on the 17th, and remained so until the end of the month.
 - Trade winds for the 5 days ending 12 April were close to average, consistent with neutral ENSO conditions. During El Niño events, trade winds tend to strengthen. And during La Niña events, trade winds tend to weaken or even reverse.
 - Luganville Harbour : *Lowest Tide: 0.15m on 6th Apr. at 09:59pm, and 0.15m on 7th Apr at 10:38pm. Highest tide: 1.77m on 9th Apr. at 05:28 pm.*
 - Port Vila Harbour : *Lowest Tide: 0.25m on 10th Apr. at 01:31pm. Highest tide: 1.57m on 9th Apr. at 06:24am.*
- Ocean Outlook (May 2020 to July 2020)**
- Sea surface temperatures for the next three months may reach 26.0°C over southern islands, to 30.0°C over the northern islands.
 - Normal sea level is forecasted for the Vanuatu group.

Sea Surface Temperatures

April SST's begun with temperatures above 29.0°C over Torba, Sanma and Penama, allowing favorable conditions for TC Harold to develop SE of Solomon Islands on the 3rd, before moving into Vanuatu's area of responsibility. SST's dropped by 1.0°C over Torba, Sanma and Penama after TC Harold passed, and remained so until 19th April. Forecast shows SST's for May 2020 may likely range from 28.0°C - 30.0°C over Torba, Sanma and Penama, and below 28.0°C elsewhere.

Application:

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

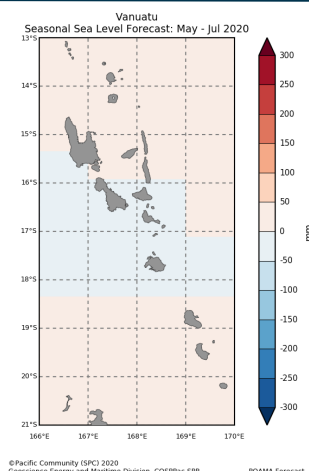
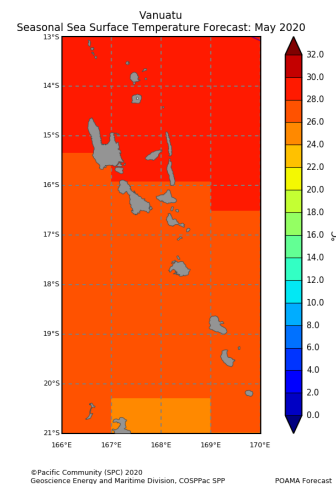
Common name	Species	All occurrences (C)	Abundant occurrences (C)
Skipjack	Katsuwonus pelamis	17-30	20-29
Yellowfin	Thunnus albacares	18-31	20-30
Bigeye	T.obesus	11-29	13-27
Albacore	T. alalunga	13-25	15-21
Southern	Bluefin T.maccoyii	10.5-21	17-20

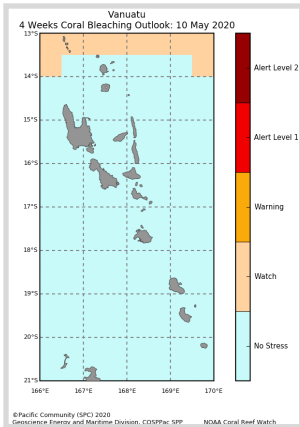
Sea Level

From the 1st—6th April, sea level was higher than its normal height over most of the islands except for the Torba group. After TC Harold passed, SL dropped back to normal. Forecast shows SL is likely to remain normal 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.



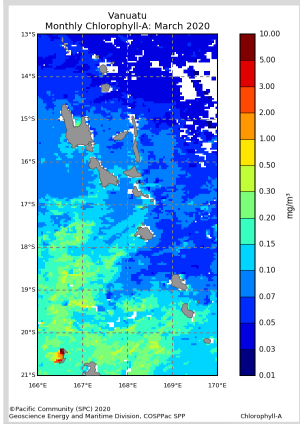


Coral Reef Watch

Alert level 1 was in place for the Torres group from the 1st–3rd April, and gradually eased to **Watch** into mid-April. Waters over Sanma, Penama, Malampa and Shefa remained at **Watch**, while No Stress was over Tafea. Forecast show chances of coral bleaching to occur in May 2020 is low, however **Watch** alert may likely remain for the Torres group into the next month.

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).

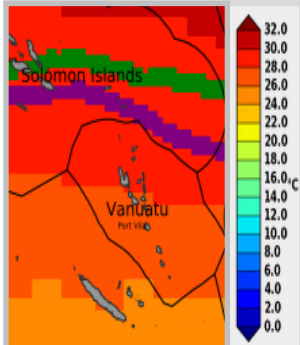


Monthly Chlorophyll

Chlorophyll concentration has been gradually increasing over Vanuatu since February 2020. In March, up to 0.50 mg/m³ of chlorophyll (green color) was evident over waters south-west of Vanuatu. As of 19th April, chlorophyll concentration has increased to 0.50 mg/m³ along western parts of Malekula and the shepherd's group.

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. The **purple line** is the edge of the Warm pool – cold tongue Convergence zone. In May 2020, this Convergence zone will likely shift north over Solomon Islands.

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 May 2020 to July 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)
0.12 m	8 May	11:34 am	1.79 m	7 May	04:19 am	0.14 m	9 May	01:31 pm	1.55 m	7 May	05:09 am
			1.79 m	8 May	04:59 am				1.55 m	8 May	05:49 am
0.11 m	6 Jun	11:24 am	1.78 m	5 Jun	03:55 am	0.10 m	6 Jun	12:12 pm	1.51 m	4 Jun	03:57 am
									1.51 m	6 Jun	05:21 am
0.14 m	5 Jul	11:15 am	1.74 m	4 Jul	03:41 am	0.11 m	5 Jul	11:59 am	1.47 m	3 Jul	03:31 am
				5 Jul	04:24 am		6 Jul	12:43 pm		4 Jul	04:16 am

Moon Phases for May 2020 to July 2020

New Moon ●	First Quarter ◐	Full Moon ○	Last Quarter ◑
	1st May	7th May	15th May
23rd May	30th May	6th June	13th June
21st June	28th June	5th July	13th July
21st July	27th July		