

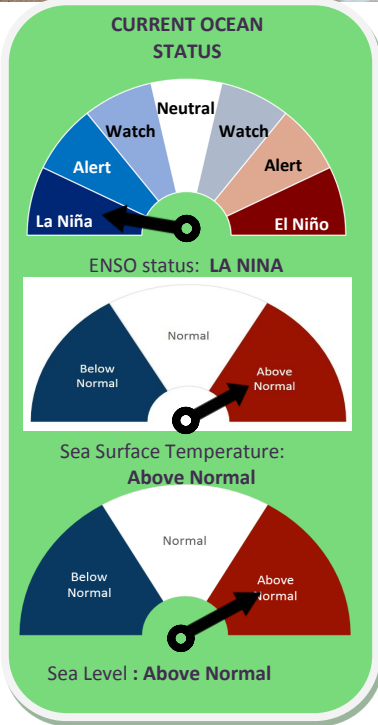
Vanuatu Ocean Outlook

Vanuatu Meteorology & Geo-Hazards Department



January

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Ocean Summary:

The ENSO Outlook continues at LA NIÑA, but La Niña is weakening. La Niña events increase the chances of above-average rainfall in Vanuatu.

The 30-day Southern Oscillation Index (SOI) for the 30 days ending 15 January 2023 was +20.9 while the 90-day SOI value was +13.1. SOI below -7 typically indicate El Niño while sustained positive values above +7 typically indicate La Niña. Values between +7 and -7 generally indicate neutral conditions.

Trade winds for the 5 days ending 15 January 2023 were stronger than average in the western and central tropical Pacific. In a La Niña, there is sustained strengthening Trade wind across much of the pacific.

For the week ending 1 January 2023, sea surface temperatures (SST) were cooler than average across the central and eastern tropical Pacific. This indicates a La Nina event.

Luganville Harbor: Lowest Tide: 0.05m on 22 January at 11:52 pm. Highest tide: 1.93m on 22 January at 05:02 pm.

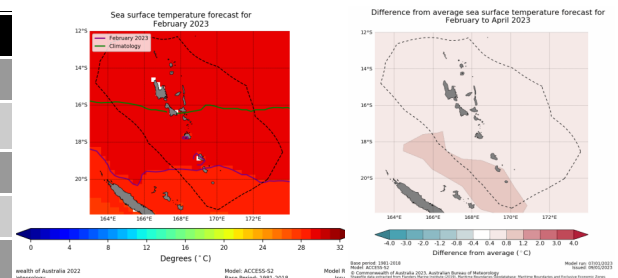
Port Vila Harbor: Lowest Tide: 0.09m on 23 January at 12:39 am. Highest tide: 1.62m on 22 January at 05:45 pm.

Sea Surface Temperatures (SST) Outlook: February (monthly) and February to April 2023 (seasonally) 2023

- The monthly average sea surface temperature anomaly for Vanuatu in February 2023 is expected to be above average for all Vanuatu regions (Northern, central and southern region).
- The seasonal sea-surface temperature forecast outlook for February to April 2023 is also expected to be above average over the whole country.

Application: Different species of fish are sometimes known to be found a certain ocean 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

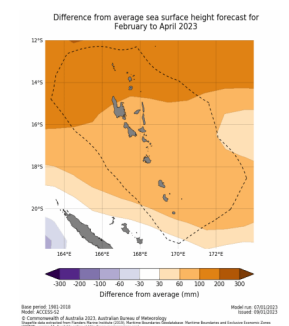


Sea Level (SL) Outlook: February to April 2023

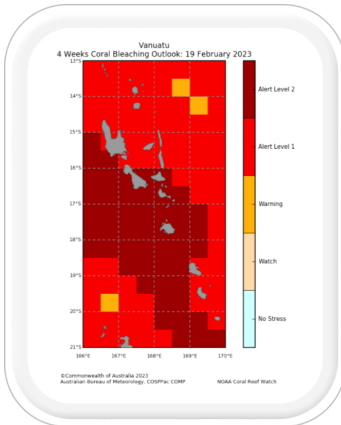
Seasonal sea level outlook forecast by climate models from February to April 2023, indicates above average, with average difference of 60-100mm sea level over most of Vanuatu ocean waters. Stronger above average anomalies are forecasted for the northern islands.

Application

- High tides at higher sea level could cause inundation of wave overland (seas-flooding), also contributing to coastal erosion. 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.



4 weeks Coral Reef Bleaching Outlook: 22 February 2023

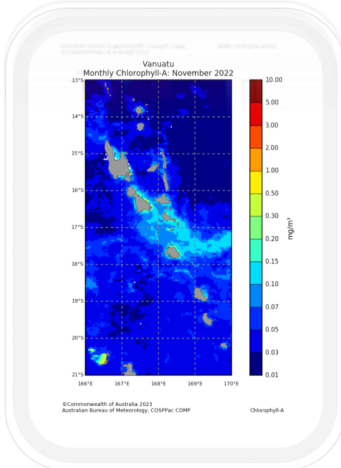


The expected coral bleaching outlook for Vanuatu in the next 4 weeks up to 19 February 2023, Shows ALERT Level 2 developed and extending throughout all of Vanuatu islands.

Application.

- Coral reef protect coastal areas by reducing waves, and also provide food for fishes and shells. When coral bleaching occur corals die, thus affecting the whole food chain and underwater ecosystem.
- 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).

Chlorophyll Concentration

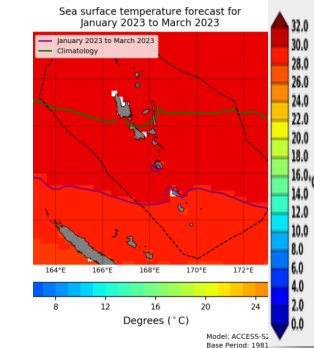


The monthly ocean Chlorophyll concentration as of November 2022 shows low concentration over Vanuatu.

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 January to March 2023



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*.

From January to March 2023, forecast shows that the edge of warm pool extended across waters of Tafea province.

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 February to April 2023: Luganville & Port Vila Harbor

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)
0.05m	20 Feb	23:30am	1.90m	20 Feb	16:51am	0.07m	21 Feb	00:19am	1.59m	20 Feb	17:39pm
0.12m	20 Maj	22:24am	1.78m	21 Maj	16:37pm	0.23m	20 Maj	23:11am	1:53m	23 Maj	06:47pm
0.24m	17 Apr	21:16am	1.71m	20 Apr	04:37pm	0.26m	22 Apr	13:23am	1.50m	20 Apr	05:32pm

Moon Phases for February to April 2023

New Moon	First Quarter	Full Moon	Last Quarter
20 February	27 February	6 February	20 February
22 March	29 March	7 March	22 March
20 April	28 April	6 April	20 April