



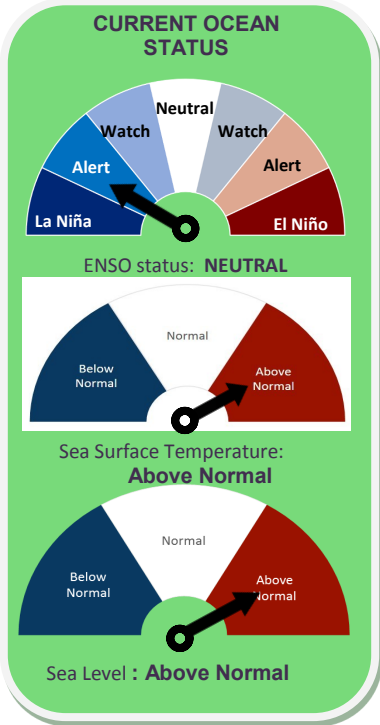
Vanuatu Ocean Outlook

Vanuatu Meteorology & Geo-Hazards Department



October 2021

Issue 29



Ocean Summary:

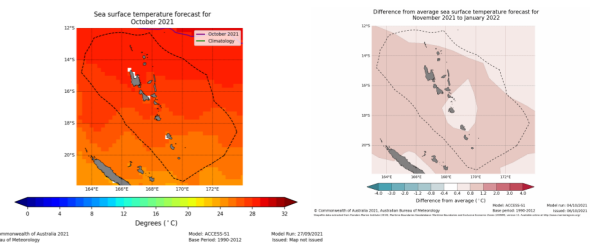
- The ENSO outlook has been raised to La-Niña ALERT, this is due to cooling in the tropical Pacific ocean. When La Niña ALERT criteria have been met, La Niña has subsequently developed around 70% of the time, thus increasing chances of above normal rainfall over Vanuatu regions.
- The Southern Oscillation Index (SOI) for the 30 days ending 10 October 2021 was +9.4 and the 90-day SOI value was +8.8. Sustained negative values of the 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 10 October 2021 were slightly stronger than average across western and tropical Pacific, and close to average in the east.
- Sea surface temperature for the tropical Pacific ocean for the week ending 10 October were cooler than average along much of central and eastern equatorial Pacific ocean.
- Loganville Harbor:** Lowest Tide: 0.30m on 6th October. at 10:30am. Highest tide: 1.81m on 7th October at 17:18pm.
- Port Vila Harbor:** Lowest Tide: 0.29m on 10th October. at 02:00am. Highest tide: 1.58m on 8th October at 18:50pm.

Sea Surface Temperatures (SST) Outlook: October (monthly) and November to January (season) 2022

- The monthly average sea surface temperature anomaly for October was above average over all regions of Vanuatu. 27-29°C up northern region and 24-26°C from central to southern region.
- The difference from average of SSTs outlook forecasted for November to January, indicates above average difference of 0.8-1.2°C for the whole Vanuatu regions (24-29°C).

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

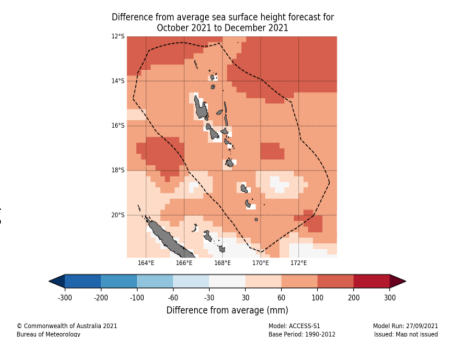


Sea Level (SL) Outlook: October 2021 to December 2021

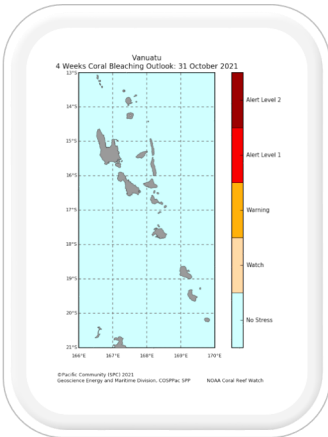
Sea level outlook forecast for October to December shows above average for the offshore saltwater of all Vanuatu regions. The sea level outlook forecast for the coastal waters of Sanma, Malampa, Shefa and Tafea provinces varies from normal to above average with a difference of 0.03mm.

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.



Coral Reef Outlook: 31 October 2021

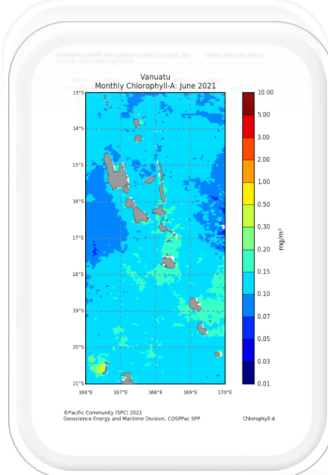


The 4 weeks Coral bleaching outlook until 31 October shows No stress (no coral bleaching) level on coral reefs over all regions of Vanuatu, northern, Central and south.

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).

Monthly Chlorophyll for June 2021

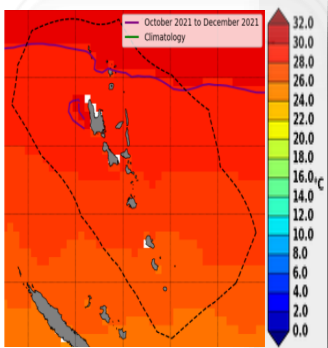


The Vanuatu ocean chlorophyll concentrations has decrease compare to the past months . Monthly chlorophyll for June shows 0.10mg/m³ (light blue) chlorophyll concentration's over most of Vanuatu ocean waters. Chlorophyll Concentrations of 0.15mg/m³ (light green) can be seen in around off-shore waters of south Malekula, Ambrym, Epi, Efate and Tafea province islands.

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.

The Convergence Zone Outlook: October 2021 — December 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 be crossing the banks and Torres group in the northern regions of Vanuatu from October to December 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 to December 2021: Luganville & Port Vila Harbor

| Luganville Harbour | | | | | |
|--------------------|-------|------------|---------|-------|------------|
| Lowest | Date | Time (VUT) | Highest | Date | Time (VUT) |
| 0.30m | 6 oct | 10:30am | 1.81m | 7 Oct | 17:18pm |
| 0.19m | 7 Nov | 00:08am | 1.91m | 5 Nov | 16:44pm |
| 0.11m | 6 Dec | 00:00am | 1.94m | 4 Dec | 16:22pm |

| Port Vila Harbour | | | | | |
|-------------------|---------|------------|--------------|-------|------------|
| Lowest Tide | Date | Time (VUT) | Highest Tide | Date | Time (VUT) |
| 0.29m | 10 Oct. | 02:02am | 1.58m | 8 Oct | 18:50pm |
| 0.16m | 7 Nov | 00:59am | 1.63m | 5 Nov | 17:36pm |
| 0.09m | 6 Dec | 00:47am | 1.65m | 4 Dec | 17:08pm |

Moon Phases for October to December 2021

| New Moon | First Quarter | Full Moon | Last Quarter |
|------------|---------------|-------------|--------------|
| 6 October | 13 October | 21 October | 29 October |
| 5 November | 11 November | 19 November | 27 November |
| 4 December | 11 December | 19 December | 27 December |