



# Tonga Ocean Outlook

## October to December 2022

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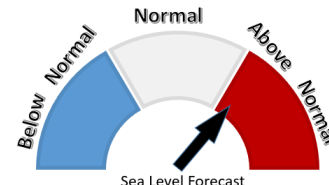
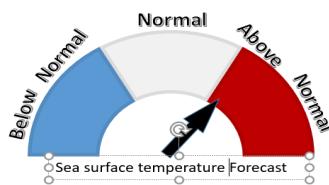
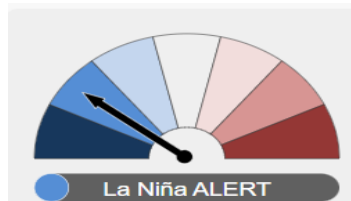
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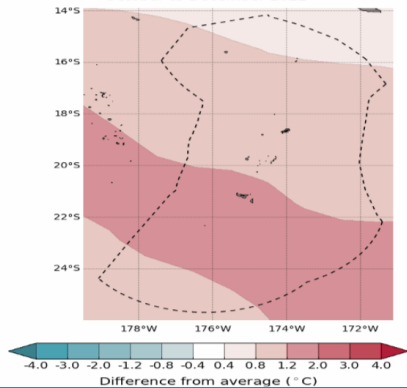
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- Above normal sea surface temperatures (SSTs) forecast to be more than 0.8°C for Tonga.
- Notably higher than normal sea level (>100 mm) is forecast for central Tonga during the forecast period.
- The fisheries convergence zone is predicted to be far off from Tonga in the next few months.
- Next extreme highest and lowest tides will be on 28<sup>th</sup> October at height of 1.72m, lowest tide will be 0.3m on the 29<sup>th</sup> October 2022.



### Sea Surface Temperature Forecast

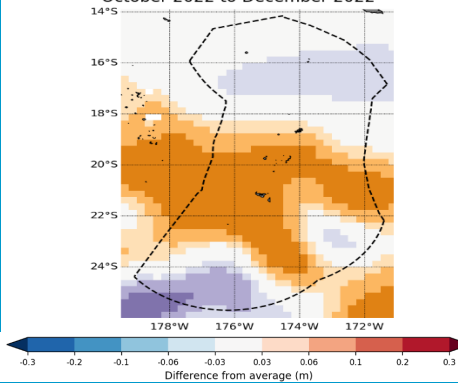
Difference from average sea surface temperature forecast for October to December 2022



Sea surface temperature forecast for October to December 2022 shows above average across the country. Presence of warmer or cooler waters than usual is useful because it indicates whether El Nino or La Nina like pattern is likely during the forecast period or monitoring warm patches of warm waters which gives insight into the potential for cyclone formation.

### Sea-level Forecast

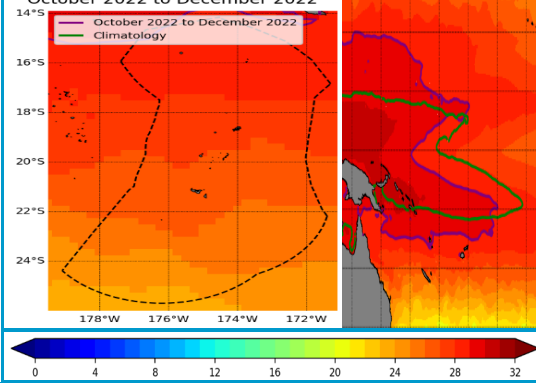
Difference from average sea surface height forecast for October 2022 to December 2022



Sea level anomaly 3 month forecast shows above average sea level height from south of Tonga waters to Vava'u waters. Stakeholders can use this forecasts to make decisions about the protection of communities and infrastructure against coastal inundation.

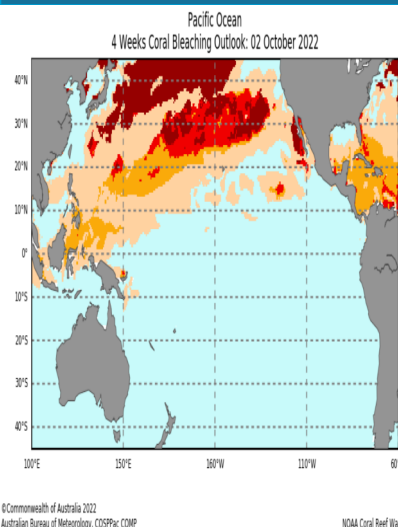
### Nutrient Zone Forecast

Sea surface temperature forecast for October 2022 to December 2022



The boundary between warm and cold ocean water is rich in nutrients and attracts Tuna. This convergence zone is normally located far from Tonga during this time of year. This information can be used by stakeholders to know where tuna can be found during this time period.

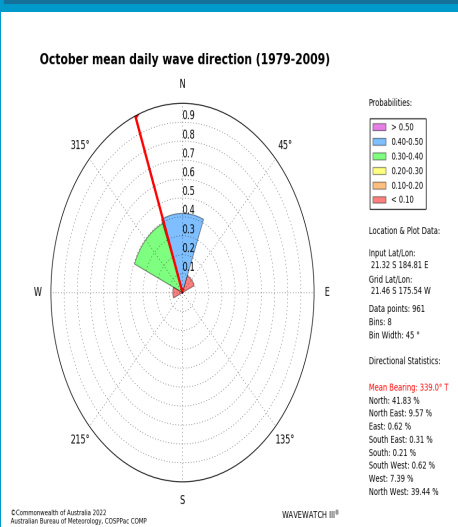
### Coral Bleaching



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Australian Bureau of Meteorology, CCSRPac/CCMP

NOAA Coral Reef Watch

### Monthly Wave Direction



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### The highest tide predicted for 2022

10 highest tides for 2022			10 lowest tides for 2022		
Date	Time	Height (m)	Date	Time	Height (m)
3-Jan	19:48	1.88	15-Jul	14:45	0.17
4-Jan	20:45	1.88	16-Jul	15:37	0.19
2-Jan	18:52	1.86	14-Jul	13:51	0.19
1-Feb	19:34	1.86	16-Jun	15:00	0.19
25-Dec	20:59	1.86	17-Jun	15:56	0.2
2-Feb	20:30	1.86	13-Aug	14:26	0.2
24-Dec	20:03	1.85	12-Aug	13:34	0.21
5-Jan	21:41	1.85	15-Jun	14:07	0.22
26-Dec	21:55	1.84	14-Aug	15:16	0.23
31-Jan	18:37	1.84	17-Jul	16:30	0.24

Coral bleaching status for Tonga is under no thermal stress during this time period. Bleaching is a common stress response of corals, caused by warmer sea temperatures. During periods of unusually high sea temperatures, corals can bleach and may eventually die if the heat stress is intense and sustained over several weeks. This information is very useful for tourists and related stakeholders.

Nuku'alofa wave climate for the month of October shows majority of the waves to come from the south east going toward the northwest direction. This has been the average direction for the past 30 years. The average wave height for this location in October is 2.4 m with the possibility of waves reaching as high as 4.1m.

2021 Tidal predictions show the highest tides of the year for Nuku'alofa. The next highest and lowest tide coming up on the 28<sup>th</sup> October with a height of 1.72m. and 0.3m. This information is very useful to everyone who wants to know these events especially to those stakeholders and people who are interested in tide predictions for guidance.