



# Tonga Ocean Outlook

## March - May 2025

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**TONGA METEOROLOGICAL SERVICE**

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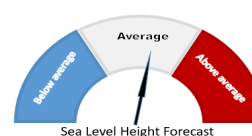
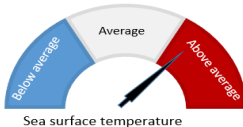
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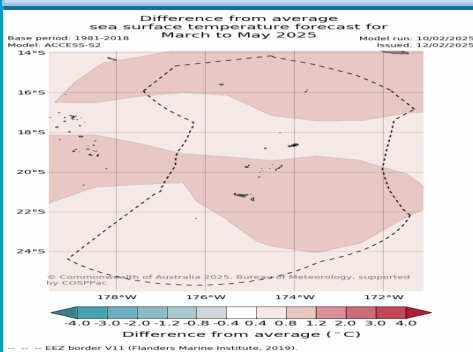
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- La Niña conditions have developed over the last month. The Southern Oscillation Index (SOI) was on the La Niña side of neutral (+0.4) from November-January.
- Tropical Pacific Ocean sea surface temperatures (SSTs) exceeded La Niña thresholds during January.
- Sea surface temperature outlook is predicted to be 29°C.
- Sea level is forecast to be above average across Tonga waters during the forecast period.
- The fisheries convergence zone is predicted to be between the Niuas and Vava'u waters in the next few months.

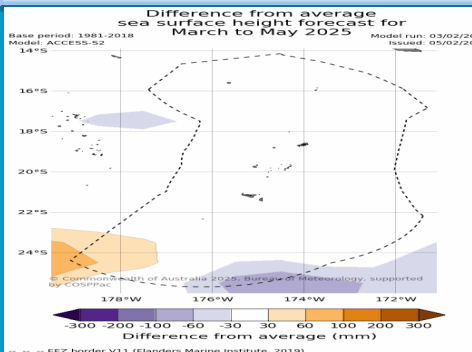


### Sea Surface Temperature Forecast



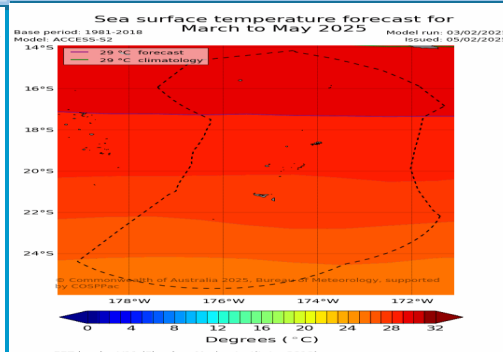
Sea surface temperature forecast for March to May 2025 shows 0.4 to 1.2°C above average for most of Tonga. Presence of warmer or cooler waters than usual is useful because it indicates whether El Nino or La Nina like pattern is likely during the forecast period.

### Sea-level Forecast



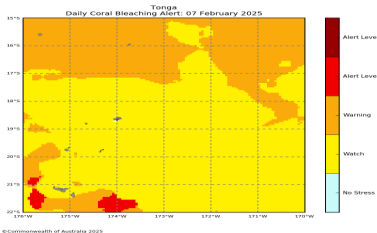
Sea level forecast shows mostly average sea level height Tonga waters. Stakeholders can use this forecast to make decisions about the protection of communities and infrastructure against coastal inundation.

### Nutrient Zone Forecast



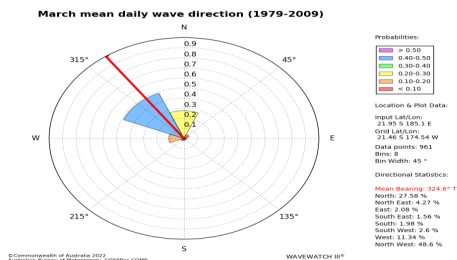
The boundary between warm and cold ocean water is rich in nutrients and attracts Tuna. This convergence zone is normally located to the far north of the Niuas waters but in February to April 2025, it is forecast to be displaced south and between the Niuas and Vava'u waters. This information can be used by stakeholders to know where tuna can be found during this time period.

### Coral Bleaching



Coral bleaching is at the watch level from Tongatapu across Vava'u waters and at warning level over the Niuas waters. So please keep a watch out for coral bleaching during the forecast period. Coral 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.

### Monthly Wave direction



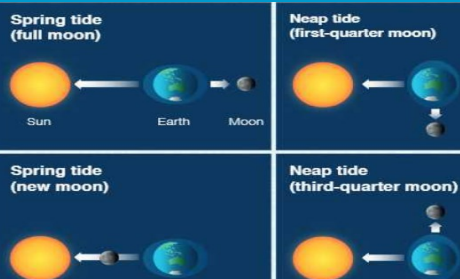
Nuku'alofa wave climate for March shows majority of the waves to come from the southeast going toward the north west direction. This has been the average direction for the past 30 years. The average wave height for this location in March is 2.3 m with the possibility of waves reaching as high as 5.4m.

### The highest & Lowest tides predicted for 2025

10 highest tides for 2025			10 lowest tides for 2025		
Date	Time	Height (m)	Date	Time	Height (m)
06-Dec	20:23	1.88	28-May	14:25	0.23
31-Mar	8:42	1.88	08-Nov	3:09	0.24
05-Dec	19:28	1.88	29-May	15:19	0.24
01-Apr	9:32	1.88	26-Jun	14:10	0.25
29-Apr	8:17	1.87	07-Dec	2:53	0.25
07-Nov	20:41	1.86	09-Nov	4:03	0.25
06-Nov	19:48	1.86	27-Jun	15:01	0.26
30-Apr	9:10	1.86	07-Nov	2:15	0.26
28-Apr	7:26	1.86	27-May	13:31	0.26
07-Dec	21:19	1.85	30-Apr	15:36	0.26

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> February with the highest tide of 1.8m and again on the 31<sup>st</sup> of March with a highest tide of 1.88m. The next lowest tide on the 31<sup>st</sup> March at 0.34m. 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. Process of watering and soaking of the beach hibiscus fibre (fau) for making waist mats etc.

### Spring and Neap Tides



Spring and neap tides occur every month and correspond with the phase of the moon. They usually occur twice per month. **Spring tides** are very high tides that occur during full and new moon phases, when the gravitational forces of the sun and moon combine to exert a stronger pull on the oceans. **Neap tides** are lower high tides and higher low tides that occur during the moon's quarter phases, when the gravitational forces between the sun and moon are not aligned.

### Moon Phases for February to April 2025

13 Feb (Full moon)	☉	21 Feb (last quarter)	☾
28 Feb (New moon)	☾	7 Mar (First quarter)	☉
14 Mar (Full moon)	☉	23 Mar (Last quarter)	☾
30 Mar (New moon)	☾	5 April (First quarter moon)	☉
13 April (Full moon)	☉	21 April (Last quarter moon)	☾