



Tonga Ocean Outlook

August to October 2024

Issue: 6

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TONGA METEOROLOGICAL SERVICE

P. O. Box 1380,

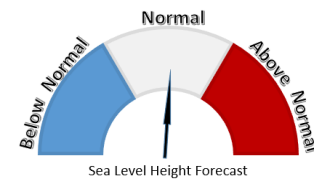
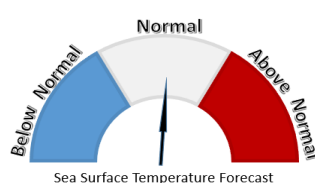
Domestic Terminal, Fua'amotu Airport, Tonga

Phone: (676) 7400062

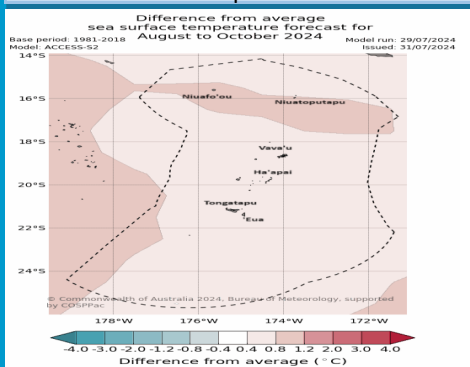
Website: www.met.gov.to

Email: metstaff@met.gov.to

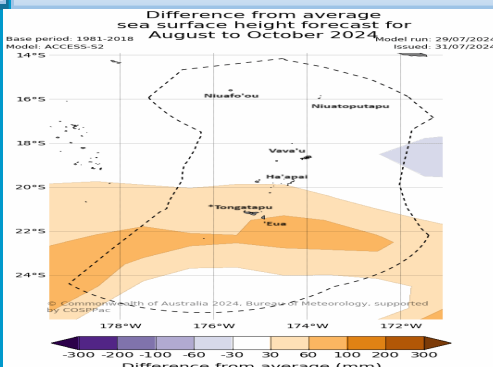
- There are some early signs that a La Niña might form in the Pacific Ocean later in 2024.
- Sea surface temperatures (SSTs) forecast for Tonga is around 0.4 to 1.2°C above average.
- Sea level is forecast for above average over part of central to southern Tonga waters during the forecast period.
- The fisheries convergence zone is predicted to north of the Niuaus waters in the next few months.



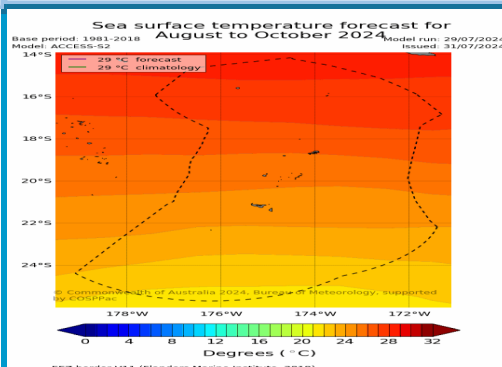
Sea Surface Temperature Forecast



Sea-level Forecast



Nutrient Zone Forecast

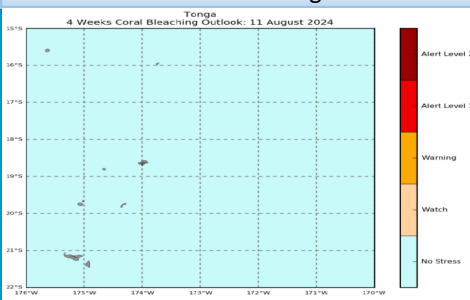


Sea surface temperature forecast for August to October 2024 shows 0.4 to 1.2°C above average for Tonga. Presence of warmer or cooler waters than usual is useful because it indicates whether El Niño or La Niña like pattern is likely during the forecast period.

Sea level forecast shows 30-100mm above average sea level height over southern Tonga waters, average across central to northern Tonga waters. Stakeholders can use this forecast to make decisions about the protection of communities and infrastructure against coastal inundation.

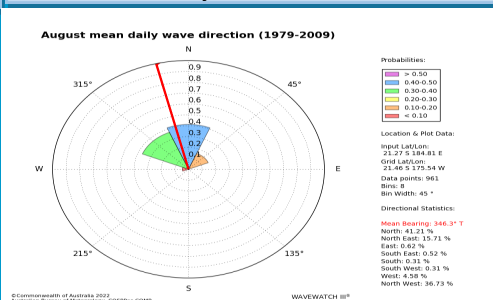
The boundary between warm and cold ocean water is rich in nutrients and attracts tuna. This convergence zone is normally located to the far north of Samoa waters but in August to October, it is displaced a bit south and north of Niuafo'ou. This information can be used by stakeholders to know where tuna can be found during this time period.

Coral Bleaching



Coral bleaching is at the No Stress level across Tonga waters. 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 August shows majority of the waves to come from the southern going toward the northern direction. This has been the average direction for the past 30 years. The average wave height for this location in August is 2.5 m with the possibility of waves reaching as high as 4.4m.

The highest & Lowest tides predicted for 2024

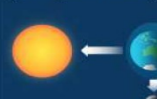
10 highest tides for 2024			10 lowest tides for 2024		
Date	Time	Height (m)	Date	Time	Height (m)
11-Feb	20:41	1.88	20-Oct	3:14	0.24
13-Mar	9:45	1.88	19-Oct	2:20	0.25
12-Mar	8:54	1.88	18-Nov	2:55	0.26
12-Feb	21:34	1.87	21-Oct	4:07	0.26
10-Apr	8:28	1.87	21-Aug	14:34	0.26
11-Mar	20:22	1.87	17-Nov	2:03	0.26
10-Feb	19:47	1.86	21-Sep	3:32	0.27
10-Mar	19:29	1.85	22-Aug	15:22	0.27
18-Oct	19:59	1.85	22-Sep	4:27	0.28
09-Apr	7:37	1.85	19-Nov	3:47	0.28

Tidal predictions show the highest tides of the year for Nuku'alofa. The next lowest and highest tide coming up on the 21st August with the lowest tide of 0.26m and highest tide of 1.77m on the 22nd. 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.

Spring tide (full moon)



Neap tide (first-quarter moon)



Spring tide (new moon)



Neap tide (third-quarter moon)



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 August to September 2024

5 Aug (new moon)	13 Aug (first quarter)
20 Aug (full moon)	26 Aug (last quarter)
3 Sep (new moon)	11 Sep (first quarter)
18 Sep (full moon)	25 Sep (last quarter)
3 Oct (new moon)	11 Oct (first quarter)
18 Oct (full moon)	24 Oct (last quarter)