



Tonga Ocean Outlook

September - November 2023

Issue: 9

Issued 1 September 2023

TONGA METEOROLOGICAL SERVICE

P. O. Box 1380,

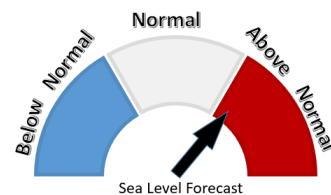
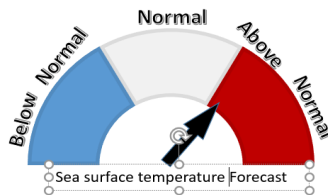
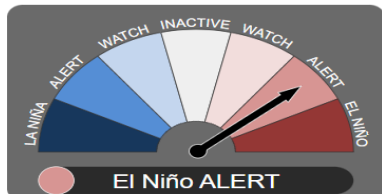
Domestic Terminal, Fua'amotu Airport,
Tonga

Phone: (676) 740062

Website: www.met.gov.to

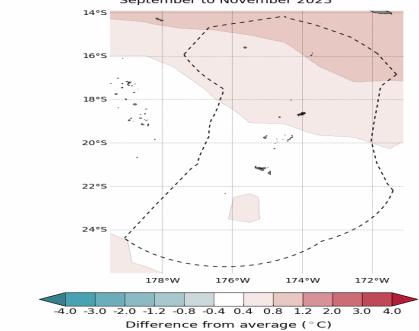
Email: metstaff@met.gov.to

- Above normal sea surface temperatures (SSTs) forecast to be more than 0.4 – 1.2°C for Tonga.
- Notably higher than normal sea level (30—100 mm) is forecast for southern Tonga during the forecast period.
- The fisheries convergence zone is predicted to be north of Tonga waters in the next few months.
- Next extreme lowest and highest tides will be on 5th of July at height of 0.22m and highest tide will be 1.76m on the 6th of July 2023.



Sea Surface Temperature Forecast

Difference from average sea surface temperature forecast for September to November 2023

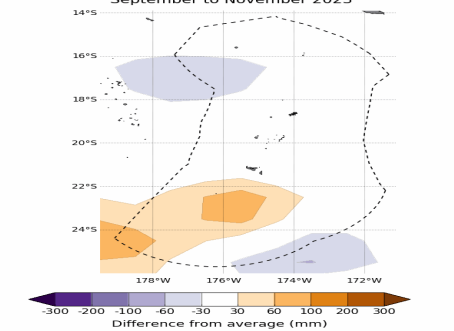


Model run: 21/08/2023
Model: ACCESS-S2
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Sea surface data extracted from SeaWiFS Marine Institute (2019). Maritime Boundaries Database: Maritime Boundaries and Exclusive Economic Zones (2002), version 11. Available online at <http://www.mpi.gov.au>

Sea surface temperature forecast for September to November 2023 shows average to 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

Difference from average sea surface height forecast for September to November 2023

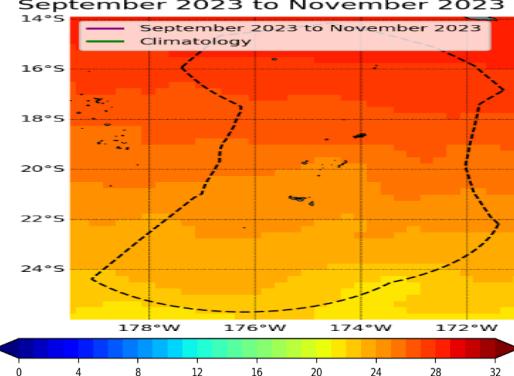


Model run: 21/08/2023
Model: ACCESS-S2
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Sea surface data extracted from SeaWiFS Marine Institute (2019). Maritime Boundaries Database: Maritime Boundaries and Exclusive Economic Zones (2002), version 11. Available online at <http://www.mpi.gov.au>

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

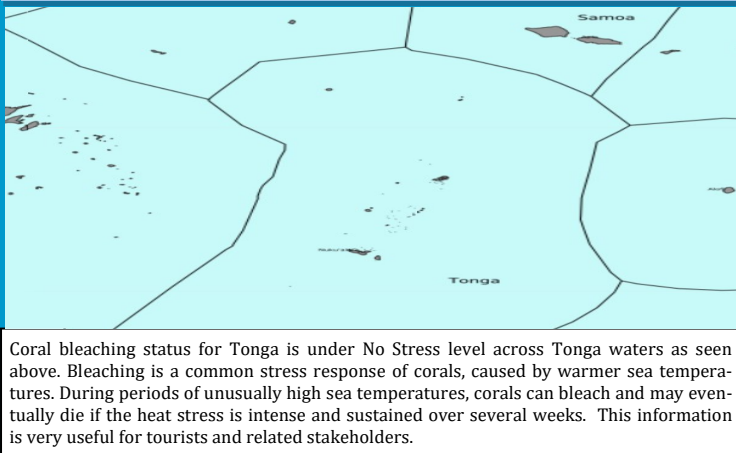
Nutrient Zone Forecast

Sea surface temperature forecast for September to November 2023



The boundary between warm and cold ocean water is rich in nutrients and attracts Tuna. This convergence zone is normally located north of 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



Coral bleaching status for Tonga is under No Stress level across Tonga waters as seen above. 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.

The highest tide predicted for 2023

10 highest tides for 2023			10 lowest tides for 2023		
Date	Time	Height (m)	Date	Time	Height (m)
23-Jan	20:44	1.9	03-Aug	14:40	0.2
22-Jan	19:47	1.89	04-Aug	15:31	0.21
21-Feb	20:27	1.88	02-Aug	13:49	0.22
24-Jan	21:39	1.88	01-Sep	14:18	0.22
20-Feb	19:31	1.88	05-Jul	15:00	0.22
22-Feb	21:21	1.86	06-Jul	15:51	0.23
21-Jan	18:50	1.85	31-Aug	13:28	0.24
19-Feb	18:34	1.84	02-Sep	15:09	0.25
25-Jan	22:34	1.83	05-Aug	16:23	0.25
23-Feb	9:55	1.83	04-Jul	14:08	0.25

2023 Tidal predictions show the highest tides of the year for Nuku'alofa. The lowest and highest tide coming up on the 29th of September with a height of 0.30m and highest tide on the 30th September with a height of 1.80m. 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.

Moon Phases for September to November 2023

Last Quarter Moon	New Moon	First Quarter Moon	Full Moon
7 September 11:21	15 September 14:39	23 September 08:31	29 September 22:57
7 October 02:47	15 October 06:55	22 October 16:29	29 October 09:24
5 November 21:36	13 November 22:27	20 November 23:49	27 November 22:16