

Pacific Islands - Ocean and Climate Outlook Forum (OCOF) No. 167

Country: Tonga

Part 1: Recent climate

TABLE 1: Monthly Rainfall

Station (include data period)	May-2021	Jun-2021	Jul-2021				
			Total (mm)	33%tile	67%tile	Median	Rank
	Total (mm)	Total (mm)	Rainfall (mm)				
Northern Division							
Niuafo'ou (1971-2021)	466.2	294.9	59.0	60.0	145.4	113.0	17/49
Niutoputapu (1947-2021)	212.3	109.2	132.9	59.7	130.7	92.0	50/75
Central Division							
Vava'u (1947-2021)	221.4	191.6	122.4	62.7	119.9	80.6	51/75
Ha'apai (1947-2021)	235.2	128.4	54.7	56.3	101.2	71.0	23/75
Southern Division							
Fua'amotu (1979-2021)	213.5	100.2	135.1	70.6	151.7	105.0	27/42
Nuku'alofa (1944-2021)	132.1	116.6	93.4	64.0	117.7	82.0	42/77

Monthly: July 2021 statement

Above normal rainfall was recorded in Niutoputapu and Vava'u. Fua'amotu and Nuku'alofa recorded normal rainfall. Below normal rainfall was received at Niuafo'ou and Ha'apai.

NB: The X LEPS % score has been categorised as follows:

Very Low: $X < 0.0$

Low: $0 \leq X < 5$

Moderate $5 \leq X < 10$

Good: $10 \leq X < 15$

High: $15 \leq X < 25$

Very High: $25 \leq X < 35$ Exceptional: $X \geq 35$

TABLE 2: Three-month Total Rainfall for May to July 2021

Station	Three-month Total		33%tile	67%tile	Median	Rank
	Rainfall (mm)					
Northern Division						
Niuafo'ou (1971-2021)	820.1	Above normal	365.2	474.4	430.5	45/47
Niuaatoputapu (1947-2021)	454.4	Above normal	322.0	421.0	364.2	48/71
Central Division						
Vava'u (1947-2021)	535.4	Above normal	304.0	406.0	365.0	59/75
Ha'apai (1947-2021)	418.3	Above normal	216.0	315.6	246.0	61/74
Southern Division						
Fua'amotu (1979-2021)	448.8	Above normal	269.7	436.7	366.0	31/42
Nuku'alofa (1944-2021)	342.1	Normal	243.0	343.3	298.0	49/77

Last three months: May to July 2021 statement:**Rainfall (Table 2):**

Above normal rainfall was recorded across the country, except normal rainfall at Nuku'alofa.

Niuafo'ou recorded their third wettest May to July period on record.

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Low: $0 \leq X < 5$

Moderate $5 \leq X < 10$

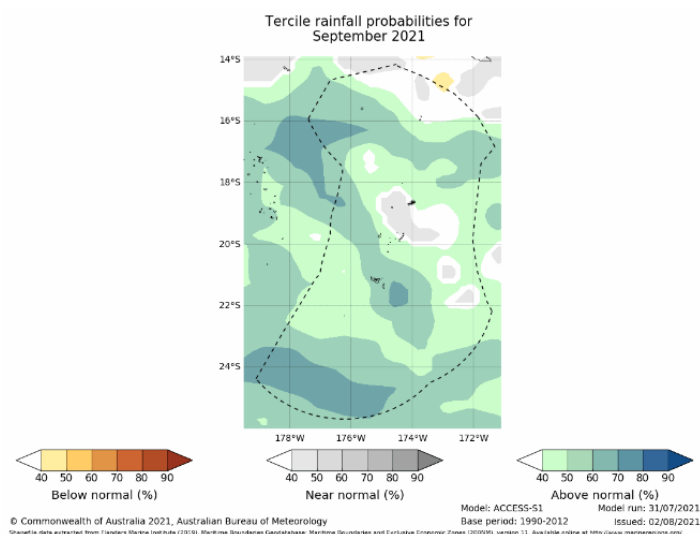
Good: $10 \leq X < 15$

High: $15 \leq X < 25$

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Part 1i. Monthly and Seasonal Outlooks for September and September to November 2021

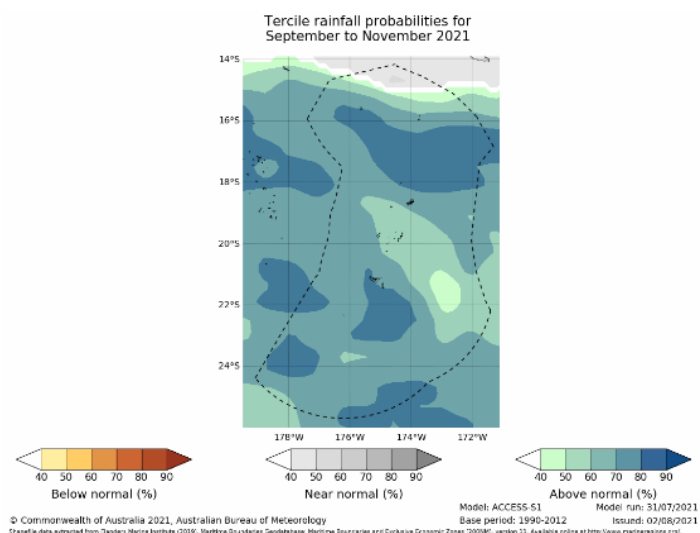
Monthly rainfall (Image 1):



Monthly rainfall Outlook statements

The outlook for Tonga for September is likely to be above normal. Above normal rainfall is likely for Niuafo'ou and Tongatapu. The outlook for Niuatoputapu for the period of September is likely to be near normal. The outlook for Vava'u and Ha'apai offers little guidance as the changes of below normal, normal and above normal rainfall are similar.

Seasonal rainfall (Image 2):



Seasonal Rainfall Outlook statements

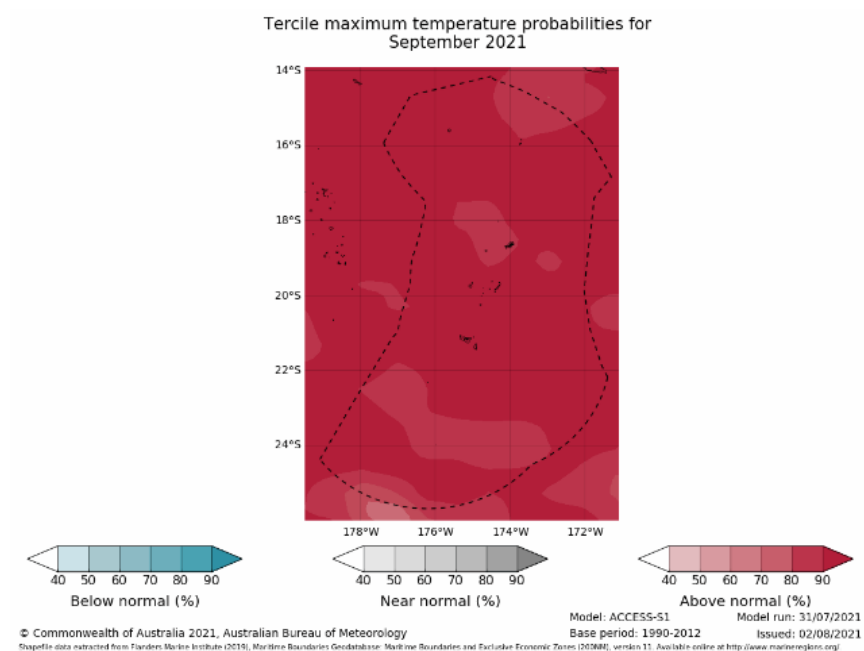
The outlook for Tonga for September to November is very likely to be above normal. The outlook for Tongatapu, Vava'u, Niuatoputapu and Niuafo'ou for the period of September to November is very likely to be above normal. The outlook for Ha'apai for the period of September to November is likely to be above normal.

NB: The X LEPS % score has been categorised as follows:

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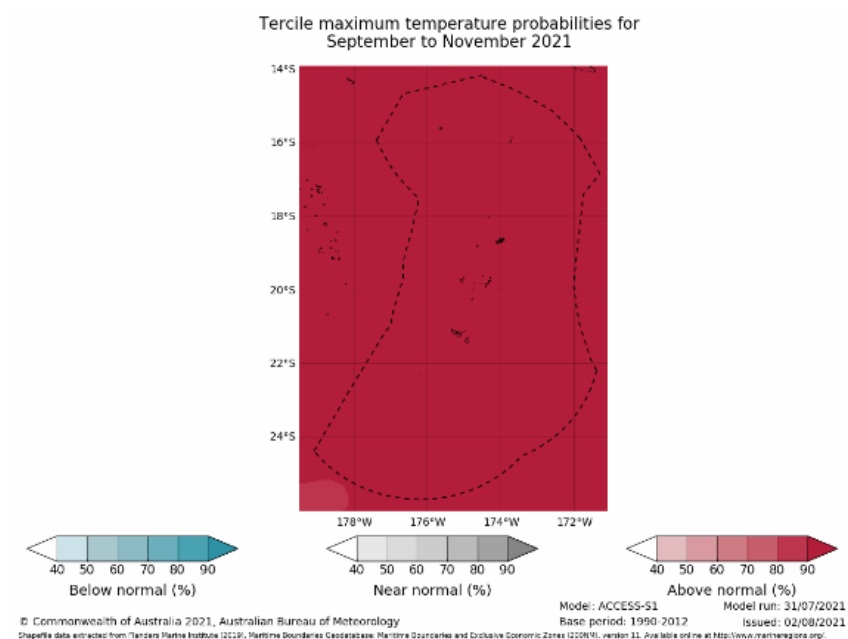
Monthly Maximum temperature (Image 3):



Monthly Maximum Outlook statements

The maximum temperature outlook for Tonga for September is very likely to be above normal.

Seasonal maximum temperature (Image 4):



Seasonal maximum temperature Outlook statement

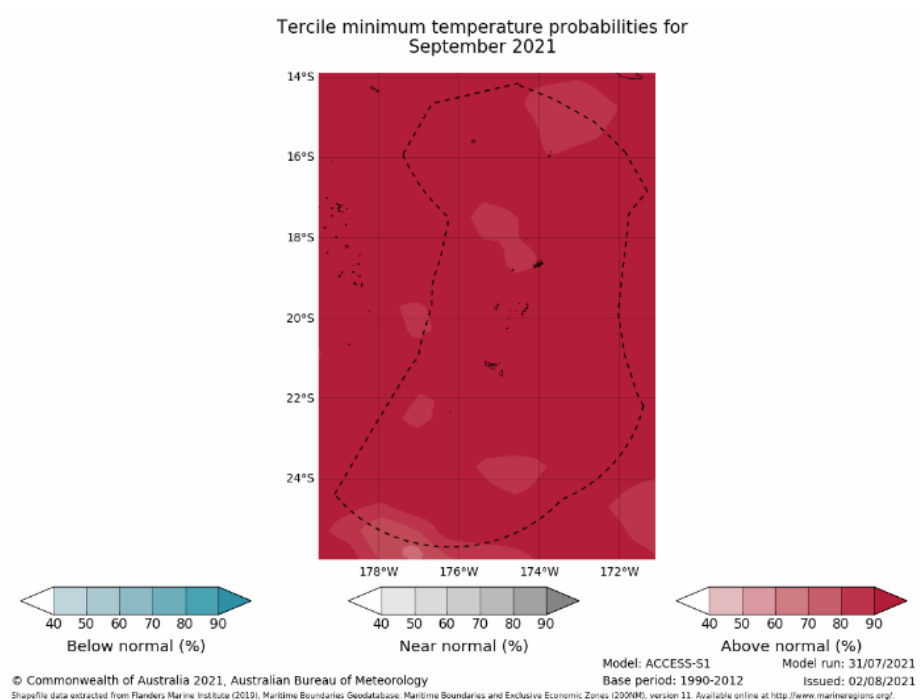
The maximum temperature outlook for Tonga for September to November is very likely to be above normal.

NB: The X LEPS % score has been categorised as follows:

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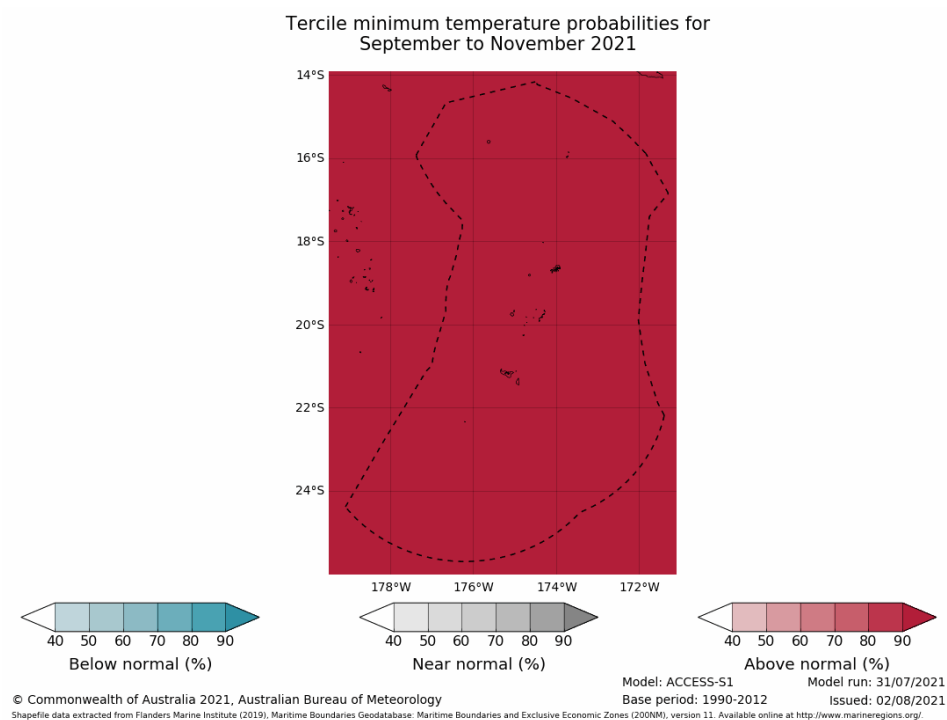
Monthly minimum temperature (Image 5):



Monthly Minimum Outlook statements

The minimum temperature outlook for Tonga for September is very likely to be above normal.

Seasonal minimum temperature (Image 6):



Seasonal minimum temperature Outlook statement

The minimum temperature outlook for Tonga for September to November is very likely to be above normal.

NB: The X LEPS % score has been categorised as follows:

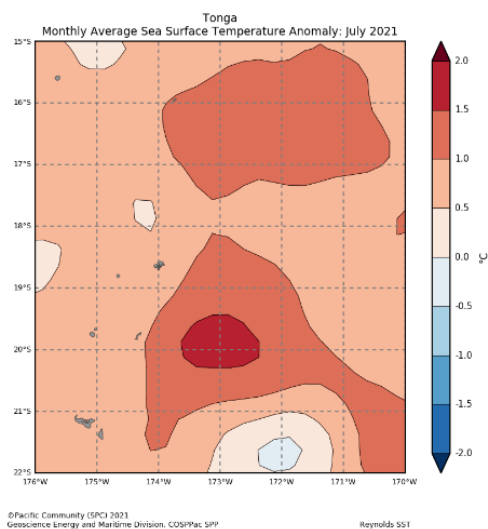
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Part 2: Recent Ocean summary statement

Monthly: July 2021

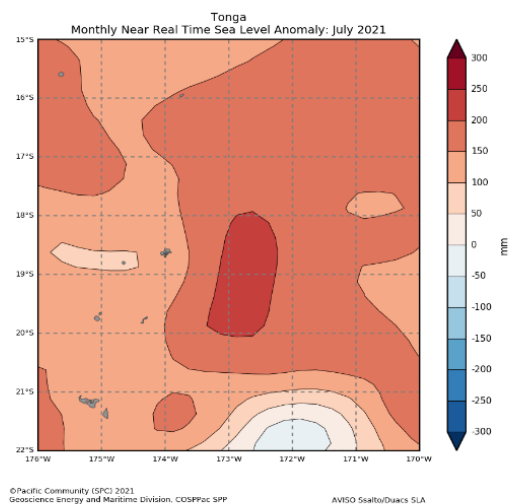
Sea Surface Temperature (Image 1):



Sea Surface Temperature statement

The July sea surface temperature for Tonga shows warmer conditions, with differences of 0.5°C to 2°C.

Sea level (Image 2):



Sea level statement

The sea level for the month of July shows majority of Tonga was higher than normal (up to 250 mm) with exception of areas in the south which experienced near to below normal conditions.

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Low: $0 \leq X < 5$

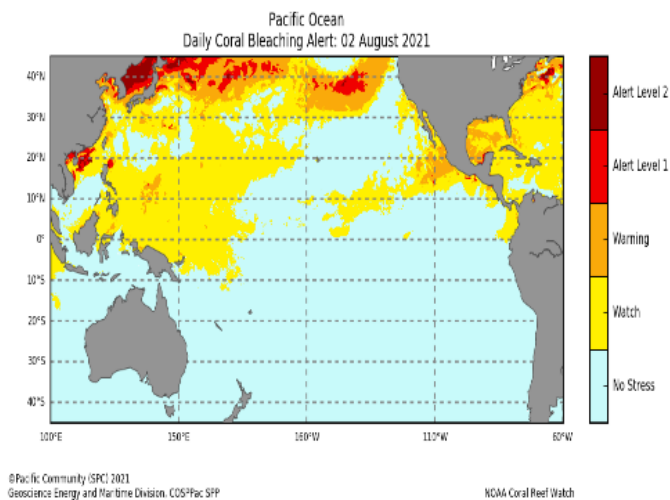
Moderate $5 \leq X < 10$

Good: $10 \leq X < 15$

High: $15 \leq X < 25$

Very High: $25 \leq X < 35$ Exceptional: $X \geq 35$

Daily coral bleaching alert (Image 3):

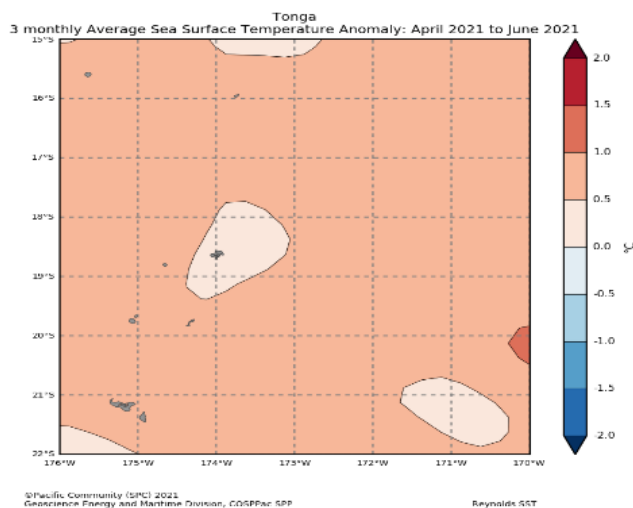


Daily bleaching alert statement

The coral bleaching shows no stress for Tonga.

Last three months: May to July 2021:

Sea Surface Temperature (Image 4):



Last three months Sea Surface Temperature statement

For the May to July 2021 period, the sea surface temperature for Tonga shows above normal conditions with a maximum of 1.0 degrees Celsius.

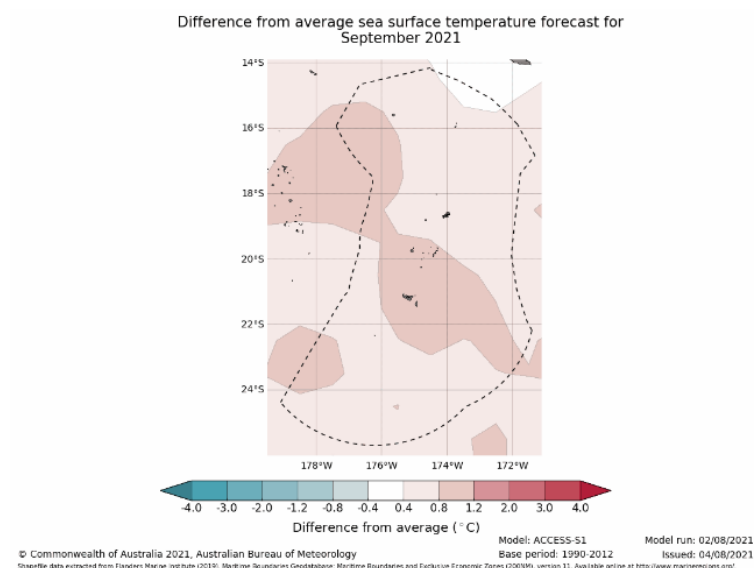
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Part 2i. Monthly and Seasonal Outlooks for September and September to November 2021

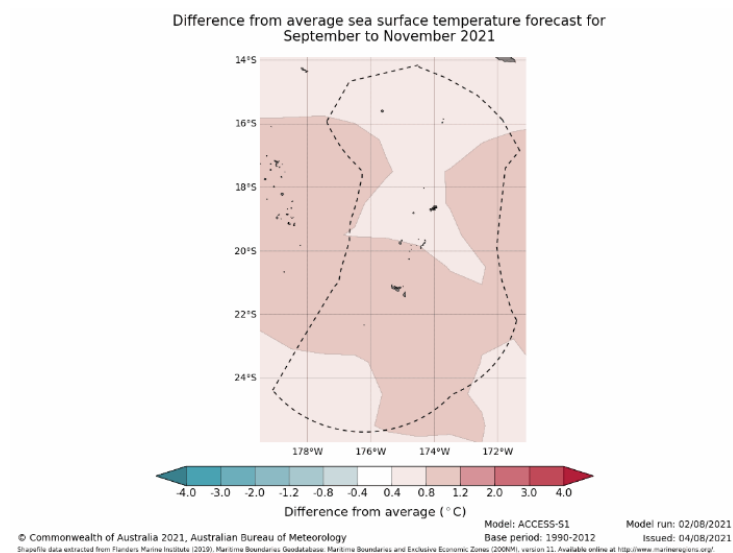
Monthly sea surface temperature (Image 5):



Monthly sea surface temperature statement

The outlook for Tonga archipelago shows sea surface temperatures are likely to be slightly above normal for September, ranging from 0.4-1.2°C.

Seasonal sea surface temperature (Image 6):



Seasonal Sea Surface Temperature statement

The outlook for Tonga shows near normal to slightly above normal conditions ranging from 0.4-1.2°C.

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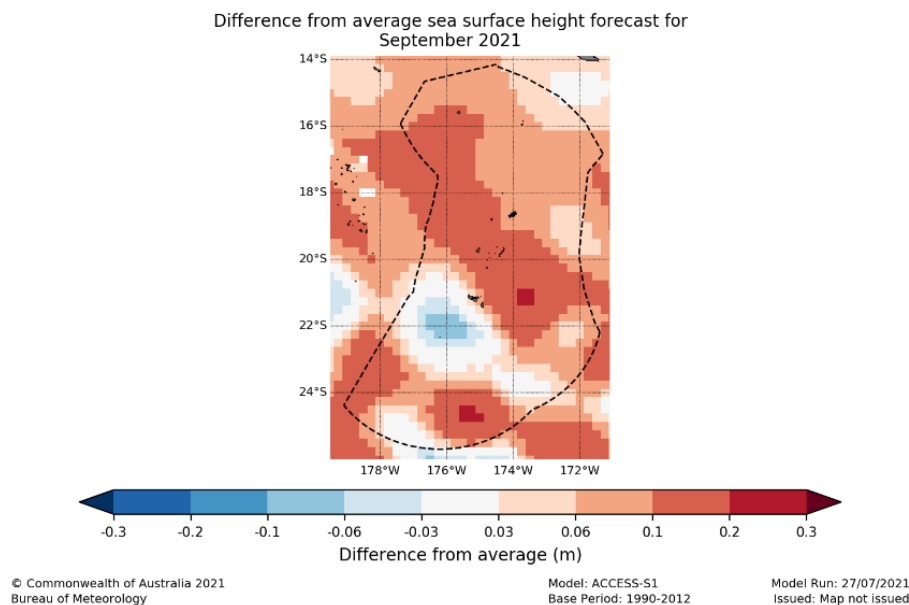
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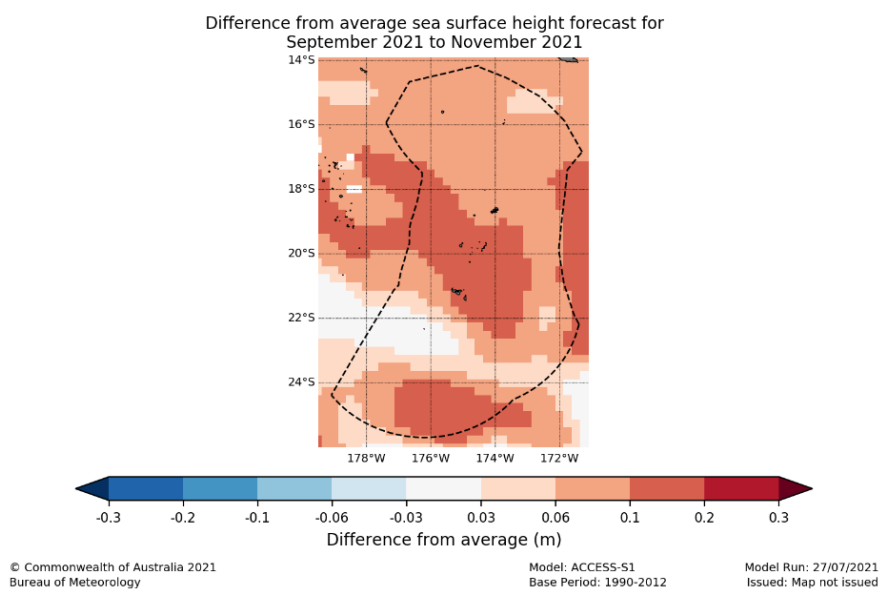
Monthly sea level (Image 7):



Monthly sea level statement

The outlook across Tonga archipelago shows sea Level to be higher than normal (up to 0.3 m) with exception of southern Tonga which is likely to experience below normal conditions of up to -0.1 m.

Seasonal sea level (Image 8):



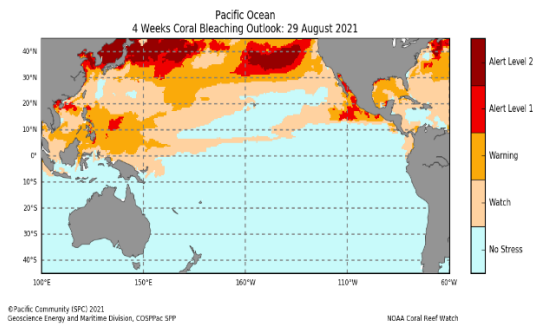
Seasonal sea level statement

The outlook for Tonga shows sea level likely to be near normal to higher than normal (up to 0.2 m) for the month of September to November 2021.

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4-week Coral Bleaching (Image 9):



4-weeks Coral Bleaching statement

The outlook for the Tonga archipelago shows there are no coral bleaching alerts.

TABLE 3: Stakeholder Engagement- Evaluations of how effective NMS engage with stakeholders

Product	Date: July 2021	Stakeholder	Total Number of Participants	Number of male	Number of female
Climate Bulletin	July	General public	132	66	34
EAR Watch					
Monthly Climate Briefing					
Ocean Outlook	July	General public	132	66	34
Total			132	132	68

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