

Pacific Islands - Ocean and Climate Outlook Forum (OCOF) No. 169

Country: Tonga

Part 1: Recent climate

TABLE 1: Monthly Rainfall

Station (include data period)	Jul-2021	Aug-2021	Sep-2021				
			Total (mm)	33%tile	67%tile	Median	Rank
	Total (mm)	Total (mm)	Rainfall (mm)				
Northern Division							
Niufo'ou (1971-2021)	59.0	154.7	26.0	83.7	157.4	122.0	2/49
Niutoputapu (1947-2021)	132.9	144.9	33.2	54.3	132.8	105.0	12/72
Central Division							
Vava'u (1947-2021)	122.4	267.0	194.0	80.3	171.0	110.6	61/75
Ha'apai (1947-2021)	54.7	141.2	97.5	53.7	133.4	91.0	42/75
Southern Division							
Fua'amotu (1979-2021)	135.1	82.0	104.8	79.3	149.0	108.0	21/42
Nuku'alofa (1944-2021)	93.4	74.0	79.5	78.7	147.0	103.0	28/77

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

Station	Three-month Total		33%tile	67%tile	Median	Rank
	Rainfall (mm)					
Northern Division						
Niufo'ou (1971-2021)	239.7	Below normal	261.9	430.2	340.0	12/48
Niutoputapu (1947-2021)	311.0	Normal	214.3	371.0	287.6	38/72
Central Division						
Vava'u (1947-2021)	583.4	Above normal	257.7	398.5	345.0	67/75
Ha'apai (1947-2021)	293.4	Normal	238.0	356.0	294.2	37/75
Southern Division						
Fua'amotu (1979-2021)	321.9	Normal	304.7	421.0	371.0	18/42
Nuku'alofa (1944-2021)	246.9	Below normal	278.3	388.7	328.0	19/77

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: $X \geq 35$

Part 1i. Monthly and Seasonal Outlooks for November and November 2021 to January 2022

Monthly	Seasonal
Rainfall (Image 1)	Rainfall (Image 2)
<p>Tercile rainfall probabilities for November 2021</p> <p>Model: ACCESS-S1 Base period: 1990-2012 Model run: 27/09/2021 Issued: 30/09/2021</p> <p>© Commonwealth of Australia 2021, Australian Bureau of Meteorology Shapefile data extracted from Flanders Marine Institute (2018), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at http://www.maritimerregions.org/</p>	<p>Tercile rainfall probabilities for November 2021 to January 2022</p> <p>Model: ACCESS-S1 Base period: 1990-2012 Model run: 27/09/2021 Issued: 30/09/2021</p> <p>© Commonwealth of Australia 2021, Australian Bureau of Meteorology Shapefile data extracted from Flanders Marine Institute (2018), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at http://www.maritimerregions.org/</p>
Monthly Maximum temperature (Image 3):	Seasonal maximum temperature (Image 4):
<p>Tercile maximum temperature probabilities for November 2021</p> <p>Model: ACCESS-S1 Base period: 1990-2012 Model run: 27/09/2021 Issued: 30/09/2021</p> <p>© Commonwealth of Australia 2021, Australian Bureau of Meteorology Shapefile data extracted from Flanders Marine Institute (2018), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at http://www.maritimerregions.org/</p>	<p>Tercile maximum temperature probabilities for November 2021 to January 2022</p> <p>Model: ACCESS-S1 Base period: 1990-2012 Model run: 27/09/2021 Issued: 30/09/2021</p> <p>© Commonwealth of Australia 2021, Australian Bureau of Meteorology Shapefile data extracted from Flanders Marine Institute (2018), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at http://www.maritimerregions.org/</p>
Monthly minimum temperature (Image 5): Insert map	Seasonal minimum temperature (Image 6): Insert map

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Very Low: $X < 0.0$

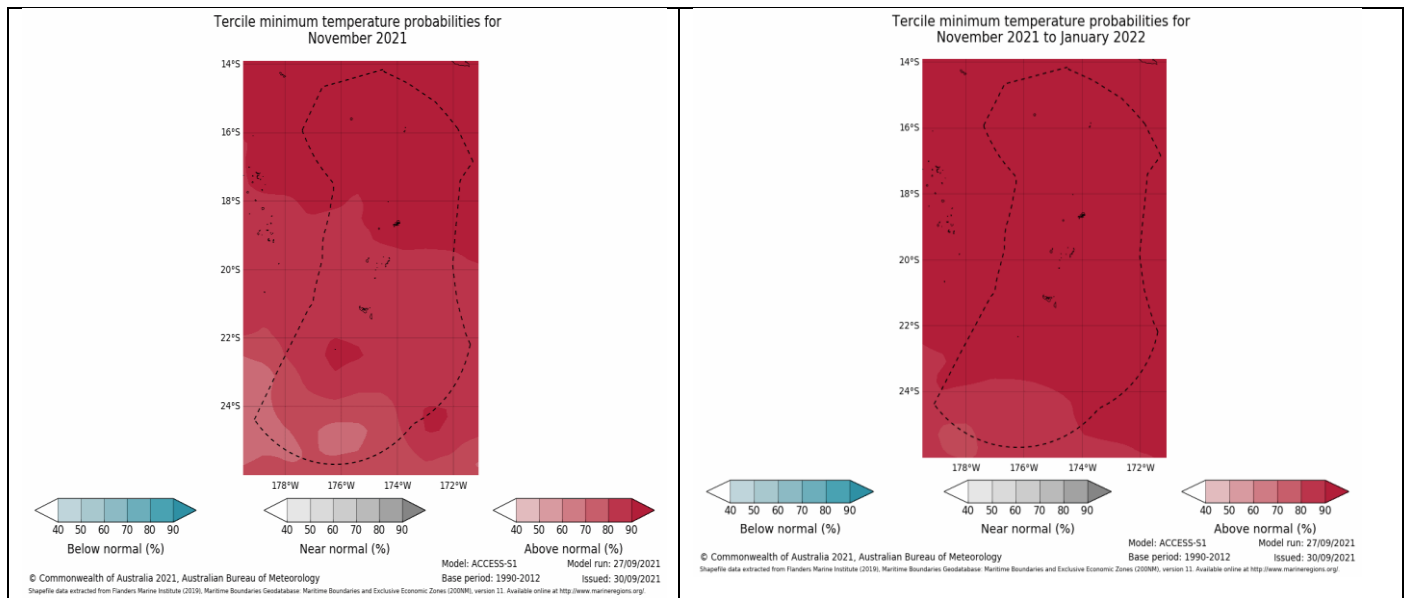
Low: $0 \leq X < 5$

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Part 2: Recent Ocean summary statement

Monthly: September 2021

Monthly: September	Last three months: July to September 2021:
Sea Surface Temperature (Image 1):	Sea Surface Temperature (Image 4):
Sea Level (Image 2):	Daily coral bleaching alert (Image 3):

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

Very Low: $X < 0.0$

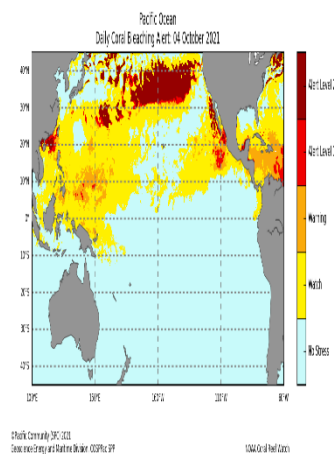
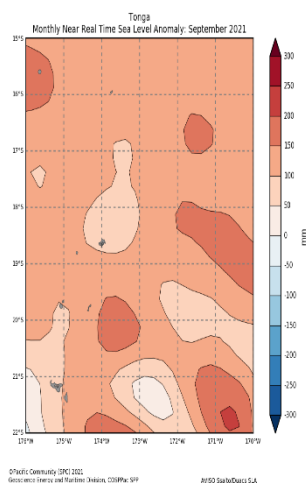
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Part 2i. Monthly and Seasonal Outlooks for November and November 2021 to January 2022

Monthly: November	Seasonal: November to January
Monthly sea surface temperature (Image 5):	Seasonal sea surface temperature (Image 6): Insert map
<p>Difference from average sea surface temperature forecast for November 2021</p> <p>© Commonwealth of Australia 2021, Australian Bureau of Meteorology Shapelite data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2000M), version 11. Available online at http://www.maritimerregions.org/</p> <p>Model: ACCESS-S1 Base period: 1990-2012 Model run: 04/10/2021 Issued: 06/10/2021</p>	<p>Difference from average sea surface temperature forecast for November 2021 to January 2022</p> <p>© Commonwealth of Australia 2021, Australian Bureau of Meteorology Shapelite data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2000M), version 11. Available online at http://www.maritimerregions.org/</p> <p>Model: ACCESS-S1 Base period: 1990-2012 Model run: 04/10/2021 Issued: 06/10/2021</p>
Monthly sea level (Image 7):	Seasonal sea level (Image 8):

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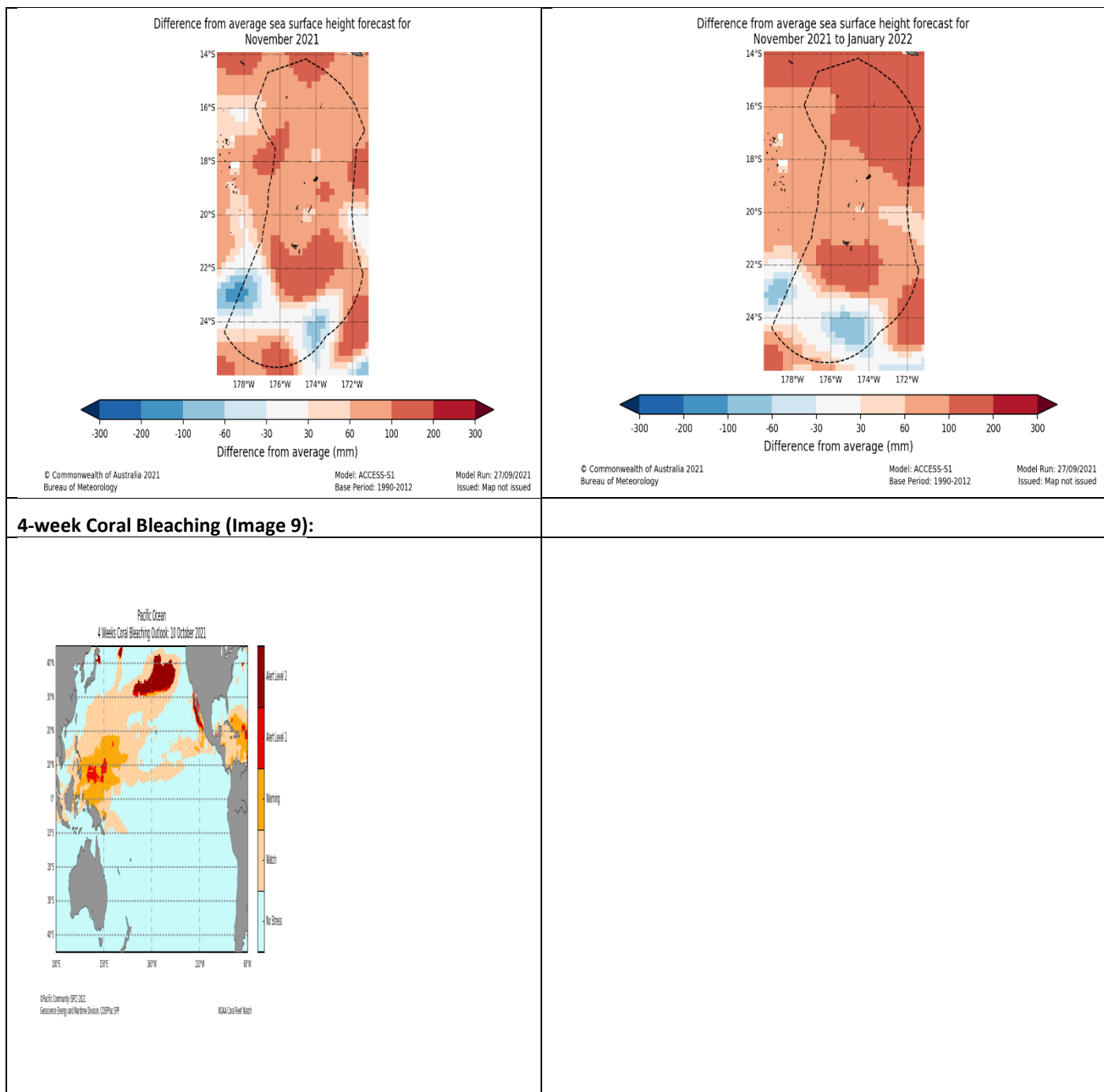
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Summary Statement

Monthly and last three months: September 2021/July to September statement.

For September, above normal rainfall was recorded in Vava'u. Near normal rainfall was received at Ha'apai, Fua'amotu and Nuku'alofa. Below normal rainfall was recorded in Niuafo'ou and Niuatoputapu. Niuafo'ou recorded its second driest September on record.

For July to September, above normal rainfall was recorded in Vava'u. Near normal rainfall at Niuatoputapu, Ha'apai and Fua'amotu. Below normal rainfall was recorded in Niuafo'ou and Nuku'alofa.

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Part 1i. Monthly and Seasonal Outlooks for November and November 2021 to January 2022

Monthly /Seasonal rainfall and temperature Outlook statements

The rainfall outlook for Tonga for November is likely to be above normal.

The rainfall outlook for Tonga for November to January is very likely to be above normal

The maximum and minimum temperatures outlook for Tonga for November and November to January is very likely to be above normal.

Part 2: Recent Ocean summary statement

Monthly and last three months: September/July to September 2021

The September Sea Surface Temperature for all of Tonga shows above normal temperature differences of 0.5°C to 1.5°C for the month of September. Patches of SST ranging from 1 to 2°C above normal were noted around Tonga.

The July to September Sea Surface Temperature for Tonga Shows warmer temperature conditions, with difference of 0.5°C to 1.0°C

In September the sea level anomaly was up to 100 mm above average in the Ha'apai and Vava'u group, and up to 150 mm in the Tongatapu group.

Part 2i. Monthly and Seasonal Outlooks for November and November 2021 to January 2022

Ocean Variable statement

The outlook for Tonga archipelago shows sea surface temperatures are likely to be near normal to above normal for October, ranging from 0.4 to 1.2 °C. The November to January outlook for Tonga shows near normal to above normal conditions ranging from 0.4 to 1.2 °C.

Sea level is likely to be up to 200 mm above average near Tongatapu and the Vava'u Group from November through to January

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

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

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