

Pacific Islands - Ocean and Climate Outlook Forum (OCOF) No. 203

Country: Tonga

Part 1: Recent climate

TABLE 1: Monthly Rainfall

Station (include data period)	May-2024	Jun-2024	Jul-2024				Rank
	Total (mm)	Total (mm)	Total (mm)	33%tile	67%tile	Median	
			Rainfall (mm)				
<i>Northern Division</i>							
Niuafu'ou (1971-2024)	67.5	25.0	84.5	59.0	148.6	106.0	22/53
Niuaatoputapu (1947-2024)	163.0	157.5	119.5	59.7	128.4	91.8	50/78
<i>Central Division</i>							
Vava'u (1947-2024)	162.2	107.8	85.1	66.0	121.7	82.3	42/78
Ha'apai (1947-2024)	135.5	110.1	53.8	55.3	99.6	70.2	24/78
<i>Southern Division</i>							
Fua'amotu (1979-2024)	384.8	46.3	62.5	67.5	136.4	100.8	15/45
Nuku'alofa (1944-2024)	297.5	37.5	66.5	62.7	114.3	81.0	30/80

TABLE 2: Three-month Total Rainfall for May to July 2024

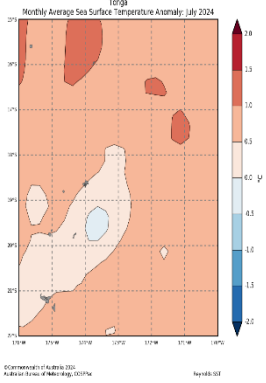
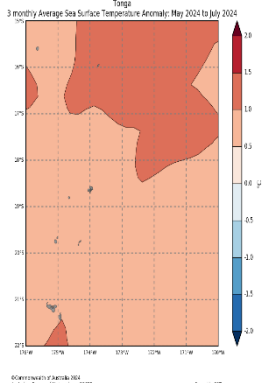
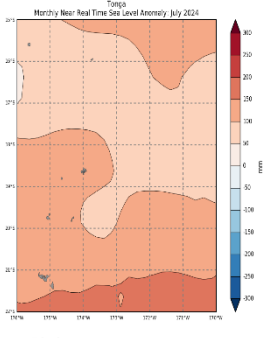
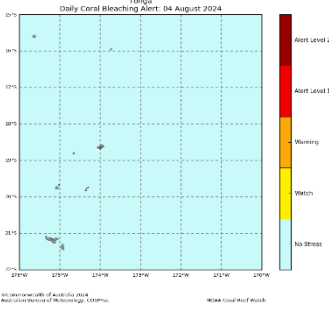
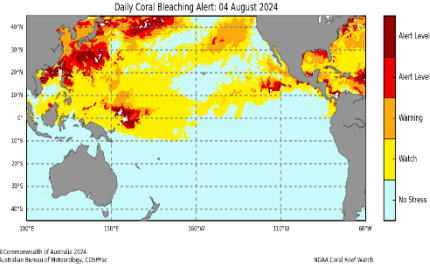
Station	Three-month Total	33%tile	67%tile	Median	Rank	
	Rainfall (mm)					
<i>Northern Division</i>						
Niuafu'ou (1971-2024)	177.0	Below normal	367.7	486.0	433.3	5/51
Niuaatoputapu (1947-2024)	440.0	Above normal	320.0	421.0	360.6	50/74
<i>Central Division</i>						
Vava'u (1947-2024)	355.1	Normal	304.0	411.7	370.5	37/78
Ha'apai (1947-2024)	299.4	Normal	216.0	323.0	248.0	49/77
<i>Southern Division</i>						
Fua'amotu (1979-2024)	493.6	Above normal	259.8	436.3	354.6	37/45
Nuku'alofa (1944-2024)	401.5	Above normal	243.0	343.0	297.5	69/80

Part 1i. Monthly and Seasonal Outlooks for September and September to November 2024

Monthly: September	Seasonal: September to November
<p>Rainfall (Image 1)</p> <p>Tercile rainfall probabilities for September 2024 Base period: 1961-2018 Model: ACCESS-S2 Model run: 05/08/2024 Issued: 07/08/2024</p> <p>© Commonwealth of Australia 2024. Bureau of Meteorology, supported by CSIRO.</p> <p>177°W 176°W 175°W 174°W 173°W Below normal (%) Near normal (%) Above normal (%)</p> <p>— EEZ border V11 (Flanders Marine Institute, 2019)</p>	<p>Rainfall (Image 2)</p> <p>Tercile rainfall probabilities for September to November 2024 Base period: 1961-2018 Model: ACCESS-S2 Model run: 05/08/2024 Issued: 07/08/2024</p> <p>© Commonwealth of Australia 2024. Bureau of Meteorology, supported by CSIRO.</p> <p>177°W 176°W 175°W 174°W 173°W Below normal (%) Near normal (%) Above normal (%)</p> <p>— EEZ border V11 (Flanders Marine Institute, 2019)</p>
<p>Monthly Maximum temperature (Image 3):</p>	<p>Seasonal maximum temperature (Image 4):</p>
<p>Tercile maximum temperature probabilities for September 2024 Base period: 1961-2018 Model: ACCESS-S2 Model run: 05/08/2024 Issued: 07/08/2024</p> <p>© Commonwealth of Australia 2024. Bureau of Meteorology, supported by CSIRO.</p> <p>177°W 176°W 175°W 174°W 173°W Below normal (%) Near normal (%) Above normal (%)</p> <p>— EEZ border V11 (Flanders Marine Institute, 2019)</p>	<p>Tercile maximum temperature probabilities for September to November 2024 Base period: 1961-2018 Model: ACCESS-S2 Model run: 05/08/2024 Issued: 07/08/2024</p> <p>© Commonwealth of Australia 2024. Bureau of Meteorology, supported by CSIRO.</p> <p>177°W 176°W 175°W 174°W 173°W Below normal (%) Near normal (%) Above normal (%)</p> <p>— EEZ border V11 (Flanders Marine Institute, 2019)</p>
<p>Monthly minimum temperature (Image 5):</p>	<p>Seasonal minimum temperature (Image 6):</p>
<p>Tercile minimum temperature probabilities for September 2024 Base period: 1961-2018 Model: ACCESS-S2 Model run: 05/08/2024 Issued: 07/08/2024</p> <p>© Commonwealth of Australia 2024. Bureau of Meteorology, supported by CSIRO.</p> <p>177°W 176°W 175°W 174°W 173°W Below normal (%) Near normal (%) Above normal (%)</p> <p>— EEZ border V11 (Flanders Marine Institute, 2019)</p>	<p>Tercile minimum temperature probabilities for September to November 2024 Base period: 1961-2018 Model: ACCESS-S2 Model run: 05/08/2024 Issued: 07/08/2024</p> <p>© Commonwealth of Australia 2024. Bureau of Meteorology, supported by CSIRO.</p> <p>177°W 176°W 175°W 174°W 173°W Below normal (%) Near normal (%) Above normal (%)</p> <p>— EEZ border V11 (Flanders Marine Institute, 2019)</p>

Part 2: Recent Ocean Observation

Monthly/Three months: July 2024 and May to July 2024

<p>Monthly: July 2024</p>	<p>Last three months: May to July 2024:</p>
<p>Sea Surface Temperature (Image 1):</p>  <p>Tonga Monthly Average Sea Surface Temperature Anomaly: July 2024</p> <p>© Commonwealth of Australia 2024 Australian Bureau of Meteorology, CSIRO/BoM</p>	<p>Sea Surface Temperature (Image 4):</p>  <p>Tonga 3 monthly Average Sea Surface Temperature Anomaly: May 2024 to July 2024</p> <p>© Commonwealth of Australia 2024 Australian Bureau of Meteorology, CSIRO/BoM</p>
<p>Sea level (Image 2):</p>  <p>Tonga Monthly Mean Real Time Sea Level Anomaly: July 2024</p> <p>© Commonwealth of Australia 2024 Australian Bureau of Meteorology, CSIRO/BoM</p>	
<p>Daily coral bleaching alert (Image 3):</p>  <p>Tonga Daily Coral Bleaching Alert: 04 August 2024</p> <p>© Commonwealth of Australia 2024 Australian Bureau of Meteorology, CSIRO/BoM</p>	 <p>Pacific Ocean Daily Coral Bleaching Alert: 04 August 2024</p> <p>© Commonwealth of Australia 2024 Australian Bureau of Meteorology, CSIRO/BoM</p>

Part 2i. Monthly and Seasonal Outlooks for September and September to November 2024

<p>Monthly: September</p>	<p>Seasonal: September to November</p>
<p>Monthly sea surface temperature (Image 5):</p>	<p>Seasonal sea surface temperature (Image 6):</p>
<p>Difference from average sea surface temperature forecast for September 2024</p> <p>Base period: 1981-2018 Model: ACCESS-ESM1-0 Model run: 01/08/2024 Issue: 01/08/2024</p> <p>© Commonwealth of Australia 2024. Forecast & Monitoring supported by CSIRO.</p> <p>— EEZ border V1.1 (Flanders Marine Institute, 2016)</p>	<p>Difference from average sea surface temperature forecast for September to November 2024</p> <p>Base period: 1981-2018 Model: ACCESS-ESM1-0 Model run: 05/08/2024 Issue: 01/08/2024</p> <p>© Commonwealth of Australia 2024. Forecast & Monitoring supported by CSIRO.</p> <p>— EEZ border V1.1 (Flanders Marine Institute, 2016)</p>
<p>Monthly sea level (Image 7):</p>	<p>Seasonal sea level (Image 8):</p>
<p>Difference from average sea surface height forecast for September 2024</p> <p>Base period: 1981-2018 Model: ACCESS-S2 Model run: 01/08/2024 Issue: 01/08/2024</p> <p>© Commonwealth of Australia 2024. Forecast & Monitoring supported by CSIRO.</p> <p>— EEZ border V1.1 (Flanders Marine Institute, 2016)</p>	<p>Difference from average sea surface height forecast for September to November 2024</p> <p>Base period: 1981-2018 Model: ACCESS-S2 Model run: 05/08/2024 Issue: 01/08/2024</p> <p>© Commonwealth of Australia 2024. Forecast & Monitoring supported by CSIRO.</p> <p>— EEZ border V1.1 (Flanders Marine Institute, 2016)</p>
<p>4-week Coral Bleaching (Image 9):</p>	
<p>4 Weeks Coral Bleaching Outlook: 11 August 2024</p> <p>© Commonwealth of Australia 2024 Australian Bureau of Meteorology, CSIRO</p> <p>NOAA Coral Reef Watch</p>	<p>4 Weeks Coral Bleaching Outlook: 11 August 2024</p> <p>© Commonwealth of Australia 2024 Australian Bureau of Meteorology, CSIRO</p> <p>NOAA Coral Reef Watch</p>

Summary Statement

Monthly and last three months: July 2024/May to July 2024 statement

The rainfall for July was normal at Niuatoputapu, Niuafu'ou, Vava'u and Nuku'alofa, below normal at Ha'apai and Fua'amotu.

May to July 2024 rainfall was above normal at Niuatoputapu, Fua'amotu and Nuku'alofa, near-normal at Vava'u and Ha'apai, and below normal rainfall at Niuafu'ou. Niuafu'ou had its fifth driest May to July rainfall on record.

Part 1i. Monthly and Seasonal Outlooks for September and September to November 2024

Monthly /Seasonal rainfall and temperature Outlook statements

For most of Tonga, rainfall in September and over September to November is very likely to be above normal. The main exception is for parts central Tonga, including Vava'u, where September rainfall is likely to be below-normal.

Maximum and minimum temperatures during September and averaged over September to November, are very likely to be above normal across the country.

Part 2: Recent Ocean summary statement

Monthly and last three months: July 2024/May to July 2024

July ocean temperatures around Tonga were 0.0 to 1.5°C above normal temperatures.

Averaged over May to July, ocean temperatures around Tonga were 0.5 to 1.5°C above normal.

Coral Bleaching is at "No Stress".

Part 2i. Monthly and Seasonal Outlooks for September and September to November 2024

Ocean Variable statement

September and averaged over September to November, ocean temperatures around Tonga are predicted to be 0.4 to 1.2°C above normal.

September and averaged over September to November, sea levels are predicted to be 30mm to 60mm above normal over Southern Tonga and near- normal over the rest of the region.

IN BRIEF for Teleconference

- Rainfall was generally below normal to normal for July and mostly above normal for May to July.
- For most of Tonga, rainfall is likely or very likely to be above normal in September and over September to November, except for the central region where there is little guidance in the outlook.
- SSTs were above normal for July and May to July. The outlook shows above normal SSTs for the next one and three months. •
- Sea-surface heights (SSHs) were near-normal to above normal for Septemberr and September to November.
- Coral bleaching “NO Stress”

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

Product	Date: July 2024	Stakeholder	Total Number of Participants	Number of Male	Number of Female	Disability	Age group	Comments (If there are comments from you Stakeholders)
Climate Bulletin	3 July	Government ministries, NGOs, Media, Private Sector	155	188	37			
EAR Watch								
Monthly Climate Briefing								
Ocean Outlook	3 July	Government ministries, NGOs, Media, Private Sector	155	188	37			
Climate data request								
Total			310	236	74			