

Pacific Islands - Ocean and Climate Outlook Forum (OCOF) No. 175

Country: Tonga

Part 1: Recent climate

TABLE 1: Monthly Rainfall

Station (include data period)	Jan-2022	Feb-2022	Mar-2022				
			Total (mm)	33%tile	67%tile	Median	Rank
	Total (mm)	Total (mm)	Rainfall (mm)				
Northern Division							
Niuafo'ou (1971-2022)		344.5	209.0	208.5	340.5	264.0	18/51
Niuaotoputapu (1947-2022)	313.5	661.5	138.5	173.1	271.0	226.5	12/72
Central Division							
Vava'u (1947-2022)	575.5	406.0	285.5	226.9	346.8	292.3	36/76
Ha'apai (1947-2022)	265.5	233.5	420.5	179.9	313.0	233.4	66/76
Southern Division							
Fua'amotu (1980-2022)	198.4	510.4	594.0	161.2	253.7	190.9	43/43
Nuku'alofa (1945-2022)	167.5	356.0	384.0	174.4	264.4	214.0	70/78

TABLE 2: Three-month Total Rainfall for January to March 2022

Station	Three-month Total		33%tile	67%tile	Median	Rank
	Rainfall (mm)					
Northern Division						
Niuafo'ou (1971-2022)			732.0	953.6	883.0	
Niuaatoputapu (1947-2022)	1113.5	Above normal	651.5	936.5	810.0	65/72
Central Division						
Vava'u (1947-2022)	1267.0	Above normal	721.4	976.8	864.8	67/76
Ha'apai (1947-2022)	919.5	Above normal	566.2	788.5	661.3	67/78
Southern Division						
Fua'amotu (1980-2022)	1302.8	Above normal	475.9	791.0	710.3	42/43
Nuku'alofa (1945-2022)	907.5	Above normal	517.9	837.3	665.5	63/78

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

Very Low: $X < 0.0$

Low: $0 \leq X < 5$

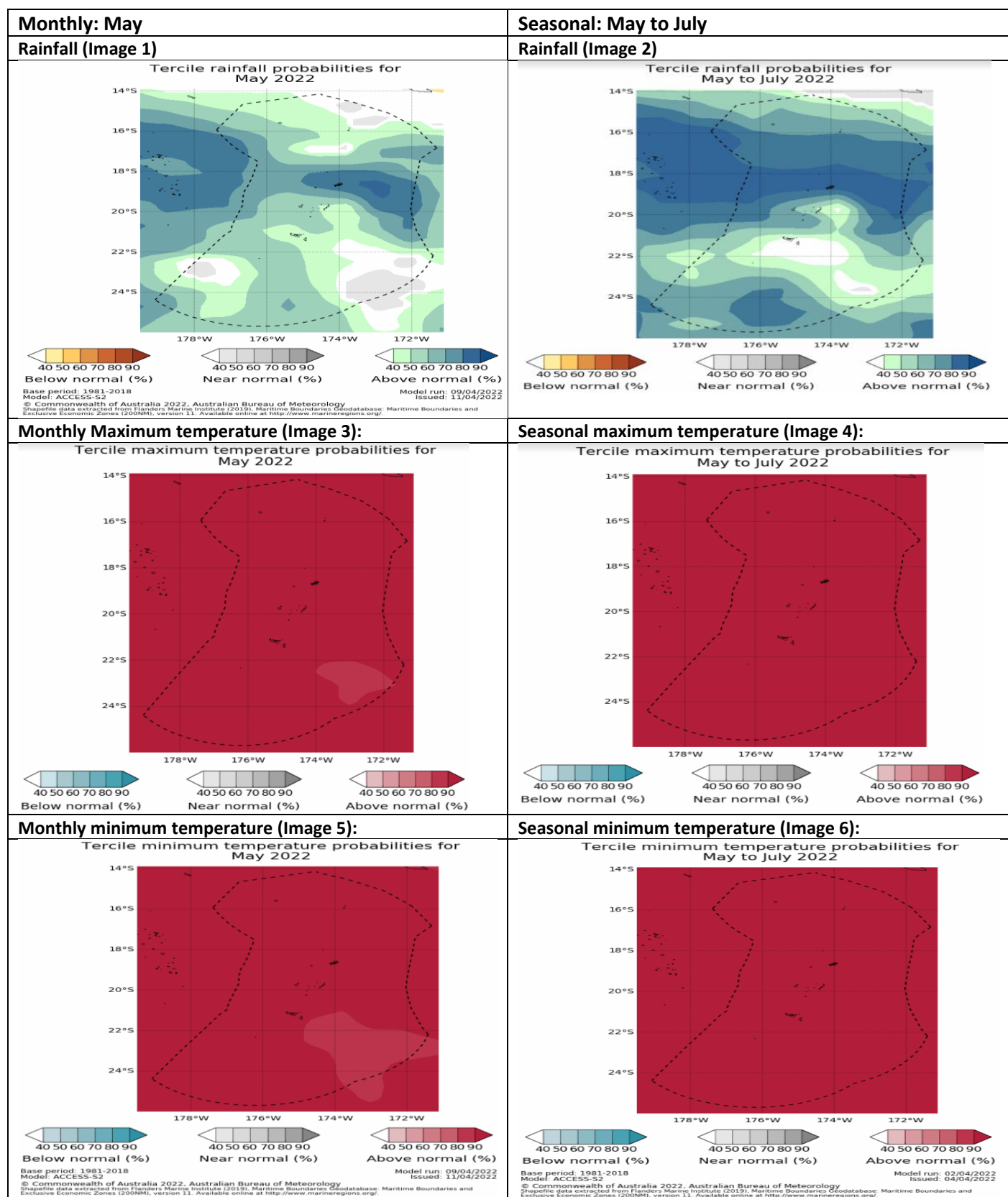
Moderate: $5 \leq X < 10$

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 May and May to July 2022



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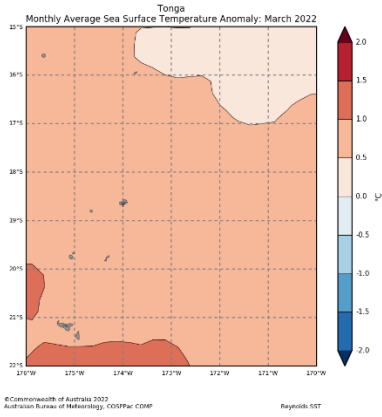
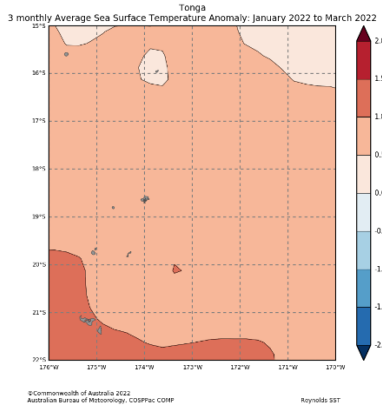
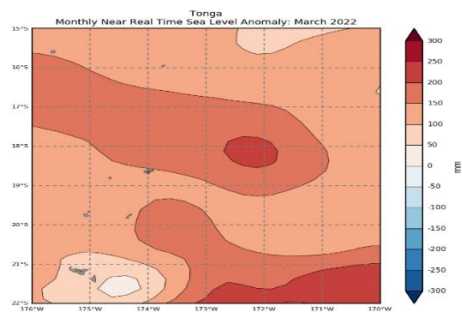
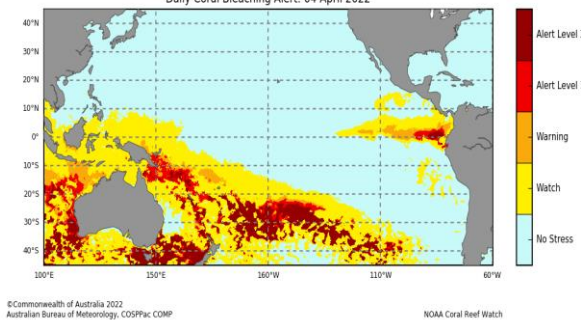
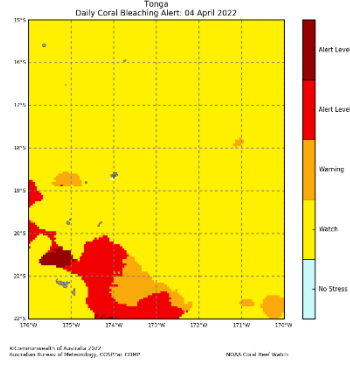
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Part 2: Recent Ocean summary statement

Monthly: March 2022

Monthly: March	Last three months: January to March 2022:
<p>Sea Surface Temperature (Image 1):</p>  <p>Monthly Average Sea Surface Temperature Anomaly: March 2022</p> <p>©Commonwealth of Australia 2022 Australian Bureau of Meteorology, COSPac COMP</p> <p>Reynolds SST</p>	<p>Sea Surface Temperature (Image 4):</p>  <p>3 monthly Average Sea Surface Temperature Anomaly: January 2022 to March 2022</p> <p>©Commonwealth of Australia 2022 Australian Bureau of Meteorology, COSPac COMP</p> <p>Reynolds SST</p>
<p>Sea level (Image 2):</p>  <p>Monthly Near Real Time Sea Level Anomaly: March 2022</p> <p>©Commonwealth of Australia 2022 Australian Bureau of Meteorology, COSPac COMP</p> <p>AVISO SeaWiFS/SeaWiFS SLA</p>	
<p>Daily coral bleaching alert (Image 3):</p>  <p>Pacific Ocean Daily Coral Bleaching Alert: 04 April 2022</p> <p>©Commonwealth of Australia 2022 Australian Bureau of Meteorology, COSPac COMP</p> <p>NOAA Coral Reef Watch</p>	 <p>Tonga Daily Coral Bleaching Alert: 04 April 2022</p> <p>©Commonwealth of Australia 2022 Australian Bureau of Meteorology, COSPac COMP</p> <p>NOAA Coral Reef Watch</p>

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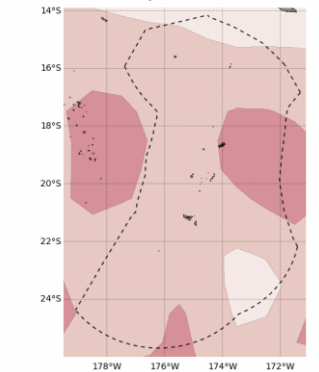
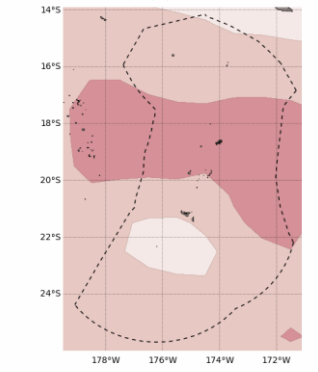
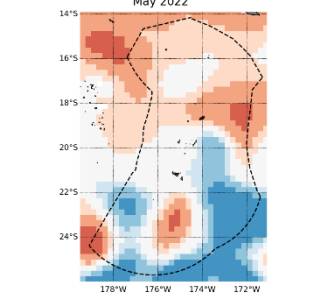
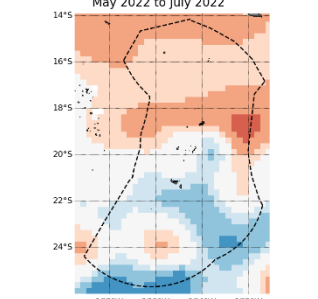
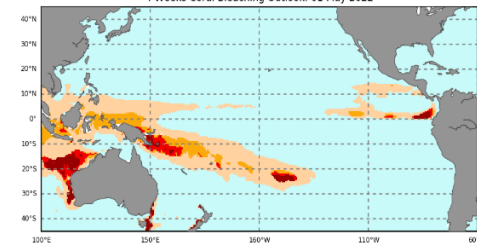
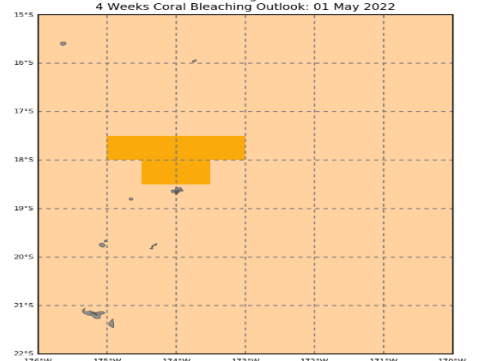
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Part 2i. Monthly and Seasonal Outlooks for May and May to July 2022

Monthly: May	Seasonal: May to July
Monthly sea surface temperature (Image 5):	Seasonal sea surface temperature (Image 6):
<p>Difference from average sea surface temperature forecast for May 2022</p>  <p>Difference from average (°C)</p> <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2022, Australian Bureau of Meteorology Seafile data extracted from Flinders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2004), version 11. Available online at http://www.marine.gov.au</p> <p>Model run: 16/04/2022 Issued: 18/04/2022</p>	<p>Difference from average sea surface temperature forecast for May to July 2022</p>  <p>Difference from average (°C)</p> <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2022, Australian Bureau of Meteorology Seafile data extracted from Flinders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2004), version 11. Available online at http://www.marine.gov.au</p> <p>Model run: 16/04/2022 Issued: 18/04/2022</p>
Monthly sea level (Image 7):	Seasonal sea level (Image 8):
<p>Difference from average sea surface height forecast for May 2022</p>  <p>Difference from average (mm)</p> <p>© Commonwealth of Australia 2022 Bureau of Meteorology</p> <p>Model: ACCESS-S2 Base Period: 1981-2018</p> <p>Model run: 28/03/2022 Issued: 31/03/2022</p>	<p>Difference from average sea surface height forecast for May 2022 to July 2022</p>  <p>Difference from average (mm)</p> <p>© Commonwealth of Australia 2022 Bureau of Meteorology</p> <p>Model: ACCESS-S2 Base Period: 1981-2018</p> <p>Model Run: 28/03/2022 Issued: 31/03/2022</p>
4-week Coral Bleaching (Image 9):	
<p>Pacific Ocean 4 Weeks Coral Bleaching Outlook: 01 May 2022</p>  <p>Alert Level 2 Alert Level 1 Warning Watch No Stress</p> <p>©Commonwealth of Australia 2022 Australian Bureau of Meteorology, COSPPac COMP</p> <p>NOAA Coral Reef Watch</p>	<p>Tonga 4 Weeks Coral Bleaching Outlook: 01 May 2022</p>  <p>Alert Level 2 Alert Level 1 Warning Watch No Stress</p> <p>©Commonwealth of Australia 2022 Australian Bureau of Meteorology, COSPPac COMP</p> <p>NOAA Coral Reef Watch</p>

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Summary Statement

Monthly and last three months: March 2022/January to March 2022 statement (Highly significant changes)

Below normal to above normal rainfall was recorded across the country in March. Above normal rainfall was recorded at Fua'amotu, Nuku'alofa and Ha'apai. Normal rainfall was received in Niuafo'ou and Vava'u. Below normal rainfall was received at Niuatoputapu. Fua'amotu recorded its highest March rainfall.

Rainfall was above normal in the January to March period with Fua'amotu recorded its second wettest January to March period.

Part 1i. Monthly and Seasonal Outlooks for May and May to July 2022

Monthly /Seasonal rainfall and temperature Outlook statements (Highly significant changes)

The outlook for Tonga for May and May to July period is likely to be above normal. The outlook for Fua'amotu and Nuku'alofa in the southern division for the period of May to July offers little guidance as the chances of above-normal, normal and below-normal are similar.

Part 2: Recent Ocean summary statement

Monthly and last three months: March/January to March 2022 (Highly significant changes)

Most of Tonga experienced above average SSTs in March and January to March of 0.5-1.0 degrees Celsius. For the past three months, Tongatapu and Eua experienced significant SST difference of 1.0-1.5 degrees Celsius.

Sea level anomaly is above average ranging from 50-200mm over Tonga.

Coral bleaching alert status is 'Warning, Alert Level 1 and Alert Level 2' between Tongatapu and Ha'apai waters and east of Tongatapu..

Part 2i. Monthly and Seasonal Outlooks for May and May to July 2022

Ocean Variable statement (Highly significant changes)

The outlook for whole of Tonga shows a significant temperature difference of 0.8-2.0°C for May and May to July period.

Coral bleaching outlook status is 'Warning' for waters north of Vava'u stretching to Niuatoputapu and Niuafo'ou.

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

Product	Date: March 2022	Stakeholder	Total Number of Participants	Number of male	Number of female
Climate Bulletin	3 March	Government ministries, NGOs, Media, Private sectors	155	118	37
EAR Watch					
Monthly Climate Briefing					
Ocean Outlook	3 March	Government ministries, NGOs, Media, Private sectors	155	118	37
Climate data request					
Total			156	236	74

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