

Country: Tuvalu

Part 1: Recent climate

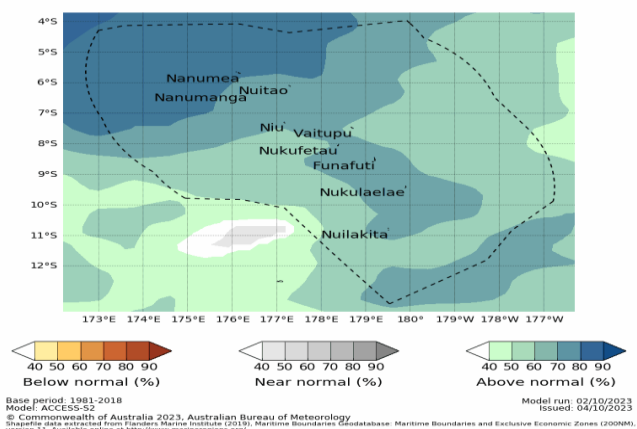
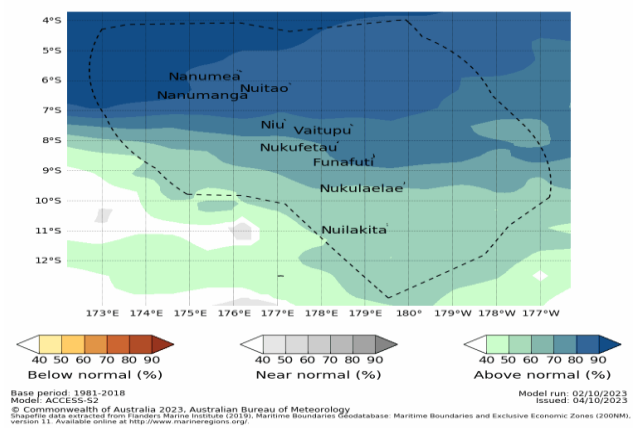
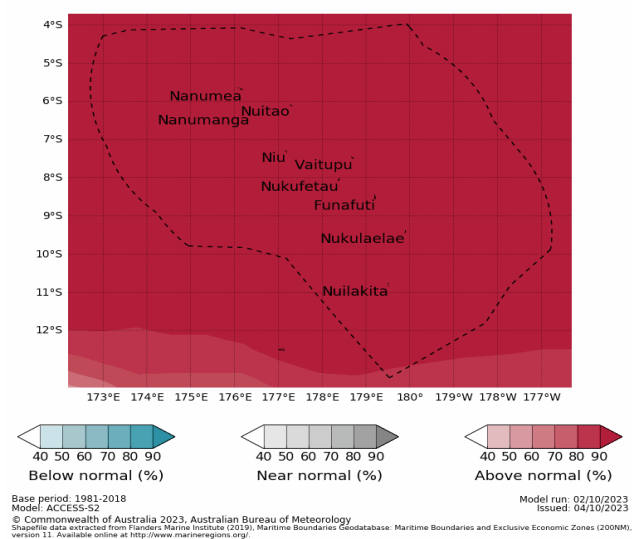
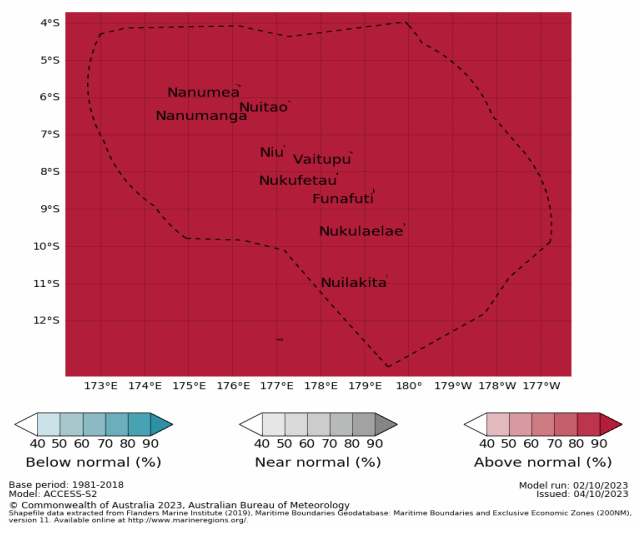
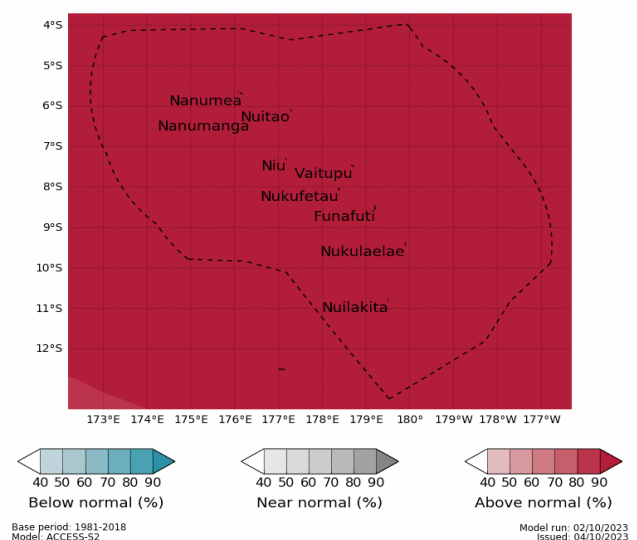
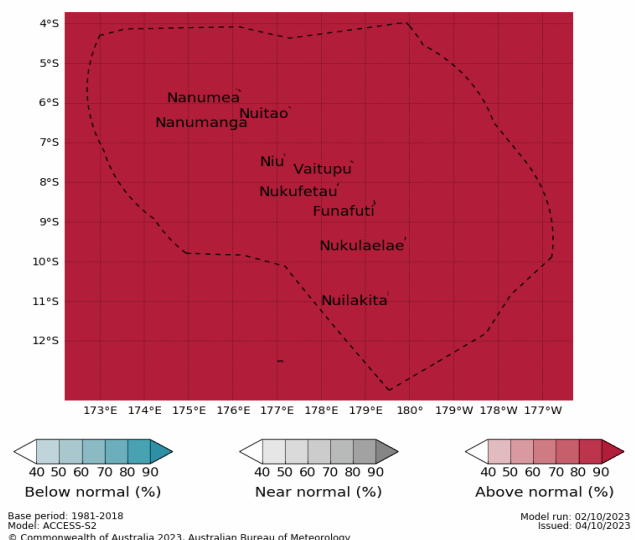
TABLE 1: Monthly Rainfall

Station (include data period)	Jul-2023	Aug-2023	Sep-2023				
			Total (mm)	33%tile	67%tile	Median	Rank
	Total (mm)	Total (mm)	Rainfall (mm)				
	Nanumea (1941-2023)	123.5	136.0	121.4	88.8	168.2	
Nui (1946-2023)	156.1	117.8	148.7	127.3	198.0	172.7	33/78
Funafuti (1933-2023)	289.0	106.0	258.0	164.1	247.1	203.7	64/91
Niulakita (1953-2023)	99.4	375.3	339.8	177.1	230.1	192.0	65/71

TABLE 2: Three-month Total Rainfall for July to September 2023

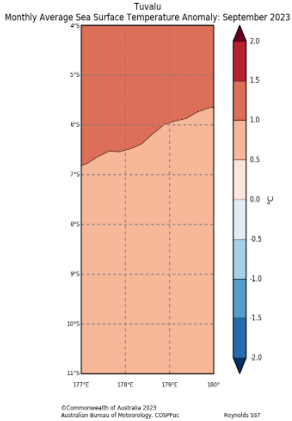
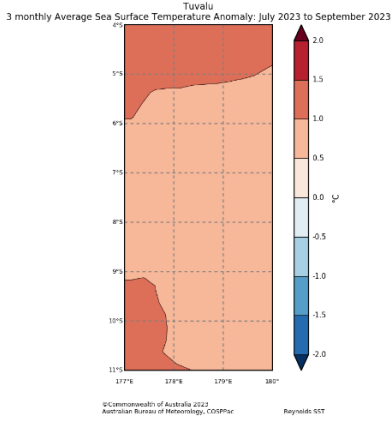
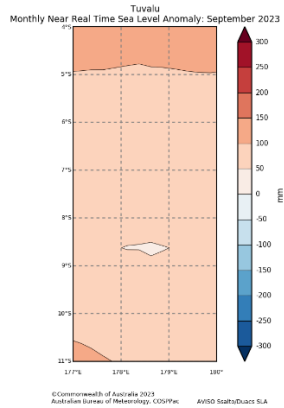
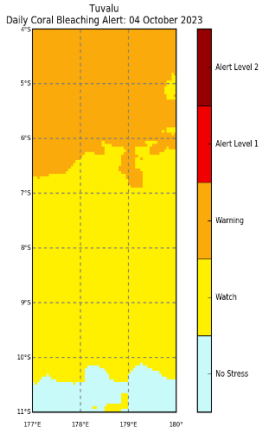
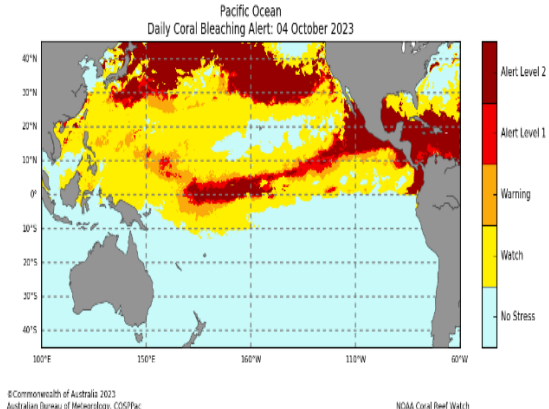
Station	Three-month Total		33%tile	67%tile	Median	Rank
	Rainfall (mm)					
Nanumea (1941-2023)	380.9	Below normal	398.1	603.1	475.5	24/82
Nui (1946-2023)	422.6	Below normal	519.8	688.7	610.0	20/78
Funafuti (1933-2023)	653.0	Normal	608.0	785.9	710.3	39/91
Niulakita (1953-2023)	814.5	Above normal	514.7	722.8	619.8	56/71

Part 1i. Monthly and Seasonal Outlooks for November and November 2023 to January 2024

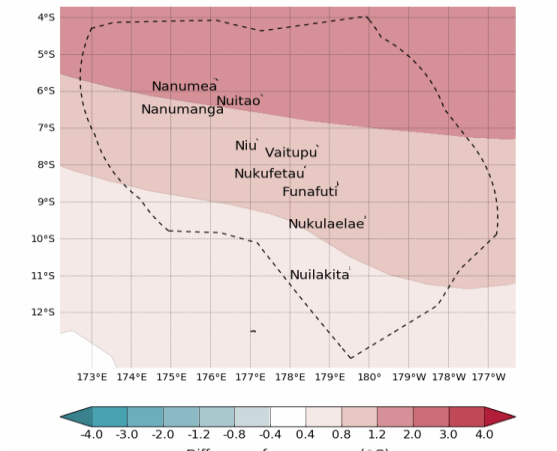
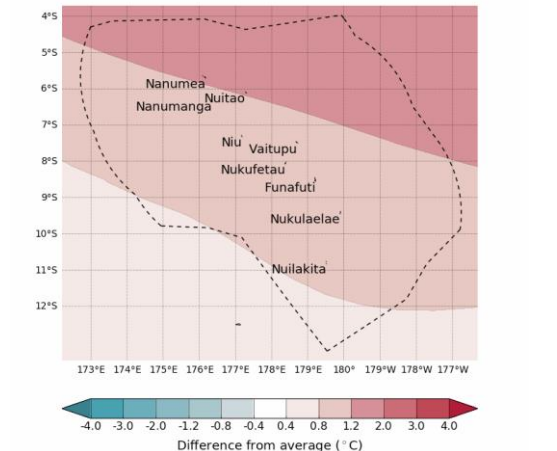
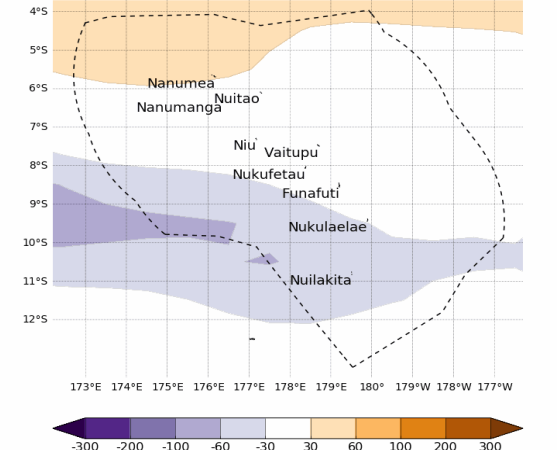
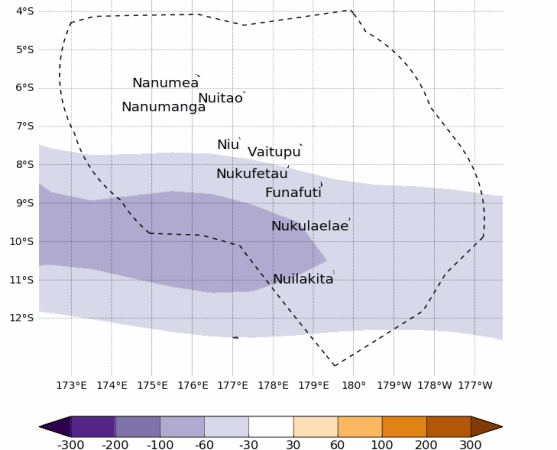
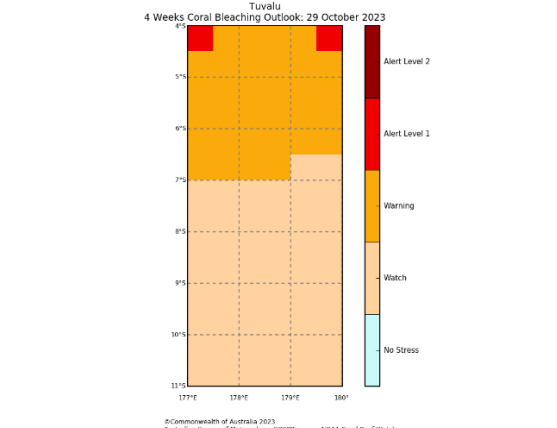
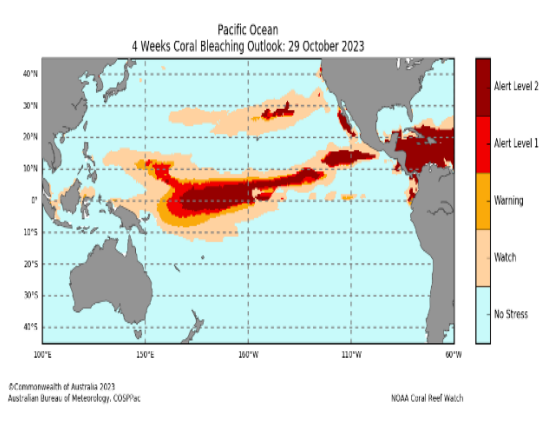
Monthly: November	Seasonal: November to January
Rainfall (Image 1)	Rainfall (Image 2)
<p>Tercile rainfall probabilities for November 2023</p>  <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2023, Australian Bureau of Meteorology Shapefile data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <a href="http://www.maritimerregions.org/">http://www.maritimerregions.org/</a></p> <p>Model run: 02/10/2023 Issued: 04/10/2023</p>	<p>Tercile rainfall probabilities for November 2023 to January 2024</p>  <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2023, Australian Bureau of Meteorology Shapefile data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <a href="http://www.maritimerregions.org/">http://www.maritimerregions.org/</a></p> <p>Model run: 02/10/2023 Issued: 04/10/2023</p>
Monthly Maximum temperature (Image 3):	Seasonal maximum temperature (Image 4):
<p>Tercile maximum temperature probabilities for November 2023</p>  <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2023, Australian Bureau of Meteorology Shapefile data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <a href="http://www.maritimerregions.org/">http://www.maritimerregions.org/</a></p> <p>Model run: 02/10/2023 Issued: 04/10/2023</p>	<p>Tercile maximum temperature probabilities for November 2023 to January 2024</p>  <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2023, Australian Bureau of Meteorology Shapefile data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <a href="http://www.maritimerregions.org/">http://www.maritimerregions.org/</a></p> <p>Model run: 02/10/2023 Issued: 04/10/2023</p>
Monthly minimum temperature (Image 5):	Seasonal minimum temperature (Image 6):
<p>Tercile minimum temperature probabilities for November 2023</p>  <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2023, Australian Bureau of Meteorology Shapefile data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <a href="http://www.maritimerregions.org/">http://www.maritimerregions.org/</a></p> <p>Model run: 02/10/2023 Issued: 04/10/2023</p>	<p>Tercile minimum temperature probabilities for November 2023 to January 2024</p>  <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2023, Australian Bureau of Meteorology Shapefile data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <a href="http://www.maritimerregions.org/">http://www.maritimerregions.org/</a></p> <p>Model run: 02/10/2023 Issued: 04/10/2023</p>

Part 2: Recent Ocean Observation

Monthly/Three months: September and July to September 2023

Monthly: September	Last three months: July to September 2023:
Sea Surface Temperature (Image 1): <div><p>Tuvalu Monthly Average Sea Surface Temperature Anomaly: September 2023</p><p>©Commonwealth of Australia 2023 Australian Bureau of Meteorology, COSPPac Reynolds SST</p></div>	Sea Surface Temperature (Image 4): <div><p>Tuvalu 3 monthly Average Sea Surface Temperature Anomaly: July 2023 to September 2023</p><p>©Commonwealth of Australia 2023 Australian Bureau of Meteorology, COSPPac Reynolds SST</p></div>
Sea level (Image 2): <div><p>Tuvalu Monthly Near Real Time Sea Level Anomaly: September 2023</p><p>©Commonwealth of Australia 2023 Australian Bureau of Meteorology, COSPPac AVISO SeaWiFS SIA</p></div>	
Daily coral bleaching alert (Image 3): <div><p>Tuvalu Daily Coral Bleaching Alert: 04 October 2023</p><p>©Commonwealth of Australia 2023 Australian Bureau of Meteorology, COSPPac NOAA Coral Reef Watch</p></div>	<div><p>Pacific Ocean Daily Coral Bleaching Alert: 04 October 2023</p><p>©Commonwealth of Australia 2023 Australian Bureau of Meteorology, COSPPac NOAA Coral Reef Watch</p></div>

Part 2i. Monthly and Seasonal Outlooks for November and November 2023 to January 2024

Monthly: November	Seasonal: November to January
<p>Monthly sea surface temperature (Image 5):</p> <p>Difference from average sea surface temperature forecast for November 2023</p>  <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2023, Australian Bureau of Meteorology Shapefile data extracted from Flanders Marine Institute (2019). Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <a href="http://www.maritimerregions.org/">http://www.maritimerregions.org/</a></p> <p>Model run: 02/10/2023 Issued: 04/10/2023</p>	<p>Seasonal sea surface temperature (Image 6):</p> <p>Difference from average sea surface temperature forecast for November 2023 to January 2024</p>  <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2023, Australian Bureau of Meteorology Shapefile data extracted from Flanders Marine Institute (2019). Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <a href="http://www.maritimerregions.org/">http://www.maritimerregions.org/</a></p> <p>Model run: 02/10/2023 Issued: 04/10/2023</p>
<p>Monthly sea level (Image 7):</p> <p>Difference from average sea surface height forecast for November 2023</p>  <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2023, Australian Bureau of Meteorology Shapefile data extracted from Flanders Marine Institute (2019). Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <a href="http://www.maritimerregions.org/">http://www.maritimerregions.org/</a></p> <p>Model run: 02/10/2023 Issued: 04/10/2023</p>	<p>Seasonal sea level (Image 8):</p> <p>Difference from average sea surface height forecast for November 2023 to January 2024</p>  <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2023, Australian Bureau of Meteorology Shapefile data extracted from Flanders Marine Institute (2019). Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <a href="http://www.maritimerregions.org/">http://www.maritimerregions.org/</a></p> <p>Model run: 02/10/2023 Issued: 04/10/2023</p>
<p>4-week Coral Bleaching (Image 9):</p> <p>Tuvalu</p> <p>4 Weeks Coral Bleaching Outlook: 29 October 2023</p>  <p>© Commonwealth of Australia 2023 Australian Bureau of Meteorology, CSIRO/PSF NOAA Coral Reef Watch</p>	<p>Pacific Ocean</p> <p>4 Weeks Coral Bleaching Outlook: 29 October 2023</p>  <p>© Commonwealth of Australia 2023 Australian Bureau of Meteorology, CSIRO/PSF NOAA Coral Reef Watch</p>

## **Summary Statement**

### **Monthly and last three months: September 2023/July to September 2023 statement**

The rainfall for September was near-normal at Nanumea and Nui, while Funafuti and Niulakita observed above normal rainfall.

For the past three months, rainfall was below normal at Nanumea and Nui, near-normal at Funafuti, and above normal at Niulakita.

## **Part 1i. Monthly and Seasonal Outlooks for November and November 2023 to January 2024**

### **Monthly /Seasonal rainfall and temperature Outlook statements**

The rainfall for November and November to January 2024 is likely or very likely to be above normal over Tuvalu.

Maximum and minimum temperatures during November and averaged over November to January 2024 are likely or very likely to be above normal across the whole country.

## **Part 2: Recent Ocean summary statement**

### **Monthly and last three months: September 2023/July to September 2023**

September ocean temperatures in the Northern group were 1.0 to 1.5°C above normal. In the Central and the Southern group were 0.5 to 1.0°C above normal.

Averaged over July to September, ocean temperatures over Tuvalu were 0.5 to 1.5°C above normal.

September sea levels around Tuvalu were 50mm to 150mm above normal, with a very little portion of 0mm to 50mm near normal at Central part of Tuvalu EEZ.

Coral bleaching alert reveals “Warning” status for the Northern group, while for the remaining group of Tuvalu were ‘Watch’, and ‘No stress’ in the Southern part of Tuvalu EEZ.

## **Part 2i. Monthly and Seasonal Outlooks for November and November to January 2024**

### **Ocean Variable statement**

November and averaged over November to January ocean temperatures in the Northern group is predicted to be 1.2 to 2.0°C above normal. In the Central and Southern group are predicted to be 0.4 to 1.2 °C above normal.

November sea levels are forecast to be above normal at 30 to 60mm in far Northern group. The Southern group forecast to be below normal ranging from 30 to 60mm. The remaining parts of Tuvalu are forecast to be near normal.

Averaged over November to January 2024, Southern group are forecasted to be below normal ranging from 30 to 100mm. The remaining parts of Tuvalu are forecasted to be near normal.

Coral bleaching outlook for Tuvalu, predicts ‘Warning’ status in the Northern Group, remaining Central and Southern group at ‘Watch’ for the next four weeks.

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

Product	Date: September 2023	Stakeholder	Total Number of Participants	Number of Male	Number of Female	Comments (If there are comments from you Stakeholders)
Climate Bulletin		MET Staff	24	13	11	
		Disaster Dept	1	1		
		TRC	1		1	
		TuCAN	1		1	
		Agriculture	2	1	1	
		All Civil Servants	All staff			
		All-Kaupule Secretary	13	7	6	
EAR Watch		MET Staff	24	13	11	
		Disaster Dept	1	1		
		TRC	1		1	
		TuCAN	1		1	
		Agriculture	2	1	1	
		All Civil Servants	All staff			
		All-Kaupule Secretary	13	7	6	
Monthly Climate Briefing						
Ocean Outlook		MET Staff	24	13	11	
		Disaster Dept	1	1		
		TRC	1		1	
		TuCAN	1		1	
		Agriculture	2	1	1	
		All Civil Servants	All staff			
		All-Kaupule Secretary	13	7	6	
Climate data request						
<b>Total</b>			<b>129</b>	<b>69</b>	<b>60</b>	