

Country: Cook Islands

Part 1: Recent climate

TABLE 1: Monthly Rainfall

Station (include data period)	Oct-2023	Nov-2023	Dec-2023				
			Total (mm)	33%tile	67%tile	Median	Rank
	Total (mm)	Total (mm)	Rainfall (mm)				
	Penrhyn (1937-2024)	107.2	289.4	73.2	107.0	244.8	
Rarotonga (1899-2024)	93.2	11.3	49.9	135.0	257.0	213.0	12/125

TABLE 2: Three-month Total Rainfall for October to December 2023

Station	Three-month Total		33%tile	67%tile	Median	Rank
	Rainfall (mm)					
	Penrhyn (1937-2024)	469.8	Normal	355.4	627.0	
Rarotonga (1899-2024)	154.4	Below normal	358.0	524.0	469.0	2/125

Part 1i. Monthly and Seasonal Outlooks for February and February to April 2024

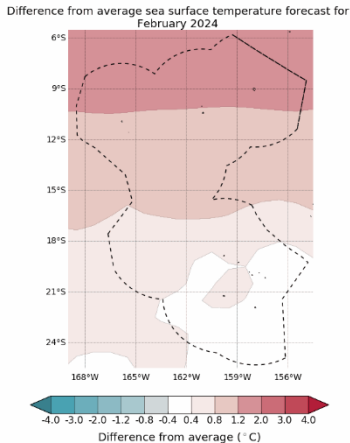
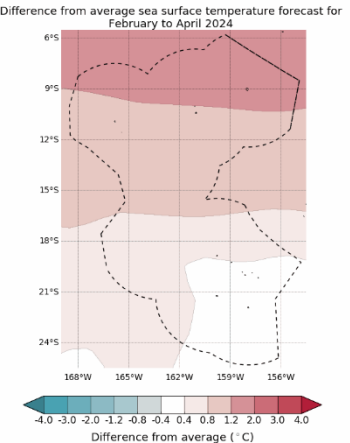
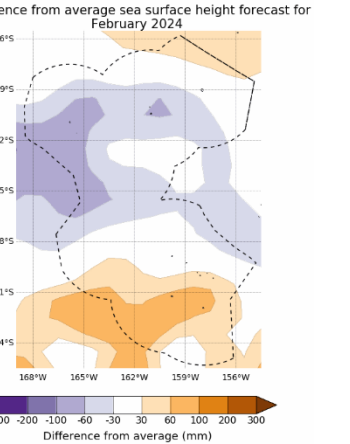
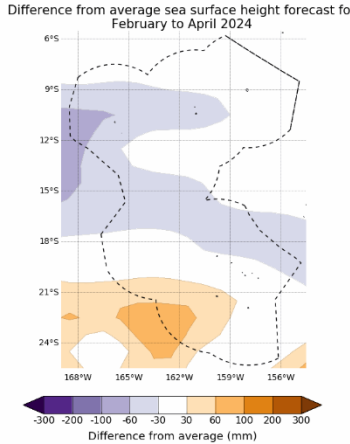
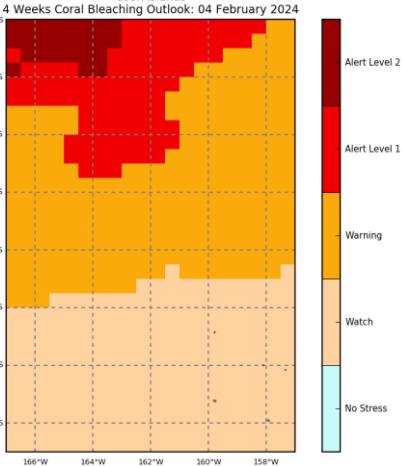
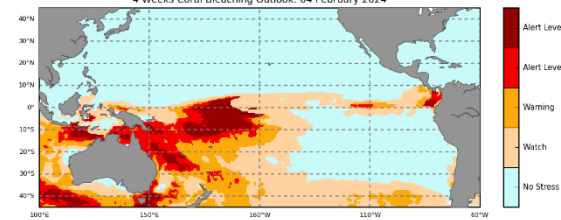
Monthly: February	Seasonal: February to April
Rainfall (Image 1)	Rainfall (Image 2)
<p>Tercile rainfall probabilities for February 2024</p> <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2024, Australian Bureau of Meteorology Shapellie data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2008), version 11. Available online at <a href="http://www.maritimergions.org/">http://www.maritimergions.org/</a></p> <p>Model run: 06/01/2024 Issued: 08/01/2024</p>	<p>Tercile rainfall probabilities for February to April 2024</p> <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2024, Australian Bureau of Meteorology Shapellie data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2008), version 11. Available online at <a href="http://www.maritimergions.org/">http://www.maritimergions.org/</a></p> <p>Model run: 06/01/2024 Issued: 08/01/2024</p>
Monthly Maximum temperature (Image 3):	Seasonal maximum temperature (Image 4):
<p>Tercile maximum temperature probabilities for February 2024</p> <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2024, Australian Bureau of Meteorology Shapellie data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2008), version 11. Available online at <a href="http://www.maritimergions.org/">http://www.maritimergions.org/</a></p> <p>Model run: 06/01/2024 Issued: 08/01/2024</p>	<p>Tercile maximum temperature probabilities for February to April 2024</p> <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2024, Australian Bureau of Meteorology Shapellie data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2008), version 11. Available online at <a href="http://www.maritimergions.org/">http://www.maritimergions.org/</a></p> <p>Model run: 06/01/2024 Issued: 08/01/2024</p>
Monthly minimum temperature (Image 5):	Seasonal minimum temperature (Image 6):
<p>Tercile minimum temperature probabilities for February 2024</p> <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2024, Australian Bureau of Meteorology Shapellie data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2008), version 11. Available online at <a href="http://www.maritimergions.org/">http://www.maritimergions.org/</a></p> <p>Model run: 06/01/2024 Issued: 08/01/2024</p>	<p>Tercile minimum temperature probabilities for February to April 2024</p> <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2024, Australian Bureau of Meteorology Shapellie data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2008), version 11. Available online at <a href="http://www.maritimergions.org/">http://www.maritimergions.org/</a></p> <p>Model run: 06/01/2024 Issued: 08/01/2024</p>

Part 2: Recent Ocean Observation

Monthly/Three months: December and October to December 2023

Monthly: December	Last three months: October to December 2023:
Sea Surface Temperature (Image 1): <div><p>Cook Islands Monthly Average Sea Surface Temperature Anomaly: December 2023</p><p>©Commonwealth of Australia 2024 Australian Bureau of Meteorology, COSPPac</p><p>Reynolds SST</p></div>	Sea Surface Temperature (Image 4): <div><p>Cook Islands 3 monthly Average Sea Surface Temperature Anomaly: October 2023 to December 2023</p><p>©Commonwealth of Australia 2024 Australian Bureau of Meteorology, COSPPac</p><p>Reynolds SST</p></div>
Sea level (Image 2): <div><p>Cook Islands Monthly Near Real Time Sea Level Anomaly: December 2023</p><p>©Commonwealth of Australia 2024 Australian Bureau of Meteorology, COSPPac</p><p>AVISO SeaWiFS/QuikSCAT SLA</p></div>	
Daily coral bleaching alert (Image 3): <div><p>Cook Islands Daily Coral Bleaching Alert: 08 January 2024</p><p>©Commonwealth of Australia 2024 Australian Bureau of Meteorology, COSPPac</p><p>NOAA Coral Reef Watch</p></div>	<div><p>Pacific Ocean Daily Coral Bleaching Alert: 08 January 2024</p><p>©Commonwealth of Australia 2024 Australian Bureau of Meteorology, COSPPac</p><p>NOAA Coral Reef Watch</p></div>

Part 2i. Monthly and Seasonal Outlooks for February and February to April 2024

Monthly: February	Seasonal: February to April
<p>Monthly sea surface temperature (Image 5):</p>  <p>Difference from average sea surface temperature forecast for February 2024</p> <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2024, Australian Bureau of Meteorology Sea surface data extracted from Jaraman Marine Institute (2023), Maritime Boundaries Geodatabase, Maritime Boundaries and Exclusive Economic Zones (2000), version 1.1. Available online at <a href="http://www.marine.gov.au">http://www.marine.gov.au</a></p> <p>Model run: 06/01/2024 Issued: 06/01/2024</p>	<p>Seasonal sea surface temperature (Image 6):</p>  <p>Difference from average sea surface temperature forecast for February to April 2024</p> <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2024, Australian Bureau of Meteorology Sea surface data extracted from Jaraman Marine Institute (2023), Maritime Boundaries Geodatabase, Maritime Boundaries and Exclusive Economic Zones (2000), version 1.1. Available online at <a href="http://www.marine.gov.au">http://www.marine.gov.au</a></p> <p>Model run: 06/01/2024 Issued: 06/01/2024</p>
<p>Monthly sea level (Image 7):</p>  <p>Difference from average sea surface height forecast for February 2024</p> <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2024, Australian Bureau of Meteorology Sea surface data extracted from Jaraman Marine Institute (2023), Maritime Boundaries Geodatabase, Maritime Boundaries and Exclusive Economic Zones (2000), version 1.1. Available online at <a href="http://www.marine.gov.au">http://www.marine.gov.au</a></p> <p>Model run: 06/01/2024 Issued: 06/01/2024</p>	<p>Seasonal sea level (Image 8):</p>  <p>Difference from average sea surface height forecast for February to April 2024</p> <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2024, Australian Bureau of Meteorology Sea surface data extracted from Jaraman Marine Institute (2023), Maritime Boundaries Geodatabase, Maritime Boundaries and Exclusive Economic Zones (2000), version 1.1. Available online at <a href="http://www.marine.gov.au">http://www.marine.gov.au</a></p> <p>Model run: 06/01/2024 Issued: 06/01/2024</p>
<p>4-week Coral Bleaching (Image 9):</p>  <p>Cook Islands 4 Weeks Coral Bleaching Outlook: 04 February 2024</p> <p>Alert Level 2 Alert Level 1 Warning Watch No Stress</p> <p>©Commonwealth of Australia 2024 Australian Bureau of Meteorology, COSPPac</p> <p>NOAA Coral Reef Watch</p>	 <p>Pacific Ocean 4 Weeks Coral Bleaching Outlook: 04 February 2024</p> <p>Alert Level 2 Alert Level 1 Warning Watch No Stress</p> <p>©Commonwealth of Australia 2024 Australian Bureau of Meteorology, COSPPac</p> <p>NOAA Coral Reef Watch</p>

## **Summary Statement**

### **Monthly and last three months: December 2023/October to December 2023 statement**

The rainfall for December was below normal over both Penrhyn and Rarotonga. For October – December 2023, rainfall was normal over Penrhyn and below normal for Rarotonga. This was the second driest October – December period for Rarotonga.

## **Part 1i. Monthly and Seasonal Outlooks for February and February to April 2024**

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

The rainfall for February 2024 is likely or very likely to be above normal over the northern and central Cook Islands, and most of the main islands in the south, except for Aitutikai where there is little guidance.

The rainfall for February to April 2024 is likely or very likely to be above normal over the northern and central Cooks, including Penrhyn, but the outlook offers little guidance in the south, including Rarotonga.

Maximum and minimum temperatures during February 2024 and averaged over February to April 2024, are very likely to be above normal for all but the far south of the Cook Islands.

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

### **Monthly and last three months: December 2023/October to December 2023**

December and averaged October to December ocean temperatures around Penrhyn and the Northern Cooks was upmost 1.5°C above normal, and till 1.0 below normal for Rarotonga and the Southern Cooks.

December sea levels around the Cooks were 0.0mm to 150.0mm above normal.

Coral bleaching alert at 'Warning' for Penrhyn and most Northern Cook Islands.

## **Part 2i. Monthly and Seasonal Outlooks for February and February to April 2024**

### **Ocean Variable statement**

February ocean temperatures around Penrhyn are predicted to be 1.2 to 2.0°C above normal, and 0.4 to 0.8°C above normal for Rarotonga.

Averaged over February to April 2024, ocean temperatures around Penrhyn are predicted to be 1.2 to 2.0°C above normal, and near normal for Rarotonga.

Monthly and 3 monthly sea levels around Penrhyn predict near normal sea levels and 30mm to 60mm above normal for Rarotonga.

Coral bleaching outlook at Alert 1 and Warning for the Northern Cook Islands and Watch for the Southern Cook Islands.

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

Product	Date: December 2023	Stakeholder	Total Number of Participants	Number of Male	Number of Female	Comments (If there are comments from you Stakeholders)
Climate Bulletin						
EAR Watch		Red Cross, Island Council and Executive Officers, To Tatou Vai, etc.....	39	?	?	
Monthly Climate Briefing		Climate Change	8	?	?	
Ocean Outlook						
Climate data request		Ministry of Marine Resources	1		1	
<b>Total</b>			<b>48</b>		<b>1</b>	