

Pacific Islands - Ocean and Climate Outlook Forum (OCOF) No. 168

Country: Cook Islands

Part 1: Recent climate

TABLE 1: Monthly Rainfall

Station (include data period)	Jun-2021	Jul-2021	Aug-2021				Rank
			Total (mm)	33%tile	67%tile	Median	
	Total (mm)	Total (mm)	Rainfall (mm)				
Penrhyn (1937-2021)	85.6	67.2	98.5	81.3	140.0	116.0	40/84
Rarotonga (1899-2021)	266.3	84.2	171.9	75.7	119.7	101.0	100/123

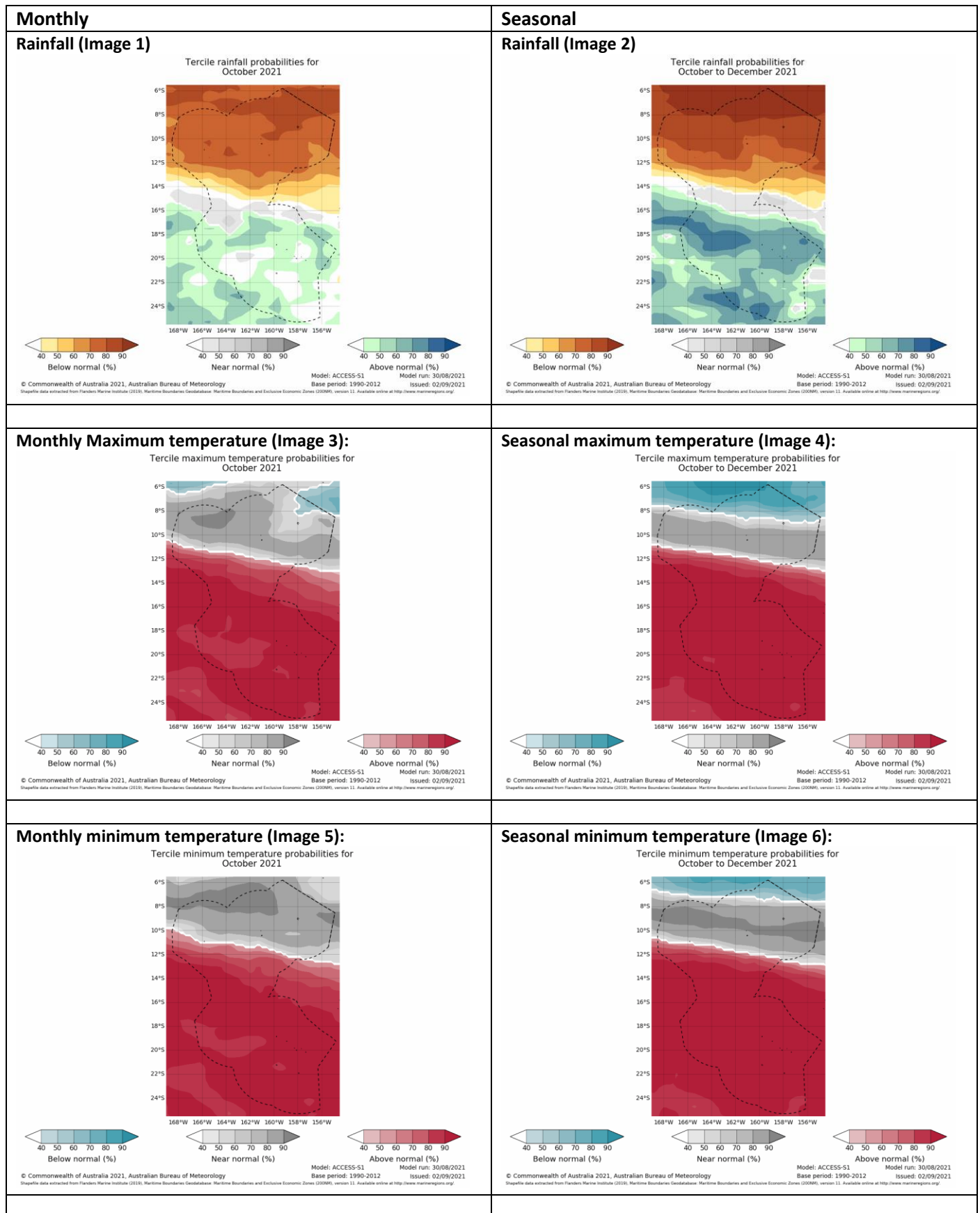
TABLE 2: Three-month Total Rainfall for June to August 2021

Station	Three-month Total		33%tile	67%tile	Median	Rank
	Rainfall (mm)					
Penrhyn (1937-2021)	251.3	Below normal	257.0	530.0	360.3	26/83
Rarotonga (1899-2021)	522.4	Above normal	247.0	364.5	300.0	113/123

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 October and October to December 2021



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Part 2: Recent Ocean summary statement

Monthly: August 2021

Monthly: August	Last three months: June to August 2021:
<p>Sea Surface Temperature (Image 1):</p> <p>Cook Islands Monthly Average Sea Surface Temperature Anomaly: August 2021</p> <p>©Pacific Community (SPC) 2021 Geoscience Energy and Maritime Division, COSMPac SPP</p> <p>Raytheon SST</p>	<p>Sea Surface Temperature (Image 4):</p> <p>Cook Islands 3 monthly Average Sea Surface Temperature Anomaly: June 2021 to August 2021</p> <p>©Pacific Community (SPC) 2021 Geoscience Energy and Maritime Division, COSMPac SPP</p> <p>Raytheon SST</p>
<p>Sea level (Image 2):</p> <p>Cook Islands Monthly Near Real Time Sea Level Anomaly: August 2021</p> <p>©Pacific Community (SPC) 2021 Geoscience Energy and Maritime Division, COSMPac SPP</p> <p>AVISO SsrRt/Duac SLA</p>	
<p>Daily coral bleaching alert (Image 3):</p> <p>Pacific Ocean Daily Coral Bleaching Alert: 30 August 2021</p> <p>©Pacific Community (SPC) 2021 Geoscience Energy and Maritime Division, COSMPac SPP</p> <p>NOAA Coral Reef Watch</p>	

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Part 2i. Monthly and Seasonal Outlooks for October and October to December 2021

<p>Monthly: October</p> <p>Monthly sea surface temperature (Image 5): Difference from average sea surface temperature forecast for September 2021</p> <p>Difference from average (°C)</p> <p>Model: ACCESS-S1 Base period: 1990-2012 Model run: 30/08/2021 Issued: 01/09/2021</p>	<p>Seasonal: October to December</p> <p>Seasonal sea surface temperature (Image 6): Difference from average sea surface temperature forecast for September to November 2021</p> <p>Difference from average (°C)</p> <p>Model: ACCESS-S1 Base period: 1990-2012 Model run: 30/08/2021 Issued: 01/09/2021</p>
<p>Monthly sea level (Image 7): Difference from average sea surface height forecast for October 2021</p> <p>Difference from average (mm)</p> <p>Model: ACCESS-S1 Base Period: 1990-2012 Model Run: 27/08/2021 Issued: Map not issued</p>	<p>Seasonal sea level (Image 8): Difference from average sea surface height forecast for October 2021 to December 2021</p> <p>Difference from average (mm)</p> <p>Model: ACCESS-S1 Base Period: 1990-2012 Model Run: 27/08/2021 Issued: Map not issued</p>
<p>4-week Coral Bleaching (Image 9):</p> <p>Pacific Ocean 4 Weeks Coral Bleaching Outlook: 03 October 2021</p> <p>Alert Level 2 Alert Level 1 Warning Watch No Stress</p> <p>©Pacific Community (SPC) 2021 Geoscience Energy and Maritime Division, COSPPac SMP NOAA Coral Reef Watch</p>	

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Summary Statement

Monthly and last three months: August 2021/June to August statement (Highly significant changes)

Normal rainfall was recorded at Penrhyn station, while above normal rainfall was registered at Rarotonga station.

Below normal rainfall was recorded at Penrhyn station for the past three months. While above normal rainfall was recorded for Rarotonga station. This was the 11th wettest June to August period on Rarotonga's record.

Part 1i. Monthly and Seasonal Outlooks for October and October to December 2021

Monthly /Seasonal rainfall and temperature Outlook statements

Monthly rainfall Outlook statements

The outlook for the northern coasts, which includes Penrhyn in October is very likely to be below normal with 80- 90% chance. The southern Coasts is likely to be above normal rainfall.

Seasonal Rainfall Outlook statements

The outlook is very likely to be below normal for the northern Coasts, including Penrhyn while above normal is very likely for the southern Coasts, which includes Rarotonga for October to December 2021 season.

Monthly Maximum Outlook statements

Near normal maximum temperature is likely for Penrhyn and very likely for other parts of the northern Coasts. Central and southern Coasts including Rarotonga is very likely to be above normal.

Seasonal maximum temperature Outlook statement

Below normal for the very northern part of the Northern Coasts, while Penrhyn is located in a near normal outlook area. Central and southern Coasts are very likely to be above normal, which includes Rarotonga station.

Monthly Minimum Outlook statements

Same pattern as and outlook as maximum temperature.

Seasonal minimum temperature Outlook statement

Same pattern as and outlook as maximum temperature.

Part 2: Recent Ocean summary statement

Monthly and last three months: August/June to August 2021

Sea Surface Temperature statement

Most of the Cooks archipelago experienced above average SST in the month of August 2021. Significant warm SSTs were experienced in the southern coasts. Highest SSTs were 1.5 to 2.0 degrees above average and located just to the south off Rarotonga.

Sea level statement

The sea level anomaly across the Cook Islands in August 2021 was significantly higher than normal, with majority of the archipelago in the range of 50 to 250 mm above average. This additional sea level anomaly needs to be taken into account when using the tide calendars by adding it onto the high/low tide levels.

Daily bleaching alert statement

Even with the warm SSTs experienced across the Cook Islands, 'no stress' coral bleaching alert status for much of the region.

Last three months Sea Surface Temperature statement

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For the June to August 2021 period, similar to the monthly pattern of warmer than average SSTs were experienced in the Cook Islands in the range of 0.0 to 1.5 degrees above average.

Part 2i. Monthly and Seasonal Outlooks for October and October to December 2021

Ocean Variable statement

Monthly sea surface temperature statement

The outlook for the Cook Islands archipelago shows a significant temperature difference of 0.4-1.2°C in the south for October.

Seasonal Sea Surface Temperature statement

The outlook for the Cooks archipelago shows SSTs are likely to be close to average for the October to December period. The outlook for Rarotonga shows a significant temperature difference of 0.8-1.2°C above normal for the October to December period.

Monthly sea level statement

Outlook across the Cooks archipelago shows sea surface heights are likely to be above the average for October. In the north, Penrhyn Island is predicted to reach 0.03 to 0.06 metres above normal. Rarotonga is likely to reach heights of 0.1 to 0.2 metres above normal.

Seasonal sea level statement

Similar patterns to the monthly outlook, sea surface heights are likely to be above the average for October to December period.

4-weeks Coral Bleaching statement

The outlook for the Cook Islands archipelago shows there are no coral bleaching alerts.

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

Product	Date: August 2021	Stakeholder	Total Number of Participants	Number of male	Number of female
Climate Bulletin		Ministry of Transport	29	17	12
EAR Watch		C.I Govt. Stakeholders Public	?	?	?
Monthly Climate Briefing		Climate Change	8	2	6
Ocean Outlook					
Total			37	19	18

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