

# Pacific Islands - Ocean and Climate Outlook Forum (OCOF) No. 182

Country: Marshall Islands

## Part 1: Recent climate

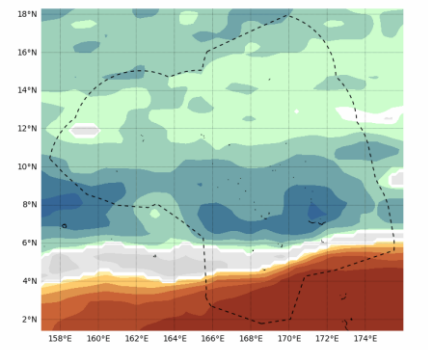
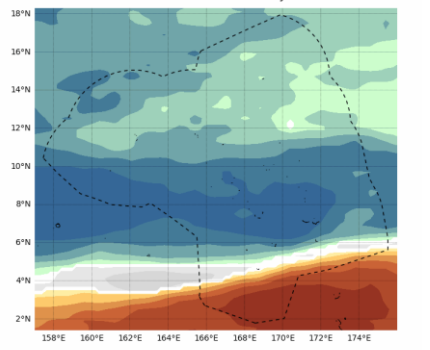
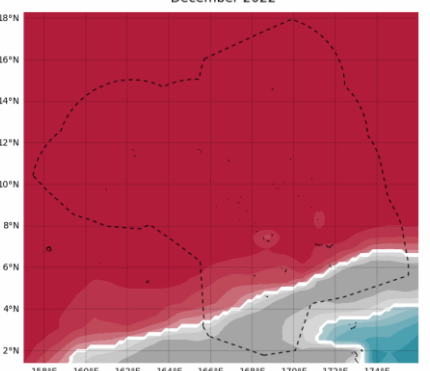
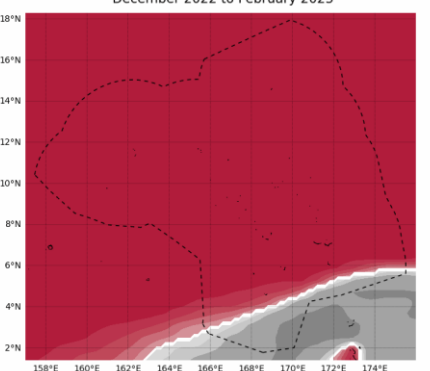
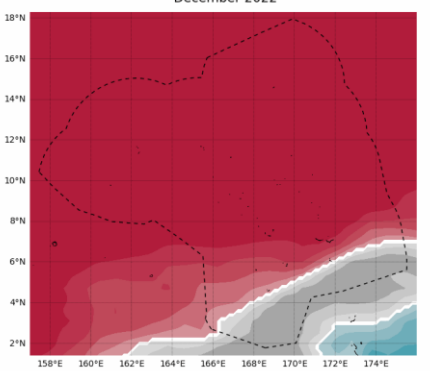
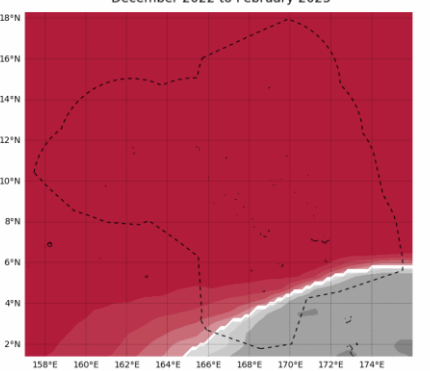
**TABLE 1: Monthly Rainfall**

Station (include data period)	Aug-2022	Sep-2022	Oct-2022				
			Total (mm)	33%tile	67%tile	Median	Rank
	Total (mm)	Total (mm)	Rainfall (mm)				
Majuro (1954-2022)	219.7	450.1	476.5	292.2	397.6	357.3	59/69
Kwajalein (1945-2022)	325.4	186.4	457.7	253.5	345.6	295.9	70/78

**TABLE 2: Three-month Total Rainfall for August to October 2022**

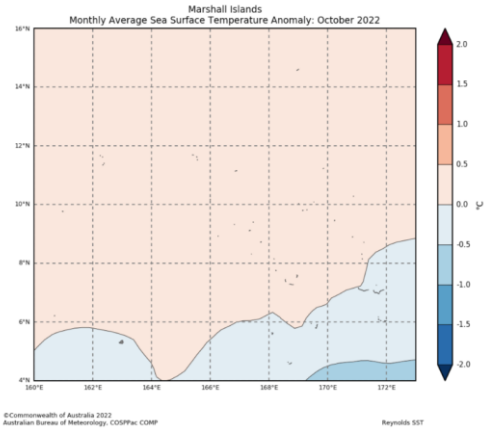
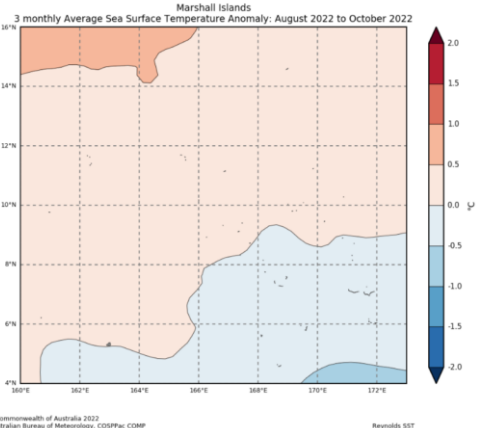
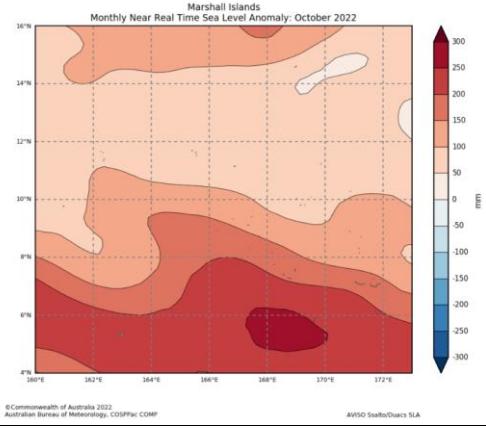
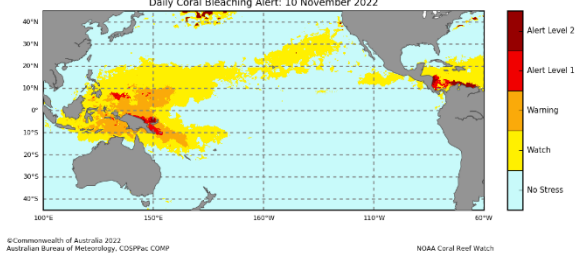
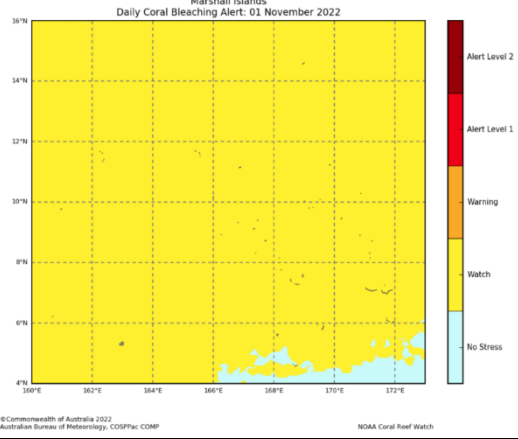
Station	Three-month Total		33%tile	67%tile	Median	Rank
	Rainfall (mm)					
Majuro (1954-2022)	1146.3	Above normal	883.1	1033.2	972.1	59/69
Kwajalein (1945-2022)	969.5	Above normal	747.7	900.2	855.6	57/78

# Part 1i. Monthly and Seasonal Outlooks for December 2022 and December 2022 to February 2023

Monthly: December	Seasonal: December to February
Rainfall (Image 1)	Rainfall (Image 2)
<p>Tercile rainfall probabilities for December 2022</p>  <p>Below normal (%)      Near normal (%)      Above normal (%)</p> <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2022, Australian Bureau of Meteorology Geospatial data extracted from: Australian Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2008M), version 11. Available online at <a href="http://www.maritime.gov.au">http://www.maritime.gov.au</a></p> <p>Model run: 07/11/2022 Issued: 10/11/2022</p>	<p>Tercile rainfall probabilities for December 2022 to February 2023</p>  <p>Below normal (%)      Near normal (%)      Above normal (%)</p> <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2022, Australian Bureau of Meteorology Geospatial data extracted from: Australian Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2008M), version 11. Available online at <a href="http://www.maritime.gov.au">http://www.maritime.gov.au</a></p> <p>Model run: 07/11/2022 Issued: 10/11/2022</p>
Monthly Maximum temperature (Image 3):	Seasonal maximum temperature (Image 4):
<p>Tercile maximum temperature probabilities for December 2022</p>  <p>Below normal (%)      Near normal (%)      Above normal (%)</p> <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2022, Australian Bureau of Meteorology Geospatial data extracted from: Australian Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2008M), version 11. Available online at <a href="http://www.maritime.gov.au">http://www.maritime.gov.au</a></p> <p>Model run: 07/11/2022 Issued: 10/11/2022</p>	<p>Tercile maximum temperature probabilities for December 2022 to February 2023</p>  <p>Below normal (%)      Near normal (%)      Above normal (%)</p> <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2022, Australian Bureau of Meteorology Geospatial data extracted from: Australian Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2008M), version 11. Available online at <a href="http://www.maritime.gov.au">http://www.maritime.gov.au</a></p> <p>Model run: 07/11/2022 Issued: 10/11/2022</p>
Monthly minimum temperature (Image 5):	Seasonal minimum temperature (Image 6):
<p>Tercile minimum temperature probabilities for December 2022</p>  <p>Below normal (%)      Near normal (%)      Above normal (%)</p> <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2022, Australian Bureau of Meteorology Geospatial data extracted from: Australian Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2008M), version 11. Available online at <a href="http://www.maritime.gov.au">http://www.maritime.gov.au</a></p> <p>Model run: 07/11/2022 Issued: 10/11/2022</p>	<p>Tercile minimum temperature probabilities for December 2022 to February 2023</p>  <p>Below normal (%)      Near normal (%)      Above normal (%)</p> <p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2022, Australian Bureau of Meteorology Geospatial data extracted from: Australian Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2008M), version 11. Available online at <a href="http://www.maritime.gov.au">http://www.maritime.gov.au</a></p> <p>Model run: 07/11/2022 Issued: 10/11/2022</p>

Part 2: Recent Ocean Observation

Monthly/Three months: October 2022 and August to October 2022

<p><u>Monthly: October</u></p>	<p><u>Last three months: August to October 2022:</u></p>
<p>Sea Surface Temperature (Image 1):</p>	<p>Sea Surface Temperature (Image 4):</p>
 <p>Marshall Islands Monthly Average Sea Surface Temperature Anomaly: October 2022</p> <p>©Commonwealth of Australia 2022 Australian Bureau of Meteorology, COSPac COMP</p> <p>Reynolds SST</p>	 <p>Marshall Islands 3 monthly Average Sea Surface Temperature Anomaly: August 2022 to October 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>Marshall Islands Monthly Near Real Time Sea Level Anomaly: October 2022</p> <p>©Commonwealth of Australia 2022 Australian Bureau of Meteorology, COSPac COMP</p> <p>AVISO SeaWiFS SLA</p>	
<p>Daily coral bleaching alert (Image 3):</p>	
 <p>Pacific Ocean Daily Coral Bleaching Alert: 10 November 2022</p> <p>©Commonwealth of Australia 2022 Australian Bureau of Meteorology, COSPac COMP</p> <p>NOAA Coral Reef Watch</p>	 <p>Marshall Islands Daily Coral Bleaching Alert: 01 November 2022</p> <p>©Commonwealth of Australia 2022 Australian Bureau of Meteorology, COSPac COMP</p> <p>NOAA Coral Reef Watch</p>

Part 2i. Monthly and Seasonal Outlooks for December 2022 and December 2022 to February 2023

<div>Monthly: December</div> <div>Monthly sea surface temperature (Image 5):</div> <div><div>Difference from average sea surface temperature forecast for December 2022</div><p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2022, Australian Bureau of Meteorology Geospatial data extracted from: Flinders Marine Institute (2019), Maritime Boundaries Geodatabase, Maritime Boundaries and Exclusive Economic Zones (2020b), version 1.1. Available online at <a href="http://www.maritime.gov.au">http://www.maritime.gov.au</a></p><p>Model run: 07/11/2022 Issued: 09/11/2022</p></div>	<div>Seasonal: December to February</div> <div>Seasonal sea surface temperature (Image 6):</div> <div><div>Difference from average sea surface temperature forecast for December 2022 to February 2023</div><p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2022, Australian Bureau of Meteorology Geospatial data extracted from: Flinders Marine Institute (2019), Maritime Boundaries Geodatabase, Maritime Boundaries and Exclusive Economic Zones (2020b), version 1.1. Available online at <a href="http://www.maritime.gov.au">http://www.maritime.gov.au</a></p><p>Model run: 07/11/2022 Issued: 09/11/2022</p></div>
<div>Monthly sea level (Image 7):</div> <div><div>Difference from average sea surface height forecast for December 2022</div><p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2022, Australian Bureau of Meteorology Geospatial data extracted from: Flinders Marine Institute (2019), Maritime Boundaries Geodatabase, Maritime Boundaries and Exclusive Economic Zones (2020b), version 1.1. Available online at <a href="http://www.maritime.gov.au">http://www.maritime.gov.au</a></p><p>Model run: 07/11/2022 Issued: 09/11/2022</p></div>	<div>Seasonal sea level (Image 8):</div> <div><div>Difference from average sea surface height forecast for December 2022 to February 2023</div><p>Base period: 1981-2018 Model: ACCESS-S2 © Commonwealth of Australia 2022, Australian Bureau of Meteorology Geospatial data extracted from: Flinders Marine Institute (2019), Maritime Boundaries Geodatabase, Maritime Boundaries and Exclusive Economic Zones (2020b), version 1.1. Available online at <a href="http://www.maritime.gov.au">http://www.maritime.gov.au</a></p><p>Model run: 07/11/2022 Issued: 09/11/2022</p></div>
<div>4-week Coral Bleaching (Image 9):</div> <div><div>Pacific Ocean</div><div>4 Weeks Coral Bleaching Outlook: 04 December 2022</div><p>©Commonwealth of Australia 2022 Australian Bureau of Meteorology, COSPPac COMP</p><p>NOAA Coral Reef Watch</p></div>	<div>Marshall Islands</div> <div>4 Weeks Coral Bleaching Outlook: 04 December 2022</div> <p>©Commonwealth of Australia 2022 Australian Bureau of Meteorology, COSPPac COMP</p> <p>NOAA Coral Reef Watch</p>

## **Summary Statement**

### **Monthly and last three months: October 2022/August to October 2022 statement**

Above normal rainfall was recorded at both stations for the month of October, and also the period of August to October. Kwajalein reported its ninth wettest October on record.

## **Part 1i. Monthly and Seasonal Outlooks for December 2022 and December 2022 to February 2023**

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

The rainfall outlooks for December and December to February show rainfall is likely or very likely to be above normal across most of the Marshall Islands, including Majuro and Kwajalein. In the southern-most islands, near-normal rainfall is most likely, while over the far south of the EEZ, below normal rainfall is very likely.

Maximum and minimum temperatures during December and December to February are very likely to be above normal across most of the Marshall Islands, except for the far south of the EEZ where near-normal temperatures are likely.

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

### **Monthly and last three months: October/August to October 2022**

October ocean temperatures around the Marhsall Islands were near to average. August to October were also near to average.

October sea levels around Majuro and neighbouring atolls were 150mm to 200mm above normal, while Kwajalein and northern atolls were ranging from 100m to 150mm above normal.

Coral Bleaching alert was on WATCH status for most parts of the Marshall Islands during the month of October.

## **Part 2i. Monthly and Seasonal Outlooks for December 2022 and December 2022 to February 2023**

### **Ocean Variable statement**

December and December to February ocean temperatures across the Marshall Islands are predicted to be 0.4 to 0.8°C above average.

December sea levels around Majuro and Kwajalein are predicted to be 30mm to 60mm above average, while southern islands are predicted to reach around 60mm to 100mm above average.

Averaged over December to February, sea levels around Majuro and Kwajalein are predicted to be average, while southern islands are predicted to 100mm to 200mm above average.

The Coral Bleaching outlook shows a WATCH status for Majuro and NO STRESS status for Kwajalein.

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

<b>Product</b>	<b>Date: October 2022</b>	<b>Stakeholder</b>	<b>Total Number of Participants</b>	<b>Number of male</b>	<b>Number of female</b>
Climate Bulletin					
EAR Watch					
Monthly Climate Briefing	10/21/22	Chief Secretary Office and National Disaster Management Office	6	3	3
Ocean Outlook					
Climate data request					
<b>Total</b>			<b>6</b>	<b>3</b>	<b>3</b>