

# Pacific Islands - Ocean and Climate Outlook Forum (OCOF) No. 184

Country: Fiji

Part 1: Recent climate

**TABLE 1: Monthly Rainfall**

Station (include data period)	Oct-2022	Nov-2022	Dec-2022				
	Total (mm)	Total (mm)	Total (mm)	33%tile	67%tile	Median	Rank
			Rainfall (mm)				
<i>Western Division</i>							
Penang Mill (1910-2022)	209.8	82.9	509.6	164.1	279.9	203.4	99/110
Lautoka Mill (1900-2022)	225.0	110.0	362.6	110.6	201.8	159.8	108/123
Nadi Airport (1942-2022)	196.9	115.2	390.5	121.8	241.3	184.2	<b>76/81</b>
<i>Central Division</i>							
Laucala Bay (Suva) (1942-2022)	352.4	116.5	221.3	213.1	344.2	273.2	29/81
Nausori Airport (1957-2022)	461.9	198.2	157.7	216.9	327.3	260.5	15/67
Tokotoko (Navua) (1945-2022)	490.0	139.5	139.0	235.4	402.7	291.0	<b>8/77</b>
<i>Eastern Division</i>							
Lakeba (1950-2022)	226.5	153.9	141.7	135.9	209.5	168.2	27/73
Vunisea (Kadavu) (1931-2022)		104.0		112.9	228.7	157.8	
Ono-i-Lau (1943-2022)	221.7	79.5	506.2	84.7	169.4	114.9	<b>74/75</b>
<i>Northern Division</i>							
Labasa Airport (1946-2022)	248.6	162.2	296.8	148.9	276.2	205.8	47/64
Savusavu Airfield (1956-2022)	187.6	184.8	198.9	146.3	247.0	169.7	36/64
Udu Point (1946-2022)	285.5	237.3	237.9	188.4	310.2	267.2	31/73
Rotuma (1912-2022)	217.8	173.5	206.9	239.1	355.4	287.6	24/108

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

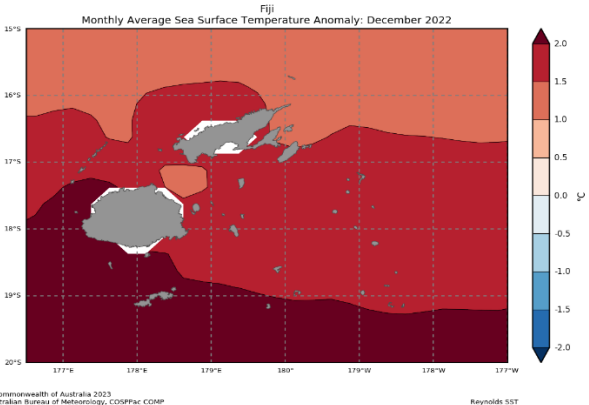
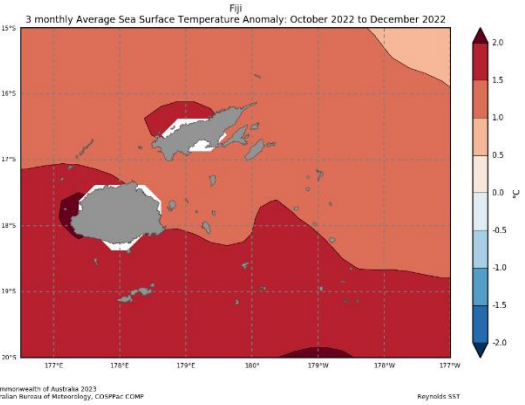
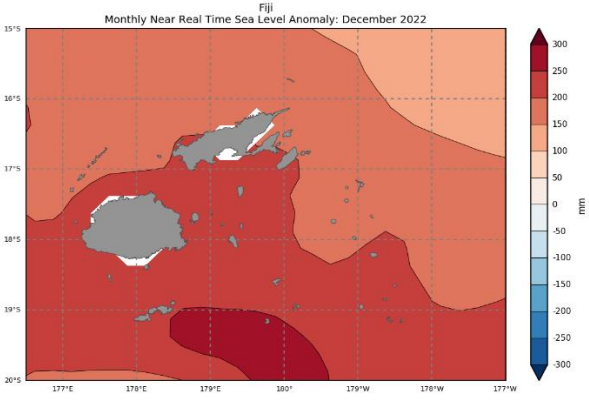
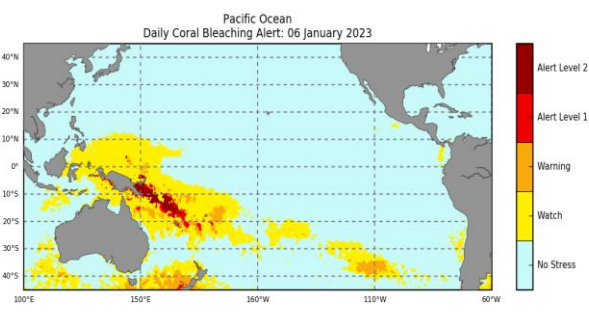
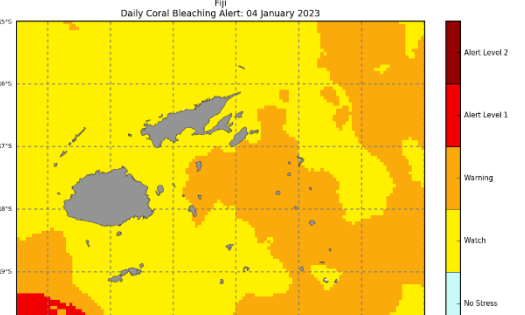
Station	Three-month Total	33%tile	67%tile	Median	Rank	
	Rainfall (mm)					
<b>Western Division</b>						
Penang Mill (1910-2022)	802.3	Above normal	351.4	612.7	481.5	97/108
Lautoka Mill (1900-2022)	697.6	Above normal	297.2	441.3	360.5	110/123
Nadi Airport (1942-2022)	702.6	Above normal	332.9	493.7	380.0	<b>74/80</b>
<b>Central Division</b>						
Laucala Bay (Suva) (1942-2022)	690.2	Normal	573.8	899.7	765.8	37/81
Nausori Airport (1957-2022)	817.8	Normal	585.7	923.3	720.4	41/66
Tokotoko (Navua) (1945-2022)	768.5	Normal	744.4	1043.2	884.0	28/77
<b>Eastern Division</b>						
Lakeba (1950-2022)	522.1	Normal	338.3	532.0	424.8	47/73
Vunisea (Kadavu) (1931-2022)			319.0	536.2	472.2	
Ono-i-Lau (1943-2022)	807.4	Above normal	226.7	411.5	347.6	<b>74/75</b>
<b>Northern Division</b>						
Labasa Airport (1947-2022)	707.6	Above normal	361.0	588.1	482.7	46/60
Savusavu Airfield (1957-2022)	571.3	Normal	424.5	648.0	521.2	38/63
Udu Point (1946-2022)	760.7	Above normal	545.0	753.9	635.8	49/72
Rotuma (1912-2022)	598.2	Below normal	822.5	1063.9	949.9	<b>10/106</b>

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

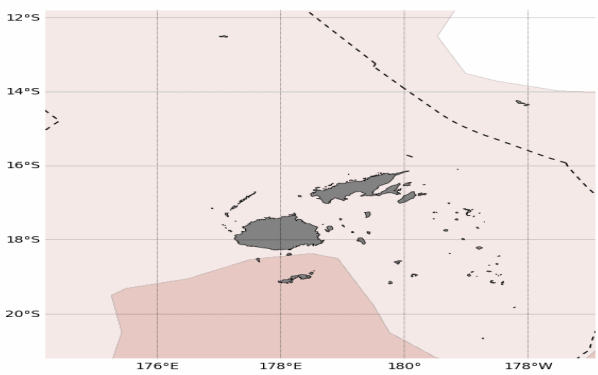
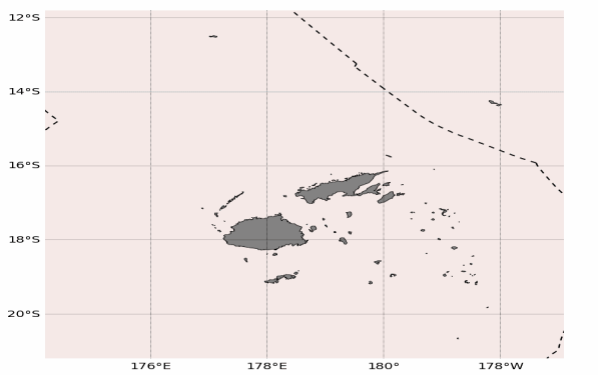
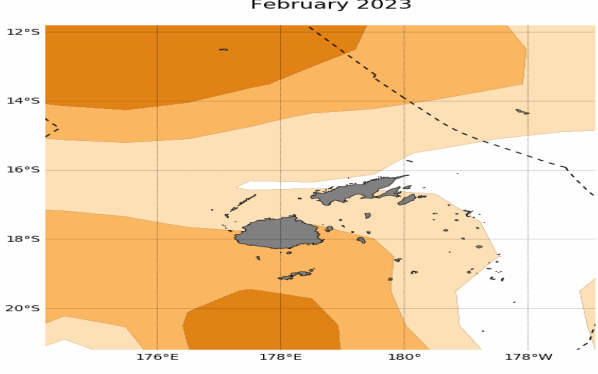
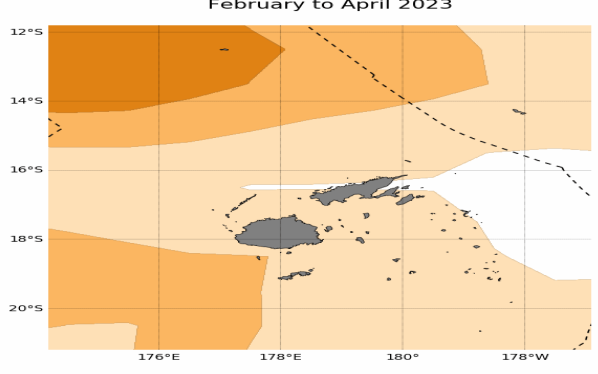
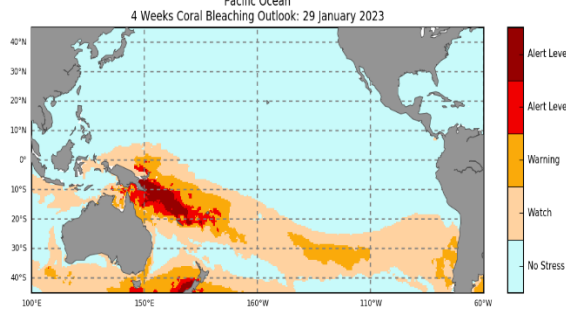
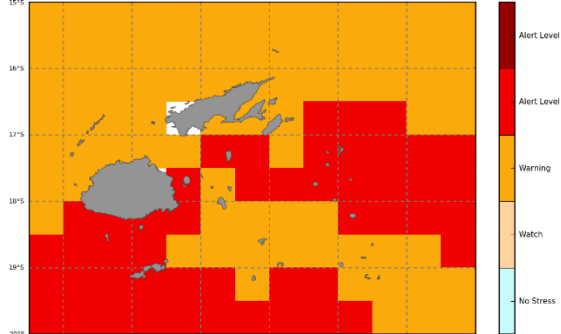
Monthly: February	Seasonal: February to April
<p><b>Rainfall (Image 1)</b></p> <p>Tercile rainfall probabilities for February 2023</p> <p>Base period: 1981-2018 Model: ACCESS-S2 Model run: 02/01/2023 Issued: 05/01/2023</p> <p>© Commonwealth of Australia 2023. Australian Bureau of Meteorology Shapefile 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.marinerregions.org/">http://www.marinerregions.org/</a></p>	<p><b>Rainfall (Image 2)</b></p> <p>Tercile rainfall probabilities for February to April 2023</p> <p>Base period: 1981-2018 Model: ACCESS-S2 Model run: 02/01/2023 Issued: 05/01/2023</p> <p>© 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.marinerregions.org/">http://www.marinerregions.org/</a></p>
<p><b>Monthly Maximum temperature (Image 3):</b></p> <p>Tercile maximum temperature probabilities for February 2023</p> <p>Base period: 1981-2018 Model: ACCESS-S2 Model run: 02/01/2023 Issued: 05/01/2023</p> <p>© 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.marinerregions.org/">http://www.marinerregions.org/</a></p>	<p><b>Seasonal maximum temperature (Image 4):</b></p> <p>Tercile maximum temperature probabilities for February to April 2023</p> <p>Base period: 1981-2018 Model: ACCESS-S2 Model run: 02/01/2023 Issued: 05/01/2023</p> <p>© 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.marinerregions.org/">http://www.marinerregions.org/</a></p>
<p><b>Monthly minimum temperature (Image 5):</b></p> <p>Tercile minimum temperature probabilities for February 2023</p> <p>Base period: 1981-2018 Model: ACCESS-S2 Model run: 02/01/2023 Issued: 05/01/2023</p> <p>© 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.marinerregions.org/">http://www.marinerregions.org/</a></p>	<p><b>Seasonal minimum temperature (Image 6):</b></p> <p>Tercile minimum temperature probabilities for February to April 2023</p> <p>Base period: 1981-2018 Model: ACCESS-S2 Model run: 02/01/2023 Issued: 05/01/2023</p> <p>© 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.marinerregions.org/">http://www.marinerregions.org/</a></p>

# Part 2: Recent Ocean Observation

## Monthly/Three months: December 2022 and October to December 2022

<p><b>Monthly: December</b></p>	<p><b>Last three months: October to December 2022:</b></p>
<p><b>Sea Surface Temperature (Image 1):</b></p>  <p>Monthly Average Sea Surface Temperature Anomaly: December 2022</p> <p>©Commonwealth of Australia 2023 Australian Bureau of Meteorology, COSPPac COMP</p> <p>Reynolds SST</p>	<p><b>Sea Surface Temperature (Image 4):</b></p>  <p>3 monthly Average Sea Surface Temperature Anomaly: October 2022 to December 2022</p> <p>©Commonwealth of Australia 2023 Australian Bureau of Meteorology, COSPPac COMP</p> <p>Reynolds SST</p>
<p><b>Sea level (Image 2):</b></p>  <p>Monthly Near Real Time Sea Level Anomaly: December 2022</p> <p>©Commonwealth of Australia 2023 Australian Bureau of Meteorology, COSPPac COMP</p> <p>AVISO SeaLarDuacs SLA</p>	
<p><b>Daily coral bleaching alert (Image 3):</b></p>  <p>Pacific Ocean Daily Coral Bleaching Alert: 06 January 2023</p> <p>©Commonwealth of Australia 2023 Australian Bureau of Meteorology, COSPPac COMP</p> <p>NOAA Coral Reef Watch</p>	 <p>Fiji Daily Coral Bleaching Alert: 04 January 2023</p> <p>©Commonwealth of Australia 2023 Australian Bureau of Meteorology, COSPPac COMP</p> <p>NOAA Coral Reef Watch</p>

# Part 2i. Monthly and Seasonal Outlooks for February and February to April 2023

Monthly: February	Seasonal: February to April
<p><b>Monthly sea surface temperature (Image 5):</b></p> <p>Difference from average sea surface temperature forecast for February 2023</p>  <p style="text-align: center;">Difference from average (°C)</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.marinerregions.org/">http://www.marinerregions.org/</a></p>	<p><b>Seasonal sea surface temperature (Image 6):</b></p> <p>Difference from average sea surface temperature forecast for February to April 2023</p>  <p style="text-align: center;">Difference from average (°C)</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.marinerregions.org/">http://www.marinerregions.org/</a></p>
<p><b>Monthly sea level (Image 7):</b></p> <p>Difference from average sea surface height forecast for February 2023</p>  <p style="text-align: center;">Difference from average (mm)</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.marinerregions.org/">http://www.marinerregions.org/</a></p>	<p><b>Seasonal sea level (Image 8):</b></p> <p>Difference from average sea surface height forecast for February to April 2023</p>  <p style="text-align: center;">Difference from average (mm)</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.marinerregions.org/">http://www.marinerregions.org/</a></p>
<p><b>4-week Coral Bleaching (Image 9):</b></p> <p>Pacific Ocean 4 Weeks Coral Bleaching Outlook: 29 January 2023</p>  <p>© Commonwealth of Australia 2023 Australian Bureau of Meteorology, COSPPac, COMP NOAA Coral Reef Watch</p>	<p><b>4-week Coral Bleaching (Image 9):</b></p> <p>Fiji 4 Weeks Coral Bleaching Outlook: 29 January 2023</p>  <p>© Commonwealth of Australia 2023 Australian Bureau of Meteorology, COSPPac, COMP NOAA Coral Reef Watch</p>

## Summary Statement

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

For December 2022, *above normal* rainfall was registered across the Western Division, at Ono-i-Lau and Labasa Airport. *Near-normal* rainfall was recorded at Laucala Bay (Suva), Lakeba, Savusavu Airfield and Udu Point. *Below normal* rainfall was recorded at Nausori Airport, Tokotoko (Navua) and Rotuma. Nadi Airport registered its sixth wettest December in 81 years of record, while Ono-i-Lau had its second wettest in 75 years of record. In contrast, Tokotoko (Navua) registered its eighth driest December in 77 years of record.

For October to December 2022, *normal* to *above normal* rainfall was recorded across Fiji, except for Rotuma, which recorded *below normal* rainfall. Nadi Airport registered its seventh wettest October to December in 80 years of record and Ono-i-Lau had its second wettest in 75 years of record. On the other hand, Rotuma registered its tenth driest October to December in 106 years of record.

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

### Monthly /Seasonal rainfall and temperature Outlook statements

Fiji's February 2023 rainfall is likely to be *above normal* for the whole of Viti Levu, Kadavu, northern and southern parts of the Lau Group, while there is little guidance for the Northern Division and Lomaiviti Group. Rotuma is likely to have *below normal* rainfall. For February to April 2023, rainfall is likely to be *above normal* for Fiji, except for Rotuma where *below normal* rainfall is likely.

Both maximum and minimum temperatures for Fiji for February and February to April 2023 are very likely to be *above normal*.

## Part 2: Recent Ocean summary statement

### Monthly and last three months: December/October to December 2022

December ocean temperatures around Fiji were 1.5 to 2.0°C above normal.

Averaged over October to December, ocean temperatures around Fiji were mainly 1.5 to 2.0°C above normal, increasing to over 2.0°C above normal in far southern and southwestern waters.

December sea levels around Fiji were 150 mm to 250 mm above normal.

Coral bleaching alert is at '*Watch*' for most of the Fiji Waters.

## Part 2i. Monthly and Seasonal Outlooks for February and February to April 2023

### Ocean Variable statement

February ocean temperatures around Fiji are predicted to be 0.4 to 1.2°C above normal.

Averaged over February to April, ocean temperatures around Fiji are predicted to be 0.4 to 0.8°C above normal.

February sea levels around Fiji are predicted to be 30 mm to 100 mm above normal near the main islands. Around Rotuma in the far north, and in parts of the far south the forecast is for sea levels of 100 mm to 200 mm above normal. In contrast, in the east, sea levels are predicted to be within 30 mm of normal.

Averaged over February to April, sea levels around Fiji are predicted to be very similar to those in February, apart from the higher values in the far south.

Coral bleaching outlook for the next four weeks is at '*Warning*' for most of the Fiji waters, while waters around Kadavu, parts of the Lomaiviti Group and northern parts of the Lau Group are at '*Alert Level 1*'.

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

Product	Date: December 2022	Stakeholder	Total Number of Participants	Number of male	Number of female
Fiji Climate Summary	08/12/22	General Public	140	106	34
EAR Watch	13/12/22	Humanitarian partners	122	96	26
Fiji Climate Outlook	30/12/22	General public	124	93	31
Climate Outlook for Monasavu	30/12/22	Energy Fiji Limited	13	13	-
Fiji Ocean Outlook	20/12/22	A number of key ocean related stakeholders	36	29	7
Meteorological Data Request	01/12/22 to 31/12/22	A range of stakeholders	24	22	2
Preparedness Planning Workshop	07/12/22	National Disaster Management Office (NDMO) staffs	18	13	5
Fifth National Climate Outlook Forum	08/12/22-09/12/22	A range of stakeholders from disaster sensitive sectors (Ministry of Health, Land & Mineral Resources, Youth & Sports, Education, Heritage & Arts, Waterways, Local Government, Commerce, Trade, Tourism & Transport, FemLINK Pacific, ADRA, Pacific Disability Forum, Fiji Roads Authority, Red Cross, Fiji Association of the Deaf, Energy Fiji Limited, Pacific Community, Fiji Sun, Fiji Broadcasting Corporation, Sugar Research Institute of Fiji)	56	33	23
<b>Total</b>			<b>533</b>	<b>405</b>	<b>128</b>

**Preparedness Planning Workshop – 7<sup>th</sup> December 2022**



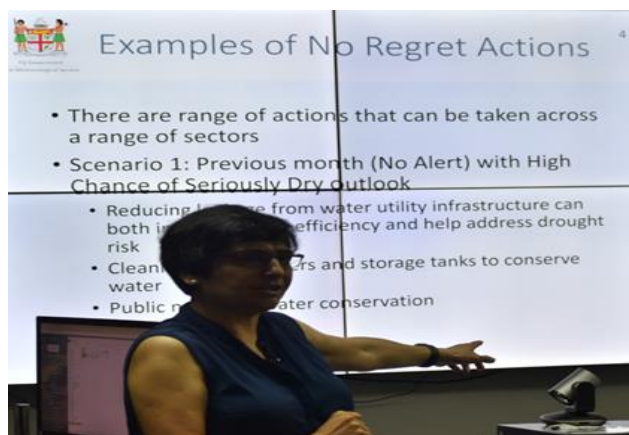
*Figure 1: Fiji Meteorological Service Officers and National Disaster Management Office representatives during the Preparedness Planning Meeting at the NDMO Office, Suva.*



*Figure 2: Director NDMO, Ms. Vasiti Soko outlining the responsibilities and achievements of NDMO.*



*Figure 3: Acting Principal Scientific Officer (Climatology), Mr. Bipen Prakash (on the left) explaining about the EAR Watch product.*



*Figure 4: Senior Climatologist, Ms. Janita Pahalad (on the right) from Australia emphasising on taking early action based on different climate scenarios.*

**Fifth National Climate Outlook Forum (Theme: Disaster Risk Reduction) – 8<sup>th</sup> to 9<sup>th</sup> December 2022**



*Figure 5: Participants of the Fifth National Climate Outlook Forum.*



*Figure 6: The Deputy Secretary of Operation for Ministry of Infrastructure and Meteorological Services, Mr. George Tavo (on the left) and Senior Climatologist from COSPPac Ms. Janita Pahalad (on the right) as*





Figure 7: Deputy Secretary of Operation for Ministry of Infrastructure and Meteorological Services, Mr. George Tavo delivering the key note address.

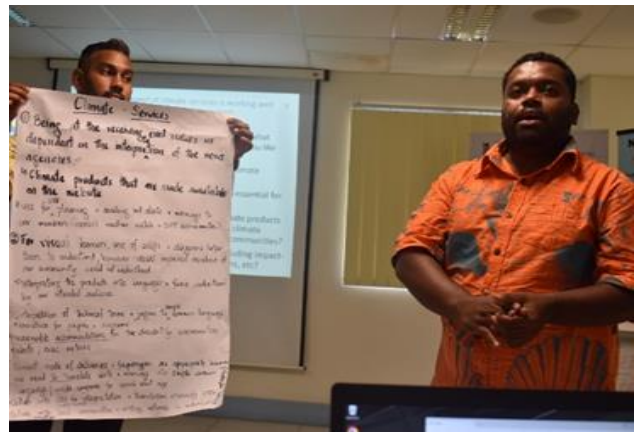


Figure 8: Participants giving feedback to FMS on its services during the forum.

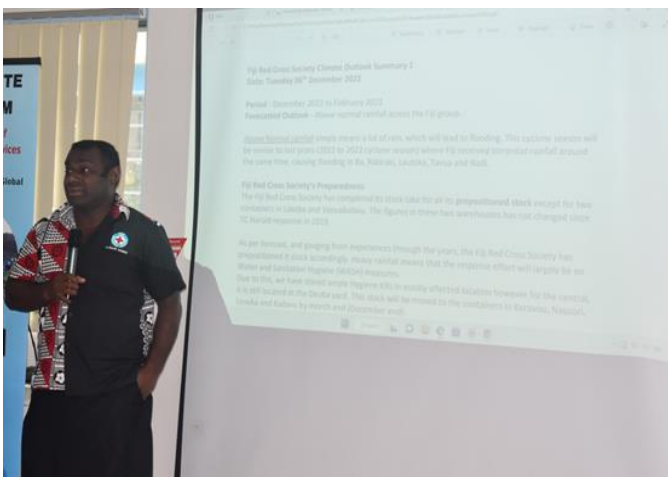


Figure 9: Mr. Maciu Nokelevu presents on how the climate information received from FMS assists Fiji Red Cross in their planning.



Figure 10: Participants playing 'paying for predictions' game.



Figure 11: Representative from Ministry of Youth and Sports presenting, while the interpreter doing the translation for the participant from the Fiji Association of the Deaf.

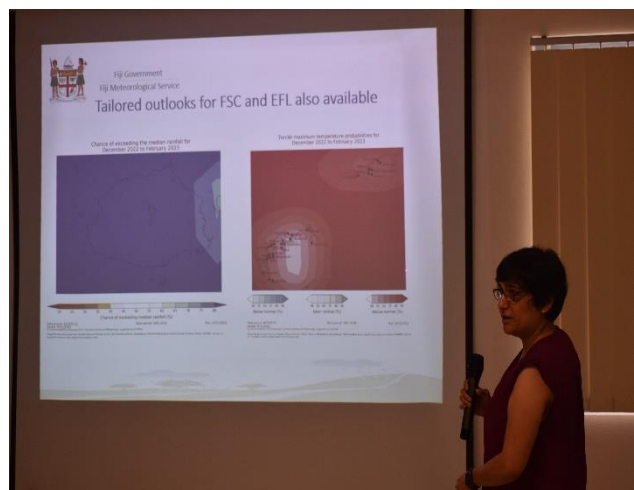


Figure 12: Ms. Janita Pahalad presenting on tailored outlooks for the energy and sugar sector in Fiji.



*Figure 13: Ms. Merana Kitione guiding the participants on installing the Pacific Tide App.*



*Figure 14: Snapshot of the Pacific Tide App.*

**Flash Flooding – 13<sup>th</sup> December 2022, 30<sup>th</sup> December 2022 and 31<sup>st</sup> December 2022**



*Figure 15: Nasivi, Tavua on 13<sup>th</sup> December, 2022. Source: Water Authority of Fiji*



*Figure 16: Kings Road in Rakiraki inundated with floodwaters on 13<sup>th</sup> December, 2022. Source: Fiji Roads Authority*



*Figure 17: Korotale Valley Road in Rakiraki on 13<sup>th</sup> December, 2022. Source: Fiji Roads Authority*



*Figure 18: Navula Road in Ba inundated with floodwaters on 13<sup>th</sup> December, 2022. Source: Fiji Roads Authority*



*Figure 19: Ba road under water on 30<sup>th</sup> December, 2022. Source: Fiji Roads Authority*



*Figure 20: Lawai Crossing in Sigatoka inundated with floodwaters on 30<sup>th</sup> December, 2022. Source: Fiji Roads Authority*



*Figure 21: Marinitawa Crossing in Ba on 30<sup>th</sup> December, 2022. Source: Fiji Roads Authority*



*Figure 22: Rising flood waters at the Navo Bridge in Nadi on 31<sup>st</sup> December, 2022. Source: fijivillage*