

1. IN BRIEF

Generally wetter than normal conditions were observed at most of the rainfall recording stations during the month. Lautoka Mill, Tavua, Seaqaqa and Vanuabalavu were the only exceptions, which experienced suppressed rainfall.

Overall, out of the 26 rainfall monitoring stations that reported in, in time for the compilation of bulletin, 2 recorded *well above average* rainfall, 12 recorded *above average*, 8 *average*, and 4 stations with *below average* rainfall (Table 2, Figures 1-5).

The highest monthly rainfall of 471.5mm was observed at RKS Lodonu, followed by Levuka with 375.0mm, Rotuma with 330.4mm, Navua with 285.0mm, Nasinu with 276.0mm, Laucala Bay (Suva) with 257.1mm, Nausori Airport with 248.4mm, Koronivia with 238.3mm, and Monasavu with 221.6mm.

On temperatures, the highest day-time temperature of 34.8°C was observed at RKS Lodonu on the 6th, followed by 33.7°C at Momi on the 1st, Viwa with 32.5°C on the 2nd, 32.1°C at Nadi Airport, Labasa Airfield, Koronivia and Lautoka Mill on the 2nd, 1st, 29th and 2nd, respectively.

The coolest night-time temperature of 10.1°C was recorded

at Monasavu on the 27th, followed by Penang Mill with 13.5°C on the 26th, Lomaivuna with 13.6°C on the 26th, Rarawai Mill (Ba) with 14.2°C on the 29th, Seaqaqa with 14.3°C on the 29th, and Labasa Airfield with 14.9°C on the 29th.

Laucala Bay (Suva) recorded its new highest daily night-time temperature for June, since observations began in 1942 (Table 1).

Southeasterly winds were dominant at Nadi Airport while northwesterly winds were dominant at Nausori Airport during June (Figure 7).

Warmer than normal sea surface temperature anomalies were observed across most of the country during the month (Figure 8).

Above normal sea level anomalies persisted across most of the Fiji Waters during June 2023 (Figure 10).

2. WEATHER PATTERNS

The weather in June was predominantly influenced by an east to southeast wind flow with a few short lived trough of low pressure system developing and moving through the group during the beginning of the month, while cool southerly winds became dominant from the second half of the month.

During the first few days of the month until the 7th, a trough of low pressure slowly moved over the group which was also enhanced by the predominant east to southeasterly wind flow that prevailed until the 16th.

On the 2nd, occasional showers and rain was experienced over the eastern parts and interior of the larger islands and some showers elsewhere. Eventually, most of the stations over the eastern parts of Viti Levu recorded more than 100mm of rainfall on the 2nd with the highest 24hrs rainfall of the month being 159mm recorded over Nairukuruku. The trough gradually weakened and dissipated later on the 7th. The eastern and interior of the larger islands experienced continued trade showers with mainly afternoon and evening showers elsewhere from the 7th till the 12th.

Meanwhile, a series of weak trough developed and affected

parts of Fiji on the 12th till the 16th. These systems mainly affected the northern and eastern parts of Fiji with occasional showers and isolated afternoon showers elsewhere.

From the 17th to the end of the month, condition was mainly stable with generally fine weather experienced over most places apart from isolated light showers over the southern and eastern parts of the larger islands along with southerly wind flow prevailing over the group. Cool nights were also experienced during this period with low night time temperature of 13.6 degrees Celsius recorded over Lomaivuna on the 26th, whereas maximum day time temperature of 33 degrees Celsius was recorded over Ba/Rarawai.

The weather for Rotuma was dominated by easterly wind flow together with a series of troughs of low pressure. Showers was experienced on most days in June.

3. RAINFALL

Generally *average to well above average* rainfall were observed at most of the rainfall recording stations during the month. Lautoka Mill, Tavua, Seaqaqa and Vanuabalavu were the only exceptions, with stations reporting *below average* rainfall.

Overall, out of the 26 rainfall monitoring stations that reported in, in time for the compilation of bulletin, 2 recorded *well above average* rainfall, 12 recorded *above average*, 8 *average*, and 4 stations with *below average* rainfall (Table 2, Figures 1-5).

The highest monthly rainfall of 471.5mm was observed at RKS Lodoni, followed by Levuka with 375.0mm, Rotuma with 330.4mm, Navua with 285.0mm, Nasinu with 276.0mm, Laucala Bay (Suva) with 257.1mm, Nausori Airport with 248.4mm, Koronivia with 238.3mm, and Monasavu with 221.6mm. On the other hand, Momi recorded the month's lowest total monthly rainfall of 30.0mm, followed by Lautoka Mill with 38.1mm, Tavua with 46.5mm, Seaqaqa with 58.0mm, Sigatoka with 65.5mm, Yaqara with 66.5mm, Wainikoro with 73.0mm, Vaturekuka (Labasa) with 83.0mm, and Vanuabalavu with 84.4mm (Table 2).

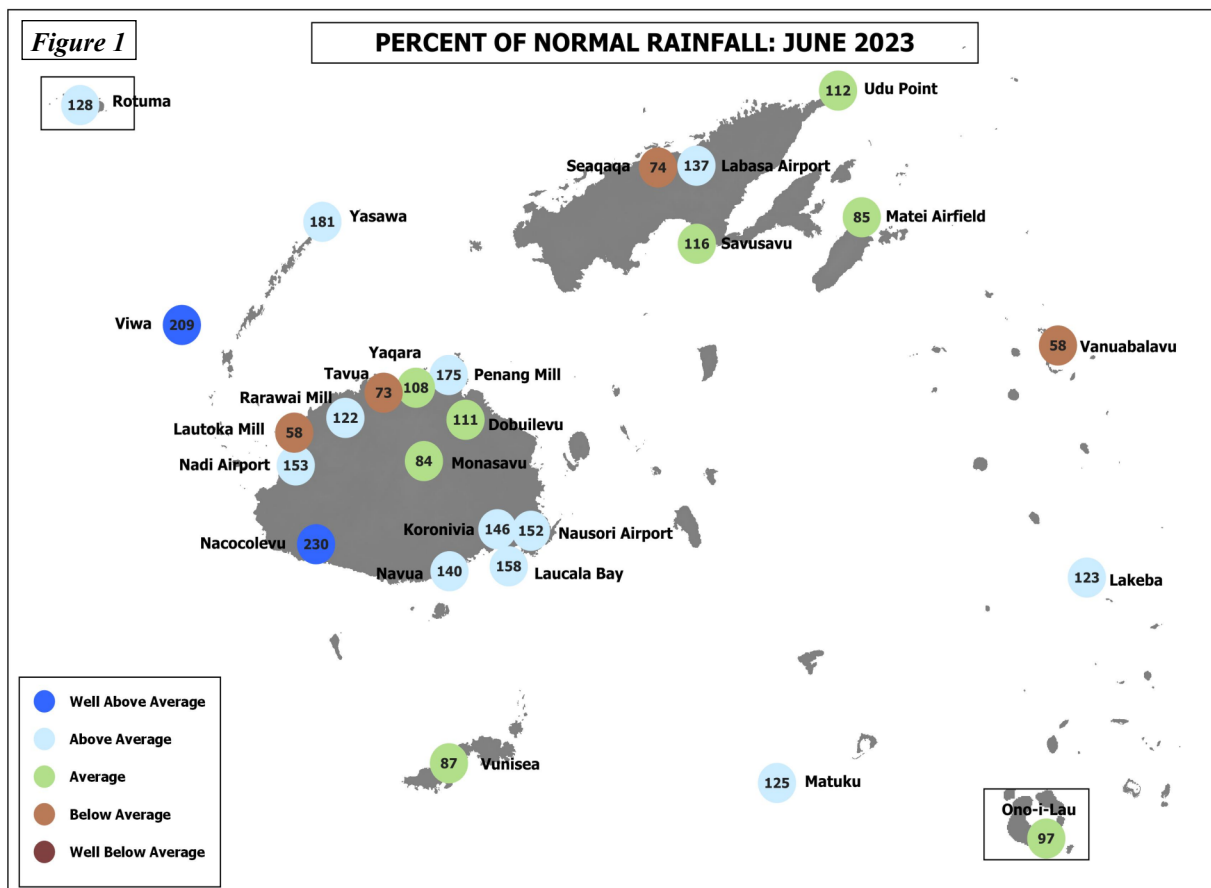
During the first week of June, a trough of low pressure slowly moved over the Fiji Group and affected some parts of the country, especially the Central Division. Significant

24-hour rainfall of 160mm was recorded at RKS Lodoni on the 3rd, followed by Nasinu with 158mm, Navua with 141mm, Nausori Airport with 136mm, Laucala Bay (Suva) and Monasavu both with 124mm, Koronivia with 120mm and Lomaivuna with 103mm, all on the 2nd, respectively.

There was a report of major landslide, at Tamavua, with soil, massive rocks, fallen trees, and debris lying on the road, blocking access for motorists and pedestrians (Figure 12).

Koronivia recorded the highest number of rain days (rainfall ≥ 0.1 mm) with 26 days, followed Laucala Bay (Suva) with 21 days, Rotuma and Savusavu Airfield both with 20 days, Monasavu with 19 days, Navua and Nausori Airport both with 18 days and Nasinu with 17 days. Consequently, Yaqara recorded the least number of rain days with 5 days, followed by Momi and Rarawai Mill (Ba) both with 6 days, Tavua, Wainikoro and Seaqaqa, all with 7 days, Lautoka Mill, Nadi Airport, Vaturekuka (Labasa) and Penang Mill, all with 8 days.

Nasinu recorded its new highest June daily rainfall of 157.5mm, since observations began in 2009 (Table 1).



Normal: Long term average from 1981 to 2010
 Well Below Average: Rainfall less than 40% of normal
 Below Average: Rainfall between 40 to 79%
 Rain Day: Rainfall ≥ 0.1 mm

Average: Rainfall between 80 to 119%
 Above Average: Rainfall between 120 to 199%
 Well Above Average: Rainfall greater than or equal to 200% of normal

4. AIR TEMPERATURES

A. Maximum Day-time Air Temperatures

Generally *near normal to below normal* day-time air temperatures were observed at most parts of the country during the month. Out of the 22 climate stations that reported in time for the analysis of data, 5 recorded anomalies $\geq +0.5^{\circ}\text{C}$, 10 within $\pm 0.5^{\circ}\text{C}$, and 7 with anomalies $\leq -0.5^{\circ}\text{C}$.

The warmest days on average were recorded at RKS Lodonni with 32.1°C , followed by Rotuma with 30.6°C , Momi with 30.4°C , Seaqqa with 29.9°C , Viwa and Labasa Airfield both with 29.8°C , Lautoka Mill with 29.6°C , Rarawai Mill (Ba) with 29.4°C and Wainikoro with 28.9°C . Consequently, Monasavu recorded the coolest days on average with 21.7°C , followed by Matuku with 26.2°C , Ono-i-Lau with 26.5°C , Lakeba with 26.8°C and Lomaivuna with 26.9°C .

The highest day-time temperature was observed at RKS Lodonni with 34.8°C on the 6th, followed by Momi with 33.7°C on the 1st, Viwa with 32.5°C on the 2nd, Nadi Airport, Labasa Airfield, Koronivia and Lautoka Mill with 32.1°C on the 2nd, 1st, 29th and 2nd, respectively and Rotuma with 32.0°C on the 15th. On the other hand, the coolest day-time temperature of 17.5°C was at Monasavu on the 19th, followed by Lomaivuna with 23.9°C on the 15th, Navua with 24.4°C on the 12th, Penang Mill with 24.4°C on the 8th, Lakeba with 24.5°C on the 8th, Vaturekuka (Labasa) with 24.7°C on the 8th, both Matuku and Ono-i-Lau with 24.8°C on the 16th and 12th, respectively, and both Savusavu Airfield and Matei Airfield with 24.9°C , on the 8th.

There were no new day-time temperature records established during the month.

B. Minimum Night-time Air Temperatures

Generally *below normal* night-time temperatures were recorded over most parts of the country during the month. Out of the 23 stations, 2 stations recorded anomalies within $\geq +0.5^{\circ}\text{C}$, 6 within $\pm 0.5^{\circ}\text{C}$, and 15 with anomalies $\leq -0.5^{\circ}\text{C}$.

The coolest nights on average were recorded at Monasavu with 16.0°C , followed by both Rarawai Mill (Ba) and Lomaivuna with 18.2°C , Sigatoka with 18.7°C , both Nacocolevu and Navua with 19.0°C , Nausori Airport with 19.4°C , Nadi Airport with 19.6°C , Vunisea with 19.7°C , Ono-i-Lau with 19.8°C , and Lautoka Mill with 19.9°C . Consequently, the average warmest night time temperatures were observed at Rotuma with 23.6°C , followed by Saqani, Viwa and RKS Lodonni, all with 22.7°C , Levuka and Yasawa-i-Rara, both with 21.6°C , Udu Point with 21.5°C , Laucala Bay (Suva) with 21.4°C , Savusavu Airfield with 21.3°C , Matuku with 21.2°C , and Korolevu with 21.0°C .

Monasavu also recorded couple of night time temperatures, of below 15°C , mostly during the second half of the month.

Towards the end of the month, southerly wind flow prevailed over the Fiji Group, resulting in the coolest daily night-time temperatures recorded around the same period. The lowest night-time temperature of 10.1°C was recorded at Monasavu on the 27th, followed by Penang Mill with 13.5°C on the 26th, Lomaivuna with 13.6°C on the 26th, Rarawai Mill (Ba) with 14.2°C on the 29th, Seaqqa with 14.3°C on the 29th, and Labasa Airfield with 14.9°C on the 29th. On the other hand, the warmest night-time temperature of 27.4°C was recorded at RKS Lodonni on the 2nd, followed by Rotuma with 26.1°C on the 27th, Korolevu with 25.8°C on the 3rd, Laucala Bay (Suva) with 25.6°C on the 2nd, Yaqara with 25.4°C on the 2nd, Viwa with 25.2°C on the 16th, and Savusavu Airfield with 25.0°C on the 2nd.

Laucala Bay (Suva) recorded its new highest daily night-time temperature for June, since observations began in 1942 (Table 1).

*Nadarivatu night time temperatures could not be analysed due to unserviceable instrument.

TABLE 1. CLIMATE RECORDS ESTABLISHED IN JUNE 2023

<u>Element</u>	<u>Station</u>	<u>Observed (record)</u>	<u>On</u>	<u>Rank</u>	<u>Previous (record)</u>	<u>Year</u>	<u>Records Began</u>
Daily Maximum Rainfall	Nasinu	157.5mm	2 nd	New High	120.0mm	2011	2009
Daily Minimum Temperature	Laucala Bay (Suva)	25.6°C	2 nd	New High	25.5°C	2011	1942

Note: All comparisons in this summary are with respect to “Climatic Normals”. This is defined to be the average climate condition over a 30-year period. Fiji uses 1981-2010 period as its “climatic normal” period.

TABLE 2. DAILY CLIMATE REPORTING SITES: SUMMARY FOR JUNE 2023

	RAINFALL						AIR TEMPERATURES								SUNSHINE	
	TOTAL	RAIN		MAX. FALL		AVERAGE DAILY				EXTREME				TOTAL		
		MM	* %	DAYS +	MM	ON	MAX. C	# C	MIN. C	# C	MAX. C	ON C	MIN. C	ON C	HRS	%
NADI AIRPORT	86.7	153	8	43	2	28.5	-0.5	19.6	0.0	32.1	2	16.0	27	205	102	
LAUCALA BAY	257.1	158	21	124	2	27.5	-0.4	21.4	-0.3	30.2	24	17.4	28	47	34	
NACOCOLEVU RESEARCH	187.1	230	13	87	16	27.6	-1.0	19.0	0.2	30.4	13	15.1	28	143	100	
ROTUMA ISLAND	330.4	128	20	77	4	30.6	0.8	23.6	-1.1	32.0	15	21.9	22	141	79	
VIWA	154.5	209	12	67	2	29.8	1.1	22.7	-0.7	32.5	2	20.0	30			
YASAWA-I-RARA (AWS)	126.0	181	9	42	7	27.5	-1.4	21.6	-1.3	31.3	1	18.5	8			
UDU POINT	154.5	112	15	48	14	27.9	-0.9	21.5	-1.6	29.8	1	19.1	8			
NABOUWALU	STATION TEMPORRILY CLOSED															
LABASA AIRFIELD	103.9	137	10	35	7	29.8	0.1	20.1	0.9	32.1	1	14.9	29			
SAVUSAVU AIRFIELD	153.8	116	20	47	7	27.5	-0.5	21.3	-0.4	31.0	1	18.0	26			
KORONIVIA RESEARCH	238.3	146	26	120	2	27.5	0.0	20.7	0.0	32.1	29	18.0	26			
NAUSORI AIRPORT	248.4	152	18	136	2	27.1	-0.2	19.4	-1.1	30.0	1	15.8	27			
NAVUA (AWS)	285.0	140	18	141	2	27.2	-0.4	19.0	-0.6	28.5	14	15.2	28			
MONASAVU HYDRO DAM	221.6	84	19	124	2	21.7	-0.2	16.0	-0.5	26.2	1	10.1	27			
FSC LAUTOKA MILL	38.1	58	8	18	8	29.6	0.5	19.9	-0.8	32.1	2	16.3	27			
FSC RARAWAI MILL	91.7	122	6	29	2	29.4	-0.6	18.2	0.1	31.7	1	14.2	29			
FSC PENANG MILL	164.2	175	8	90	2	27.9	-0.2	20.0	-1.3	30.0	1	13.5	26			
MATEI AIRFIELD	125.7	85	13	60	14	27.7	-0.2	20.6	-1.9	29.4	1	17.2	26			
VANUABALAVU	84.4	58	12	26	7	28.0	0.3	20.7	-2.1	30.9	1	17.6	8			
LAKEBA	147.9	123	13	35	7	26.8	-0.4	20.7	-1.3	30.9	1	16.5	24			
VUNISEA	119.5	87	13	29	14	U/S		19.7	-1.0	U/S		17.5	27			
MATUKU	133.1	125	15	29	16	26.2	-1.0	21.2	-0.8	29.2	1	19.1	20			
ONO-I-LAU	92.0	100	14	49	8	26.5	0.6	19.8	-1.3	28.7	23	17.1	17			
YAQARA AWS	66.5	108	5	22	7	28.7		20.3		31.5	1	15.2	26			
LEVUKA AWS	375.0		15	63	2	27.9		21.6		30.1	1	19.3	8			
KEIYASI AWS	124.5		10	78	2	U/S		U/S		U/S		U/S				
LOMAIVUNA AWS	191.0		11	103	2	26.9		18.2		30.0	1	13.6	26			
NADARIVATU AWS	MISSING OBSERVATIONS															
RKS LODONI AWS	471.5		15	160	3	32.1		22.7		34.8	6	19.0	26			
MOMI AWS	30.0		6	13	7	30.4		U/S		33.7	1	U/S				
SIGATOKA AWS	65.5		9	48	2	27.4		18.7		29.7	2	15.4	29			
VATUREKUKA AWS	143.5		8	51	22	27.9		20.1		30.5	13	15.3	29			
KOROLEVU AWS	132.5		14	66	2	27.1		21.0		29.1	1	16.5	28			
WAINIKORO AWS	73.0		7	27	22	28.9		20.4		30.8	18	16.0	29			
SAQANI AWS	130.5		10	51	14	28.5		22.7		30.4	4	20.7	28			
SEAQAQA AWS	58.0	74	7	40	22	29.9		20.5		31.8	1	14.3	29			
DOBUILEVU TB3	119.0	111	14	50	2											
NASINU TB3	276.0		17	158	2											
TAVUA TB3	46.5	73	7	23	8											

TEMPERATURE(C) HUMIDITY WIND
 DRY WET RH% VP
 MEAN (AVERAGE AT 9AM) KT

NADI AIRPORT	24.0	23.2	21.3	85	21.3	5.1
LAUCALA BAY	24.5	24.6	22.2	82	23.1	1.8
NACOCOLEVU RESEARCH	23.3	23.5	21.6	86	21.6	
ROTUMA ISLAND	27.1	28.4	25.9	81	28.9	
VIWA ISLAND	26.3	26.4	23.6	79	25.7	
YASAWA-I-RARA	24.6					
UDU POINT	24.7	26.0	23.8	83	25.1	
NABOUWALU	STATION TEMPORARILY CLOSED					
LABASA AIRFIELD	24.9	25.1	22.9	83	23.8	6.7
SAVUSAVU AIRFIELD	25.9	27.2	24.6	82	27.0	U/S
KORONIVIA RESEARCH	24.1	23.5	21.9	88	21.6	
NAUSORI AIRPORT	23.3	23.1	21.8	88	21.1	3.7
NAVUA (AWS)	23.1					
MONASAVU HYDRO DAM	18.9	18.8	18.3	94	16.2	
FSC LAUTOKA MILL	24.7	22.4	22.2	99	20.3	
FSC RARAWAI MILL	23.8	23.8	21.6	82	22.0	
FSC PENANG MILL	23.9	24.5	21.6	77	23.0	
MATEI AIRFIELD	24.2	25.7	23.0	80	24.7	10.2
VANUABALAVU	24.3	25.2	22.3	78	24.0	
LAKEBA	23.8	25.2	22.1	76	24.0	
VUNISEA	U/S	23.9	21.3	80	22.2	
MATUKU	23.7	24.7	22.3	82	23.3	
ONO-I-LAU	23.1	24.4	20.8	72	22.9	

MEAN TEMPERATURE IS (MAX+MIN)/2; WIND IS MEAN SPEED AT 06,12,18,24 HOURS.
 \$:SOLAR RADIATION CALCULATED FROM SUNSHINE DURATION. # :DEPARTURE FROM LONG-TERM AVERAGES (1981-2010). + :NUMBER OF DAYS WITH 0.1 MM OR MORE RAIN. * :PERCENT OF LONG-TERM AVERAGES.
 BLUE FONT: MISSING RECORDS OF LESS THAN OR EQUAL(≤) TO 5 DAYS. U/S: UNSERVICEABLE

Figure 2

Nadi Airport (Western Division) - Temperature & Rainfall Records for the last 13 Months (June 2022 - June 2023)

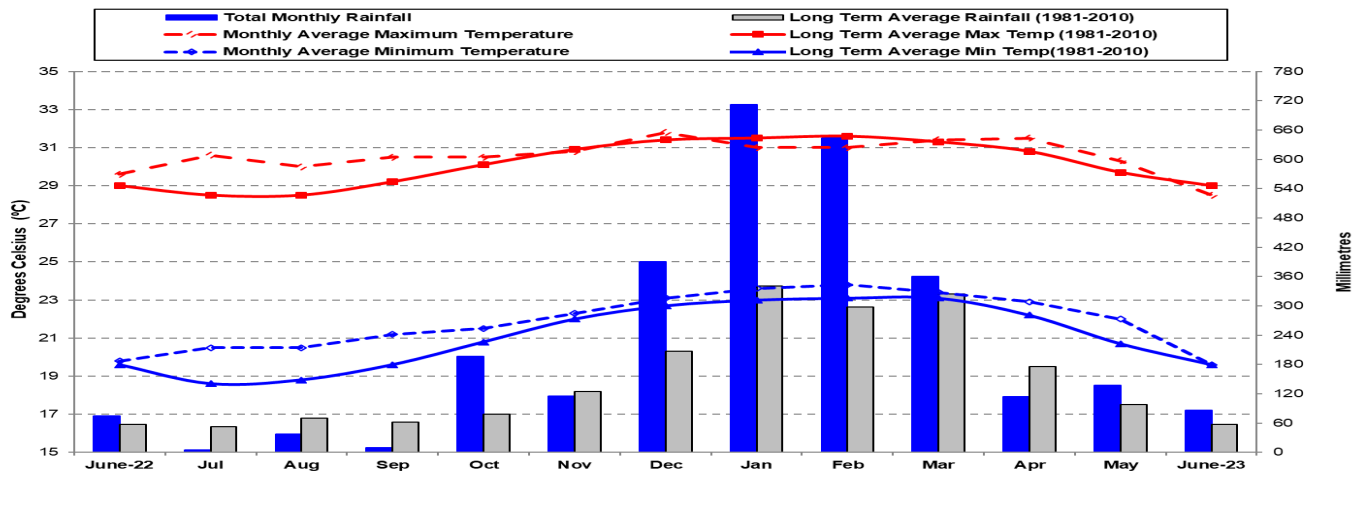


Figure 3

Laucala Bay - (Suva) (Central Division) - Temperature & Rainfall Records for the last 13 Months (June 2022 - June 2023)

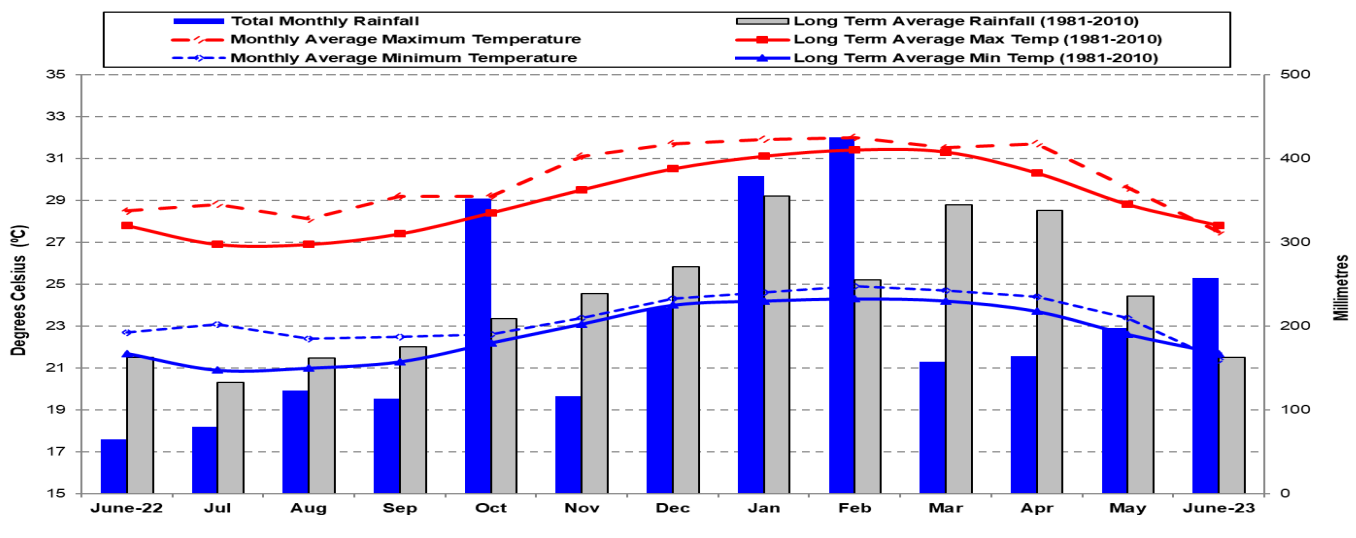


Figure 4

Udu Point (Eastern Division) - Temperature & Rainfall Records for the last 13 Months (June 2022 - June 2023)

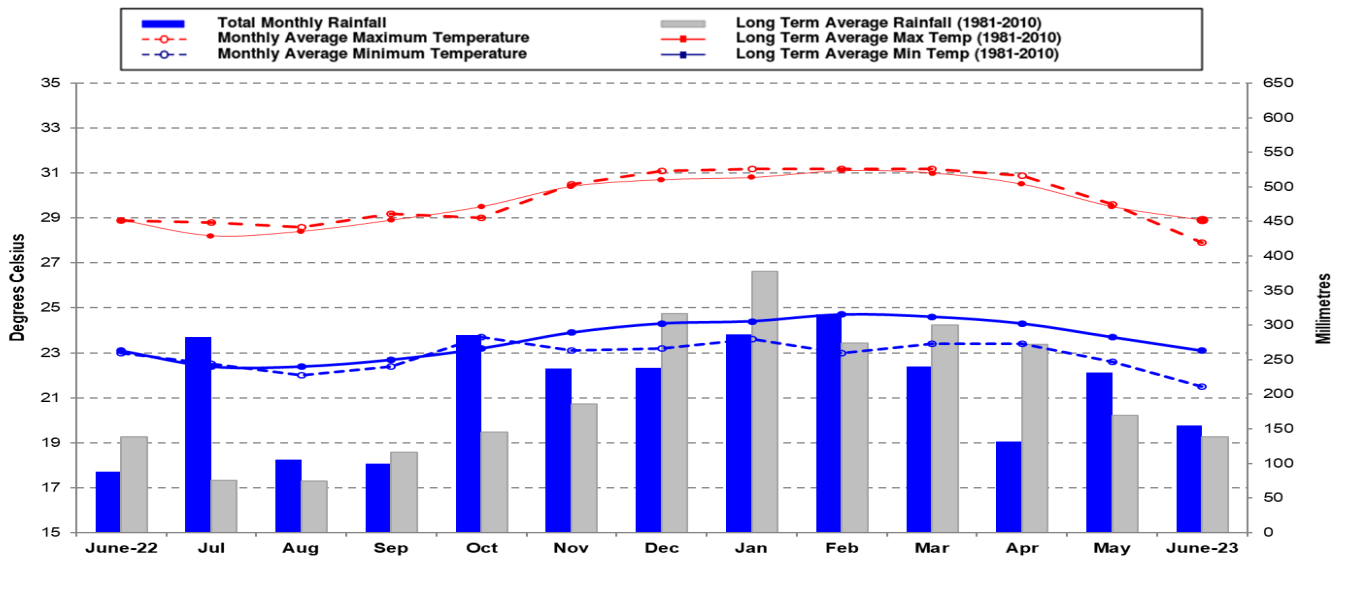
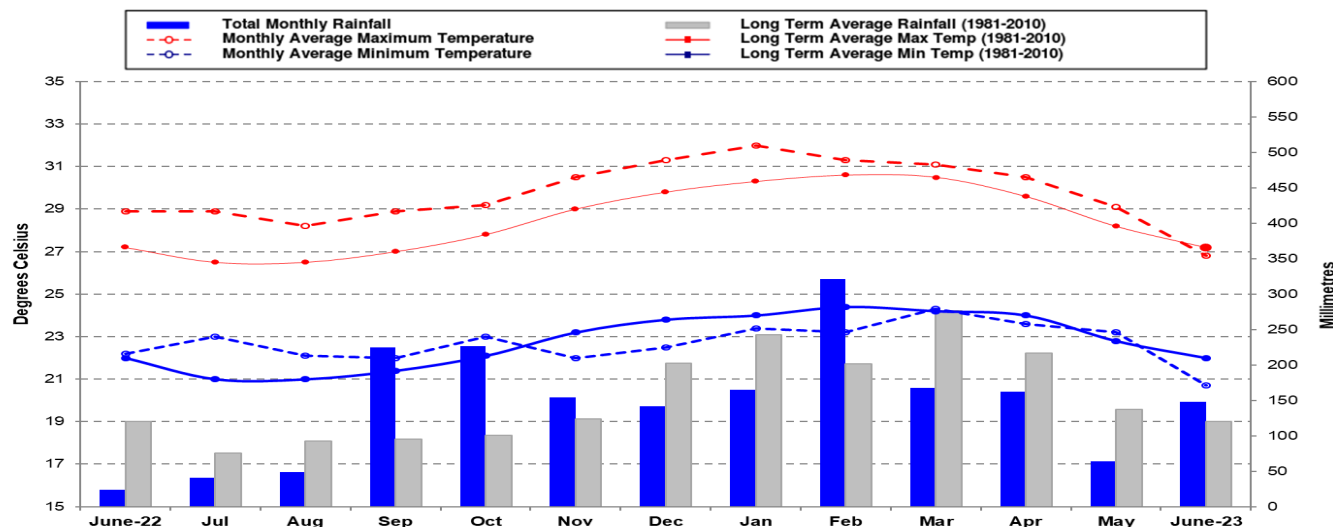


Figure 5

Lakeba (Eastern Division) - Temperature & Rainfall Records for the last 13 Months (June 2022 - June 2023)



5. DAILY RAISED PAN EVAPORATION

Figure 6

Daily Evaporation for June 2023

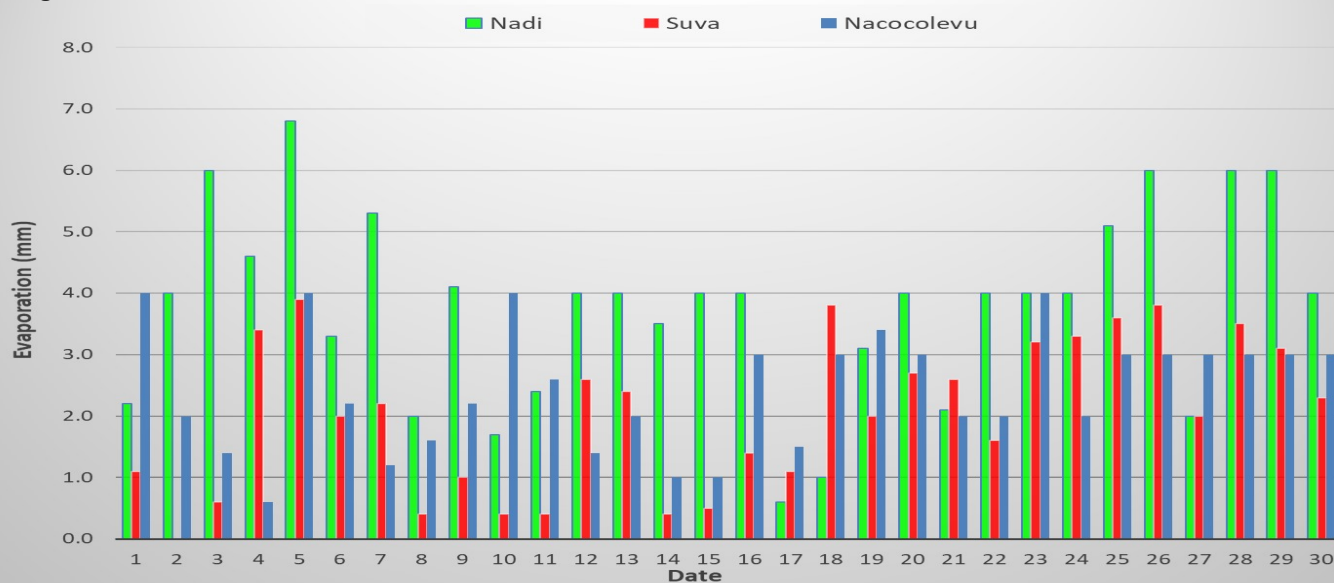


Figure 6: The total monthly raised pan evaporation at Nadi Airport, Laucala Bay (Suva) and Nacocolevu (Sigatoka) were 113.8mm, 61.3mm and 73.1mm respectively. Nadi’s highest daily evaporation was 6.8mm on the 5th, with Suva’s highest daily evaporation of 3.9mm on 5th and Nacocolevu (Sigatoka) recorded its highest of 4.0mm on 1st, 5th, 10th and 23rd.

6. SOLAR RADIATION

The Nadi solar radiation instrument was unserviceable during the month of June 2023.

7. WIND SUMMARY

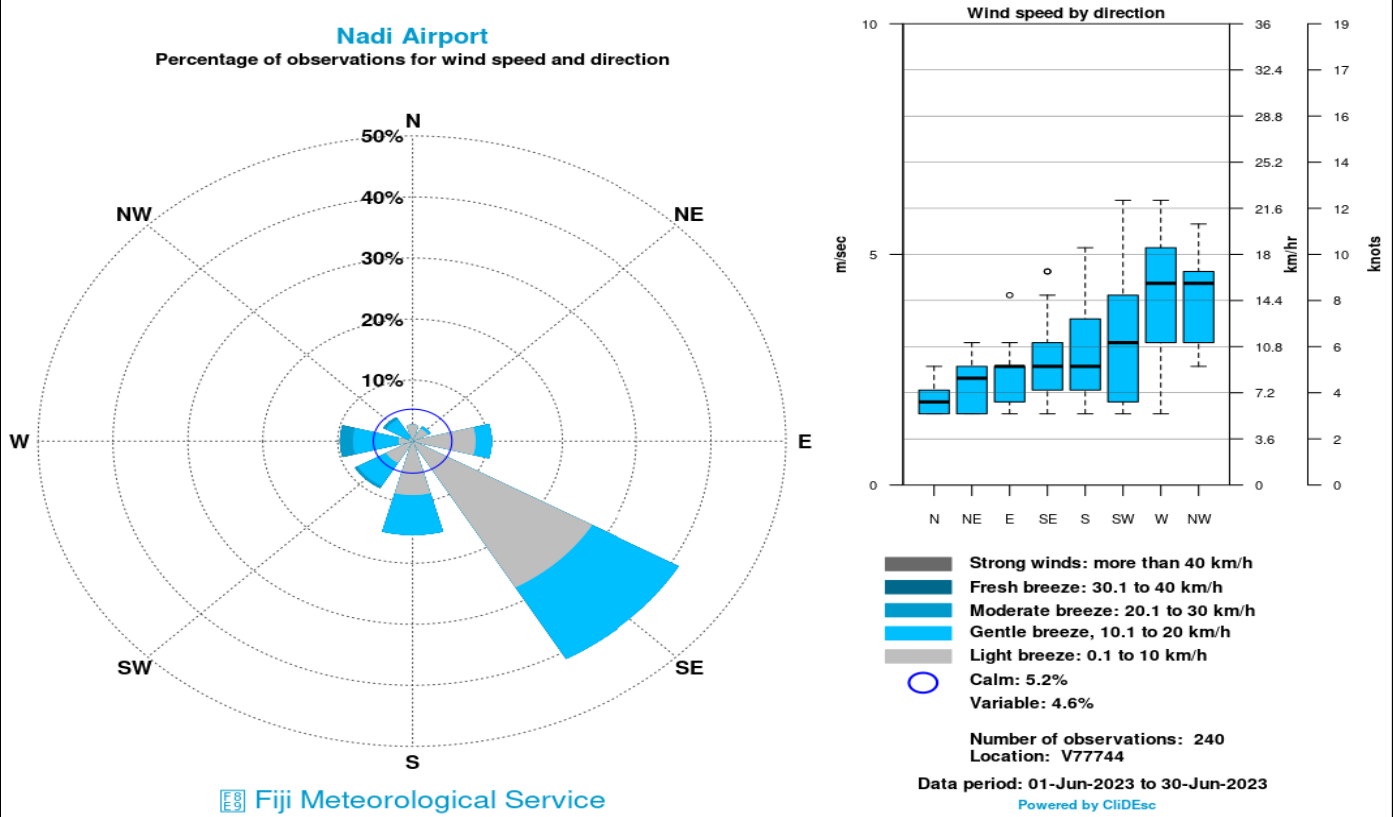


Figure 7a: Looking at Nadi’s 3 hourly observations, southeasterly winds were most dominant during the month, followed by southerly and then easterly winds. Wind strength ranged from light to moderate breeze, with calm winds observed during 5.2% of the time.

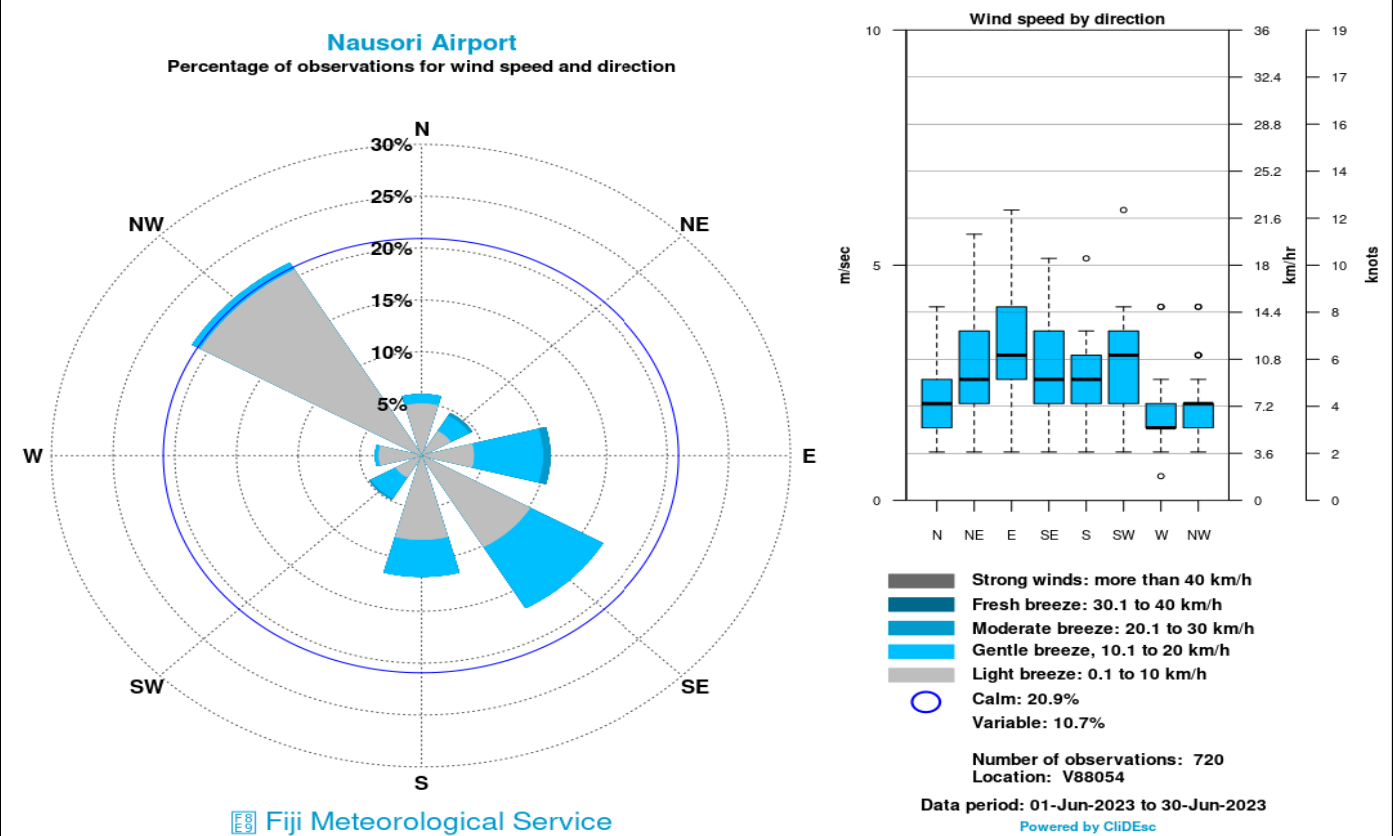


Figure 7b: For Nausori Airport’s hourly wind observations, northwesterly winds were dominant followed by southeasterly, southerly and then easterly winds. Wind strength ranged from light to moderate breeze, while 20.9% of observations accounted for calm winds.

8. SEA SURFACE TEMPERATURE (SST)

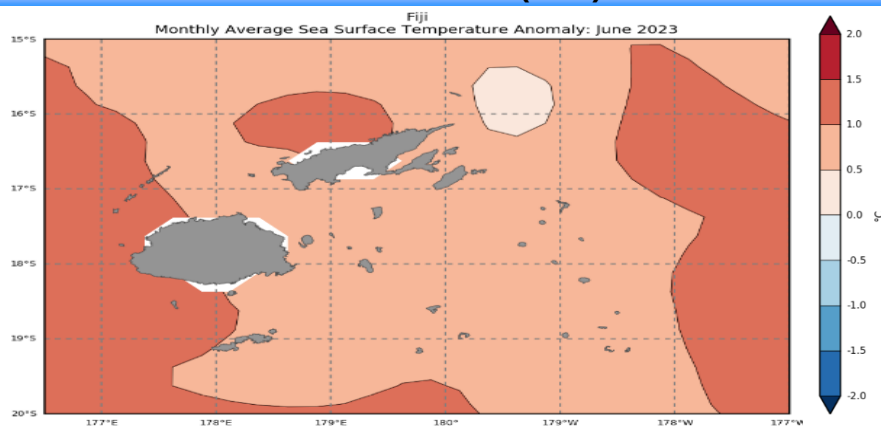


Figure 8: Warmer than normal sea surface temperature anomalies were observed across most of the Fiji Waters.

Source: <http://oceanportal.spc.int/portal/app.html#climate>

9. CLOUD COVER

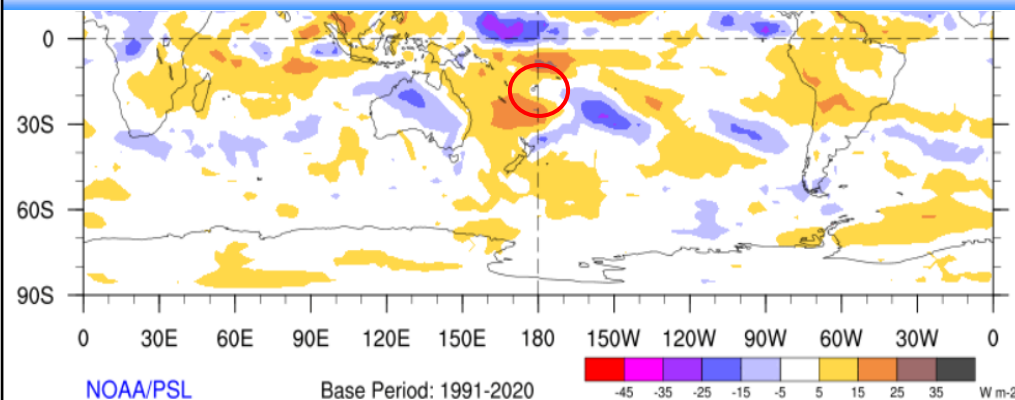


Figure 9: Near normal cloud cover was present over the Fiji Group during June (Fiji in red circle).

Source: <http://www.esrl.noaa.gov/psd/map/clim/olr.shtml>

10. SEA LEVEL

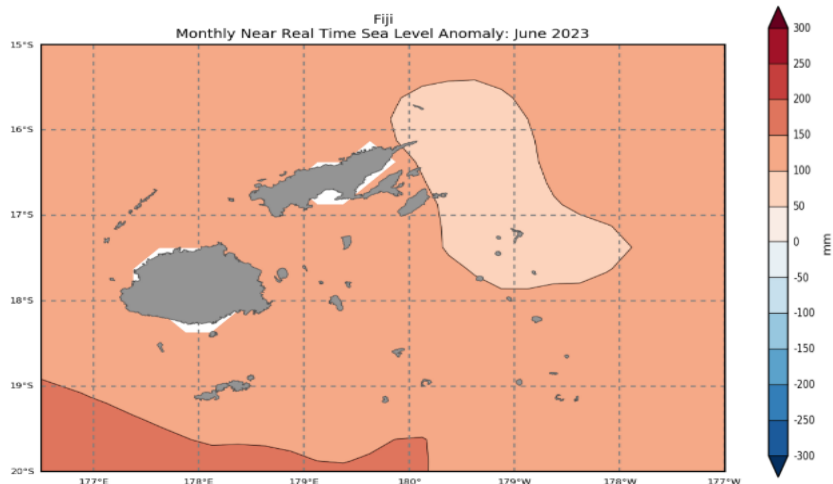


Figure 10: Above normal sea level anomalies persisted across most of the Fiji Waters during June.

Source: <http://oceanportal.spc.int/portal/app.html#sealevel>

11. WIND ANOMALIES

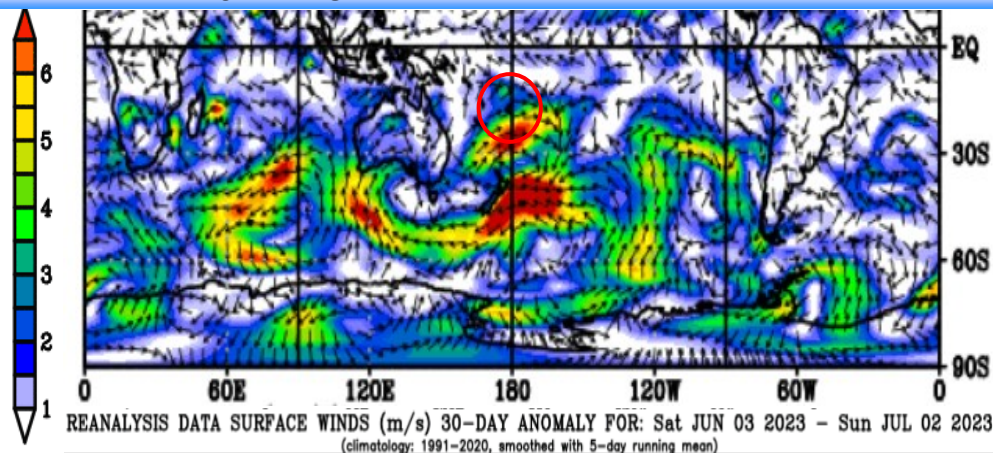


Figure 11: South-westerly wind anomalies were observed over the Fiji Group during the month (base period: 1981-2010) (Fiji in red circle).

Source: https://www.esrl.noaa.gov/psd/map/images/rnl/sfcwnd_30b.rnl.html

12. LANDSLIDE

The torrential downpour experienced during the beginning of the month led to a major landslide at Narain Place off Wairua Road, Tamavua on 3rd June. Soil, massive rocks, fallen trees, and debris lying on the road, blocked access for motorists (Figure 12a). The landslide also caused a tree to fall on a power pole, affecting the power supply to the area (Figure 12b). Fortunately, there were no casualties reported.



Figure 12a: Massive rocks, soil and debris lying on the roadside due to the landslide on 3rd June, 2023. Source: FBC News



Figure 12b: Trees falling over the power pole in Tamavua due to the landslide on 3rd June, 2023. Source: FBC News