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Fiji Climate Summary

June 2020



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1. IN BRIEF

The El-Niño Southern Oscillation was in a neutral state during June. The weather during the month was dominated by trade showers over the eastern parts of the larger islands and mainly fine elsewhere.

Majority of the stations in the Central Division experienced wetter than usual month. On the other hand, it was drier than usual in most parts of the Western Division, especially at Tavua, Yaqara, Viwa and Yasawa-i-Rara, where less than half of the *normal* rainfall was recorded. The rainfall significantly varied in the Northern Division ranging from *above average* to *below average*, while most of the stations in the Eastern Division and Rotuma recorded *near average* rainfall.

Overall, out of the 27 rainfall monitoring sites, 4 experienced *well below average* rainfall during the month, 8 *below average*, 7 *near average* and 8 *above average*.

The Western Division and northern half of Vanua Levu experienced extended period of dry condition from later part of first week. A relief from this dryness was provided by a trough of low pressure during the last week.

Due to rainfall received in the past three months, no major rainfall deficiency affecting shallow rooted crops and small water bodies in Fiji at the end of June.

While the mean monthly maximum and minimum air temperatures were *above normal* at most of the places during the month, a period of cool condition was recorded across the country during the 2nd and 3rd week, especially between 15th and 22nd. The lowest night-time temperature was recorded at Nadarivatu with 14.3°C on the 22nd, followed by Keiyasi with 14.9°C on the 18th, Monasavu with 15.0°C on the 21st and Nacocolevu with 15.5°C on the 20th.

2. WEATHER PATTERNS

Series of troughs of low pressure system with cloud and showers dominated Fiji's weather at the beginning and towards the end of the month. Meanwhile, a high pressure system to the far south of Fiji became dominant around mid-month which brought cool and dry conditions over the country during that period.

A trough of low pressure approached Fiji from the northeast at the beginning of the month and brought cloudy periods with occasional showers over most parts of the country till the 5th.

Another weak trough followed from the northeast later on the 6th which enhanced the easterlies and brought occasional rain and thunderstorms over the eastern and interior parts of the larger islands till the 8th. Meanwhile, on the 9th till the 11th, another trough of low pressure approached Fiji from the west and brought rain and thunderstorms over the rest of the country.

The trough then drifted to the north of Fiji as a high pres-

sure system to the far south became dominant over the group and brought cool and dry easterly wind flow over the country. The easterly wind flow prevailed over Fiji from the 12th till the 22nd with relatively cool nights experienced during this period.

On the 23rd, the high pressure system to the south of Fiji weakened and the trough to the north drifted back onto the group which again brought cloudy periods and showers over most parts of the country. The trough affected Fiji till month end.

Rotuma's weather was dominated by a series of troughs of low pressure which brought cloudy periods and showers over the island.

3. RAINFALL

Rainfall varied across the country during June. Majority of the stations in the Central Division experienced wetter than usual month. On the other hand, it was drier than usual in most parts of the Western Division, especially at Tavua, Yaqara, Viwa and Yasawa-i-Rara, where less than half the *normal* rainfall was recorded. The rainfall significantly varied in the Northern Division ranging from *above average* to *below average*, while most of the stations in the Eastern Division and Rotuma recorded *near average* rainfall.

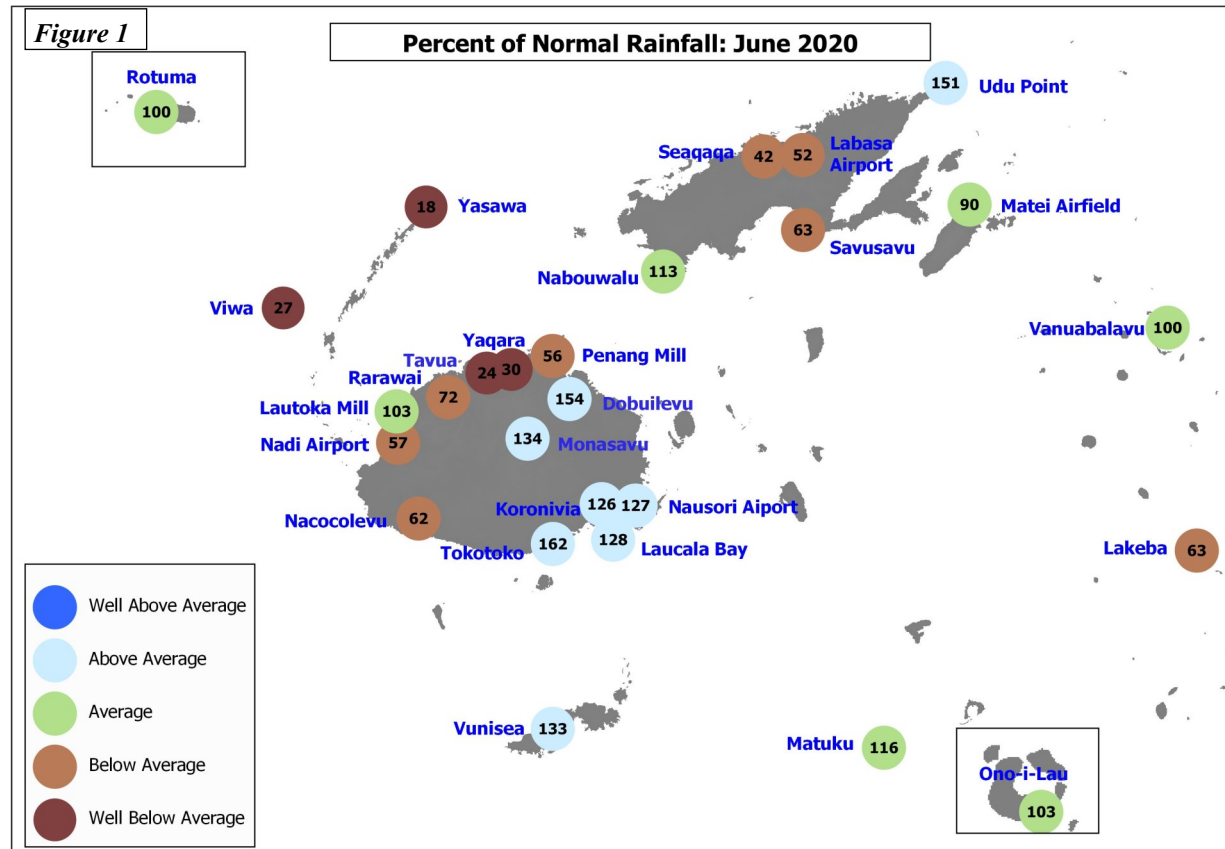
Overall, out of the 27 rainfall monitoring sites, 4 experienced *well below average* rainfall during the month, 8 *below average*, 7 *near average*, 8 *above average*. (Table 2, Figures 1-5).

The wettest site during the month was Monasavu where 355mm rainfall was recorded, followed by Tokotoko (Navua) with 329mm, Rotuma with 259mm, Udu Point with 210mm and Laucala Bay (Suva) with 208mm. In contrast, the lowest total monthly rainfall was received at Yasawa-i-Rara with only 12mm of rainfall, followed by Tavua with 16mm, Yaqara with 19mm, Viwa with 20mm, Keiyasi with 24mm, Seaqqa and Nadi Airport with both 33mm.

registered at Nausori Airport with 81mm on the 6th, followed by Koronivia with 74mm on the 6th, Tokotoko (Navua) with 72mm on the 9th, RKS Lodoni with 69mm on the 1st and Rotuma with 63mm on the 4th.

It rained on almost every day at Koronivia with 28 rain days (rainfall ≥ 0.1 mm) registered during the month, followed by Laucala Bay (Suva) with 27, RKS Lodoni with 26, Monasavu with 25, and Tokotoko (Navua), Nasinu, Vunisea (Kadavu) and Vanuabalavu with all 24. On the other hand, Tavua recorded the least number of rain days with 3 rain days, followed by Lautoka Mill with 4 days, Momi with 5 days, Yasawa-i-Rara, Viwa and Keiyasi with all 6 days.

The most significant daily rainfall during the month was



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 Daytime Air Temperatures

The maximum air temperatures were *above normal* at most of the places during the month. Of the 22 climate stations, 18 recorded anomalies $\geq +0.5^{\circ}\text{C}$ and 4 within $\pm 0.5^{\circ}\text{C}$ (Table 2 & Figures 2-5).

The warmest day on average was recorded at Labasa Airport with 31.5°C , followed by Seaqaqa with 31.4°C , Rarawai Mill (Ba) with 30.8°C , Lautoka Mill with 30.7°C , Yasawa-i-Rara and Rotuma with both 30.5°C . On the other hand, the coolest monthly average daytime temperature was recorded at Monasavu with 22.1°C , followed by Nadarivatu with 24.1°C , Ono-i-Lau with 26.8°C and Vunisea (Kadavu) with 27.2°C .

The highest daily maximum air temperature during the month was reported at Levuka with 35.4°C on the 29th, followed by Labasa Airport with 33.2°C on the 1st, Keiyasi with 33.1°C on the 9th, Lautoka Mill with 33.0°C on the 3rd, and Seaqaqa with 32.9°C on the 2nd. In contrast, the coolest daytime temperature was registered at Monasavu with 18.0°C on the 16st, followed by Nadarivatu with 20.6°C on the 14th, Korolevu with 24.4°C on the 30th, and Penang Mill, Ono-i-Lau and Sigatoka with all 24.8°C on the 18th, 20th and 30th, respectively.

A record high daily maximum air temperature for June was recorded at Tokotoko (Navua) during the month, with the observation at the station spanning back to 1992 (Table 1).

B. Minimum Night-time Air Temperatures

The minimum air temperatures were *above normal* at most of the places during the month. Out of the 21 stations, 16 recorded anomalies $\geq +0.5^{\circ}\text{C}$ and 5 within $\pm 0.5^{\circ}\text{C}$ (Table 2 & Figures 2-5).

The coolest monthly average night-time temperature was recorded at Nadarivatu with 17.8°C , followed by Monasavu with 18.3°C , Labasa Airport with 19.3°C , Nacocolevu with 19.7°C and Keiyasi with 19.8°C . On the other hand, the warmest monthly average night-time temperature was recorded at Rotuma with 25.2°C , followed by Levuka with 24.3°C , Saqani with 24.0°C , Nabouwalu with 23.9°C , Viwa with 23.8°C , and Kubulau with 23.6°C .

A period of cool condition was recorded across the country during the 2nd and 3rd week of the month, especially between 15th and 22nd. The lowest night-time temperature was recorded at Nadarivatu with 14.3°C on the 22nd, followed by Keiyasi with 14.9°C on the 18th, Monasavu with 15.0°C on the 21st, Nacocolevu with 15.5°C on the 20th, and Labasa Airport with 16.0°C on the 18th. In contrast, the warmest minimum air temperature during the month was recorded at Kubulau with 27.2°C on the 8th, followed by Rotuma with 26.9°C on the 23rd, Levuka with 26.1°C on the 5th, Viwa with 25.7°C on the 6th and Saqani with 25.6°C on the 5th.

TABLE 1. CLIMATE RECORDS ESTABLISHED IN JUNE 2020

<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 Temperature	Tokotoko (Navua)	32.0°C	29 th	New High	31.5°C	2002 2018	1992

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 2020

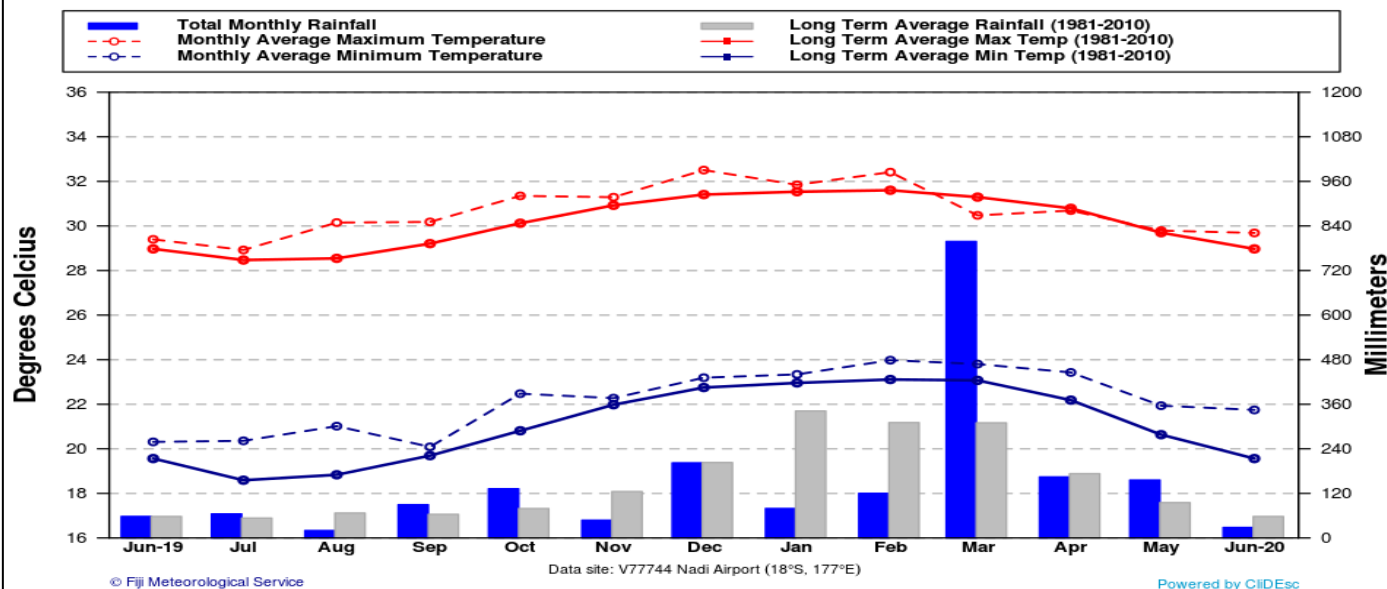
	RAINFALL			AIR TEMPERATURES						SUNSHINE					
	TOTAL	RAIN	MAX.	AVERAGE DAILY			EXTREME			TOTAL	*				
	MM	%	+ MM ON	MAX.	#	MIN.	#	MAX.	MIN.	HRS	%				
NADI AIRPORT	33	57	7	22	29	29.7	0.7	21.7	2.1	31.5	29	17.1	16	138	69
SUVA/LAUCALA BAY	208	128	27	54	9	28.2	0.4	23.1	1.4	31.2	29	20.6	19	103	75
NACOCOLEVU	50	62	9	14	29	U/S		19.7	0.9	U/S		15.5	20		
ROTUMA	259	100	23	63	4	30.5	0.7	25.2	0.5	31.9	7	22.8	26	142	76
VIWA	20	27	6	11	10	30.3	1.6	23.8	0.4	31.7	2	21.0	15		
UDU POINT	210	151	16	50	26	28.7	-0.2	22.8	-0.3	32.1	9	20.3	10		
SAVUSAVU AIRFIELD	84	63	13	18	30	28.7	0.7	23.3	1.6	32.0	6	20.6	21		
LABASA AIRFIELD	39	52	8	13	26	31.5	1.8	19.3	0.1	33.2	1	16.0	18		
NABOUWALU	124	113	21	25	3	28.9	1.6	23.9	1.1	30.1	6	21.1	18		
KORONIVIA	206	126	28	74	6	28.2	0.7	22.2	1.5	29.9	1	19.5	13		
NAUSORI AIRPORT	207	127	22	81	6	28.3	1.0	22.0	1.4	30.1	4	18.0	21		
NAVUA/TOKOTOKO	329	162	24	79	9	28.7	1.1	U/S		32.0	29	U/S			
MONASAVU	355	134	25	43	2	22.1	0.1	18.3	1.8	26.1	21	15.0	21		
LAUTOKA AES	67	103	4	59	29	30.7	1.6	21.5	0.8	33.0	3	17.5	15		
BA/RARAWAI MILL	54	72	9	35	29	30.8	0.8	20.3	2.1	32.7	10	16.4	15		
PENANG MILL	53	56	18	10	2	28.7	0.7	23.0	1.7	32.8	2	17.6	21		
MATEI AIRFIELD	134	90	19	22	27	28.6	0.6	23.2	0.7	30.1	20	20.0	22		
VANUABALAVU	144	100	24	37	28	29.0	1.3			30.6	2				
LAKEBA	75	63	16	30	27	28.7	1.5	23.2	1.2	31.0	29	20.0	18		
YASAWA	12	18	6	5	29	30.5	1.7	23.1	0.2	32.8	27	20.6	1		
VUNISEA	184	133	24	34	29	27.2	0.6	22.6	1.9	29.8	29	19.8	21		
MATUKU	124	116	19	48	29	27.5	0.3	23.3	1.2	29.5	5	20.5	14		
ONO-I-LAU	97	103	17	40	29	26.8	0.9	20.7	-0.3	29.0	9	17.4	15		
YAQARA AWS	19	30	8	6	2	30.2				32.6	26	19.6	21		
LEVUKA AWS	144		22	26	6	30.4		24.3		35.4	29	21.6	21		
KEIYASI AWS	24		6	9	2	30.2		19.8		33.1	9	14.9	18		
LOMAIVUNA AWS	U/S					27.9		21.2		30.6	6	17.9	18		
NADARIVATU AWS	68		20	16	7	24.1		17.8		27.2	6	14.3	22		
RKS LODONI AWS	201		26	69	1	28.4		22.5		30.0	4	18.7	21		
MOMI AWS	60		5	32	29	U/S		21.8		U/S		18.6	13		
KOROLEVU AWS	U/S					28.7		21.8		U/S		U/S			
KORO ISLAND AWS	U/S					27.9		23.2		30.3	29	21.0	17		
SIGATOKA AWS	51		7	18	9	28.7		21.0		30.9	29	17.4	20		
RAKIRAKI AWS	75		15	17	3	27.6		22.5		29.5	6	19.4	21		
WAINIKORO AWS	149		12	47	26	29.8		22.3		32.0	22	19.0	20		
SAQANI AWS	139		17	25	27	29.8		24.0		31.5	26	22.8	22		
VATUREKUKA AWS	46		14	17	27	28.8		21.0		30.7	29	17.6	20		
KUBULAU AWS	U/S					28.3		23.6		30.3	29	18.7	21		
SEAQQA AWS	33	42	10	12	28	31.4		21.5		32.9	2	17.3	18		
DOBUILEVU TB3	166	154	21	33	9										
NASINU TB3	204		24	43	9										
TAVUA TB3	16	24	3	13	29										

	TEMPERATURE (C)		HUMIDITY		WIND	SUN RAD	
	MEAN	DRY WET	RH% VP			%OF MJ/	POS SQ.M
		(AVERAGE AT 9AM)			KT		
NADI AIRPORT	25.7	25.9 22.9	76 25.6		5.9	43 11.6	
SUVA/LAUCALA BAY	25.7	25.8 24.1	87 28.8			32 11\$	
NACOCOLEVU	U/S	25.6 23.9	86 28.4			42	
ROTUMA	27.9	28.7 26.1	81 31.7			45 14\$	
VIWA	27.0	27.1 24.3	79 28.2				
UDU POINT	25.7	26.6 24.1	81 28.0				
SAVUSAVU AIRFIELD	26.0	26.4 24.7	86 29.7				
LABASA AIRFIELD	25.4	27.6 25.0	80 29.7				
NABOUWALU	26.4	26.7 24.4	82 28.8				
KORONIVIA	25.2	25.6 23.7	85 27.9				
NAUSORI AIRPORT	25.2	25.6 23.7	85 27.9	5.7			
NAVUA/TOKOTOKO	U/S	25.7 24.0	87 28.7				
MONASAVU	20.2	19.9 19.1	93 21.6				
LAUTOKA AES	26.1	28.2 24.4	72 27.5				
BA/RARAWAI MILL	25.6	25.6 23.0	79 26.0				
PENANG MILL	25.9	25.6 23.1	81 26.5				
MATEI AIRFIELD	25.9	26.9 24.5	82 29.0				
VANUABALAVU	24.3	26.8 24.1	80 28.1				
LAKEBA	26.0	26.6 23.9	79 27.6				
YASAWA	26.8	27.2 25.1	84 30.2				
VUNISEA	24.9	25.1 23.0	83 26.6				
MATUKU	25.4	26.1 24.4	86 29.2				
ONO-I-LAU	23.8	25.1 23.6	88 28.0				

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 (1971-2000). + : 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 - Temperature & Rainfall for the last 13 Months
(June, 2019 - June, 2020)**



**Laucala Bay - Temperature & Rainfall for the last 13 Months
(June, 2019 - June, 2020)**

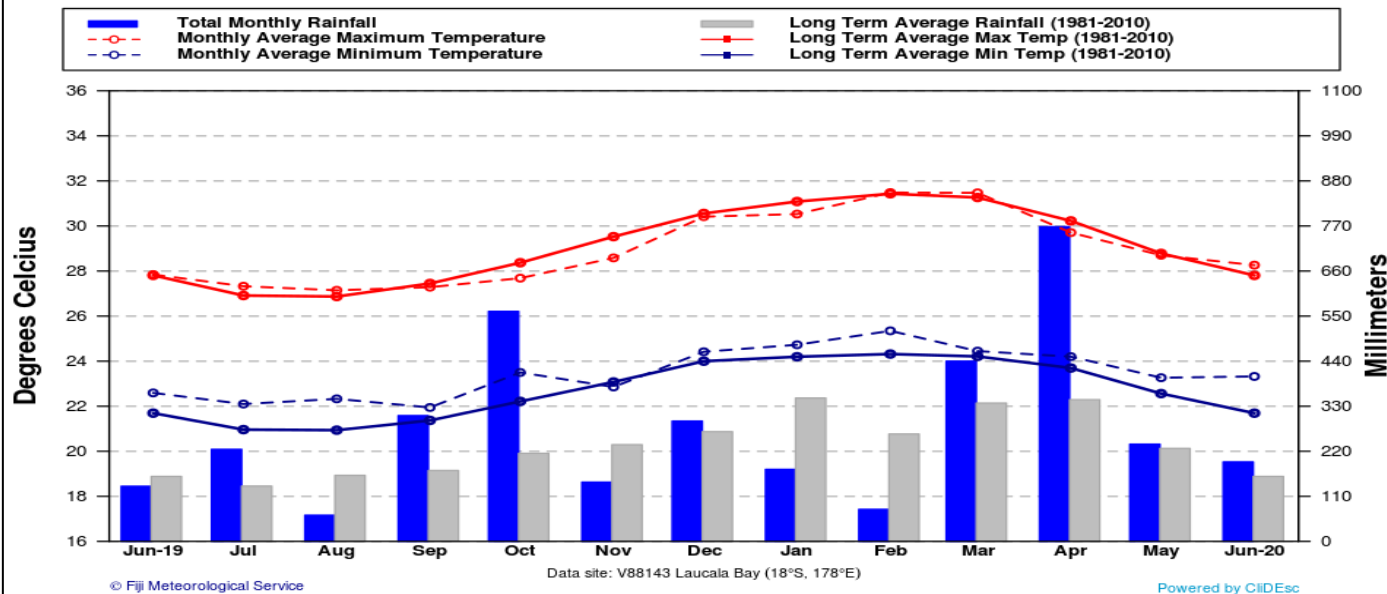


Figure 4

**Labasa Airfield - Temperature & Rainfall for the last 13 Months
(June, 2019 - June, 2020)**

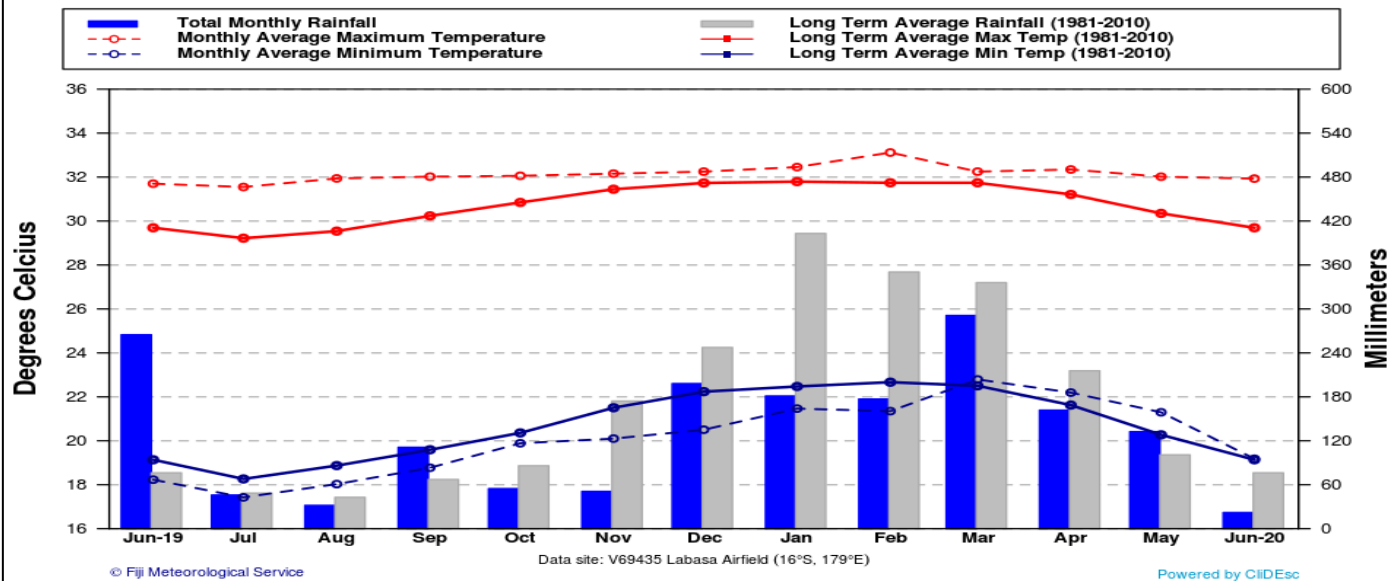
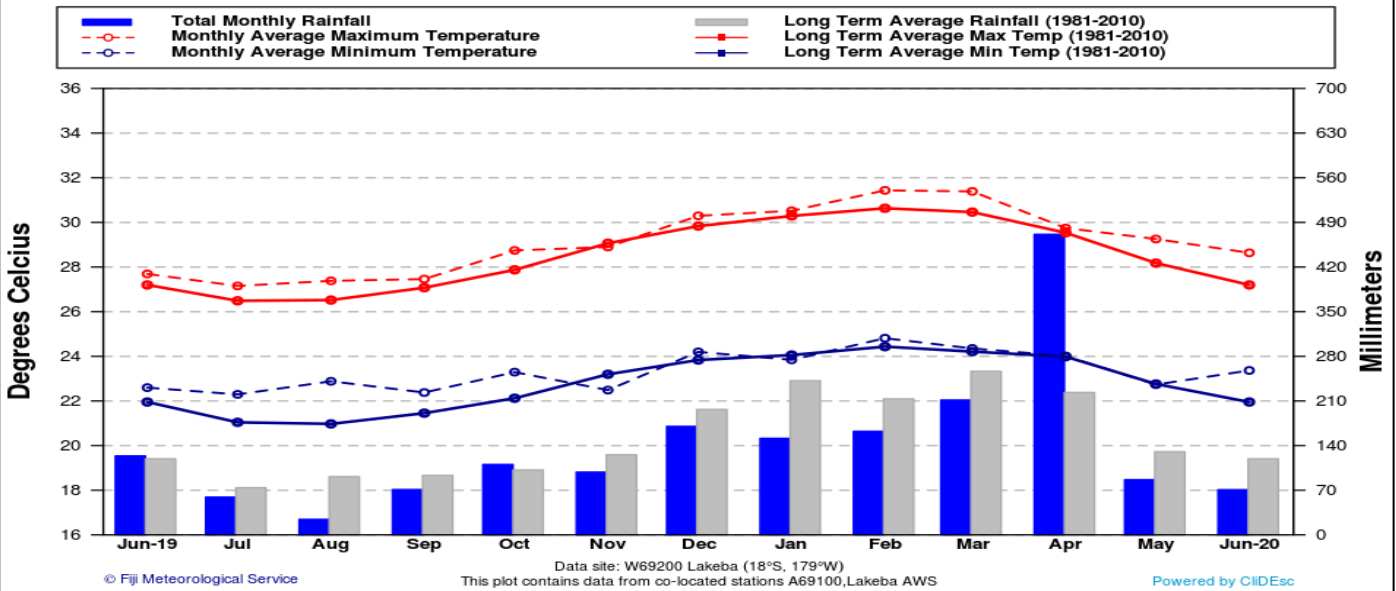


Figure 5

Lakeba - Temperature & Rainfall for the last 13 Months
(June, 2019 - June, 2020)



5. DAILY RAISED PAN EVAPORATION

Figure 6

Daily Evaporation for June 2020

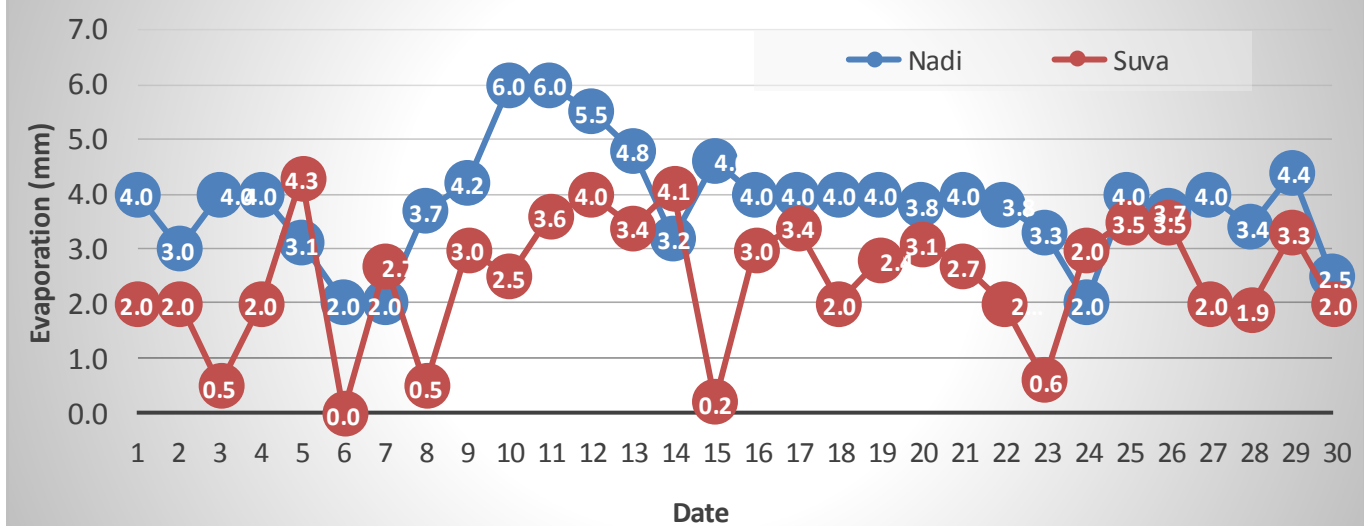


Figure 6: The total monthly raised pan evaporation at Nadi Airport was 115.0mm, with the highest daily evaporation of 6.0mm recorded on the 10th and 11th. Laucala Bay (Suva) recorded total monthly raised pan evaporation of 73.6mm, with the highest daily evaporation of 4.3mm on the 5th.

6. SOLAR RADIATION

Daily Solar Radiation (MJ/m²) for June 2020

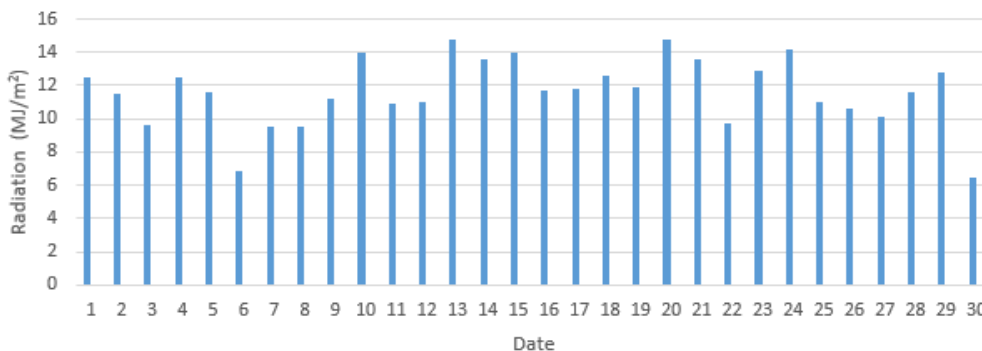


Figure 7:

The mean daily solar radiation at Nadi Airport during the month was 11.6MJ/m² compared to 13.6MJ/m² over 30 year average (1981-2010).

7. WIND SUMMARY

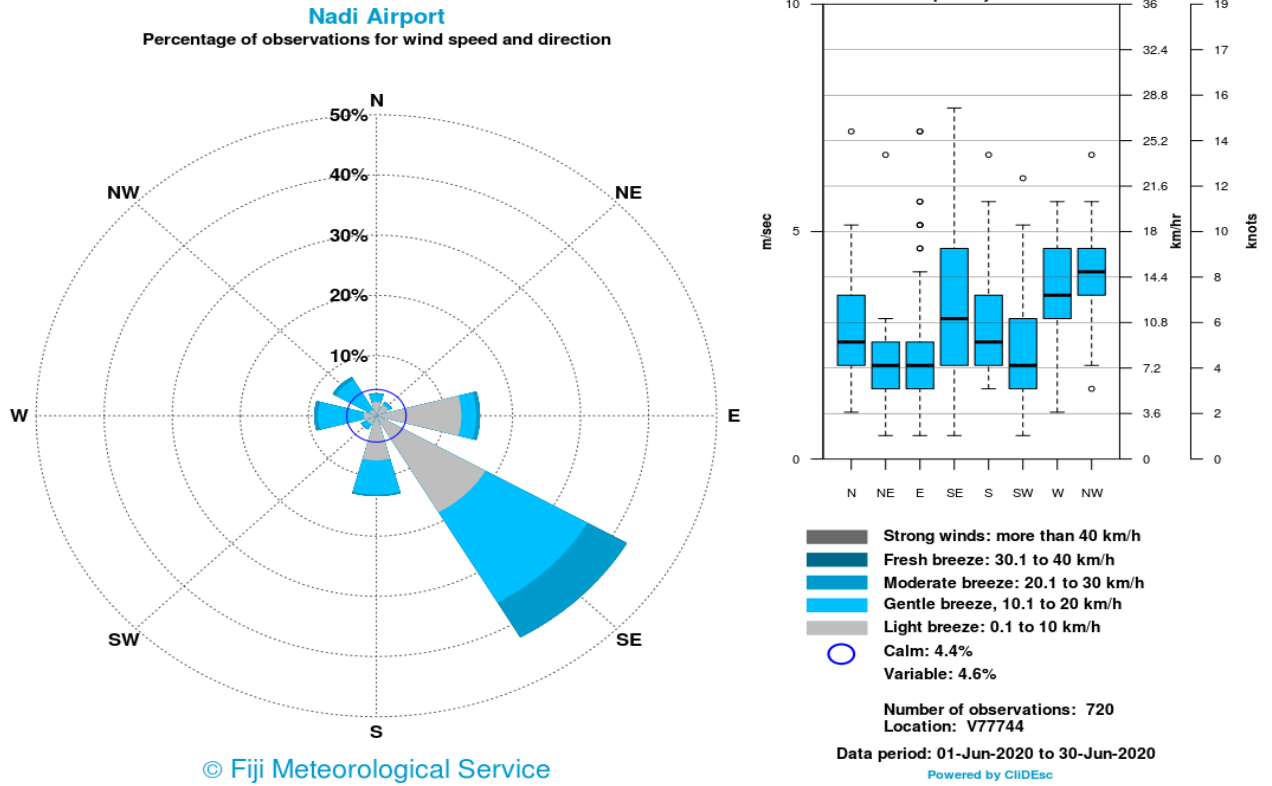


Figure 8a: The hourly wind observations at Nadi Airport during the month showed southeasterly winds as the most dominant, followed by winds from the south and east. The wind strength were light to moderate at Nadi Airport during the month.

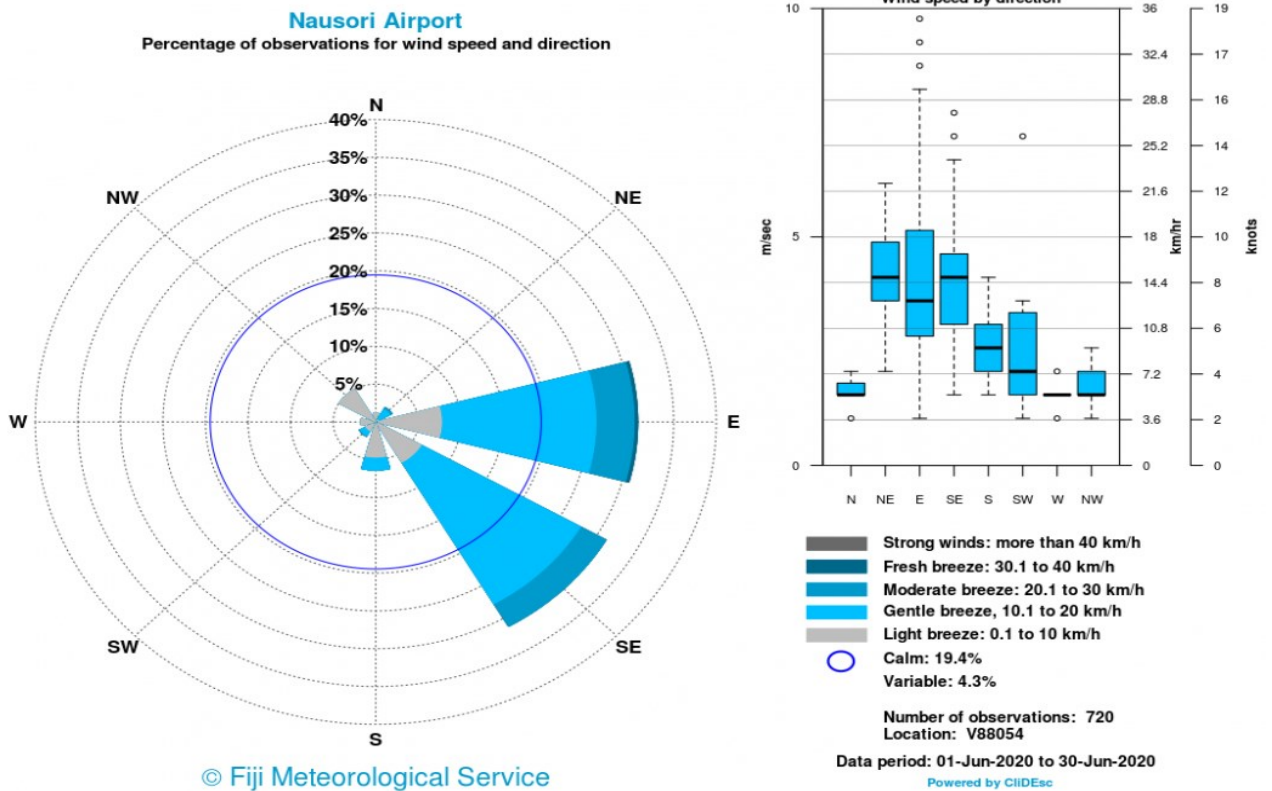


Figure 8b: The hourly wind observations at Nausori Airport during the month showed southeasterly winds as the most dominant, followed closely by winds from the east. The wind strength were light to fresh at Nausori Airport during the month.

8. SEA SURFACE TEMPERATURE (SST)

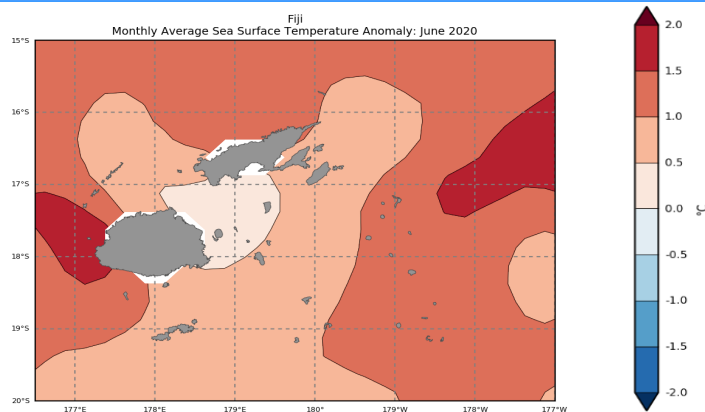


Figure 9:

SSTs were *above normal* over Fiji Waters during the month, with anomalies of more than 1.5°C in waters to west of Viti Levu and northeast of Northern Lau group.

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

9. CLOUD COVER

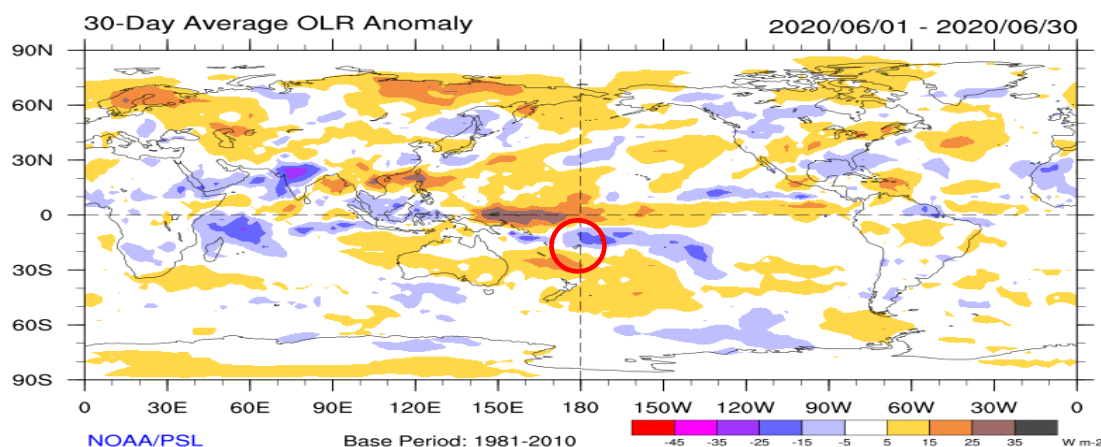


Figure 10:

Near normal to slightly above normal cloud cover were present over the Fiji region during the month (Fiji in red circle).

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

10. SEA LEVEL

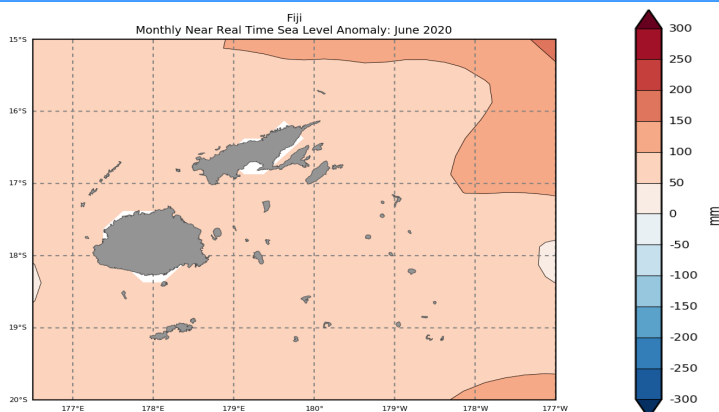


Figure 11:

Positive sea levels were present in most of the Fiji Waters, with anomalies of 5-10cm. Waters close to Rotuma had anomalies of 15-20cm.

Source: <http://oceanportal.spc.int/portal/>

11. WIND ANOMALIES

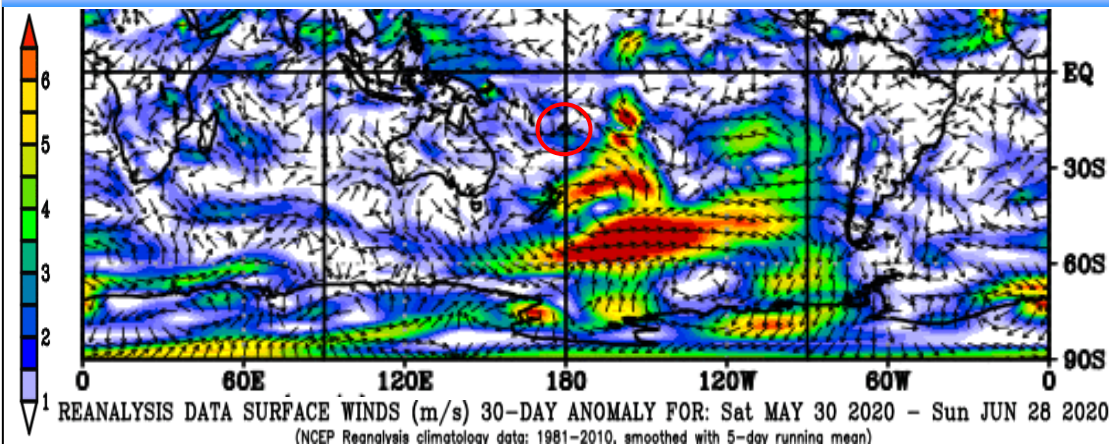


Figure 12:

Variable winds were recorded in the Fiji region 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