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Fiji Climate Summary November 2019



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1. IN BRIEF

El Niño Southern Oscillation status, neutral phase continues to persist within the tropical Pacific region in November.

More than 80% of the stations recorded *average to well below average* rainfall during the month. Out of the 27 stations, 5 stations recorded *well below average* rainfall, 14 *below average* rainfall, 5 *average*, 2 *above average* and Rotuma was the lone station with *well above average* rainfall.

The highest total monthly rainfall of 723.3mm was recorded at Rotuma, followed by Koronivia with 293.2mm, 256.2mm at Udu Point, 240.0mm at Nasinu, 215.1mm at Monasavu and 199.0mm at RKS Lodoni.

For the 24-hour rainfall, the highest of 224.0mm was recorded at Koronivia on the 11th, followed by 178.5mm at Rotuma on the 1st, 148.0mm at Nasinu on the 11th, 141.9mm at Udu Point on the 8th and 110.5mm at Nausori Airport on the 11th.

The highest daily temperature of 34.2°C was recorded at Nacocolevu on the 19th, followed by 33.6°C at Keiyasi on the 8th, 33.5°C at Labasa Airfield on the 12th and 33.0°C at Nadi Airport on the 9th. On

the other hand, Monasavu recorded its coolest day-time temperature of 18.5°C on the 2nd and 19.7 on the 18th. Similarly, Nadarivatu reported 21.3°C on the 10th and 21.5 on the 11th.

The coolest average night time temperature of 16.3°C was recorded at Nadarivatu, followed by 16.8°C at Monasavu, 19.8°C at Keiyasi, 19.9°C at Vanua-balavu and 20.1°C at Labasa Airfield.

Average sunshine hours were recorded at Nacocolevu, while *below average* sunshine hours were recorded at Nadi, Suva and Rotuma (Table 2).

Total monthly evaporation was high in Nadi compared to Laucala Bay, with Nadi's highest daily evaporation of 11.0mm recorded on 24th, compared to 9.0mm on the 8th at Laucala Bay (Figure 6).

Southeasterly winds were most dominant at Nausori and Nadi Airport during the month, with wind speeds generally light to moderate (Figure 8).

2. WEATHER PATTERNS

November's weather was dominated by semi-permanent ridges of high pressure system, the southeast trade winds and troughs of low pressure system.

Mostly fine weather was observed across Fiji during the first week on the month. On the 8th, a trough approached Fiji from the west, moved over and cleared the group on the 13th. Significant rainfall was recorded across the country, especially on the 11th. Koronivia reported the highest 24-hour rainfall of 224.0mm during this event.

A period of mainly fine weather was recorded from 14th till 19th. Later on the 20th, another trough moved

close to the northern part of Fiji which brought showers over Vanua-levu and enhanced showers over the eastern part of Viti-levu till the 22nd. Mainly fine weather prevailed over Fiji till 26th.

On the 27th, another trough associated with TC Rita, the first TC for the 2019-2020 TC season affected the country. Showers recorded over most places till the 29th. Fine weather prevailed till month end.

Rotuma's weather was largely affected by the South Pacific Convergence Zone during the month.

3. RAINFALL

More than 80% of the stations recorded *average to well below average* rainfall during November. Out of the 27 stations, 5 stations recorded *well below average* rainfall, 14 *below average* rainfall, 5 *average*, 2 *above average* and Rotuma was the lone station with *well below average* rainfall (Table 2, Figures 1-5).

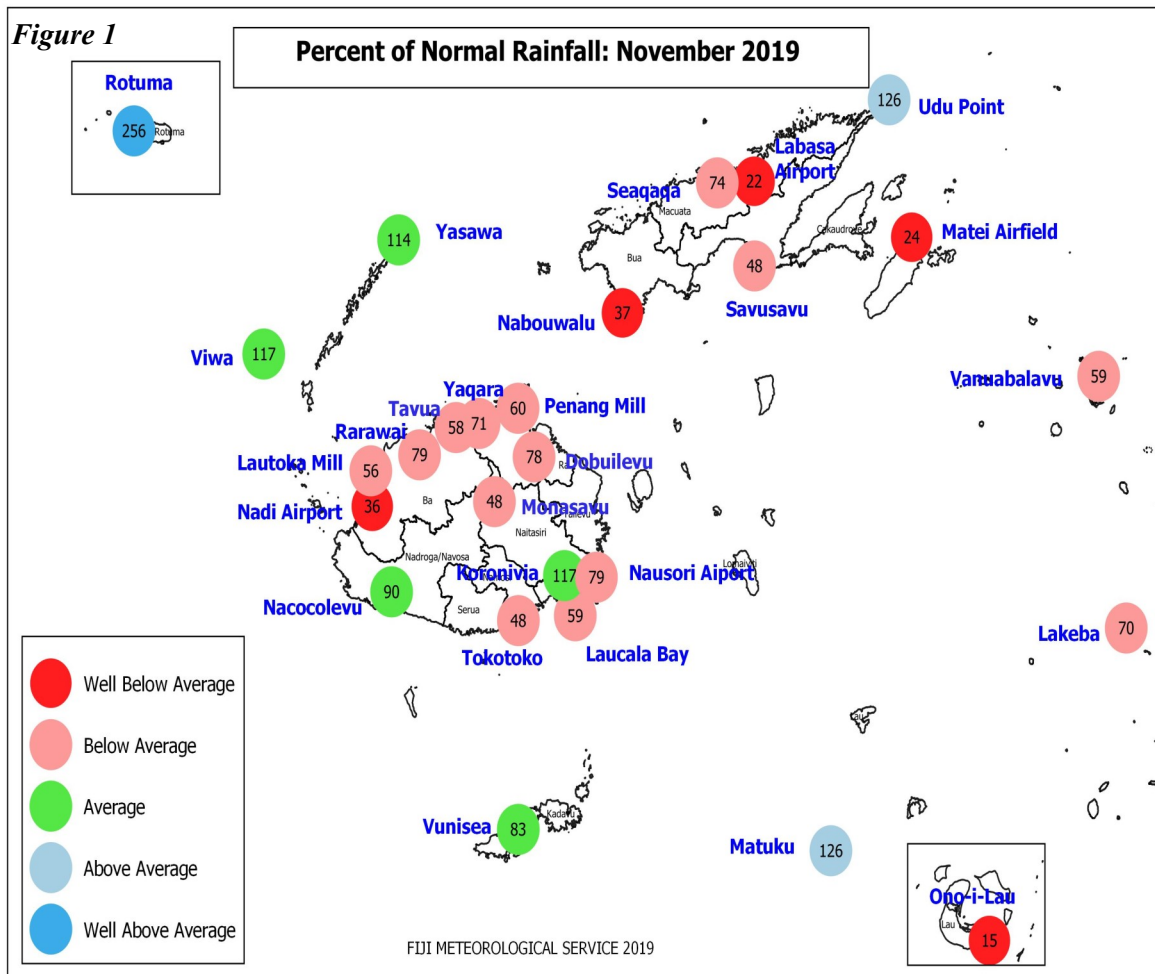
Most of the stations recorded their highest 24 hour rainfall during the second and third week of the month, which was due to the presence of a trough of low pressure. However, rainfall recorded were not enough, resulting in more than 60% of the rainfall reporting stations recording *below average to well below average* rainfall.

The highest total monthly rainfall of 723.3mm was recorded at Rotuma, followed by Koronivia with 293.2mm, 256.2mm at Udu Point, 240.0mm at Nasinu, 215.1mm at Monasavu and 199.0mm at RKS Lodoni. On the other hand, the lowest monthly rainfall of 16.8mm was recorded at Ono-i-Lau, followed by 40.0mm at Labasa Airfield, 57.6mm was recorded at Matei Airfield and 59.5mm at Tavua.

For the 24 hour rainfall, the highest of 224.0mm was recorded at Koronivia on the 11th, followed by 178.5mm at Rotuma on the 1st, 148.0mm at Nasinu on the 11th, 141.9mm at Udu Point on the 8th and 110.5mm at Nausori Airport on the 11th.

Rotuma and Monasavu recorded the highest number of rain days (≥ 0.1) with 24 days, followed by 18 days at Koronivia, 17 days at Viwa and 16 days at Lomaivuna and Nausori Airport. In contrast, Tavua, Rakiraki, Momi, Yaqara, Vanuabalavu and Savusavu recorded only 7 rain days.

There were no new rainfall records established during the month of November.



Normal: Long term average from 1971 to 2000
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

Generally *normal* to *below normal* mean monthly maximum air temperatures were recorded at various parts of the country during November. Of the 21 climate stations that reported in for the preparation of this summary, 13 stations reported *normal* (within $\pm 0.5^{\circ}\text{C}$) temperatures, 6 stations reported *below normal* (within $\leq -0.6^{\circ}\text{C}$) temperatures, while Labasa Airfield and Ono-i-Lau were the only 2 stations that reported *above normal* (anomalies within $\geq +0.6^{\circ}\text{C}$) temperatures (Table 2 & Figures 2-5).

The warmest days on average were observed at Labasa Airport with 32.5°C , followed by Seaqaqa with 31.4°C , Nadi Airport and Keiyasi with 31.1°C , Yaqara with 30.9°C and Rarawai Mill (Ba) with 30.8°C . On the other hand, the coolest day-time temperatures on average was at Monasavu with 23.1°C , followed by Nadarivatu with 24.4°C and 27.9°C at Matuku (Lau Group).

The highest daily temperature of 34.2°C was recorded at Nacocolevu on the 19th, followed by 33.6°C at Keiyasi on the 8th, 33.5°C at Labasa Airfield on the 12th and 33.0°C at Nadi Airport on the 9th. In contrast, Monasavu recorded its coolest day-time temperature of 18.5°C on the 2nd and 19.7°C on the 18th. Similarly, Nadarivatu reported 21.3°C on the 10th and 21.5°C on the 11th.

There were no newly established air temperature records established in November.

B. Minimum Night-time Air Temperatures

Normal to *below normal* night-time temperatures were recorded across the country during the month. Out of the 21 stations, 12 stations recorded anomalies within $\pm 0.5^{\circ}\text{C}$, 8 stations recorded anomalies within $\geq +0.6^{\circ}\text{C}$, while Savusavu was the lone station that had anomaly within $\leq -0.6^{\circ}\text{C}$ (Table 2 & Figures 2-5).

The coolest average night time temperature of 16.3°C was recorded at Nadarivatu, followed by 16.8°C at Monasavu, 19.8°C at Keiyasi, 19.9°C at Vanuabalavu and 20.1°C at Labasa Airfield. In contrast, warm average night temperatures were observed at Rotuma with 24.9°C , followed by 23.4°C at Savusavu Airfield.

More than 50% of the stations recorded their coolest night time temperature on the 1st, which was due to the presence of a fresh to strong southeasterly wind flow over Fiji and clear skies at night. The lowest night time temperature of 13.5°C was recorded at Nadarivatu on the 24th, followed by 13.8°C at Monasavu, 14.2°C at Keiyasi, 15.4°C at Nacocolevu and 16.0°C at Rarawai Mill (Ba) and Sigatoka on the 1st respectively (Table 2). On the other hand, the warmest night time temperature of 26.7°C was recorded at Rotuma on the 27th, followed by 25.7°C at Lakeba on the 12th and 25.5°C at Udu Point and Lautoka on the 11th and 19th respectively.

There were no newly established night time temperatures during the month.

TABLE 1. CLIMATE RECORDS ESTABLISHED IN NOVEMBER 2019

There were no new records established during the month

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 1971-2000 period as its "climatic normal" period, unless otherwise stated.

TABLE 2. DAILY CLIMATE REPORTING SITES: SUMMARY FOR NOVEMBER 2019

	RAINFALL				AIR TEMPERATURES						SUNSHINE				
	TOTAL	RAIN	MAX.	FALL	AVERAGE DAILY				EXTREME		TOTAL	*			
	MM	%	MM		MM	MAX.	#	MIN.	#	MAX.	MIN.		HRS		
		+	ON	C	C	C	C	C	ON	C	ON				
NADI AIRPORT	48	36	12	27	10	31.2	0.1	22.2	0.4	34.0	28	19.8	1	193	87
SUVA/LAUCALA BAY	144	59	14	110	11	28.5	-0.8	22.8	0.0	32.4	19	19.3	2	144	86
NACOCOLEVU	118	90	9	67	11	30.2	-0.2	20.3	-0.6	34.2	19	17.4	18	226	121
ROTUMA	723	256	24	179	1	30.3	-0.0	24.8	0.3	31.6	3	21.9	15	108	55
VIWA	123	117	17	30	12	30.4	0.1	23.3	-1.1	31.9	21	20.3	4	0	0
UDU POINT	256	126	12	142	8	28.7	-1.4	23.1	-0.6	30.6	10	21.4	24		
SAVUSAVU AIRFIELD	90	48	7	63	12	28.4	-1.0	23.2	0.6	32.1	9	21.4	25		
LABASA AIRFIELD	40	22	8	10	21	32.2	0.8	20.1	-1.1	33.5	12	18.0	1		
NABOUWALU	65	37	11	35	11	29.3	0.4	23.5	0.1	31.8	8	22.1	2		
KORONIVIA	293	117	18	224	11	28.8	-0.1	21.0	-0.6	30.2	7	17.6	1		
NAUSORI AIRPORT	193	79	16	111	11	28.3	-0.5	21.3	-0.7	30.9	9	17.5	1		
NAVUA/TOKOTOKO	146	48	15	55	11	NIL	OBSERVATIONS (AWS-RR)								
MONASAVU	215	48	24	62	12	23.3	-0.9	16.8	-0.7	27.2	8	13.8	1		
LAUTOKA AES	77	56	10	28	11	30.7	0.2	22.4	-0.3	32.5	8	19.0	1		
BA/RARAWAI MILL	113	79	10	36	11	30.9	-1.0	20.6	-0.2	33.6	8	16.0	1		
PENANG MILL	96	60	8	30	9	29.8	0.1	22.8	-0.2	31.8	21	20.8	30		
MATEI AIRFIELD	58	24	14	16	8	28.6	-0.3	22.6	-0.3	30.4	11	21.0	1		
VANUABALAVU	77	59	7	48	12	28.9	-0.1	20.0	-3.9	30.6	20	18.9	4		
LAKEBA	OFFICER ON A/LEAVE (AWS).														
YASAWA	147	114	12	27	21	29.6	-0.3	22.9	-1.1	31.2	21	20.3	8		
VUNISEA	121	83	9	47	11	28.1	-0.3	22.2	0.3	31.1	9	18.2	24		
MATUKU	160	126	11	79	8	28.0	-0.7	22.4	-0.5	29.5	8	20.5	21		
ONO-I-LAU	17	15	11	7	19	28.6	1.0	21.1	-1.5	31.1	10	19.3	6		
YAQARA AWS	97	71	7	35	11	30.9		23.2		32.9	6	21.0	1		
LEVUKA AWS	67	45	10	17	12	U/S		U/S		U/S		U/S			
KEIYASI AWS	73		8	42	11	31.1		19.8		33.3	6	14.2	1		
LOMAIVUNA AWS	79		16	31	12	U/S		U/S		U/S		U/S			
NADARIVATU AWS	188		13	53	12	24.4		16.3		27.2	14	13.5	24		
RKS LODONI AWS	199		15	45	10	29.2		21.7		32.1	28	18.2	1		
MOMI AWS	86		7	62	10	30.6		22.2		32.8	16	20.0	1		
KOROLEVU AWS	U/S			U/S				U/S		U/S					
KORO ISLAND AWS	U/S			U/S		U/S		U/S							
SIGATOKA AWS	174		8	127	11	28.8		20.5		32.7	20	16.0	1		
RAKIRAKI AWS	84		7	24	10	28.5		22.3		31.2	22	20.2	30		
WAINIKORO AWS	83		11	33	13	30.3		21.9		32.1	11	19.1	1		
SAQANI AWS	136		14	37	12	30.0		23.3		32.0	19	21.6	1		
VATUREKUKA AWS	136		10	38	12	29.0		21.3		31.4	11	19.3	7		
KUBULAU AWS	U/S		U/S			28.3		22.7		30.4	10	20.9	25		
SEAQAQA AWS	164	77	12	61	20	31.4		22.4		32.9	18	18.3	1		
DOBUILEVU TB3	172	76	9	91	12										
NASINU TB3	240		14	148	11										
TAVUA TB3	60	58	7	28	8										
TEMPERATURE (C) HUMIDITY WIND SUN RAD															
DRY WET RH% VP %OF MJ/															
MEAN (AVERAGE AT 9AM) KT POS SQ.M															
NADI AIRPORT	26.7	27.6	23.4	69	25.4	7.6	49	18.2							
SUVA/LAUCALA BAY	25.6	26.2	23.2	77	26.2		35	18.0							
NACOCOLEVU	25.5	27.3	23.7	73	26.6		60	23							
ROTUMA	27.7	28.3	25.9	82	31.5	5.4	38	18							
VIWA	26.8	27.8	24.4	75	27.9	4.6	28	17							
UDU POINT	26.1	27.0	24.0	77	27.6	8.2									
SAVUSAVU AIRFIELD	26.1	27.1	23.7	74	26.8										
LABASA AIRFIELD	26.3	28.8	25.0	73	28.7										
NABOUWALU	26.4	28.1	23.9	69	26.4	7.7									
KORONIVIA	24.8	25.7	22.8	78	25.6										
NAUSORI AIRPORT	24.9	26.2	23.0	76	25.7	5.0									
NAVUA/TOKOTOKO	MISSING OBSERVATION > 5 DAYS.														
MONASAVU	19.9	20.2	19.0	89	21.1										
LAUTOKA AES	26.5	28.1	24.3	73	27.5										
BA/RARAWAI MILL	25.7	27.5	23.2	68	25.0										
PENANG MILL	26.2	27.2	23.3	71	25.6										
MATEI AIRFIELD	25.8	27.2	24.3	77	28.1										
VANUABALAVU	24.3	26.5	22.8	72	25.0	5.5									
LAKEBA	OFFICER ON A/LEAVE (AWS).														
YASAWA	26.4	27.1	24.3	78	28.1	10.5									
VUNISEA	25.2	26.3	23.0	74	25.4	7.5									
MATUKU	25.3	26.3	22.5	71	24.3	5.1									
ONO-I-LAU	24.8	26.4	21.9	66	22.8	7.1									
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
(November, 2018 - November, 2019)**

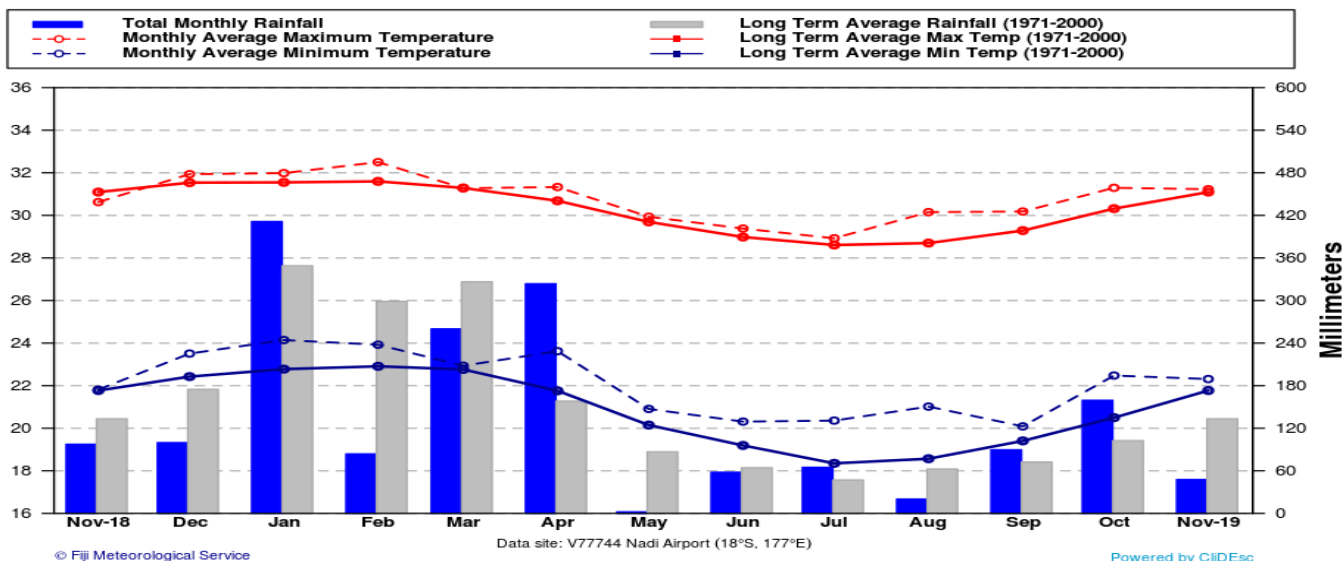


Figure 3

**Laucala Bay - Temperature & Rainfall for the last 13 Months
(November, 2018 - November, 2019)**

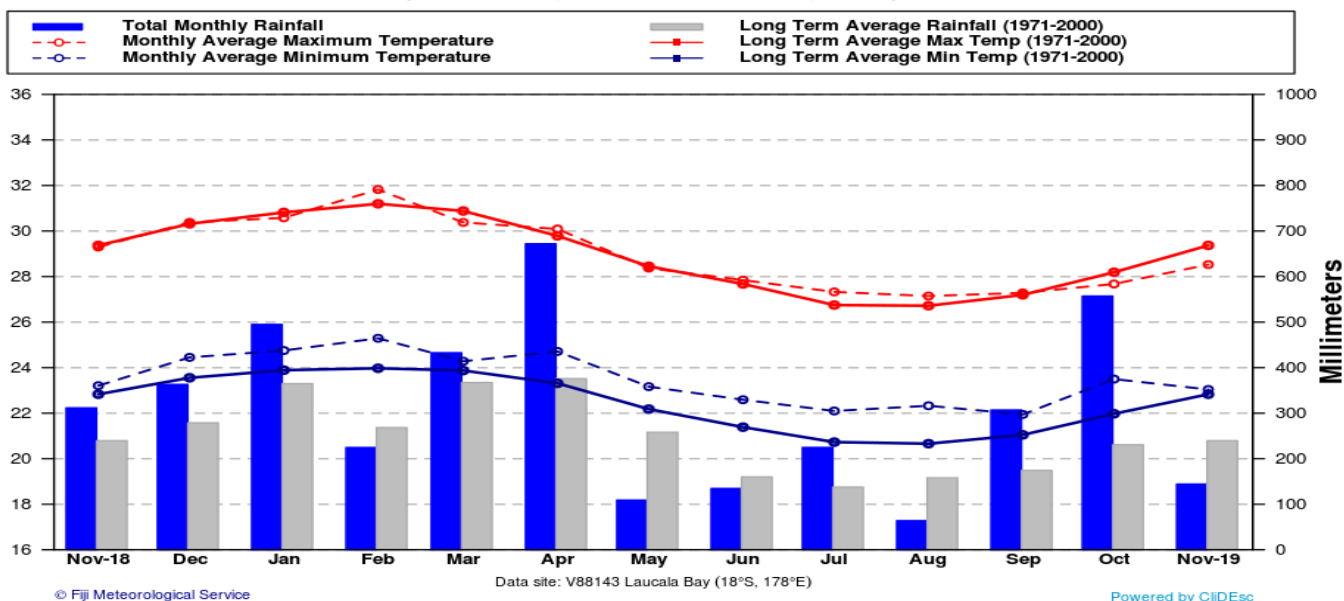


Figure 4

**Labasa Airfield - Temperature & Rainfall for the last 13 Months
(November, 2018 - November, 2019)**

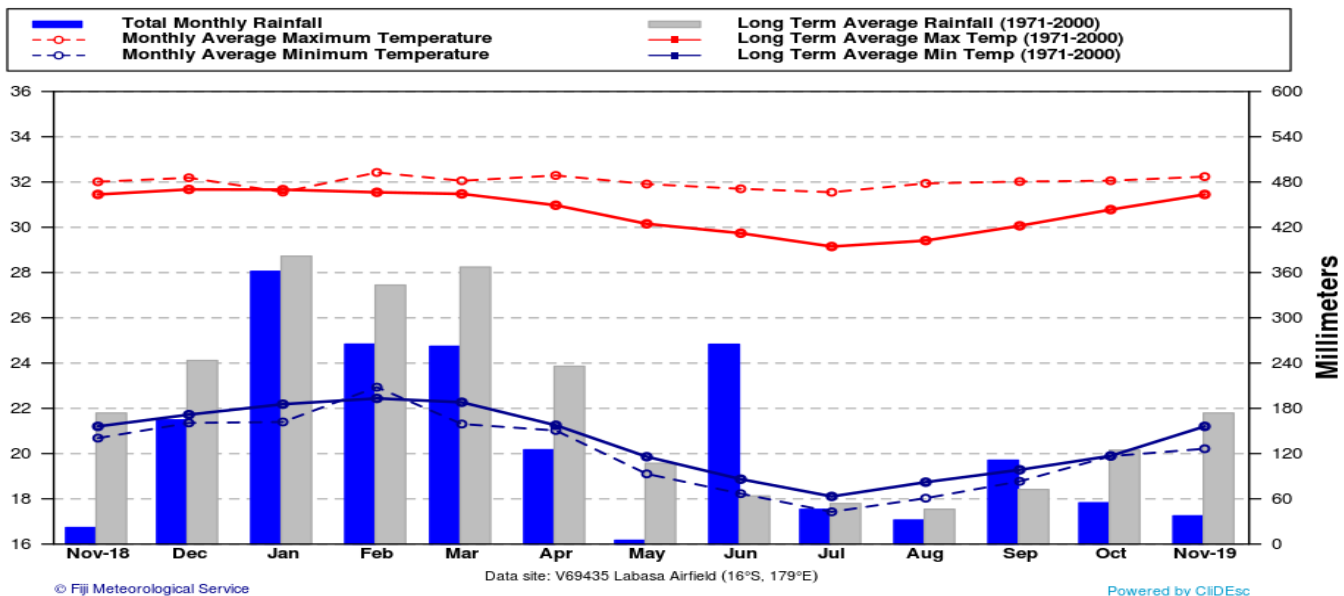
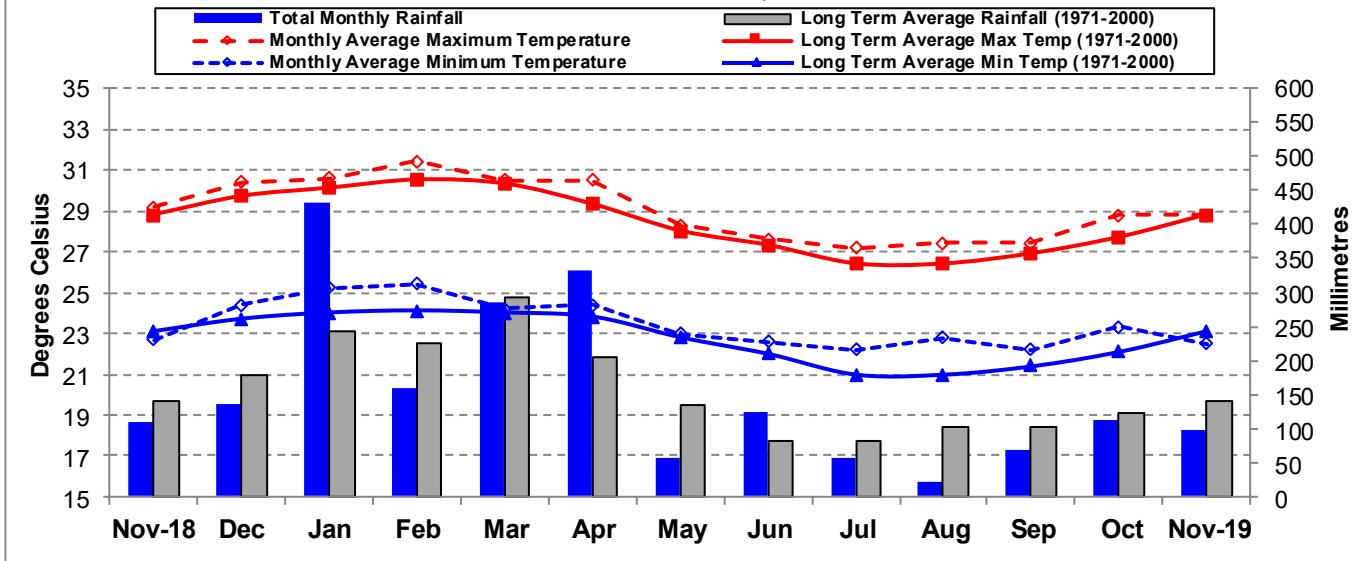


Figure 5 Lakeba (Eastern Division) - Temperature & Rainfall Records for the last 13 Months (November 2018 - November 2019)



5. DAILY RAISED PAN EVAPORATION

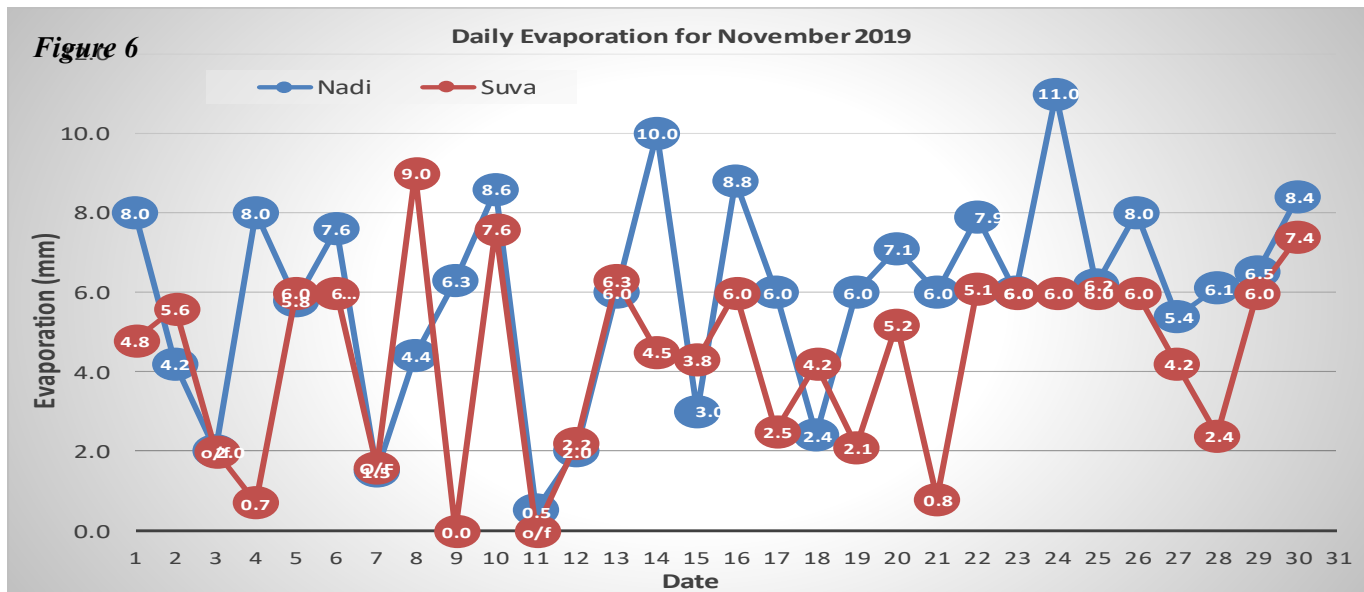


Figure 6: The total monthly raised pan evaporation at Nadi Airport was 179.7mm, with the highest daily evaporation of 11.0mm recorded on 24th. Laucala Bay recorded total monthly evaporation of 131.5mm, with the highest daily evaporation of 9.0mm on the 8th.

6. SOLAR RADIATION

Analysis for Nadi’s solar radiation could not be done for November, as there were missing readings towards the end of the month.

7. WIND SUMMARY

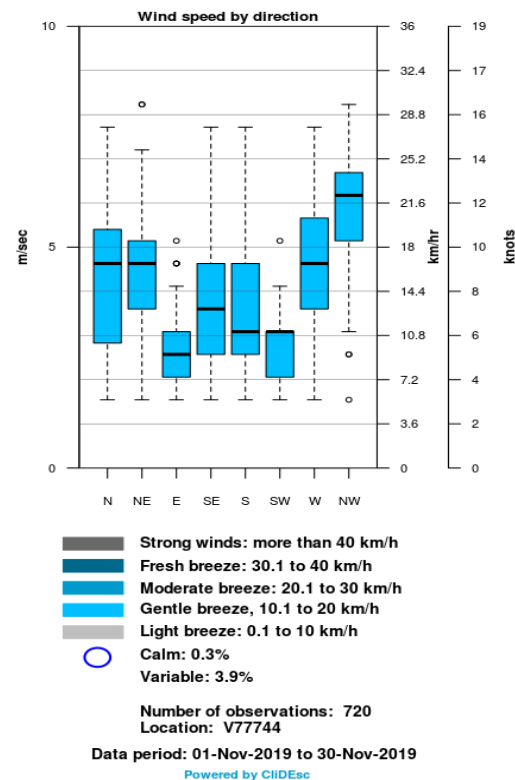
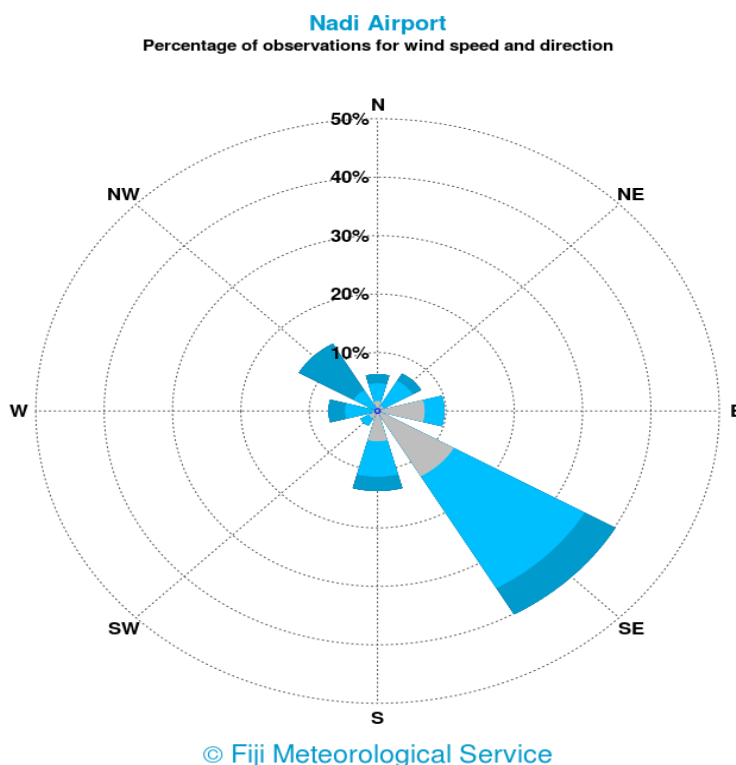


Figure 8a: The hourly wind observations at Nadi Airport during the month showed southeasterly wind as the most dominant, followed by northwesterly and southerly winds. Wind speeds were generally light to moderate in strength.

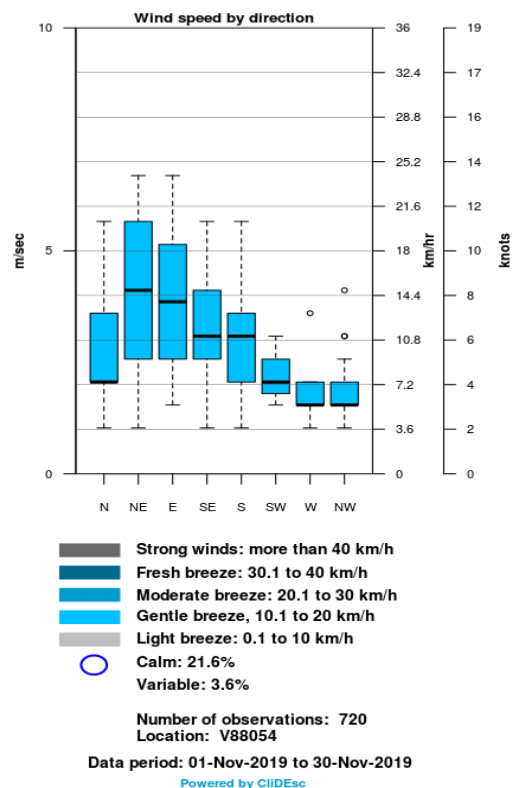
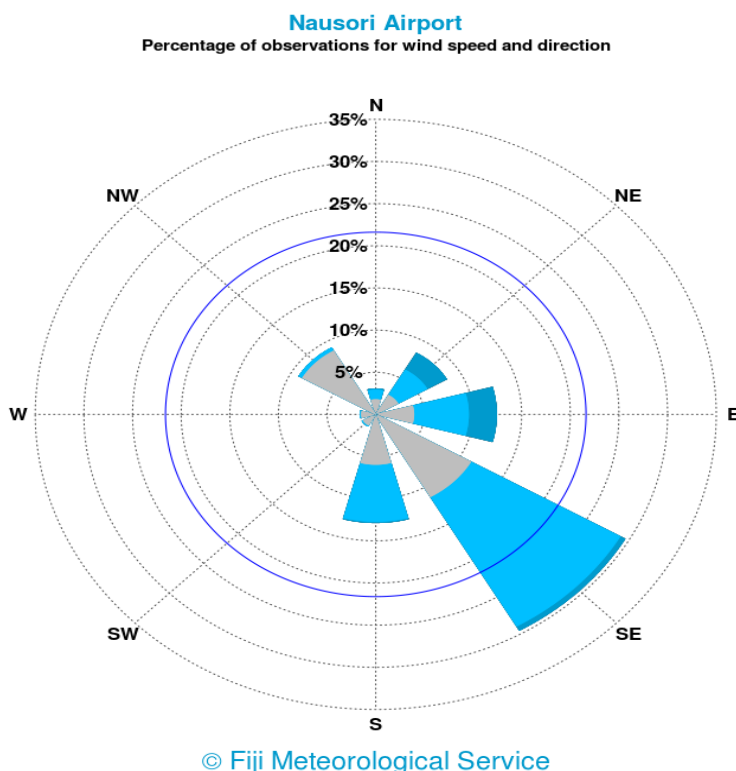


Figure 8b: The hourly wind observations at Nausori Airport during the month showed southeasterly winds as dominant, followed by easterly then southerlies. Northwesterly winds to northeasterly winds were also recorded at certain times during the month. Wind speeds were generally light to moderate in strength.

8. SEA SURFACE TEMPERATURE (SST)

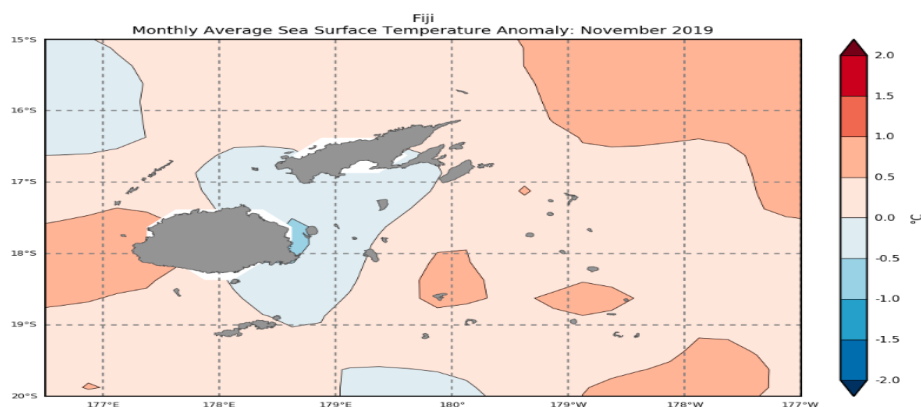


Figure 9:
Below normal temperatures were present in between the Viti Levu and Vanua Levu and further south of the country, while normal to above normal SSTs were present for the rest of the group during the month.

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

9. CLOUD COVER

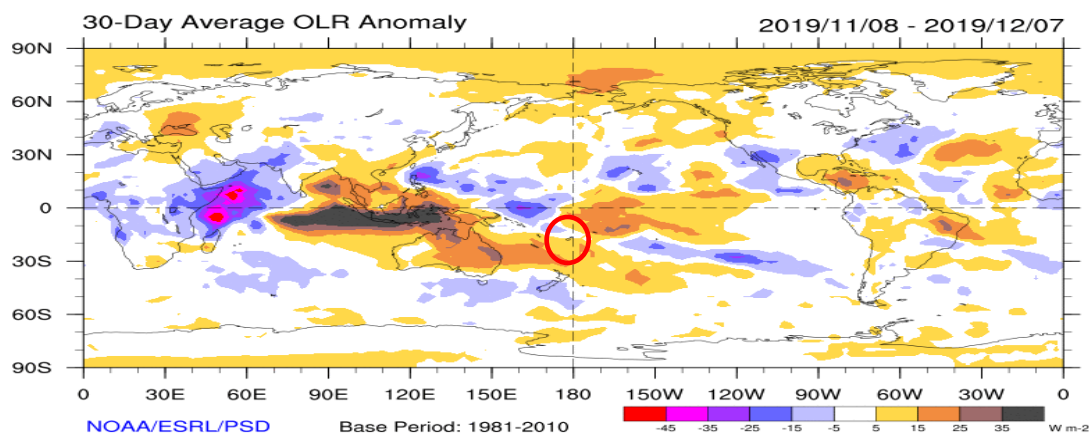


Figure 10:
Slightly below normal cloud cover were present over most of the Fiji region during the month (base period: 1981-2010) (Fiji in red circle).

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

10. SEA LEVEL

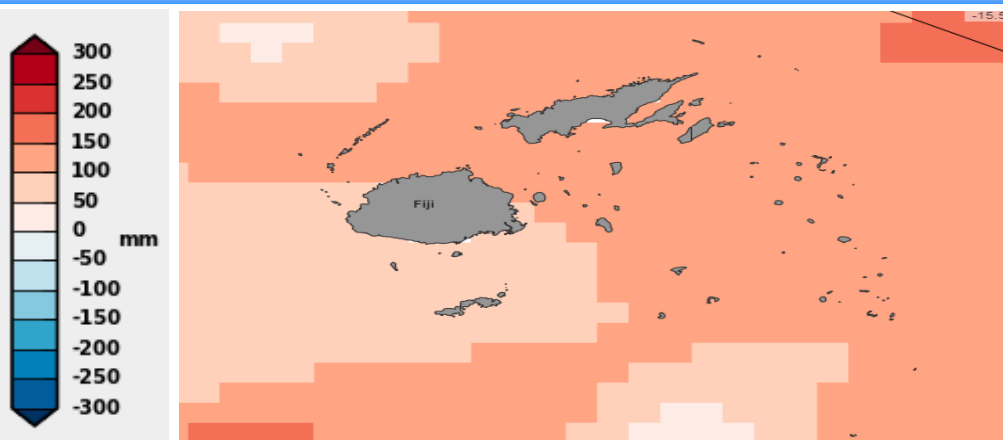


Figure 11:
Sea level anomalies of around 0 to 1cm were observed across the Fiji Waters during the month

Source: Ocean Data Portal; <http://oceanportal.spc.int/portal/app.html#sealevel>

11. WIND ANOMALIES

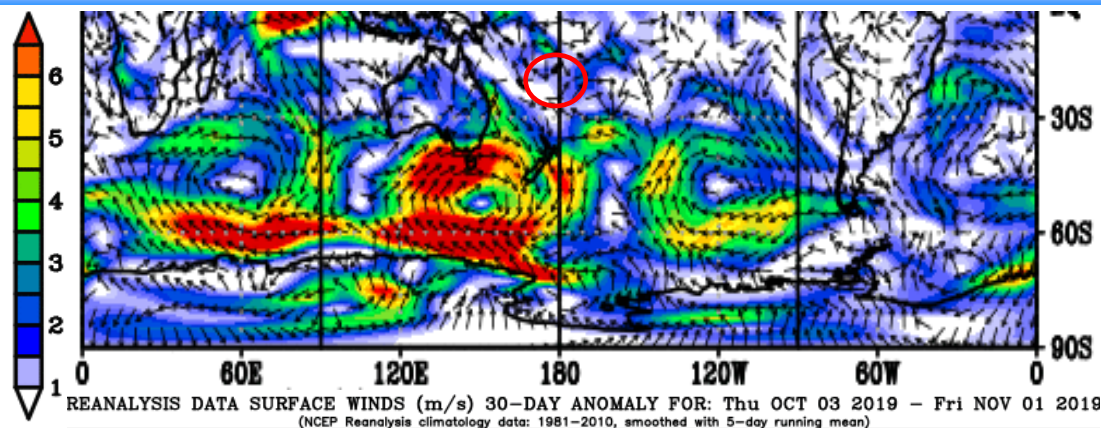


Figure 12:
Variable wind anomalies of around 0-1.5m/s were recorded in the Fiji region (base period: 1981-2010) (Fiji in red circle).

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