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Fiji Climate Summary

October 2020



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1. IN BRIEF

A moderate La Niña event was established in the tropical Pacific during October. The South Pacific Convergence Zone was displaced south of its normal position during the month, closer to the Fiji Group. Consequently most parts of the country experienced a wetter than usual month. Close to four times the *normal* rainfall was recorded at Yasawa-i-Rara, with Viwa, Dobuilevu, Yaqara, Matuku and Ono-i-Lau registering more than twice the *normal* rainfall.

Overall, out of the 27 stations, 7 recorded *well above average* rainfall during October, 13 *above average*, 5 *average*, while Vanuabalavu and Lakeba were the only stations to register *below average* rainfall.

Most of the rainfall during the month were recorded during the first 17 days of the month. Some significant 24-hour rainfall was registered, with Saqani receiving 277mm of rainfall on the 4th, followed by Vunisea (Kadavu) with 136mm on the 3rd, Dobuilevu with 105mm on the 6th and Yaqara with 93mm on the 14th.

There were reports of flash floods during the month. On the 3rd, low lying areas and crossings in Bua, including

Nabouwalu and Daria to Dawara along the West Coast Road, were flooded. Later on the 15th, an active trough of low pressure resulted in flash flooding in several areas, including, Nayarabale, Qelemumu, Neikelikoso, Winikoro, Lagalaga and Nubu around northern tip of Vanua Levu; low lying areas along Nairukuruku and Naqali in Rewa catchment; and low lying areas along Mead Road and Lawaki Road in Rakiraki. A flash flooding incident was also observed in Nadi town on the 17th.

Rotuma also registered some significant rainfall during the month, with the highest 24-hour rainfall of 139mm on the 21st.

Generally *normal* or *above normal* mean monthly maximum and minimum air temperatures were registered during the month.

Occasionally, very warm conditions were experienced during the month with the highest daily maximum air temperature registered at Keiyasi was 35.7°C on the 6th, followed by Viwa with 34.7°C on the 1st.

2. WEATHER PATTERNS

The weather in Fiji during October was dominated by a series of troughs of low pressure systems, the moist easterly wind flow and southeast trade winds.

A moist easterly wind flow dominated the group on the 1st with some showers affecting the interior and eastern parts of the main islands with fine weather elsewhere.

A trough of low pressure affected Fiji from the north with occasional rain and thunderstorms on the 2nd and gradually moved eastward over the group and affected till the 5th. Significant rainfall of 70mm was recorded at Laucala Bay (Suva) on the 4th and 64mm at Matuku on the 5th.

On the 6th, another trough of low pressure affected the group from the west and gradually drifted eastward with occasional rain and thunderstorms observed until the 7th. Significant rainfall of 54mm was recorded at Tokotoko (Navua) on the 6th and 73mm at Yasawa-i-Rara on the 7th.

A southeast wind flow dominated the group from the 8th

until the 15th with some showers over the interior and eastern parts of the larger islands. Fine weather prevailed elsewhere with isolated afternoon or evening showers and thunderstorms. The highest rainfall recorded was at Monasavu with 81mm on the 14th.

A trough of low pressure approached Fiji from the west on the 16th, moved eastward and cleared the group on the 17th. Cloud and showers observed across the group with Yasawa-i-Rara recorded 52mm on the 16th.

On the 18th, an east to southeast wind flow settled over Fiji and affected till the 31st. Brief showers prevailed over the interior and eastern parts of the larger islands, fine weather with isolated afternoon or evening showers elsewhere.

Rotuma was affected by series of troughs of low pressure during the month. The most significant rainfall at Rotuma was 139mm on the 21st, 138.5mm and 107mm on the 19th respectively.

3. RAINFALL

It was wetter than usual month in most parts of the country. Close to four times the *normal* rainfall was recorded at Yasawa-i-Rara, with Viwa, Dobuilevu, Yaqara, Matuku and Ono-i-Lau registering more than twice the *normal* rainfall. In contrast, Vanuabalavu and Lakeba were the only stations to receive *below normal* rainfall during the month.

Out of the 27 stations, 7 recorded *well above average* rainfall during October, 13 *above average*, 5 *average*, while 2 recorded *below average* rainfall (Table 2, Figures 1-5).

Most of the rainfall during the month was recorded in the first 17 days of the month. Some significant 24-hour rainfall was registered with Saqani receiving 277mm of rainfall on the 4th, followed by Vunisea (Kadavu) with 136mm on the 3rd, Dobuilevu with 105mm on the 6th and Yaqara with 93mm on the 14th.

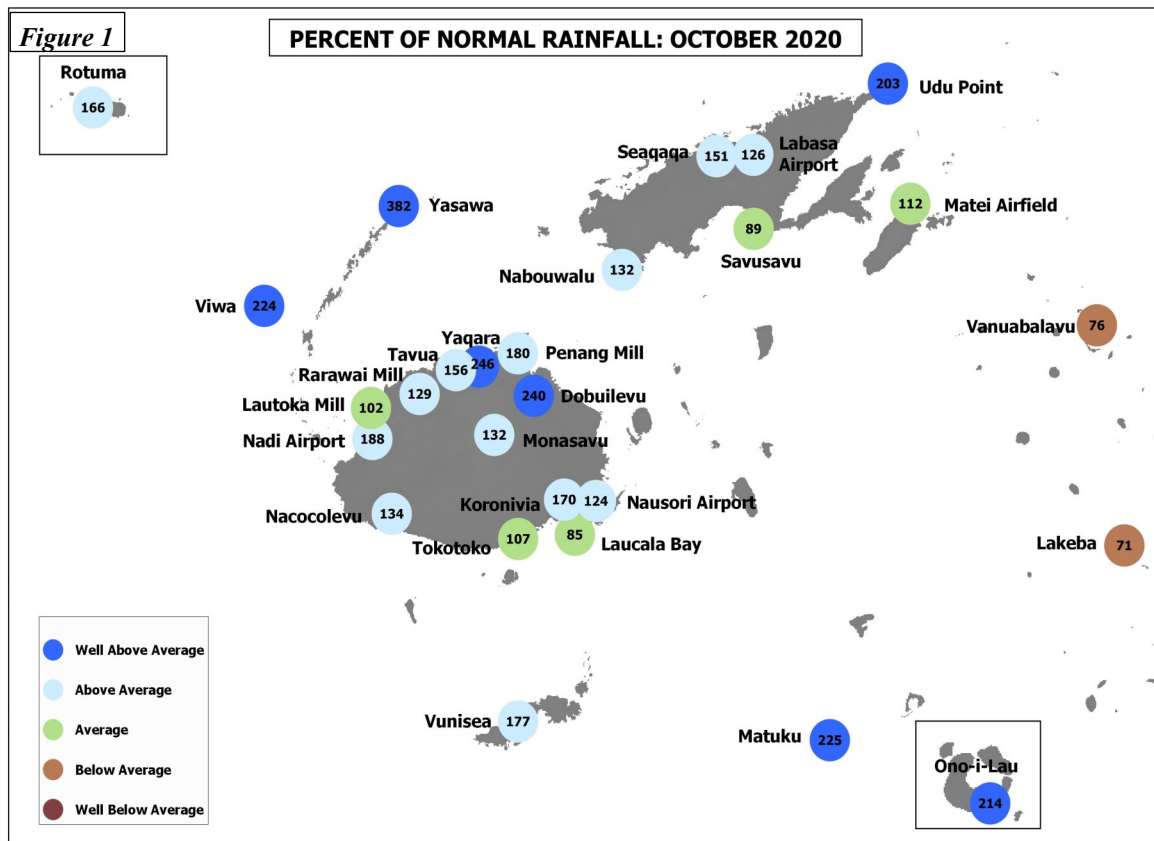
There were reports of couple of flash floods during the month. On the 3rd, low lying areas and crossings in Bua, including Nabouwalu and Daria to Dawara along the West Coast Road, were flooded. Later on the 15th, an active trough of low pressure affected Fiji resulted in flash flooding in several areas including, Nayarabale, Qelemumu, Neikelikoso, Winikoro, Lagalaga and Nubu around northern tip of Vanua Levu; low lying areas along Nairukuruku and Naqali in Rewa catchment; and low lying areas along Mead

Road and Lawaki Road in Rakiraki. A flashing flooding incident was also recorded in the Nadi town on the 17th. Rotuma also registered some significant rainfall during the month, especially between 19th and 21st, with an accumulated rainfall of 306mm over a 72-hour period.

The wettest station during the month was Saqani with 603mm of total monthly rainfall, followed by Rotuma with 595mm, Monasavu with 449mm, Koronivia with 349mm, Dobuilevu with 324mm, Udu Point with 296mm, Tokotoko (Navua) with 288mm and Yasawa-i-Rara with 287mm. On the other hand, the lowest total monthly rainfall was recorded at Lakeba with 71mm, followed by Sigatoka with 72mm, Lautoka Mill with 81mm, Keiyasi with 85mm and Tavua with 90mm.

It rained at Koronivia on almost everyday during the month with 29 rain days (rainfall ≥ 0.1 mm), followed by Monasavu with 27, Laucala Bay (Suva) and Nausori Airport with both 25, Rotuma and Tokotoko (Navua) with both 24, and Nasinu and RKS (Lodoni) with both 23. In contrast, Lakeba recorded only 8 rain days, followed by Yaqara and Rarawai Mill (Ba) with both 9, Tavua and Lautoka Mill with both 10, and Momi and Yasawa-i-Rara with both 11.

There was no new rainfall record established during the month



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 *normal* or *above normal* maximum air temperatures were observed over the Fiji Group during October. Out of the 22 climate stations, 16 recorded anomalies $\geq +0.5^{\circ}\text{C}$, 5 within $\pm 0.5^{\circ}\text{C}$, while Udu Point was the lone station with anomaly below $\leq -0.5^{\circ}\text{C}$ (Table 2 & Figures 2-5).

Warmest days on average during the month was at Keiyasi with 32.3°C , followed by Seaqaqa with 31.9°C , Rarawai Mill (Ba) with 31.7°C , Yaqara with 31.3°C , Momi and Saqani with both 31.1°C . On the other hand, Monasavu was coolest on average with 23.9°C , followed by Nadarivatu with 25.0°C , Ono-i-Lau with 27.0°C and Koronivia with 27.9°C .

The highest daily day-time air temperature during the month was registered at Keiyasi with 35.7°C on the 6th, followed by Viwa with 34.7°C on the 1st, Yaqara with 34.5°C on the 1st and Rarawai Mill (Ba) with 34.3°C on the 13th. In contrast, the coolest maximum air temperature for October was at Monasavu with 20.6°C on the 21st, followed by Nadarivatu with 22.9°C on the 16th, Sigatoka with 24.0°C on the 3rd and Ono-i-Lau with 24.6°C on the date (3rd).

There was no new record maximum air temperature during the month.

B. Minimum Night-time Air Temperatures

Generally *normal* or *above normal* minimum air temperatures were recorded over the Fiji Group during the month. Out of the 21 stations, 14 registered anomalies $\geq +0.5^{\circ}\text{C}$, 6 within $\pm 0.5^{\circ}\text{C}$, while Ono-i-Lau was the lone station with $\leq -0.5^{\circ}\text{C}$ (Table 2 & Figures 2-5).

The coolest site on average during October was Nadarivatu with 17.6°C , followed by Monasavu with 18.2°C , Ono-i-Lau with 20.7°C and Rarawai Mill (Ba) with 20.8°C . In contrast, the warmest mean monthly minimum air temperature was observed at Rotuma with 24.9°C , followed by Nabouwalu, Lakeba and Levuka, all with 23.8°C , and Saqani and Udu Point, both with 23.7°C .

The lowest daily minimum air temperature during the month was recorded at Nadarivatu with 14.9°C on the 26th, followed by Keiyasi with 15.4°C on the 29th, Koronivia with 15.6°C on the 10th and Monasavu with 16.5°C on the 19th. On the other hand, the warmest daily minimum air temperature was recorded at Rotuma with 26.6°C on the 10th, followed by Viwa and Vanuabalavu, both with 25.6°C on the 2nd and 10th, respectively.

There was no new record minimum air temperature during the month.

TABLE 1. CLIMATE RECORDS ESTABLISHED IN OCTOBER 2020

There was no new record 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 1981-2010 period as its "climatic normal" period.

TABLE 2. DAILY CLIMATE REPORTING SITES: SUMMARY FOR OCTOBER 2020

	RAINFALL				AIR TEMPERATURES						SUNSHINE				
	TOTAL	RAIN	MAX.	FALL	AVERAGE DAILY			EXTREME		TOTAL	*				
	MM	%	MM		MM	#	MIN.	#	MAX.	MIN.		HRS			
		+	ON	C	C	C	C	C	ON	C	ON	%			
NADI AIRPORT	149	188	15	41	16	30.2	0.1	22.4	1.6	32.2	12	20.0	29	216	92
SUVA/LAUCALA BAY	177	85	25	70	4	29.0	0.6	23.5	1.3	31.5	5	21.2	3	160	96
NACOCOLEVU	112	134	13	34	18	30.0	0.7	21.2	1.6	32.6	9	17.4	31	187	91
ROTUMA	595	166	24	139	21	30.6	0.6	24.9	0.5	31.7	6	22.0	21	184	94
VIWA	155	224	13	56	4	30.4	0.7	23.5	-0.2	34.7	1	21.2	17		
UDU POINT	296	203	21	53	13	28.7	-0.8	23.7	-0.2	30.2	7	22.0	29		
SAVUSAVU AIRFIELD	129	89	13	25	2	29.0	0.7	22.3	0.3	31.6	17	20.1	17		
LABASA AIRFIELD	109	126	15	34	16	U/S		U/S							
NABOUWALU	208	132	16	45	2	29.4	1.5	23.8	1.1	30.4	4	21.5	28		
KORONIVIA	349	170	29	64	9	27.9	0.1	21.2	0.4	31.3	31	15.6	10		
NAUSORI AIRPORT	240	124	25	44	27	28.7	1.1	22.2	1.3	31.0	10	19.0	20		
NAVUA/TOKOTOKO	288	107	24	54	6	29.4	1.6	U/S		33.8	6				
MONASAVU	449	132	27	81	14	23.9	0.9	18.2	1.7	31.0	29	16.5	19		
LAUTOKA AES	81	102	10	33	16	30.7	1.0	21.9	0.3	32.0	1	19.5	29		
BA/RARAWAI MILL	102	129	9	21	17	31.7	0.4	20.8	1.2	34.3	13	17.5	29		
PENANG MILL	166	180	15	67	14	29.8	0.5	22.8	0.7	31.7	1	20.5	18		
MATEI AIRFIELD	191	112	19	56	4	28.9	0.7	23.3	0.9	30.2	11	21.5	17		
VANUABALAVU	103	76	20	38	5	28.4	0.2	23.5	0.6	29.7	1	21.7	19		
LAKEBA	71	71	8	53	5	28.8	1.0	23.8	1.7	31.2	7	21.5	19		
YASAWA	287	382	11	92	4	30.2	0.7	22.9	0.0	33.3	1	20.1	15		
VUNISEA	232	177	18	136	3	28.3	1.1	22.6	1.6	32.1	6	20.5	21		
MATUKU	191	225	19	64	5	28.3	0.7	23.0	1.0	31.5	2	19.5	29		
ONO-I-LAU	146	214	16	48	3	27.0	0.4	20.7	-0.5	29.8	8	19.0	30		
YAQARA AWS	142	246	9	93	14	31.3		23.4		34.5	1	20.2	18		
LEVUKA AWS	209		18	85	14	30.0		23.8		34.1	7	21.6	28		
KEIYASI AWS	85		12	25	6	32.3		21.2		35.7	6	15.4	29		
LOMAIVUNA AWS	U/S					U/S		U/S							
NADARIVATU AWS	206		17	79	14	25.0		17.6		27.2	9	14.9	26		
RKS LODONI AWS	245		23	49	14	29.1		22.1		30.5	17	19.9	20		
MOMI AWS	117		11	39	2	31.1		22.7		33.5	10	19.7	29		
SIGATOKA AWS	72		12	29	16	28.9		21.3		31.3	7	17.5	31		
RAKIRAKI AWS	174		12	80	14	28.2		22.5		31.2	28	20.4	3		
WAINIKORO AWS	238		17	82	15	30.6		22.3		33.0	10	19.2	29		
SAQANI AWS	603		20	277	4	31.1		23.7		33.6	10	22.3	17		
VATUREKUKA AWS	245		16	71	8	29.7		21.4		32.0	1	18.9	20		
SEAQAQA AWS	159	151	13	47	2	31.9		22.5		34.2	9	18.2	30		
KOROLEVU AWS	113		18	15	16	29.8		22.0		32.5	6	20.3	4		
KORO ISLAND AWS	U/S					U/S		U/S							
KUBULAU AWS	U/S					28.7		23.1		30.2	6	20.2	17		
DOBUILEVU TB3	324	240	16	105	6										
NASINU TB3	269		23	34	16										
TAVUA TB3	90	156	10	35	14										

	TEMPERATURE(C)		HUMIDITY		WIND	SUN RAD	
	MEAN	DRY WET	RH%	VP		%OF	MJ/
		(AVERAGE AT 9AM)			KT	POS	SQ.M
NADI AIRPORT	26.3	27.5	23.1	68	24.8	6.3	58 17.4
SUVA/LAUCALA BAY	26.2	26.8	23.9	78	27.5		43 9\$
NACOCOLEVU	25.6	27.2	23.8	75	26.8		54 20\$
ROTUMA	27.8	28.7	25.9	79	31.2		50 20\$
VIWA	26.9	27.8	24.1	75	27.4		
UDU POINT	26.2						
SAVUSAVU AIRFIELD	25.7	26.6	24.1	80	28.0		
LABASA AIRFIELD	U/S						
NABOUWALU	26.6	27.3	24.3	78	28.1		
KORONIVIA	24.6	26.2	23.7	81	27.4		
NAUSORI AIRPORT	25.4	26.4	23.6	79	27.0	6.0	
NAVUA/TOKOTOKO	U/S						
MONASAVU	21.0	20.9	19.6	88	21.9		
LAUTOKA AES	26.3	28.3	24.4	72	27.6		
BA/RARAWAI MILL	26.2	27.7	23.3	69	25.3		
PENANG MILL	26.3	26.8	23.9	78	27.4		
MATEI AIRFIELD	26.1	27.6	25.7	86	31.8		
VANUABALAVU	25.9	26.8	24.3	81	28.4		
LAKEBA	26.3	27.1					
YASAWA	26.6	27.6					
VUNISEA	25.4	25.3					
MATUKU	25.6	26.0	24.1	85	28.7		
ONO-I-LAU	23.8	25.4	23.5	85	27.6		

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

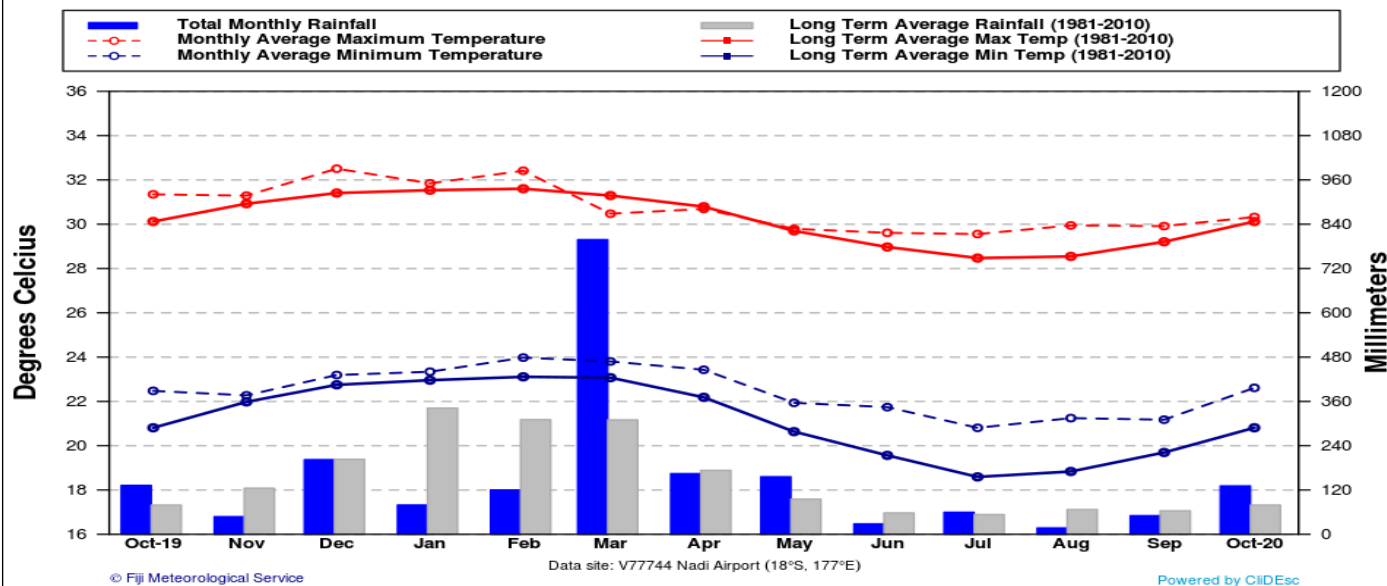


Figure 3 Laucala Bay - Temperature & Rainfall for the last 13 Months (October, 2019 - October, 2020)

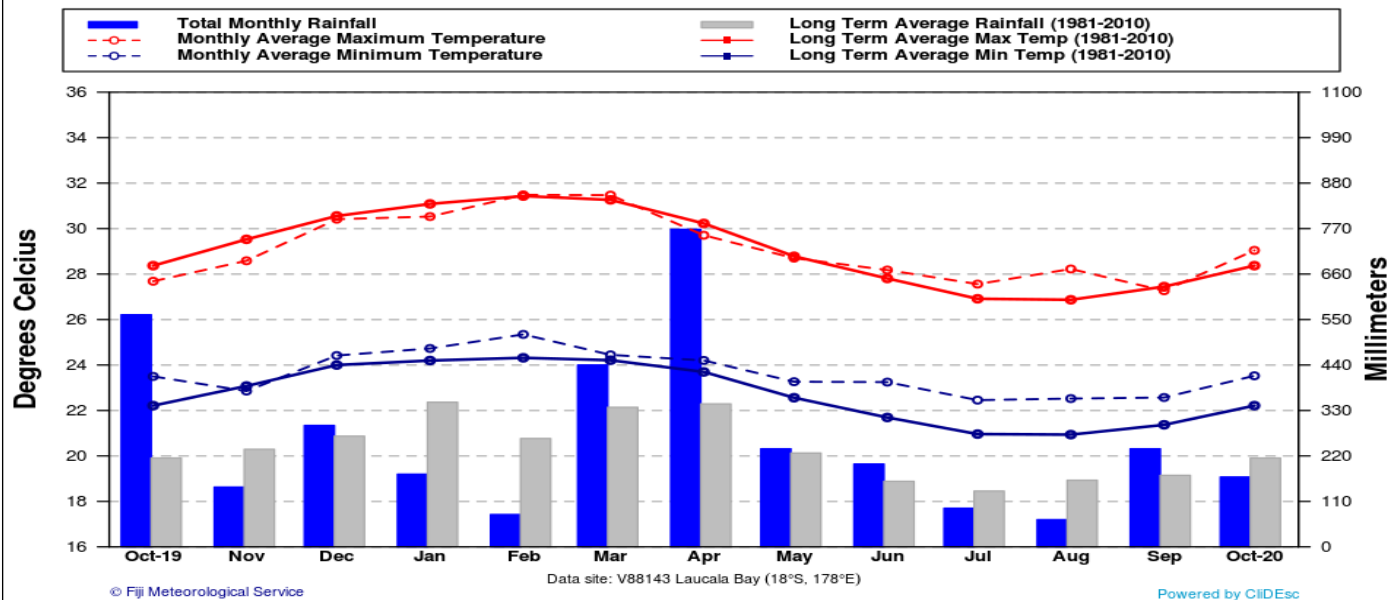


Figure 4 Labasa Airfield - Temperature & Rainfall for the last 13 Months (October, 2019 - October, 2020)

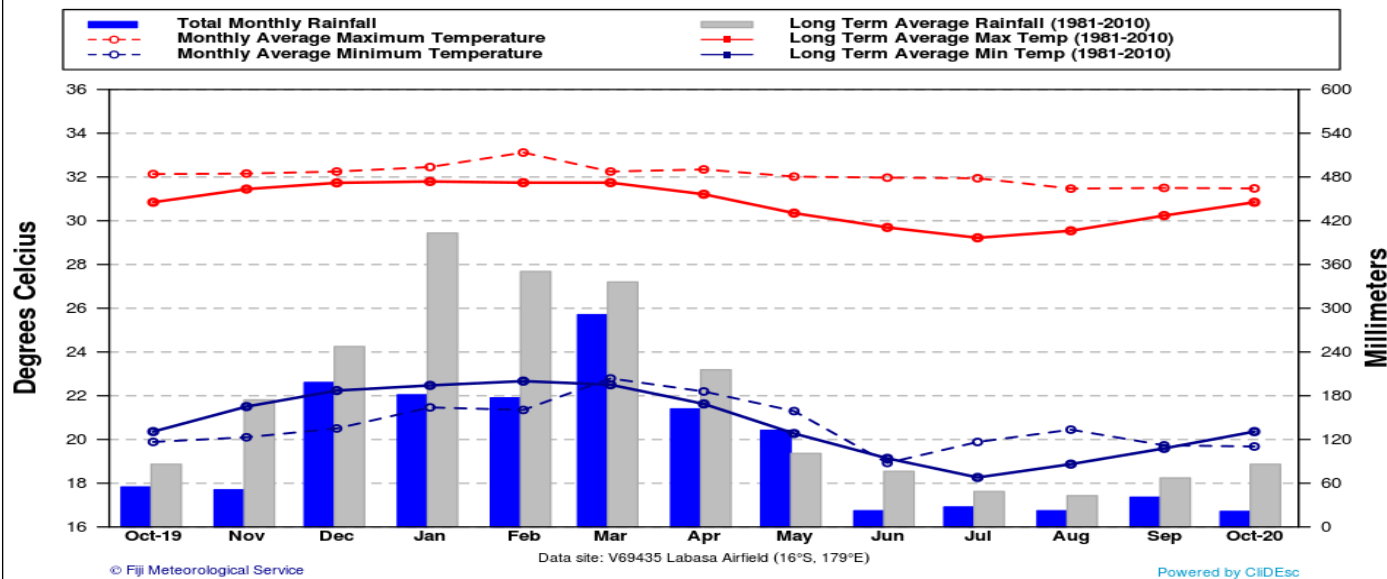
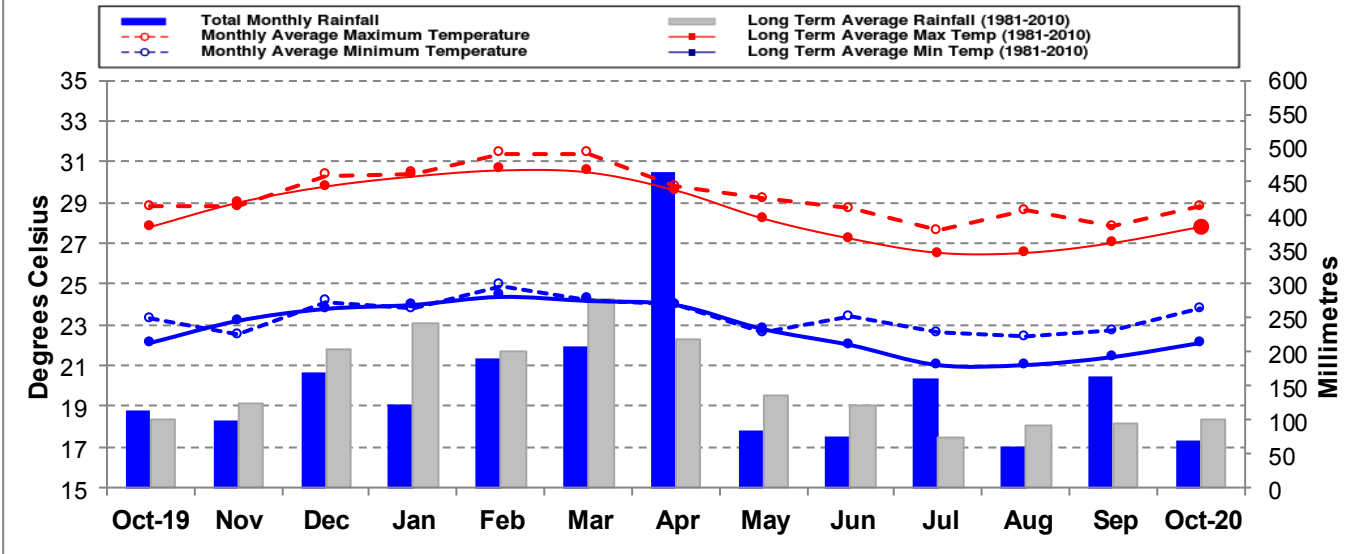


Figure 5

Lakeba (Eastern Division) - Temperature & Rainfall Records for the last 13 Months (October 2019 - October 2020)



5. DAILY RAISED PAN EVAPORATION

Figure 6

Daily Evaporation for October 2020

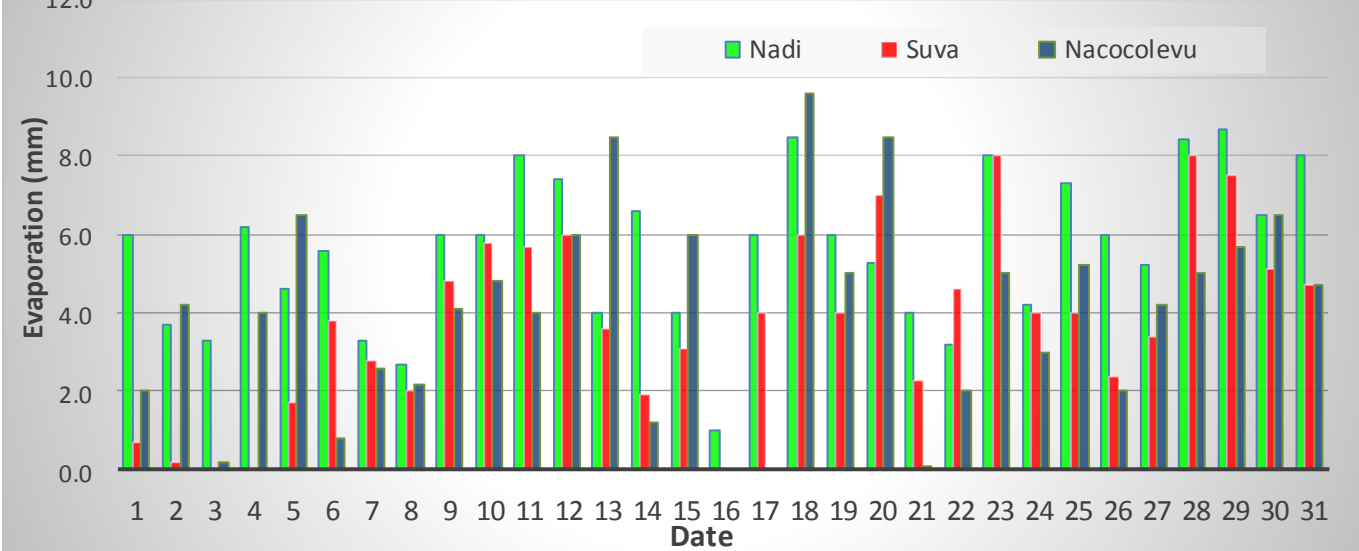


Figure 6: The total monthly evaporation at Nadi, Nacocolevu and Laucala Bay were 173.7mm, 123.6mm and 117.1mm, respectively. Nacocolevu’s highest daily evaporation was 9.6mm on the 18th, with Nadi Airport’s highest daily evaporation of 8.7mm on the 29th and Laucala Bay with 8.0mm on the 23rd.

6. SOLAR RADIATION

Figure 7 Nadi Daily Solar Radiation (MJ/m²) for October 2020

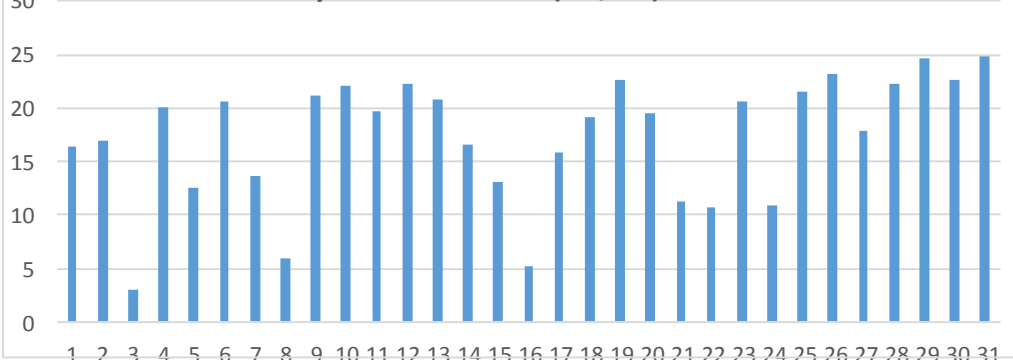


Figure 7:

The mean daily solar radiation at Nadi Airport during the month was 17.4MJ/m² compared to 21.2MJ/m² over 30 year average (1981-2010).

7. WIND SUMMARY

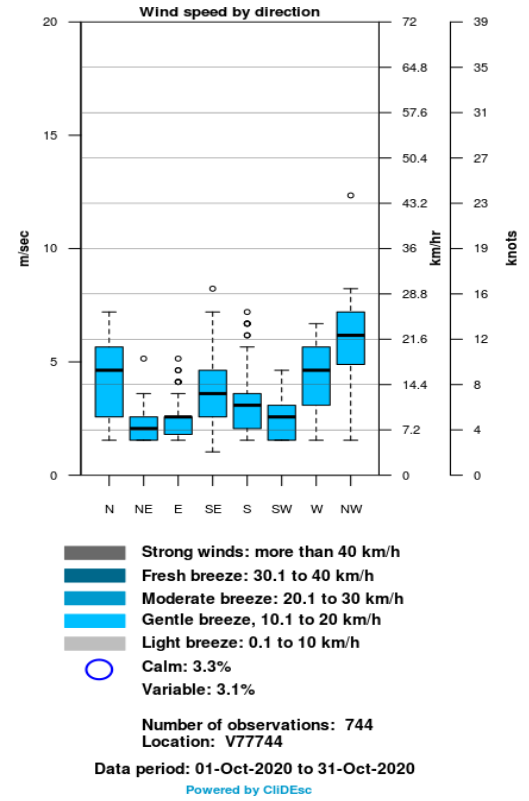
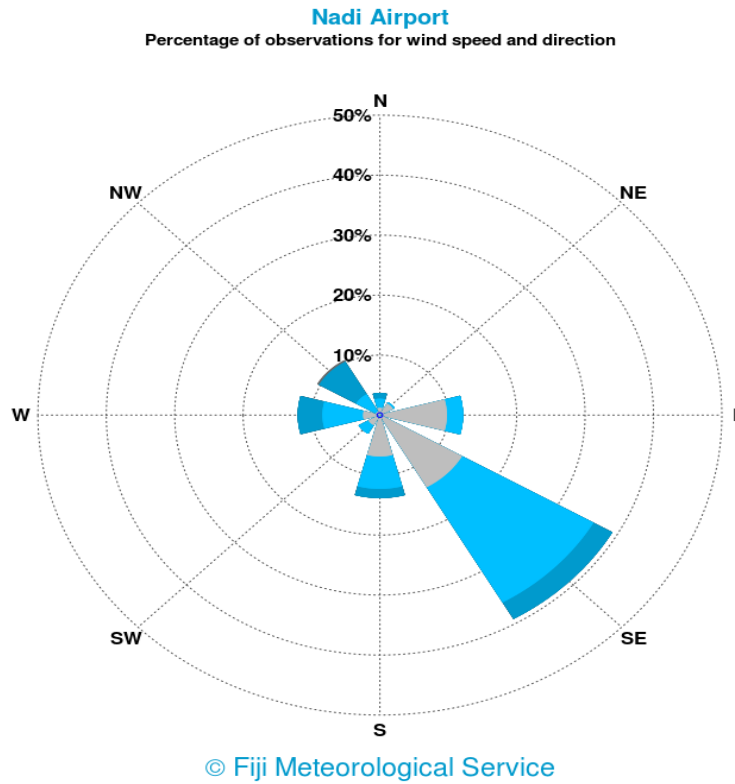


Figure 8a: Southeasterly winds were dominant at Nadi during the month, followed by southerly and westerly winds. Wind strength ranged from light to moderate during this period.

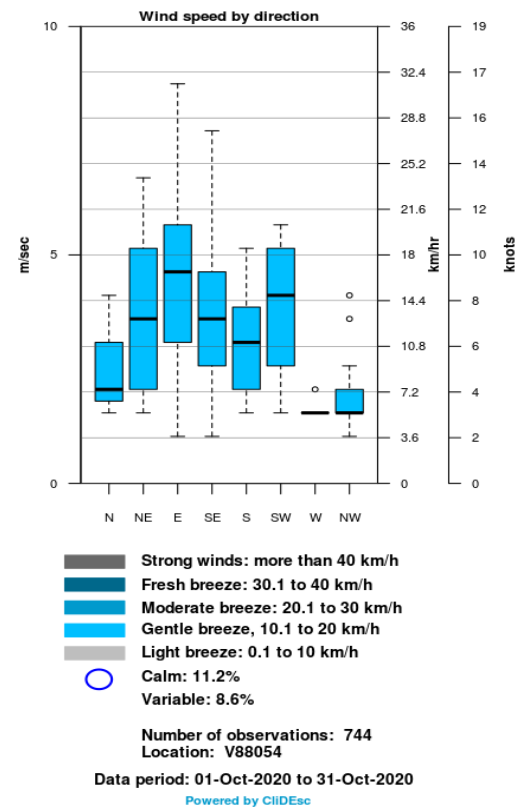
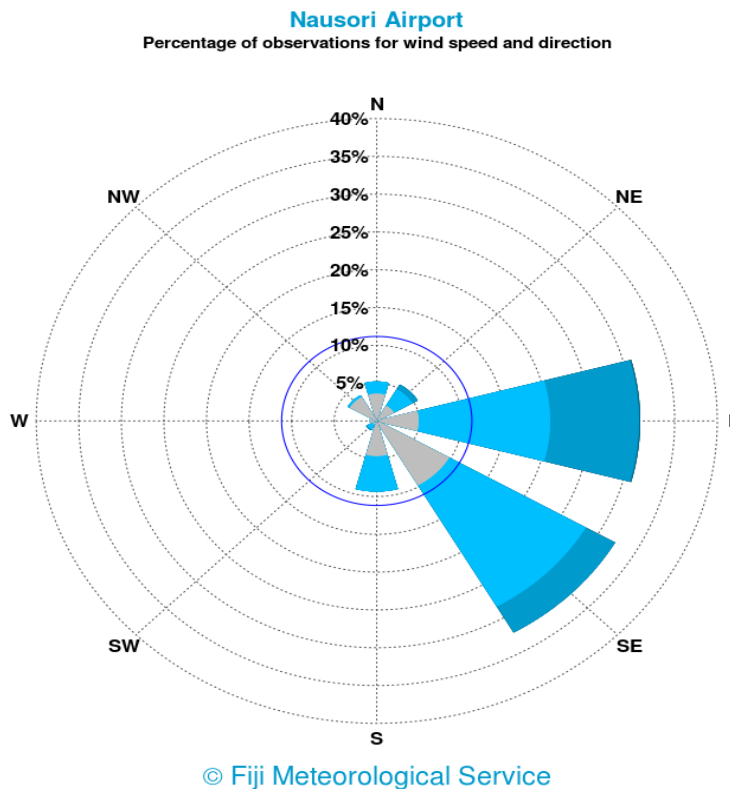


Figure 8b: East to south-easterly winds were dominant during the month at Nausori Airport. Wind strength ranged from light to moderate during this period.

8. SEA SURFACE TEMPERATURE (SST)

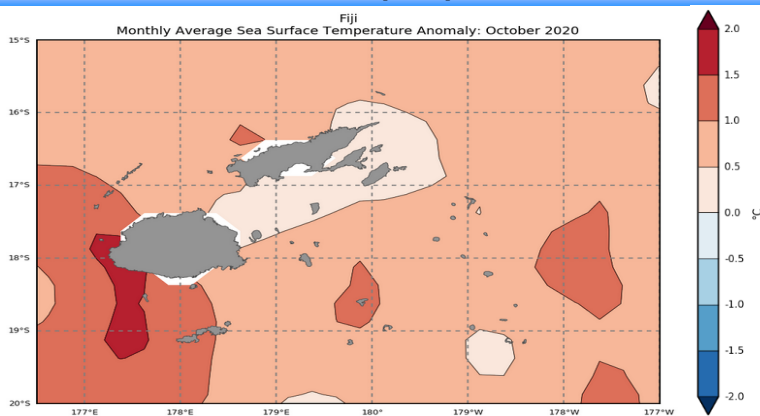


Figure 9:

SSTs were *above normal* in most of the Fiji Waters during the month, with anomalies of more than 1.5°C present along the Coral Coast and west of Kadavu.

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

9. CLOUD COVER

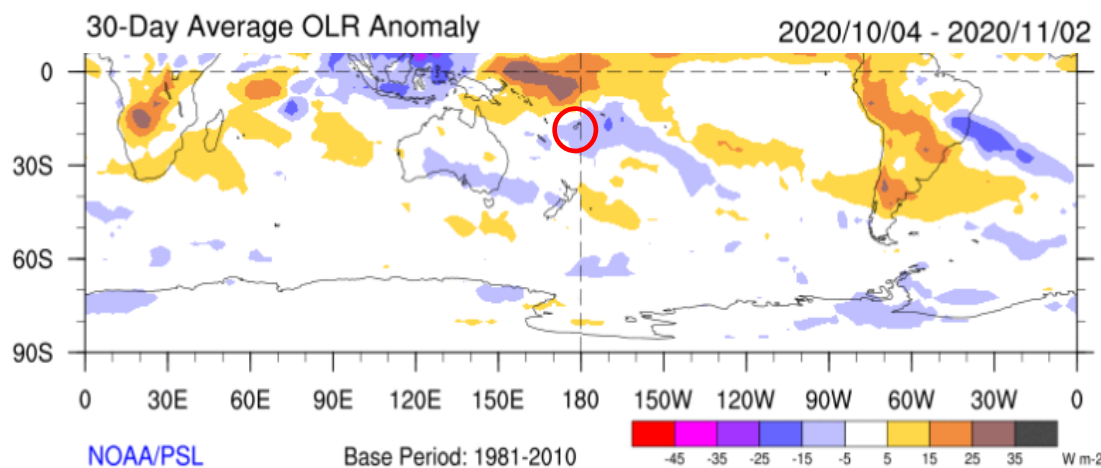


Figure 10:

Above normal cloud cover was 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

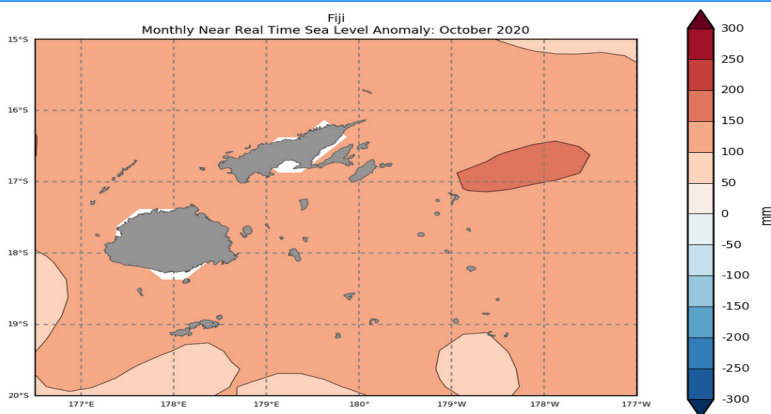


Figure 11:

Positive sea level anomalies were present in most of the Fiji Waters, with anomalies of +10-15cm.

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

11. WIND ANOMALIES

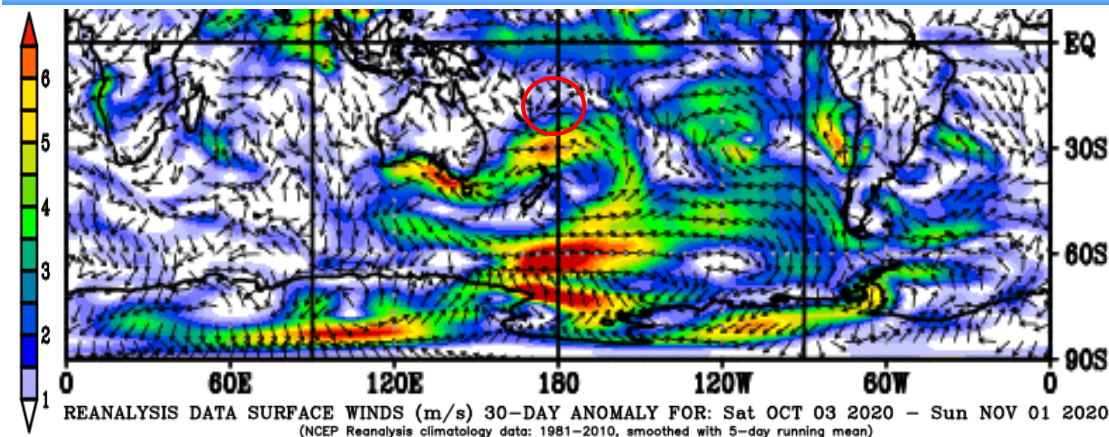


Figure 12:

Variable wind anomalies of up to 2.0m/s 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