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Fiji Climate Summary August 2018



Issued: September 10, 2018

Since : August 1980*

Volume 39 : Issue 8

1. IN BRIEF

It was a significantly dry month with *well below average* rainfall recorded at 24 out of the 25 climate monitoring stations. Rotuma recorded *below average* rainfall. Notably, Lautoka Mill to Yaqara corridor and as well as Labasa Airport recorded no rainfall at all during the month. Furthermore, majority of the other stations in the Western and Northern Divisions and the Northern Lau Group recorded less than 10mm of the total monthly rainfall compared to *normal* rainfall range from around 50mm to 125mm in these locations.

Some record breaking low total monthly rainfall were established during the month, with Nabouwalu, Laucala Bay, Monasavu, Vanuabalavu and Tokotoko recording its lowest total monthly rainfall for August since observations began at these stations in 1935, 1942, 1980, 1985 and 1992, respectively.

The dryness have been persisting in parts of the country from middle of June 2018, with Rarawai Mill to Yaqara corridor registering more than 77 consecutive dry days till the end of August 2018. Labasa Airport and Lautoka Mill have also been experiencing extended period of suppressed rainfall with 57 and 37 consecutive dry days, respectively. While some rainfall was received at Yasawa-i-Rara, Viwa, Momi, Nadi Airport, Penang Mill, Rakiraki, Keiyasi, Nadarivatu and Seaqaqa during the month, these places were

also experiencing extended period of dry days ranging from 28 to 69 days.

Consequently, a number of places around the country are now in a meteorological drought conditions which has started to affect the grasslands, shallow rooted plants and small water bodies (e.g. small water tanks, creeks and streams) at the end of August 2018.

Significantly hot days were experienced on occasions during the 2nd half of the month with Lomaivuna registering 35.9°C on the 23rd, followed by Keiyasi with 35.3°C on the 21st and Lautoka Mill with 35.0°C on the 29th. New high daily maximum air temperature record for August were established at Tokotoko, Lautoka Mill, Vunisea and Rotuma during this period. Furthermore, a new high mean monthly maximum air temperature record for August was set at Ono-i-Lau during the month.

In contrast, significantly cool night-time temperatures were recorded between 4th and 9th with Nadarivatu registering 9.0°C on the 9th, followed by Monasavu with 10.4°C on the 9th and Labasa Airport with 10.4°C on the 8th. New records for lowest mean monthly minimum air temperature for August were set at Lautoka Mill and Vanuabalavu during the month with 18.2°C and 20.5°C, respectively.

2. WEATHER PATTERNS

The month of August began with a weak trough of low pressure just to the south of the group which brought brief showers over the southern and eastern parts of the country which affected till the 3rd.

Following the trough was a high pressure system that extended from the southwest which brought a south to southeast wind flow over the group which resulted in fine weather and cool nights till the 10th. This was followed by a passing frontal system which affected the southern parts of the group with cloudy periods and brief showers from the 11th to the 12th.

From 13th to 16th, a southerly wind flow prevailed over the group with fine and dry conditions and cool nights. However, brief showers were experienced from time to time over the interior and eastern parts of the country.

A weak trough of low pressure with cloud and showers

then affected the group from the north from 17th till 20th which brought some brief showers.

On the 21st, another trough of low pressure with cloud and showers moved in from the west and affected the southern part of the group which lasted till the 23rd.

A high-pressure system to the south of Fiji pushed in and brought another episode of cool south to southeast wind flow with fine and dry spell over the country until the 26th.

Another weak trough of low pressure moved near the group on the 26th and affected the country till the 27th which brought some showers. An easterly wind flow dominated for a couple of days before another trough of low pressure affected the group which brought some relieving showers on the 30th and 31st.

Rotuma's weather was largely influenced by the South Pacific Convergence Zone producing rain and showers on most of the days.

*Previously known as the Fiji Islands Weather Summary

3. RAINFALL

It was significantly dry month with 24 out of the 25 stations recording *well below average* rainfall, while Rotuma recorded *below average* rainfall. Notably, Lautoka Mill to Yaqara corridor and as well as Labasa Airport registered no rainfall during the month (Table 2, Figures 1-5). Furthermore, majority of the other stations in the Western and Northern Divisions and the Northern Lau Group recorded less than 10mm of the total monthly rainfall, while the *normal* rainfall in these locations range from 50mm to 125mm.

While Rotuma recorded the highest total monthly rainfall for the month with 102mm, it was still less than half of the usual rainfall it receives in August.

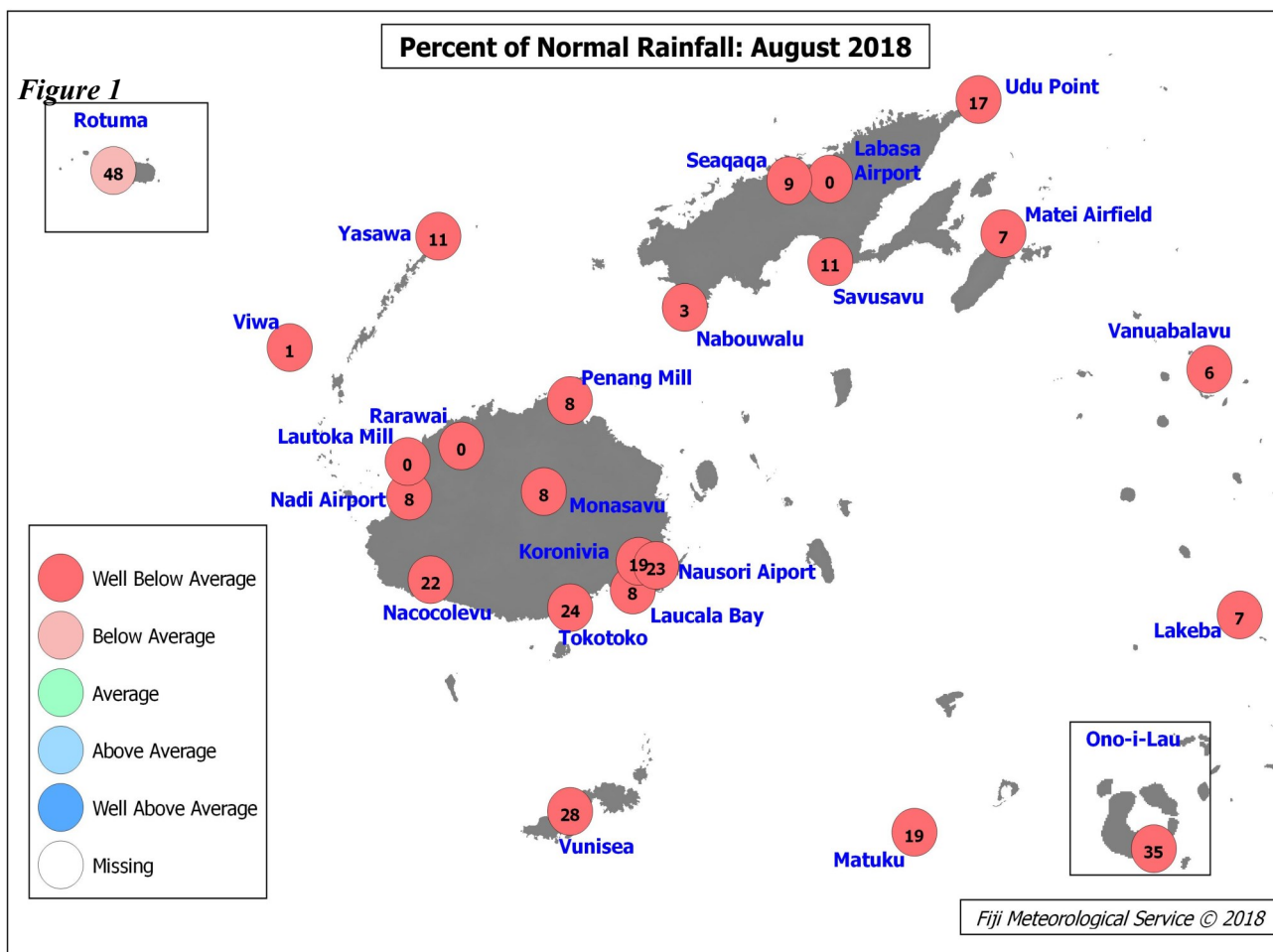
New records of total monthly rainfall were established during the month with Nabouwalu, Laucala Bay, Monasavu, Vanuabalavu and Tokotoko registering its lowest total monthly rainfall for August since observations began at these stations in 1918, 1942, 1980, 1985 and 1992, respectively.

While Lautoka Mill to Yaqara corridor and Labasa Airport

recorded nil number of rain days during the month, extended period of dry days were also experienced at majority of the other stations in the Western Division, including Viwa and Yasawa-i-Rara, and at Seaqqa in the Northern Division, with only 1 or 2 rain days recorded throughout the month. On the other hand, Rotuma registered the highest number of rain days with 22, followed by Nasinu with 13 and Monasavu and Koronivia with both 12. However, very brief and light rainfall were recorded during these rain days.

Rotuma and RKS recorded the highest 24-hour rainfall for the month with both recording 21mm on the 1st and 16th, respectively, followed by Nausori Airport and Ono-i-Lau with both 17mm on the 16th and 31st, respectively.

Due to the very low rainfall, majority of the stations across the country entered into some form of meteorological drought alert affecting grasslands, shallow rooted plants and small water bodies (e.g. small water tanks, creeks and streams) by the end of August 2018.



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 ≥ 0.1mm

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 mean maximum air temperatures were generally *above normal* over most parts of the country with 16 out of the 22 stations recording anomalies $\geq +0.5^{\circ}\text{C}$, 5 within $\pm 0.5^{\circ}\text{C}$, while Udu Point was the lone station to record anomaly of $\leq -0.5^{\circ}\text{C}$ (Table 2 & Figures 2-5).

Lomaivuna and Keiyasi recorded the warmest days on average with both 30.5°C , followed by Yaqara and Labasa Airport with both 30.4°C and Rotuma with 30.3°C . On the other hand, the coolest day-time temperatures on average was at Monasavu with 22.6°C , followed by Nadarivatu with 23.8°C and Matuku with 26.2°C .

The highest daily maximum air temperature was recorded at Lomaivuna with 35.9°C on the 21st, followed by Keiyasi with 35.3°C on the 23rd and Lautoka Mill with 35.0°C on the 29th. On the other hand, the lowest daily maximum air temperature was recorded at Monasavu with 19.6°C on the 25th, followed by Nadarivatu with 20.2°C on the 14th and Koro Island with 23.4°C on the 26th.

B. Minimum Night-time Air Temperatures

The mean minimum air temperatures were generally *normal* to *below normal* over most parts of the country, with 11 out of the 24 stations recording anomalies $\leq -0.5^{\circ}\text{C}$, 9 within $\pm 0.5^{\circ}\text{C}$ and 4 stations $\geq +0.5^{\circ}\text{C}$ (Table 2 & Figures 2-5).

The coolest nights on average was experienced at Nadarivatu with 13.6°C , followed by Monasavu with 14.7°C and Nacocolevu with 16.1°C . On the other hand, Rotuma recorded the warmest nights on average with 24.0°C , followed by Yaqara with 23.4°C and Yasawa-i-Rara with 22.7°C .

Significantly cool nights were experienced from the 4th to the 9th, with a number of stations recording their lowest daily minimum air temperature during this period. The lowest daily minimum air temperature was experienced at Nadarivatu with 9.0°C on the 9th, followed by Monasavu with 10.4°C on the 9th and Labasa Airport with 11.5°C on the 8th.

Hot nights were recorded between 25th and 31st with a number of stations registering their highest daily night-time temperature during this period. The highest daily minimum air temperature was registered at Vanuabalavu with 25.5°C on the 31st, followed by Yasawa-i-Rara with 25.2°C on the 31st.

A record low mean monthly minimum air temperature for August were set at Lautoka Mill and Vanuabalavu during the month (Table 1).

TABLE 1. CLIMATE RECORDS ESTABLISHED IN AUGUST 2018

<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>
Total Monthly Rainfall	Laucala Bay	13.2mm	-	New Low	20.2mm	1996	1942
Total Monthly Rainfall	Nabouwalu	3.0mm	-	New Low	5.3mm	1953	1918
Total Monthly Rainfall	Tokotoko	47.6mm	-	New Low	69.2mm	1996	1992
Total Monthly Rainfall	Monasavu	21.1mm	-	New Low	81.4mm	1996	1980
Total Monthly Rainfall	Vanuabalavu	4.4mm	-	New Low	5.0mm	1987	1985
Mean Monthly Max. Temp.	Ono-i-Lau	27.7°C	-	New High	27.2°C	2008	1943
Daily Max. Temp.	Tokotoko	32.0°C	30 th	New High	31.1°C	1997	1992
Daily Max. Temp.	Lautoka Mill	35.0°C	29 th	New High	32.2°C	1957	1930
Daily Max. Temp.	Vunisea	31.8°C	30 th	New High	30.8°C	2017	1947
Daily Max. Temp.	Rotuma	33.2°C	16 th	New High	32.1°C	2004	1933
Daily Min. Temp.	Lautoka Mill	18.2°C	-	New Low	18.5°C	1930	1930
Daily Min. Temp.	Vanuabalavu	20.1°C	-	New Low	20.5°C	1987	1985

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 AUGUST 2018

	RAINFALL				AIR TEMPERATURES								SUNSHINE	
	TOTAL	RAIN		MAX.	AVERAGE DAILY				EXTREME		TOTAL			
	MM	%	+ DAYS	MM ON FALL	MAX.	#	MIN.	#	MAX.	MIN.	HRS	%		
NADI AIRPORT	6	8	1	6 31	29.0	0.3	18.9	0.3	33.2	30	14.1	9	267	116
SUVA/LAUCALA BAY	13	8	7	8 26	27.3	0.6	21.2	0.5	31.9	30	19.0	17	209	145
NACOCOLEVU	19	22	6	7 30	28.4	0.9	16.1	-1.8	32.1	29	12.6	3	213	116
ROTUMA	102	48	22	21 1	30.3	1.2	24.0	0.0	33.2	16	20.0	8	143	69
VIWA	1	1	1	1 30	29.8	2.0	21.8	-0.6	32.1	24	18.8	12		
UDU POINT	15	17	6	9 25	27.4	-0.7	21.6	-0.6	30.4	31	16.5	6		
SAVUSAVU AIRFIELD	12	11	6	3 15	27.0	-0.1	21.7	0.9	31.4	30	18.9	4		
LABASA AIRFIELD	0	0	0	0 0	30.4	1.0	17.1	-1.6	33.5	23	11.5	8		
NABOUWALU	3	3	4	2 27	27.8	1.5	22.0	0.4	31.0	30	19.1	4		
KORONIVIA	30	19	12	9 25			19.2	-0.1			14.5	7		
NAUSORI AIRPORT	34	23	11	17 16	26.7	0.5	19.2	-0.4	29.6	22	14.6	7		
NAVUA/TOKOTOKO	48	24	11	7 16	27.1	0.2	18.5	0.4	32.0	30	14.0	7		
MONASAVU	21	8	12	5 27	22.6	1.3	14.7	-0.9	26.0	31	10.4	9		
LAUTOKA AES	0	0	0	0 0	30.1	1.8	18.2	-1.8	35.0	29	15.5	5		
BA/RARAWAI MILL	0	0	0	0 0	29.9	0.1	16.2	-1.2	33.4	30	12.5	10		
PENANG MILL	6	8	2	6 31	28.9	1.5	19.7	-1.0	31.4	22	13.5	9		
MATEI AIRFIELD	9	7	6	4 26	27.7	0.6	21.4	-0.3	29.5	23	18.8	4		
VANUABALAVU	4	6	7	1 19	27.5	0.7	20.1	-1.8	31.5	31	17.6	6		
LAKEBA	7	7	5	5 31	27.2	0.8	20.5	-0.5	30.4	31	17.8	15		
YASAWA	6	10	1	6 31	29.8	2.0	22.7	0.5	31.9	22	20.7	7		
VUNISEA	36	28	11	11 30	27.1	1.3	19.7	0.3	31.8	18	16.4	6		
MATUKU	21	19	7	9 18	26.2	0.4	20.6	0.1	28.5	30	18.0	16		
ONO-I-LAU	42	35	6	17 31	27.7	2.8	20.7	0.7	31.1	22	18.9	15		
LEVUKA	U/S				30.2	3.4	20.4	-1.0	37.0	30	15.9	7		
YAQARA AWS	0	0	0	0 0	30.4		23.4		33.3	30	16.5	4		
KEIYASI AWS	5		2	4 31	30.5		16.2		35.3	23	12.3	9		
LOMAIVUNA AWS	18		6	5 19	30.5		19.2		35.9	21	14.4	7		
NADARIVATU AWS	15		2	15 31	23.8		13.6		27.3	23	9.0	9		
RKS LODONI AWS	58		9	21 16	27.0		18.7		29.6	31	14.9	7		
MOMI AWS	11		1	11 30	28.4		20.2		30.5	26	16.9	7		
KOROLEVU AWS	29		8	9 24	27.8		18.7		31.0	29	15.0	9		
KORO ISLAND AWS	U/S				27.0		20.4		30.8	31	17.0	7		
SIGATOKA AWS	12		6	9 30	27.0		17.7		29.6	21	14.5	13		
SEAQAQA	5	9	2	3 17										
NASINU	23		13	7 26										
TAVUA	0		0	0 0										

	TEMPERATURE (C)		HUMIDITY		WIND KT	SUN RAD %OF MJ/ POS SQ.M
	MEAN	DRY WET	RH%	VP		
	(AVERAGE AT 9AM)					
NADI AIRPORT	23.9	24.8 20.2	64	20.1	6.3	78 16.8
SUVA/LAUCALA BAY	24.2	24.6 21.0	72	22.3		61 17\$
NACOCOLEVU	22.2	24.4 21.1	74	22.6		62 17\$
ROTUMA	27.2	28.2 25.3	78	29.9		41 15\$
VIWA	25.8	26.3				
UDU POINT	24.5	25.6				
SAVUSAVU AIRFIELD	24.3	24.6 21.8	77	24.0		
LABASA AIRFIELD	23.8	26.1 21.8	67	22.8		
NABOUWALU	24.9	25.4 21.9	72	23.5		
KORONIVIA	23.1	24.1 21.7	80	24.2		
NAUSORI AIRPORT	22.9	23.1 20.7	80	22.6	4.1	
NAVUA/TOKOTOKO	22.8	24.0 21.3	78	23.2		
MONASAVU	18.6	18.5 16.4	80	17.2		
LAUTOKA AES	24.1	27.2 21.5	59	21.3		
BA/RARAWAI MILL	23.1	25.0 21.5	72	23.1		
PENANG MILL	24.3	25.3 21.0	67	21.7		
MATEI AIRFIELD	24.6	25.7 21.9	70	23.4		
VANUABALAVU	23.8	25.0 21.3	71	22.6		
LAKEBA	23.8	25.1				
YASAWA	26.2	26.2 22.0	68	23.3		
VUNISEA	23.4	23.8				
MATUKU	23.4	24.2 20.6	70	21.5		
ONO-I-LAU	24.2	23.5				

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.

Figure 2

**Nadi Airport - Temperature & Rainfall for the last 13 Months
(August, 2017 - August, 2018)**

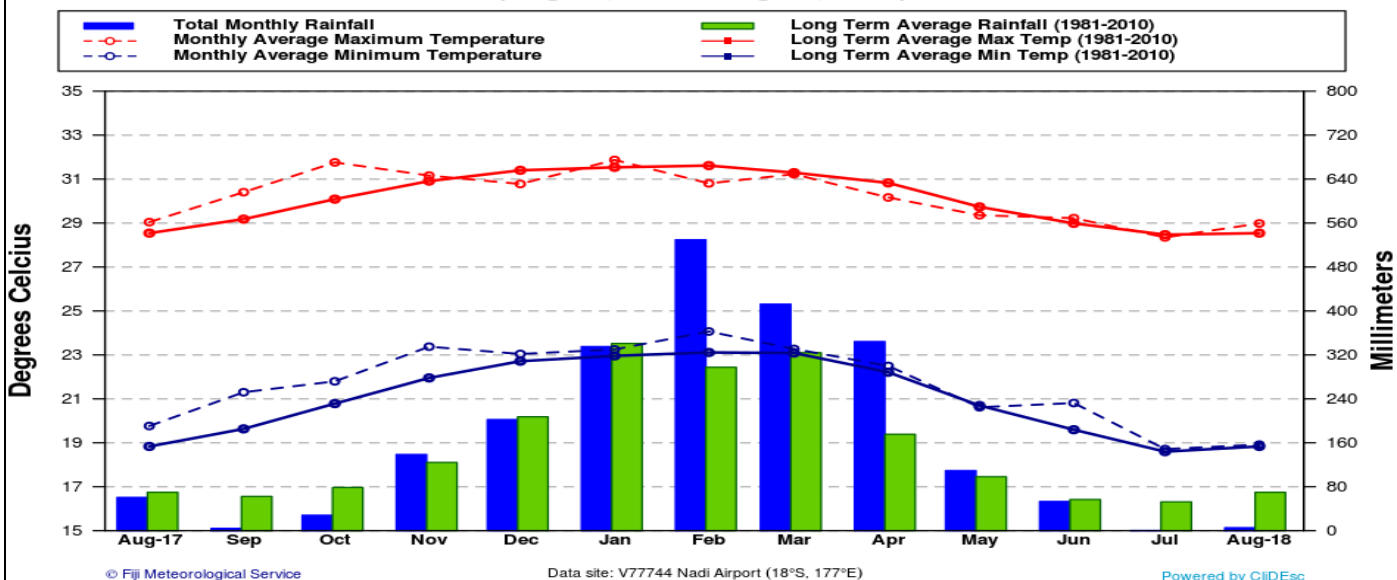


Figure 3

**Labasa Airfield - Temperature & Rainfall for the last 13 Months
(August, 2017 - August, 2018)**

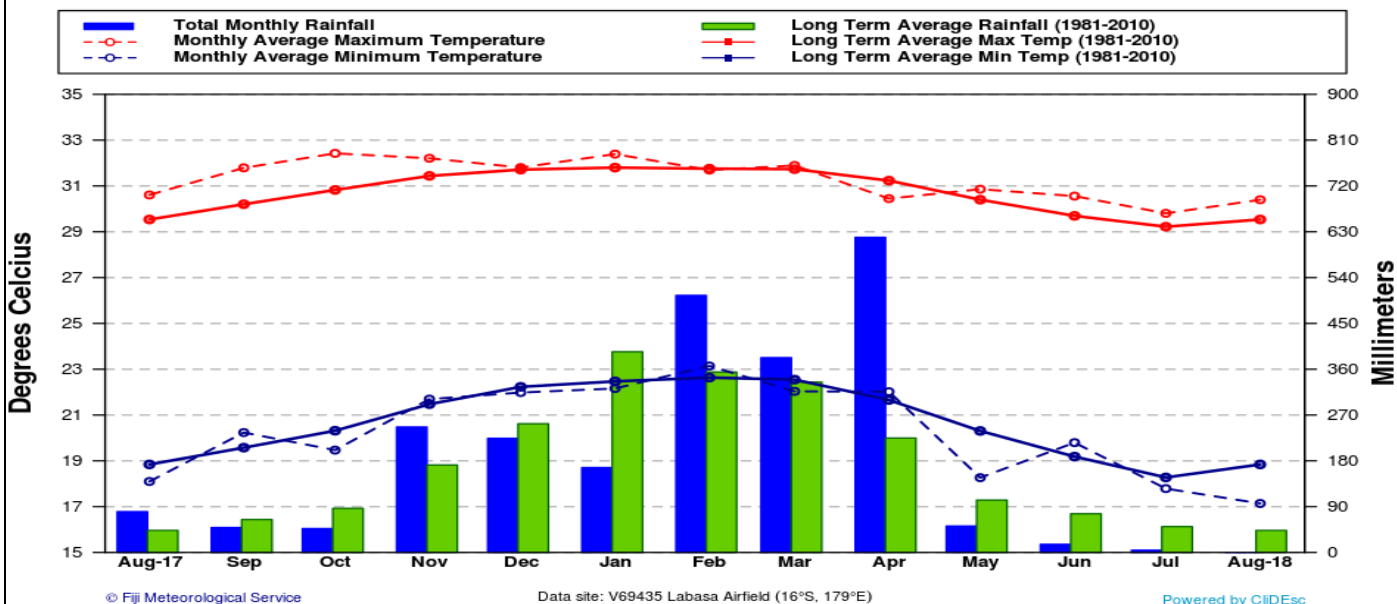


Figure 4

**Laucala Bay - Temperature & Rainfall for the last 13 Months
(August, 2017 - August, 2018)**

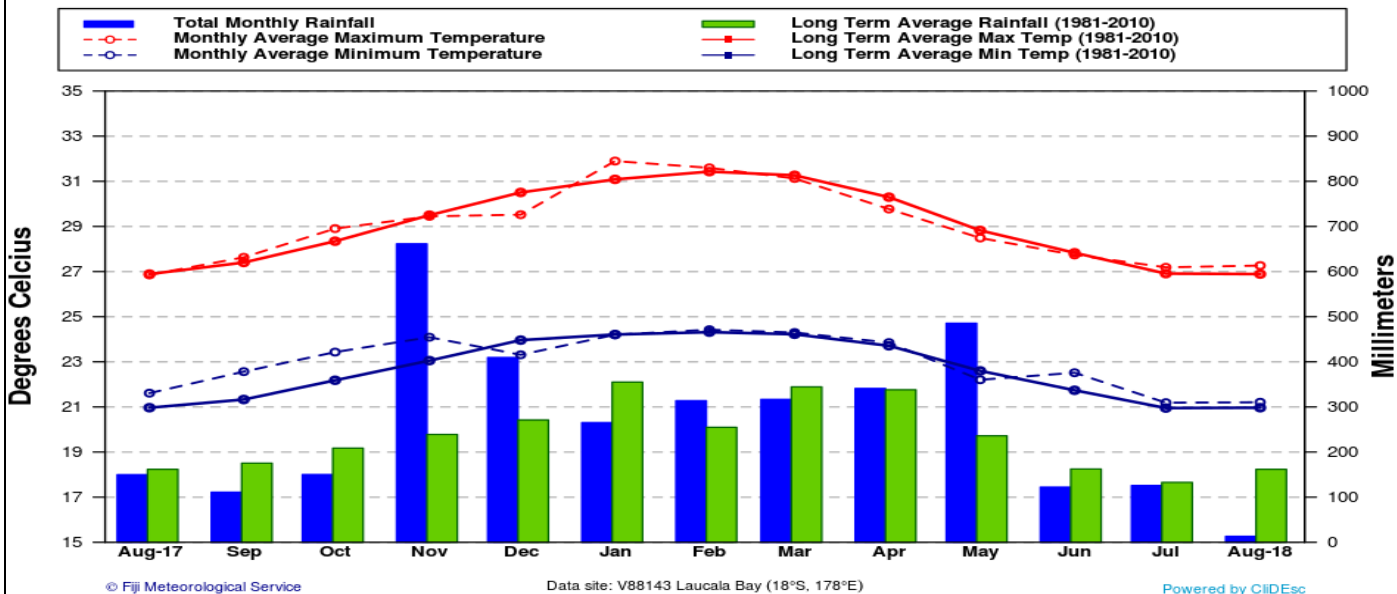
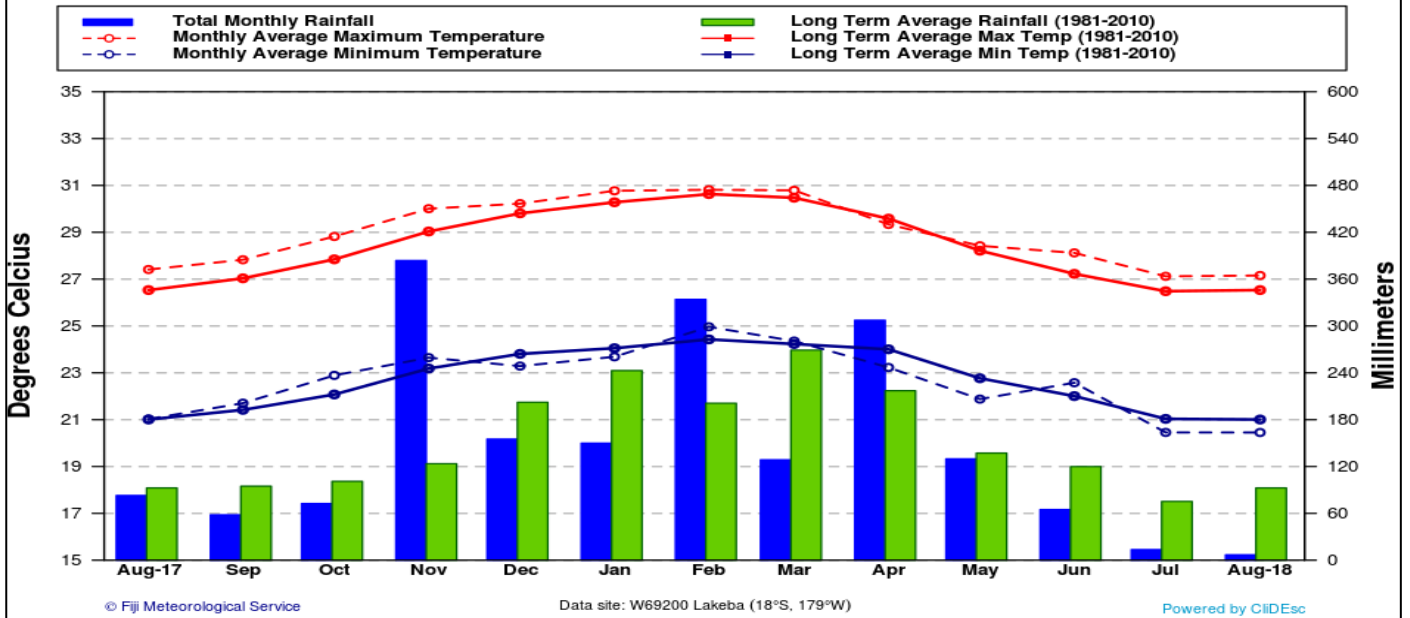


Figure 5

Lakeba - Temperature & Rainfall for the last 13 Months (August, 2017 - August, 2018)



5. DAILY RAISED PAN EVAPORATION

Figure 6

Daily Evaporation for August 2018

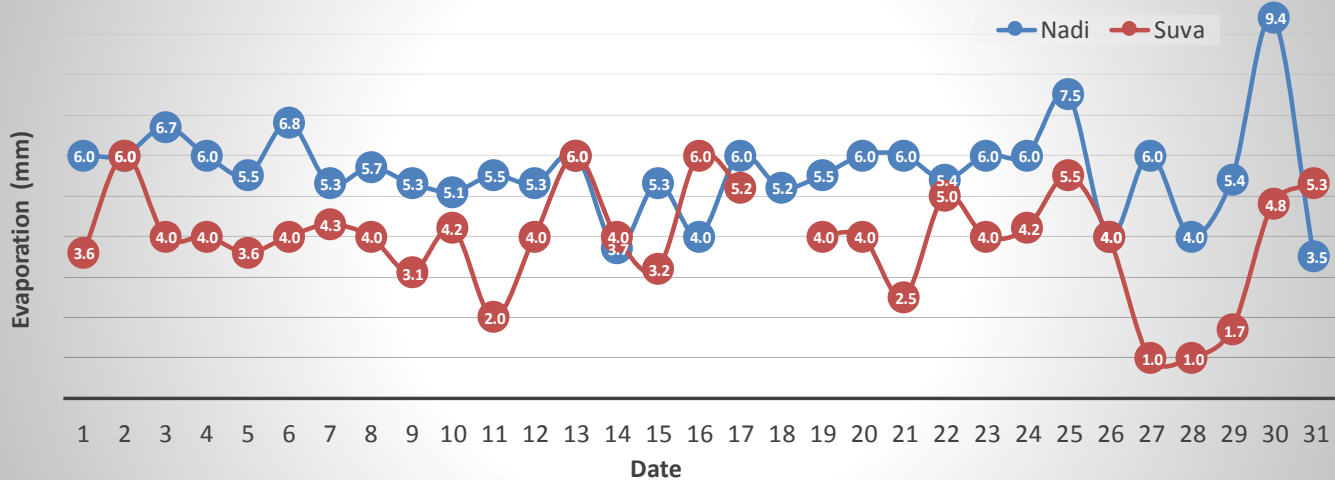


Figure 6: The total monthly raised pan evaporation at Nadi Airport was 174.1mm, with the highest of 9.4mm recorded on the 30th. Laucala Bay recorded total monthly evaporation of 118.2mm, with the highest daily evaporation of 6.0mm on the 2nd, 13th and 16th.

6. SOLAR RADIATION

Daily Solar Radiation (MJ/m²) - August 2018

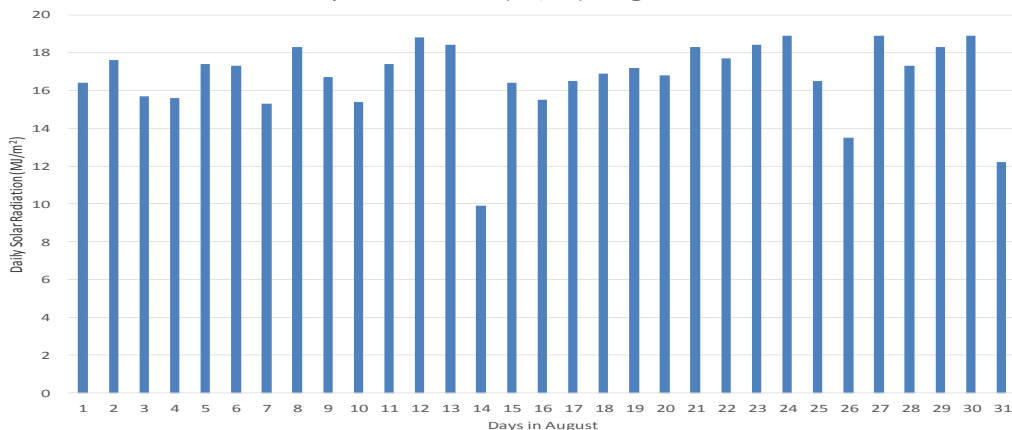


Figure 7: The mean daily solar radiation at Nadi Airport during August 2018 was 16.7MJ/m² compared to 16.8MJ/m² over 30 year average (1971-2000)

7. WIND SUMMARY

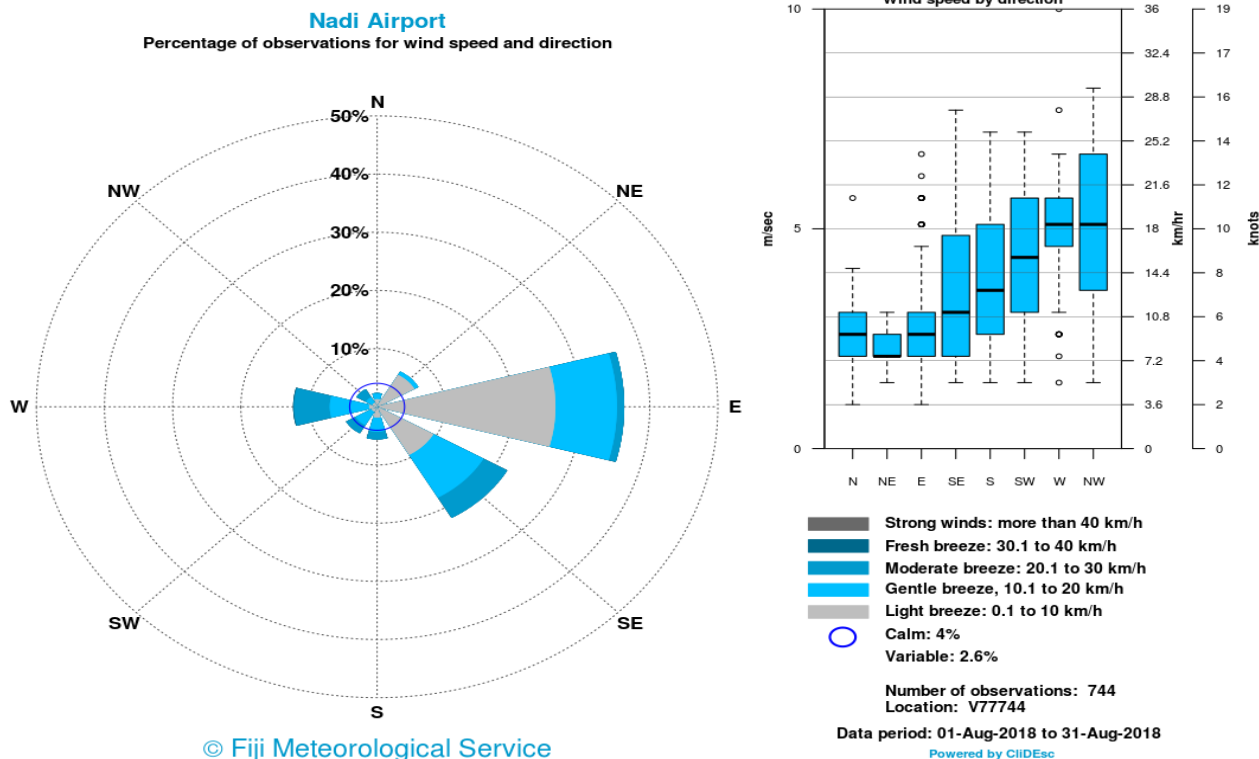


Figure 8a: The hourly wind observations at Nadi Airport during the month showed easterly winds were most dominant, followed by southeasterly and westerly. Wind strengths varied from light to moderate.

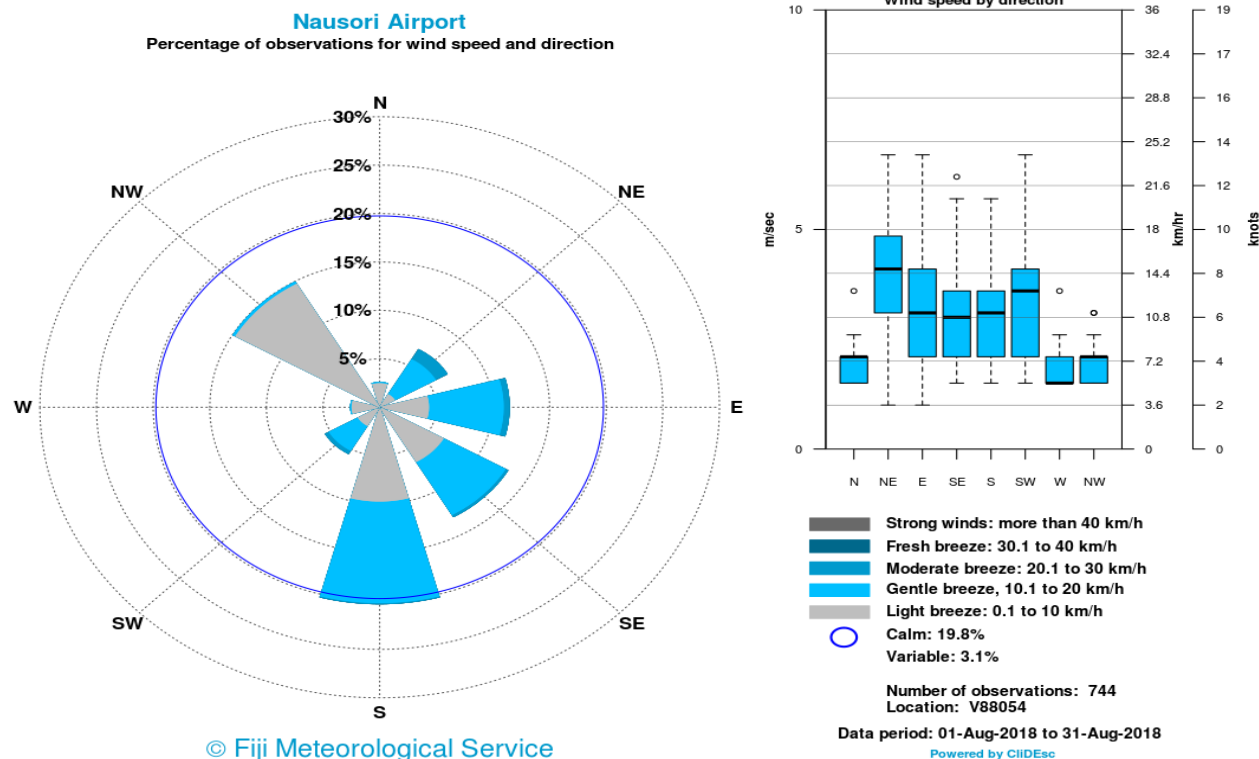


Figure 8b: The hourly wind observations at Nausori Airport during the month showed that southerly winds were dominant, followed by northwesterly and southeasterly winds. Wind speed ranged from light to moderate in strength.

8. SEA SURFACE TEMPERATURE (SST)

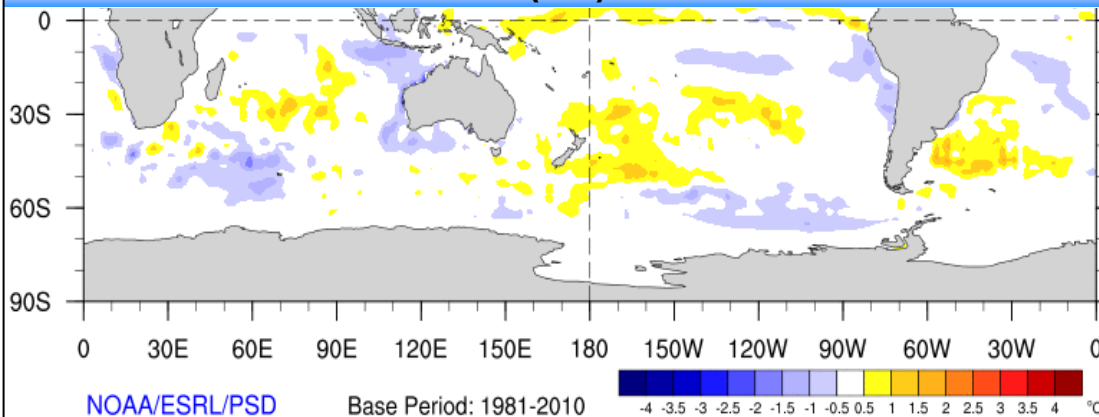


Figure 9: Near normal SSTs were present in the Fiji region during the month (base period: 1981-2010).

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

9. CLOUD COVER

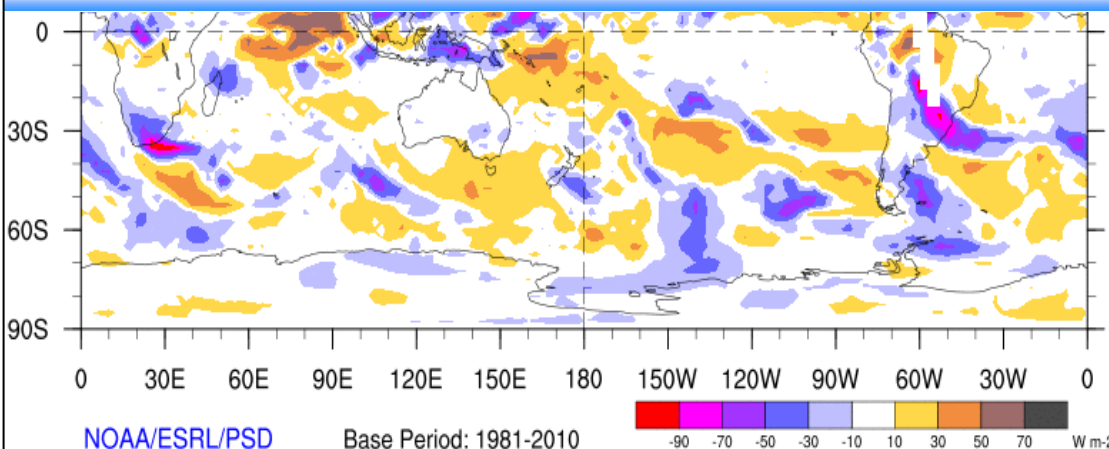


Figure 10: OLR anomalies indicate presence of below normal cloud cover in the Fiji region during the month (Fiji: ~17°S, 180°) (base period: 1981-2010).

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

10. SEA LEVEL

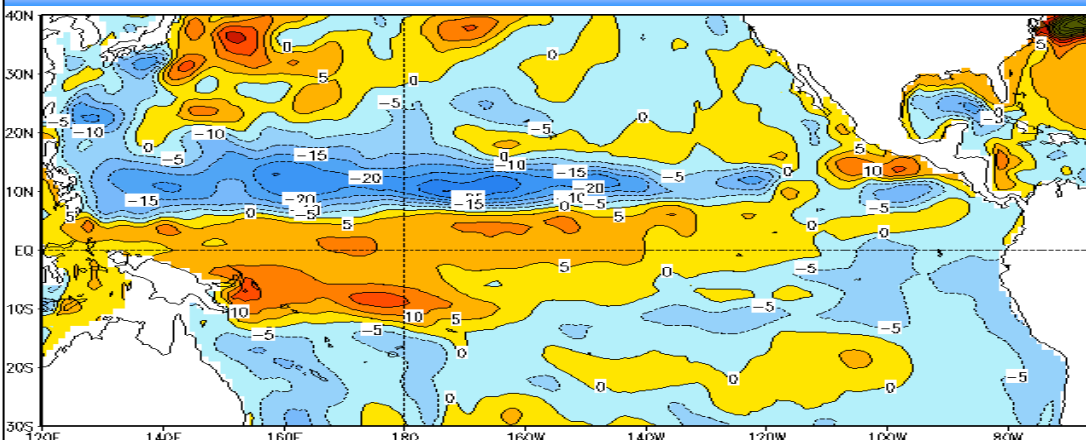


Figure 11: Sea level anomalies ranged from 0cm to -10cm in the in the Fiji Waters (base period: 1981-2010).

Source: http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ocean/weeklyenso_clim_81-10/wksl_anm.gif

11. WIND ANOMALIES

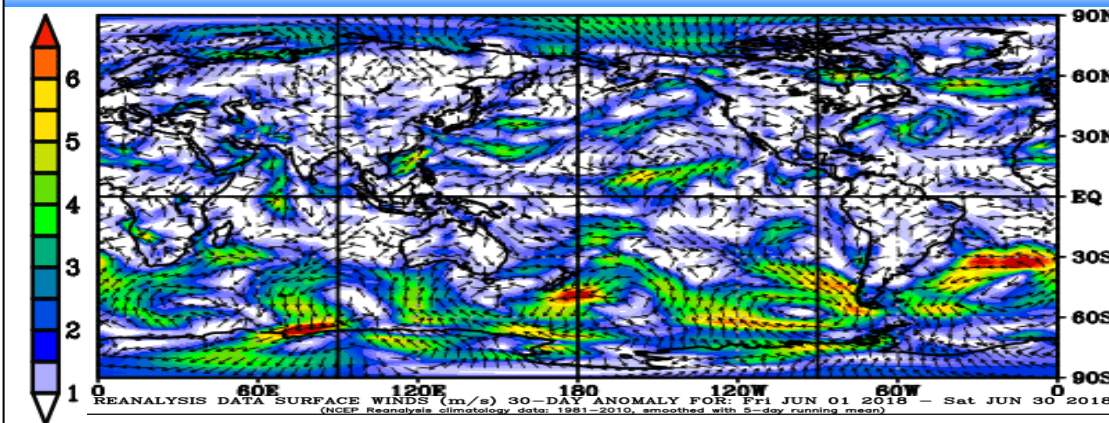


Figure 12: Westerly wind anomalies of 1-2m/s were present in the Fiji region (Fiji: ~17°S, 180°) (base period: 1981-2010).

Source: https://www.esrl.noaa.gov/psd/map/images/rnl/sfwind_30b.rnl.html