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Fiji Climate Summary

November 2018



Issued: November 11, 2018

Since : August 1980*

Volume 39 : Issue 11

1. IN BRIEF

Suppressed rainfall conditions were experienced during November, with various stations around the country reporting rainfall, ranging from *above average* to *well below average* rainfall. Out of the 25 stations, 3 stations recorded *above average* rainfall, 2 recorded *average*, 16 recorded *below average*, while 4 stations recorded *well below average* rainfall.

Central Division together with Monasavu and parts of the Northern Division started to experience rainfall from the 6th to the 9th, however, rainfall activity substantially picked up for the rest of the country on the 10th.

An extended period of widespread and significant rainfall was experienced from the 10th to the 15th. Most of the stations around the country managed to record their highest 24hour rainfall during this period.

The highest daily maximum temperature of 35.5°C was recorded at Navua on the 27th, followed by 35.0°C at Ono-i-Lau on the 28th, 34.4°C at Lautoka on the 27th and 34.2°C at Rarawai (Ba) on the 25th. On the other hand, the lowest daily maximum air temperature was recorded at Monasavu with 20.0°C on the 2nd, followed by Nadarivatu with 21.4°C on the 4th and 24.5°C at Matuku on the 4th.

The warmest day-time temperatures on average was at Levuka with 32.2°C, followed by 32.1°C at Navua and 32.0°C at Labasa Airfield. On the other hand, the coolest day-time temperatures on average was at Monasavu with 25.1°C, followed by Nadarivatu with 25.5°C and 28.3°C at Matuku.

The lowest daily night time temperature of 12.0°C was recorded at Nadarivatu on the 19th, followed by 14.5°C on the 18th, 15.2°C at Nacocolevu on the 4th and 15.4°C at Keiyasi on the 5th.

The coolest nights on average during the month was experienced at Nadarivatu with 16.7°C, followed by Monasavu with 17.7°C, 19.8°C at Keiyasi, 20.1°C at Nacocolevu and 20.5°C at Sigatoka. On the other hand, warm night-time temperatures were recorded at Navua, with 24.5°C, followed by 24.4°C at Rotuma, 24.1°C at Yasawa-i-Rara and 23.8°C at Udu Point.

A new daily high maximum air temperature record for November was set at Koronivia, while a new mean monthly maximum air temperature was recorded at Ono-i-Lau (Table 1).

2. WEATHER PATTERNS

The month began with a dominant south to south-easterly wind flow over the group with the trough of low pressure over Rotuma.

Dry conditions with cool nights were experienced till the 05th of November, with most stations recording their lowest during this period. A series of weak troughs of low pressure than affected the group from the north and west till 9th.

The high to the south was dominant again on the 10th which directed a south-easterly wind flow over the group till the 11th. The high relaxed on the 12th and an active trough with cloud and rain drifted from the north onto the group on the 12th which produced wide spread rain fall over the group till the 20th. Monasavu recorded the highest rainfall of 167.0mm on the 16th.

On the 21st the high to the south strengthened and the

trough was pushed back north. Trade showers than prevailed over the group till the 24th.

The high to the south again relaxed on the 25th and the trough of low pressure drifted back over the group which again produced another episode of heavy rain and strong winds. The trough affected parts of Fiji till the 28th. Matei recorded the highest rainfall of 120.9 mm on the 28th and Yasawa I Rara recorded the strongest winds of 45km/hr on the 27th.

The high to the southwest of extended a ridge over the group on the 29th which directed a south to south-easterly wind flow over the group till end of outlook period. Monasavu Dam recorded the lowest Temperature on the 29th of 14.0°C.

Rotuma was mainly affected by series of troughs moving over the island which brought about rain.

*Previously known as the Fiji Islands Weather Summary and Monthly Weather Summary

3. RAINFALL

Rainfall in November ranged from *well below average* to *above average* across the country. Out of the 25 rainfall monitoring stations, 3 recorded *above average* rainfall, 2 *average*, 16 *below average* and 4 stations with *well below average* rainfall.

An extended period of widespread and significant rainfall was experienced from the 10th to the 15th, however, Central Division stations together with Monasavu started to experience rainfall during the first week of the month. Most of the stations around the country managed to record their highest 24hour rainfall during this period.

The highest daily maximum rainfall of 203.0mm was recorded at Koronivia, followed by 173.0mm at RKS Lodoni, 163.0mm at Nausori, 148.5mm at Nasinu and 111mm at Keiyasi, all on the 11th respectively. On the other hand, the lowest daily maximum of 2.5mm was recorded at Levuka on the 19th, followed by 10.5mm at Yasawa-i-Rara on the 26th, 23.1mm at Rarawai Mill on the 13th and 24.2mm at Matuku on the 11th.

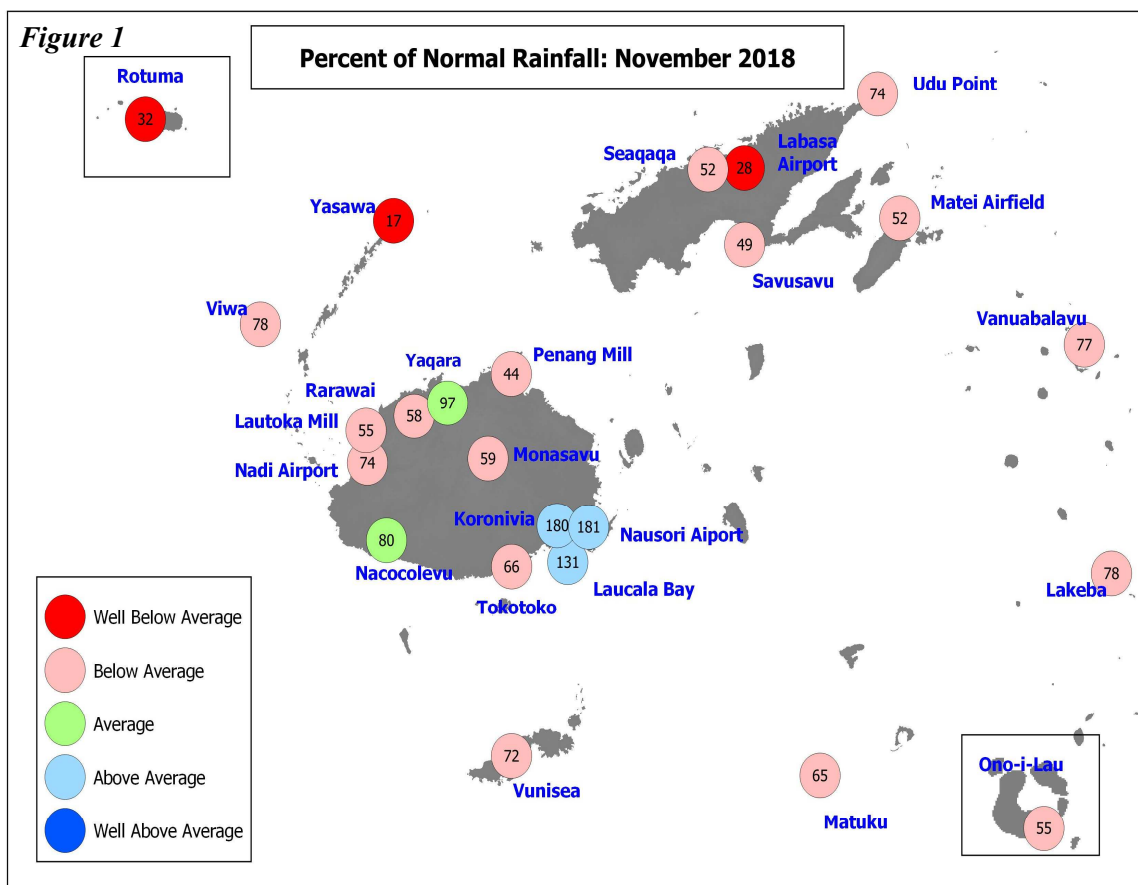
On the monthly rainfall, the highest monthly total of 504.5mm was recorded at RKS Lodoni, followed by 451.6mm at Koronivia, 444.4mm at Nausori Airport, 411.5mm at Nasinu, 321.3mm at Laucala Bay (Suva),

293.0mm at Lomaivuna and 262.8mm at Monasavu. On the other hand, the lowest monthly rainfall of 14.5mm was recorded at Levuka, followed by 25.9mm at Yasawa-i-Rara and 31.5mm at Momi.

The highest number of rain days (≥ 0.1 mm) with 24days was recorded at Rotuma, followed by 22days at Nausori Airport and Koronivia, 21days at Navua, 20days at Monasavu, 15days at Mate Airfield, 14days at Lakeba and Suva and 12days at Matuku.

Rotuma recorded 89.9mm of rainfall during the month, compared to its 30years average of 282.1mm. This resulted in Rotuma's rainfall categorized as *well below average* rainfall. The station's monthly rainfall was its lowest November rainfall ever, replacing a previous record established in 1998.

Figure 1



Normal: Long term average from 1971 to 2000

Well Below Average: Rainfall less than 40% of normal

Below Average: Rainfall between 40 to 79%

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 monthly maximum air temperatures were generally *normal* to *above normal* during the month with 11 out of the 24 stations registering anomalies within $\pm 0.5^{\circ}\text{C}$, 9 stations at $\geq 0.6^{\circ}\text{C}$, while Nadi Airport and Udu Point were the only two stations recording anomalies within $\leq -0.6^{\circ}\text{C}$ (Table 2 & Figures 2-5).

The warmest day-time temperatures on average was at Levuka with 32.2°C , followed by 32.1°C at Navua and 32.0°C at Labasa Airfield. On the other hand, the coolest day-time temperatures on average was at Monasavu with 25.1°C , followed by Nadarivatu with 25.5°C and 28.3°C at Matuku.

Apart from Viwa, which recorded its highest day-time temperature on the 11th, the rest of the stations around the country recorded their maximum daily during the last week of the month (table 2).

The highest daily maximum temperature of 35.5°C was recorded at Navua on the 27th, followed by 35.0°C at Ono-i-Lau on the 28th, 34.4°C at Lautoka on the 27th and 34.2°C at Rarawai (Ba) on the 25th. On the other hand, the lowest daily maximum air temperature was recorded at Monasavu with 20.0°C on the 2nd, followed by Nadarivatu with 21.4°C on the 4th and 24.5°C at Matuku on the 4th.

Koronivia's new daily maximum air temperature record for November was established, replacing a more than 40year record, while Ono-i-Lau established its new mean monthly maximum air temperature for November (Table 1).

B. Minimum Night-time Air Temperatures

The mean minimum air temperatures during the month ranged from *below normal* to *above normal*. Out of the 22 stations that reported in, 11 stations recorded anomalies within $\pm 0.5^{\circ}\text{C}$, 6 stations at $\leq -0.6^{\circ}\text{C}$ and 5 stations at $\geq +0.6^{\circ}\text{C}$ (Table 2 & Figures 2-5).

The coolest nights on average during the month was experienced at Nadarivatu with 16.7°C , followed by Monasavu with 17.7°C , 19.8°C at Keiyasi, 20.1°C at Nacocolevu and 20.5°C at Sigatoka. On the other hand, warm night-time temperatures were recorded at Navua, with 24.5°C , followed by 24.4°C at Rotuma, 24.1°C at Yasawa-i-Rara and 23.8°C at Udu Point.

The first and third week of the month recorded cool night-time temperatures, with most stations recording their lowest night-time temperatures during this period. This was particularly during the 3rd to 5th and likewise for the 18th to 20th period. The lowest daily minimum air temperature was recorded at Nadarivatu with 12.0°C on the 19th, followed by Monasavu with 14.5°C on the 18th, 15.4°C at Keiyasi on the 5th, 16.4°C at Nadi on the 4th and 16.9°C at Sigatoka on the 5th (Table 2).

There were no new minimum temperature records established in November.

TABLE 1. CLIMATE RECORDS ESTABLISHED IN NOVEMBER 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>
Totally Monthly Rainfall	Rotuma	89.9mm	-	New Low	105.5mm	1998	1912
Daily Maximum Temperature	Koronivia	34.4°C	-	New High	34.0°C	1971	1965
Mean Monthly Max Temperature	Ono-i-Lau	29.6°C	-	New High	29.4°C	1998	1943

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 2018

	RAINFALL					AIR TEMPERATURES								SUNSHINE	
	TOTAL	RAIN	MAX.			AVERAGE DAILY				EXTREME				TOTAL	*
	MM	%	+ DAYS	FALL	MM ON	MAX. #	MIN. #	MAX. #	MIN. #	MAX. #	MIN. #	MAX. #	MIN. #	HRS	%
NADI AIRPORT	98	74	10	42	13	30.5	-0.6	21.9	0.1	33.2	26	16.4	4	264	119
SUVA/LAUCALA BAY	321	131	14	81	11	29.1	-0.2	23.1	0.3	32.9	27	21.0	9	184	110
NACOCOLEVU	104	80	11	47	26	30.8	0.4	20.1	-0.8	33.5	28	15.2	4	185	100
ROTUMA	90	32	24	23	2	30.6	0.3	24.4	-0.1	31.6	23	23.1	11	178	91
VIWA	82	78	6	43	13	31.8	1.5	23.2	-1.2	34.0	11	17.0	4		
UDU POINT	150	74	8	81	14	29.3	-0.8	23.8	0.1	31.5	28	19.3	4		
SAVUSAVU AIRFIELD	93	49	8	37	14	29.2	-0.2	23.4	0.8	33.1	25	21.0	19		
LABASA AIRFIELD	51	28	3	32	14	32.0	0.6	20.8	-0.4	34.0	29	18.0	5		
NABOUWALU						OFFICER ON AL									
KORONIVIA	452	180	22	203	11	29.3	0.4	20.0	-1.6	34.4	29	16.4	18		
NAUSORI AIRPORT	444	181	22	163	11	29.1	0.3	22.1	0.1	33.0	28	19.4	5		
NAVUA/TOKOTOKO	201	66	21	48	11	32.1	2.8	24.5	4.2	35.5	27	21.0	20		
MONASAVU	263	59	20	62	29	25.1	0.9	17.7	0.2	29.0	24	14.5	18		
LAUTOKA AES	75	55	5	27	26	30.5	0.0	20.9	-1.8	34.4	27	16.5	4		
BA/RARAWAI MILL	83	58	6	23	13	31.9	0.0	20.9	0.1	34.2	25	16.4	7		
PENANG MILL	70	44	7	38	14	30.7	1.0	22.9	-0.1	33.2	29	17.8	19		
MATEI AIRFIELD	125	52	15	48	24	29.3	0.4	23.5	0.6	31.1	29	21.0	3		
VANUABALAVU	101	77	11	72	14	29.2	0.2	22.3	-1.6	31.9	28	19.9	4		
LAKEBA	111	78	14	63	14	29.2	1.5	22.7	0.6	32.6	26	18.4	4		
YASAWA	26	17	6	11	26	31.5	2.7	24.1	0.8	34.4	29	21.9	4		
VUNISEA	105	72	11	55	13	29.2	0.8	22.0	0.1	32.2	28	19.6	14		
MATUKU	83	65	12	24	11	28.3	-0.4	22.5	-0.4	31.5	28	19.5	19		
ONO-I-LAU	63	55	7	41	15	29.6	2.0	21.9	-0.7	35.0	28	19.9	20		
LEVUKA AWS	15	10	20	3	19	32.2	3.4	22.5	-0.8	37.0	26	20.6	19		
YAQARA AWS	123	97	7	62	13	31.3		31.3		33.1	29	18.7	19		
KEIYASI AWS	259		11	86	26	32.1		19.8		35.6	26	15.4	5		
LOMAIVUNA AWS	293		16	94	11	U/S		U/S							
NADARIVATU AWS	180		9	49	29	25.5		16.7		28.1	25	12.0	19		
RKS LODONI AWS	505		14	173	11	29.7		21.4		32.8	28	18.0	18		
MOMI AWS	32		6	18	13	30.6		22.6		32.8	28	18.9	4		
KOROLEVU AWS	182		19	111	11	30.4		21.5		34.1	26	18.3	19		
KORO ISLAND AWS	U/S					29.2		22.7		32.8	29	20.1	18		
SIGATOKA AWS	81		11	29	13	29.3		20.5		33.2	28	16.9	5		
RAKIRAKI AWS	54		4	35	14	29.6		23.4		32.0	27	20.0	19		
WAINIKORO AWS	U/S														
SAQANI AWS	U/S					U/S									
VATUREKUKA AWS	U/S					U/S									
KUBULAU AWS	U/S														
SEAQAQA TB3	111	52	12	25	14										
NASINU TB3	412		20	149	11										
TAVUA TB3	U/S														

		TEMPERATURE (C)			HUMIDITY		WIND	SUN RAD
		DRY	WET	RH%	VP		%OF	MJ/
	MEAN	(AVERAGE		AT 9AM)		KT	POS	SQ.M
NADI AIRPORT	26.4	27.3	23.3	71	25.5	5.7	43	15.5
SUVA/LAUCALA BAY	25.5	25.9	23.7	83	27.7		23	15.4
NACOCOLEVU	25.3	27.0	24.1	79	27.8		35	17.0\$
ROTUMA	27.4	28.4	25.2	76	29.5		44	18.8\$
VIWA	26.9	28.3	25.1	76	29.4			
UDU POINT	26.3	26.7	24.6	84	29.3			
SAVUSAVU AIRFIELD	25.9	26.6	24.5	84	29.1			
LABASA AIRFIELD	26.4	27.8	24.4	75	27.9			
NABOUWALU	26.3	26.6	24.4	83	28.9			
KORONIVIA	25.4	25.8	23.9	85	28.1			
NAUSORI AIRPORT	25.3	25.8	23.6	83	27.5	5.8		
NAVUA/TOKOTOKO	25.9	26.4	24.3	85	28.9			
MONASAVU	20.8	20.8	19.6	89	21.9			
LAUTOKA AES	26.1	28.6	24.3	69	27.1			
BA/RARAWAI MILL	26.1	27.5	24.8	79	29.2			
PENANG MILL	26.1	26.3	23.8	81	27.6			
MATEI AIRFIELD	26.2	27.2	25.1	84	30.2			
VANUABALAVU	25.1	26.7	23.9	79	27.6			
LAKEBA	25.7	27.0	24.2	79	28.0			
YASAWA	26.9	27.1	24.8	82	29.5			
VUNISEA	25.5	25.9	23.6	82	27.3			
MATUKU	25.4	25.9	23.3	80	26.6			
ONO-I-LAU	25.7	25.5						

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. U/S: UNSERVICEABLE

Figure 2

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

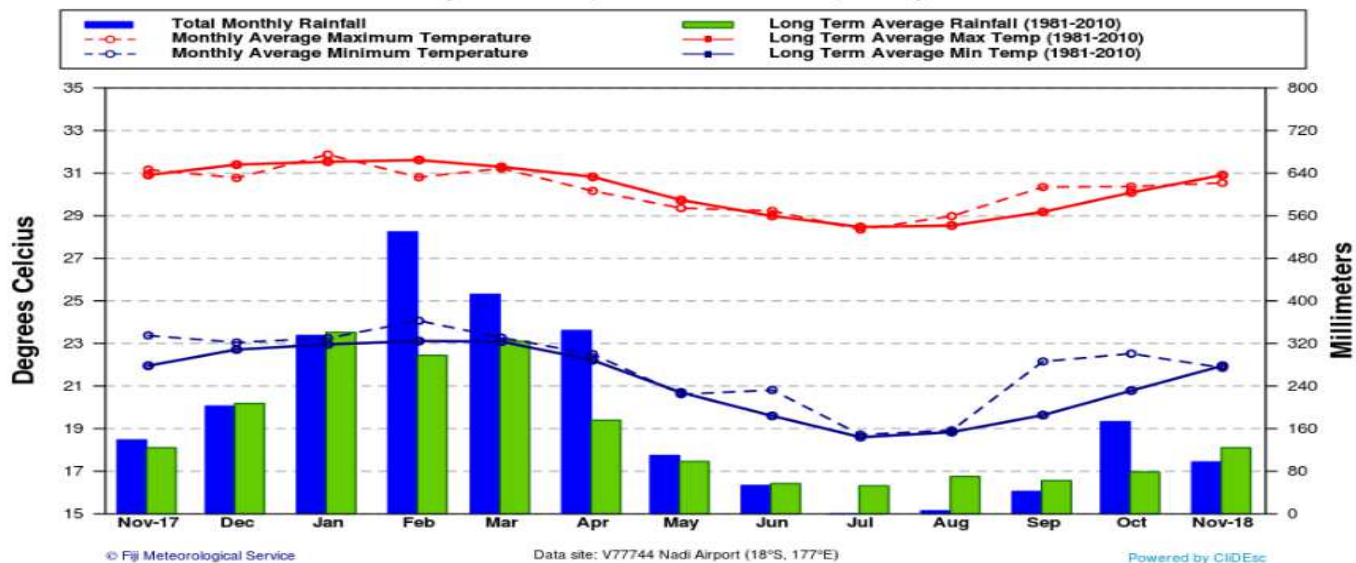


Figure 3

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

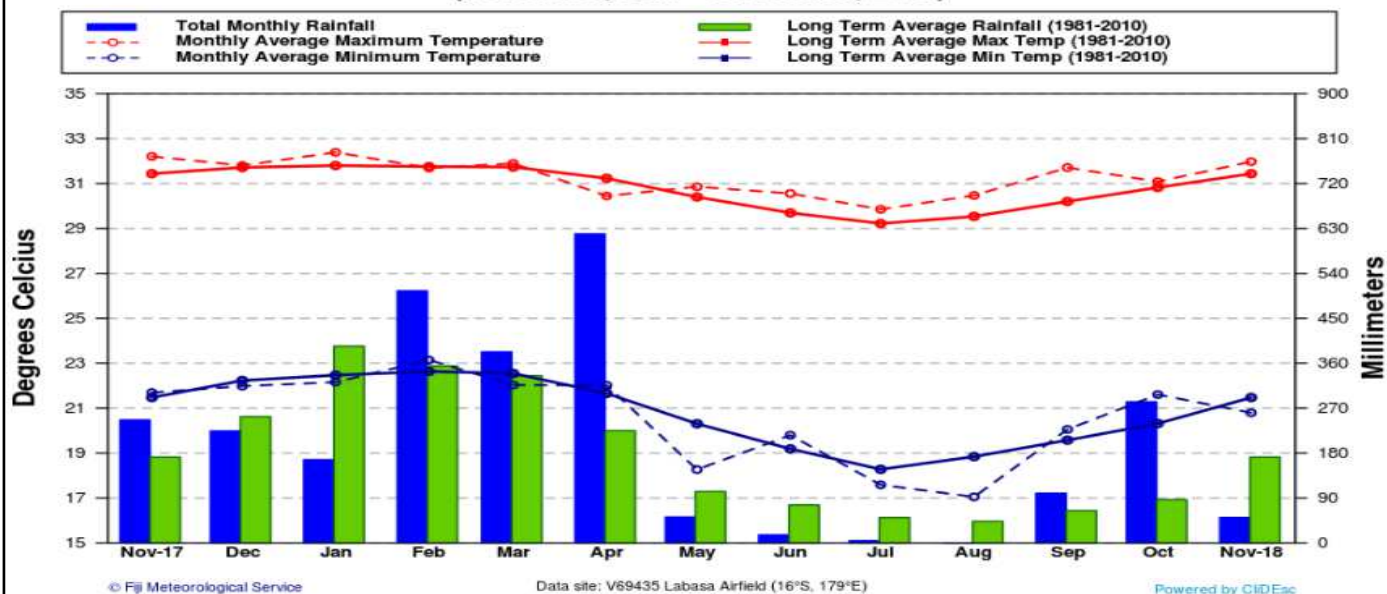


Figure 4

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

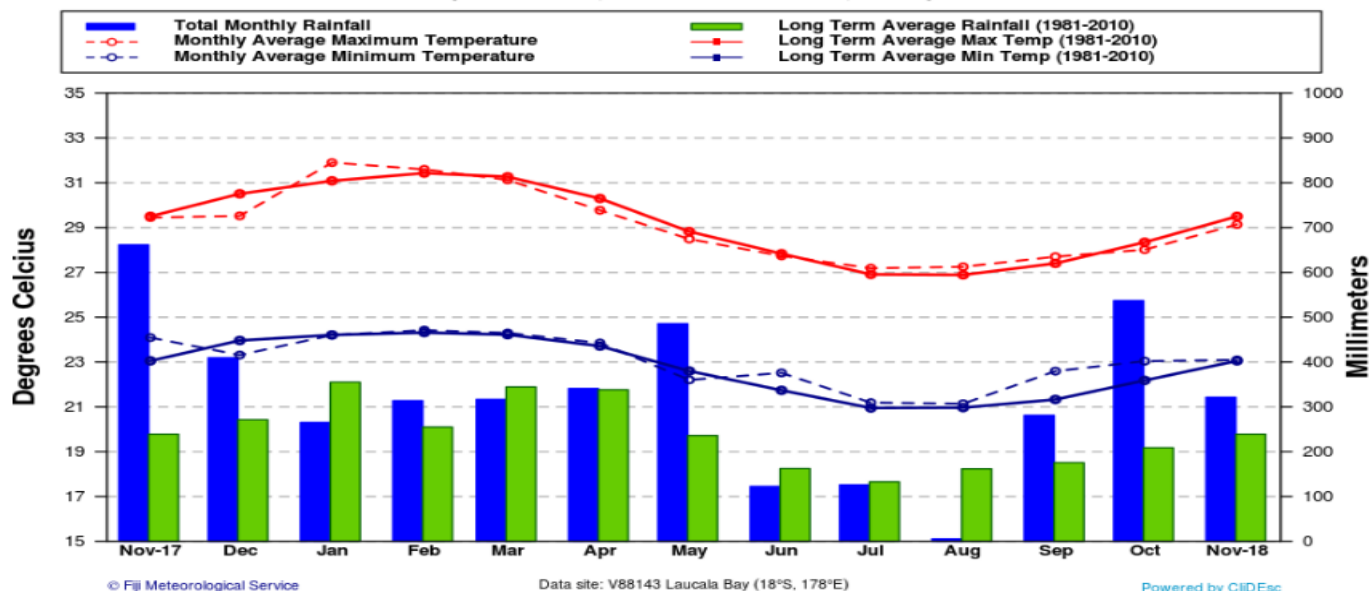
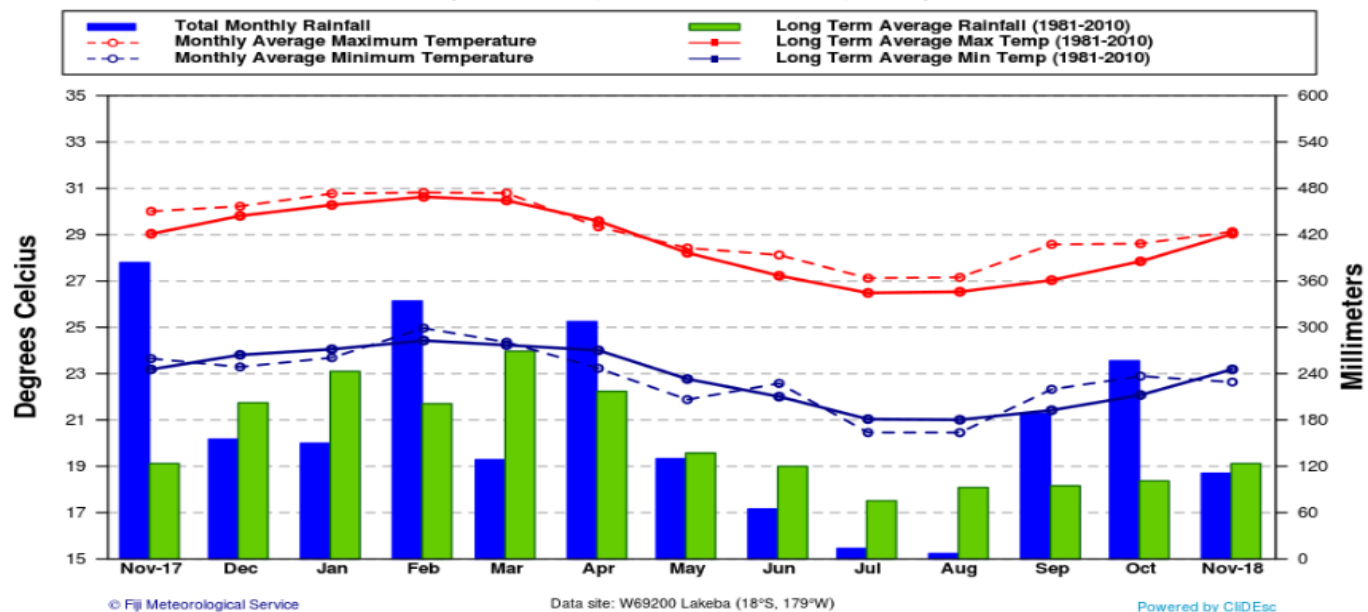


Figure 5

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



5. DAILY RAISED PAN EVAPORATION

Figure 6

Daily Evaporation for November 2018

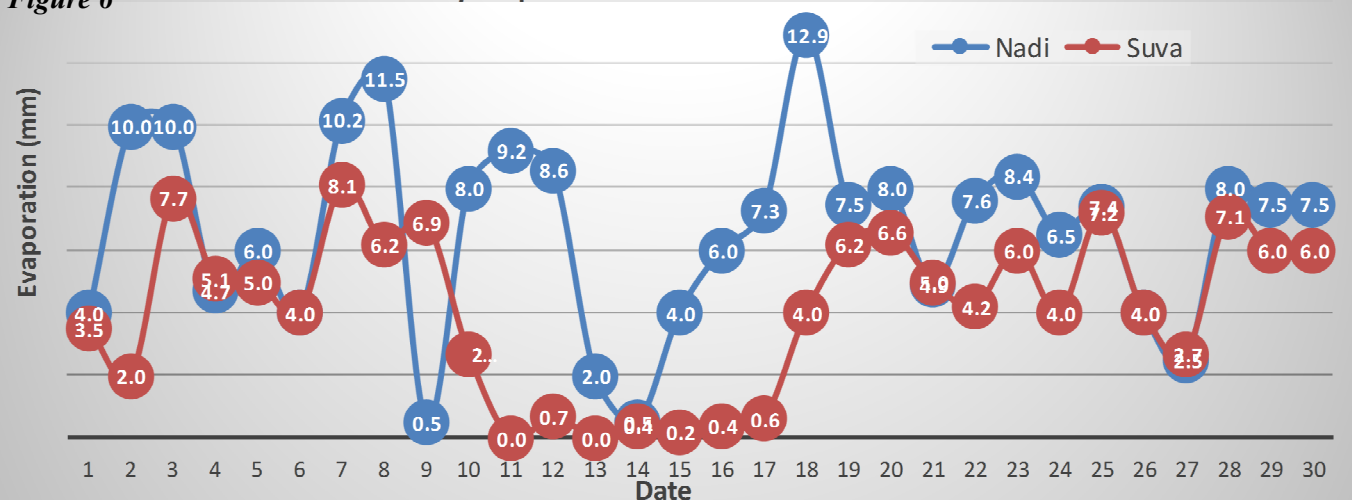


Figure 6: The total monthly raised pan evaporation at Nadi Airport was 199.2mm, with the highest of 12.9mm recorded on the 18th. Laucala Bay recorded total monthly evaporation of 122.5mm, with the highest daily evaporation of 8.1mm on the 7th.

6. SOLAR RADIATION

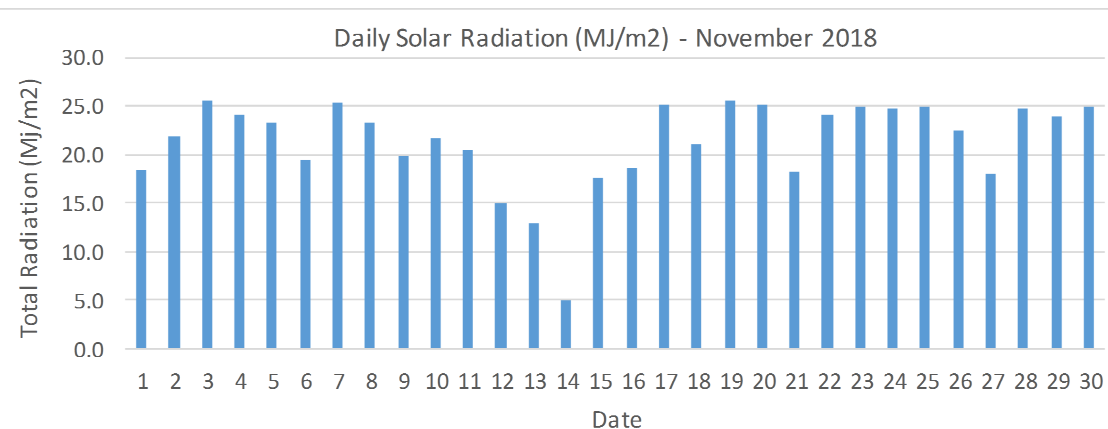


Figure 7:

The mean daily solar radiation at Nadi Airport during November 2018 was 15.5MJ/m² compared to 20.5MJ/m² over 30 year average (1971-2000).

7. WIND SUMMARY

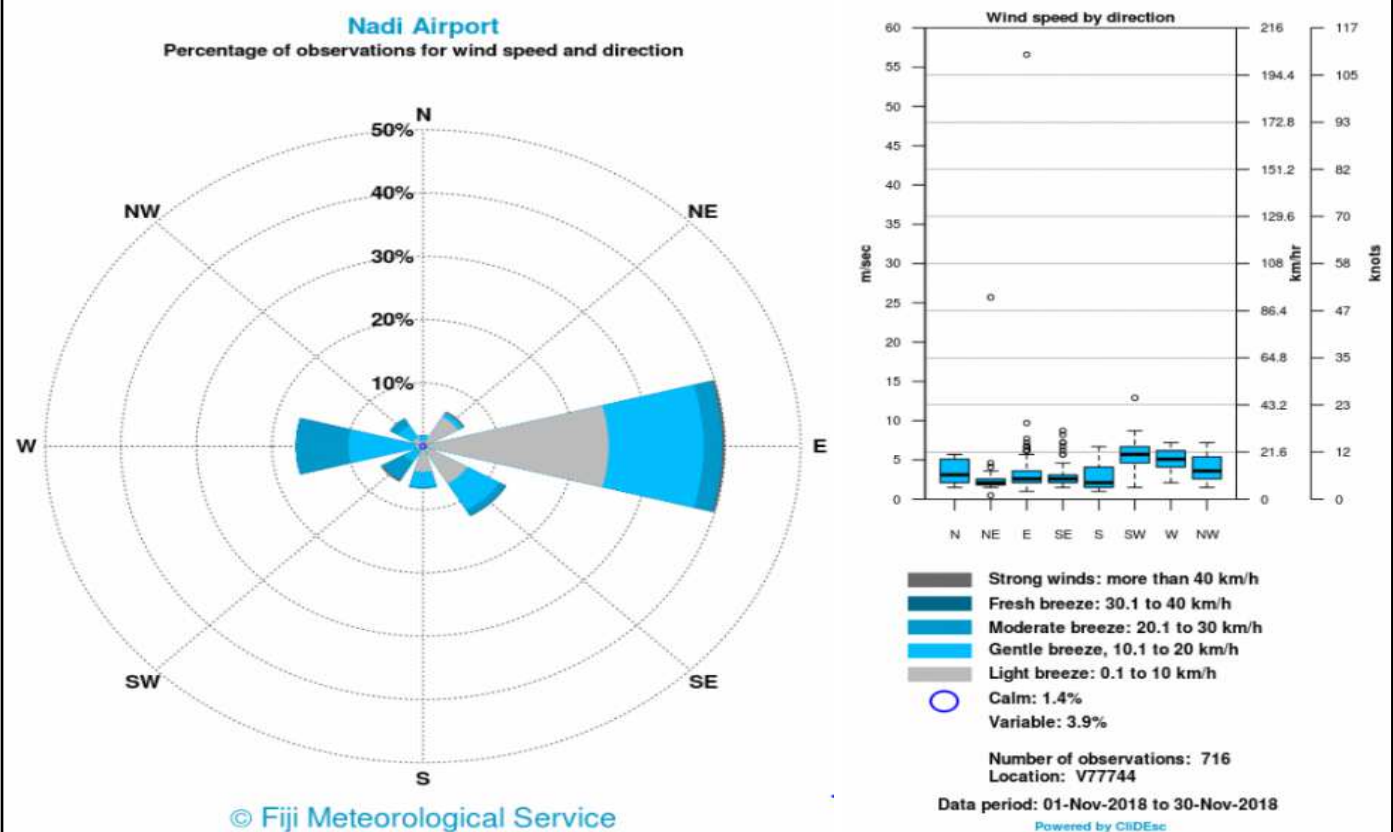


Figure 8a: The hourly wind observations at Nadi Airport during the month shows easterly winds as the most dominant, followed by westerly and then south-easterly winds. Wind strengths varied from light to moderate.

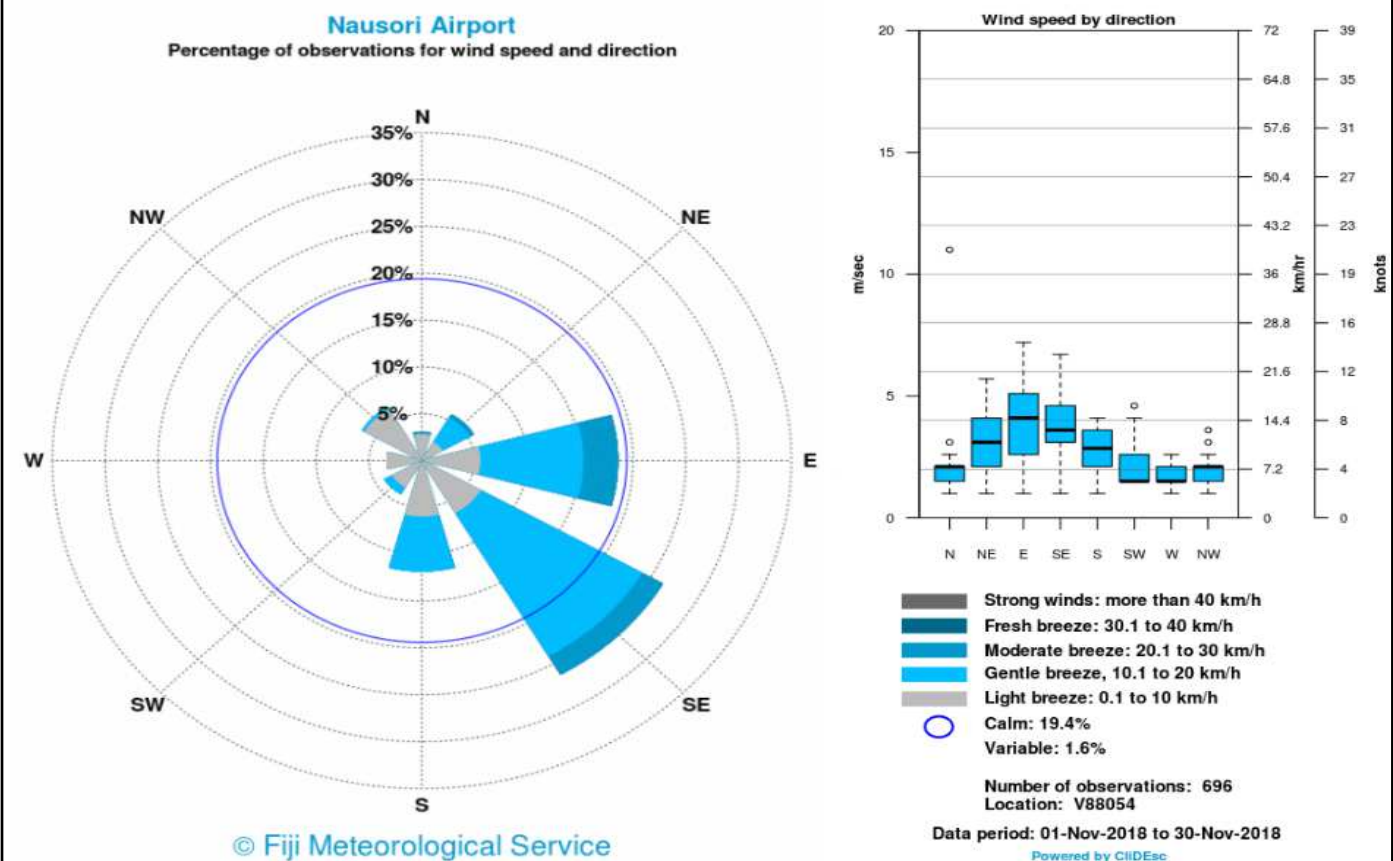


Figure 8b: The hourly wind observations at Nausori Airport during the month shows that south-easterly winds were dominant, followed by easterly and southerly winds. Wind speeds ranged from light to moderate in strength.

8. SEA SURFACE TEMPERATURE (SST)

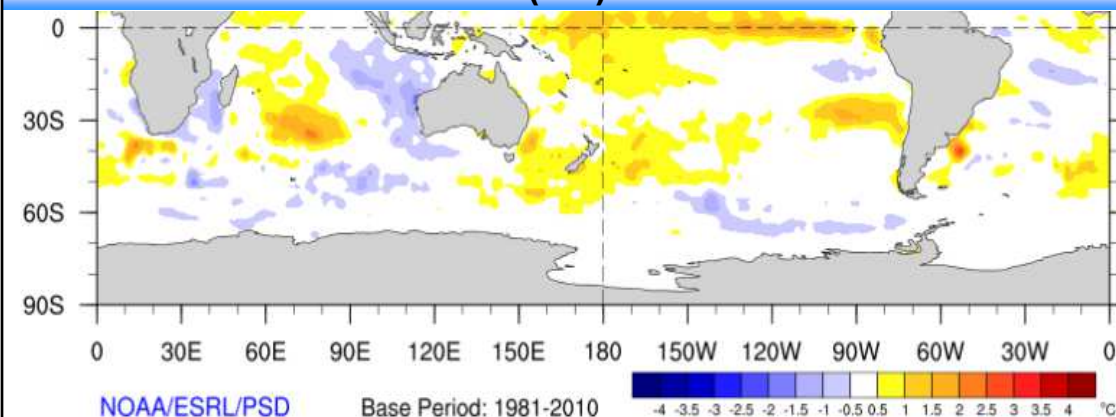


Figure 9: Slightly above normal SSTs were present in the Fiji region during the month (base period: 1981-2010).

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

9. CLOUD COVER

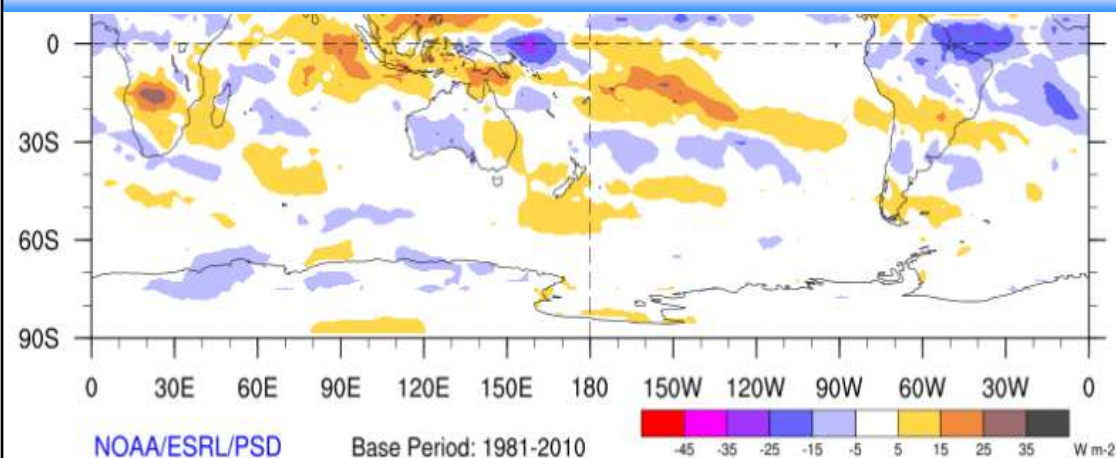


Figure 10: Slightly below normal cloud cover was present in the Fiji region during the month (Fiji: ~17°S, 180°) (base period: 1981-2010).

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

10. SEA LEVEL

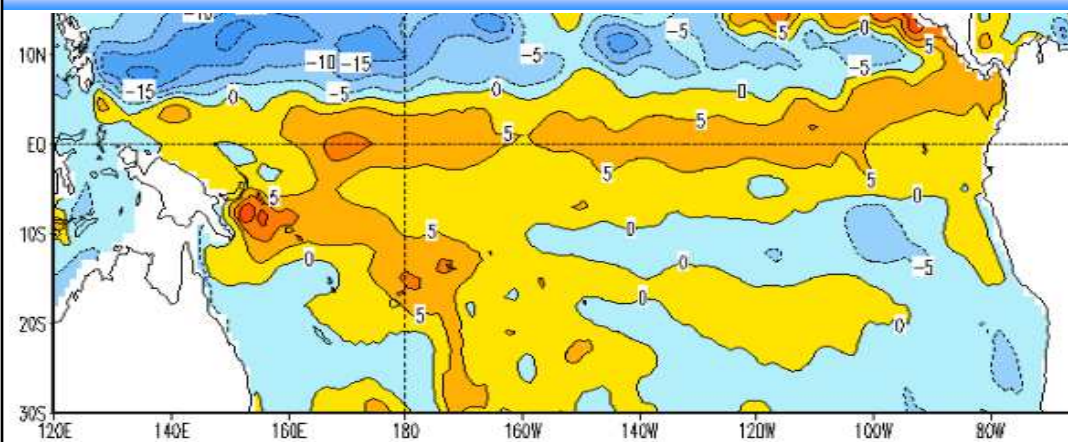


Figure 11: Near normal sea level anomalies, of 0-5cm were present in most of the Fiji Waters (base period: 1981-2010).

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

11. WIND ANOMALIES

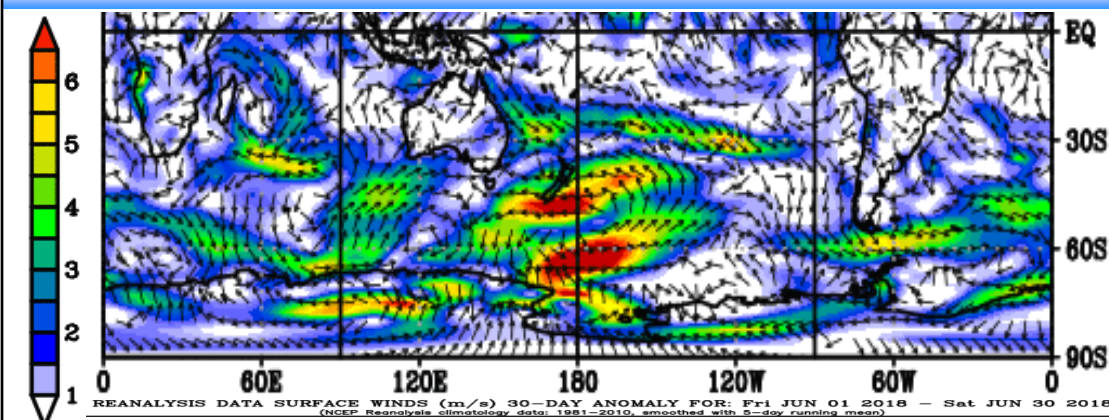


Figure 12: Variable winds anomalies of 1-1.5m/s were present in the Fiji region (Fiji: ~17°S, 180°) (base period: 1981-2010).

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