

### 1. IN BRIEF

Drier than normal condition continued to be experienced at most parts of the country in July, with more than fifty per cent of the rainfall reporting stations recording *below average to well below average* rainfall.

Overall, out of the 23 rainfall monitoring stations, 7 recorded *well below average* rainfall, 5 *below average*, 7 *average*, and 4 *above average*.

A series of trough of low pressure affected the country on three occasions, however, this was not enough with dry conditions recorded from various stations. Significant 24-hour rainfall was recorded at RKS Lodoni with 139.0mm on the 27<sup>th</sup> and Udu Point with 106.0mm on the 29<sup>th</sup>. Rotuma recorded its new highest ever July daily rainfall of 204.6mm on the 3<sup>rd</sup>, since observations began in 1932 (Table 1).

On temperatures, the highest day-time temperature was registered at Keiyasi with 34.5°C on the 13<sup>th</sup>, followed by Yaqara with 33.7°C on the 26<sup>th</sup>, Seaqaqa with 33.4°C on the 14<sup>th</sup>, Momi with 33.3°C on the 26<sup>th</sup>, Yasawa-i-Rara and Levuka both with 33.0°C on the 25<sup>th</sup> and 21<sup>st</sup>, respectively and Rarawai Mill (Ba) with 32.9°C on the 13<sup>th</sup>.

The coolest night-time temperatures were recorded at the

beginning of the month. The coolest night-time temperature of 12.9°C was recorded at Nadarivatu on the 8<sup>th</sup>, followed by Keiyasi with 13.8°C on the 7<sup>th</sup>, Seaqaqa with 14.4°C on the 7<sup>th</sup> and Monasavu with 14.5°C on the 6<sup>th</sup>.

A new mean monthly night-time temperature for July was recorded at Laucala Bay (Suva), Nausori Airport, Monasavu, Lakeba, Vunisea and Ono-i-Lau. Nadi Airport registered a new highest daily night-time temperature for July since observations began in 1942 (Table 1).

Winds in the southerly and westerly wind quadrant were dominant at Nadi Airport while winds in the northeasterly to easterly wind quadrant were dominant at Nausori Airport during the month, both experiencing light to moderate wind strength (Figure 8).

Warmer than normal sea surface temperature anomalies were observed across most of the Fiji Waters during the month (Figure 9).

### 2. WEATHER PATTERNS

The weather in July was dominated by the southeast trades and the easterlies generated by high pressure systems to the far south of the country. Also, troughs of low pressure systems affected Fiji in the beginning and end of July as well as during mid-month.

A trough of low pressure affected the country on the 1<sup>st</sup> without any significant rainfall.

From the 2<sup>nd</sup> to the 12<sup>th</sup>, a high pressure system to the far south of Fiji directed strong southeast and easterly winds both over land and Fiji waters.

By the 13<sup>th</sup>, another trough of low pressure drew near the country from the southwest, moved over Fiji with occasional showers and thunderstorms and cleared the group to the east on the 15<sup>th</sup>. This was coupled by the dominant southeast trades therefore, the highest 24-hour rainfall recorded was at Vunisea with 83.7mm on the 13<sup>th</sup>.

From the 16<sup>th</sup> to the 26<sup>th</sup>, Fiji experienced mainly fine con-

ditions as the easterlies prevailed.

On the 27<sup>th</sup>, a trough moved over the country from the west and affected the group till the 31<sup>st</sup>. Also, within this period from the 30<sup>th</sup> till month end, the country was dominated by strong northwesterly winds. Occasional showers accompanied by thunderstorms were experienced during this period and highest 24-hour rainfall was recorded at RKS Lodoni with 139.0mm and at Udu Point with 106.0mm.

Rotuma's weather was also affected by a series of troughs of low pressure systems with the highest 24-hour rainfall recorded on the 3<sup>rd</sup> with 204.6mm.

### 3. RAINFALL

Generally suppressed rainfall continued to be experienced at most parts of the country, with more than fifty percent of the rainfall reporting stations recording *below average* to *well below average* rainfall. Dry conditions were recorded along the Coral Coast, Sigatoka to Yaqara area, the Mamanuca and Yasawa Group, parts of the Northern Division and Ono-i-Lau in the Eastern Division. On the other hand, the presence of troughs and southeast trades contributed to *average* and *above average* rainfall observed at the rest of the stations.

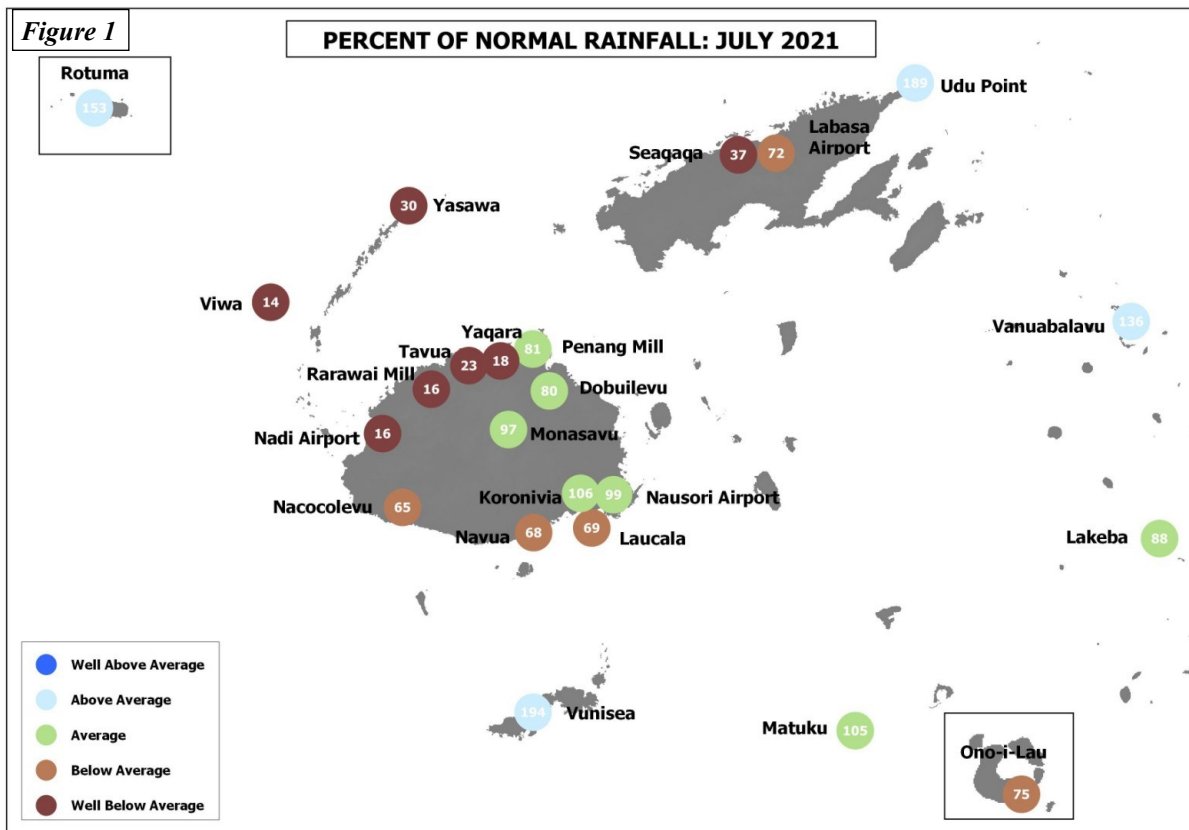
Overall, out of the 23 rainfall monitoring stations that reported in time for the summary compilation, 7 recorded *well below average* rainfall, 5 *below average*, 7 *average*, and 4 *above average* (Table 2, Figures 1-5).

The driest site during the month was Ellington (Rakiraki) with a total monthly rainfall of 1mm, followed by Saqani with 5mm, Yaqara and Rarawai Mill (Ba) both with 8mm, Nadi Airport and Viwa both with 9mm, Momi and Tavua both with 11mm, Yaswa-i-Rara with 14mm, Seaqaqa with 17mm and Wainikoro with 18mm. On the other hand, the highest total monthly rainfall was recorded at Rotuma with 353mm, followed by RKS Lodoni with 248mm, Vunisea with 215mm, Monasavu with 192mm, Nadarivatu with 160mm, Udu Point and Korolevu both with 142mm, Lomaivuna with 141mm, Nasinu with 136mm and Koronivia with 132mm.

A series of trough of low pressure affected the country. Rotuma recorded its most significant 24-hour rainfall of 204.6mm on the 3<sup>rd</sup> due to active trough of low pressure systems experienced at the beginning of July. Another trough of low pressure, combined with the dominant southeast trades led to occasional showers and resulting in Vunisea recording its highest 24-hour rainfall of 83.7mm on the 13<sup>th</sup>. Towards the end of the month, a trough of low pressure brought about significant 24-hour rainfall, with RKS Lodoni recording 139.0mm on the 27<sup>th</sup> and Udu Point recording 106.0mm on the 29<sup>th</sup>.

Monasavu recorded the highest number of rain days (rainfall  $\geq 0.1$ mm) during the month with 23 days, followed by Rotuma with 22, Koronivia with 21, and Nasinu with 19. On the other hand, Ellington (Ra) recorded the least number of rain days with 1 day, followed by Momi, Yaqara, Rarawai Mill (Ba) and Viwa all with 2, Nadi Airport with 3, Tavua and Yaswa-i-Rara both with 4 and Wainikoro with 5.

Rotuma recorded its new highest July daily rainfall of 204.6mm on the 3<sup>rd</sup>, since observations began in 1932 (Table 1).



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  $\geq 0.1$ 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 *above normal* maximum air temperatures were observed at most parts of Fiji during the month. Out of the 19 climate stations, 17 recorded anomalies  $\geq +0.5^{\circ}\text{C}$  and 2 registered anomalies within  $\pm 0.5^{\circ}\text{C}$ .

Warmest days on average were recorded at Seaqaqa with  $31.6^{\circ}\text{C}$ , followed by Yaqara with  $31.3^{\circ}\text{C}$ , Keiyasi with  $31.2^{\circ}\text{C}$ , Yasawa-i-Rara with  $31.1^{\circ}\text{C}$  and Labasa Airport with  $31.0^{\circ}\text{C}$ . On the other hand, Monasavu recorded the coolest days on average with  $22.7^{\circ}\text{C}$ , followed by Nadarivatu with  $24.1^{\circ}\text{C}$ , Ono-i-Lau with  $26.3^{\circ}\text{C}$ , Matuku with  $26.9^{\circ}\text{C}$  and Ellington (Ra) with  $27.1^{\circ}\text{C}$ .

The highest day-time air temperature during the month was registered at Keiyasi with  $34.5^{\circ}\text{C}$  on the 13<sup>th</sup>, followed by Yaqara with  $33.7^{\circ}\text{C}$  on the 26<sup>th</sup>, Seaqaqa with  $33.4^{\circ}\text{C}$  on the 14<sup>th</sup>, Momi with  $33.3^{\circ}\text{C}$  on the 26<sup>th</sup>, Yasawa-i-Rara and Levuka both with  $33.0^{\circ}\text{C}$  on the 25<sup>th</sup> and 21<sup>st</sup>, respectively and Rarawai Mill (Ba) with  $32.9^{\circ}\text{C}$  on the 13<sup>th</sup>. On the other hand, the coolest day-time air temperature of  $17.0^{\circ}\text{C}$  was recorded at Monasavu, followed by Nadarivatu with  $19.3^{\circ}\text{C}$ , Lomaivuna with  $22.7^{\circ}\text{C}$ , all on the 5<sup>th</sup>, respectively, and Sigatoka and Korolevu both with  $23.0^{\circ}\text{C}$ , on the 1<sup>st</sup>, respectively.

Nausori and Vunisea (Kadavu) recorded a new mean monthly maximum air temperature for July, since observations began in 1956 and 1929, respectively (Table 1).

### B. Minimum Night-time Air Temperatures

Generally *above normal* night-time temperatures were recorded over most parts of the country during the month. Of the 19 stations, 18 recorded anomalies  $\geq +0.5^{\circ}\text{C}$  and Yasawa-i-Rara was the lone station that registered anomalies within  $\pm 0.5^{\circ}\text{C}$ .

The coolest days on average were registered at Nadarivatu with a mean monthly average of  $16.9^{\circ}\text{C}$ , followed by Monasavu with  $17.4^{\circ}\text{C}$ , Keiyasi with  $18.8^{\circ}\text{C}$  and Labasa Airport with  $19.2^{\circ}\text{C}$ . On the other hand, the warmest night-time temperatures on average was observed at Rotuma with  $25.6^{\circ}\text{C}$ , followed by Viwa with  $24.5^{\circ}\text{C}$  and Udu Point with  $24.3^{\circ}\text{C}$ .

The coolest night-time temperatures were recorded during the beginning of the month. The lowest daily minimum air temperature of  $12.9^{\circ}\text{C}$  was recorded at Nadarivatu on the 8<sup>th</sup>, followed by Keiyasi with  $13.8^{\circ}\text{C}$  on the 7<sup>th</sup>, Seaqaqa with  $14.4^{\circ}\text{C}$  on the 7<sup>th</sup> and Monasavu with  $14.5^{\circ}\text{C}$  on the 6<sup>th</sup>. In contrast, the warmest night-time temperature of  $26.7^{\circ}\text{C}$  was recorded at Rotuma on the 10<sup>th</sup>, followed by Viwa with  $26.5^{\circ}\text{C}$  on the 31<sup>st</sup> and Levuka with  $25.8^{\circ}\text{C}$  on the 13<sup>th</sup>.

A new mean monthly minimum air temperature for July was set at Laucala Bay (Suva), Nausori Airport, Monasavu, Lakeba, Vunisea and Ono-i-Lau respectively. Nadi Airport registered a new highest daily night-time temperature since observations began in 1942 (Table 1).

**TABLE 1. CLIMATE RECORDS ESTABLISHED IN JULY 2021**

<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 Rainfall	Rotuma	204.6mm	3 <sup>rd</sup>	New High	170.7mm	1937	1932
Daily Minimum Temperature	Nadi Airport	$25.5^{\circ}\text{C}$	31 <sup>st</sup>	New High	$24.5^{\circ}\text{C}$	1975	1942
Mean Monthly Max Temperature	Nausori Airport	$28.2^{\circ}\text{C}$	-	New High	$27.8^{\circ}\text{C}$	2007	1956
Mean Monthly Max Temperature	Vunisea	$27.3^{\circ}\text{C}$	-	New High	$27.2^{\circ}\text{C}$	2007	1929
Mean Monthly Min Temperature	Suva	$22.6^{\circ}\text{C}$	-	New High	$22.2^{\circ}\text{C}$	2007	1926
Mean Monthly Min Temperature	Nausori Airport	$21.6^{\circ}\text{C}$	-	New High	$21.2^{\circ}\text{C}$	1995	1956
Mean Monthly Min Temperature	Monasavu	$17.4^{\circ}\text{C}$	-	New High	$17.0^{\circ}\text{C}$	1999	1980
Mean Monthly Min Temperature	Lakeba	$22.4^{\circ}\text{C}$	-	New High	$22.3^{\circ}\text{C}$	1970 1975	1928
Mean Monthly Min Temperature	Vunisea	$21.6^{\circ}\text{C}$	-	New High	$21.4^{\circ}\text{C}$	1999	1929
Mean Monthly Min Temperature	Ono-I-Lau	$22.5^{\circ}\text{C}$	-	New High	$21.4^{\circ}\text{C}$	1974 1976	1949

*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 JULY 2021**

	RAINFALL				AIR TEMPERATURES						SUNSHINE			
	TOTAL	RAIN		MAX.	AVERAGE DAILY			EXTREME		TOTAL				
	MM	%	* DAYS	MM ON FALL	MAX. C	# C	MIN. C	# C	MAX. C	MIN. C	HRS	%		
NADI AIRPORT	9	16	3	5 28	29.5	1.0	21.1	2.5	32.3	21	17.5	7	230	107
SUVA/LAUCALA BAY	92	69	18	38 1	28.2	1.3	22.6	1.7	30.0	23	19.5	7	166	125
NACOCOLEVU	48	65	8	15 1	29.2	1.5	20.0	2.0	31.9	19	15.1	7	168	105
ROTUMA	353	153	22	205 3	30.1	0.7	25.6	1.3	31.1	1	23.3	1	176	90
VIWA (AWS)	9	14	2	8 1	30.1	2.0	24.5	1.8	32.2	27	22.1	8		
UDU POINT	142	189	15	106 29	28.5	0.3	24.3	1.9	30.1	1	20.6	30		
SAVUSAVU AIRFIELD	STATION TEMPORARILY CLOSED													
LABASA AIRFIELD	37	72	8	26 27	31.0	1.8	19.2	0.9	32.3	14	14.6	7		
NABOUWALU	STATION TEMPORARILY CLOSED													
KORONIVIA	132	106	21	53 1	27.3	0.6	21.4	1.6	30.1	26	17.8	7		
NAUSORI AIRPORT	113	99	17	51 1	28.2	1.9	21.6	1.9	30.6	25	18.0	7		
NAVUA/TOKOTOKO	114	68	17	32 1	28.6	1.9	20.7	1.9	32.5	22	19.2	6		
MONASAVU	192	97	23	38 15	22.7	1.7	17.4	1.9	25.6	26	14.5	6		
LAUTOKA AES	INSUFFICIENT DATA													
BA/RARAWAI MILL	8	16	2	5 31	30.9	1.4	19.5	2.4	32.9	13	14.8	7		
PENANG MILL	44	81	7	20 22	29.0	1.4	22.6	2.4	30.8	25	20.1	27		
MATEI AIRFIELD	STATION TEMPORARILY CLOSED													
VANUABALAVU	117	136	14	38 27	28.1	1.1	22.7	0.7	29.9	2	19.1	6		
LAKEBA	66	88	12	23 30	28.1	1.6	22.4	1.4	30.1	8	18.9	23		
YASAWA	14	30	4	8 1	31.1	2.8	22.3	0.1	33.0	25	20.7	2		
VUNISEA	215	194	15	84 13	27.3	1.4	21.6	1.8	30.9	8	19.0	8		
MATUKU	87	105	15	43 27	26.9	0.4	22.5	1.2	29.1	26	20.3	2		
ONO-I-LAU	67	75	15	28 13	26.3	1.2	22.5	2.5	30.5	25	19.0	28		
YAQARA AWS	8		2	7 22	31.3		22.8		33.7	26	19.7	9		
LEVUKA AWS	110		15	73 27	30.0		24.1		33.0	21	22.1	2		
KEIYASI AWS	24		6	15 1	31.2		18.8		34.5	13	13.8	7		
LOMAIVUNA AWS	141		18	44 27	27.8		19.6		31.4	25	16.3	7		
NADARIVATU AWS	160		13	80 27	24.1		16.9		26.5	25	12.9	8		
RKS LODONI AWS	248		18	139 27	28.0		20.9		32.3	31	18.0	7		
MOMI AWS	11		2	8 1	30.3		22.5		33.3	26	19.1	7		
SIGATOKA AWS	98		10	68 1	28.0		20.0		30.7	21	15.4	7		
ELLINGTON (RA) AWS	1		1	1 1	27.1		22.2		28.7	1	19.9	5		
VATUREKUKA AWS	45		10	13 29	29.4		20.2		32.1	25	16.2	7		
KOROLEVU AWS	142		13	55 1	28.6		20.9		31.9	21	18.1	8		
WAINIKORO AWS	18		5	13 29	29.4		20.7		32.0	25	17.5	7		
SAQANI AWS	5		1	5 1	28.2		22.8		29.3	1	22.0	1		
SEAQAQA AWS	17	37	7	6 28	31.6		19.7		33.4	14	14.4	7		
DOBUILEVU TB3	53	79	17	30 27										
NASINU TB3	136		19	47 1										
TAVUA TB3	11	23	4	7 22										

	TEMPERATURE( C)		HUMIDITY RH%	WIND VP	SUN RAD %OF MJ/
	MEAN DRY	WET (AVERAGE AT 9AM)			
NADI AIRPORT	25.3	25.5	22.2	74	24.3 6.2
SUVA/LAUCALA BAY	25.4	25.5	23.5	84	27.4 52
NACOCOLEVU	24.6	24.4	22.5	84	25.8 52
ROTUMA	27.9	28.1	25.7	82	31.2 7.8
VIWA (AWS)	27.9 OFFICER ON AL				
UDU POINT	26.4	26.6	24.0	80	27.8 9.8
SAVUSAVU AIRFIELD	STATION TEMPORARILY CLOSED				
LABASA AIRFIELD	25.1	26.0	23.2	78	26.4
NABOUWALU	STATION TEMPORARILY CLOSED				
KORONIVIA	24.3	24.9	23.1	85	26.9
NAUSORI AIRPORT	24.9	24.9	23.1	86	27.0 5.4
NAVUA/TOKOTOKO	24.6	25.0	23.6	88	28.1
MONASAVU	20.0	19.8	18.7	90	20.8
LAUTOKA AES	INSUFFICIENT DATA				
BA/RARAWAI MILL	25.2	25.5	22.7	78	25.5
PENANG MILL	25.8	26.0	23.3	79	26.6
MATEI AIRFIELD	STATION TEMPORARILY CLOSED				
VANUABALAVU	25.4	26.3	23.8	81	27.6 5.1
LAKEBA	25.2	26.4	23.4	76	26.4 4.5
YASAWA	26.7	27.8	24.5	75	28.2 11.8
VUNISEA	24.5	24.8	22.8	83	26.3 7.8
MATUKU	24.7	25.2	23.1	84	26.8 6.8
ONO-I-LAU	24.4	24.5	22.1	81	25.0 8.8

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 (Western Division) - Temperature & Rainfall Records for the last 13 Months (July 2020 - July 2021)

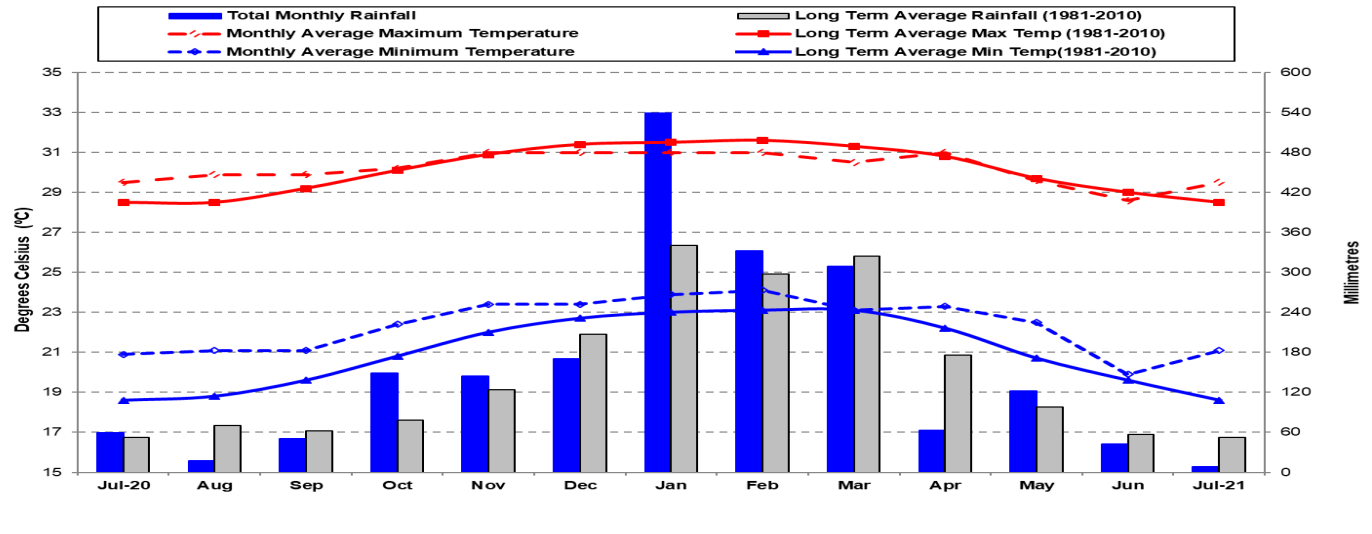


Figure 3

Laucala Bay - (Suva) (Central Division) - Temperature & Rainfall Records for the last 13 Months (July 2020 - July 2021)

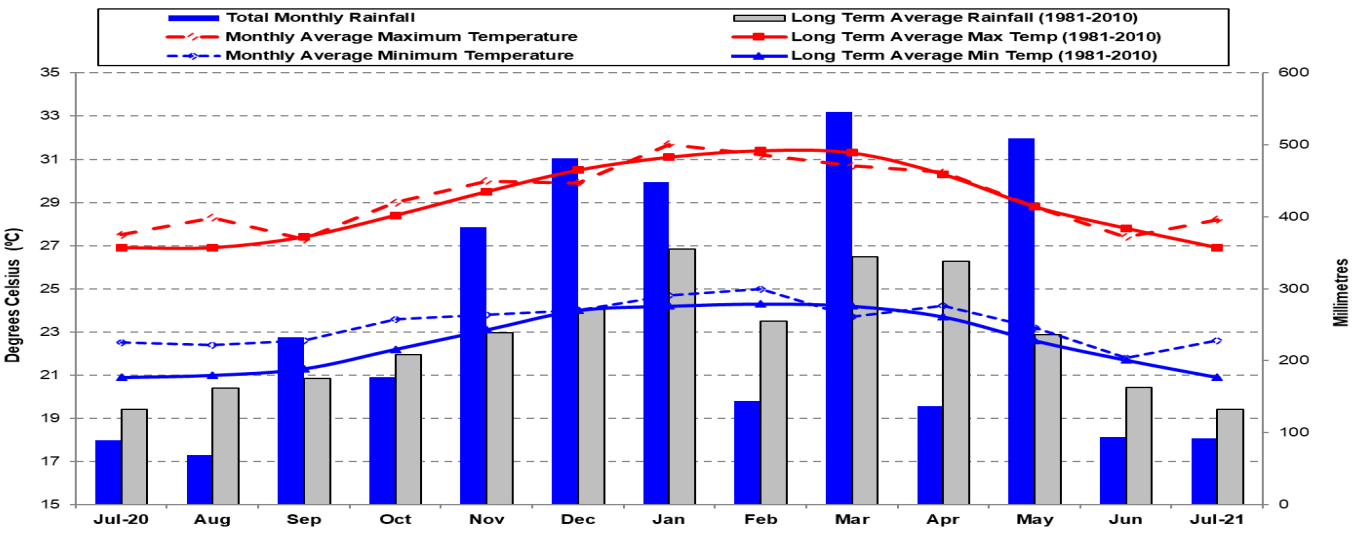


Figure 4

Udu Point (Eastern Division) - Temperature & Rainfall Records for the last 13 Months (July 2020 - July 2021)

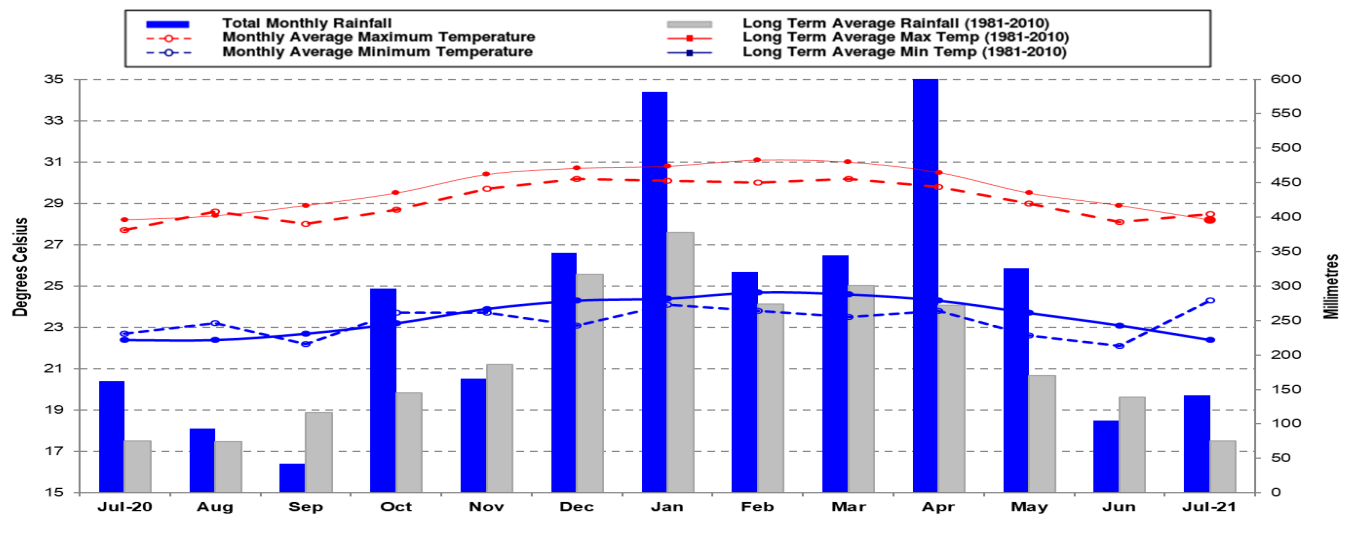
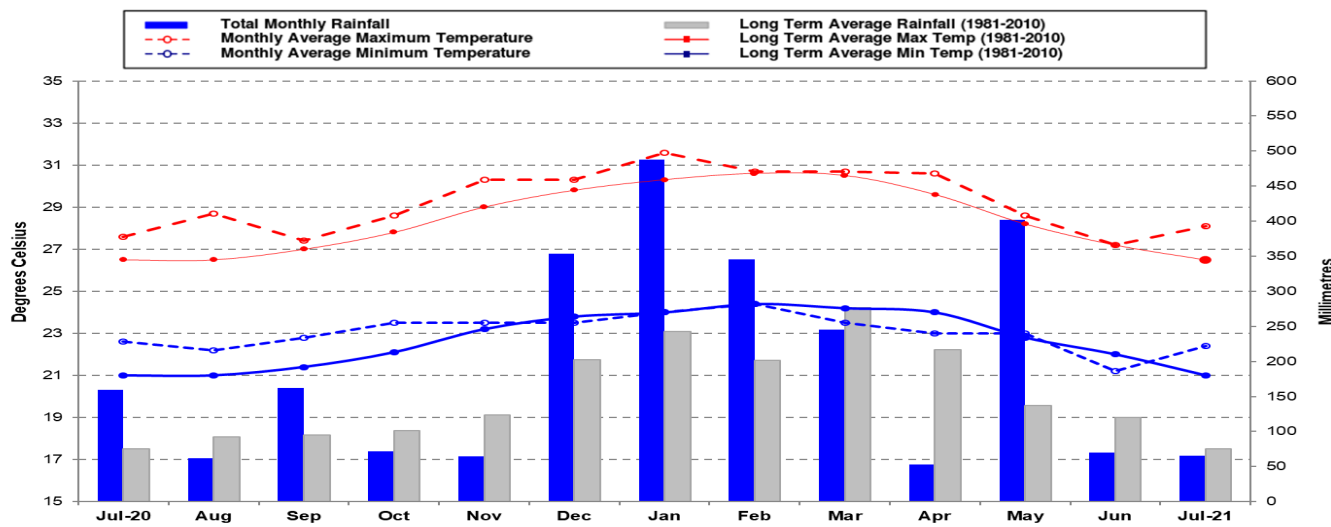


Figure 5

Lakeba (Eastern Division) - Temperature & Rainfall Records for the last 13 Months (July 2020 - July 2021)



## 5. DAILY RAISED PAN EVAPORATION

Figure 6

Daily Evaporation for July 2021

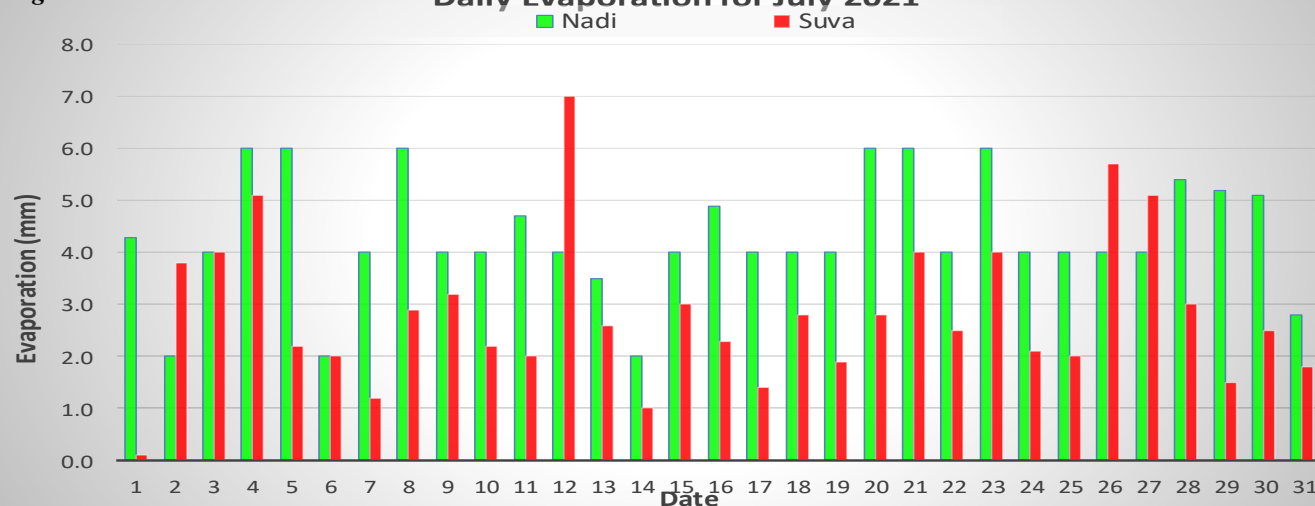


Figure 6: The total monthly evaporation at Nadi Airport and Laucala Bay (Suva) were 133.9mm and 87.7mm, respectively. Nadi’s highest daily evaporation was 6.0mm on the 4<sup>th</sup>, 5<sup>th</sup>, 8<sup>th</sup>, 20<sup>th</sup>, 21<sup>st</sup>, and 23<sup>rd</sup>, with Suva’s highest daily evaporation of 7.0mm on the 12<sup>th</sup>. Note: Nacolevu is not included due to missing observations during COVID-19 restrictions.

## 6. SOLAR RADIATION

The Nadi solar radiation instrument became unserviceable during the month of July 2021.

7. WIND SUMMARY

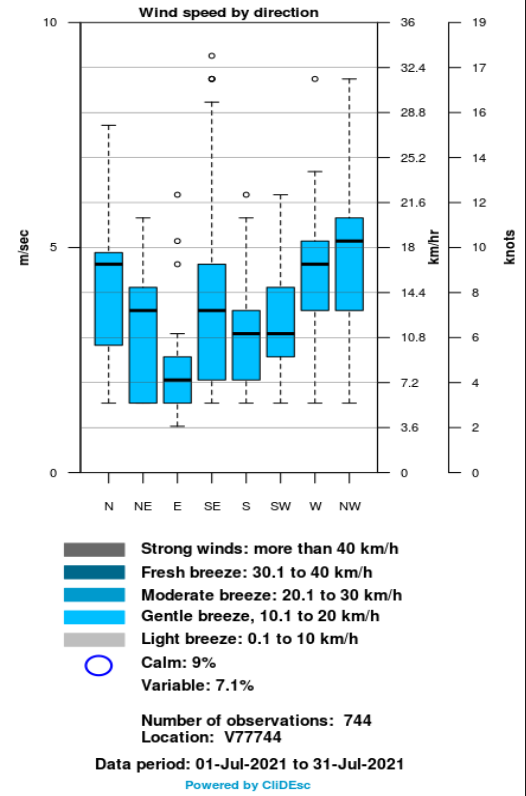
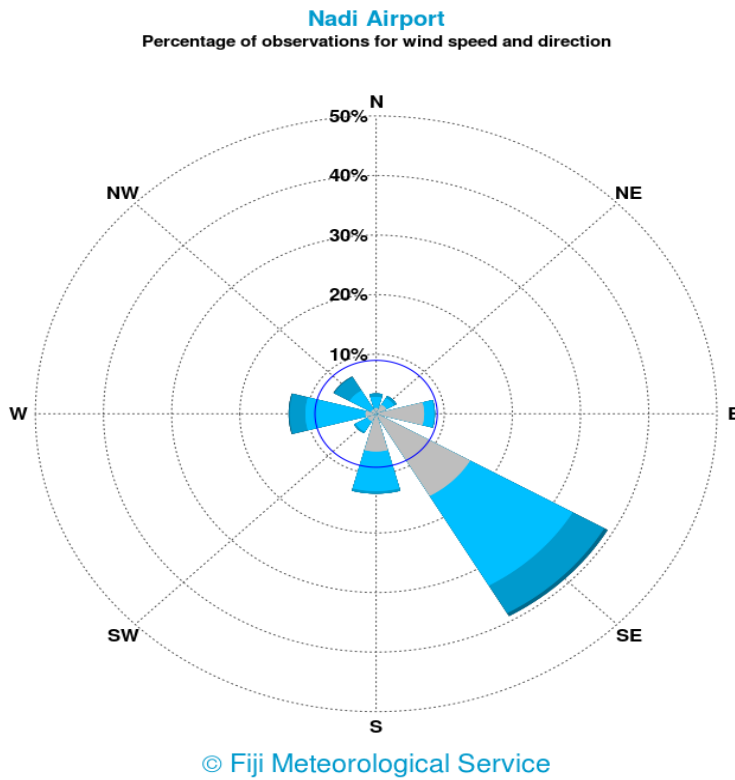


Figure 8a: Southeasterly winds were dominant at Nadi Airport during the month, followed by southerly and westerly winds. Wind strength ranged from light to moderate during this period.

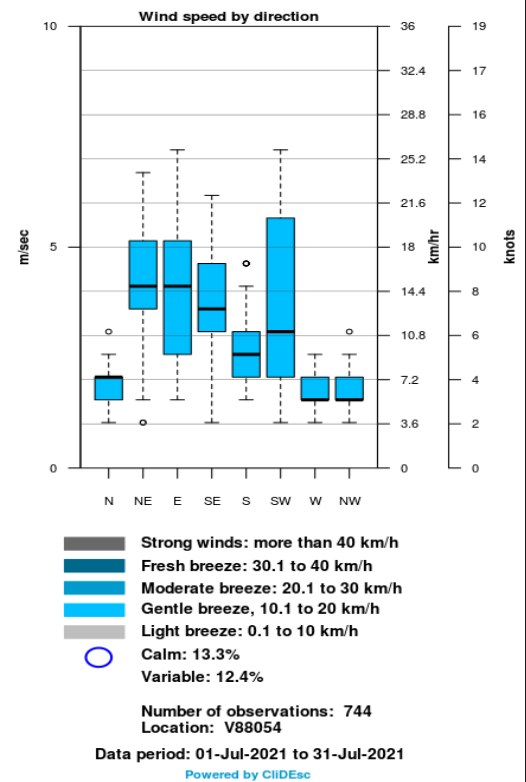
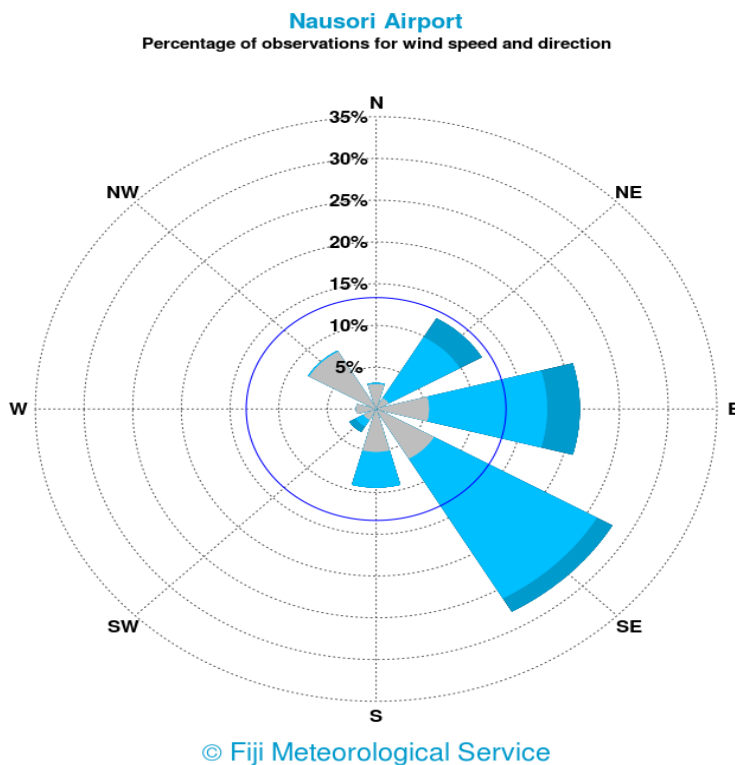
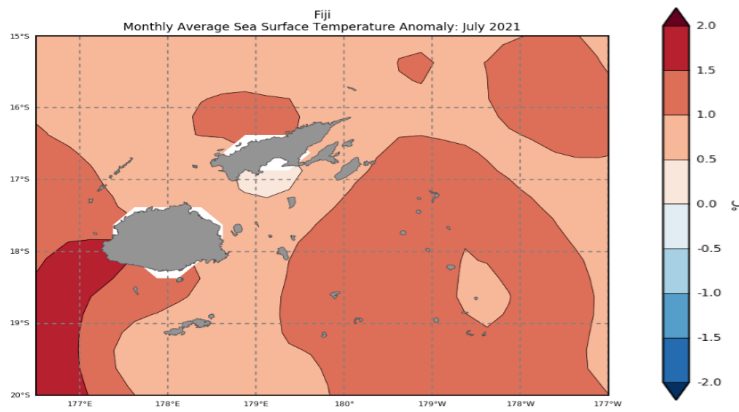


Figure 8b: Southeasterly winds were dominant at Nausori Airport, followed by easterly and then northeasterly. Wind strength ranged from light to moderate breeze during this period.

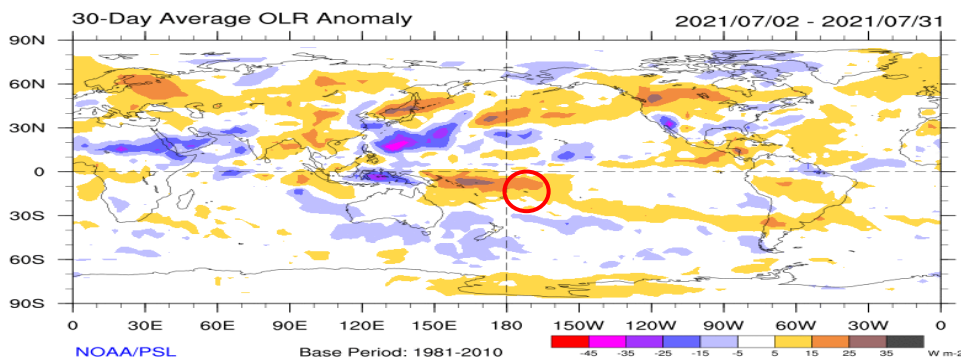
### 8. SEA SURFACE TEMPERATURE (SST)



**Figure 9:** Warmer than normal sea surface temperature anomalies were observed across most of the Fiji Waters, with anomalies of more than 1.0°C observed around west of Viti Levu, north of Vanua Levu and Lau Group.

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

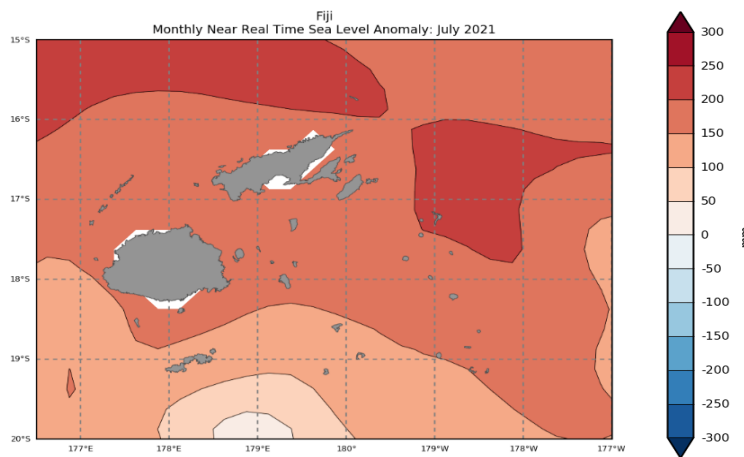
### 9. CLOUD COVER



**Figure 10:** Below normal cloud cover was present over the Fiji Group during the month (Fiji in red circle).

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

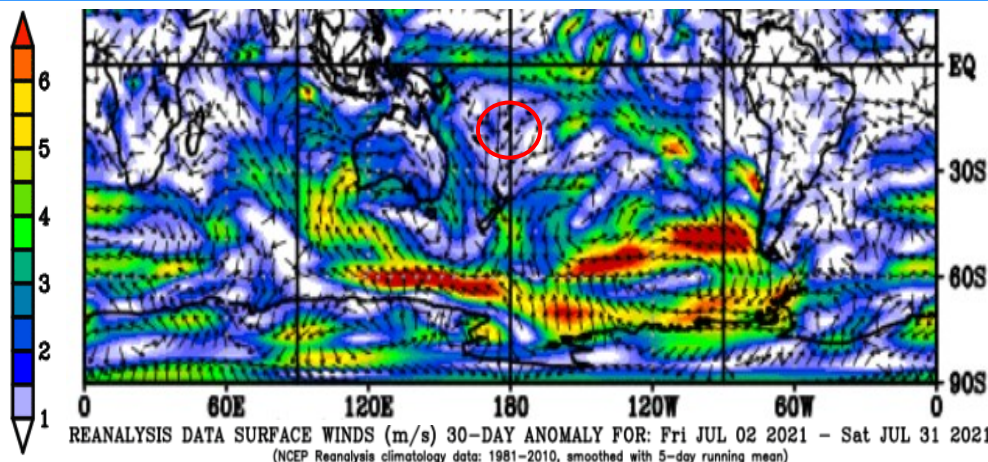
### 10. SEA LEVEL



**Figure 11:** Above normal sea level anomalies were present across most of the Fiji Waters during the month (anomalies of more than 20cm), and anomalies of more than 25cm was recorded around Rotuma.

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

### 11. WIND ANOMALIES



**Figure 12:** Northerly wind anomalies were recorded over the Fiji Group 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](https://www.esrl.noaa.gov/psd/map/images/rnl/sfcwnd_30b.rnl.html)