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Fiji Islands Climate Summary

June 2007

FIJI METEOROLOGICAL SERVICE

IN BRIEF

June was relatively dry in most parts of the country largely due to the sub-tropical high pressure systems and associated ridges dominating Fiji's weather and the northward displacement of the South Pacific Convergence Zone during the month.

Consequently, nearly all parts of the Western Division received *well below average* rainfall during the month with the driest area extending from Sigatoka to Rakiraki including Mamanuca Group which experienced less than 26% of normal rainfall. *Below average* rainfall was also experienced in most parts of the Central and Northern Division (48 to 78% of normal). In contrast, *average to above average* was recorded in parts of the Eastern Division.

In the last two months, rainfall for almost the whole of Viti Levu was *below average* with *average to above average* rainfall recorded elsewhere. On a three-month scale the area of below average rainfall is smaller and only covers the Western Division, Suva and Ono-i-Lau. Average to above average rainfall has been recorded else-

where.

Both day and night-time air temperatures were generally *above average* across the country with maximum air temperatures generally in the lower thirties. There were 18 new air temperature records set in June both in terms of daily values and monthly averages (Table 2).

The Southern Oscillation Index rose sharply in June and the equatorial Trade Winds were much stronger than average. Also cloud cover in the equatorial Pacific near the equator was also consistently below normal during the month. These are all indicators of a developing La Niña event. All dynamical computer models predict continued development of La Niña conditions in 2007.

Based on the current observations and model forecasts, Fiji's rainfall is likely to shift from *below average*, as observed in substantial part of the country recently, to *average and in cases above average* in the coming three months.

WEATHER PATTERNS

The sub-tropical high pressure systems and associated ridges were the main features influencing Fiji's weather in June. This resulted in dry Trade Wind flow being dominant over the Group with brief episodes of strong winds over coastal waters. This pattern was only occasionally broken by weak, eastward-moving frontal systems or the convergence zone drifting southwards and causing rainfall in eastern and northern areas of the group.

In the first week of June, a relatively moist easterly wind flow across the group caused showers over most places, with frequent and substantial falls over the interior and eastern parts of the larger islands. Also during this period a strong wind warning was issued for all coastal waters.

From 8 to 12 June, a high pressure system to the southwest of Fiji directed dry southeast trades over the country, resulting in fine weather over most places. A weak front followed this system causing showers about the interior and eastern parts of the main islands until 15 June. Fine weather conditions subsequently settled in until

18 June due to extension of a ridge over the country from the southwest.

Later on 18 June, a convergence zone drifted southwards to lie just north of Fiji. Showers occurred mainly about the northern, interior and eastern parts of the main islands until 20 June.

Apart from brief isolated showers, stable weather set in from 21 June as another ridge of high pressure from the southwest affected Fiji. However, late on 24 June, a slow-moving weak front started to cause showers as it moved eastwards over the southern parts of Fiji. This front cleared the Group on 28 June under the influence of another ridge pushing in from the southwest. This ridge caused another period of dry southeast trades and subsequently generally fine weather until the end of the month.

Rainfall at Rotuma was largely from the South Pacific Convergence Zone, though notably less than normal for the month of June.

RAINFALL IN LAST THREE MONTHS, TEMPERATURES AND HUMIDITY

Rainfall in June was *below average* to *well below average* across the country except at Lakeba and Matuku in the Lau Group where *above average* rainfall was recorded. Parts of the country that received *well below average* rainfall were most of the Western Division and Suva in the Central Division. A new low monthly record for June was set at Viwa in the Mamanuca Group.

Rainfall for the April to June 2007 period was predicted to *vary around average*. The *confidence level* was *moderate to low*. Actual rainfall over the April to June period ranged from *below average* to *above average*. Eight of the twenty recording sites received *below average* rainfall, eight sites received *average* rainfall while Matei, Udu Point, Lakeba and Ono-i-Lau received *above average* rainfall.

Maximum Air Temperatures were *above average* across the country with the warmest areas in the Western Division. Notably, eight new records were set this month (table 2). The highest positive departures from normal were recorded at Viwa Island (2.9°C), Rarawai Mill (2.1°C), Nacocolevu (2.0°C) and Penang Mill (1.8°C).

Minimum Air Temperatures were *generally above average* across the country. Ten new records were set in June this year (table 2). The highest positive anomalies recorded were at Vunisea and Savusavu (2.3°C), Laucala Bay (2.0°C) and Penang Mill (1.9°C).

Relative Humidity at 0900hrs varied from below average to above average. The greatest positive anomalies were recorded at Levuka (5.2%), Udu Point (4.5%) and Matei (2.8%). The greatest negative anomalies were recorded at Penang (7.6%), Lautoka (6.2%) and Rarawai Mill (4.0%).

TABLE 1 : THREE MONTH RAINFALL : APRIL TO JUNE 2007

<u>Station</u>	<u>Actual Rainfall (mm)</u>	<u>Rainfall in the last three months (Below average, average or above average)</u>	<u>No. of Rain days in April 07 (% of total rain)</u>	<u>No. of Rain days in May 07 (% of total rain)</u>	<u>No. of Rain days in June 07 (% of total rain)</u>
Penang Mill	300.7	Below Average	18 (65)	12 (27)	4 (8)
Monasavu Dam	705.1	Below Average	22 (49)	18 (26)	18(25)
Rarawai Mill, Ba	181.7	Below Average	14 (88)	06 (8)	2 (4)
Nacocolevu	237.9	Below Average	12 (66)	10 (28)	4 (6)
Viwa Island	190.5	Below Average	11 (81)	08 (18)	3 (1)
Lautoka (FSC Res.)	284.1	Average	16 (85)	08 (15)	1 (0)
Nadi Airport	228.7	Below average	17 (87)	06 (12)	2 (1)
*Data missing for June 22,23 and 25					
Tokotoko, Navua	770.7	Average	18 (70)	16 (17)	18 (13)
Laucala Bay, Suva	760.4	Average	24 (69)	20 (25)	18 (6)
Nausori Airport	659.9	Average	22 (49)	22 (39)	18 (12)
*Data missing for June 22,23 and 25					
Nabouwalu	444.9	Below Average	24 (36)	18 (47)	20 (17)
Labasa Airport	382.8	Average	13 (48)	11 (38)	11 (14)
Savusavu Airport	476.5	Average	15 (34)	14 (54)	12 (12)
Udu Point	714.1	Above Average	16 (48)	16 (43)	12 (9)
Matei Airport	816.7	Above Average	29 (47)	29 (42)	18 (11)
*Data missing for June 22,23 and 25					
Lakeba Is.	838.3	Above Average	19 (62)	15 (21)	9 (17)
Matuku Is *	471.4	Average	17 (46)	10 (26)	8 (28)
Ono-I-Lau Is.	511.2	Above Average	15 (35)	16 (56)	5 (9)
Vunisea, Kadavu	523	Average	22 (46)	20 (45)	10 (9)
*Data missing for April 18 and 30					
Rotuma	743.3	Average	21 (40)	17 (44)	19 (16)

TABLE 2 : NEW CLIMATE RECORDS IN JUNE 2007

<u>Element</u>	<u>Station</u>	<u>Observed (record)</u>	<u>On (date)</u>	<u>Rank</u>	<u>Previous (record)</u>	<u>Year</u>	<u>Records Began</u>
Total Monthly Rainfall	Viwa	2.3mm	-	New Low	8.4mm	1998	1978
Daily Max Temp	Nadi Airport	33.8°C	21st	New High	33.5°C	1963	1942
Daily Max Temp	Nacocolevu	33.8°C	24th	New High	33.0°C	1990/1983	1938
Daily Max Temp	Rarawai	34.7°C	23rd	New High	34.5°	1983	1925
Daily Min Temp	Laucala Bay,Suva	25.1°C	24th	New High	25.0°C	1952	1942
Daily Min Temp	Savusavu	26.3°C	22nd	New High	25.5°C	2003	1956
Daily Min temp	Levuka	26.0°C	23rd	New High	24.5°C	2006	1984
Daily Min Temp	Vunisea	25.6°C	24th	New High	25.1°C	1975	1947
Mean Monthly Max Temp	Nacocolevu	30.4 °C	-	New High	29.9°C	1998/2002	1938
Mean Monthly Max Temp	Tokotoko,Navua	28.0°C	-	New High	27.8°C	2002	1992
Mean Monthly Max Temp	Viwa	31.3°C	-	New High	29.8°C	1998	1978
Mean Monthly Max Temp	Labasa Airfield	30.8°C	-	New High	30.7°C	1977	1956
Mean Monthly Max Temp	Lautoka	30.5°C	-	New High	30.4°C	2002	1930
Mean Monthly Min Temp	Udu Point	24.3°C	-	New High	24.0°C	1973	1951
Mean Monthly Min Temp	Monasavu	18.4°C	-	New High	17.8°C	1992	1980
Mean Monthly Min Temp	Lakeba	23.6°C	-	New High	23.1°C	1984	1955
Mean Monthly Min Temp	Penang	23.3°C	-	New High	23.1°C	1984	1930
Mean Monthly Min Temp	Laucala Bay, Suva	23.4°C	-	New High	22.7°C	1992	1942
Mean Monthly Min Temp	Vunisea	22.9°C	-	New High	22.1°C	1961	1947

Figure A

Nadi Airport - Temperature & Rainfall Records for the last 13 Months
(June 2006 - June 2007)

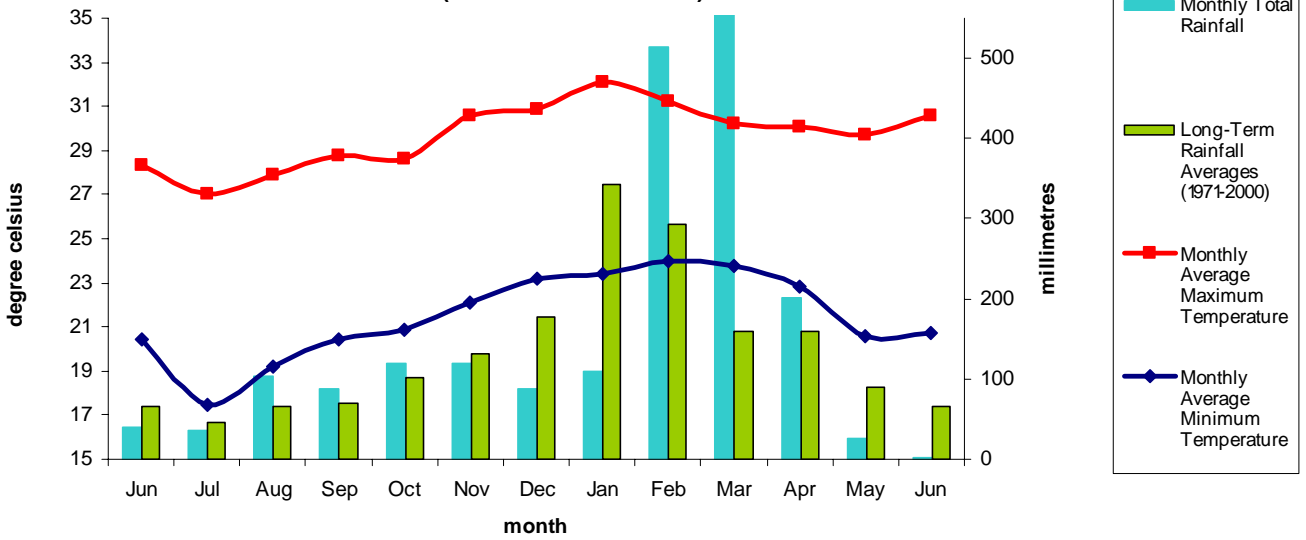


Figure B

Labasa Airfield - Temperature & Rainfall Records for the last 13 Months
(June 2006 - June 2007)

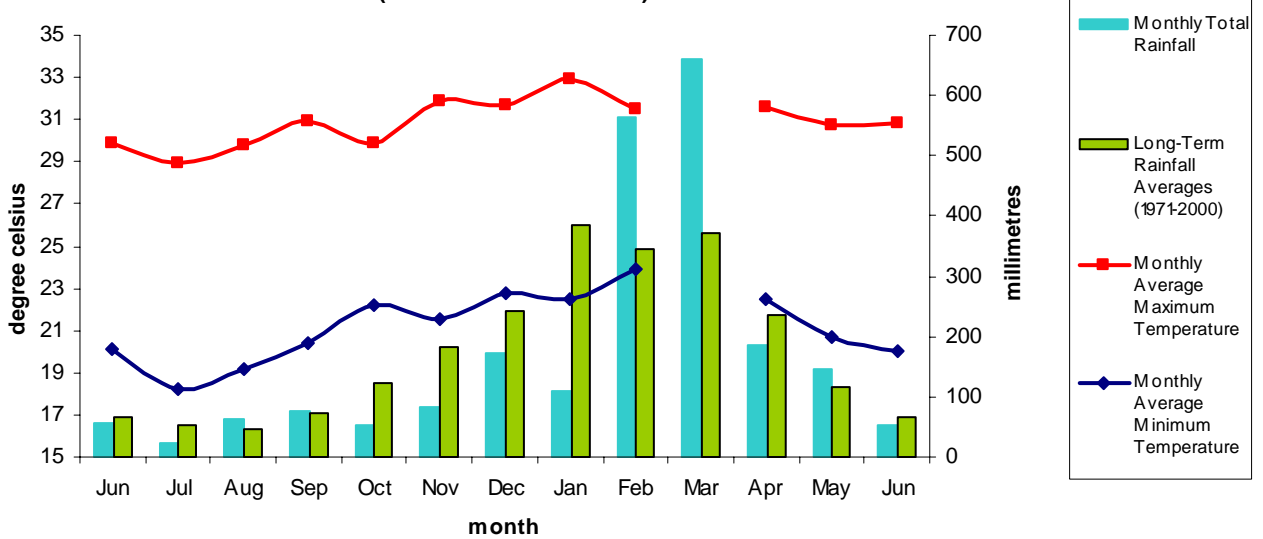
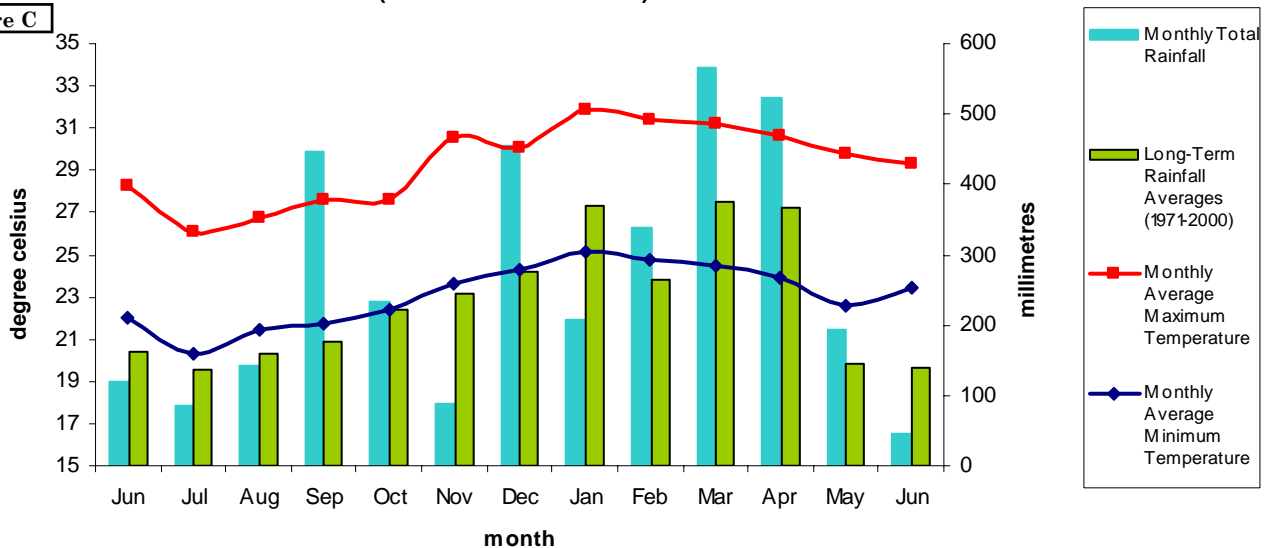


Figure C

Laucala Bay/Suva - Temperature & Rainfall Records for the last 13 Months
(June 2006 - June 2007)



PRELIMINARY CLIMATOLOGICAL SUMMARY FOR JUNE 2007

PRELIMINARY CLIMATOLOGICAL DATA FOR MONTH 6 , 2007 : SUMMARY FOR DAYS 1 TO 30

	RAINFALL					AIR TEMPERATURES							SUNSHINE		
	TOTAL	RAIN		MAX.		AVERAGE DAILY				EXTREME			TOTAL		
	MM	%	* DAYS	MM	ON	MAX.	#	MIN.	#	MAX.	MIN.	C	ON	HRS	%
NADI AIRPORT	2	2	2	1	1	30.6	1.6	20.7	1.5	33.8	21	17.9	11	248	122
SUVA/LAUCALA BAY	44	27	18	11	1	29.3	1.6	23.4	2.0	31.2	23	20.6	30	162	116
NACOCOLEVU	14	19	4	10	2	30.4	2.0	19.8	1.1	33.8	24	14.8	11	161	108
ROTUMA	117	50	19	21	14	30.8	1.2	24.8	0.2	32.1	4	23.6	2	243	129
VIWA	2	3	3	1	3	31.3	2.9	24.6	1.4	32.4	16	22.9	13		
UDU POINT	66	57	12	19	14	29.4	0.7	24.3	1.2	31.8	2	22.1	3		
LABASA AIRFIELD	52	77	11	20	2	30.8	1.1	20.0	1.1	32.8	22	16.5	11		
NABOUWALU	77	78	20	12	2	27.7	0.6	23.9	1.3	29.5	22	22.4	1		
SAVUSAVU AIRFIELD	56	48	12	20	2	28.5	0.6	23.1	1.5	31.5	21	20.0	14		
MATEI AIRFIELD	88	71	18	34	1	28.6	0.6	23.5	1.3	30.0	6	22.0	1		
YASAWA-I -RARA	NO REPORT														
VATUKOULA	NO REPORT														
MONASAVU	174	68	18	33	3	23.1	1.3	18.4	2.3	26.1	22	15.7	30		
NAUSORI AIRPORT	79	52	18	14	4	28.3	1.1	21.8	1.3	30.0	20	19.0	12		
NAVUA/TOKOTOKO	100	51	18	20	2	28.0	1.2	21.3	1.1	30.5	21	17.7	30		
LEVUKA	31	19	12	9	8	28.7	1.1	23.6	1.4	30.5	15	22.0	12		
LAKEBA	141	180	9	56	2	27.7	0.5	23.6	1.6	29.2	22	20.6	12		
MATUKU	133	123	8	38	2	28.1	1.2	23.3	1.6	31.2	22	18.9	4		
VUNI SEA	45	36	10	16	1			22.9	2.3			20.4	30		
ONO-I -LAU	47	53	5	30	2	27.2	1.3	22.3	0.9	30.1	23	19.5	17		
BA/RARAWAI MI LL	7	8	2	6	3	32.1	2.1	18.9	0.9	34.7	23	15.3	13		
LAUTOKA AES	1	1	1	1	7	30.5	1.7	21.5	0.8	32.2	21	18.8	30		
PENANG MI LL	25	25	4	14	3	29.5	1.8	23.3	1.9	31.8	3	20.0	12		

RAINFALL OUTLOOK FOR FIJI ISLANDS - JULY TO SEPTEMBER 2007

There are renewed signs from the Pacific Basin which are consistent with the early stages of a La Niña event. The Southern Oscillation Index has risen sharply, the Trade Winds are much stronger than average and the cloud cover in the Pacific near the equator has been consistently below normal during June. These are all positive indicators for a possible La Niña. Furthermore, all major international coupled models show further cooling of the equatorial Pacific Ocean over the coming months, suggesting there is a distinct likelihood of a La Niña event occurring in 2007.

After surveying various dynamical and statistical prediction models, including refined SCOPIC model used by FMS, rainfall in Fiji is expected to be *average to above average* from July to September 2007. While majority of the sites are likely to experience *average to above* rainfall over the forecast period, there may be areas that could experience *below average* rainfall. The confidence level of the prediction is *moderate*.

(More detailed climate predictions will follow in the 'Fiji Islands Climate Outlook' to be released in mid June)

Normal - Represents average form 1971 to 2000 period.

Average - Rainfall between 80 to 119%.

Well Below Average - Rainfall less than 39%.

Above Average - Rainfall between 120 to 199%.

Below Average - Rainfall between 40 to 79%.

Well Above Average - Rainfall more than 200%.

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