

Fiji Islands Weather Summary

May 2006

Rainfall Outlook till August 2006

FIJI METEOROLOGICAL SERVICE

Inside this issue:

In Brief and Weather Patterns	1
Rainfall Table Rainfall In Three Months Forecast Verification	2
Temperature and Rainfall Graphs (Nadi, Labasa and Suva)	3
Other Climatic Variables and New Records Table	4
ENSO Status and SOI Graph	5
Rainfall Predictions and Outlook Preliminary Climate Data Summary	6
SCOPIC Sites Specific Forecast	7

IN BRIEF

Following a relatively dry April, May saw a marked improvement in rainfall resulting in majority of sites receiving close to or above average rainfall.

The wettest area was around Nadi in the Western Division which received two and a half times its average rainfall for the month. This was achieved despite only 5 days of rainfall at the site. Other parts of the Western Division received near average rainfall except for areas around Tavua/Rakiraki which received below average rainfall.

Northern Division recorded considerably lower than average rainfall with Matei recording well below average rainfall of 36% of monthly rainfall.

Sites in the Central Division recorded average to above average rainfall with Nausori Airport receiving above average rainfall of 137% of *Normal*.

Rainfall in the Eastern Division was below average to well below average for all the reporting sites except Lakeba receiving above

average rainfall of 170% of *Normal* and Vunisea recording only 36% of *Normal* rainfall.

The daytime air temperatures were above average at all recording sites. New high monthly and daily average temperature records were set at various locations (table 2) around the country. The notable sites were Udu Point, Yasawa-i-Rara, Savusavu Airport, Matei, Matuku and Levuka.

The night - time air temperatures were average to above average at all sites. A new high mean monthly minimum temperature was recorded at Levuka.

The current ENSO conditions show that the Pacific Ocean, both at and below the surface has continued to warm through May returning to the neutral conditions as La Niña signals end.

Based on model predictions and current ocean and atmospheric conditions the rainfall for the next three months (June to August is expected to vary around "Average".

WEATHER PATTERNS

Two significant troughs of low pressure moved across Fiji in May and caused substantial rainfall over most areas. The interior and southeastern parts of the larger islands registered more instances of rain than other areas. Brief periods of cool and dry trade flow were also observed, signifying the gradual transition to the cool and dry season.

The first trough moved slowly eastwards across the country from the 1st till the 7th, bringing rain to most places. Heaviest falls were recorded in the southeast part of Viti Levu, with 106.1mm on the 2nd in Navua and 171.7mm in Nausori on the 4th. A ridge of high pressure extending from the southwest following this trough eventually helped displace the latter to the east, thus allowing cool and dry weather over the group till the 11th.

Between the 12th and 26th, the SPCZ lingered north of Fiji and at times drifted onto, or closer, to the northeast parts of the group. Associated moist east to southeast flow over the country was responsible for some persis-

tent showers particularly in the interior and south-eastern parts of the larger islands.

From the 27th to 30th, the SPCZ weakened significantly and moved further north resulting in an intensifying ridge pushing onto the Group from the southeast. This brought fine, warm days and cool nights across the country.

On the 31st, a slow - moving trough which had been lying to the west of Fiji since the 28th, eventually moved onto the Group. This system brought rain to most places with substantial falls over the western parts and interior of Viti Levu. In some areas, rain was accompanied by thunderstorms. Nadi managed to exceed one months rainfall in a few hours.

Rotuma registered rain for most of the month, and was largely from the SPCZ moving across the island.

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TABLE 1: RAINFALL FROM MARCH TO MAY 2006

<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 March (% of total rain)</u>	<u>No. of Rain days in April (% of total rain)</u>	<u>No. of Rain days in May (% of total rain)</u>
Penang Mill	385.8	Below Average	20 (39)	16 (44)	9 (17)
Monasavu Dam	989.7	Below Average	25 (24)	20 (53)	20 (23)
Vatukoula Mine	439.6	Below Average	15 (52)	9 (35)	9 (13)
Rarawai Mill, Ba	454.9	Below Average	14 (42)	11 (38)	7 (20)
Yasawa-I-Rara	311.9	Below Average	15 (37)	13 (29)	12 (34)
Viwa Is.	350.0	Below Average	11 (48)	11 (15)	8 (37)
Lautoka Mill(Research)	374.8	Below Average	16 (29)	11 (43)	5 (28)
Nadi Airport	533.2	Average	17 (36)	9 (21)	7 (43)
Nacocolevu, Sigatoka	-	-	-	-	-
Tokotoko, Navua	733.9	Below Average	21 (31)	16 (25)	22 (44)
Laucala Bay, Suva	676.9	Below Average	24 (29)	24 (27)	26 (44)
Nausori Airport	829.5	Average	24 (27)	24 (32)	21 (41)
Nabouwalu	321.1	Below Average	20 (32)	19 (38)	17 (30)
Labasa Airport	445.3	Below Average	10 (23)	15 (57)	12 (20)
Savusavu Airport	529.9	Below Average	11 (52)	9 (21)	16 (27)
Udu Point	635.6	Average	24 (26)	21 (58)	16 (16)
Matei Airport	679.6	Below Average	22 (34)	30 (54)	26 (12)
Lakeba Is.	384.3	Below Average	20 (23)	10 (17)	17 (60)
Matuku Is.	328.2	Below Average	17 (32)	12 (35)	14 (33)
Ono-I-Lau Is.	354.5	Below Average	9 (23)	11 (55)	10 (22)
Vunisea, Kadavu	447.0	Below Average	21 (51)	16 (35)	13 (14)
Rotuma	638.8	Below Average	25 (35)	19 (15)	24 (50)

RAINFALL IN THE LAST THREE MONTHS

Rainfall in May

The rainfall in May was mostly below average across most of the country.

Sites in the Western Division recorded variable rainfall. Rainfall ranged from 41% to 258% of Normal. Nadi Airport recorded 258% of Normal rainfall.

Central Division generally recorded average rainfall. Rainfall ranged from 105% to 137% of Normal with Nausori Airport receiving above average rainfall of 137% of Normal.

Eastern Division generally recorded below average with rainfall ranging from 36% to 170% of Normal. Vunisea recorded well below average rainfall of 36% and Lakeba recorded well above rainfall of 170% of Normal.

Northern Division recorded below average rainfall except for Matei recording well below average rainfall of 36% of Normal. Rainfall ranged from 36% to 76% of Normal.

Forecast Verification

Rainfall in the last 3-months from March to May 2006

The rainfall outlook for the period March to May 06 in the February 06 Fiji Islands Monthly Weather Summary was for rainfall to be **Average to Above Average** for most parts of the country. The confidence level of the forecast was *moderate*.

Out of the twenty sites that reported in time for this summary 17 stations received below average rainfall while Nadi Airport, Nausori Airport and Udu Point received average rainfall in the past three months.

Figure A

Nadi Airport - Temperature & Rainfall Records for the last 13 Months
 (May 2005 - May 2006)

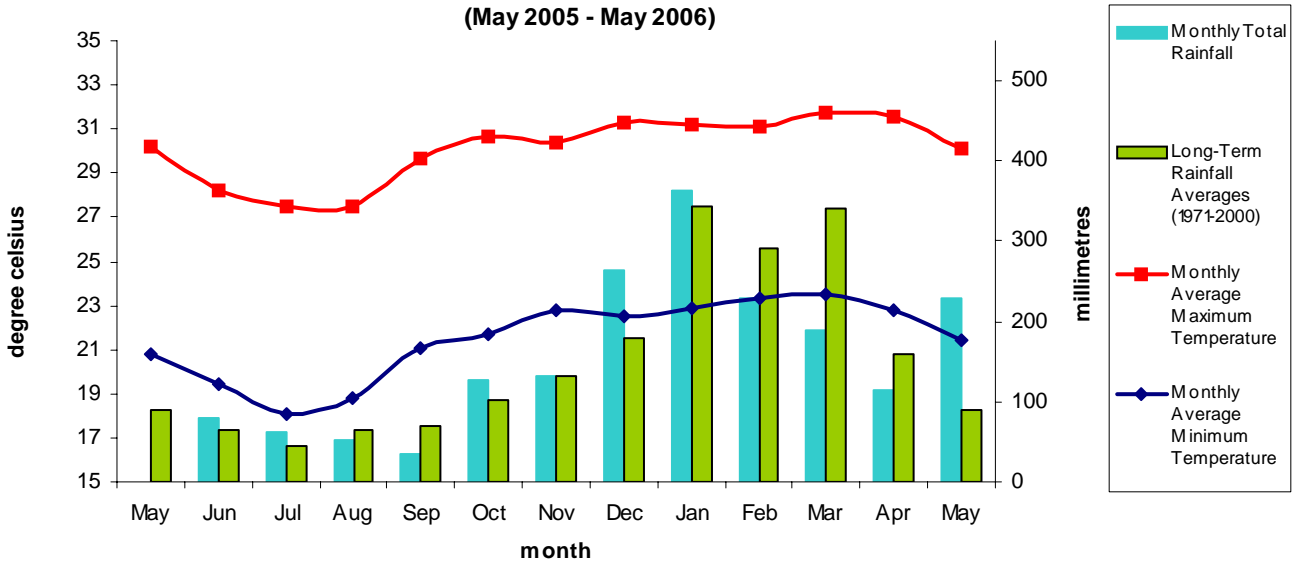


Figure B

Labasa Airfield - Temperature & Rainfall Records for the last 13 Months
 (May 2005 - May 2006)

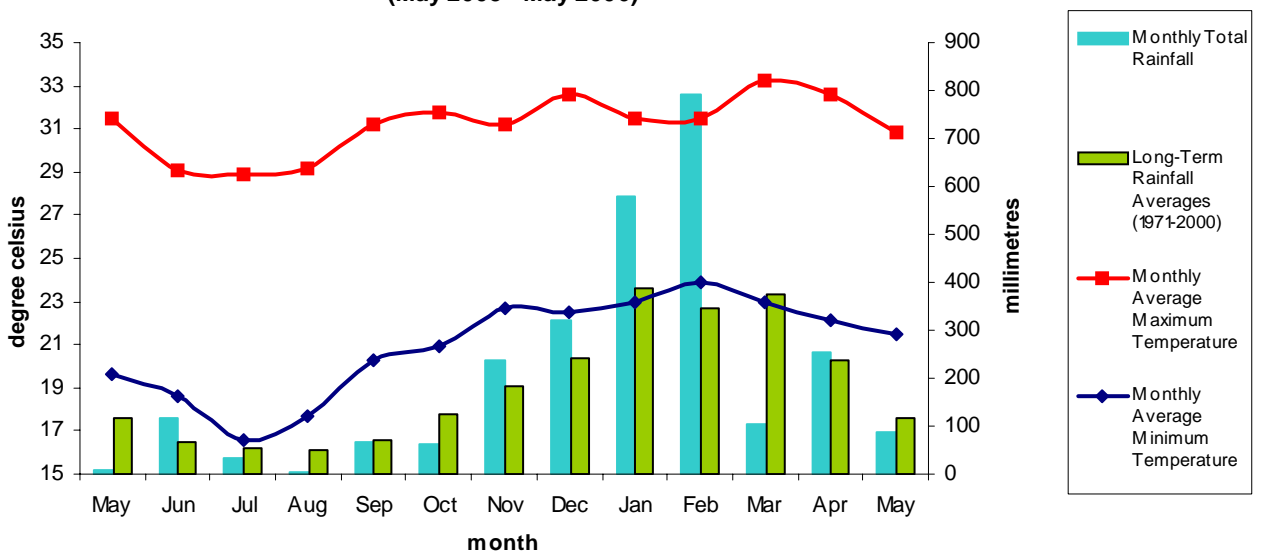
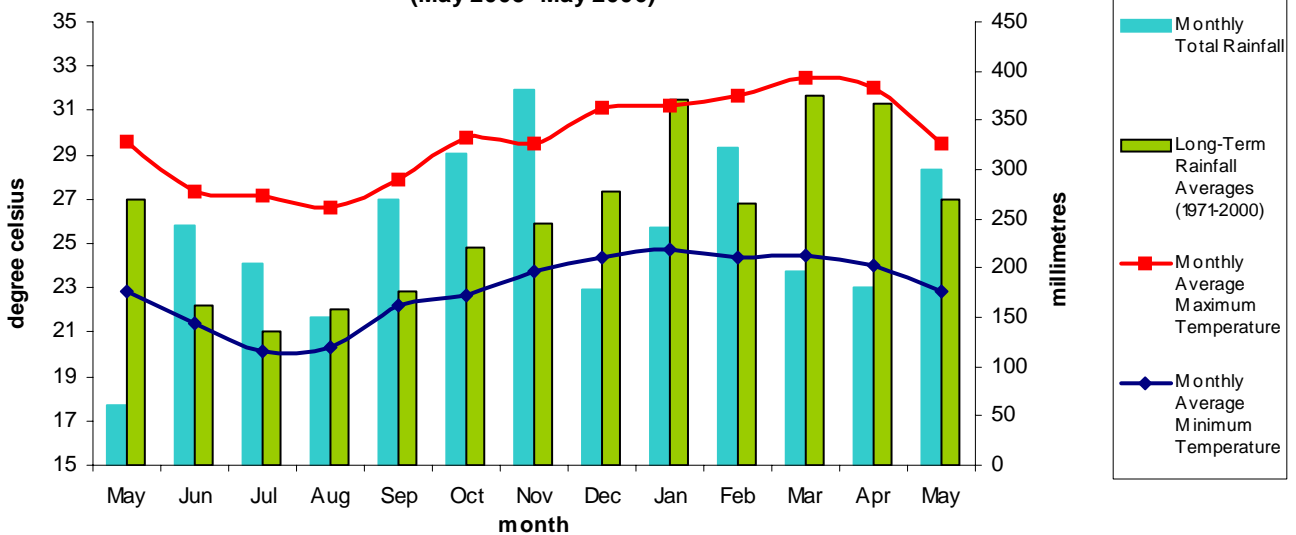


Figure C

Laulaca Bay/Suva - Temperature & Rainfall Records for the last 13 Months
 (May 2005 - May 2006)



Climate in May

MEAN DAY-TIME AND NIGHT-TIME AIR TEMPERATURES AND RELATIVE HUMIDITY AT 0900HRS.

Day-time air temperatures were above average at all of the recording sites. Greatest positive departures were recorded at Matuku (1.9°C), Yasawa I Rara (1.7°C), Nabouwalu and Nacocolevu (1.5°C), with above *Normal* respectively.

Night-time air temperatures were mostly average to above average around the country.

Relative Humidity (RH) at 0900hrs were below average across most of the country. The greatest negative departure were recorded at Ono I Lau (-4.9°C), Vunisea (-4.2°C), Matuku (-4.1°C), Vatukoula (-3.1°C) and Rarawai Mill recorded (-2.7°C).

The sites that recorded the greatest positive departures were at Nacocolevu (+3.8°C), Nadi Airport (+3.3°C), Nausori Airport (+2.6°C) and Levuka recording (+2.2 °C).

SOIL MOISTURE AND RUNOFFS

Soil moisture conditions were variable throughout the month.

In the Western Division, the soil moisture conditions was mostly moderate with some sites recording limiting to dry soil moisture conditions towards the end of the month.

Central Division recorded mostly excessive to ample soil moisture conditions during most of the month.

Sites in the Eastern Division experienced generally excessive to ample soil moisture conditions except for Ono I Lau which recorded limiting to dry soil moisture conditions through out the month.

Northern Division had moderate soil moisture conditions at the beginning of the month then limiting to dry towards the end. Udu Point recorded limiting to dry conditions in early month then excessive to ample mid month with moderate soil moisture conditions towards the end of the month.

In Rotuma the soil moisture conditions were moderate for the first few weeks and then excessive to ample throughout the rest of the month.

Significant runoff was recorded at Nausori Airport (236.4mm), Navua (227.4mm), Suva (201.8mm), and Monasavu (155.4mm).

SUNSHINE, RADIATION & WINDS

The total sunshine hours recorded were average for Nadi Airport and Nacocolevu both recording 100%. Total sunshine hours at the other two recording stations were below average with Sva/Laucala Bay(99%) and Rotuma(95%).

Global solar radiation (average per day) was 16.0 MJ/M² at Rotuma, 14.3 MJ/M² at Nadi Airport, 14.0 MJ/M² at Nacocolevu and 11.8 MJ/M² at Laucala Bay– Suva.

Monthly average wind speed were above average at all of the wind recording sites. The recordings at the different sites were: Nabouwalu 4.3 knots, Nadi Airport 0.3knots, Nausori Airport 0.7 knots, Vunisea and Rotuma both recording 1.9 knots above *Normal*

TABLE 2 : RECORDS SET IN MAY 2006

<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>
Dly Max Temp (°C)	Udu Point	34.2	1st	New High	30.3	1998	1951
Dly Max Temp (°C)	Yasawa I Rara	33.8	2nd	New High	33.6	1995	1950
Dly Max Temp (°C)	Savusavu Airport	33.0	1st	Equal High	33.0	1995	1956
Dly Max Temp (°C)	Matei	32.0	1st	Equal High	32.0	1995	1956
Mean Mly Max Temp (°C)	Udu Point	30.5	-	New High	30.3	1998	1951
Mean Mly Max Temp (°C)	Matuku	29.5	-	New High	29.1	2003	1955
Mean Mly Max Temp (°C)	Matei	29.6	-	Equal High	29.6	2002	1956
Mean Mly Min Temp (°C)	Levuka	21.5	-	New High	21.5	1999	1984

ENSO status and SOI Graph

EL NIÑO - SOUTHERN OSCILLATION

The Southern Oscillation Index (SOI) for May was -9.8 (April was +15.2) with the five-month running mean of +6 centred on March (February was +8). (See Figure D below).

After approaching La Nina condition briefly during early 2006 the La Nina signals ended and neutral conditions dominate.

The Pacific Ocean, both at and below the surface continued to warm through May. This has resulted in near, to very slightly above average temperatures in the Central Pacific. There is no longer any sign of the cooler than normal waters which were apparent during the first quarter of 2006.

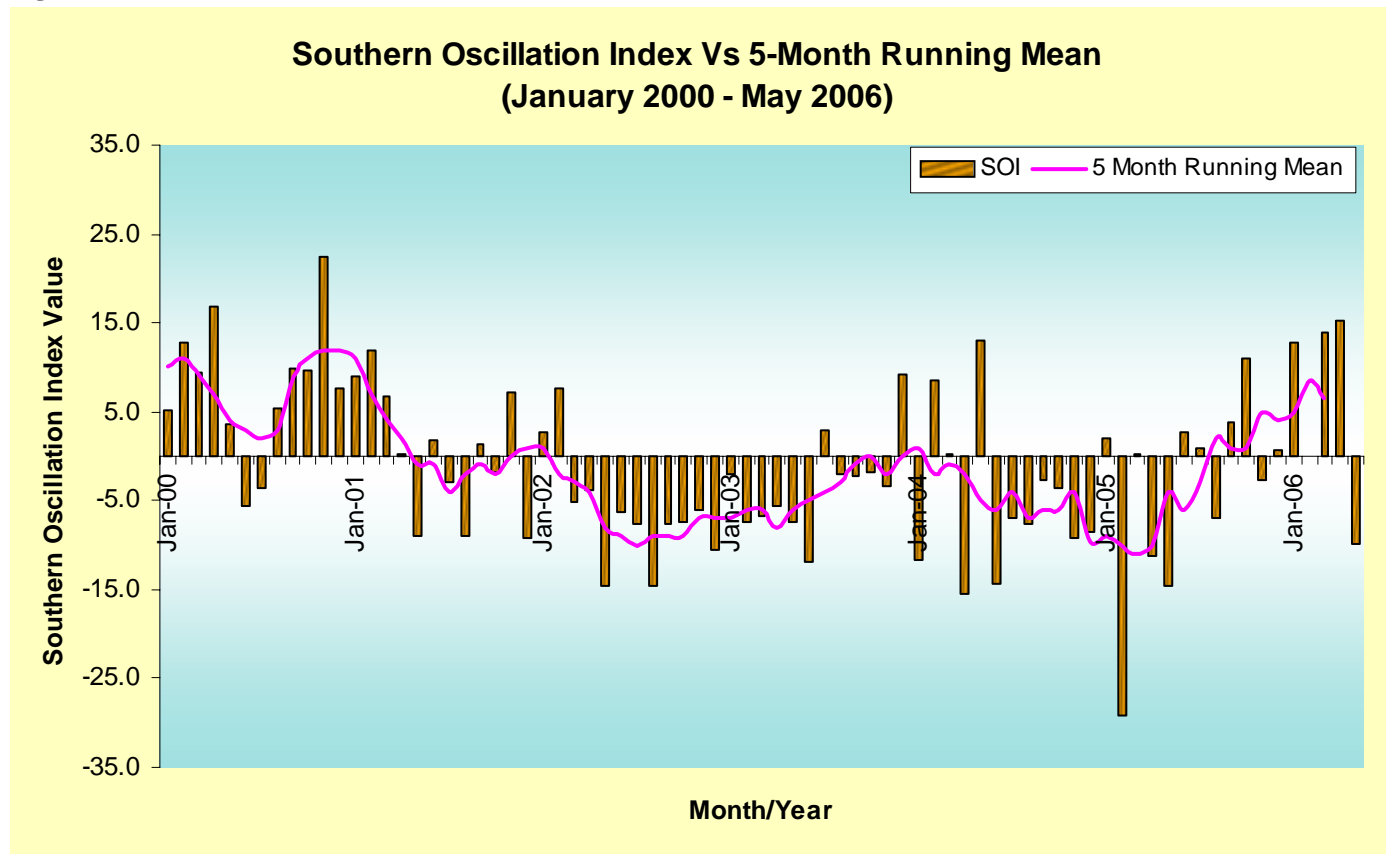
The atmosphere has responded to this return to normal ocean conditions. Trade winds are also currently near normal. Enhanced cloudiness in the western equatorial Pacific has now become suppressed. However, cloudiness on the east of the dateline has remained below normal.

During cool/warm ENSO episodes, there is a sustained strengthening/weakening of the Trade Winds across much of the tropical Pacific but a return to near average values as the ENSO event decays. Close to the equator, the Trade Winds during early May were generally slighter weaker than normal across the equatorial Pacific.

Predictions of Pacific Ocean temperatures from Australian and international computer models suggest neutral conditions will persist through the southern winter into spring. It should be noted that March to June is the period when the ability to predict future ENSO conditions is at its lowest.

For more information and interpretation, please contact Fiji Meteorological Services. (The ENSO update is provided by the Australian Bureau of Meteorology and visit the website <http://www.bom.gov.au> for a detailed information)

Figure D



RAINFALL PREDICTIONS AND OUTLOOK TO AUGUST 2006**RAINFALL OUTLOOK FOR FIJI ISLANDS**
JUNE TO AUGUST 2006

FMS currently uses "The Seasonal Climate Outlook for Pacific Island Countries (SCOPIC) Model" for seasonal rainfall guidance.

The SCOPIC software system analyses the current sea surface temperature patterns across the Pacific Ocean and then finds the most similar patterns experienced throughout the available historical period.

For a particular location, the subsequent rainfall received in historical period is then used to construct a rainfall forecast for the next three month period in a form of a tercile probability distribution. It also allows for the predictor period to be varied to produce the maximum skills.

The SCOPIC model predicts rainfall to be generally average across the country.

The model is predicting rainfall to be generally around average at Rotuma.

With the current neutral state of ocean & atmospheric conditions rainfall is likely to vary around average across the country over the next three months.

NOTE:
The confidence level of this prediction is low-moderate.

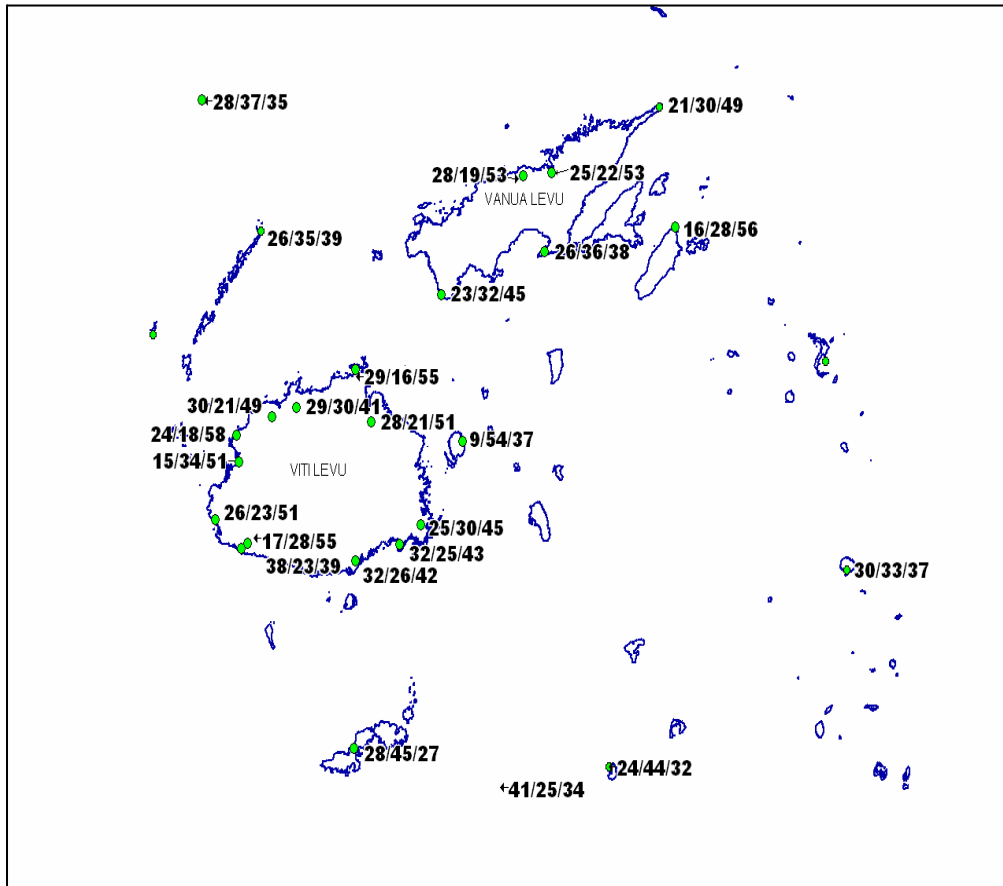
PRELIMINARY CLIMATOLOGICAL SUMMARY FOR MAY 2006

PRELIMINARY CLIMATOLOGICAL DATA FOR MONTH 5 , 2006 : SUMMARY FOR DAYS 1 TO 31

	RAINFALL					AIR TEMPERATURES						SUNSHINE			
	TOTAL	RAIN		MAX.		AVERAGE DAILY			EXTREME			TOTAL	*		
		* DAYS	FALL		ON	MAX.	#	MIN.	#	MAX.	MIN.		*		
	MM	%	+	MM	ON	C	C	C	C	C	ON	C	ON	HRS	%
NADI AIRPORT	229	258	7	96	31	30.1	0.4	21.4	1.2	32.4	2	18.8	30	208	100
SUVA/LAUCALA BAY	300	111	26	72	12	29.5	1.0	22.8	0.6	32.8	4	20.1	29	145	99
NACOCOLEVU	140	165	5	56	31	30.4	1.5	20.4	0.7	33.5	3	17.2	30	160	100
ROTUMA	322	109	24	52	19	31.1	1.1	24.8	0.2	32.9	3	21.0	20	180	95
VIWA	131	117	8	87	4	30.5	1.3	25.1	1.1	33.2	1	22.2	6		
UDU POINT	101	60	16	35	6	30.5	1.3	24.4	0.9	34.2	1	22.0	30		
LABASA AIRFIELD	88	76	12	31	11	30.8	0.6	21.5	1.6	33.4	11	17.4	30		
NABOUWALU	98	57	17	24	20	29.3	1.5	23.8	0.6	32.8	1	20.1	20		
SAVUSAVU AIRFIELD	141	72	16	18	13	29.5	1.0	21.2	-1.1	33.0	1	18.5	29		
MATEI AIRFIELD	84	36	26	20	16	29.6	1.2	23.4	0.5	32.0	1	18.0	20		
YASAWA-I-RARA	107	126	12	36	7	30.6	1.7	24.0	0.5	33.8	2	21.6	21		
VATUKOULA	55	70	9	26	3	31.4	1.1	20.8	1.3	32.9	12	16.9	22		
MONASAVU	225	68	20	64	31	23.1	0.8	17.8	0.8	25.7	1	15.0	4		
NAUSORI AIRPORT	341	137	21	171	4	28.8	1.0	21.7	0.6	31.9	4	19.0	29		
NAVUA/TOKOTOKO	323	105	22	106	2	28.4	1.1	21.1	0.2	31.0	4	18.0	30		
ST. JOHNS COLLEGE	129	78	22	27	12	29.0	0.8	23.8	0.9	31.5	3	22.0	15		
LAKEBA	231	170	17	90	7	28.5	0.5	23.2	0.5	31.5	3	19.6	30		
MATUKU	109	71	14	27	5	29.5	1.9	24.1	1.6	31.4	8	22.0	6		
VUNISEA	63	36	13	15	31	28.3	1.0	23.0	1.5	32.0	3	20.3	14		
ONO-I-LAU	78	74	10	20	3	27.8	1.1	22.1	0.0	30.6	3	19.5	21		
BA/RARAWAI MILL	95	100	7	38	3	31.4	0.8	20.5	1.4	32.8	16	16.0	30		
LAUTOKA AES	105	125	5	75	31	30.5	1.0	22.1	0.6	32.0	25	19.8	30		
PENANG MILL	65	41	9	38	31	30.5	2.0	22.8	0.7	32.7	2	20.3	22		

Three Month Rainfall Outlook Probabilities for May to July 2006

FIGURE E: Three Month Forecast for Selected Stations in Fiji using the Fiji Meteorological Services Rainfall Prediction Model. The forecast probabilities are presented as



DRY/NORMAL/WET

‘**DRY**’ range refers to rainfall less than 33rd percentile.

‘**NORMAL**’ (average) range refers to rainfall between 33rd and 67th percentiles.

‘**WET**’ range refers to rainfall above 67th percentile.

Reference Table for 33rd and 67th Percentiles

Station	33% (mm)	67% (mm)
Western Division		
Doboilevu	196.4	297.6
Vatukoula	146.2	212.6
Rarawai	136.4	212.4
Penang	163.4	230.7
Lautoka	113.4	211.1
Nadi	121.0	208.2
Lomawai	128.4	250.6
Nacocolevu	178.0	278.0
Olosara	200.2	278.4
Yasawa	132.2	237.0
Central Division		
Navua	487.2	664.7
Suva	368.4	505.0
Nausori	363.2	495.1
Eastern Division		
Levuka	301.7	397.3
Lakeba	184.5	298.9
Matuku	260.9	365.7
Ono-I-Lau	252.2	338.0
Vunisea	284.0	425.7
Northern Division		
Labasa Mill	110.1	170.7
Seaqaqa	111.8	199.6
Nabouwalu	236.0	375.0
Savusavu	237.1	386.7
Udu Point	238.5	415.1
Matei	254.9	383.9
Rotuma	573.3	823.3

FIGURE F: Reference Map of selected Climate/Rainfall sites in Fiji

