Volume 6: Issue: 4

Fiji Islands Weather Summary April 2006

Rainfall Outlook till July 2006

FIJI METEOROLOGICAL SERVICE

Inside this issue:

IN BRIEF

April 2006 was relatively warm and dry in most places compared to recent two years which were relatively wet. Despite passage of a few troughs, higher temperatures and the absence of usual persistent active weather systems during the month resulted in majority of the sites receiving average to below average rainfall. Considerably lower than average rainfall was recorded in the Central Division. There were three sites (Viwa, Lakeba and Rotuma) that received well below average rainfall during the month.

In the Western Division, about 60% of the sites received below average rainfall.

All the sites in the Central Division recorded below average rainfall for the second consecutive month. Notably Suva and Navua recorded below 50% of normal rainfall.

Rainfall in the Eastern and Northern Divisions varied considerably during the month and ranged from 129% - 32% and 134% - 41% respectively.

The daytime temperatures were relatively warmer during the month that caused discomfort. New high monthly daily and average temperature records were set at various locations (table 2) around the country. Majority of the sites reported above 1.0˚C. and Nacocolevu, Yasawa, Viwa, Monasavu, Nabouwalu, Suva and Matuku recorded 2.0˚C above normal.

The night time temperatures were near average to above average at all the sites. However there were some sites that experienced relatively warmer nights in April.

The current ENSO conditions show that the Pacific is currently returning to the neutral conditions as La Nina signal weakens and neutral conditions will continue over the dry and early wet seasons of 2006.

The rainfall for the next three months (May to July is expected to vary around "Average".

WEATHER PATTERNS

Four major troughs traversed the Fiji Group during April. The troughs brought extensive rain over the group with the third trough having the most impact. During the passage of the third trough Matei and Udu recorded 218.3mm and 130.5mm of rain respectively on the 18th. Monasavu recorded 173mm and 156mm respectively on the 17th and 18th. Tambua Sands recorded 185.5mm on the 19th.

The first trough remained slow moving in the area between Fiji and Rotuma from the 01st to the 8th causing showers mostly over northern Yasawa, Vanua Levu and Lau and Lomaiviti groups. Udu Point recorded 91.2mm on the 5th. Afternoon showers and thunderstorms were also recorded over the western parts of the main islands during this period. The second trough moved onto Rotuma then onto Fiji on the 10th before drifting southwest to become slow moving to the southwest of Kadavu from the 12th to the 14th.
On the 15th a third trough of low pressure moved over the group from the northeast. This trough remained over the group for the next 10 days causing extensive rain across the country with significant heavy falls recorded in some areas. A few low pressure circulations developed along this trough but were not significant. The trough finally moved east on the 24th leaving light and variable winds across the group. Though the trough remained over the group it had weakened considerably on the 21st with fine conditions prevailing across the group from the 21st to the 29th.

The fourth trough slowly moved towards Fiji from the west on the 25th becoming slow moving over the western and southwestern parts of the group during the last two days of the month. This maintained the moist east to northeast winds over the group.

Wet conditions continued over Rotuma during April due to the close proximity of the SPCZ and the passage of a number of easterly waves.

Further Information:

The Director
Fiji Meteorological Service
Private Mail Bag NAP 0351
Nadi Airport
Fiji

Ph: (679) 672 4888
Fax: (679) 672 0430

Email: fms@met.gov.fj
Web Site: www.met.gov.fj

TABLE 1: RAINFALL FROM FEBRUARY TO APRIL 2006

Station	Actual Rainfall (mm)	Rainfall in the last three months (Below average, average or above average)	No. of Rain days in February (% of total rain)	No. of Rain days in March (% of total rain)	No. of Rain days in April (% of total rain)
Penang Mill	725.3	Below Average	22 (56)	20 (20)	16 (24)
Monasavu Dam	1282.6	Below Average	23 (40)	25 (19)	20 (41)
Vatukoula Mine	813.8	Average	19 (53)	15 (28)	9 (19)
Rarawai Mill, Ba	630.0	Below Average	19 (43)	14 (30)	11 (27)
Yasawa-I-Rara	435.1	Below Average	18 (53)	15 (27)	13 (20)
Viwa Is.	352.8	Below Average	13 (38)	11 (47)	11 (15)
Lautoka Mill(Research)	491.7	Below Average	14 (45)	16 (22)	11 (33)
Nadi Airport	532.6	Below Average	15 (43)	17 (36)	9 (21)
Nacocolevu, Sigatoka	-	-	-	15	6
Tokotoko, Navua	699.3	Below Average	18 (41)	21 (33)	16 (26)
Laucala Bay, Suva	699.1	Below Average	23 (46)	24 (28)	24 (26)
Nausori Airport	805.5	Average	23 (39)	24 (28)	24 (33)
Nabouwalu	491.9	Below Average	21 (55)	20 (21)	19 (24)
Labasa Airport	1150.6	Above Average	23 (69)	10 (09)	15 (21)
Savusavu Airport	644.4	Average	12 (40)	11 (43)	9 (17)
Udu Point	830.9	Average	18 (36)	24 (20)	21 (44)
Matei Airport	883.3	Average	27 (33)	22 (26)	30 (41)
Lakeba Is.	260.0	Well Below Average	18 (41)	20 (33)	10 (26)
Matuku Is.	-	-	-	17	12
Ono-I-Lau Is.	380.6	Below Average	11 (27)	9 (21)	16 (27)
Vunisea, Kadavu	580.0	Average	19 (34)	21 (39)	16 (27)
Rotuma	718.1	Below Average	24 (56)	25 (31)	19 (13)

RAINFALL IN THE LAST THREE MONTHS

Rainfall in April

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

Sites in the Western Division recorded well below average to average rainfall. Rainfall ranged from 23% to 100% of Normal. Viwa Island recording 23% of Normal rainfall.

Central Division recorded below average rainfall for all the sites. Rainfall ranged from 49% to 74%.

Eastern Division recorded well below average to above average rainfall. Lakeba recorded 32% of Normal rainfall while Ono-I-Lau recorded 129% of Normal Rainfall.

Northern Division recorded below average to above average rainfall. Udu Point and Matei recorded 134% and 122% of Normal rainfall respectively. Rainfall ranged from 41% to 134%.

Forecast Verification

Rainfall in the 3-months from February to April 2006

The rainfall outlook for the period February to April 06 in the January 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 nineteen sites that reported in time for this summary Lakeba received well below average rainfall, 11 sites received below average rainfall, 6 sites received average rainfall and Labasa Airport was the only site receiving above average rainfall in the past three months.

Figure A

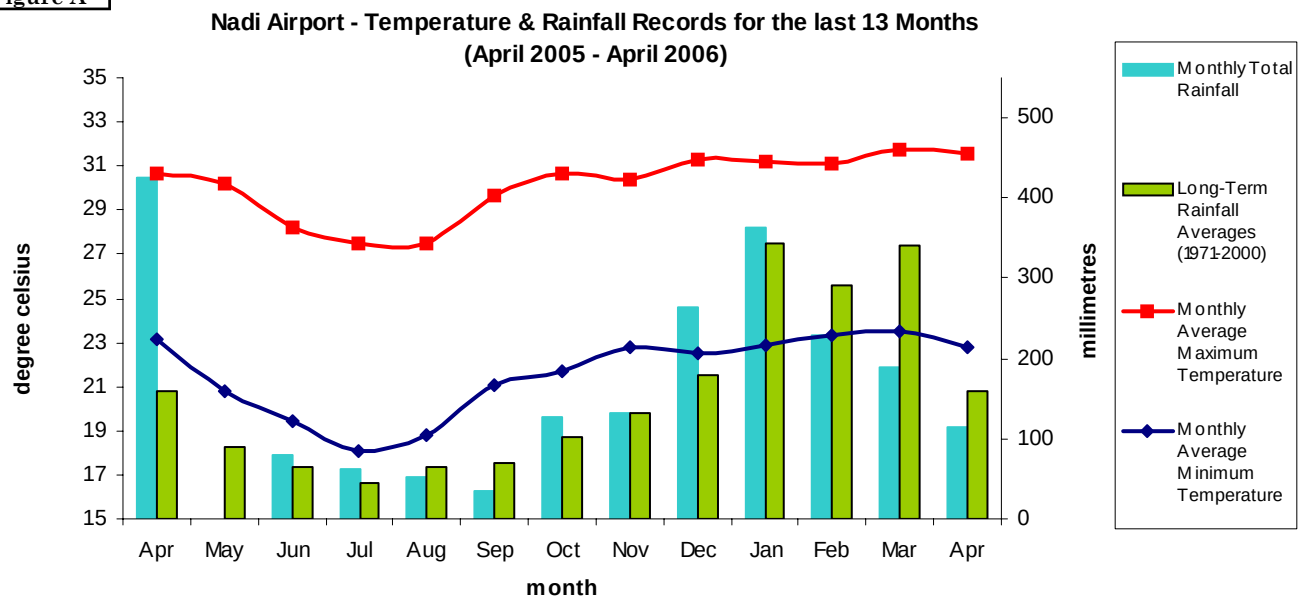


Figure B

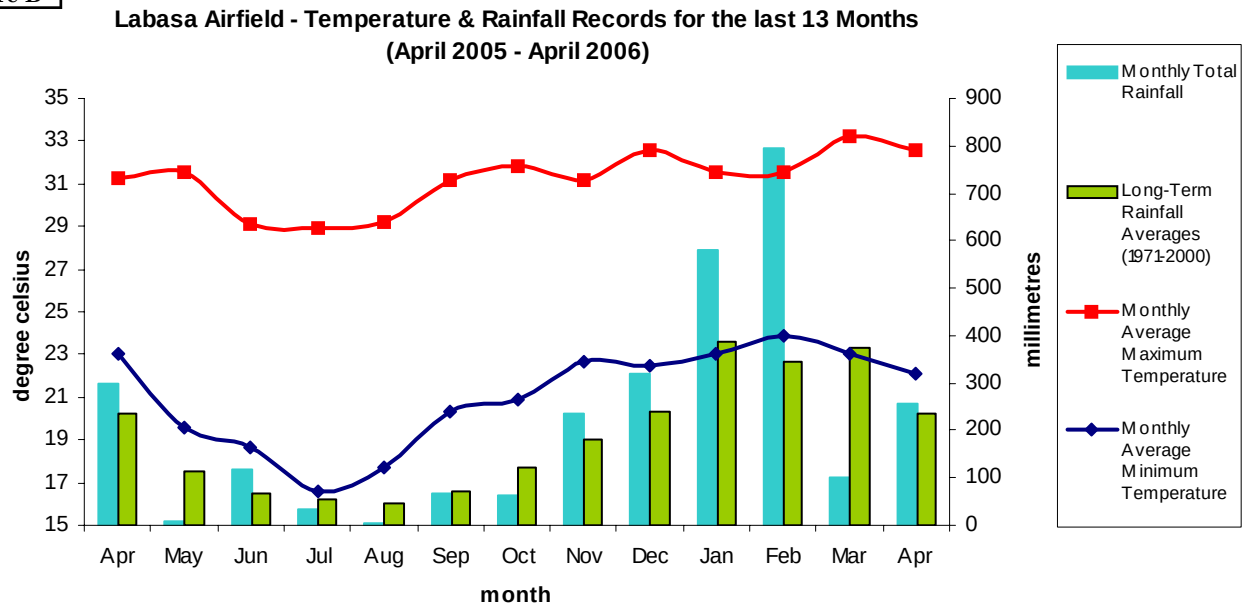
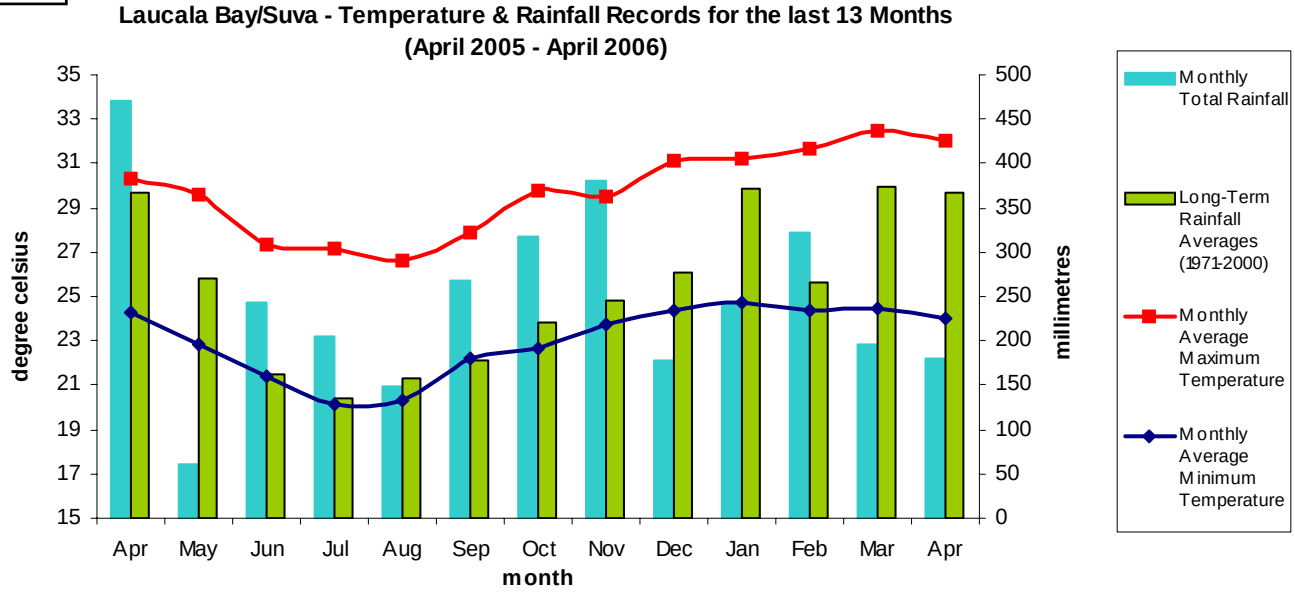


Figure C



Climate in April

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 Yasawa-I-Rara(2.8 °C), Nabouwalu (2.5°C), Ono-I-Lau (2.3°C), Nacocolevu and Monasavu (2.2 °C), with above *Normal* respectively.

Night-time air temperatures were mostly average to above average around the country. The only notable departure was at Navua, Tokotoko (0.1°C) below *Normal*.

Relative Humidity (RH) at 0900hrs were below average across most of the country. The greatest negative departure were recorded at Yasawa-I-Rara (-4.6°C), Vatukoula Mine (-4.2°C), Savusavu (-3.1°C), Suva and Matuku both recording (-2.7°C).

The sites that recorded the greatest positive departures were at Penang Mill (+4.7°C), Nadi Airport (3.9°C), Udu Point and Matei both recording (+2.9 °C).

SOIL MOISTURE AND RUNOFFS

Soil moisture conditions were variable throughout the month.

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

Central Division recorded soil moisture conditions to be generally excess to ample during most of the month.

Sites in the Eastern Division experienced generally limiting to dry soil moisture conditions with Vunisea recording excess to ample in the beginning of the month followed by moderate soil moisture conditions mid month with excess to ample soil moisture conditions towards the end of the month.

Northern Division experienced generally excessive to ample and moderate soil moisture conditions. Labasa Airfield recorded moderate to limiting to dry soil moisture conditions.

In Rotuma the soil moisture conditions were excess to ample early month, moderate mid month and limiting to dry during the last few days of the month.

Significant runoff was at Monasavu (430.2mm), Udu Point (254.4mm), Matei (254.1mm), and Nausori Airport (123.9mm).

SUNSHINE, RADIATION & WINDS

The total sunshine hours were below average at all the reporting stations with Nadi Airport and Rotuma both recording(67%), Laucala Bay-Suva (61%) and Nacocolevu with (54%).

Global solar radiation (average per day) was 22.0 MJ/M² at Nacocolevu, 17.8 MJ/M² at Nadi Airport, 16.7 MJ/M² at Laucala Bay-Suva an 24.0 MJ/M² at Rotuma.

Monthly average wind speed was mostly below average at most of the wind recording sites. The sites that recorded above average wind speed were Nabouwalu, Vunisea and Rotuma respectively recording 5.5 knots, 4.3 knots and 0.2 knots above *Normal.*

TABLE 2 : RECORDS SET IN APRIL 2006

Element	Station	Observed (record)	On	Rank	Previous (record)	Year	Records Began
Dly Max Temp (°C)	Labasa Airfield	34.4	8th	New High	34.2	2005	1956
Dly Max Temp (°C)	Vatukoula	35.6	4th	New High	34.8	1996	1984
Dly Max Temp (°C)	Navua	32.6	9th	New High	32.5	2005	1992
Dly Min Temp (°C)	Monasavu	23.0	8th	New High	22.0	2005	1980
Dly Min Temp (°C)	Levuka	27.0	4th	New High	23.0	1999	1984
Dly Min Temp (°C)	Lakeba	27.9	3rd	New High	27.7	1970	1955
Dly Min Temp (°C)	Rarawai Mill	26.5	5th	New High	25.6	1974	1925

ENSO status and SOI Graph

EL NIÑO - SOUTHERN OSCILLATION

The Southern Oscillation Index (SOI) for April was +15.2 (March was +13.8) with the five-month running mean of +8 centred on February (January was +5). (See Figure D below).

After approaching La Nina condition briefly during early 2006, the Pacific Ocean has warmed steadily throughout April, resulting in the surface and subsurface temperature close to average.

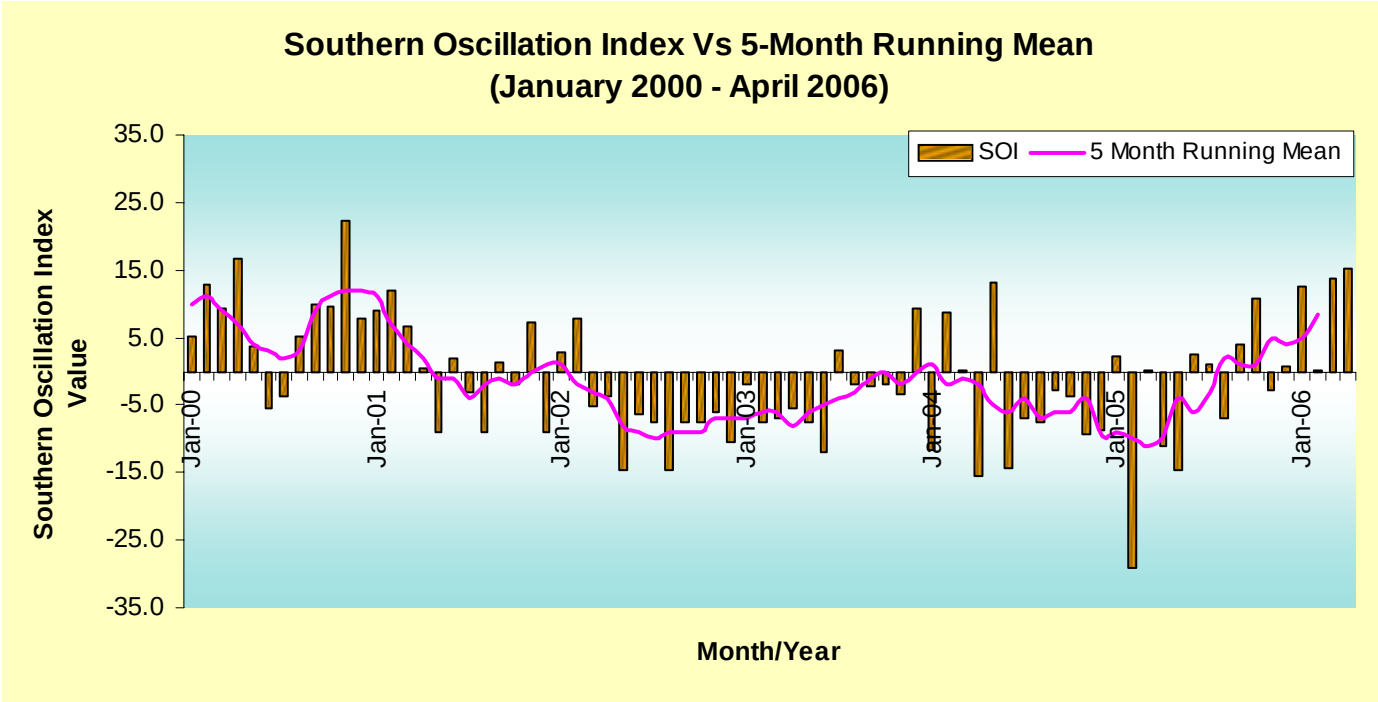
The overall ENSO pattern show a neutral Pacific as La Nina signals weaken. The subsurface waters in the eastern half of the Pacific for April show an eastward contraction and weakening of cool anomalies. The latest results of weekly subsurface temperatures show warm temperature anomalies above the level of the thermocline across the equatorial Pacific.

Trade Winds have generally been slightly stronger than average in the western Pacific and weaker than average in the eastern Pacific during the month.

In the latest survey of the computer models, most favour neutral temperature patterns in September and December. This means that neutral ENSO conditions are likely to continue during the dry season and early wet seasons of 2006.

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



Tropical Cyclone Season—November 2005 to April 2006

The 2005/06 Tropical Cyclone Season came to an end on 30th April 2006. Fiji survived yet another year with no direct threats of cyclone.

There were four Tropical cyclones (TC) forming in Fiji's area of responsibility this season. TC *Tam* was the first one to form to the North of Wallis and Futuna on 12th January, moved over Northern Tonga than moved Southeast and finally decayed on the 14th.

TC *Urmil* formed to the North of Tonga on 14th January and moved south to southeast before being downgraded on the midnight of 15th.

TC *Jim* moved into Fiji's region on midday of 30th January. It passed over the Loyalty Islands and generally moved southeast closer to Tonga. The TC decayed on 18th February.

TC *Wati* formed on the 19th of March and was located west-northwest of Port Vila, Vanuatu moving west-southwest on March 25th. It remained over the waters away from any populated land area and decayed.

The coral sea was not as active as anticipated during neutral conditions. Moreover TC formation and movement during the later months of the season was somewhat consistent with the prevalence of weak La Nina conditions in the region.

RAINFALL PREDICTIONS AND OUTLOOK TO JULY 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 *average*

RAINFALL OUTLOOK FOR FIJI ISLANDS MAY TO JULY 2006

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*.

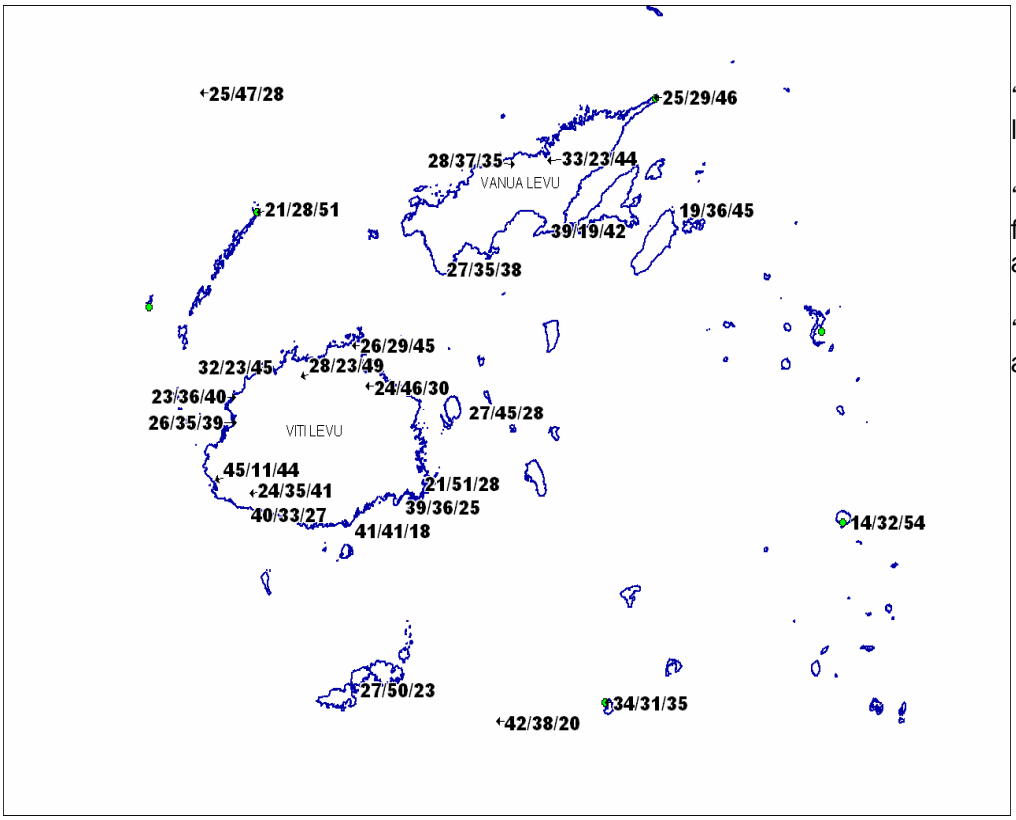
PRELIMINARY CLIMATOLOGICAL SUMMARY FOR APRIL 2006

PRELIMINARY CLIMATOLOGICAL DATA FOR MONTH 4 , 2006 : SUMMARY FOR DAYS 1 TO 30

	RAINFALL					AIR TEMPERATURES								SUNSHINE	
	TOTAL		RAIN DAYS	MAX. FALL		AVERAGE DAILY MAX.	#	AVERAGE DAILY MIN.	#	EXTREME MAX.	ON	EXTREME MIN.	ON	TOTAL HRS	* %
	MM	%	+	MM	ON	C		C		C		C			
NADI AIRPORT	114	71	9	52	14	31.6	0.9	22.8	1.0	34.0	3	21.8	22	253	128
SUVA/LAUCALA BAY	180	49	24	55	19	32.0	2.1	24.0	0.7	33.4	10	21.9	20	230	149
NACOCOLEVU	103	66	6	52	15	32.4	2.2	22.5	1.0	34.5	6	21.0	21	196	116
ROTUMA	93	32	19	17	16	31.8	1.3	25.3	0.5	32.9	29	23.0	5	231	126
VIWA	52	23	11	14	11	32.4	2.1	25.6	0.8	33.5	14	24.1	5		
UDU POINT	371	134	21	131	18	31.4	1.2	24.9	0.7	32.9	2	22.4	15		
LABASA AIRFIELD	255	108	15	51	13	32.6	1.6	22.1	0.8	34.4	8	19.8	6		
NABOUWALU	122	41	19	41	4	31.5	2.5	24.5	0.6	33.0	15	22.0	11		
SAVUSAVU AIRFIELD	111	43	9	49	13	31.5	1.7	23.7	0.5	33.0	9	20.0	19		
MATEI AIRFIELD	369	122	30	218	18	30.5	0.9	24.1	0.3	32.0	24	22.0	15		
YASAWA-I-RARA	89	43	13	30	4	32.7	2.8	24.9	0.5	34.2	29	22.0	5		
VATUKOULA	155	70	9	50	14	33.2	1.8	22.2	1.2	35.6	4	20.8	22		
MONASAVU	526	100	20	173	17	26.3	2.2	19.4	0.8	28.2	12	16.8	22		
NAUSORI AIRPORT	264	74	24	47	17	31.1	1.8	23.3	0.8	32.5	9	21.5	21		
NAVUA/TOKOTOKO	183	49	16	32	19	30.9	1.9	22.4	-0.1	32.6	9	21.0	6		
ST. JOHNS COLLEGE	240	100	23	40	18	30.8	1.4	24.5	0.6	32.0	2	22.5	21		
LAKEBA	67	32	10	17	13	30.8	1.5	24.6	0.9	31.7	2	22.4	26		
MATUKU	115	66	12	33	19	31.3	2.1	25.7	1.8	33.5	4	23.0	15		
VUNISEA	158	67	16	37	16	30.8	2.0	24.5	1.8	33.0	9	22.0	25		
ONO-I-LAU	197	129	11	81	14	30.5	2.3	24.1	0.5	33.1	1	21.0	20		
BA/RARAWAI MILL	171	83	11	88	14	32.9	1.4	22.1	0.9	35.0	5	20.4	10		
LAUTOKA AES	161	86	11	42	1	31.6	1.1	23.6	0.7	33.8	3	22.2	20		
PENANG MILL	172	64	16	56	18	31.6	2.0	23.2	0.0	32.7	12	20.5	23		

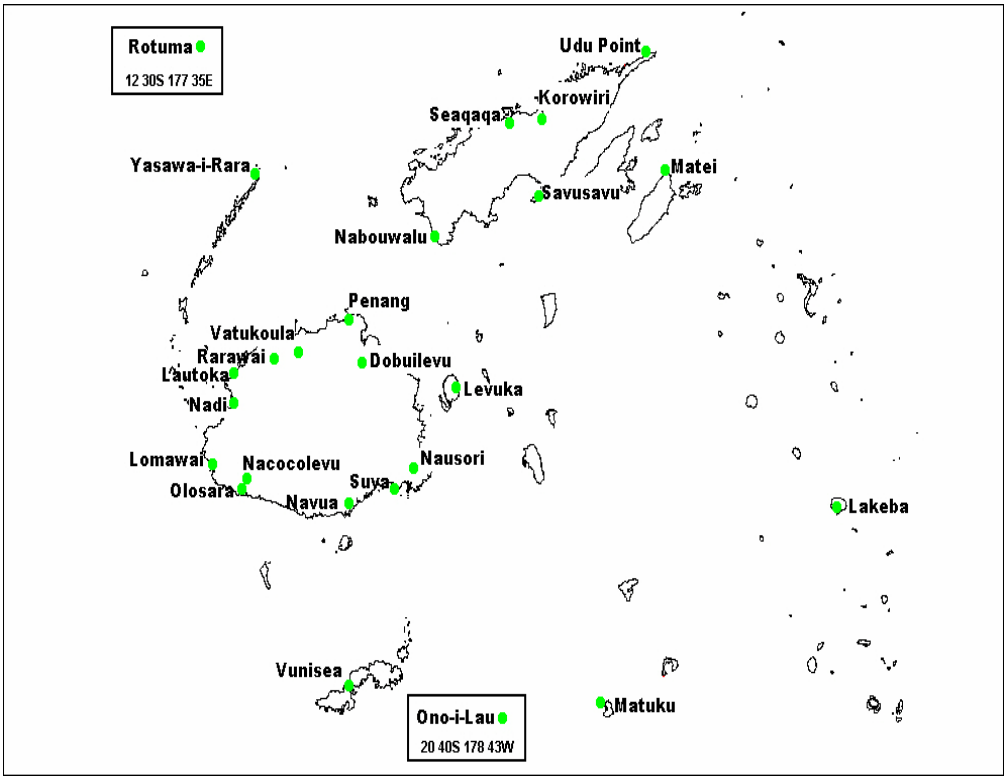
Three Month Rainfall Outlook Probabilities for May to July 2006

FIGURE E*:* Three Month Forecast for Selected Stations in Fiji using the Fiji Meteorological Services Rainfall Prediction Model



Please note that the probabilities are listed beside of the corresponding station marker or dot.

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



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

Station	33% (mm)	67% (mm)
Western Division		
Dobuilevu	253.1	370.2
Vatukoula	152.9	250.1
Rarawai	152.0	248.9
Penang	181.1	299.0
Lautoka	146.1	223.4
Nadi	142.4	232.1
Lomawai	157.8	229.9
Nacocolevu	188.0	292.0
Olosara	216.9	300.2
Yasawa	169.1	263.8
Central Division		
Navua	600.9	756.3
Suva	429.2	615.2
Nausori	416.8	582.7
Eastern Division		
Levuka	351.3	490.5
Lakeba	250.3	355.9
Matuku	277.4	393.5
Ono-I-Lau	220.3	346.6
Vunisea	337.7	460.8
Northern Division		
Labasa Mill	180.4	283.9
Seaqaqa	159.6	265.9
Nabouwalu	328.0	444.0
Savusavu	328.5	475.8
Udu Point	258.4	464.8
Matei	305.6	523.3
Rotuma	698.0	857.6