

Fiji Islands Weather Summary

January 2006

Rainfall Outlook till April 2006

FIJI METEOROLOGICAL SERVICE

IN BRIEF

Rainfall in January varied across the country. Several sites received above average rainfall while several others received below average rainfall. Most of the notable falls occurred in the second half of the month as the South Pacific Convergence Zone (SPCZ) affected the country.

In the Western Division many sites generally recorded above average rainfall except for Monasavu and Yasawa-I-Rara which recorded below average rainfall. There were reports of flash floods in Lautoka, Ba and Rakiraki on the 29th. The Central Division generally recorded below average rainfall. The Northern Division recorded above average rainfall except for Savusavu which received well below average rainfall. Heavy rain caused landslides, affecting the highway between Savusavu and Labasa. Sites in the Eastern Division recorded average to above average rainfall except for Vunisea recording below aver-

age rainfall.

A new high monthly rainfall total of 954.1 mm was recorded at Rotuma. A new daily high rainfall was also recorded at Rotuma with 293.2mm on the 11th.

Day-time air temperatures were generally average to above average at most of the recording sites.

Night-time air temperatures were mostly average to above average around the country with a new one day high of 26.0 °C recorded at Levuka on the 05th. A new high for average monthly minimum temperature of 24.7 °C was recorded at Vunisea.

Based on model predictions and current ocean and atmospheric conditions, most parts of the country can expect average to above average rainfall in the upcoming three months.

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 Site Specific Forecasts	7

WEATHER PATTERNS

January was typically hot and humid. An active South Pacific Convergence Zone [SPCZ] about Fiji caused significant rain during the latter part of the month.

A moist east to southeast wind flow from the 1st to 6th, 9th to 14th and 18th to 23rd brought a few showers over the northern and eastern parts of the country, while the interior and western parts of the main islands experienced afternoon showers and thunderstorms. Tropical depression 04F formed to the north of Vanua Levu on the 7th and drifted northwest towards Rotuma. As a result, rain was experienced over most places till the 9th. A trough brought more rain over the country between the 15th and the 17th. A combination of an active monsoonal trough, associated with Tropical Cyclone Jim to the far west of Fiji, and a strong SPCZ produced substantial rain over the country from the 24th till the 31st. Levuka reported a 24 hour rainfall of 108mm on the 27th. Torrential rain on the 28th caused flooding over north and northwest

Viti Levu. During the 24 hour period ending at 9am on the 29th, Lautoka received 245.6mm, 203mm of rain fell in Yaqara, Ba reported 156mm and Penang received 133mm of rain. During the following 24 hour period ending at 9am on the 30th, Viwa received 180.1mm, Lautoka reported 175mm, Ba received 152.5mm, Vatukoula and Penang reported 116mm and 114mm respectively. Landslides were reported in Lautoka and Vanua Levu due to continued heavy rain on the 31st.

Rotuma experienced another wet month due to the close proximity of the SPCZ. Tropical Depression 04F moved close to Rotuma on the 8th and became slow moving till the 11th. A strong wind warning was placed for Rotuma on the 11th as the incipient tropical depression started tracking east. The island reported a 24 hour rainfall of 293.2 mm on the 11th. The strong wind warning was later cancelled on the 12th. Tropical Depression 04F was named Tropical Cyclone Tam on the 12th when it was located south of Wallis.

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TABLE 1: RAINFALL FROM NOVEMBER 2005 TO JANUARY 2006

Station	Actual Rainfall (mm)	Rainfall in the last three months (Below Average, Average or Above Average)	No. of Rain days in Nov 05 (% of total rain)	No. of Rain days in Dec 05 (% of total rain)	No. of Rain days in Jan 06 (% of total rain)
Penang Mill	683.5	Average	10 (14)	8 (16)	21(70)
Monasavu Dam	1518.2	Average	29 (44)	23 (27)	27(29)
Vatukoula Mine	939.7	Average	17 (38)	9 (7)	14(55)
Rarawai Mill, Ba	870.9	Average	13 (20)	11 (26)	13(54)
Yasawa-I-Rara	440.2	Average	11 (31)	8 (29)	15(40)
Viwa Island	843.7	Above Average	15 (26)	12 (23)	15(51)
Lautoka (FSC Res.)	1027.1	Above Average	13 (14)	11 (17)	16(69)
Nadi Airport	756.2	Average	09 (17)	11 (35)	15(48)
Nacocolevu, Sigatoka	-	-	-	-	-
Tokotoko, Navua	764.5	Below Average	19 (34)	17 (22)	25(44)
Laucala Bay, Suva	801.3	Average	24 (48)	22 (22)	28(30)
Nausori Airport	779.4	Average	25 (41)	19 (28)	26(31)
Nabouwalu	630.1	Average	22 (15)	17 (25)	28(60)
Labasa Airport	1138.1	Above Average	19 (21)	13 (28)	19(51)
Savusavu Airport	321.8	Below Average	12 (45)	7 (24)	14(31)
Udu Point	1141.1	Above Average	22 (24)	17 (30)	23(46)
Matei Airport	1023.6	Average	22 (32)	16 (24)	22(44)
Lakeba Is.	759.9	Above Average	10 (32)	11 (30)	16(38)
Matuku Is.	349.7	Below Average	06 (11)	6 (16)	16(73)
Ono-I-Lau Is.	430.5	Average	05 (23)	6 (10)	15(67)
Vunisea, Kadavu	493.7	Average	15 (48)	15 (18)	25(34)
Rotuma	1759.9	Above Average	26 (23)	28 (23)	28(54)

RAINFALL IN THE LAST THREE MONTHS**Rainfall in January**

Rainfall in January ranged from well below to above average across most of the country. A number of troughs affected the Fiji Group during January .

Sites in the Western Division recorded below average to above average rainfall. Rainfall ranged from 65% to 191% of *Normal* rainfall. Monasavu recorded 65% and Yasawa-I-Rara recorded 75% of *Normal* rainfall.

Central Division recorded below average rainfall for all the sites . Rainfall ranged from 65% to 77% of *Normal* rainfall.

Eastern Division recorded below average to above average rainfall that ranged from 58% to 165% of *Normal* rainfall. Vunisea was the only site recording below average rainfall of 58% of *Normal* rainfall.

Northern Division recorded well below average to above average rainfall. Savusavu was the only site recording well below

average rainfall of 36% of *Normal* rainfall. Rainfall ranged from 36% to 166% of *Normal* rainfall.

Forecast Verification**Rainfall in the 3-months from November 2005 to January 2006**

The Rainfall Outlook for the period November 05 to January 06 in the October Fiji Islands Monthly Weather Summary was for rainfall to be generally *Average to Above Average* for most parts of the country. The confidence level of the forecast was *moderate*.

Out of the twenty one sites that reported in time for this summary Navua, Savusavu Airport and Matuku received *below average* rainfall, *thirteen* sites received *average* rainfall and *five* sites received *above average* rainfall in the past three months.

Figure A

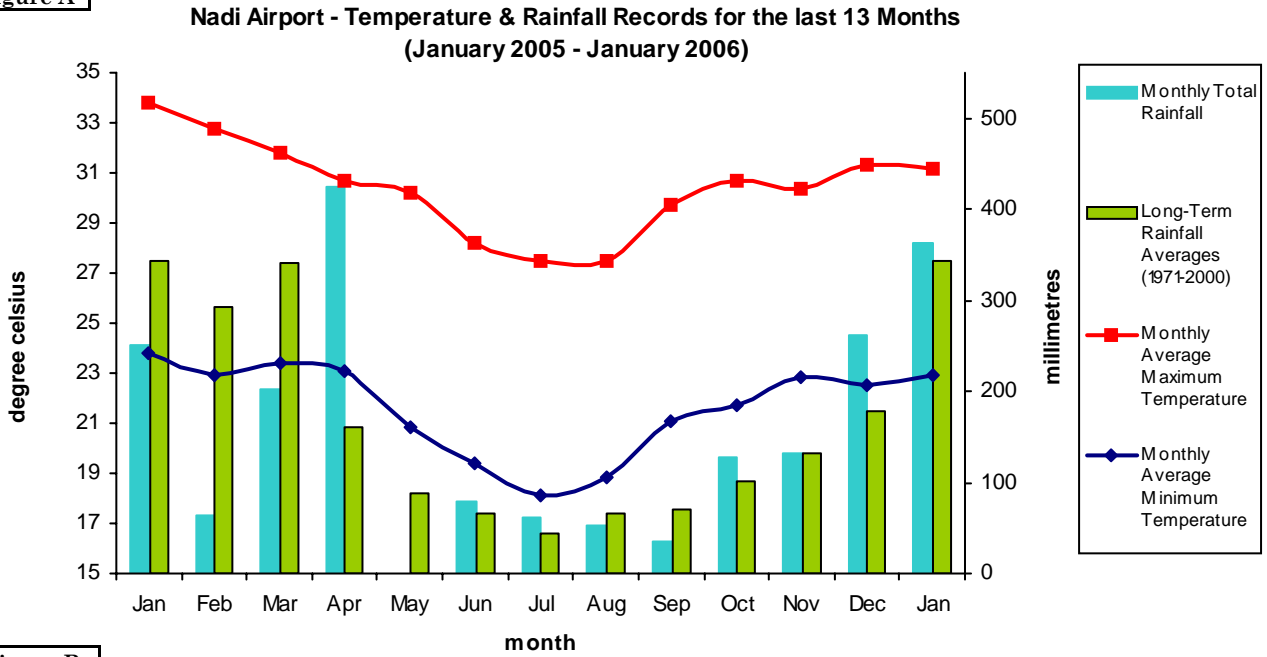


Figure B

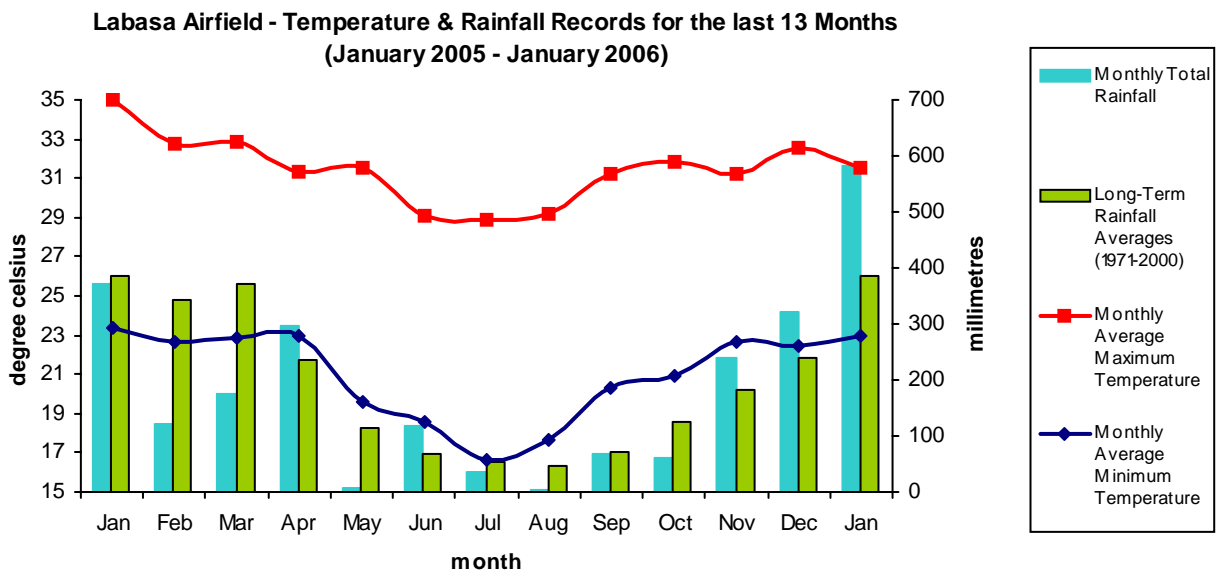
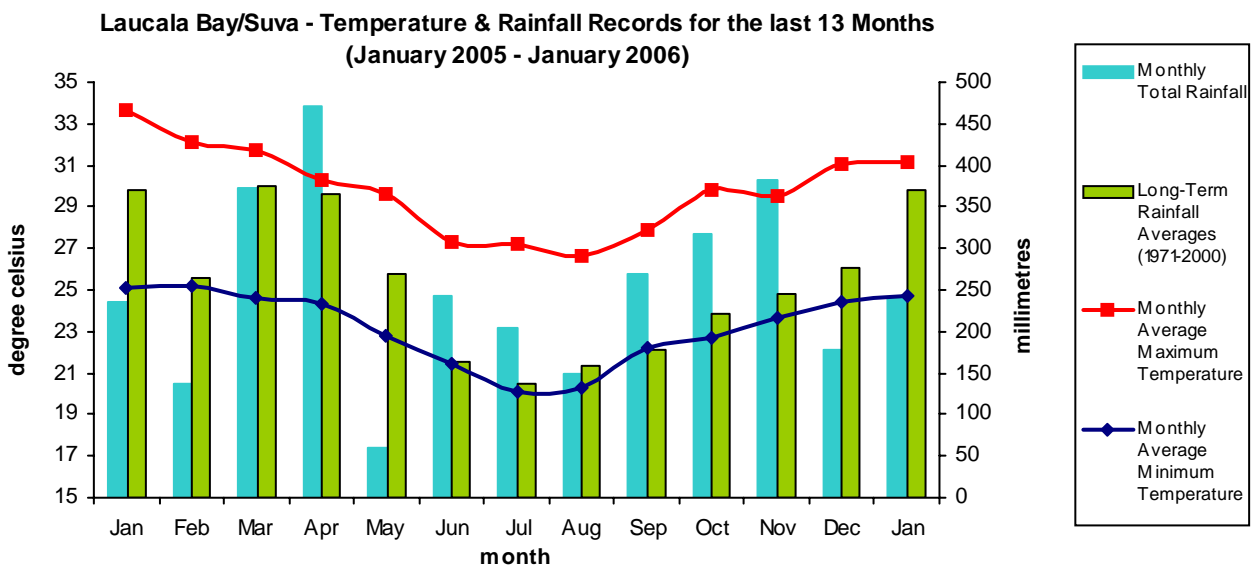


Figure C



Climate in January 2006

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

Day-time air temperatures were above average at most of the recording sites. Greatest positive departures were recorded at Penang Mill (0.7°C), Ono-I-Lau (0.5°C) and Nabouwalu, Viwa Island, Laucala Bay and Yasawa-I-Rara all of which recorded (0.4°C) above *Normal*.

Night-time air temperatures were mostly average to above average around the country. The notable departures were at Savusavu Airfield (2.0°C), Matuku (0.7°C) and Ono-I-Lau with (0.5°C) above *Normal*.

SOIL MOISTURE AND RUNOFFS

Soil moisture conditions were variable throughout the month.

In the Western Division, the soil moisture condition was mostly excess to ample for most of the month except at Yasawa which recorded limiting to dry conditions throughout the month.

In the Central Division, soil moisture conditions were generally excessive to ample during most of the month.

Sites in the Eastern Division experienced generally moderate conditions during the month. Matuku recorded generally limiting to dry soil moisture conditions

Relative Humidity (RH) at 0900hrs were below average across most of the country. The greatest negative departures were recorded at Matuku (-15.2%), Savusavu Airfield (-9.3%), Penang Mill (-2.3%), and Rarawai Mill (-2.2%).

The sites that recorded the greatest positive departures were at Levuka (+2.9%), Matei Airfield (+2.5%), Nadi Airport and Lakeba (+2.2%).

Northern Division experienced generally moderate soil moisture conditions. Then excessive to ample soil moisture conditions were experienced in the second half of the month.

In Rotuma, the soil moisture conditions were excessive to ample most of the month except mid month when conditions were generally moderate.

Significant runoff was recorded at Rotuma (794.7 mm), Lautoka (538.2 mm), Udu Point (412.9 mm), and Vatu-koula (356.6 mm).

SUNSHINE, RADIATION & WINDS

The total sunshine hours were below average at Nacocolevu (96%), Rotuma (82%), Laucala Bay-Suva (82%) and Nadi Airport (86%).

Global Solar Radiation (average per day) was 21.0 MJ/M² at Nacocolevu, 18.4 MJ/M² at Nadi Airport, 19.6 MJ/M² at Laucala Bay– Suva and 18.0 MJ/M² at Rotuma.

Monthly average wind speed was mostly below average at most of the wind recording sites around the country. The two sites that recorded above average wind speeds were Rotuma and Nausori Airport which respectively recorded 1.4 knots and 1.3 knots above *Normal*.

TABLE 2: RECORDS SET IN JANUARY 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>
Monthly Rainfall	Rotuma	954.1mm	-	New High	678.7 mm	1965	1912
Daily Rainfall	Rotuma	293.2mm	11th	New High	236.7mm	1928	1926
Av. Mly Min Temp	Vunisea	24.7 °C	-	New High	24.5 °C	1973/97	1947
Daily Min Temp	Levuka	26.0 °C	05th	New High	23.5 °C	2002	1984

ENSO STATUS AND SOI GRAPH

ENSO UPDATE

EL NIÑO - SOUTHERN OSCILLATION

The Southern Oscillation Index (SOI) for January was +12.7 (December was 0.6) with the five-month running mean of +5 centred on November (October was +1). (see Figure D below).

The overall ENSO pattern remains neutral, although with some features of a weak La Niña. This is particularly evident in the cold subsurface waters of the east Pacific, and the reduced cloudiness in the central Pacific.

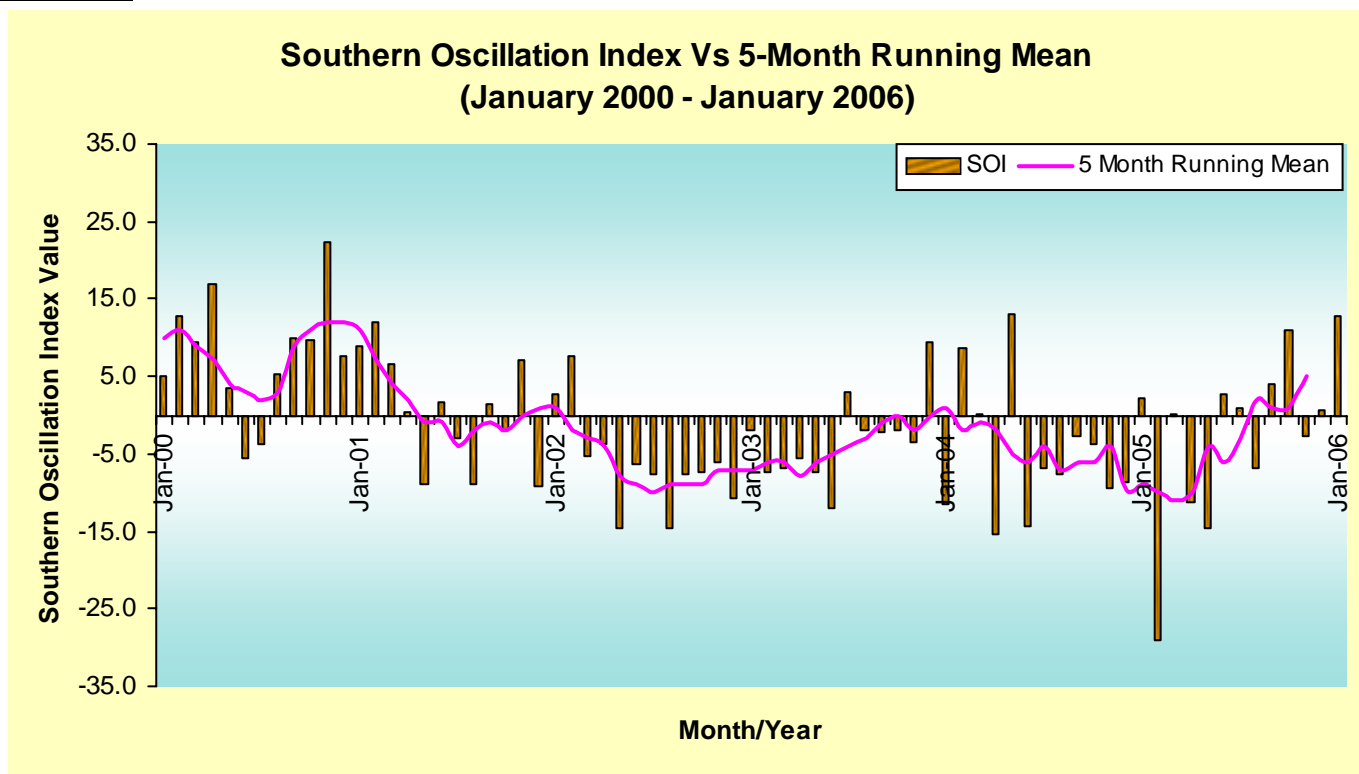
On the other hand, the SOI remains neutral, sea surface temperatures are a little cooler than normal and Trade Winds are

stronger than average in the Western Pacific.

There is a chance that with further cooling, the pattern might develop into a La Niña for a brief period, although most computer predictions of ocean temperatures indicate warming after February and ENSO neutral conditions by the middle of 2006.

For more information and interpretation, please contact Fiji Meteorological Service. (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 commenced on 1st November and is expected to last 6 months (until 30th April). Currently we are in a Neutral phase of ENSO (El Nino Southern Oscillation) phenomena.

Fiji’s chances of being hit by a Tropical Cyclone (TC) is slightly higher in the neutral ENSO phase compared to El Niño phase and significantly reduced in a La Niña phase. It can be said that the chance of being hit would be higher this season than in the recent past. So far we have had two TCs forming in our region. TC Tam formed to the North of Wallis and Futuna on 12th January, moved over Northern Tonga than moved Southeast then 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.

Based on statistical information, Fiji can expect to be hit by 10 to 15 TCs in a decade of which 2 to 4 could do severe damage. Since 1995, the only major damage was done by TC Gavin (1997—Western and South Western parts of Fiji) and TC Ami (2003— Northern and Eastern parts of Fiji). Therefore the chance of a big hit is rather high.

Due to neutral conditions, we are anticipating an average TC season with 7 to 9 TCs forming in the South-West Pacific region as a whole, based on statistics again. Once a TC forms only then will we be able to tell whether it will threaten Fiji or not.

Given the trend of more and more extreme events occurring in different parts of the world, one should always prepare for a worse one yet to come.

RAINFALL PREDICTIONS AND OUTLOOK TO APRIL 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 to above average across the country.

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

**RAINFALL OUTLOOK FOR FIJI ISLANDS
FEBRUARY TO APRIL 2006**

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

As this is the Tropical Cyclone Season Fiji can expect above average rainfall if a tropical disturbance or tropical cyclone affects the Group or passes close to the Group.

NOTE:

The confidence level of this prediction is moderate.

PRELIMINARY CLIMATOLOGICAL SUMMARY FOR JANUARY 2006

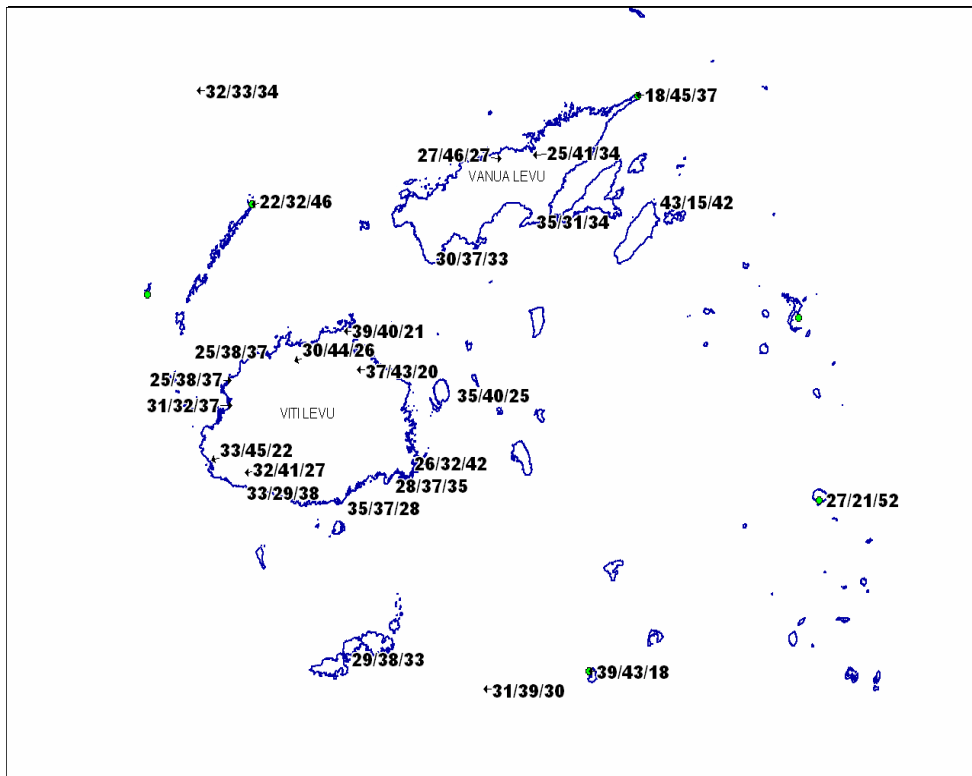
PRELIMINARY CLIMATOLOGICAL DATA FOR MONTH 1 , 2006 : SUMMARY FOR DAYS 1 TO 31

	RAINFALL					AIR TEMPERATURES								SUNSHINE		
	TOTAL MM	RAIN		MAX.		AVERAGE DAILY				EXTREME		TOTAL				
		%	+	MM	ON	MAX. C	#	MIN. C	#	MAX. C	MIN. C	ON	C	ON	HRS	*
NADI AIRPORT	363	106	15	69	29	31.2	-0.3	22.9	0.1	34.0	17	20.4	1	181	86	
SUVA/LAUCALA BAY	242	65	28	50	6	31.2	0.4	24.7	0.8	33.0	5	23.0	14	158	82	
NACOLEVU	194	70	16	36	27	31.2	0.0	22.6	0.3	34.0	17	19.5	14	171	96	
ROTUMA	954	269	28	293	11	30.7	0.1	24.6	-0.1	32.6	3	23.0	15	139	82	
VIWA	429	176	15	180	29	31.5	0.4	25.4	0.4	33.6	3	22.0	30			
UDU POINT	519	166	23	60	30	30.4	-0.1	24.2	-0.1	33.5	29	22.0	1			
LABASA AIRFIELD	581	150	19	117	30	31.5	-0.2	23.0	0.8	33.6	21	20.5	14			
NABOUWALU	380	122	28	96	29	30.5	0.4	24.6	0.4	32.2	19	22.9	14			
SAVUSAVU AIRFIELD	100	36	14	27	26	30.1	-0.4	21.5	-2.0	31.5	21	20.0	26			
MATEI AIRFIELD	447	124	22	75	28	30.0	-0.0	24.5	0.4	31.5	24	22.5	13			
YASAWA-I-RARA	176	75	15	39	28	30.9	0.4	24.4	-0.2	33.8	7	22.5	15			
VATUKOULA	520	131	14	170	28	31.7	-0.1	22.7	0.9	33.9	19	20.2	1			
MONASAVU	435	65	27	88	9	25.0	-0.3	19.4	0.6	27.7	22	16.4	14			
NAUSORI AIRPORT	243	66	26	67	31	30.4	0.0	23.7	0.6	32.2	24	21.0	14			
NAVUA/TOKOTOKO	340	77	25	57	30	30.0	0.3	23.2	0.2	32.0	23	20.5	14			
ST. JOHNS COLLEGE	338	139	25	108	27	30.0	-0.2	24.5	0.4	32.0	17	20.3	19			
LAKEBA	288	118	16	51	25	30.3	0.2	24.6	1.5	32.1	26	22.5	1			
MATUKU	254	92	16	52	29	29.5	-0.7	23.7	-0.7	31.1	4	20.9	30			
VUNISEA	167	58	25	33	31	30.0	0.1	24.7	1.3	32.5	24	21.5	14			
ONO-I-LAU	289	165	15	49	27	29.7	0.5	23.7	-0.5	32.6	22	21.9	14			
BA/RARAWAI MILL	466	116	13	153	29	31.7	-0.3	22.7	0.6	34.3	18	20.0	1			
LAUTOKA AES	708	191	16	246	28	30.9	-0.1	23.7	0.0	33.4	8	21.4	14			
PENANG MILL	480	121	21	133	28	31.0	0.7	24.1	0.1	32.6	24	22.3	15			

SCOPIC Model (Seasonal Climate Outlook for Pacific Island Countries Model)

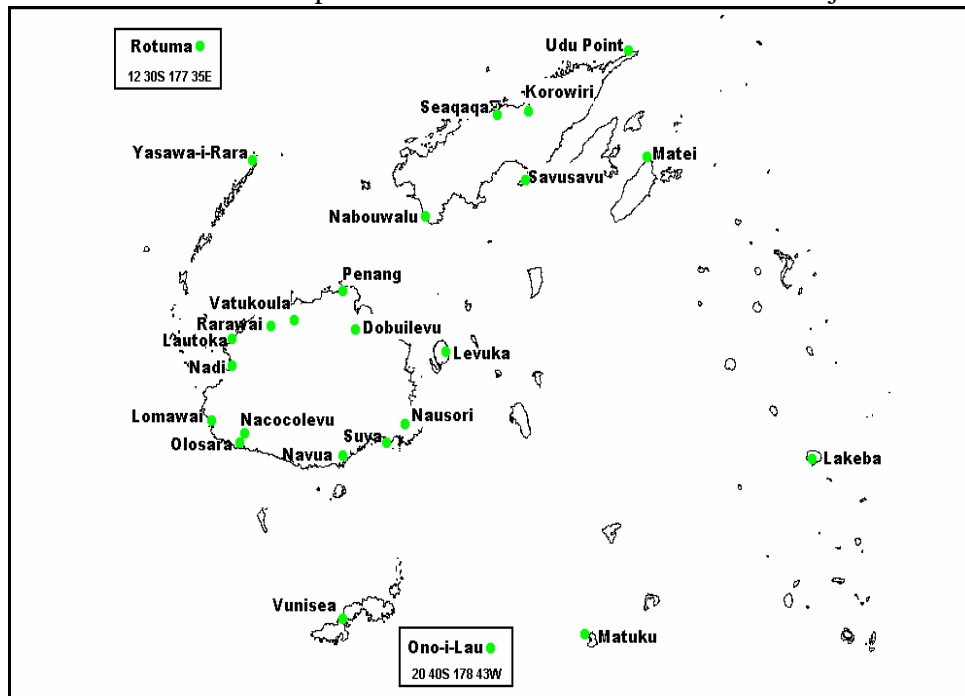
FIGURE E
Three Month Forecast for Selected Stations in Fiji using the SCOPIC Model

The forecast probabilities are presented as



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

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



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 Percentile

Station	33% (mm)	67% (mm)
Western Division		
Dobuilevu	889.3	1132.8
Vatukoula	910.6	1155.5
Rarawai	824.0	1058.0
Penang	830.9	1131.4
Lautoka	736.2	929.3
Nadi	662.9	901.0
Lomawai	578.0	794.9
Nacocolevu	597.0	826.0
Olosara	550.5	782.1
Yasawa	603.9	848.3

Central Division		
Navua	1020.1	1206.6
Suva	886.2	1057.7
Nausori	893.9	1045.3
Eastern Division		
Levuka	802.1	932.4
Lakeba	632.6	827.6
Matuku	520.7	698.8
Ono-I-Lau	476.7	707.8
Vunisea	645.2	829.9

Northern Division		
Labasa Mill	870.1	1179.2
Seaqaqa	892.8	1145.1
Nabouwalu	781.0	1062.0
Savusavu	646.2	932.1
Udu Point	748.1	939.3
Matei	783.1	1039.7
Rotuma	883.0	1083.1

Note: This summary is prepared for rapid dissemination as soon as possible following the end of the month. The quantitative data are obtained daily on the phone or radiotelephone from a network of climate stations reporting 9 am observations; these data must be treated as provisional. FMS does not guarantee accuracy and reliability of the forecast information presented in this summary but the Department should be sought for expert advice, any clarification or additional information. Any person wishing to re-print any information provided in this summary must seek permission from the Director of Meteorology.