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March 2005

Fiji Islands Weather Summary March 2005
Rainfall Outlook till June 2005

FIJI METEOROLOGICAL SERVICE

IN BRIEF

Rainfall in March varied considerably with well below average to below average rainfall in the Western and Northern Divisions, below average to well above average in the Eastern Division and below average to average in the Central Division. March was hotter than usual across the country with majority of the sites recording 1.0°C above average daytime temperatures.

There were two major instances when active troughs brought significant rainfall over the country and as these troughs dissipated moist easterly winds dominated the group bringing trade showers about the eastern parts and afternoon showers in western and central parts of the main islands.

In the last three months, about 76 percent of the daily climate reporting sites have received below average rainfall including Penang Mill which received well below average rainfall. Only two sites have recorded average rainfall and the lone site, Udu Point received well above average rainfall. Vunisea was exceptionally wet receiving 241% of normal rain this month which is about 2.5 times more. Some one day significant falls were recorded on 3rd where Levuka, Vunisea, Nausori Airport and Laucala Bay received 290.2mm, 250.5mm, 134.5mm and 114.0mm of rainfall respectively. Reports of flash flood and landslides in the central division were highlighted in the media reports.

Monthly average daytime temperatures were generally above average across the country with new one-day maximum air temperature recorded at Rotuma. New monthly mean daytime maximum temperatures were also recorded at some sites this month. The night-time temperatures were generally average to above average across the country.

Total sunshine hours were above average at all recording sites with all sites receiving above 110% of normal sunshine in March.

Most models indicate central Pacific temperatures to remain on the warm side of average over the next 5 months with one predicting greater than 50% chance of El Niño conditions developing this year.

Inside this issue:

WEATHER PATTERNS

Moist easterly winds dominated the group most of the month, bringing trade showers about the east and afternoon showers about the interior and western parts of the main islands. There were two major instances when active troughs brought significant rainfall over the country.

An active trough with embedded tropical disturbance was located to the north on the 1st and it drifted over the country on the 2nd, causing rain across Fiji. Heavy rain, flooding and landslides dominated the eastern part of Viti Levu. The trough gradually weakened as it moved south on the 4th. Vunisea recorded the highest 24 hourly rainfall of 250.5 mm on the 5th. A weak ridge developed over the group on the 6th and maintained mostly fine weather over the group until the 8th. Moist southeast winds later settled over the group until the 17th, bringing trade showers about the east and afternoon showers about the western parts of the main islands.

Another active trough moved across Fiji on the 18th and rain spread over most places. The trough rapidly weakened and moist easterly winds again settled over the country from the 19th. The rest of March was dominated by afternoon showers and thunderstorms about the interior and western parts of the main islands, while trade showers continued about the east.

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TABLE 1: RAINFALL FROM JANUARY TO MARCH 2005

Station	Actual Rainfall (mm)	Rainfall in the last three months (Below average, average or above average)	No. of Rain days in Jan 05 (% of total rain)	No. of Rain days in Feb 05 (% of total rain)	No. of Rain days in Mar 05 (% of total rain)
Penang Mill	403.7	Well Below Average	17 (65)	11 (20)	11 (15)
Monasavu Dam	1209.2	Below Average	28 (43)	23 (29)	27 (28)
Vatukoula Mine	674.9	Below Average	17 (65)	9 (9)	12 (26)
Rarawai Mill, Ba	574.3	Below Average	18 (64)	7 (12)	11 (24)
Yasawa-I-Rara	346.5	Below Average	13 (56)	4 (9)	13 (35)
Viwa Island	440.1	Below Average	14 (53)	9 (22)	14 (25)
Lautoka (FSC Res.)	444.3	Below Average	18 (55)	7 (22)	16 (23)
Nadi Airport	516.2	Below Average	18 (49)	7 (12)	18 (39)
Nacocolevu, Sigatoka	-	-	-	-	-
Tokotoko, Navua	517.2	Below Average	21 (31)	16 (23)	23 (46)
Laucala Bay, Suva	744.4	Below Average	24 (32)	17 (18)	19 (50)
Nausori Airport	865.3	Average	23 (25)	16 (22)	18 (53)
Nabouwalu	612.0	Below Average	20 (29)	18 (44)	20 (27)
Labasa Airport	669.1	Below Average	14 (56)	10 (18)	13 (26)
Savusavu Airport	474.9	Below Average	18 (48)	13 (28)	9 (24)
Udu Point	1558.8	Well Above Average	17 (48)	18 (47)	14 (5)
Matei Airport	682.3	Below Average	18 (49)	15 (29)	12 (22)
Lakeba Is.	402.6	Below Average	10 (32)	9 (5)	12 (63)
Matuku Is.	418.6	Below Average	15 (56)	4 (4)	11 (40)
Ono-I-Lau Is.	265.8	Below Average	08 (18)	4 (9)	12 (73)
Vunisea, Kadavu	985.4	Average	19 (18)	16 (8)	14 (74)
Rotuma	764.7	Average	22 (44)	21 (19)	24 (37)

Rainfall in March

Rainfall in March varied considerably across the country with majority of the sites receiving well below to below average rainfall. Considerably low rainfall was received at Penang Mill (15%) and significantly higher than normal rainfall at Vunisea (241%). Udu Point received considerably low rainfall 83.3mm setting new monthly low for March since 1998.

Rainfall was well below average to average both in the Western and the Northern Divisions ranging from 15% to 65%. Monasavu received only 46% of its share of March rainfall. The Central Division recorded below average to average rainfall ranging from 60% to 121% of normal rain.

Rainfall varied considerably in the Eastern Division Mataku and Ono-I-Lau receiving below average, average at Lakeba and well above average at Vunisea. Rotuma recorded below average rainfall.

Rainfall in the 3-months from January to March 2005

The Rainfall Outlook for the period January to March in the December Fiji Islands Weather Summary was for rainfall to be average to below average across most of the country. The confidence level of the forecast was moderate to high.

Out of the twenty one sites that reported in time for this summary, only Penang Mill received well below average rainfall, sixteen sites received below average rainfall, three sites received average, and only Udu Pt. reported receiving well above average rainfall.

Figure A

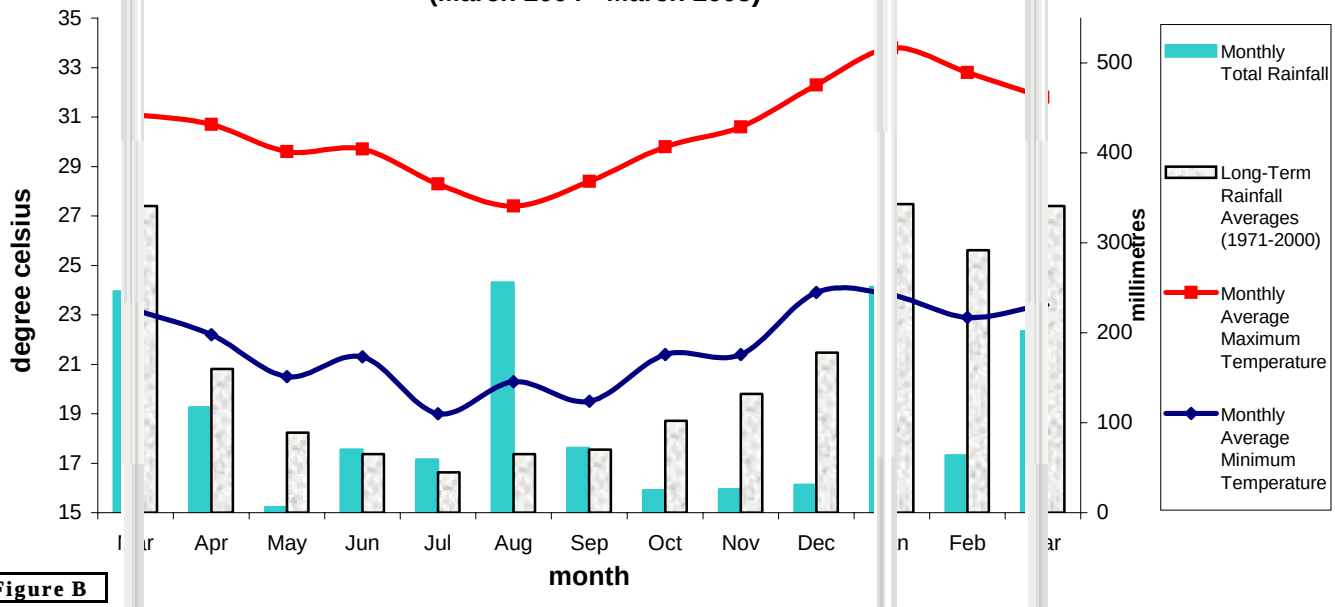


Figure B

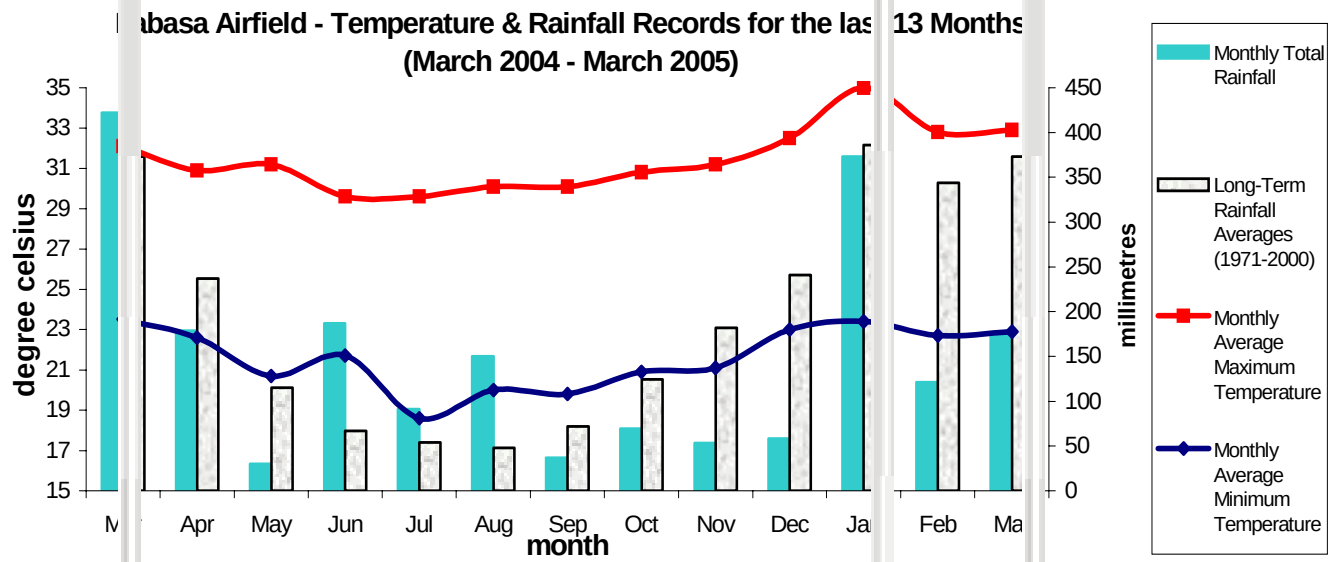
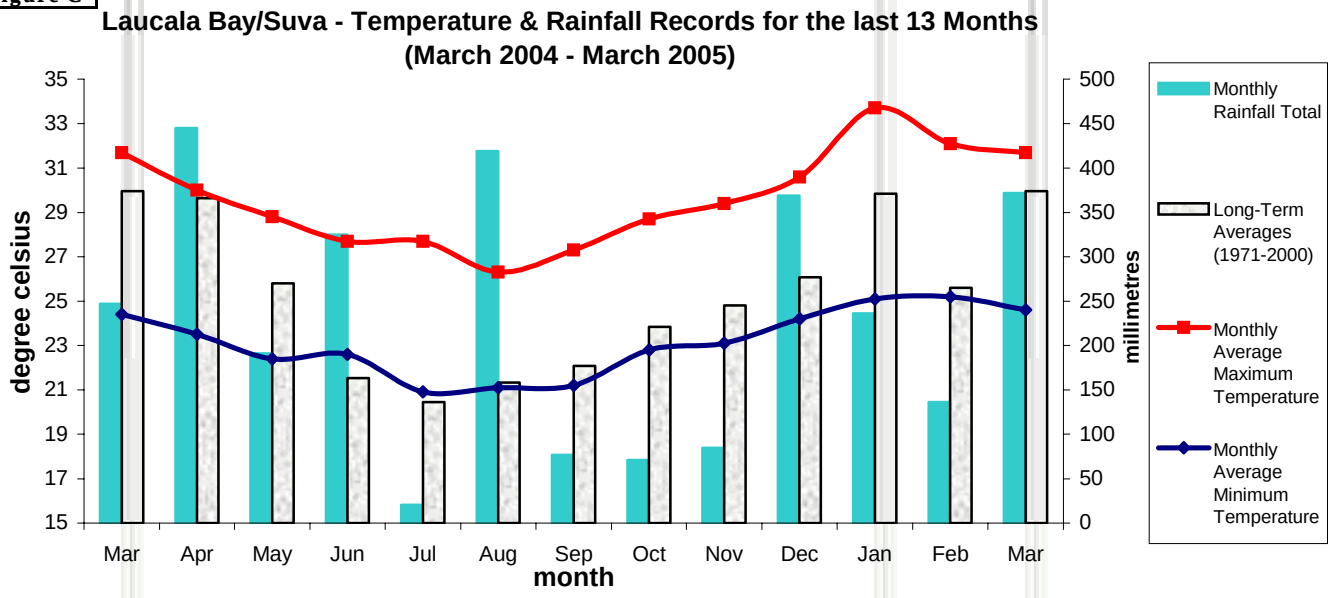


Figure C



Climate in March

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

The day-time temperatures were generally above average across the country. The greatest positive departure was recorded at Yasawa-I-Rara which recorded 2.4°C above normal followed by 1.8°C at Rotuma and 1.6°C at Nabouwalu. 13 sites in total reported 1.0°C above normal around the country.

The night-time temperatures were average to above average at most sites. The greatest positive departures were recorded at Rotuma and Vunisea with 1.1°C and 1.0°C above normal. The greatest negative departure was recorded at Ono-I-Lau and Penang Mill which recorded 0.9°C and 0.7°C below normal.

Relative Humidity (RH) at 0900hrs was generally average to below average across the country. Rarawai recorded highest negative departure of 9% while 8% at Mataku and 6% at Labasa Airport and Lautoka Mill respectively. Humidity was lowered as migrating high pressures systems extended ridge of high pressure over the group for most of the time.

SOIL MOISTURE AND RUNOFFS

In the Western Division, conditions were generally limiting to dry for most of the month except for the first and the third week when the conditions were ample to moderate. Monasavu experienced excess to ample conditions almost everyday in March.

In the Central Division, excess to ample conditions prevailed for most of the month and then ample to moderate during later part of the month.

In the Eastern Division, the soil conditions were generally excess to ample in the first week, moderate to ample in the third and then moderate to limiting in the last week. Rotuma experienced excess to ample for the first half and then moderate to limiting during the second half of the month.

In the Northern Division, the moisture conditions were generally ample to moderate during the month except at Labasa conditions were generally limiting to dry.

Significant runoffs were recorded at Vunisea (553.9mm), Nausori Airport (365.0mm), and Levuka (350.0mm).

SUNSHINE. RADIATION & WINDS

Total sunshine hours were above average at all recording sites during March. Nadi Airport received 112%, Laucala Bay/Suva 120% and Nacocolevu 115%. The Global Solar Radiation recorded were 18.6, 16.2 and 21.0 MJ/ M^2 (average per day) at Nadi Airport, Laucala Bay and Nacocolevu respectively.

Monthly average wind speeds were normal at Nadi Airport and Rotuma, below average at Nabouwalu and above normal at Nausori Airport during the month.

RECORDS SET IN MARCH 2005

Element	Station	Observed (record)	On	Rank	Previous (record)	Year	Records Began
Mly Rainfall (mm)	Udu Point	83.8	-	New low	144.3	1998	1946
Dly Rainfall (mm)	Vunisea	250.5	4th	New High	248.0	1983	1943
Mly MaxTemp (ºC)	Nacocolevu	32.6	-	New High	32.4	1997	1938
Mly MaxTemp (ºC)	Rotuma	32.4	-	New High	32.3	2002	1933
Mly MaxTemp (ºC)	Udu Point	31.9	-	New High	31.8	1999	1956
Mly Max Temp (ºC)	Labasa Airport	32.9	-	New High	32.7	1969	1956
Mly Max Temp (ºC)	Yasawa-I-Rara	33.0	-	New High	32.2	1997	1950
Dly Max Temp (ºC)	Rotuma	33.7	14th	New High	33.6	1966	1933
Dly Min Temp (ºC	Vunisea	27.5	4th	New High	27.4	1996	1947

Tropical Cyclone Season - November 2004 to April 2005

The South Pacific Tropical Cyclone Season officially began on 1st November and will continue till 30th April 2005.

The chances of a cyclone affecting Fiji this season was moderate to high especially with sea surface temperatures in the western and central Pacific being on the *Warmer* side of *Neutral*. The mean number of cyclones that affect Fiji in a season (including pre-season events) since 1969/70 is between 1 and 2. per season.

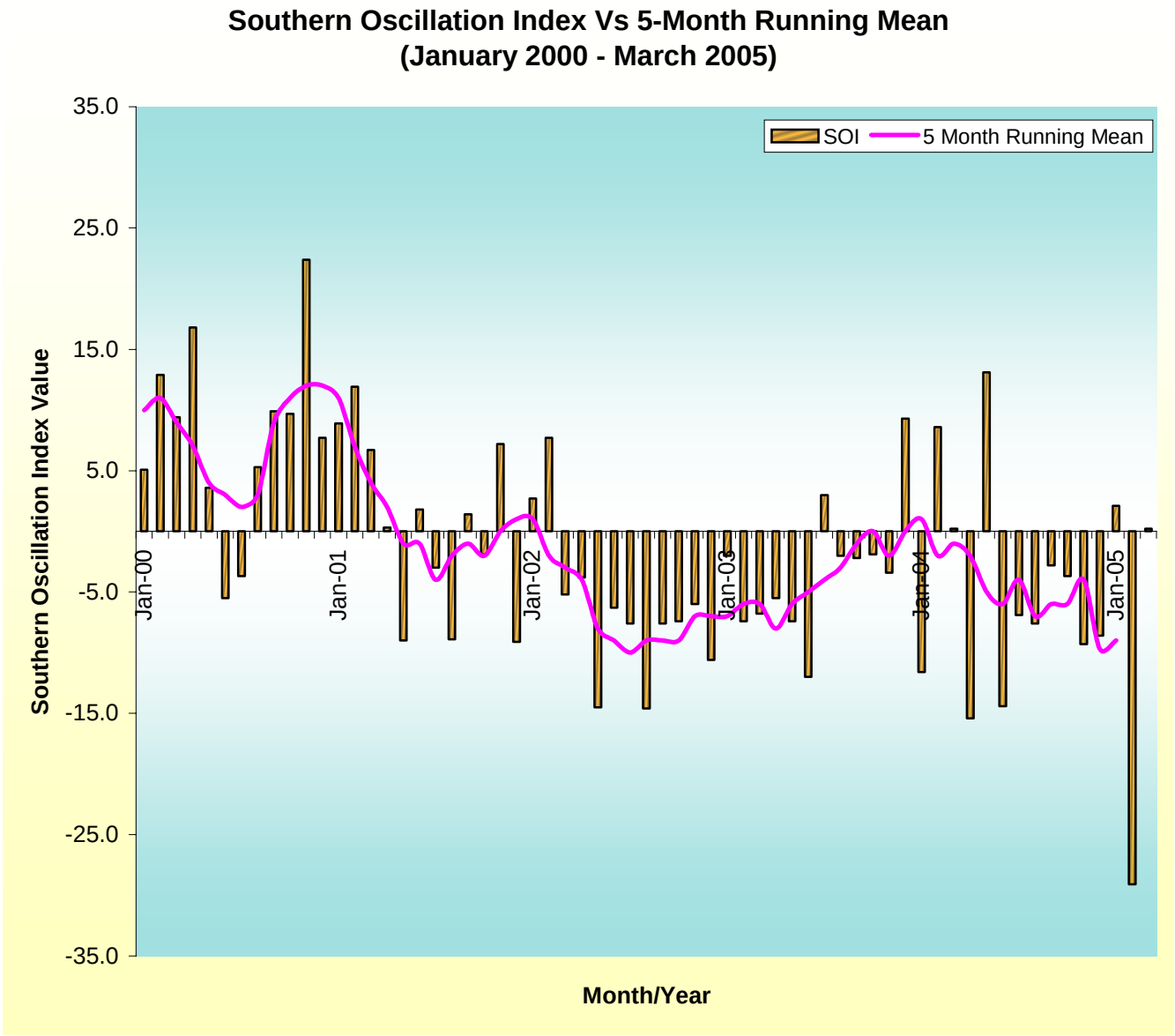
Historical records of tropical cyclones affecting Fiji since the 1969/70 season show that 6 cyclones have affected Fiji in April with one of them causing severe damage. The years were 1973, 74, 75, 80, 86, and 2000.

However, there have been as many as 6 events such as during the 1996/97.

To date there have been nine tropical cyclones forming in the SW Pacific this season and a total of two formed this month. They are TC *Ingrid and Rae*. The SPCZ still seems to be slightly displaced eastward and seven of the tropical cyclones forming to the east of the dateline including Rae which shows the typical El Niño pattern of tropical cyclone formation and movement. The average number of tropical cyclones that form in a season is between 9-10 in this region. With the prevailing atmospheric conditions, there may be another 1 or 2 cyclones before the end of the season.

Warnings, advisories, and other information during actual tropical cyclone events can be accessed from Fiji Meteorological Service Website:http:/www.met.gov.fj, via weather fax 6721227 (polling fax), via fax 6720190 or phone 6724888 or recorded weather on 3301642.

Figure D



ENSO status and Rainfall Outlook to June 2005

EL NIÑO - SOUTHERN OSCILLATION UPDATE

The Southern Oscillation Index (SOI) for March was +0.2 (February was –29.1) with the five-month running mean of –9 centred on January (December was –10) (Figure D). After strong signals were observed in a number of El Niño indicators during February, March brought a general easing of conditions in the tropical Pacific atmosphere. and to a lesser extent, ocean surface temperatures. The change in the atmosphere saw a rapid rise in the SOI to near zero (+3 on April 4), suggesting the strong negative February value (the lowest value since February 1983) may have been related in part to strong Tropical Cyclone activity in the South Pacific rather than an extreme background climate state (El Niño events are normally associated with sustained large negative values). Central equatorial Pacific Ocean surface temperatures cooled briefly, but have again warmed (to around +0.5°C above normal) as warm sub surface waters reached the surface.

Temperatures below the surface of the equatorial Pacific remain abnormally warm (> 4°C above normal). The subsurface temperatures are seen as critical to any further developments and hence are being monitored closely. Despite the moderating of some indicators, the chance of a basin-wide El Niño occurring later this year remains higher than normal.

Currently the tropical Pacific Ocean surface around the dateline remains warmer than average, subsurface waters in the central and eastern Pacific are warm, and the potential for a weakening or reversal of the Trade Winds over the coming weeks is real as it is likely that strong convection will move into the Pacific region from the west. As the southern hemisphere autumn is the critical time for El Niño development, any further changes in the tropical Pacific ocean temperatures or atmosphere will be monitored closely.

In the latest survey of international computer models, seven favoured neutral temperature patterns in August 2005, four suggested warm (El Niño) conditions, with one predicting cold conditions. By November 2005, two models now predict the development of warm conditions with none predicting the development of cool conditions

Most models indicate central Pacific temperatures to remain on the warm side of average over the next 5 months. The POAMA model, which runs daily and has therefore included current subsurface warming, predicts a greater than 50% chance of El Niño conditions developing this year, which is around double the normal chance of an event occurring.

A down-welling Kelvin wave continues to propagate these anomalies to the east during the next one to two months. March to June is known as "predictability" barrier and model skill is at its lowest predicting across this span of months.

Information on **Interseasonal Patterns including the Madden-Julian Oscillation** can be found on the Australian Bureau of Meteorology website http://www.bom.gov.au/climate/tropnote/tropnote.shtml This information is part of the 'Weekly Tropical Climate Note' and is updated each Tuesday at 0330 UTC. For more information or interpretation please contact the Fiji Meteorological Service. (The ENSO Update is kindly provided by the Australian Bureau of Meteorology and can be found on their website http://www.bom.gov.au)

RAINFALL PREDICTIONS

The FMS Rainfall Prediction Model has been replaced by the Seasonal Climate Outlook for Pacific Island Countries (SCOPIC) Model (Figure E): Predictions from this refined model are expected to be much better than the previous FMS model. However, since it is being tested right now, its predictions should be used with caution at this stage.

The model predicts that rainfall is likely to be ***below average to average*** in the *Western* and *Northern* divisions while rainfall to ***vary around average*** in the *Eastern Divisions* for the upcoming three months.

Average rainfall is predicted in the *Central* Division while ***average to above average*** rainfall is forecast for Rotuma from April to June.

RAINFALL OUTLOOK FOR APRIL TO JUNE 2005

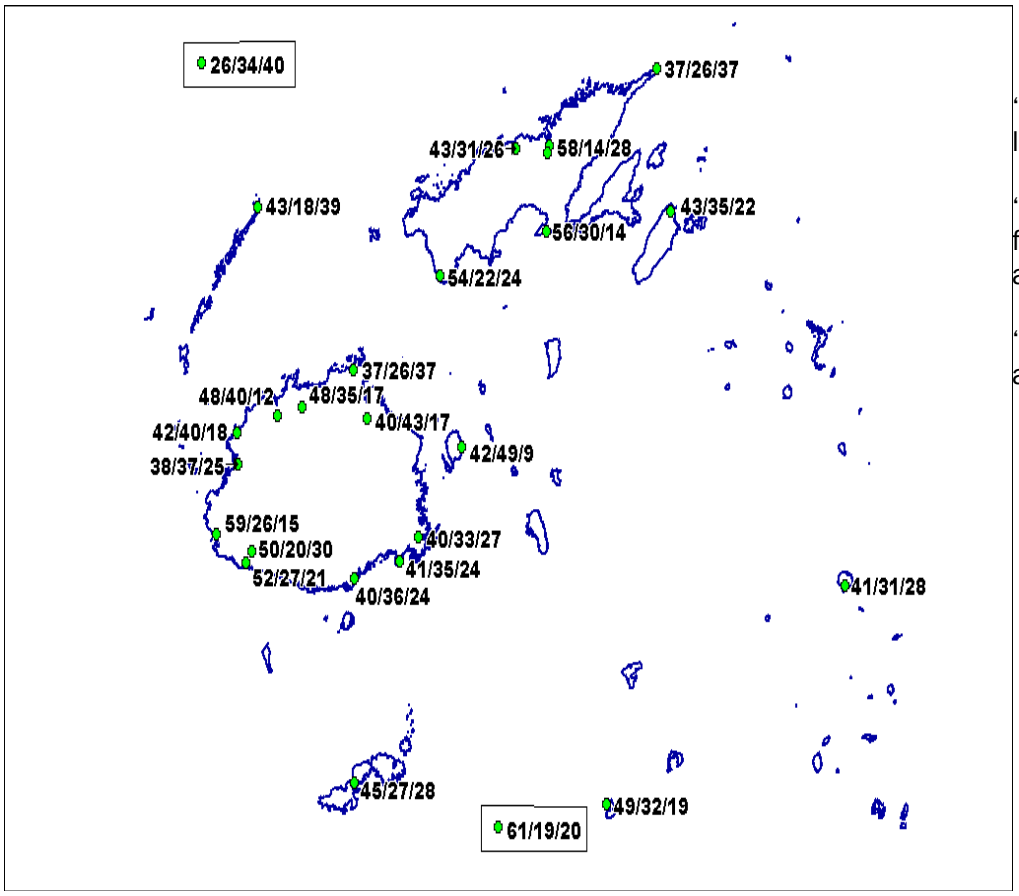
Based on the global and local models, Fiji's rainfall for the next three months is likely to be ***average to below average*** across the country. This means that while many places should be able to receive near average rainfall, there would be places that may end up with significantly below average rainfall in the coming three months and some places may get above average.

It should be noted this is Fiji is going through the transition period where rainfall received at this time of the year is very much variable.

NOTE: The confidence level of this prediction is moderate to low due to the outlook period including the transition period from wet to dry.

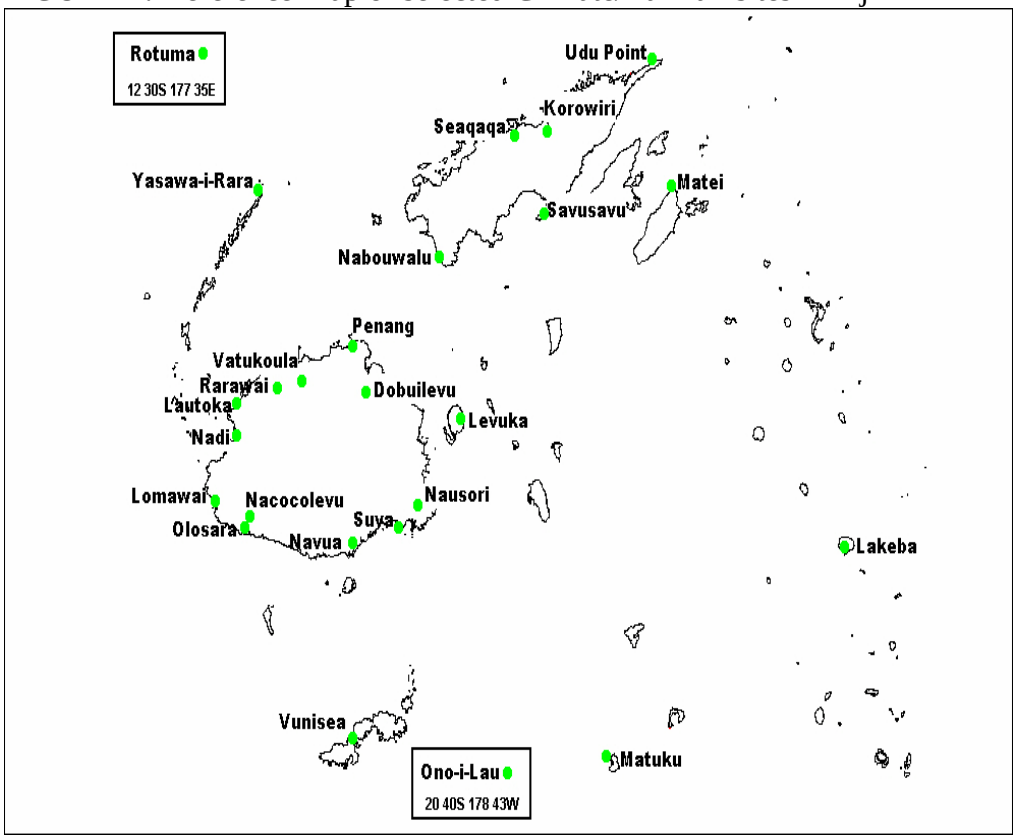
Seasonal Climate Outlook for Pacific Island Countries Model (beta testing version)

FIGURE E*:* Three Month Forecast for Selected Stations in Fiji using the SCOPIC 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.

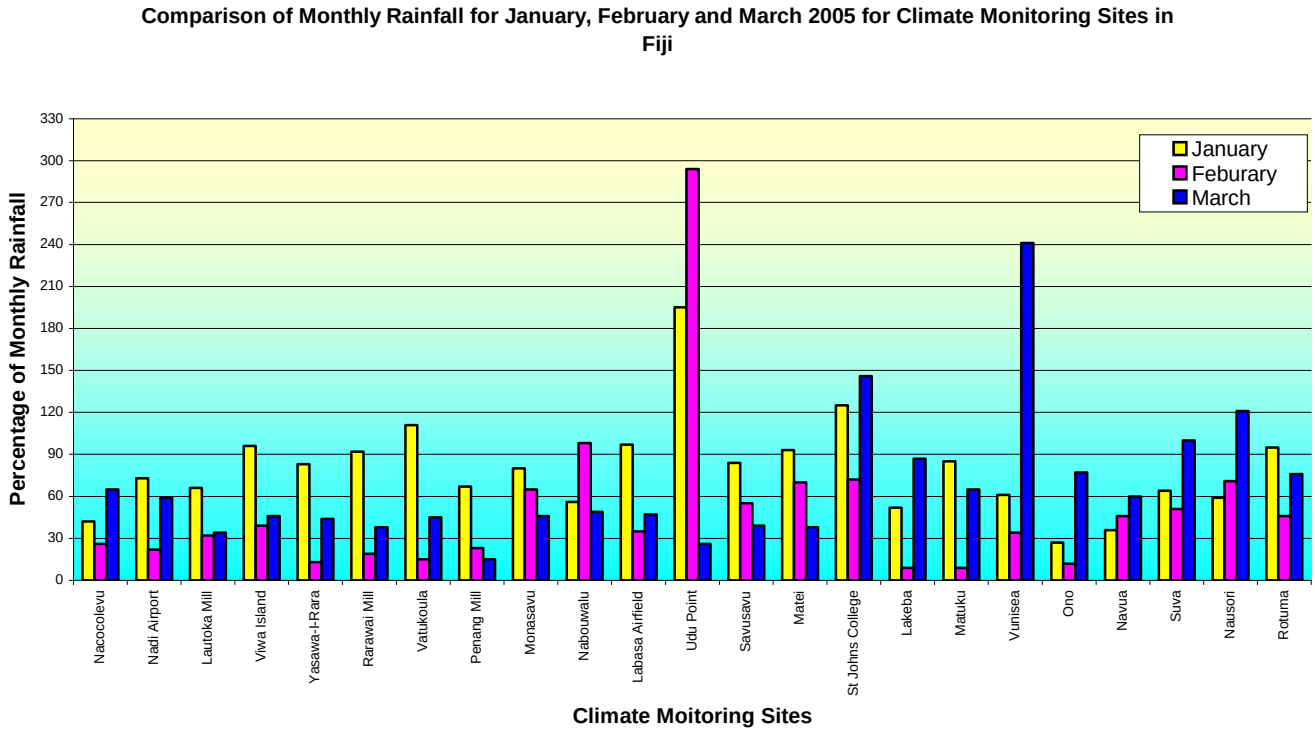
'NORMAL' (average) range refers to rainfall between 33rd and 67th percentiles.

'WET' range refers to rainfall above 67th percentile.

Reference Table for 33rd and 67th Percentile

Station	33% (mm)	67% (mm)
Western Division		
Dobuilevu	425.7	590.7
Vatukoula	312.9	474.4
Rarawai	292.2	433.1
Penang	360.5	513.3
Lautoka	260.1	393.4
Nadi	260.1	373.5
Lomawai	246.0	349.0
Nacocolevu	276.3	374.5
Olosara	257.5	433.0
Yasawa	301.0	444.4
Central Division		
Navua	764.2	992.1
Suva	677.8	849.4
Nausori	638.4	799.5
Eastern Division		
Levuka	520.5	760.2
Lakeba	327.1	501.1
Matuku	353.3	476.6
Ono-I-Lau	277.7	456.1
Vunisea	489.4	597.9
Northern Division		
Labasa Mill	374.8	482.7
Seaqaqa	324.4	515.3
Nabouwalu	483.7	666.5
Savusavu	414.2	630.8
Udu Point	405.2	559.0
Matei	502.0	706.3
Rotuma	748.1	912.8

Figure F



PRELIMINARY CLIMATOLOGICAL SUMMARY FOR MARCH 2005

FIJI METEOROLOGICAL SERVICE DATE 04/04/2005

PRELIMINARY CLIMATOLOGICAL DATA FOR MONTH 3 , 2005 : SUMMARY FOR DAYS 1 TO 31

	RAINFALL					AIR TEMPERATURES								SUNSHINE	
	TOTAL		RAIN	MAX.		AVERAGE DAILY				EXTREME				TOTAL	
		*	DAYS	FALL		MAX.	#	MIN.	#	MAX.		MIN.			
	MM	%	+	MM	ON	C	C	C	C	C	ON	C	ON	HRS	%
NADI AIRPORT	202	59	18	42	2	31.8	0.5	23.4	0.6	33.6	2	21.0	14	216	112
SUVA/LAUCALA BAY	372	100	19	114	3	31.7	0.8	24.6	0.7	33.2	23	22.9	16	202	120
NACOCOLEVU	178	65	8	86	21	32.6	1.5	23.3	0.8	34.0	2	20.3	15	175	115
ROTUMA	281	76	24	79	2	32.4	1.8	25.8	1.1	33.7	11	24.3	12		
VIWA	111	46	14	16	11	32.5	1.5	25.5	0.3	34.5	12	23.3	16		
UDU POINT	84	26	14	21	16	31.9	1.2	24.2	-0.2	33.4	8	22.3	17		
LABASA AIRFIELD	175	47	13	31	22	32.9	1.4	22.9	0.6	34.2	24	20.9	23		
NABOUWALU	164	49	20	42	2	31.7	1.6	25.1	0.8	33.6	4	23.7	19		
SAVUSAVU AIRFIELD	111	39	9	45	5	31.0	0.4	24.3	0.7	33.0	17	23.0	16		
MATEI AIRFIELD	145	38	12	60	2	31.0	0.7	24.8	0.6	31.5	2	23.5	1		
YASAWA-I-RARA	120	44	13	49	24	33.0	2.4	25.5	0.9	34.6	5	23.2	25		
VATUKOULA	174	45	12	74	18	32.9	1.3	23.1	0.9	34.4	9	21.2	28		
MONASAVU	333	49	27	49	9	26.6	1.0	19.3	0.0	29.1	12	16.6	16		
NAUSORI AIRPORT	461	121	18	135	3	30.9	0.4	23.1	-0.1	33.0	21	20.5	15		
NAVUA/TOKOTOKO	240	60	23	74	1	30.6	0.4	23.0	-0.1	32.5	21	21.0	16		
ST. JOHNS COLLEGE	463	146	22	290	3	30.8	0.3	25.1	0.7	31.9	23	22.5	15		
LAKEBA	254	87	12	96	2	30.3	-0.0	24.0	-0.0	31.2	22	21.6	16		
MATUKU	167	65	11	55	2	31.0	0.6	25.2	0.6	32.4	14	22.6	16		
VUNISEA	731	241	14	251	4	30.1	0.1	24.5	1.0	32.5	12	22.0	4		
ONO-I-LAU	195	77	12	83	17	30.8	1.5	23.5	-0.9	32.7	13	21.6	16		
BA/RARAWAI MILL	140	38	11	43	22	33.3	1.3	22.9	0.6	34.6	9	20.0	14		
LAUTOKA AES	104	34	16	29	18	32.2	1.2	24.3	0.5	33.0	5	22.2	14		
PENANG MILL	62	15	11	15	31	32.0	1.5	23.1	-0.7	33.4	22	21.2	13		

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.