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Fiji Islands Weather Summary January 2005 Rainfall Outlook till April 2005

FIJI METEOROLOGICAL SERVICE

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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

IN BRIEF

Rainfall during January was generally average to below average over most of the country except in the eastern part of Vanua Levu which experienced nearly twice its normal rainfall. Ono-I-Lau recorded well below average rainfall receiving only 27% of its average rainfall for the month.

In the last three months, over 80 percent of the daily climate reporting sites have received below average rainfall including Ono-I-Lau which received well below average rainfall. Only two sites have recorded near average rainfall and only one site (Rotuma) has received above average rainfall.

While heavy rainfall on some occasions brought significant relief in many parts of the country, it was insufficient to fully overcome the dry situation experienced by parts of the Western, Northern and Eastern Divisions.

Monthly average day and night time temperatures were generally average to above average. New one-day high air temperature records were set at Labasa Airport and Ono-I-Lau. Records of new monthly mean high day and night time air temperatures were also recorded at some sites (Table with details on new records on page 4).

An equal high monthly mean night time temperature of 25.5ºC was recorded at Rotuma.

WEATHER PATTERNS

The month's weather was largely influenced by two tropical disturbances that brought significant rainfall over most parts of the country. The first instance occurred early in the month when a trough associated with a tropical depression affected the country. The system was later named Tropical Cyclone *Kerry*. Towards the end of the month another tropical depression passed over Vanua Levu and caused strong and gusty winds and heavy rain about the northern and eastern parts of Fiji. This system developed into Tropical Cyclone *Lola* on the last day of the month, when it was located to the far southeast of the country.
Otherwise moist conditions dominated during the month, resulting in afternoon showers and thunderstorms about the main islands.

During the first few days, tropical depression 05F was located to the north of the group. Associated trough moved over the country from the north and caused widespread rain over Fiji from 2nd to the 6th. The depression further intensified and was named Tropical Cyclone *Kerry* at 6 a.m on the 6th when it was located to the far northwest of the group. The system subsequently moved westwards, further away from Fiji. A weak ridge later developed over the country on the 7th and brought mostly fine conditions for the next few days.

Another trough developed to the north and it gradually moved south on the 10th, bringing rain about the northern parts of the group. Moist easterly winds dominated the country, bringing afternoon showers and thunderstorms about the main islands till the 15th. A frontal system moved across the southern areas on the 16th and caused heavy rainfall about the southern parts of Viti Levu. A weak trough with embedded low pressure system drifted about the northeastern parts of Fiji on the 18th and associated rain affected the northern and eastern areas.

A secondary ridge developed over the group on the 19th and brought fine weather except for afternoon showers and thunderstorms about the main islands till the 23rd. On the 26th, tropical depression 06F was located to the far west and was moving eastwards towards the country. Associated trough with widespread rain affected the country from 28th. 06F passed over the southern parts of Vanua Levu on the 30th, and tracked southeast towards Lau group. Strong and gusty winds and heavy rain affected the eastern and northern areas till the end of the month. Damages to some houses were reported in the northern division. The depression further intensified and was name Tropical Cyclone *Lola* when it was located to the far southeast of Fiji.

Rotuma experienced showers during most days of the month due to the intensification the SPCZ. Significant rainfalls associated with tropical depression 05F and 06F were noted on the 4th and 5th and 29th till the 31st. Strong winds upto 30 knots also affected Rotuma on the 4th and 30th.

TABLE 1: RAINFALL FROM NOVEMBER TO JANUARY 2005

Station	Actual Rainfall (mm)	Rainfall in the last three months (Below average, average or above average)	No. of Rain days in Nov (% of total rain)	No. of Rain days in Dec (% of total rain)	No. of Rain days in Jan (% of total rain)
Penang Mill	334.1	Below Average	3 (9)	12 (12)	17 (79)
Monasavu Dam	1061.2	Below Average	13 (13)	26 (37)	28 (50)
Vatukoula Mine	568.5	Below Average	4 (3)	8 (19)	17 (78)
Rarawai Mill, Ba	468.3	Below Average	3 (1)	10 (20)	18 (79)
Yasawa-I-Rara	222.5	Below Average	3 (5)	6 (8)	13 (87)
Viwa Island	306.2	Average	7 (7)	8 (17)	14 (76)
Lautoka (FSC Res.)	360.1	Below Average	4 (10)	13 (22)	18 (68)
Nadi Airport	307.9	Below Average	7 (9)	12 (10)	18 (81)
Nacocolevu, Sigatoka	-	-	2	11	-
Tokotoko, Navua	616.8	Below Average	19 (17)	23 (57)	21 (26)
Laucala Bay, Suva	689.6	Below Average	14 (12)	22 (54)	24 (34)
Nausori Airport	590.8	Below Average	12 (12)	16 (52)	23 (36)
Nabouwalu	348.1	Below Average	13 (12)	23 (37)	20 (51)
Labasa Airport	484.1	Below Average	8 (11)	10 (12)	14 (77)
Savusavu Airport	481.5	Below Average	8 (29)	15 (23)	18 (48)
Udu Point	-	-	11	22	-
Matei Airport	743.5	Below Average	16 (20)	13 (35)	18 (45)
Lakeba Is.	329.4	Below Average	10 (13)	13 (48)	10 (39)
Matuku Is.	343.6	Below Average	4 (9)	10 (23)	15 (68)
Ono-I-Lau Is.	99.8	Well Below Average	3 (11)	7 (42)	08 (47)
Vunisea, Kadavu	416.4	Average	12 (29)	20 (29)	19 (42)
Rotuma	1272.2	Above Average	19 (48)	21 (26)	22 (26)

RAINFALL IN THE LAST THREE MONTHS

Rainfall in January

Rainfall was below average to average across most of the Western and Northern Division.

Eastern Division received average rainfall except at Saint John's College which received above average rainfall and Ono-I-Lau which received well below average rainfall.

The Central Division recorded Below average rainfall.

Above average rainfall was received at Rotuma.

Rainfall in the 3-months from November to January

The Rainfall Outlook for the period November to January in the October 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 sites that reported in time for this summary, only Ono-I-Lau reported well below average rainfall, sixteen sites reported receiving below average, two sites received average and only Rotuma received above average rainfall.

Figure A

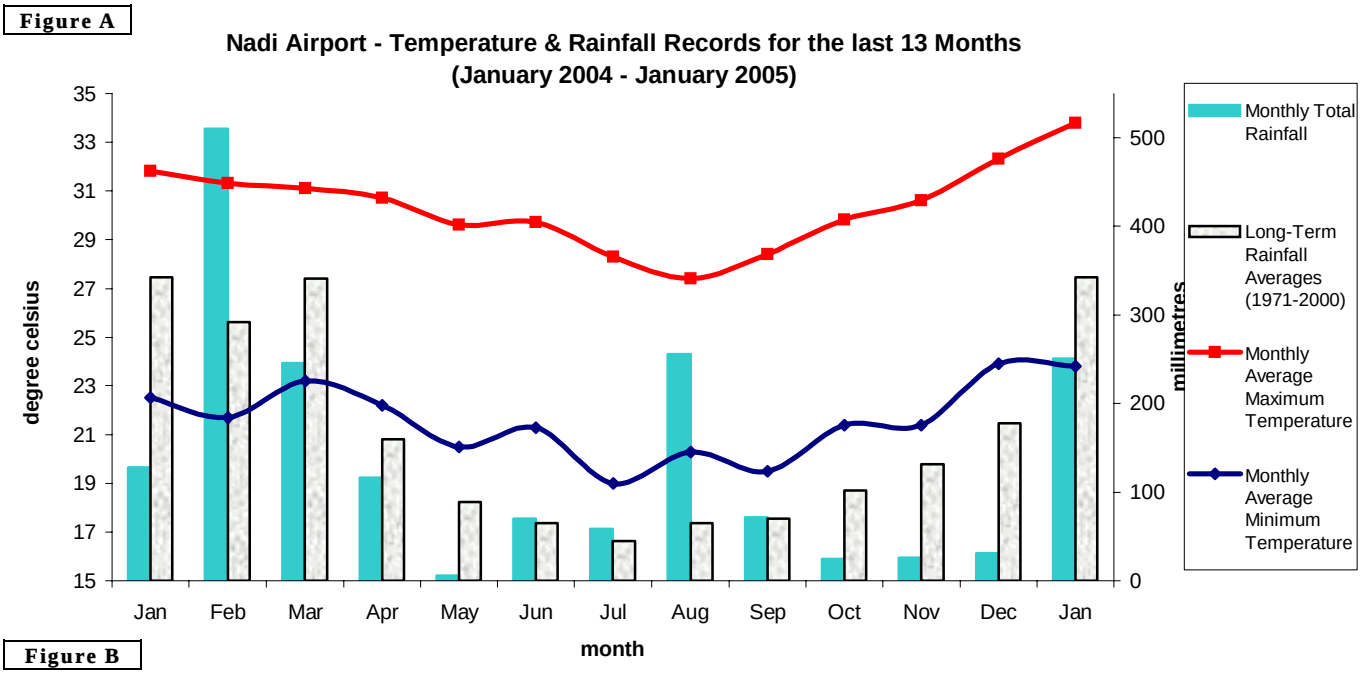


Figure B

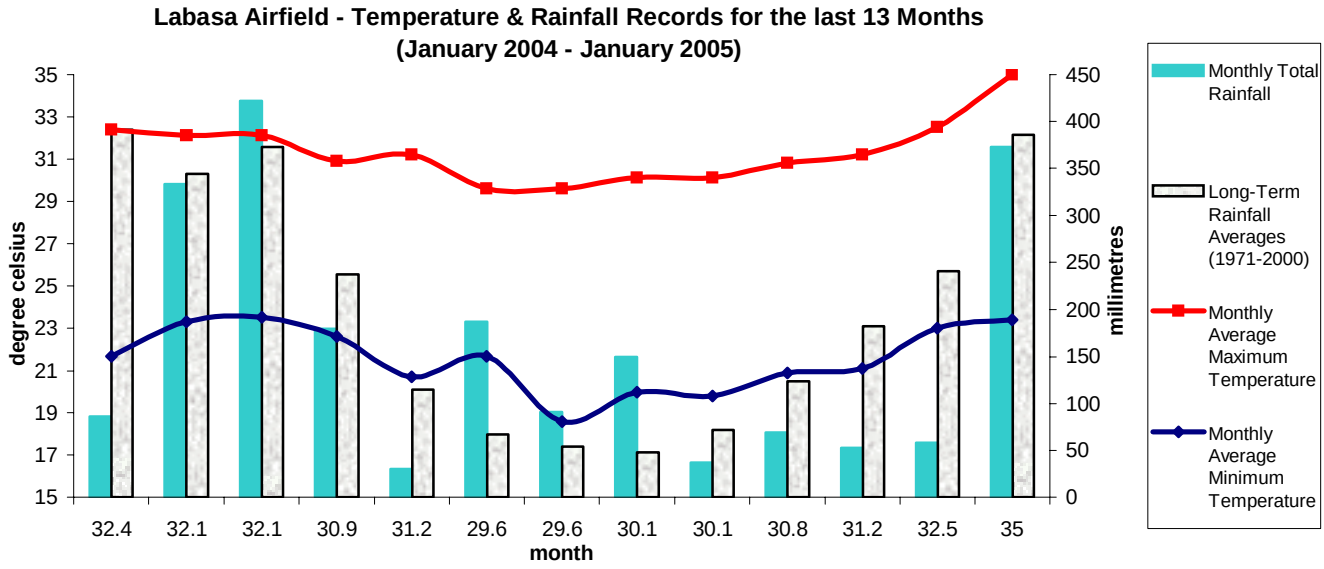
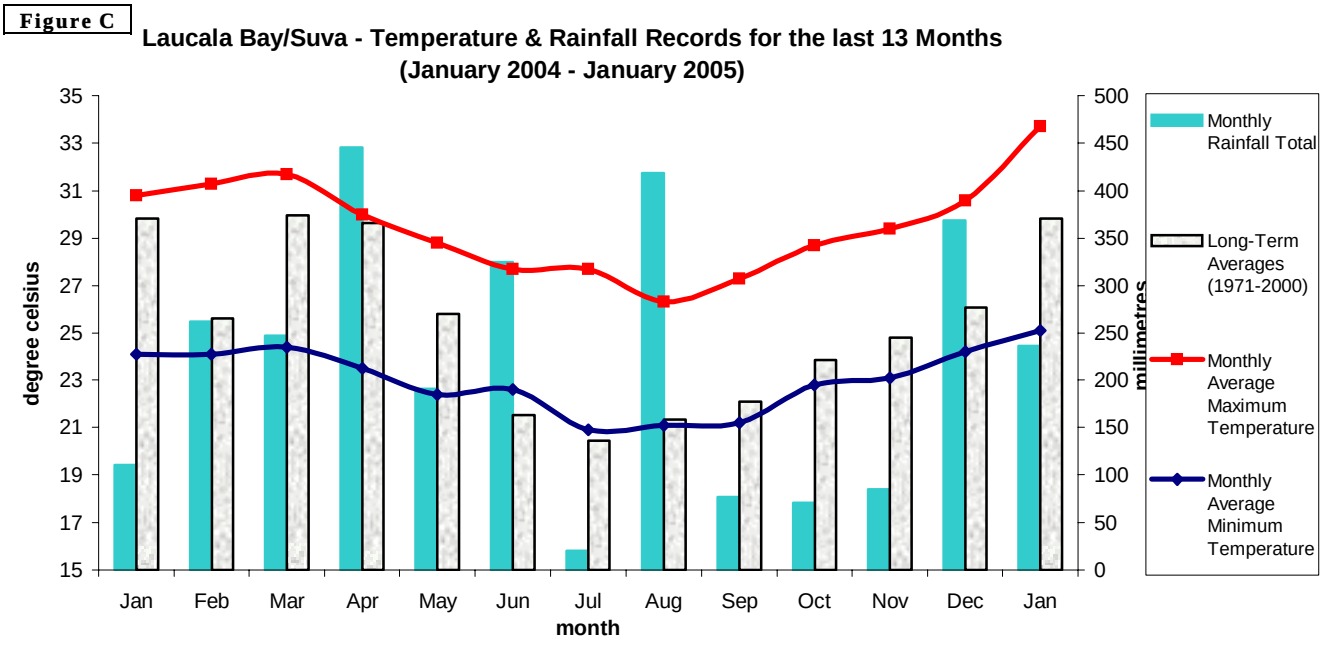


Figure C



Climate in January

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

Day-time temperatures were near average to generally above average across the country. The greatest positive departure was recorded at Ono-I-Lau which recorded 2.8°C above normal, 1.9°C at Yasawa-I-Rara and 1.6°C at Viwa respectively above normal.

Night-time temperatures were generally average to above average across the country. The greatest positive departures were recorded at Lakeba which recorded 2.2°C above normal. Vunisea and Vatukoula recorded 1.7°C and 1.5°C above normal respectively. The greatest negative departure was recorded at Penang Mill, which recorded 0.7°C below normal, Viwa and Udu Pt. recorded 0.3°C and 0.1 °C below normal.

Relative Humidity (RH) at 0900hrs varied from above average to below average across the country. The highest positive departure from normal was 4.0% which was recorded at Nacocolevu. The greatest negative departure from normal was recorded at Mataku which recorded 15.0% below normal.

SOIL MOISTURE AND RUNOFFS

In the Central Division, conditions were generally limiting to moderate during the first half of the month then ample to excessive for the rest of the month.

In the Western Division, conditions were limiting to dry for the first half of the month and then ample to excessive for the rest of the month except at Monasavu which recorded excessive soil moisture conditions.

In the Eastern Division, all sites reported conditions generally limiting to dry conditions over the first 3 weeks and ample to excessive over the last week of the month. Rotuma recorded excessive to ample conditions throughout the month.

In the Northern Division, limiting to dry conditions were experienced at Nabouwalu and Labasa Airport for most of the month while Savusavu Airport, Matei and Udu Point recorded excessive to ample conditions.

Significant runoffs were recorded at Udu Point (423.7mm), Monasavu (395.6mm), and Vatukoula (222.0mm).

SUNSHINE. RADIATION & WINDS

Total sunshine hours were close to average in January at all recording sites. Nadi Airport received 93%, Laucala Bay/ Suva 99% and Nacocolevu 86%. Global Solar Radiation at Nadi Airport was 18.3 MJ/ M^2 (average per day).

Monthly average wind speed were below average at Nabouwalu and Rotuma while average wind speeds were recorded at Nadi Airport and Nausori Airport during the month.

RECORDS SET IN JANUARY 2005

Element	Station	Observed (record)	On	Rank	Previous (record)	Year	Records Began
Dly Max. Temp (ºC)	Labasa Airport	35.0	08th	New High	34.9	2003	1956
Dly Max. Temp (ºC)	Ono-I-Lau	33.4	23rd	New High	33.2	2003	1943
Mly Max Temp (ºC)	Viwa	32.7	-	New High	31.9	1998	1978
Mly Max Temp (ºC)	Udu Point	32.0	-	New High	31.8	1987	1946
Mly Min Temp (ºC)	Laucala Bay	25.1	-	New High	25.0	1998	1942
Mly Min Temp (ºC)	Lakeba	25.3	-	New High	25.1	1998	1949
Mly Min Temp (ºC	Vunisea	25.1	-	New High	24.5	1997	1943
Mly Min Temp (ºC	Rotuma	25.5	-	Equal High	25.5	1990/98	1912

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 are 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. season.

Historical records of tropical cyclones affecting Fiji since the 1969/70 season show that 8 cyclones have affected Fiji in February with one of them causing severe damage. The years were 1973, 78, 83, 86, 88, 93 (2 events) and 2001. However, there have been as many as 6 events such as during the 1996/97

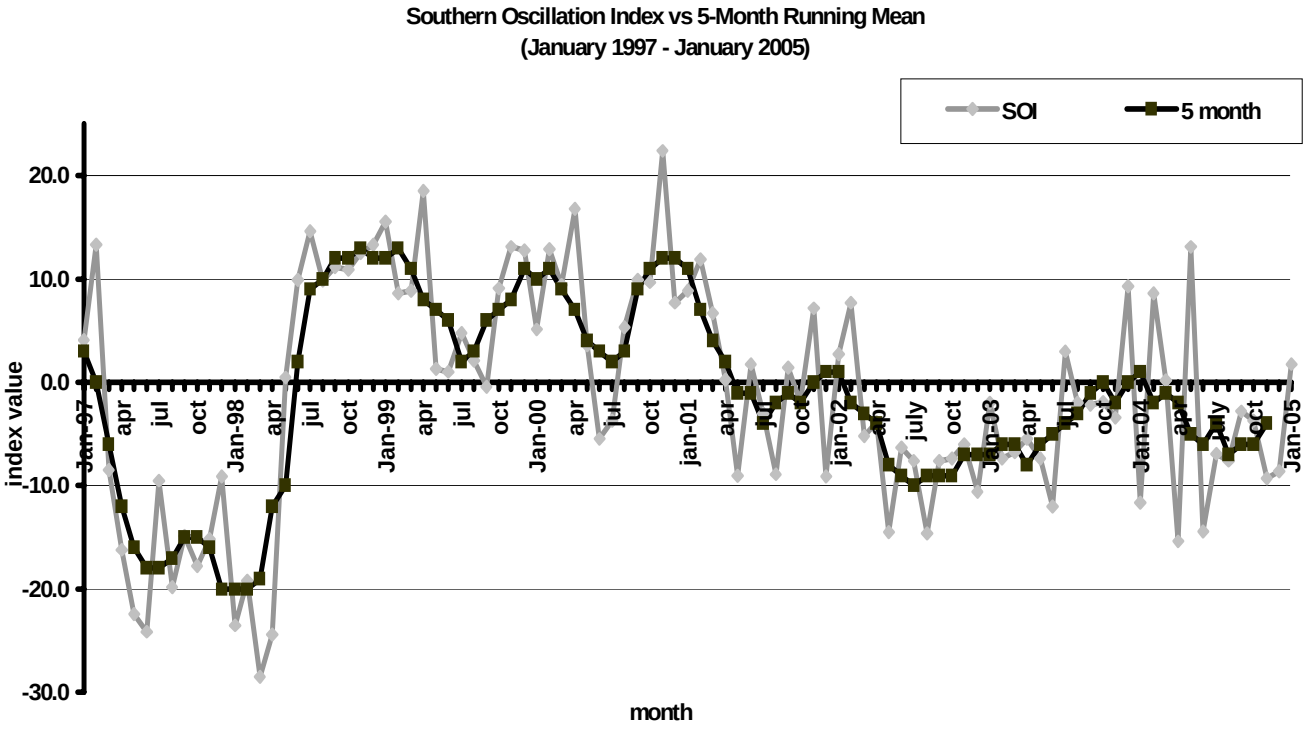
To date there have been three tropical cyclones forming in the SW Pacific this season. TC *Judy (*Max int. Gale) formed on the 25th December, TC *Kerry* formed on the 6th January and TC Lola was named on the night of 31st January. The average number of tropical cyclones that form in a season is between 9-10 in this region.

Prior to and during a cyclone, information can be accessed from Fiji Meteorological Service Website:http:/www.met.gov.fj, via e-mail, NadiTCC@met.gov.fj, via weather fax 6721227 (polling fax), via fax 6720190 or phone 6724888 or recorded weather on 3301642.

PRELIMINARY CLIMATOLOGICAL SUMMARY FOR JANUARY 2005

	RAINFALL					AIR TEMPERATURES								SUNSHINE	
	TOTAL	*	RAIN DAYS	MAX. FALL		AVERAGE DAILY MAX.	#	AVERAGE DAILY MIN.	#	EXTREME MAX.		EXTREME MIN.		TOTAL	*
	MM	%	+	MM	ON	C	C	C	C	C	ON	C	ON	HRS	%
NADI AIRPORT	251	73	18	56	14	31.9	0.4	23.8	1.0	33.8	3	22.4	16	196	93
SUVA/LAUCALA BAY	236	64	24	45	16	31.8	1.0	25.1	1.2	33.7	24	23.6	6	190	99
NACOCOLEVU	115	42	10	36	30	32.3	1.1	23.3	1.0	34.8	9	22.0	1	153	86
ROTUMA	336	95	22	64	29	31.4	0.8	25.5	0.8	33.4	25	24.0	30		
VIWA	234	96	14	43	17	32.7	1.6	24.7	-0.3	34.5	16	22.7	29		
UDU POINT	611	195	14	160	28	31.9	1.4	24.2	-0.1	33.6	13	22.1	3		
LABASA AIRFIELD	373	97	14	97	30	32.8	1.1	23.4	1.2	35.0	8	20.0	16		
NABOUWALU	176	56	20	27	30	31.6	1.5	25.1	0.9	34.2	26	22.3	6		
SAVUSAVU AIRFIELD	230	84	18	43	30	30.9	0.3	24.9	1.4	32.1	24	23.3	25		
MATEI AIRFIELD	337	93	18	58	30	30.7	0.7	24.8	0.7	32.0	23	23.0	29		
YASAWA-I-RARA	195	83	13	76	2	32.4	1.9	25.3	0.7	35.0	26	22.4	3		
VATUKOULA	442	111	17	111	29	32.4	0.6	23.3	1.5	34.4	1	21.4	16		
MONASAVU	529	80	28	119	4	26.5	1.2	19.7	0.9	29.9	26	18.2	26		
NAUSORI AIRPORT	215	59	23	42	2	31.1	0.7	23.9	0.8	33.0	23	22.6	6		
NAVUA/TOKOTOKO	160	36	21	57	16	30.6	0.9	23.6	0.6	33.0	22	23.0	26		
ST. JOHNS COLLEGE	303	125	20	42	16	31.1	0.9	25.0	0.9	33.0	26	22.2	7		
LAKEBA	128	52	10	40	30	30.9	0.8	25.3	2.2	32.8	22	22.7	16		
MATUKU	235	85	15	42	18	31.0	0.8	24.8	0.4	32.5	21	22.7	5		
VUNISEA	176	61	19	52	15	30.6	0.7	25.1	1.7	33.0	11	23.0	22		
ONO-I-LAU	47	27	8	17	30	32.0	2.8	24.3	0.1	33.4	23	21.9	16		
BA/RARAWAI MILL	368	92	18	140	29	32.9	0.9	23.3	1.2	35.5	21	18.1	6		
LAUTOKA AES	244	66	18	46	17	31.6	0.6	24.5	0.8	33.6	9	22.7	2		
PENANG MILL	264	67	17	109	29	31.8	1.5	23.3	-0.7	33.5	24	20.5	2		

Figure D



ENSO status and Rainfall Outlook to April 2005

EL NIÑO - SOUTHERN OSCILLATION UPDATE

The Southern Oscillation Index (SOI) for January was +1.8 (December was -8.6) with the five-month running mean of -4 centred on November (October was -6) (Figure D).

Surface temperatures have continued to cool over most of the tropical Pacific during the past fortnight, with only the western areas to near the dateline remaining above El Niño thresholds. Other indicators are all neutral: the monthly SOI is positive for the first time since May 2004. Central Pacific cloudiness is close to average and the Trade Winds continue to fluctuate about their long-term mean.

2004 saw other ENSO indicators move only partially towards typical El Niño values such as subsurface temperatures and the SOI, while others generally oscillated about their long-term averages such as cloud and wind in the central Pacific.

As far as El Niño is concerned, the important question is what will happen during the southern autumn and winter. To this end, the most recent survey of computer model guidance had an 8 to 4 majority with central to eastern Pacific temperatures in the neutral range in June. By September the split was 5 to 3 in favour of neutral, and nearly all the models indicate temperatures continuing on the warm side of average. So the general message from the models is for central Pacific temperatures to be warmer than average in winter and spring, with the current risk assessment for El Niño conditions being roughly the same as what would normally be expected early in the year. March to June is known as the "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 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, please use these predictions with caution.

The model predicts rainfall to be below average to average in the Western Division except at Monasavu (not shown) where rainfall is predicted to be near average.

In the Central Division rainfall is expected to be below average to average except for Nausori where rainfall is predicted to be average to above average.

In the Northern Division rainfall is expected to be below average except at Matei where rainfall is expected to be average or below average.

In the Eastern Division and Rotuma rainfall is expected to be average to below average.

RAINFALL OUTLOOK FOR FEBRUARY TO APRIL 2005

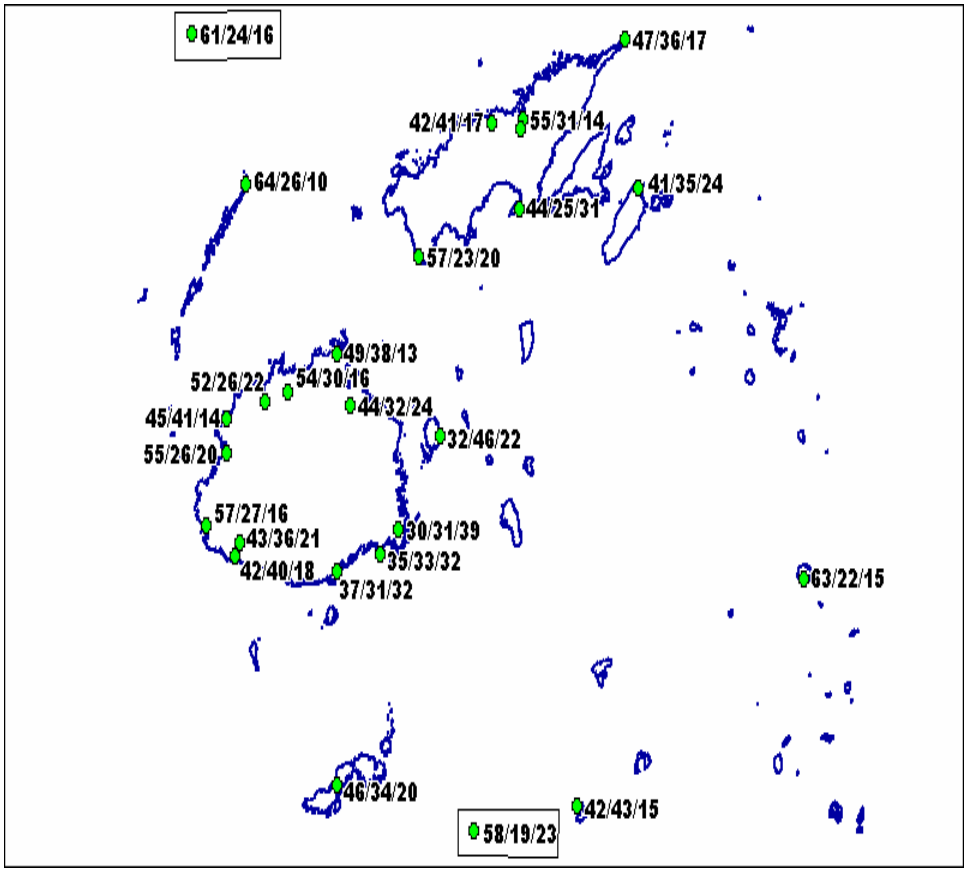
Based on the above, rainfall is expected to be average to below average across most of the country from February to April.

It should be noted that much of the rainfall received at this time of the year is very much dependent on the number and effect of tropical disturbances (cyclones, depressions, etc) on the Fiji Group, which can affect the predictions significantly.

NOTE: The confidence level of this prediction is moderate.

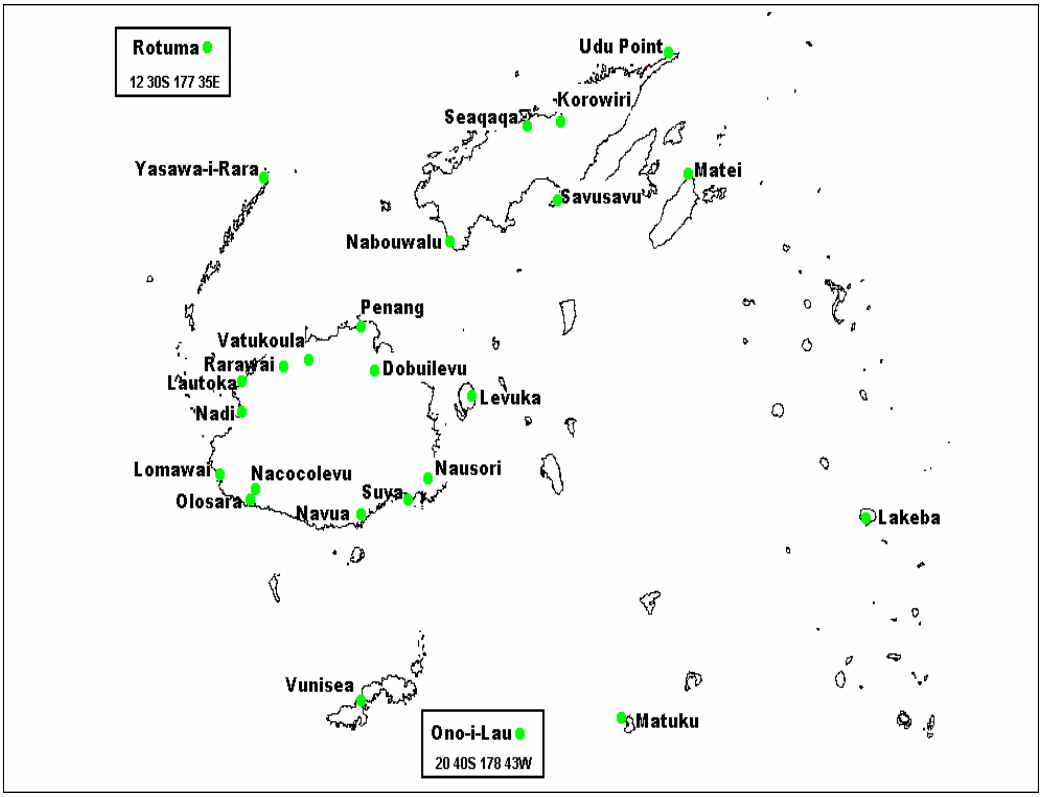
Seasonal Climate Outlook for Pacific Island Countries Model (beta testing version)

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	592.5	805.6
Vatukoula	647.0	909.1
Rarawai	625.3	871.5
Penang	631.5	873.7
Lautoka	540.5	739.9
Nadi	536.2	697.8
Lomawai	418.9	635.9
Nacocolevu	405.3	638.7
Olosara	352.4	562.8
Yasawa	423.2	631.7
Central Division		
Navua	603.4	817.1
Suva	540.5	739.9
Nausori	567.0	721.1
Eastern Division		
Levuka	515.0	706.1
Lakeba	418.6	572.0
Matuku	337.8	481.3
Ono-I-Lau	322.0	468.9
Vunisea	413.1	557.0
Northern Division		
Labasa Mill	606.9	931.4
Seaqaqa	631.5	956.3
Nabouwalu	514.5	701.2
Savusavu	385.5	594.3
Udu Point	516.7	669.3
Matei	476.6	677.9
Rotuma	603.4	773.1