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May 2004

Fiji Islands Weather Summary
May 2004
Rainfall Outlook till August 2004

FIJI METEOROLOGICAL SERVICE

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IN BRIEF

Mean sea level pressure in May was higher west of the dateline and the South Pacific Convergence Zone was weak and inactive near the dateline for most of the month. Rainfall across the country especially in western Viti Levu and northern Vanua Levu were markedly drier than normal during May. Overall in the central Pacific cloudiness near the dateline was less than average for May.

Overall, air temperatures in May continued to decline in comparison to the last two months which is expected as we progress into the *cool-dry season.* Daytime air temperatures were average to above average and night-time air temperatures around average. Relative humidity was generally below average. Total sunshine hours were above average at all the recording stations which is expected with below average rainfall and cloudiness.

Based on model predictions and current 'neutral' ocean and atmospheric conditions, Fiji's rainfall is expected to be average to below average in the next three months.

WEATHER PATTERNS

In the first three days of May a ridge of high pressure to the south maintained a relatively southeasterly flow over the country and brought some showers to the southeastern parts of the main islands. From the 4-8th a slow moving trough of low pressure drifted onto the Group causing scattered showers. Isolated heavy falls were experienced on the 7th particularly over Viti Levu as well as the southern and eastern parts of the country. Fine weather set in generally from the 9-22nd, brought about a ridge of high pressure from the south. This was only broken on the 14th and 18th, as two weak cold fronts moved across Fiji with some showers.

Between the 23-26th another trough drifted close to Vanua Levu bring showers to the northern and eastern parts of the country. The trough later moved onto Fiji on the 27th causing showers with isolated heavy falls till the 29th. Yet another weak cold front approached Fiji on the 30th to interact with a slow moving trough over the country. Subsequently rain was experienced over the Group till the end of the month.

Rotuma experienced dry conditions from the 11th till the 19th of May. The rest of the month was wet due to the close proximity of the South Pacific Convergence Zone.

TABLE 1: RAINFALL FROM MARCH TO MAY 2004

Station	Actual Rainfall (mm)	Rainfall in the last three months (Below average, average or above average)	No. of Rain days in March (% of total rain)	No. of Rain days in April (% of total rain)	No. of Rain days in May (% of total rain)
Penang Mill	557.3	Below Average	21 (52)	12 (46)	5 (2)
Monasavu Dam	721.2	Below Average	24 (37)	23 (53)	14 (10)
Vatukoula Mine	608.2	Average	15 (45)	10 (52)	4 (3)
Rarawai Mill, Ba	580.7	Average	18 (63)	7 (27)	4 (9)
Yasawa-I-Rara	-	-	-	-	-
Viwa Is.	371.3	Below Average	19 (64)	9 (31)	4 (5)
Lautoka Mill(Research)	446.7	Below Average	21 (55)	9 (40)	4 (5)
Nadi Airport	368.2	Below Average	27 (67)	9 (31)	5 (2)
Nacocolevu, Sigatoka	332.0	Below Average	-	15	4
Tokotoko, Navua	1117.8	Average	20 (28)	20 (52)	17 (20)
Laucala Bay, Suva	882.7	Average	29 (28)	24 (50)	18 (22)
Nausori Airport	810.1	Average	23 (27)	21 (54)	15 (19)
Nabouwalu	522.4	Below Average	25 (47)	24 (32)	17 (21)
Labasa Airport	630.3	Average	20 (67)	11 (28)	7 (5)
Savusavu Airport	607.3	Average	20 (40)	16 (34)	13 (26)
Udu Point	671.8	Average	26 (48)	20 (33)	17 (19)
Matei Airport	429.8	Below Average	18 (41)	12 (37)	9 (22)
Lakeba Is.	626.4	Average	19 (26)	15 (43)	10 (31)
Matuku Is.	-	-	-	-	-
Ono-I-Lau Is.	574.4	Average	18 (53)	11(37)	9 (10)
Vunisea, Kadavu	669.9	Average	25 (42)	18 (43)	13 (15)
Rotuma	723.2	Below Average	22 (50)	21 (31)	15 (19)

RAINFALL IN THE LAST THREE MONTHS

Rainfall in May

Rainfall in May was below to well below average across the country except for Lakeba which received above average rainfall. In the Western Division rainfall was well below average (<40%) across the entire Division except in Ba. In the Central Division rainfall was below average. In the Northern Division rainfall was below average except for Labasa Mill which recorded well below average. In the Eastern Division (inc. Rotuma) rainfall was below average except for Lakeba as mentioned above.

Rainfall in the 3-months from March to May

The Rainfall Outlook for the period March to May in the February Fiji Islands Weather Summary was for rainfall vary considerably around average. The confidence level of the forecast was low.

Of the twenty sites that reported in time for this summary, nine sites reported below average and eleven average.

Figure A

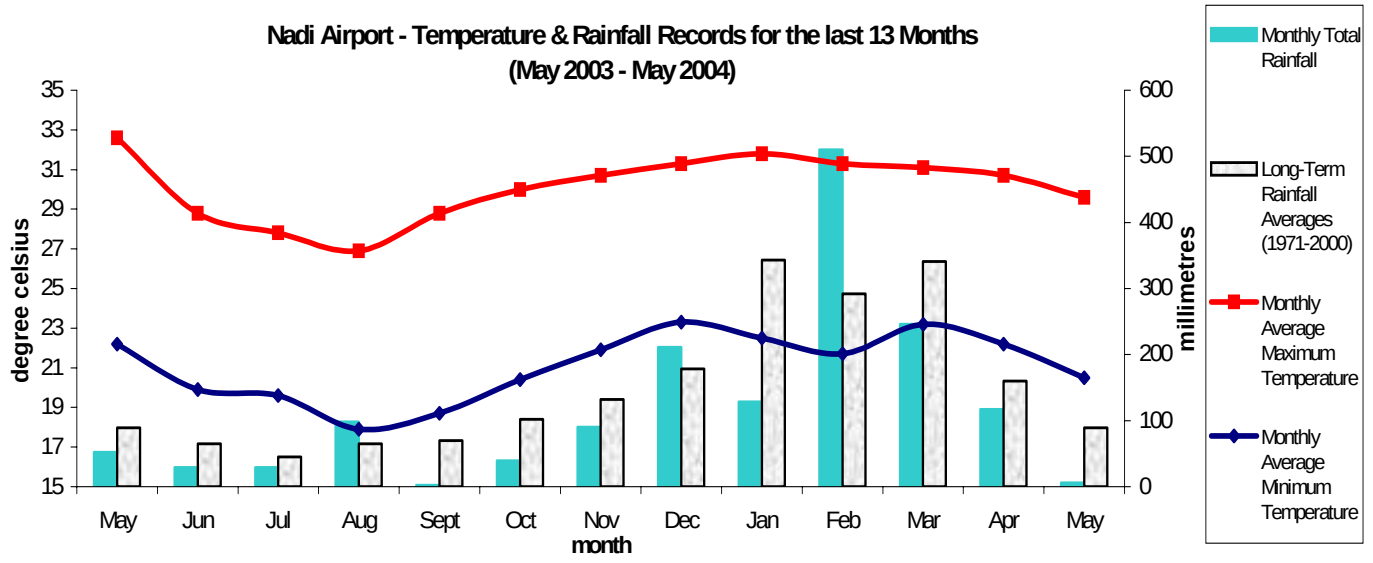


Figure B

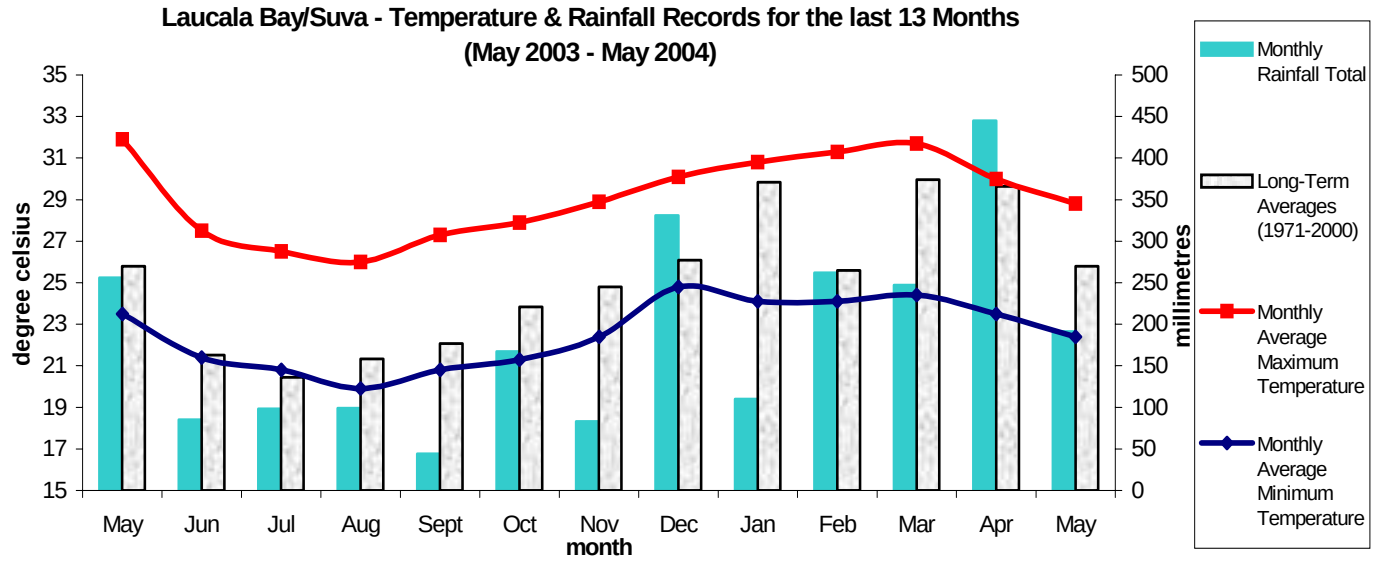
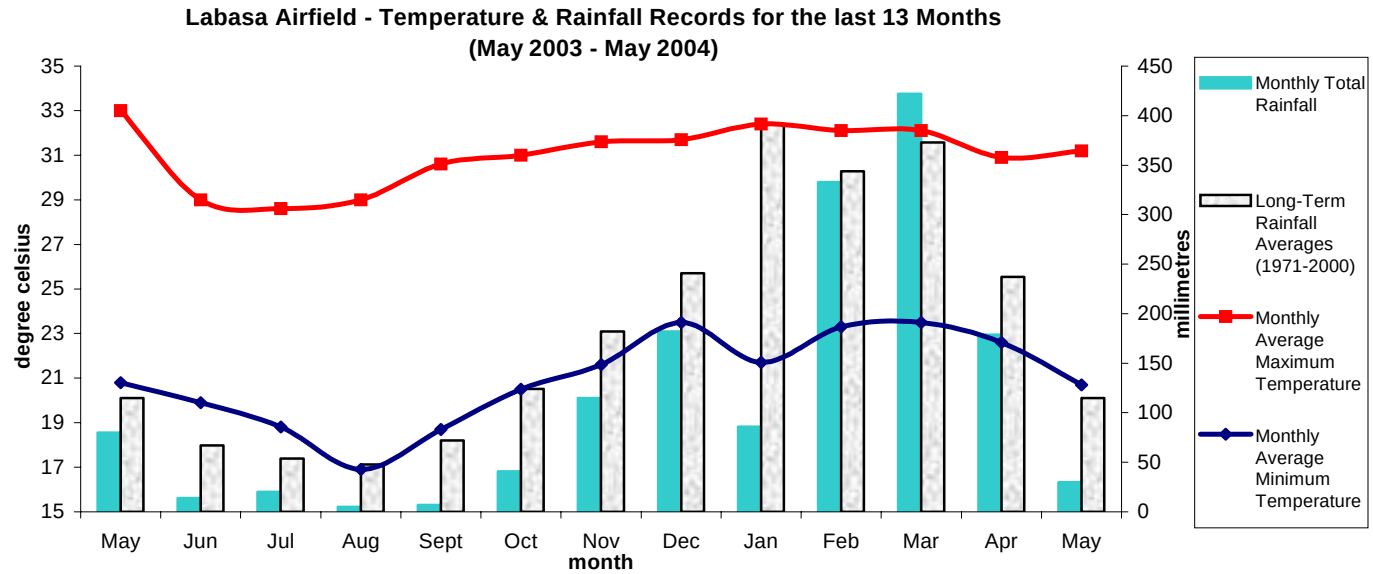


Figure C



Climate in May

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

Day-time temperatures were average to above average across the country. The greatest positive departures were recorded at Monasavu 1.7°C, Viwa and Penang Mill 1.6°C and Rotuma 1.5°C above normal. The only negative departure was recorded at Nadi Airport which recorded 0.1°C below normal.

Night-time temperatures varied around average. The greatest positive departures from normal were recorded at Vatukoula and Vunisea which recorded 0.9°C and Labasa Airfield 0.8° C above normal. The greatest negative departure were recorded at Penang Mill, Viwa and Ono-I-Lau which recorded 1.4°C, 0.9°C and 0.8°C below normal.

Relative Humidity (RH) at 0900hrs were mostly below average across the country. The greatest positive departures from normal were recorded at Nacocolevu (4%) and Nadi Airport (2%). The greatest negative departures were recorded at Lautoka Mill and Penang Mill which recorded 6% and Navua, Rarawai, and Viwa 5% below normal.

SOIL MOISTURE AND RUNOFFS

Soil moisture conditions varied throughout the month. The second half of the month was much drier than the first.

In the Western Division conditions ranged from ample to moderate during the first half of the month than moderate to limiting dry at the end of the month . This pattern was common for most sites except Monasavu which recorded excess to ample during the first half than ample to moderate at the end of the month. Nacocolevu recorded moderate to limiting to dry conditions.

In the Central Division conditions were excessive to moderate then excessive again towards the end of the month. In the Northern Division, conditions were excessive to moderate at Udu Pt. Savusavu Airport recorded excessive to ample then moderate then excessive to ample at the end of the month. At Nabouwalu conditions were similar to Savusavu but remained dry at the end of the month. In the Eastern Division, Lakeba recorded ample to moderate conditions for most of the month. Vunisea recorded ample to moderate conditions and Ono-I-Lau recorded generally excessive to ample then moderate conditions

Rotuma recorded excess to ample during the first half of the month then remained mostly moderate during the second half of the month

Significant runoffs were recorded at Navua (115.2mm), Laucala Bay, Suva (97.6mm) and Lakeba (88.7mm).

SUNSHINE, RADIATION & WINDS

Total sunshine hours were above average. Nadi Airport recorded 123%, Laucala Bay/Suva, 119%, Nacocolevu 122% and Rotuma 148% of normal.

Global Solar Radiation (average per day) recorded at Nadi Airport was 16.6MJ/ M^2.

Monthly average wind speed was well above average to above average at Nausori Airport, Nadi Airport, Rotuma and Vunisea.

RECORDS SET IN MAY 2004

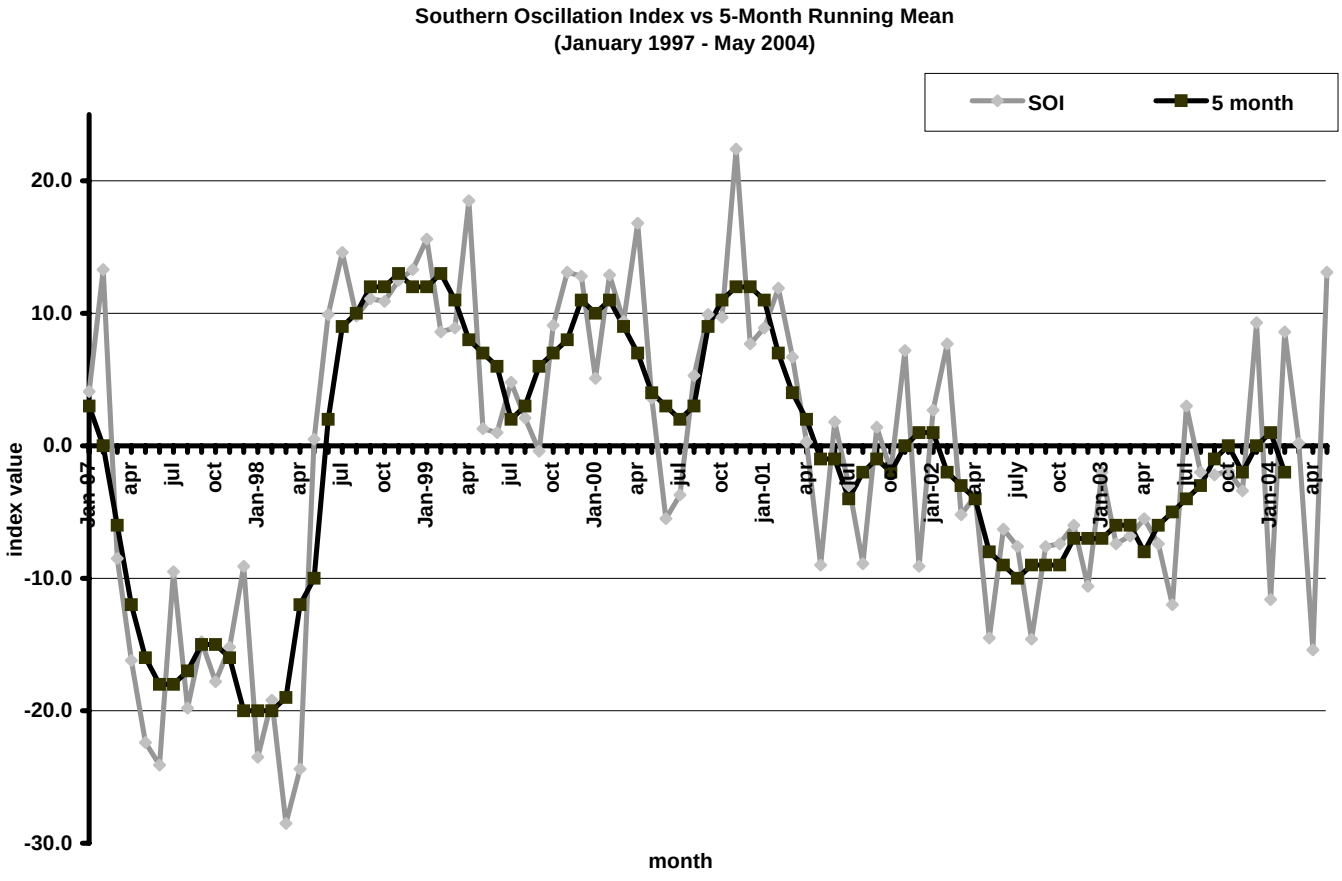
Element	Station	Observed (record)	On	Rank	Previous (record)	Year	Records Began
Min Temp	Laucala Bay	26.5°C	1st	New High	26.0°C	2001	1942
Min Temp	Navua	24.8°C	1st	New High	24.7°C	1999	1992
Sunshine	Rotuma	281.6hrs	-	New High	265.0hrs	1939	1936

PRELIMINARY CLIMATOLOGICAL SUMMARY FOR MAY 2004

	RAINFALL					AIR TEMPERATURES								SUNSHINE	
	TOTAL	*	RAIN DAYS	+	MAX. FALL	AVERAGE DAILY MAX.	#	MIN.	#	EXTREME MAX.	ON	MIN.	ON	TOTAL	*
	MM	%			MM ON	C	C	C	C	C		C		HRS	%
NADI AIRPORT	6	7	5		4 14	29.6	-0.1	20.5	0.3	32.4	1	17.6	12	256	123
SUVA/LAUCALA BAY	191	71	18		57 30	28.8	0.3	22.4	0.2	31.2	1	19.6	12	174	119
NACOCOLEVU	27	32	4		12 31	29.5	0.6	20.0	0.3	32.3	1	16.5	20	196	122
ROTUMA	137	46	15		29 8	31.5	1.5	25.1	0.5	32.5	27	22.4	15	282	148
VIWA	17	15	4		11 30	30.8	1.6	23.1	-0.9	32.6	2	21.5	12		
UDU POINT	128	77	17		30 31	30.0	0.8	23.3	-0.2	31.9	1	21.3	14		
LABASA AIRFIELD	30	26	7		8 31	31.2	1.0	20.7	0.8	32.6	29	17.4	17		
NABOUWALU	110	64	17		65 30	Insufficient Data									
SAVUSAVU AIRFIELD	155	79	13		47 25	28.5	-0.0	22.0	-0.3	30.2	18	19.0	13		
MATEI AIRFIELD	94	41	9		22 18	29.4	1.0	22.5	-0.4	31.0	16	20.0	14		
*YASAWA-I-RARA	Faulty AWS														
VATUKOULA	16	21	4		14 6	31.3	1.0	20.4	0.9	33.7	1	18.5	16		
MONASAVU	72	22	14		17 7	24.0	1.7	17.0	0.0	27.0	12	12.8	16		
NAUSORI AIRPORT	150	60	15		54 27	28.5	0.7	20.9	-0.2	30.5	14	18.0	16		
NAVUA/TOKOTOKO	221	72	17		50 28	28.1	0.8	21.1	0.2	30.0	2	17.5	13		
LAKEBA	193	142	10		80 30	28.4	0.4	22.5	-0.2	30.3	29	17.8	12		
*MATUKU	Faulty AWS														
VUNISEA	101	55	13		34 7	27.9	0.6	22.4	0.9	29.5	28	19.5	12		
ONO-I-LAU	57	54	9		34 7	27.8	1.1	21.3	-0.8	30.1	18	18.8	25		
BA/RARAWAI MILL	54	57	4		51 7	31.2	0.6	19.7	0.6	33.5	1	16.0	16		
LAUTOKA AES	22	26	4		11 14	29.9	0.4	21.7	0.2	32.1	4	19.4	19		
PENANG MILL	11	7	5		3 23	30.1	1.6	20.7	-1.4	32.5	28	13.0	16		

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.

Figure D



ENSO status and Rainfall Outlook to August 2004

EL NIÑO - SOUTHERN OSCILLATION UPDATE

The Southern Oscillation Index (SOI) for May was 13.1 (April was –15.4) with the five-month running mean of –1 centred on March (February was –2) (Figure D).

As of 02/06/04 the current El Niño-Southern Oscillation status has remained neutral with a further decline in the risk of an El Niño developing later this year. The most likely outcome for the remainder of 2004 is for a persistence of neutral conditions. There is nothing in the current observations to suggest the emergence of an appropriate trigger for an El Niño event. The next three or four weeks are critical because if an appropriate trigger fails to occur during this period, the likelihood of an El Niño event this year will be low.

Consistent with the positive SOI, the central Pacific cloudiness near the dateline was less than average for May. The largest change in tropical Pacific sea-surface temperatures (SST) during the past week was in the far east, where warming by about 0.3°C saw a reduction in the strength of negative departures. Elsewhere there was little change with somewhat warmer than average conditions remaining in most areas.

Although most show some level of warming, the consensus (by a 9–2 majority) of computer SST forecasts, including the Bureau-run POAMA model, is for a neutral temperature pattern in the central to eastern equatorial Pacific continuing into the southern spring.

The Trade Winds have been at near-normal strength during the past week suggesting that the period of weakening in the middle of May was just a temporary fluctuation. There is no evidence of a westerly wind burst.

The Kelvin wave of subsurface warming that had been crossing the equatorial Pacific during the past two months, and which resulted from a westerly wind burst, weakened as it reached the eastern Pacific in late May, and raised subsurface temperatures to a little above average. A major subsurface warming seems unlikely at this point.

INTERSEASONAL PATTERNS

This part of the weather summary has been removed temporarily and will be brought back at the beginning of the *Wet Season* later this year.

(The ENSO Update and Interseasonal Patterns are kindly provided by the Australian Bureau of Meteorology and can be found on their website http://www.bom.gov.au).

RAINFALL PREDICTIONS

FMS Rainfall Prediction Model: *This model is based on schemes, which have run successfully at the Australian Bureau of Meteorology's National Climate Centre. These a statistical scheme based on the relationship between SOI and subsequent three-month rainfall totals. In each case the probability of low, medium or high rainfall in the oncoming three-month period is provided. The scheme uses the SOI averaged over the most recent three-month period. The reliability of the model is high during the wet season (Nov-Mar) but decreases during the dry season (May-Sept) and during the transitions months, April and October.*

The model predicts rainfall in the next three months to be average to below average across the country (Figure E).

Australian Rainman: *This is a Rainfall Prediction Model was created from joint efforts between Australia Meteorological and Agricultural Agencies. The model incorporates the use of SOI to test its effects on the probability of rainfall in upcoming months. It shows the relationship between ENSO (El Niño - Southern Oscillation) events and rainfall. Due to public demand this model is currently used to present the probability of receiving rainfall in the coming individual months over a three-month period. Please note that the reliability of forecast for one month is lower than for a combined three month period.*

The model predicts a 39-73% chance (depending on location) of receiving average (mean) rainfall across Fiji in next three months (Table. 2).

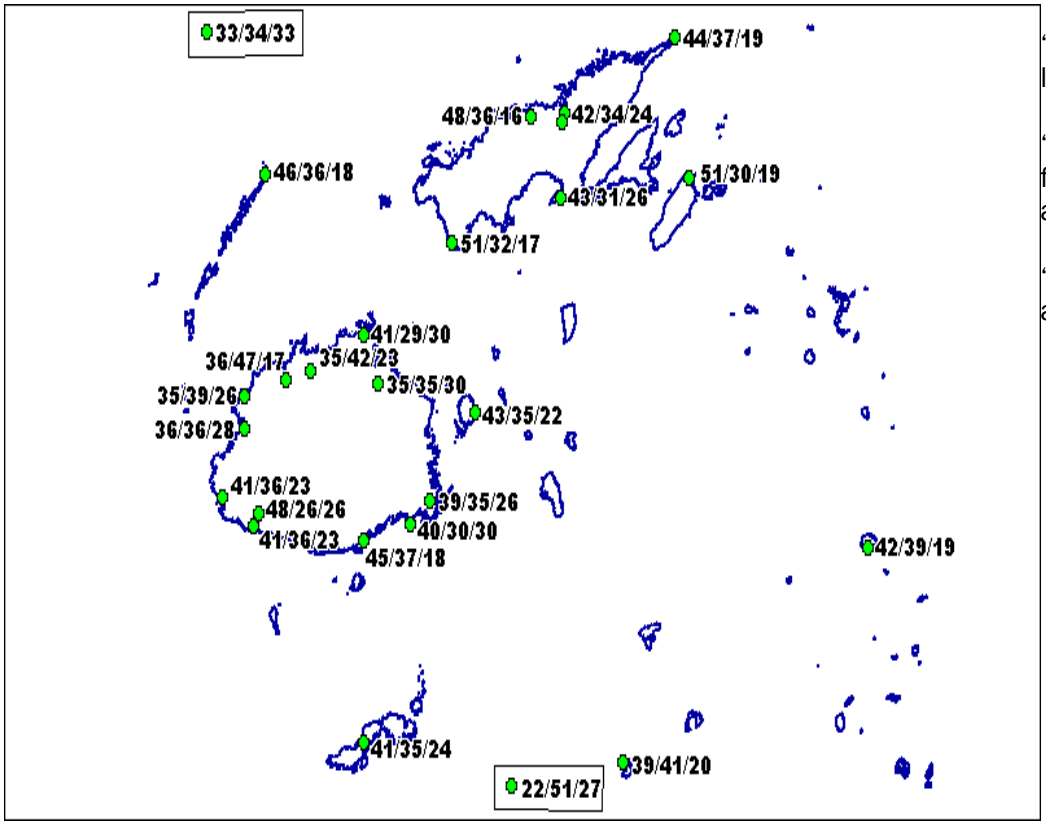
RAINFALL OUTLOOK FOR JUNE TO AUGUST 2004

Based on model predictions and current ocean and atmospheric conditions, rainfall in the next three months is expected to be average to below average.

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

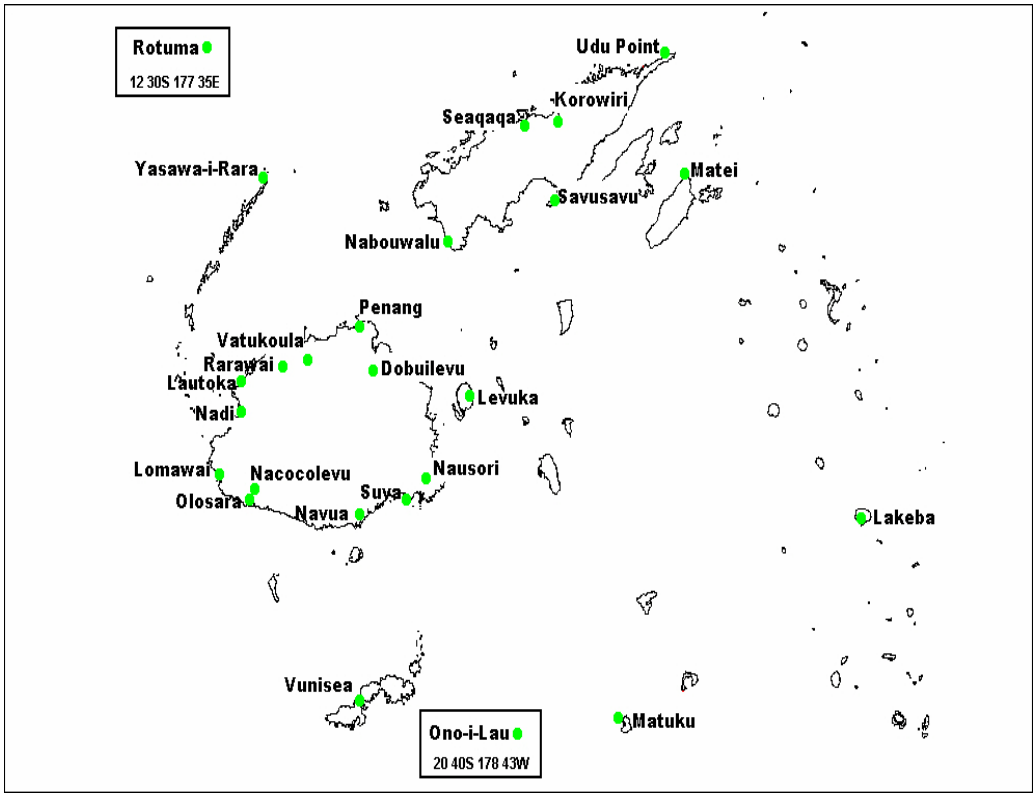
Three Month Rainfall Outlook Probabilities for June to August 2004

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 67th Percentile

Station	33% (mm)	67% (mm)
Western Division		
Dobuilevu	194	300
Vatukoula	142	208
Rarawai	137	222
Penang	159	228
Lautoka	118	215
Nadi	114	206
Lomawai	126	257
Nacocolevu	177	282
Olosara	203	284
Yasawa	133	250
Central Division		
Navua	487	665
Suva	368	500
Nausori	362	489
Eastern Division		
Levuka	277	382
Lakeba	182	295
Matuku	242	363
Ono-I-Lau	238	335
Vunisea	252	405
Northern Division		
Labasa Mill	103	191
Seaqaqa	111	198
Nabouwalu	231	338
Savusavu	234	381
Udu Point	239	416
Matei	255	384
Rotuma	576	777

TABLE 3: Monthly Rainfall Outlook Probabilities for June to August 2004

	June 2004		July 2004		August 2004		June to August 2004 combined	
Station Name	**Average***	**Probability#**	**Average***	**Probability#**	**Average***	**Probability#**	**Average***	**Probability#**
Western Division								
Dobuilevu	98	**73**	56	**38**	80	**57**	234	**68**
Vatukoula	73	**74**	50	**35**	68	**33**	191	**73**
Rarawai	89	**35**	39	**52**	65	**34**	193	**48**
Penang	99	**37**	55	**41**	73	**35**	227	**41**
Lautoka	72	**41**	49	**43**	70	**29**	191	**54**
Nadi	65	**56**	45	**37**	65	**43**	175	**58**
Lomawai	72	**49**	62	**46**	79	**32**	213	**45**
Olosara	90	**46**	77	**52**	98	**28**	265	**43**
Nacocolevu	75	**52**	71	**49**	83	**34**	229	**46**
Yasawa-I-Rara	82	**63**	43	**44**	63	**34**	188	**58**
Central Division								
Navua - Tamanoa	196	**62**	186	**49**	202	**45**	584	**60**
Suva	163	**60**	136	**33**	158	**33**	457	**52**
Nausori	150	**57**	118	**41**	147	**52**	415	**62**
Eastern Division								
Lakeba	78	**59**	80	**44**	102	**27**	260	**59**
Ono-I-Lau	89	**44**	92	**42**	118	**20**	299	**43**
Northern Division								
Korowiri	73	**41**	52	**30**	52	**39**	177	**39**
Seaqaqa	63	**44**	52	**24**	56	**49**	190	**42**
Nabouwalu	98	**60**	92	**41**	105	**39**	295	**54**
Savusavu	117	**42**	96	**47**	116	**29**	329	**38**
Udu Point	116	**57**	89	**28**	85	**42**	290	**58**
Rotuma	234	**57**	233	**38**	210	**40**	677	**58**

Please note that the above figures should be used with caution, as there is some degree of uncertainty associated with them, and particularly the reliability of the model is low during the transition months and the dry season.

The probabilities in the three-month combined column are not an average of the three individual months. The model in this case has been re-run for three combined months. There is a higher degree of skill association with predicting rainfall for three combined months compared to three individual months.

** 'Long-term Average' for the 30 year period from 1971-2000.*
 # Probability of expecting at least normal rainfall.