

JANUARY  
2007

# Fiji Islands Climate Summary

## December 2006

### FIJI METEOROLOGICAL SERVICE

#### IN BRIEF

Moderate El Niño phenomena continued in the region. Its influence in the first half of December resulted in suppressed rainfall activity which saw December rainfall varying from well below average to above average. Despite rainfall activity picking up during the second half of the month, parts of Northern Vanua Levu, Western Viti Levu, Southern Viti Levu, islands in the Lau, Yasawa and Mamanuca Groups continued to experience below average rainfall.

There were three notable occasions when troughs of low pressure affected the country during the month. The passage of active trough during the third week resulted in heavy rainfall especially about the interior and Eastern parts of the country. During this event, Suva received almost a months rainfall (272mm) in 1 day, on the 18th. Consequently, flash flooding and landslides were experienced in parts of Suva and Naitasiri.

In the last three months, majority of the sites experienced average to below average rainfall with increasing number of

sites falling in the below average category. Out of the 20 sites that reported in time, 11 received below average rainfall.

The dominance of easterly winds caused by high pressure systems passing south of the country saw daytime temperatures generally falling below average in the first two weeks of the month. In contrast, the night-time temperatures were generally near average to above average at majority of the sites.

Moderate *El Niño* condition continues to dominate the Equatorial Pacific Ocean and is likely to persist for the next few months. Sea surface temperatures remain over 1°C above average right across the centre and Eastern Equatorial region. Given the persistence of El Niño in the region, rainfall for the next three months is likely to be *average to below average* in many parts of the country.

(An ENSO status and rainfall predictions can be obtained from *Fiji Islands Climate Outlook* bulletin which is issued towards the middle of every month).

#### WEATHER PATTERNS

December saw late onset of *Wet Season* typically with afternoon showers occurring over the western and interior of the main islands especially during the second half of the month.

There were three distinct troughs that traversed the Fiji Group. These occurred from the 01<sup>st</sup> to the 03<sup>rd</sup>, 14<sup>th</sup> to 25<sup>th</sup> and 22<sup>nd</sup> to 27<sup>th</sup>. In between these periods, mobile ridges of high pressure passing to the south of the country maintained the southeast trade winds over the group and trade showers over the southeastern parts of the main islands.

In the beginning of the month, a trough of low pressure was slow moving in the area between Fiji and Vanuatu while a second trough developed in the area between the Lau Group and Tonga. The two troughs of low pressure systems merged on the night of 02<sup>nd</sup> resulting in heavy rain occurring mostly in the interior and southeastern parts of the main islands and over the Lau group.

On the 14<sup>th</sup>, the South Pacific Convergence Zone (SPCZ)

moved south towards Fiji, crossing onto Vanua Levu on the 15<sup>th</sup>. The CZ remained slow moving over the group until the 25<sup>th</sup> before it was pushed to the northeast of Vanua Levu by a ridge of high pressure extending from the southwest. There was extensive rain with notable falls exceeding 100mm of rainfall over 24 hours between the 16<sup>th</sup> and the 18<sup>th</sup>.

The third trough of low pressure rapidly moved south across the group during the last two days of December. Though showers were scattered across the country the amounts were not significant in most areas due to the rapid movement of the trough.

Rotuma remained wet throughout the month as the trough remained slow moving in the area. Significant falls were recorded from the 10<sup>th</sup> to the 16<sup>th</sup> and again towards the end of the month and the trough became near-stationary over the island.

#### RAINFALL IN LAST THREE MONTHS, TEMPERATURES AND HUMIDITY

**Rainfall** varied in December considerably across the country ranging from well below average to above average. The Northern Division, parts of Eastern, Western and the Central Division continued to receive below average rainfall.

Rainfall Outlook from October to December in the September issue expected rainfall to be variable with a gradual trend towards average to below average across the country with moderate confidence. Out of the twenty sites that reported in time for this summary, eleven sites received below average, four received average and five received above average rainfall in the past three months.

**Day-time temperatures** were generally average to below average at most of the reporting sites.

The highest positive departures from normal were at Viwa Island (1.2°C) and Penang Mill (0.6°C).

**Night-time** temperatures were generally near average to above average across the country except for Matei Airport and Ono-I-Lau that experienced below average temperatures with a departure of 1.9°C and 0.5°C below *normal*.

**Relative Humidity** at 0900hrs were above average at many sites across the country. The greatest positive departures from *normal* was recorded at Levuka (11.7%) and greatest negative departures were recorded at Navua (2.7%), Rarawai Mill (2.6%) and Labasa Airport (2.4%).

**TABLE 1 : SHOWING RAINFALL FROM OCTOBER TO DECEMBER 2006**

<u>Station</u>	<u>Actual Rainfall (mm)</u>	<u>Rainfall in the last three months (Below average, average or above average)</u>	<u>No. of Rain days in October (% of total rain)</u>	<u>No. of Rain days in November (% of total rain)</u>	<u>No. of Rain days in December (% of total rain)</u>
Penang Mill	305.7	Below Average	15 (35)	11 (11)	11 (54)
Monasavu Dam	1875.0	Above Average	28 (42)	26 (23)	26 (35)
Vatukoula Mine	-	-	-	-	-
Rarawai Mill, Ba	588.5	Above Average	10 (20)	7 (24)	17 (56)
Yasawa-I-Rara	-	-	-	-	-
Viwa Island	198.2	Below Average	11 (37)	4 (30)	8 (33)
Lautoka (FSC Res.)	342.5	Below Average	11 (33)	6 (33)	13 (34)
Nadi Airport	327.2	Below Average	15 (36)	9 (37)	12 (27)
Nacocolevu, Sigatoka*	369.8	Most likely Average	14 (37)	06 (39)	(24)
*Data is missing from Nacocolevu in months of November (1st,3rd,4th), December (2nd,22nd) Yasawa-I-Rara data missing for October (28th,30th) and whole of November and December, Vatukoula data missing for December.					
Tokotoko, Navua	757.8	Average	25 (35)	18 (29)	22 (36)
Laucala Bay, Suva	775.5	Average	22 (30)	20 (11)	22 (59)
Nausori Airport	960.6	Above Average	23 (29)	20 (29)	20 (42)
Nabouwalu	276.9	Below Average	19 (35)	17 (26)	19 (39)
Labasa Airport	309.7	Below Average	10 (18)	8 (26)	13 (56)
Savusavu Airport*	368.1	Most likely Below Average	14 (35)	12 (33)	14 (32)
Udu Point	434.1	Below Average	16 (35)	16 (13)	21 (52)
Matei Airport*	583.3	Most likely Below Average	26 (36)	25 (10)	23 (54)
*Matei Airport data missing for 6th October and Savusavu Airfield data missing for 12th,17th and 25th November.					
Lakeba Is.	244.9	Below Average	14 (21)	11 (23)	10 (55)
Matuku Is. *	360.8	Most likely Average	11 (23)	14 (31)	10 (46)
Ono-I-Lau Is.	230.0	Below Average	8 (51)	6 (14)	7 (35)
Vunisea, Kadavu	551.9	Above Average	23 (39)	21 (50)	19 (11)
*Matuku data missing for October (26th & 30th).					
Rotuma	1389.6	Above Average	23 (35)	23 (33)	20 (32)

**TABLE 2 : NEW CLIMATE RECORDS**

<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>
Daily Rainfall	Laucala Bay, Suva	272.0	18th	New High	234.0	1991	1942

Figure A

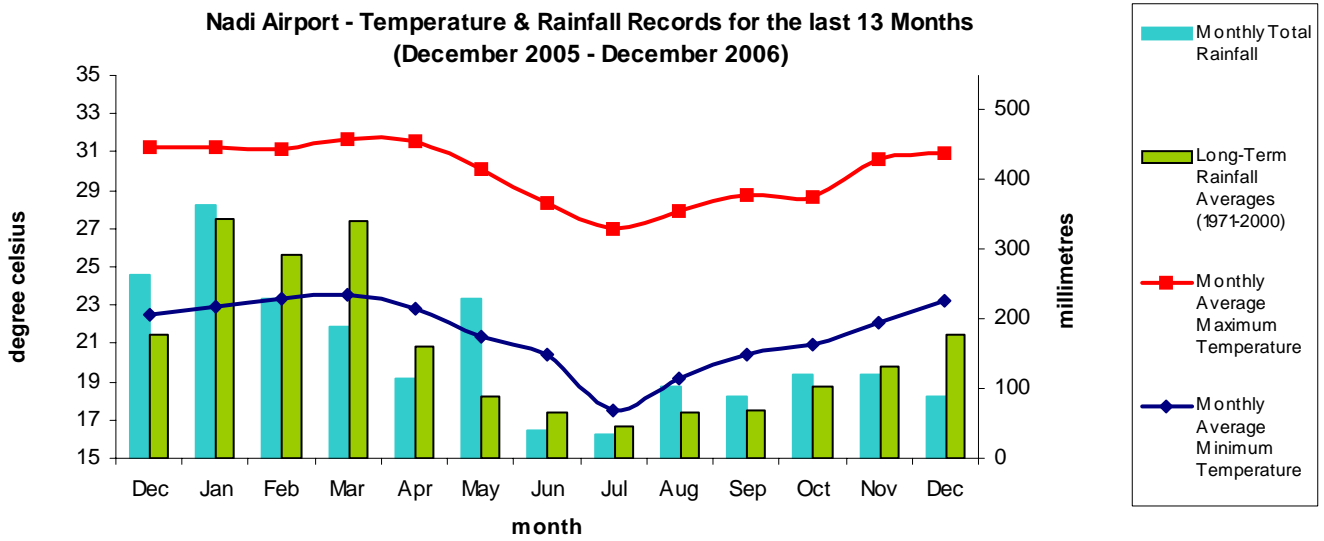


Figure B

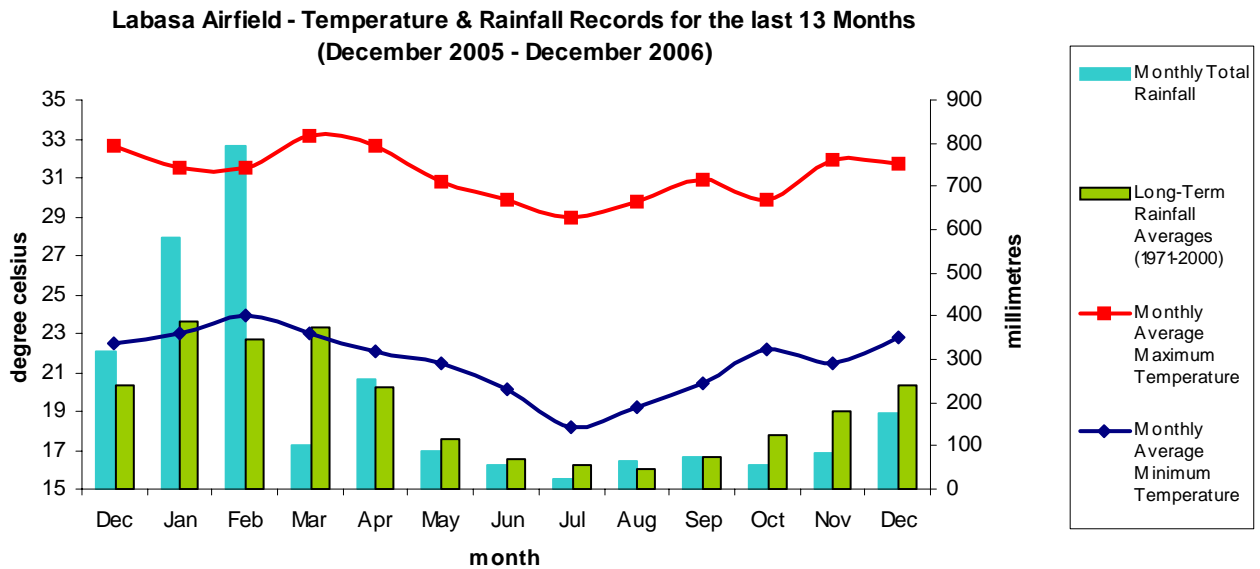
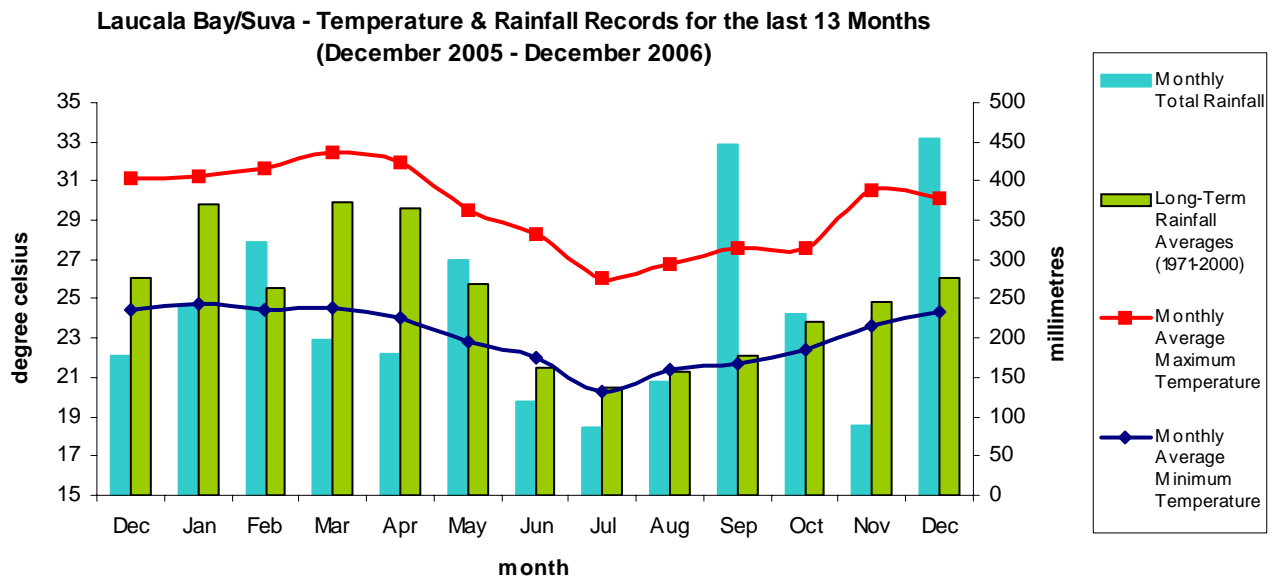


Figure C



**PRELIMINARY CLIMATOLOGICAL SUMMARY FOR DECEMBER 2006**

PRELIMINARY CLIMATOLOGICAL DATA FOR MONTH 12 , 2006 : 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	88	49	12	37	18	30.9	-0.6	23.2	0.8	32.6	21	19.8	13	190	83
SUVA/LAUCALA BAY	455	200	22	272	18	30.1	-0.2	24.3	0.8	32.0	8	22.6	13	113	58
NACOCOLEVU	88	46	10	40	18	30.7	-0.2	21.8	0.2	33.3	20	16.2	13	158	86
ROTUMA	447	157	20	95	14	31.0	0.3	24.9	0.2	32.5	5	23.4	11	153	84
VIWA	66	46	8	28	19	32.1	1.2	25.3	0.3	34.5	30	24.1	10		
UDU POINT	225	85	21	84	26	30.5	-0.0	24.8	0.7	33.2	1	22.4	27		
LABASA AIRFIELD	173	72	13	40	22	31.7	-0.0	22.8	1.1	34.0	22	17.6	28		
NABOUWALU	109	43	19	38	30	29.4	-0.2	24.4	0.4	32.2	1	23.2	13		
SAVUSAVU AIRFIELD	118	46	14	24	6	29.3	-0.9	24.0	0.9	32.0	2	20.0	15		
MATEI AIRFIELD	314	103	23	72	25	29.2	-0.4	21.9	-1.9	31.0	2	16.5	11		
YASAWA-I-RARA	missing data														
VATUKOULA	missing data														
MONASAVU	654	125	26	119	17	24.3	-0.6	18.8	0.4	27.5	20	14.1	12		
NAUSORI AIRPORT	405	152	20	105	16	29.0	-0.7	23.1	0.5	33.5	20	18.9	13		
NAVUA/TOKOTOKO	273	73	22	63	18	28.6	-0.9	22.6	-0.2	31.5	19	20.0	5		
ST. JOHNS COLLEGE	88	33	11	17	19	29.4	-0.4	23.9	0.3	32.5	1	22.4	15		
LAKEBA	136	76	10	58	16	29.3	-0.4	24.3	0.6	33.0	29	19.9	6		
MATUKU	164	106	10	48	20	29.6	-0.1	23.7	-0.1	31.7	1	21.0	22		
VUNISEA	62	37	19	15	18	28.7	-0.7	23.6	0.7	30.7	1	21.4	16		
ONO-I-LAU	80	53	7	44	19	28.8	0.1	23.0	-0.5	32.1	1	21.4	14		
BA/RARAWAI MILL	325	144	17	55	16	31.9	-0.4	21.9	0.2	33.7	14	16.5	13		
LAUTOKA AES	115	59	13	47	18	30.8	-0.2	23.6	0.3	32.5	21	19.2	13		
PENANG MILL	164	62	11	59	18	30.9	0.6	23.9	0.4	33.0	3	20.5	13		

**RAINFALL OUTLOOK FOR FIJI ISLANDS - JANUARY TO MARCH 2007**

Given that the El Niño condition is likely to peak and persist for the next few months, continuation of suppressed and below average rainfall is likely for Fiji from January to March. On the other hand, the country is in its peak wet season, when rainfall activity is usually expected to be high. Given the two contrasting scenarios, rainfall is likely to continue to fluctuate with substantial part of the country is likely to receive below average rainfall. However, given that it is peak cyclone period, the effect of a tropical disturbance or tropical cyclone can drastically affect the actual rainfall distribution. The confidence level of this prediction is *moderate*.

**More detailed climate predictions are in the "Fiji Islands Climate Outlook" which will be released during the middle of the month.**

**TROPICAL CYCLONE SEASON 2006/2007**

The South Pacific Tropical Cyclone Season formally started on the 01st of November 2006 and will continue till end of April 2007. The persistence of *El Niño* event in the region for next few months should significantly affect tropical cyclone frequency and distribution in the South Pacific region.

Fiji on average experiences 10 to 15 tropical cyclones in a decade with 2 to 4 of these being *severe*. This means that on average, 1 to 2 cyclones per season can affect Fiji. The chance for a hit are high during *neutral* and *El Niño* conditions and there is an increased risk of a cyclone affecting Fiji this season. Since 1995, the only two tropical cyclones, Gavin (1997) and Ami (2003) affected the country severely.

Since 1969/70 season, 17 cyclones have affected some parts of Fiji and about 80% of these were Hurricanes. The other 20% were gales and storms. During *El Niño* seasons for the same period, 3 cyclones have affected Fiji and all of them were hurricanes. Therefore, based on the historical records, the chance of a severe cyclone is rather high. Given the trend of more extreme events occurring in different parts of the world, one should always prepare for the worse one yet to come.

**Normal** - Represents average form 1971 to 2000 period.

**Well Below Average** - Rainfall below 40%.

**Below Average** - Rainfall more than 40% but less than 80%.

**Average** - Rainfall more than 80% but less than 120%.

**Above Average** - Rainfall more than 120% but less than 200%.

**Well Above Average** - Rainfall more than 200%.

For all correspondences please contact: The Director, Fiji Meteorological Service, Private Mail Bag, NAP0351, Nadi Airport, Fiji Islands.  
Email: fms@met.gov.fj.

This Fiji Islands Climate Summary is prepared for rapid dissemination as soon as possible following the end of the month. The Fiji Meteorological Service (FMS) wishes to advise its client to use this information with extreme care as these is base on preliminary and un-quality controlled data available at the time of publication. FMS further wishes to advice that it will not be responsible for any liability for loses incurred through the use of this bulletin and its contents. Any person wishing to re-print any information provided in this bulletin should seek confirmation and permission from the Director of Meteorology.