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Fiji Islands Climate Summary December 2007

Since: August 1980*

IN BRIEF

Tropical Cyclone *Daman* passed through Fiji's Waters between December 5 to 9. There was little damage on the main islands apart from landslides and flooding in northern parts of the Northern Division and Viti Levu. Heavy rainfall was also received in the Lomaiviti and Lau Groups. Cikobia Island was the worst affected by wind damage as the Category 4 cyclone passed over the island. According to press reports most buildings on Cikobia were either partially or completed destroyed and there was significant damage to agricultural produce and other vegetation. Damage costs were reported to be at around F$0.65 Million in the Fiji Times on December 22.

Overall, *below average to well above average* rainfall was received across the country in December. A new monthly rainfall record was established at Udu Point and more than 200% of normal rainfall was received at Udu Point, Penang Mill near Rakiraki and Lakeba and Matuku in the Lau Group. Savusavu Airfield and Navua on the leeward side if the main islands and Ono-i-Lau received *below average* rainfall.

Day and night-time air temperatures were mainly *average* to *above average* across the country. The number of bright sunshine hours recorded in December was near normal.

The 2007/08 La Niña event strengthened further in December and is now firmly established in the Pacific ocean and atmosphere. All dynamical and statistical ENSO models forecast the La Niña event to continue through the January to March 2008 period, with more than 50% of the models forecasting La Niña conditions to exist during the April to June 2008 period. Based on the current and predicted ocean and atmospheric conditions in the equatorial Pacific, generally *average to above average* rainfall is favoured across the Western and Northern Divisions and Rotuma, *below average* to *average* rainfall across most of the Central Division and equal chances of *below*, *average* and *above average* rainfall in the Eastern Division during the January to March period.

Near average (1-2) tropical cyclones are expected to affect Fiji this season. There is a *higher than normal* chance of tropical cyclones passing through the western and southern parts of Fiji's Waters and *near-normal* risk of tropical cyclones passing through the northern and eastern part of Fiji's Waters this season.

WEATHER PATTERNS

The first Tropical Cyclone of the 2007/08 season (*Daman*) in the Southwest Pacific** passed through Fiji's Waters between December 5 to 9. Considerable rainfall was received in northern parts of the Northern Division and Viti Levu. Heavy rainfall was also received in the Lomaiviti and Lau Groups. Cikobia Island was the worst affected by wind damage as the Category 4 cyclone passed over the island.

During the first three days of the month, the South Pacific Convergence Zone with an embedded Tropical Depression lay just to the north of the country bringing rainfall to the northern parts of the Fiji Group. Further rainfall was received across the country as Tropical Cyclone *Daman* formed to the northeast of Rotuma and moved towards the Group. Due to its easterly track, the highest 1-day falls across the country were received at Udu Point, Labasa Airport and Lakeba which were 110mm, 77.8mm and 80mm respectively.

After the passage of the tropical cyclone, the trough continued to linger around the Lau Group while the rest of the country experienced fine weather. Light southerly winds were experienced from December 10 to 17, except on December 13 when a weak trough developed over Viti Levu and Vanua Levu bringing some rainfall to these areas.

From December 18 to 24 a trough of low pressure brought rainfall to most of Fiji and from December 25 to the end of the month, fine but hot and humid conditions dominated, as a ridge of high pressure to the south continued to direct moist east to southeast winds over the country.

Rotuma experienced a significant amount of rainfall (110mm) on the day Tropical Cyclone *Daman* formed close to the island and for the following two days. Except for December 13 (29.0mm) light rainfall to fine weather dominated for the rest of the month.

RAINFALL IN RECENT MONTHS, TEMPERATURES AND RELATIVE HUMIDITY

Rainfall for the October to December 2007 period was predicted to be generally *above average* across the country. Of the 25 climate monitoring sites that reported in time for this summary 23 recorded *above average* rainfall during this period (Table 1).

Below average to well above average rainfall was received across the country in December. A new monthly rainfall record was established at Udu Point (Table 2) and a second 1-day high of 166.0mm was recorded at St. John's College in Levuka. More than 200% of normal rainfall was experienced at Udu Point (239%), Penang (250%), Lakeba (227%) and Matuku (218%). In complete contrast and unexpectedly considering the currently La Niña conditions Savusavu Airfield (67%), Navua (71%) and Ono-i-Lau (75%) received *below average* rainfall.

Maximum Air Temperatures were mainly *average* to *above average* in December across the country. The greatest positive departures were recorded at Viwa (1.6ºC), Nacocolevu (0.9ºC) and Penang Mill (0.9ºC) and the greatest negative departures were recorded at Nadi Airport (-0.8˚C) and Savusavu Airfield (-0.5˚C).

Minimum Air Temperatures were mainly *average* to *above average* across the country. The highest positive departures were recorded at Tokotoko in Navua (1.3ºC), Vunisea (0.8ºC) and Matei Airfield (0.8˚C) and the greatest negative departures were recorded at Viwa (-1.0˚C) and Matuku (-1.0˚C). A new high minimum air temperature of 25.0ºC was recorded at St. John's College, Levuka on December 13.

Relative Humidity at 0900hrs *varied around average* across the country. The greatest positive anomalies were recorded at Viwa Island (+9%), Nadi Airport (+7%) and Udu Point (+5%). The greatest negative anomaly was recorded at Penang Mill (-7%)

* Previously known as the Fiji Islands Weather Summary and Monthly Weather Summary

** Defined by the Fiji Meteorological Service as between 160°E and 120°W

TABLE 1 : THREE MONTH RAINFALL : OCTOBER TO DECEMBER 2007

Station	Actual Rainfall (mm)	Rainfall in the last three months (Below average, average or above average)	No. of Rain days in October 07 (% of total rain)	No. of Rain days in November 07 (% of total rain)	No. of Rain days in December 07 (% of total rain)
Penang Mill, Rakiraki	1055	Above	12 (05)	18 (33)	20 (62)
*Monasavu Dam	1294	Average	25 (27)	26 (41)	27 (32)
Rarawai Mill, Ba	683	Above	13 (20)	18 (38)	16 (42)
*Nacocolevu	677	Above	12 (22)	17 (44)	15 (34)
Viwa, Mamanuca Group	745	Above	10 (23)	16 (54)	12 (23)
Lautoka (FSC Res.)	609	Above	11 (19)	16 (44)	18 (37)
Nadi Airport	746	Above	13 (12)	18 (44)	18 (44)
*Tokotoko, Navua	1485	Above	21 (39)	26 (45)	20 (16)
Laucala Bay, Suva	980	Above	24 (39)	26 (36)	20 (25)
Koronivia	1288	Above	25 (43)	23 (32)	23 (25)
Nausori Airport	1150	Above	23 (41)	23 (35)	22 (24)
Nabouwalu	1138	Above	25 (44)	21 (25)	19 (31)
Labasa Airport	1024	Above	17 (17)	16 (38)	22 (45)
Savusavu Airport	756	Above	18 (31)	17 (46)	12 (23)
Udu Point	1312	Above	21 (27)	19 (25)	22 (48)
Matei Airport	1000	Above	27 (28)	24 (28)	29 (44)
*Vanua Balavu, Lau	532	Above	21 (29)	15 (27)	17 (44)
Lakeba, Lau	777	Above	16 (29)	15 (18)	18 (53)
Matuku, Lau	709	Above	16 (41)	07 (11)	11 (48)
*Ono-I-Lau, Lau	642	Above	14 (35)	11 (47)	12 (18)
*Levuka, Ovalau	1230	Above	19 (33)	16 (28)	22 (39)
*Vunisea, Kadavu	776	Above	22 (49)	47 (31)	14 (20)
Rotuma	1027	Average	26 (35)	20 (42)	20 (23)

* Some data missing (Between 1 and 10 days in a month)

TABLE 2 : CLIMATE RECORDS ESTABLISHED IN DECEMBER 2007

Element	Station	Observed (record)	On (date)	Rank	Previous (record)	Year	Records Began
Total Monthly Rainfall	Udu Point	629.7	-	New High	616.8	1992	1946
Daily Min. Temp.	St. Johns College, Levuka	25.0ºC	13th	New High	24.0ºC	1986	1984

Figure 1

Nadi Airport - Temperature & Rainfall Records for the last 13 Months (December 2006 - December 2007)

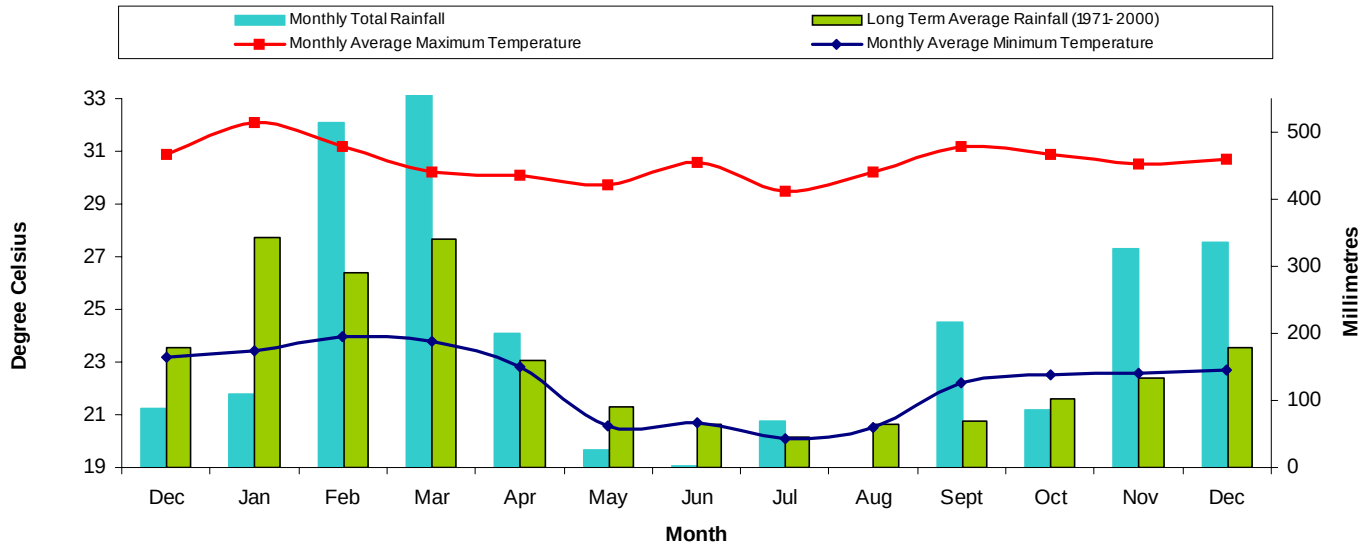


Figure 2

Labasa Airfield - Temperature & Rainfall Records for the last 13 Months (December 2006 - December 2007)

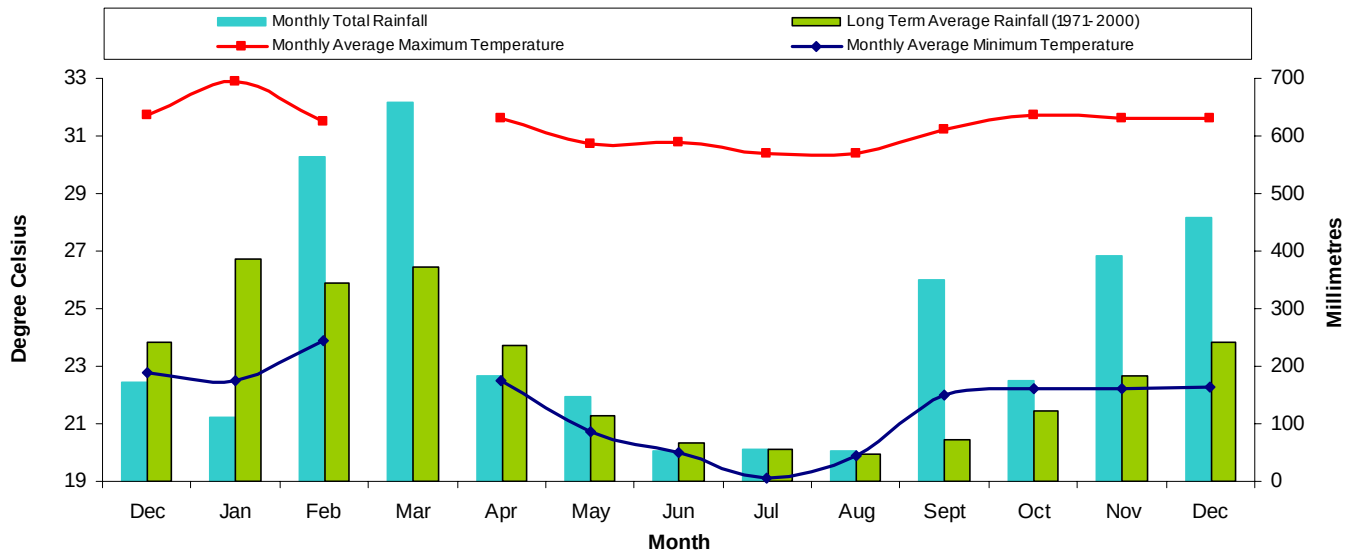
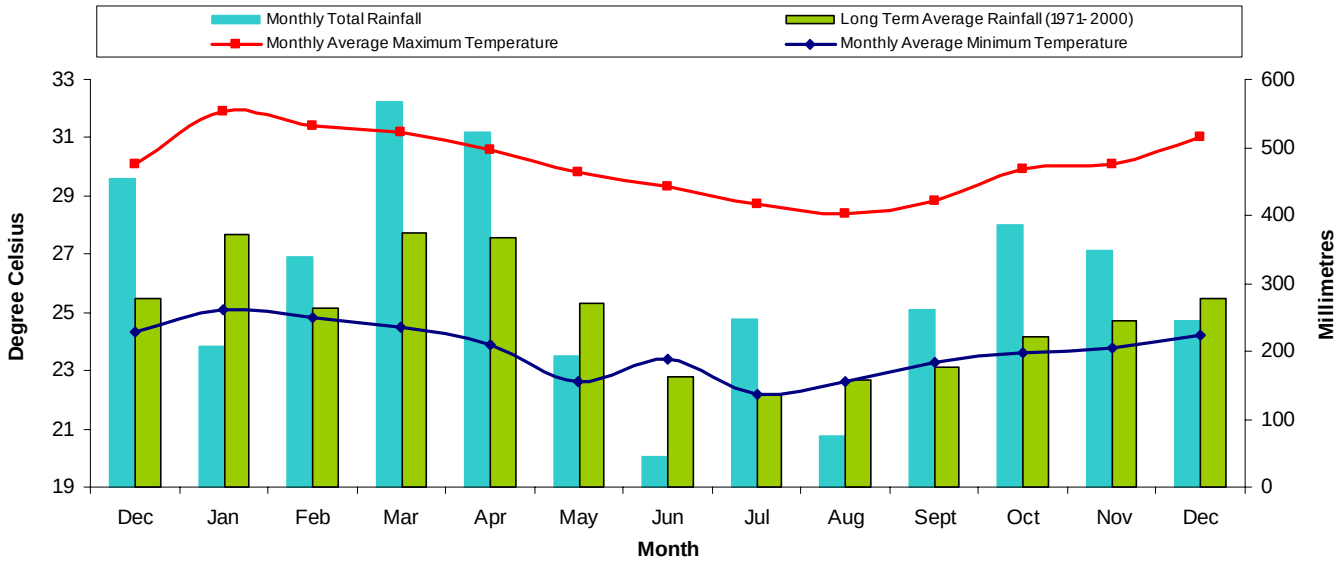


Figure 3

Laucala Bay/Suva - Temperature & Rainfall Records for the last 13 Months (December 2006 - December 2007)



PRELIMINARY CLIMATOLOGICAL SUMMARY FOR DECEMBER 2007

PRELIMINARY CLIMATOLOGICAL DATA FOR MONTH 12 , 2007 : 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	ON	C	ON	HRS	%
NADI AIRPORT	335	188	18	50 23	30.7	-0.8	22.7	0.3	32.9	5	21.2	11	225	99
SUVA/LAUCALA BAY	245	88	20	47 24	31.0	0.7	24.2	0.7	32.6	27	22.1	1	155	79
NACOCOLEVU	233&	129	15	40 31	31.8	0.9	21.8	0.2	34.8	5	18.6	2	187	102
ROTUMA	236	83	20	110 5	31.3	0.6	25.0	0.3	32.0	27	23.0	6	165	91
VIWA	171	119	12	79 23	32.5	1.6	24.0	-1.0	34.0	9	23.4	19		
UDU POINT	630	239	22	126 7	30.1	-0.4	24.0	-0.1	31.5	24	22.0	8		
SAVUSAVU AIRFIELD	172	67	12	34 5	29.7	-0.5	23.2	0.2	32.0	24	21.0	20		
LABASA AIRFIELD	459	191	22	78 7	31.6	-0.1	22.3	0.6	33.4	12	19.7	14		
NABOUWALU	359	141	19	127 17	30.4	0.8	24.3	0.3	33.8	10	21.7	18		
KORONIVIA	317	121	23	43 21	30.1	0.3	23.1	0.7	32.3	10	21.0	16		
NAUSORI AIRPORT	280	105	22	58 18	30.1	0.4	22.7	0.1	31.8	31	20.5	16		
NAVUA/TOKOTOKO	246	71	20	74 7	29.9	-0.4	22.2	1.3	31.5	4	19.5	1		
MONASAVU	406&	76	27	55 6	25.3	0.3	19.1	0.6	28.0	9	17.0	12		
LAUTOKA AES	228	118	18	94 18	31.1	0.1	23.3	-0.0	33.4	5	21.7	19		
BA/RARAWAI MILL	285	126	16	99 23	31.9	-0.4	22.0	0.3	34.5	5	19.7	14		
PENANG MILL	659	250	20	139 3	31.2	0.9	23.3	-0.2	35.0	22	20.6	10		
MATEI AIRFIELD	441	148	29	86 12	29.9	0.3	23.7	0.8	31.6	10	21.2	12		
VANUABALAVU	232&	125	17	67 5	30.0	0.3	24.1	-0.3	32.2	25	19.9	8		
LAKEBA	406	227	18	80 6	29.8	0.1	23.1	-0.6	31.0	3	21.4	1		
ST. JOHNS COLLEGE	477	191	22	166 22	30.1	0.3	23.3	-0.5	31.5	31	21.0	22		
VUNISEA	161&	87	14	59 22	29.8	0.4	23.7	0.8	31.8	31	21.0	1		
MATUKU	336	218	11	156 22	29.6	-0.1	22.8	-1.0	32.0	31	19.0	9		
ONO-I-LAU	113	75	12	24 11	29.3	0.6	23.1	-0.4	32.1	26	20.7	1		

& - SOME DATA MISSING

RAINFALL OUTLOOK FOR FIJI ISLANDS - JANUARY TO MARCH 2008

The 2007/08 La Niña event strengthened further in December and is now firmly established in the Pacific ocean and atmosphere. Cooler than average sea surface temperatures (SSTs) extend from the South American coastline to the Date Line with warmer than average SSTs surrounding northern Australia. The Southern Oscillation Index monthly value for December was +14.4. Equatorial Trade Winds remain enhanced and cloudiness continues to be suppressed along much of the central equatorial Pacific. All dynamical and statistical ENSO models forecast the La Niña event to continue through the January to March 2008 period, with more than 50% of the models forecasting La Niña conditions to exist during the April to June 2008 period.

Based on the current and predicted ocean and atmospheric conditions in the equatorial Pacific, generally *average to above average* rainfall is favoured across most of the Western and Northern Divisions and Rotuma, *below average* to *average* rainfall across most of the Central Division and equal chances of *below*, *average* and *above average* rainfall in the Eastern Division for the January to March period. The confidence level of the prediction is *moderate*. ***(More detailed climate predictions will follow in the 'Fiji Islands Climate Outlook' to be released around mid January)***

2007/2008 TROPICAL CYCLONE SEASON

The 2007/08 Southwest Pacific Tropical Cyclone season began on November 1, 2007 and will continue until April 30, 2008. On average, 9 to 10 tropical cyclones develop in the Southwest Pacific a season. This season, there is a lower risk of tropical cyclones affecting countries in the eastern Southwest Pacific, near normal risk near the Date Line and slightly higher than normal risk in the western Southwest Pacific. Countries in the eastern Southwest Pacific should, however, remain vigilant. Tropical cyclones are associated with destructive winds, prolonged heavy rainfall, severe flooding and storm surge. The period when highest numbers of tropical cyclones form in the Southwest Pacific is January to March.

Specifically for Fiji, near average (1-2) tropical cyclones are expected this season. Of the six months of the tropical cyclone season the period with the highest chance of a tropical cyclone developing is January to March. *There is higher than normal chance of tropical cyclones passing through the western and southern parts of Fiji Waters and near-normal risk of tropical cyclones passing through the northern and eastern part of Fiji's Waters this season.*

Normal *- Long term average from 1971 to 2000.*

Average *- Rainfall between 80 to 119%.*

Well Below Average *- Rainfall less than 39%.*

Above Average *- Rainfall between 120 to 199%.*

Below Average *- Rainfall between 40 to 79%.*

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