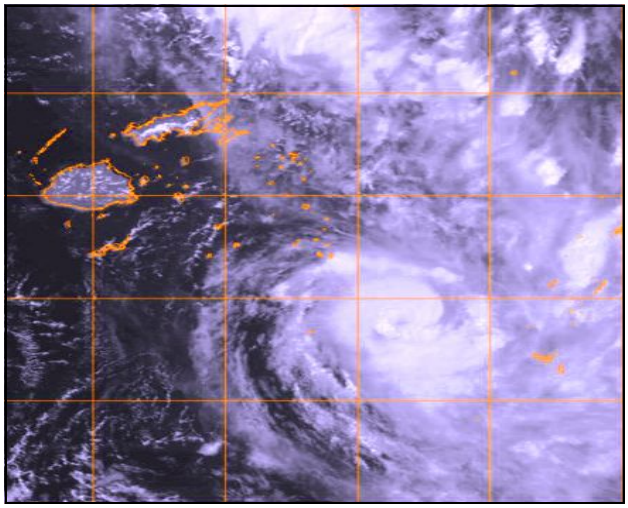
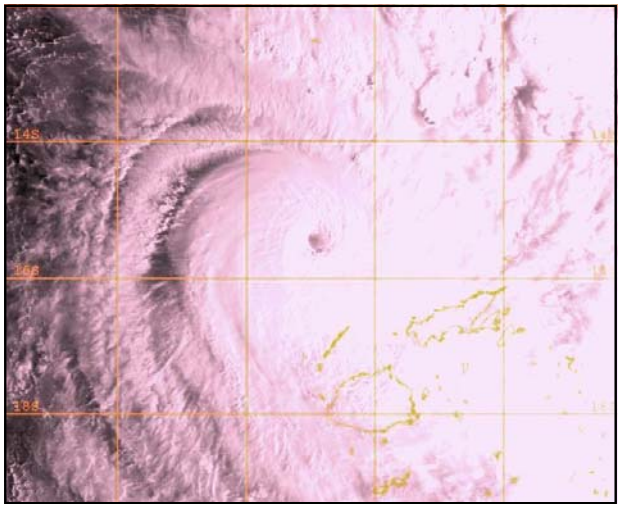
Fiji Islands
Annual Climate Summary
2007



Tropical Cyclone Cliff: April 5, 2007

Flooding in Nadi Town in mid-February due to heavy rainfall from an intense trough of low pressure. Excessive soil moisture in the Nadi Catchment in the previous week resulted in flash flooding.

Water Spout over the Nadi Bay on September 18, 2007 at 5.30p.m. This rare phenomena was associated with an afternoon thunderstorm



Tropical Cyclone Daman: December 6, 2007.

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HIGHLIGHTS

In Fiji, 2007 was the warmest year in 50 years and *most likely* the warmest in the last 100 years.

- Annual mean air temperature for 2007 was 26.5°C or 0.9°C above normal (1971-2000 mean).
- The annual mean maximum air temperature for 2007 was the highest on record (since 1957), 0.7˚C above normal. Annual mean maximum air temperatures have been consistently warmer than normal since 1998.
- The annual mean minimum air temperature for 2007 was the highest on record (since 1957), 1.1°C above the long term mean. Annual mean minimum air temperatures have been consistently warmer than normal since 1994.
- An increasing trend in both annual mean maximum and minimum air temperatures is very apparent in Fiji, especially since the early 1980s.

Fiji's annual rainfall was 532mm above normal, although there was significant variation across the country during the year with a 'drought' in parts of the Western Division in August followed by an enhanced and early wet season across the country. After an unusually long 'quiet' period of four years, two cyclones directly affected Fiji in 2007.

IN BRIEF

El Niño conditions continued during the first couple of months of 2007 from the previous year (Figure 1a). This resulted in suppressed rainfall and northward displacement of the SPCZ. Sea Surface Temperature (SST) anomalies in the central and equatorial Pacific were approximately 0.5˚C above average in January. Consequently, below average rainfall was generally experienced in Fiji during January. By April SSTs were near normal but the 'lag effect' normally experienced in the Fiji region caused suppressed rainfall until August.

La Nina conditions developed in the eastern equatorial Pacific during the second half of the year (Figure 1b). Associated with a change in ENSO state was the southwest displacement of the South Pacific Convergence Zone and enhanced convective activity in the south-west Pacific. This resulted in an 'early and enhanced wet season' during which Fiji recording *above average* to *well above average* rainfall from September to December. The warm/moist northerly wind flow resulting from the displaced SPCZ and La Nina event contributed to warmer than usual air temperatures. The warmest period was experienced from June to October with mean air temperatures 1.0˚C to 1.7˚C above average. A hundred and sixty-one daily and monthly temperature records at 23 sites were broken or equaled during the year. Twenty new rainfall records were also established.

Two cyclones directly affected Fiji in 2007. TC *Cliff*, first located as a disturbance northwest of Vanua Levu on April 1 was declared a cyclone on April 4, just east of Udu Point. As the cyclone passed close to northeastern Vanua Levu, Taveuni and over Northern Lau Group, sustained winds up to 40 knots were recorded near the centre of the cyclone. Damage to weak structures and vegetation was recorded along the cyclones path. The second cyclone, TC *Daman* passed through Fiji Waters between December 5-9. The cyclone was first located northeast of Rotuma, moving towards the main islands of Fiji. It later changed direction, and passed directly over Cikobia causing severe damage to houses and vegetation. Torrential rainfall resulted in landslides and flooding in Vanua Levu and parts of Viti Levu.

FIGURE 1(a,b). Sea Surface Temperature in the Pacific Ocean in January and December 2007

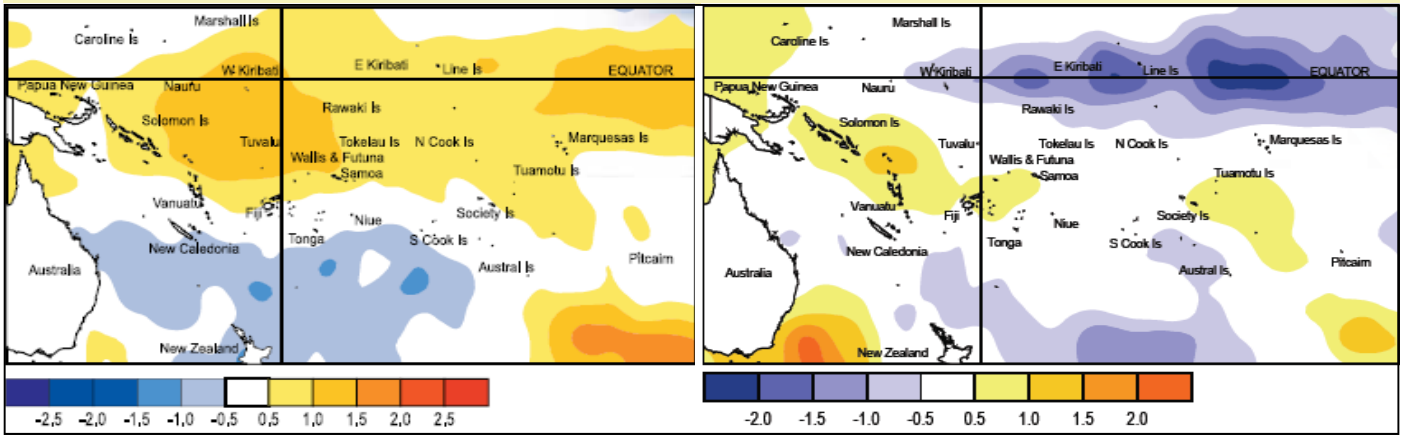


Figure 1a. El Niño conditions in January **Figure 1b.** La Nina conditions in December (Island Climate Update, Issue 77 and 88)

MONTHLY CLIMATE PATTERNS IN BRIEF – Emphasis on significant rainfall events in 2007

Total annual rainfall was normal to above normal (>79%) at all sites across Fiji (Table 1). There was large variability during the first half of the year, with some sites recorded below average rainfall due to continuing El Niño conditions from 2006. Rainfall increased significantly during the last quarter of the year due to La Niña which was fully developed by the end of the year. In addition to ENSO related variability, two tropical cyclones (TCs) were experienced which were associated with significant wind damage and flooding.

The presence of El Niño conditions in the region and the dominant effect of the sub-tropical high resulted in significantly suppressed rainfall in the Fiji region in **January.** The northeastward displacement of the South Pacific Convergence Zone (SPCZ) and the absence of active troughs resulted in *below* to *well below average* rainfall across the country. The only significant rainfall during the month resulted from two troughs of low pressure and the SPCZ during the first two weeks of the month. During the rest of the month the SPCZ was displaced north, close to Rotuma.

A tropical depression and active troughs of low pressure dominated **February** weather**.** Heavy rainfall caused landslides and severe flooding in the greater Labasa region. During the passage of the depression, wind gusts of up to 40 knots were also experienced in parts of Vanua Levu. Later in the month heavy rainfall associated with a significantly active trough resulted in significant flooding, in the Western Division (mainly in the Nadi region). Rotuma experienced gusty winds and heavy rainfall when the tropical depression and SPCZ were close to the island.

The El Niño event ended abruptly **March**. During the month prolonged and torrential rainfall was experienced during most of the month. Two tropical depressions brought strong and gusty winds and torrential rainfall to the Northern and Western Divisions. Four lives were lost in associated flooding in Labasa (3) and Tavua (1). Rakiraki and Nadi also experienced notable flooding. Total monthly rainfall exceed 80% of normal at most sites.

Wet weather conditions continued in **April** with many parts of the country recording *above average* rainfall. The passage of two active weather systems and TC *Cliff* caused gusty winds and significant rainfall over most parts of the country. TC *Cliff* (named on April 4), passed close to Vanua Levu, Taveuni and over the Northern Lau Group. Maximum sustained winds up to 40 knots were recorded close to the centre of the cyclone. Damage to weak buildings and vegetation were reported in the eastern parts of the Northern and Eastern Divisions. Widespread rainfall associated with the cyclone resulted in several sites recording rainfall in excess of 100mm in 24 hours. In between these systems, the country experienced intervals of fine weather.

In **May**, the weather varied considerably across the country. The western and southern parts of the country were affected by the sub-tropical high pressure system resulting in mainly fine weather, while the northern and eastern parts of the country were largely influenced by the SPCZ and troughs of low pressure. This resulted in wetter than normal conditions in the north and east of the country. There were periods however when the whole country was affected by a similar weather. This occurred when a trough of low pressure and a cold front brought heavy rainfall to most parts of the country and when an intense ridge of high pressure brought in fresh, cool and dry Trade Wind flow resulting in fine weather with cool nights.

June was relatively dry in most parts of the country as the sub-tropical high dominated Fiji's weather during the month. This resulted in a cool and dry Trade Wind flow over the Group with brief episodes of strong winds in the marine passages. Nearly all parts of the Western Division received *well below average* rainfall. The driest area extended from Sigatoka to Rakiraki. *Below average* rainfall was also experienced in parts of Central and the Northern Divisions. Rotuma's good rainfall was largely due to the close proximity of the SPCZ.

In **July**, four rain-producing weather systems passed over or close to Fiji resulting in >79% of normal rainfall or *average* to *well above average* rainfall in parts of the country. In between the passage of these systems, periods of fine weather were experienced as ridges of high pressure extended over the country. During the first three occasions, a combination of a frontal system and SPCZ were responsible for rainfall over the country. The most significant trough affected the country at the end of the month with significant rainfall being recorded in parts of the Western Division.

The country experienced contrasting weather in **August.** The Eastern and Northern Divisions were affected by a broad moist easterly flow and the SPCZ, while the Western and Central Division were affected by a dry Trade Wind flow. There was an apparent absence of rain bearing systems associated with the migrating of upper toughs. The Western Division continued to receive *below average* rainfall during the month resulting in the region falling into a drought situation. Parts of the Central and Eastern Division received *average to above average* rainfall. Rotuma received rainfall on most days largely from the SPCZ.

Exceptionally wet conditions returned in **September** with most of the country experiencing wetter than normal conditions. The month was also considerably warmer than normal with air temperatures 0.5 to 3.0˚C above normal across the country. Slow moving troughs of low pressure, warm and moist east to north east wind flow and frontal systems dominated Fiji's weather during the month. There was enhanced rainfall activity over Fiji resulting in episodes of continuous and heavy rainfall. A 'water spout' was observed over the Nadi Bay during the month. Periods of fine weather and strong winds were experienced as ridges of high pressure extended over the country in between the passage rain bearing systems.

The SPCZ remained close to Fiji during most of **October** and on a few occasions drifted over the country. This resulted in wetter than normal conditions especially in the northern parts of the country. Eastward moving cold fronts and a moist easterly wind flow were also responsible for significant rainfall during the month. In between the passage of cold fronts, transient ridges of high pressure pushed over the country causing brief periods of strong winds over the southern parts of Fiji's Waters.

Frontal systems, troughs of low pressure and the SPCZ significantly influenced Fiji's weather in **November** resulting in wetter than normal conditions. Two tropical depressions brought widespread rain and squally conditions to most parts of the country. Some parts of the country experienced twice their normal November rainfall. Several new rainfall records were established during the month. A moist wind flow brought rainfall especially to the larger islands with some substantial falls being recorded. Transient high pressure systems brought settled weather displacing wetter conditions from time to time.

December wetter than normal. Two significant troughs of low pressure and a cyclone affected the country during the month. TC *Daman* (Dec 5-9) passed over Cikobia Island and severely damaged houses and vegetation. Associated heavy rainfall resulted in landslides and flooding in parts of the Northern and Eastern Division and Viti Levu. Heavy rainfall associated with a trough of low pressure was experienced from the 18-24th and Christmas Day until the last day of the year. Fine, very warm and humid conditions were experienced in-between the periods when the troughs affected Fiji.

TABLE 1 – Total Monthly Rainfall and Percentage of Normal Rainfall

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Labasa Airport	77.2 20	537.9 156	658.2 176	184.7 78	146.3 128	51.2 77	45.3 84	62.8 132	339.5 474	174.0 141	390.8 214	458.2 190	3126.1 139
Nabouwalu	86.6 28	306.8 111	348.0 104	160.5 54	207.5 121	76.8 78	80.3 87	121.8 116	418.9 370	497.8 293	281.4 162	343.8 135	2930.2 122
Penang Mill	64.2 16	343.1 102	716.0 168	185.7 69	80.2 50	25.0 25	35.8 65	29.7 41	203.4 212	45.4 40	329.9 206	557.8 211	2616.2 107
Nadi Airport	110.1 32	514.0 176	670.7 197	191.2 120	26.3 29	1.5 02	69.3 152	1.1 02	217.5 312	86.0 85	325.2 246	310.6 174	2523.5 134
Laucala Bay, Suva	127.3 34	330.3 125	566.0 151	538.4 147	191.3 71	46.7 29	241.1 178	78.0 49	262.4 149	389.0 176	470.7 192	254.3 92	3495.5 116
Nausori Air-port	101.6 28	298.3 111	556.3 145	327.0 91	255.0 103	78.6 52	158.2 136	74.0 50	307.9 186	469.0 241	403.3 165	243.0 91	3272.2 112
Vunisea, Ka-davu	179.5 62	376.1 163	594.9 196	241.2 103	237.3 127	45.1 36	86.1 75	75.3 59	206.4 152	381.4 269	210.8 145	213.3 116	2847.4 128
Lakeba	62.3 26	277.7 123	372.7 127	505.7 245	174.4 130	140.7 174	78.3 60	53.4 52	125.5 124	178.0 145	142.8 101	395.2 221	2476.7 130

FIGURE 2. Mean Fiji Islands Total Monthly Rainfall: 2007

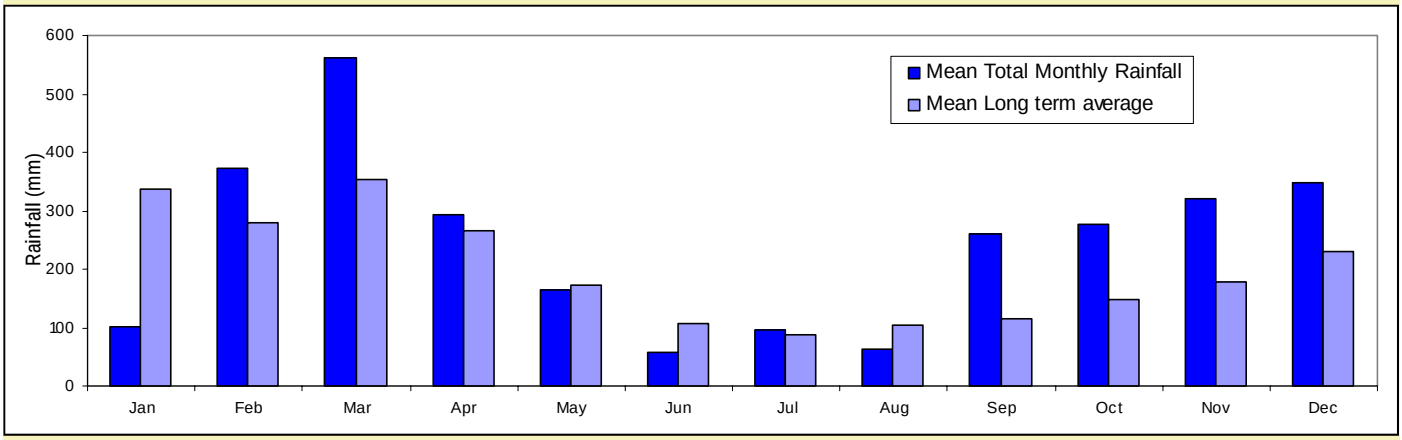
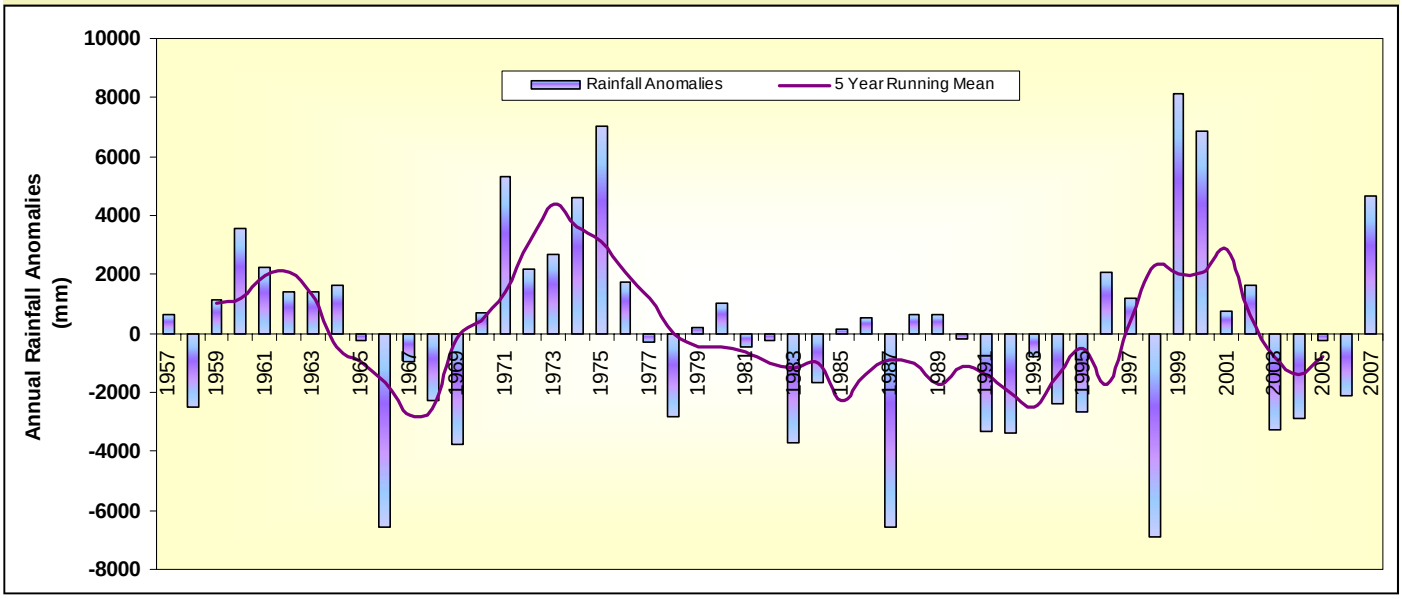


FIGURE 3. Fiji Islands Annual Rainfall Anomalies and 5-year Running Mean: 1957-2007



* For the years 1964-65, 70, 73 99-01 and 03 the rainfall anomaly shown should only be used as an indication, as at least 2 of the 15 stations used to generate the 'Fiji average' have missing data at some time of the year. The base period is 1971-2000.

FIGURE 4. Monthly Total Rainfall for 2007 (compared to the 1971-2000 mean) — Nadi Airport

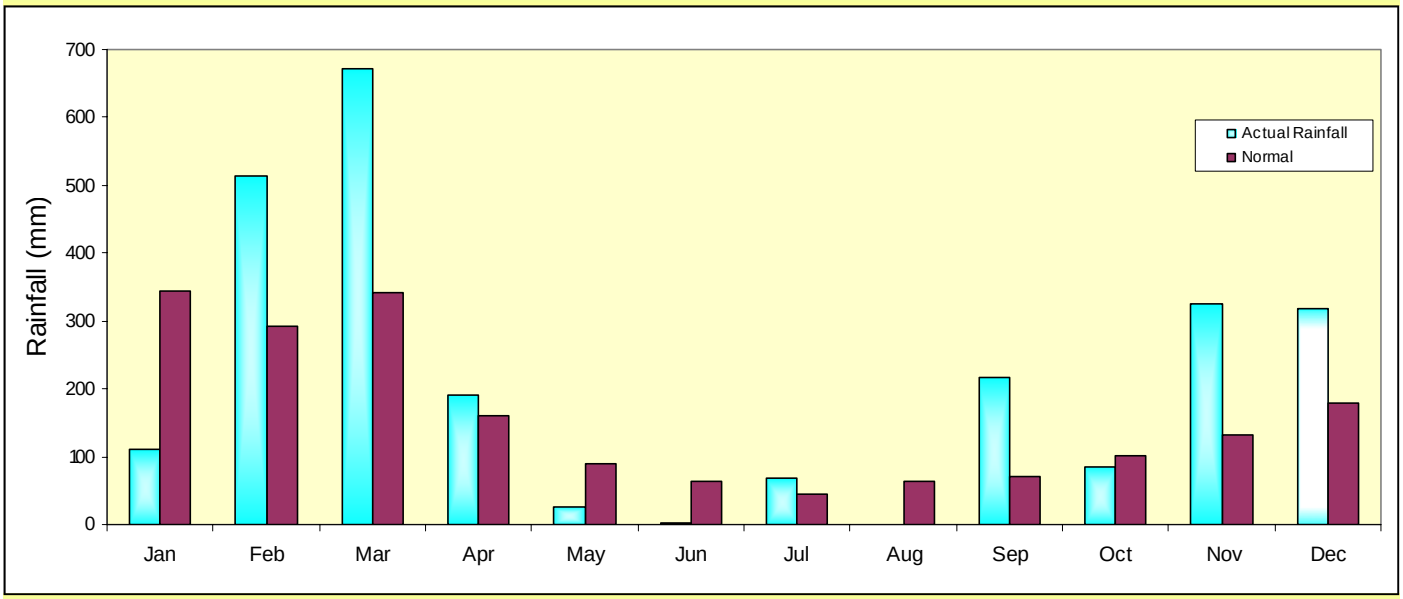


FIGURE 5. Monthly Total Rainfall for 2007 (compared to the 1971-2000 mean) — Laucala Bay, Suva

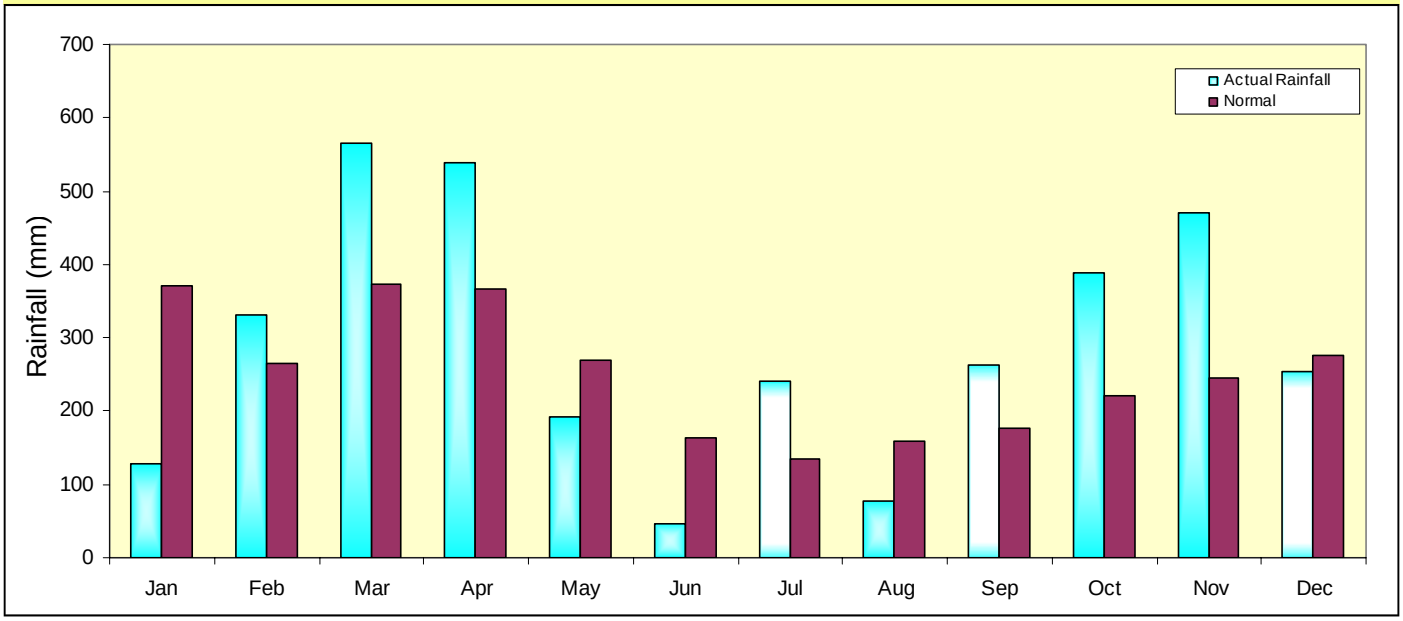
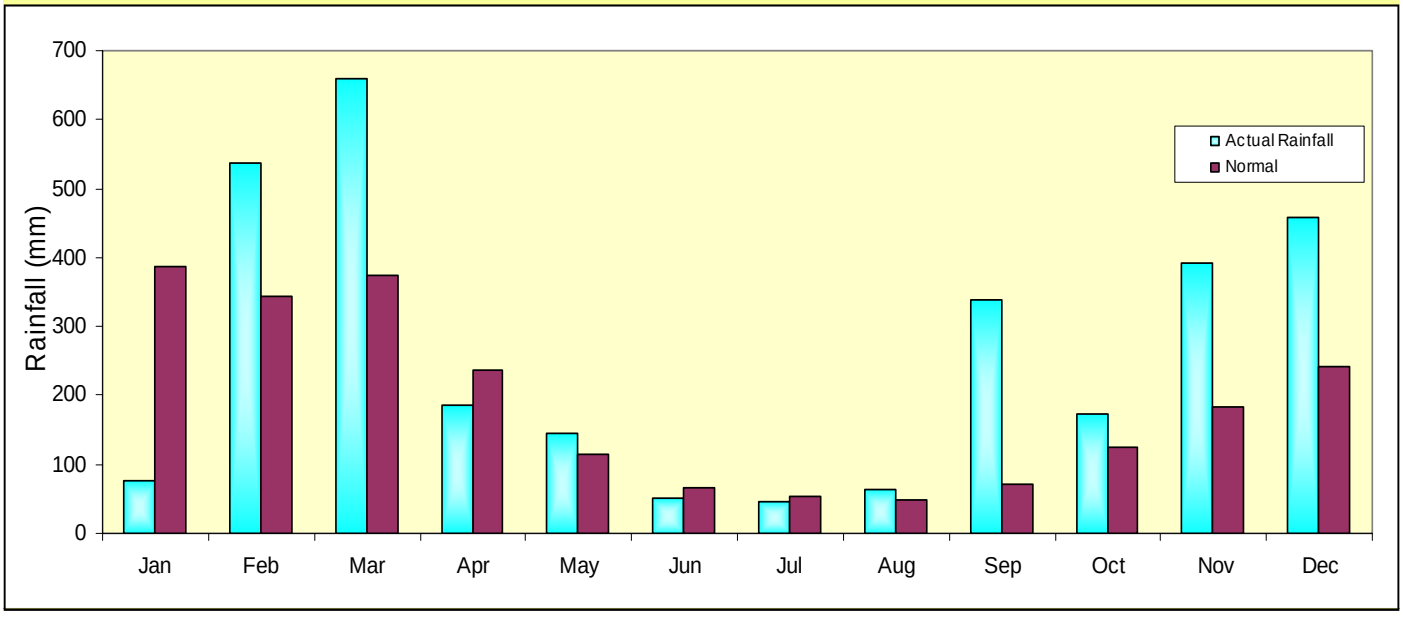


FIGURE 6. Monthly Total Rainfall for 2007 (compared to the 1971-2000 mean) — Labasa Airport



RAINFALL PREDICTION MODEL — Seasonal Climate Outlook for Pacific Island Countries (SCOPIC)

SCOPIC MODEL - A STSTISTICAL MODEL

Fiji uses the "Seasonal Climate Outlook for Pacific Island Countries" (SCOPIC) model as its main source of climate prediction guidance. Other seasonal rainfall prediction models used to generate the Fiji predictions include those from UKMO, NASA/NSIPP, Eurosip, CCA and NCEP/CMB. Rainfall outlooks can be helpful for planning future activities such as crop rotations, water allocation, mobilisation of resources, preparedness of emergency services and a number of other activities. SCOPIC a statistical model uses historical rainfall and Sea Surface Temperatures (SST) from various parts of the Pacific Ocean or the Southern Oscillation Index (SOI) to generate a rainfall outlook. SCOPIC can also display the skill of the forecast. The most recent version of SCOPIC incorporates a Drought Monitoring Tool, specifically the world renown Standard Precipitation Index (SPI) and Decile Method. The information generated by the model can be effectively used for decision making in various sectors. While the model can predict rainfall at one to eight months lead time, the best skill is attained for predictions between two and six months.

Spatially, seasonal rainfall predictions for the Dry Zone have better skill than predictions for the Wet Zone. In 2007, the overall SCOPIC prediction hit rate was good but the model performance was poor during the dry to wet transition period and beginning of the 2007/08 wet season. One possible reason for the lower than expected hit rate is the changing ENSO conditions. An example of seasonal forecasting skill in Fiji for a three-month forecast at various times of the year with no lead time is shown in Table 2. All sites have a minimum of 40 years of rainfall data and the predictor used is SST 1 and 9 (central and eastern equatorial Pacific and southwest Pacific).

Table 2. SCOPIC Rainfall Prediction Skill

		January-March	April-June	July-September	October-December
Labasa Airport	Hit (%)	41	45	35	53
	LEPS (%)	6.3	6.1	4.0	18.0
Nabouwalu	Hit (%)	45	36	36	47
	LEPS (%)	19.7	14.0	5.4	18.9
Penang Mill	Hit (%)	55	38	34	54
	LEPS (%)	17.0	2.0	0.6	18.2
Nadi Airport	Hit (%)	48	39	48	58
	LEPS (%)	11.7	12.9	5.2	23.2
Laucala Bay	Hit (%)	26	42	17	39
	LEPS (%)	1.6	4.8	1.9	8.3
Nausori Airport	Hit (%)	45	57	45	41
	LEPS (%)	3.9	19.7	1.8	4.7
Vunisea	Hit (%)	32	49	29	49
	LEPS (%)	2.9	4.8	2.8	19.0
Lakeba	Hit (%)	46	47	40	39
	LEPS (%)	15.0	19.0	1.3	7.6

LEPS* **(**Error in Probability Space) measures the error in probability space as opposed to measurement space. Values indicate the skill of the forecast. The LEPS % score is categorised as follows: < 0.0 very low skill; 0 – 5 low skill; 5 – 10 moderate skill; 10 – 25 good skill; > 25 very good skill.

HIT RATE* is also known as percentage correct and percentage consistent. In summary it presents information on how often in the past the forecast methodology would have proved correct.

GENERAL ENSO STATUS IN 2007

The year began with moderate El Nino conditions prevailing in the region. By mid-February the El Niño decayed abruptly with Neutral conditions existing by March. During April and May, ENSO indicators remained Neutral but oceanic conditions displayed developing La Niña conditions in the central and eastern Pacific. By June, the oceanic conditions were consistent with early stages of La Niña with little sign of atmospheric coupling. By October, the oceanic patterns in the Pacific resembled that of a basin-wide moderate La Nina with further intensification. Clear signs of ocean-atmospheric coupling existed in December. Figure 7 shows the Outgoing Long wave Radiation (indicator of cloud conditions) anomalies in the South-west Pacific in December 2007.

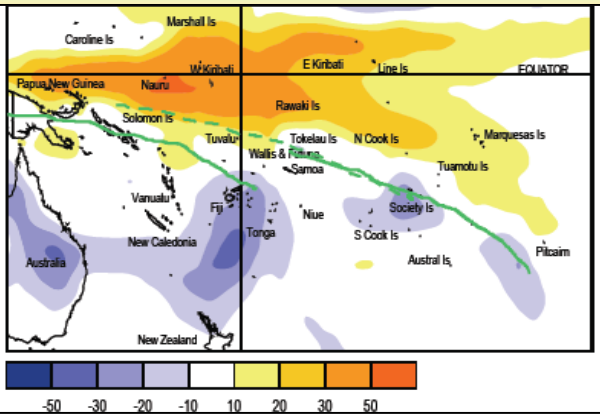


Figure 7. High radiations levels represent clearer skies (yellow-orange) and lower rainfall , cloudy conditions lower OLR typically mean higher rainfall - December 2007 (Island Climate Update, No. 88, January 2008)

AIR TEMPERATURE and SUNSHINE

Fiji's annual mean air temperature for 2007 was 26.5°C or 0.9°C above the 1971-2000 mean. 2007 was the warmest year in the last 50 years (since 1957, Figure 8) and *most likely* the warmest in a 100 years. The previous record was 0.6°C set in 1988 and equaled in 1996, 1998, 2000 and 2001. Mean monthly air temperatures ranged from 0.2-1.7°C above average. The dry season was considerably warmer than the 2006 dry season and the long term average. During these months, air temperatures were 1.1-1.7°C above the long term average.

The annual mean minimum air temperature for 2007 was the warmest since 1957, 1.1°C above the long term mean. Figure 14 also shows that annual mean minimum air temperatures have been consistently warmer than the long term mean since 1994. The annual maximum air temperature was for 2007 was the warmest since 1957, 0.7˚C above the long term mean, Figure 15 shows that annual mean minimum air temperatures have been consistently warmer than the long term mean since 1998. An increasing trend in both annual mean maximum and minimum air temperatures especially since the early 1980s is very apparent in Fiji.

A significant number of air temperature records were broken during the year (Table 3). A total of 161 new records were established in Fiji with 11 records equaled. 155 of the new records were positive extremes, with air temperature records the most common. With the dry season being significantly warmer than normal a majority of air temperature records were established between June to October.

Mean annual air temperature for 2007 at Nadi Airport in the Western Division, Labasa Airport in the Northern Division, Laucala Bay (Suva) in the Central Division and Lakeba Island in the Eastern Division was the highest since 1957 (Figures 9 to 14).

Total annual sunshine hours were 80-98% of the long term average in Fiji. During the year most sites experienced average or above average sunshine hours except for February, March and November when an equal or a majority of sites recorded below average sunshine hours (Table 6).

FIGURE 8 - Monthly Mean Air Temperature for Fiji

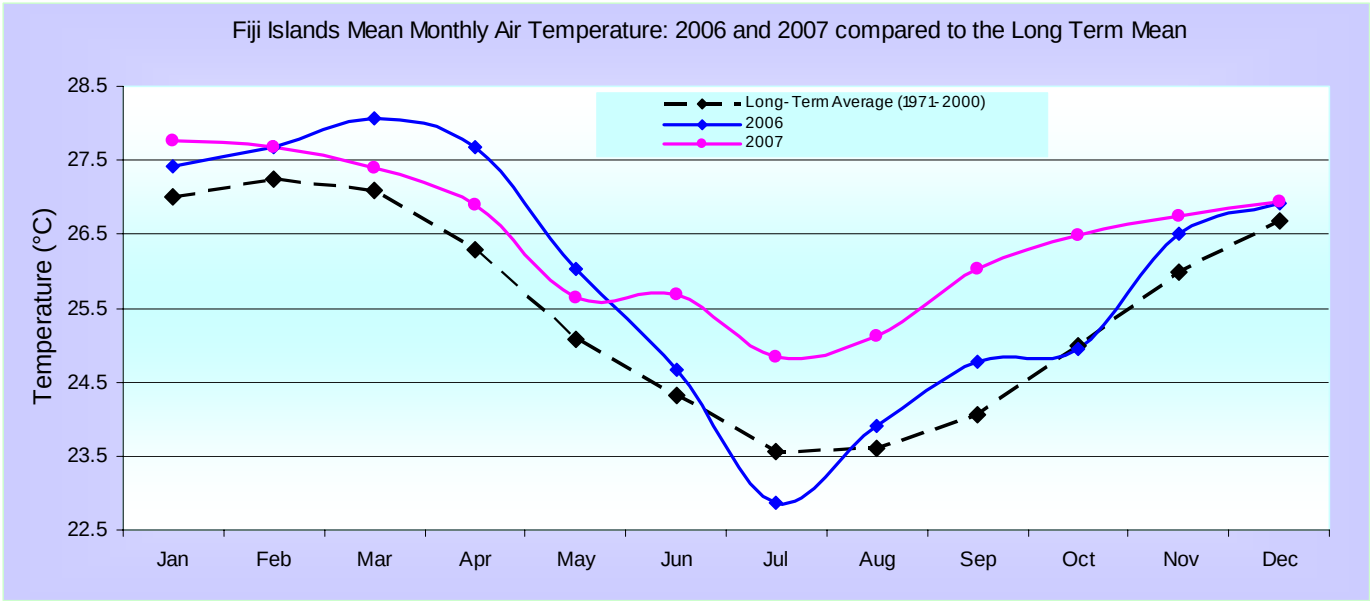


Table 3 - Summary of New Rainfall and Air Temperature Records Established in 2007

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Daily Rainfall	0	2	1	0	0	0	0	0	2	0	0	0	**5**
Daily Maximum	0	0	2	0	1	3	4	3	2	4	0	0	**19**
Daily Minimum	1	2	1	0	1	4	6	6	8	2	1	1	**33**
Monthly Rainfall	1	0	0	1	0	1	0	0	6	2	3	1	**15**
Monthly Maximum	1	0	0	1	1	5	10	8	9	8	0	0	**43**
Monthly Minimum	3	0	1	0	0	6	4	8	13	9	1	0	**45**
Sunshine	0	0	1	0	0	0	0	0	0	0	0	0	**1**
Total	**6**	**4**	**6**	**2**	**3**	**19**	**24**	**25**	**40**	**25**	**5**	**2**	**161**

A total of 161 new records were established around the country including 20 rainfall records with eleven records being equaled. There were 155 of the new records that ranked new high with most of them observed in monthly and daily temperatures.

TABLE 4 – Maximum Air Temperature for selected Sites in 2007

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Labasa Airport	Max	32.8	31.5	31.0	31.6	30.7	30.7	30.4	30.7	31.2	31.7	31.6	31.7	31.3
	Dep	1.1	-0.1	-0.5	0.6	0.5	-0.9	1.2	1.3	1.1	0.9	0.2	0.0	0.6
Nabou-walu	Max	30.6	30.5	30.7	30.6	28.7	27.7	27.2	27.1	28.2	29.5	30.3	30.4	29.3
	Dep	0.4	0.1	0.6	1.6	0.9	0.6	0.9	0.8	1.4	1.8	1.4	0.8	1.0
Penang	Max	32.0	31.2	30.7	30.8	29.5	29.5	29.2	29.1	29.9	30.9	31.1	31.0	30.4
	Dep	1.7	0.7	0.2	1.2	1.1	1.8	1.8	1.7	1.9	2.0	1.4	0.7	1.3
Nadi	Max	32.1	31.2	30.2	30.1	29.7	30.6	29.6	30.2	31.2	30.9	30.5	30.7	30.6
	Dep	0.6	-0.4	-1.1	-0.6	0.0	1.6	1.0	1.5	1.9	0.6	-0.6	-0.8	0.3
Suva	Max	31.9	31.3	31.2	30.5	29.8	29.3	28.7	28.4	28.8	29.9	30.1	31.0	30.1
	Dep	1.1	0.1	0.3	0.6	1.3	1.6	1.9	1.7	1.6	1.7	0.8	0.7	1.2
Nausori	Max	30.7	30.7	30.5	30.0	28.8	28.3	27.8	27.2	28.1	28.8	29.6	30.1	29.2
	Dep	0.3	-0.1	0.0	0.7	0.9	1.0	1.5	1.0	1.5	1.2	0.8	0.4	0.8
Vunisea	Max	30.1	30.0	30.2	29.7	29.1	27.9	27.2	26.8	27.7	28.3	29.0	29.8	28.8
	Dep	0.2	-0.4	0.2	0.8	1.8	1.3	1.5	1.0	1.6	1.2	0.6	0.4	0.9
Lakeba	Max	30.2	30.3	30.5	29.6	28.2	27.7	27.3	28.1	29.5	29.8	30.1	29.8	29.3
	Dep	0.1	-0.2	0.2	0.3	0.2	0.4	0.9	1.7	2.6	2.1	1.3	0.1	0.9

TABLE 5 – Minimum Air Temperature for selected Sites in 2007

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Labasa Airport	Min	22.5	23.9	23.0	22.5	20.7	20.0	19.1	19.9	22.0	22.3	22.3	22.3	21.7
	Dep	0.3	1.5	0.7	1.2	0.8	1.1	1.0	1.2	2.7	2.5	1.1	0.6	1.2
Nabou-walu	Min	24.9	24.7	24.7	24.3	23.5	23.9	23.2	23.0	23.0	23.6	23.9	24.3	23.9
	Dep	0.7	0.3	0.4	0.3	0.3	1.3	1.4	1.4	1.0	1.0	0.5	0.3	0.7
Penang Mill	Min	24.5	24.2	24.0	23.1	21.9	23.2	21.5	22.1	22.9	23.2	23.2	23.3	23.1
	Dep	0.5	0.3	0.2	-0.1	-0.2	1.8	1.1	1.4	1.7	1.0	0.2	-0.2	0.7
Nadi Airport	Min	23.3	24.0	23.8	22.8	20.6	20.7	20.1	20.5	22.2	22.5	22.7	22.7	22.2
	Dep	0.5	1.1	1.0	1.0	0.4	1.5	1.7	1.9	2.9	2.0	0.9	0.3	1.3
L. Bay Suva	Min	25.2	24.9	24.6	24.0	22.8	23.4	22.2	22.6	23.3	23.6	23.8	24.2	23.7
	Dep	1.3	0.9	0.7	0.7	0.6	2.0	1.5	1.9	2.3	1.7	1.0	0.7	1.2
Nausori Airport	Min	23.4	23.9	23.7	22.9	20.9	21.6	20.4	21.1	22.4	22.2	22.6	22.8	22.3
	Dep	0.2	0.6	0.5	0.4	-0.3	1.1	0.8	1.5	2.4	1.3	0.6	0.2	0.8
Vunisea	Min	24.9	24.9	24.8	23.9	22.2	22.9	21.3	22.3	22.9	23.1	23.5	23.7	23.4
	Dep	1.5	1.3	1.3	1.2	0.7	2.4	1.7	2.9	3.1	2.3	1.6	0.8	1.7
Lakeba	Min	25.1	25.5	24.8	23.8	22.9	23.6	22.1	22.8	23.2	23.4	23.6	23.3	23.7
	Dep	1.1	1.4	0.8	0.0	0.1	1.6	1.1	1.8	1.8	1.3	0.5	-0.4	0.9

TABLE 6 – Sunshine for Selected Sites in 2007 (Actual sunshine hours and percentage of normal sunshine)

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rotuma	Actual	223.5	116.4	112.4	169.3	192.8	247.5	208.1	182.6	216.9	204.6	124.0	165.3	2163.4
	%	131	72	68	93	101	132	105	88	121	105	63	91	98
Labasa (FSC)	Actual	192.9	65.5	98.3	169.4	189.2	65.3	110.3	193.8	165.0	194.0	159.9	145.4	1749.0
	%	110	42	58	94	97	33	55	95	92	103	88	82	80
Nadi Airport	Actual	250.3	125.5	117.3	157.6	240.8	254.7	206.6	244.5	171.8	231.9	195.0	228.0	2424.0
	%	119	67	61	80	115	125	94	106	81	98	87	100	95
Laucala Bay Suva	Actual	218.9	106.4	135.6	137.7	192.5	171.8	162.2	146.1	77.6	145.8	118.1	156.1	1768.8
	%	113	61	80	89	132	123	120	101	57	89	70	80	92

Figure 9

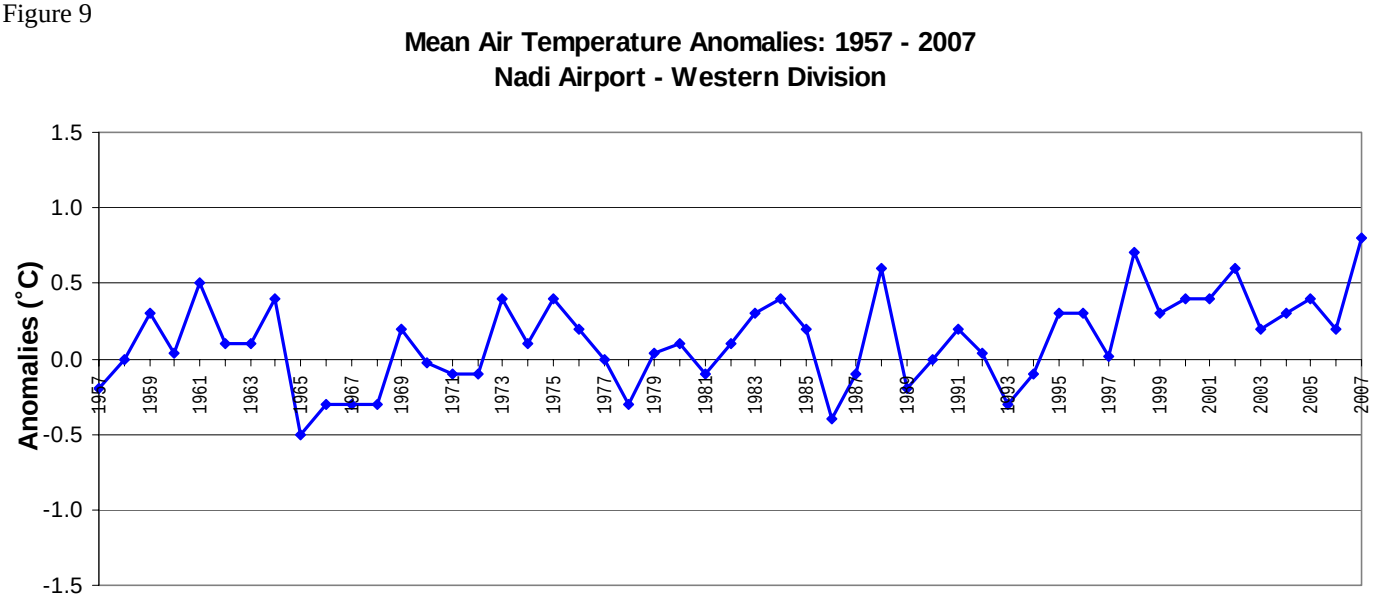


Figure 10

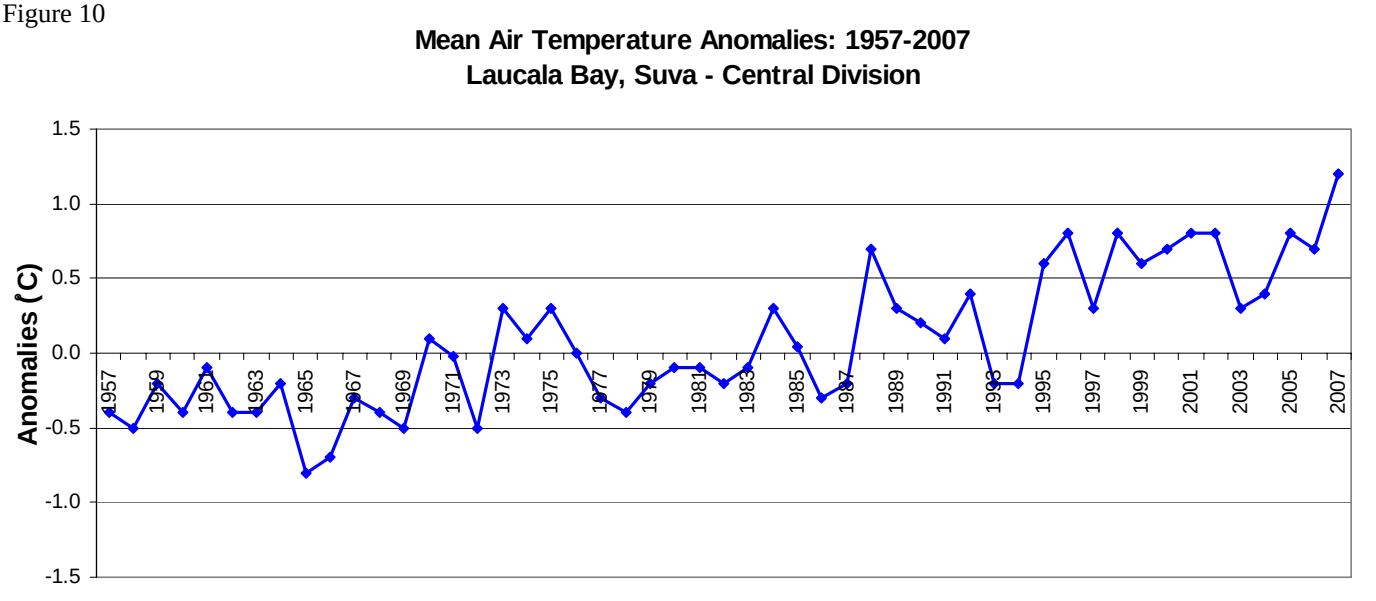


Figure 11

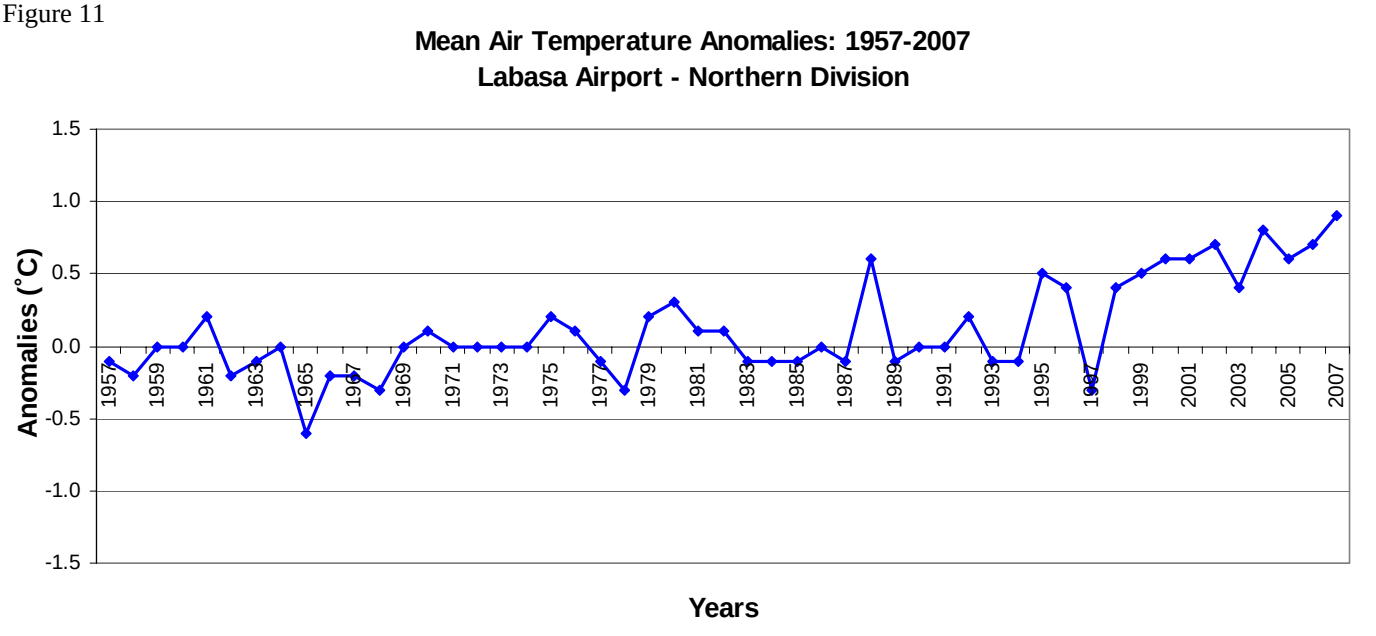


Figure 12

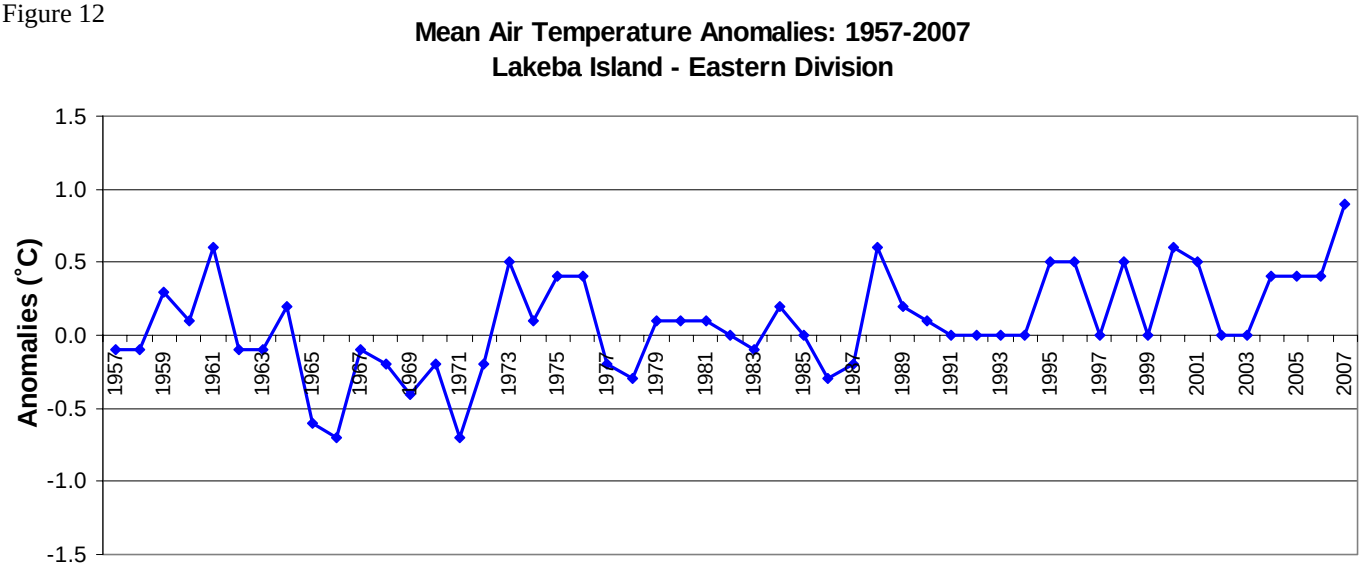


Figure 13

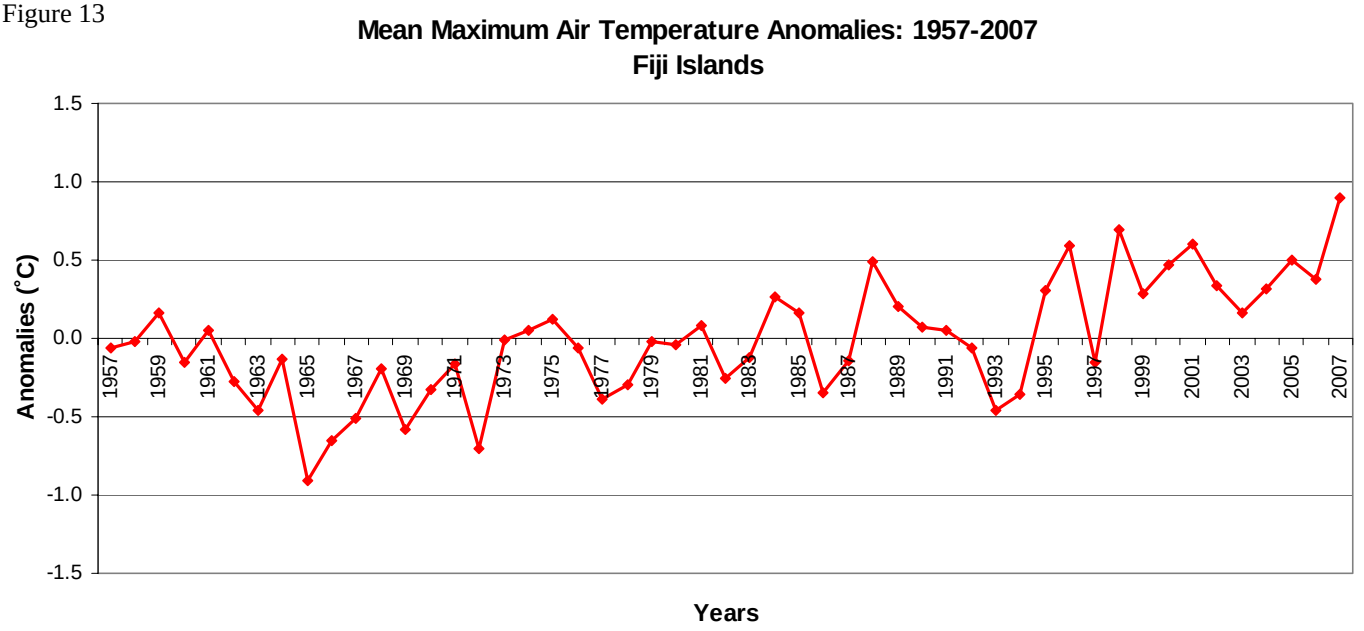
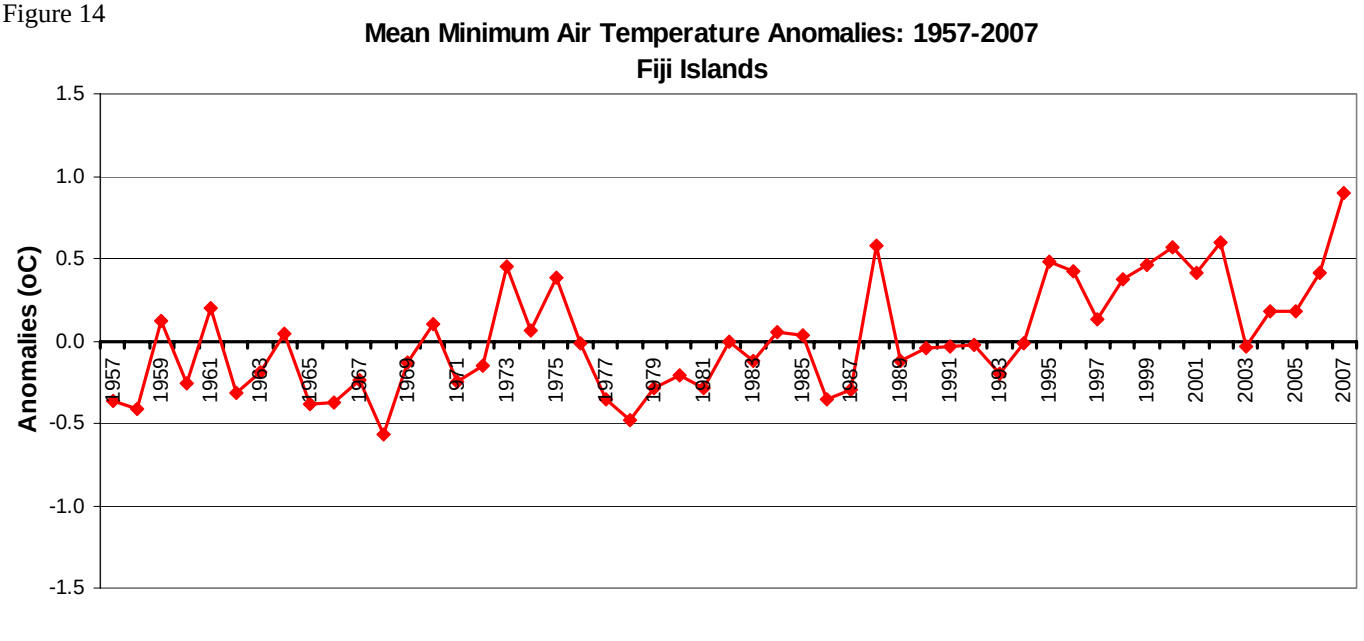


Figure 14



TROPICAL CYCLONES - SOUTH-WEST PACIFIC AND THE FIJI REGION

Five tropical cyclones were named by the Fiji Meteorological Service, Regional Specialized Meteorological Centre in 2007. The Fiji area of responsibility extends from the equator to 25S and 160E to 120W. Tropical Cyclones passing south of 25S become the responsibility of the Met. Service NZ Ltd., Wellington and the Australian Bureau of Meteorology, Brisbane is responsible for cyclones west of 160E. Four of the five tropical cyclones formed during the final four months of the 2006/07 Season. "Zita and Arthur" (both Category 2) formed east of the Dateline in January and "Becky" and "Cliff" (also Category 2) formed west of the Dateline in March and April respectively (Figure 15).

Fiji was directly affected by two cyclones in 2007. TC *Cliff* was first located as a disturbance northwest of Vanua Levu on April 1. The system later moved south-eastwards and intensified into a tropical depression. The system was declared a cyclone on April 4, just east of Udu Point. As the cyclone passed close to Vanua Levu, Taveuni and over northern Lau Group, maximum sustained winds of 40 knots were recorded near the centre of the cyclone. Many parts of the country experienced heavy rainfall and flooding. Damage to weak structures and vegetation was recorded along the path. The maximum intensity of the cyclone was recorded on April 5 (Maximum sustained winds of 55 knots and central pressure of 980 hpa).

The second cyclone experienced in Fiji was TC *Daman* which passed through Fiji Waters between December 5-9. The cyclone was first located to the northeast of Rotuma, moving towards the main islands of Fiji. The system later changed direction, passing over Cikobia Island, causing severe damage to houses and vegetation. The rest of the country experienced strong and gusty winds. Torrential rainfall resulted in landslides and flooding in Vanua Levu and parts of Viti Levu. Further information can be found in the Tropical Cyclone *Daman* Report.

In addition to the two cyclones a number of tropical disturbances passed close to the country. High waves were experienced along exposed coastlines on these occasions and high magnitude rainfall.

Other tropical cyclones occurring in the region include Tropical Cyclone *Zita* which was first identified as a slow moving and poorly organised tropical disturbance on January 16 and later was upgraded to tropical depression (07F) on January 18. The system underwent explosive development and was named Tropical Cyclone "Zita" on January 22. At its peak intensity the minimum central pressure of the cyclone was 975hpa with maximum 10 minute average winds of 60 knots. The cyclone followed a south-southeast track passing close to the Northern Austral Group with no significant damage despite passing close to several small islands.

As "Zita" weakened and became an extra-tropical storm, another cyclone "*Arthur*" developed in the same region. *Arthur* was first identified as a tropical disturbance north-east of Pago Pago, on January 18 and upgraded to tropical depression on January 21. Despite the system showing some characteristics of weakening at several stages, it intensified and became a tropical cyclone on January 24. Arthur was a category 2 cyclone with 10 minute average winds of 55 knots and minimum central pressure of 980 hpa. It passed north of Northern Cook Islands and later between the Southern Cook Islands and French Polynesia.

Tropical Cyclone "Becky" formed from an area of disturbed weather south of Solomon Islands and north-west of Vanuatu. It drifted into Fiji's area of responsibility on January 25. Becky intensified quickly while moving south-southeast attaining hurricane intensity on March 27. Maximum sustained winds speeds of 60 knots and a central pressure of 975 hpa were recorded as it passed west of southern Vanuatu.

FIGURE 15. Tropical Cyclones tracks in the south-west Pacific - January to December 2007