

# Fiji Islands Weather Summary

## November 2005

### Rainfall Outlook till February 2006

#### FIJI METEOROLOGICAL SERVICE

#### IN BRIEF

Rainfall in November was generally around average across most of the country. Most of the month was affected by mobile troughs of low pressure which brought significant rainfall during the month.

A major landslide was reported on the 2nd in Naivucini, Naitasiri. In Labasa, bus services were suspended for sometime due to the heavy rainfall received on the 11th. This heavy downpour caused damage to roads and electricity power lines.

A 42 year old man died when he was struck by lightning at around 5 in the afternoon on the 12th while he was working in a farm near Lomolomo, Lautoka.

A record one-day high rainfall of 118.9 mm was recorded at Vatukoula. Refer *table 2* on page 4 for details.

Day-time and night-time air temperatures were generally around average across the

country. Equal low night time air temperature of 25.4 °C was recorded at Rarawai Mill-Ba. More details are in *table 2* on page 4.

Total sunshine hours were below average at all recording sites.

In the latest survey of the General Circulation Models (GCM), a majority of the models predict neutral patterns to continue till the middle of 2006.

Based on model predictions and current ocean and atmospheric conditions, most parts of the country can expect generally *average to above average* rainfall in the upcoming three months.

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#### WEATHER PATTERNS

Most of November was affected by mobile troughs of low pressure or convergence zones, which brought significant rainfall to Fiji. Low lying areas in eastern Viti Levu reported minor flooding during heavy rain events. Ridges of high pressure brought clearance in the weather during the first week and at the end of the month.

A ridge of high pressure from the southwest maintained generally fine weather over Fiji from the 1<sup>st</sup> till the 7<sup>th</sup>. Between the 08<sup>th</sup> and the 23<sup>rd</sup>, a series of troughs and convergence zones caused widespread rain over the country.

Vatukoula reported a 24 - hour rainfall total of 118.9 mm on the 18<sup>th</sup>. Monasavu recorded a 24 - hour rainfall total of 128mm on the 23<sup>rd</sup>. A slow moving weak convergence zone over Fiji from the 26<sup>th</sup> to the 29<sup>th</sup> caused showers over most

places. Heavy falls were associated with afternoon thunderstorms about the interior and eastern parts of the main islands. A ridge of high pressure extending from the southwest brought fine weather over the country through the end of the month.

Rotuma experienced rain over most of November, due to the convergence zones or troughs, moving across or close to the island.

**TABLE 1: RAINFALL FROM SEPTEMBER TO NOVEMBER 2005**

| Station              | Actual Rainfall (mm) | Rainfall in the last three months (Below Average, Average or Above Average) | No. of Rain days in Sept 05 (% of total rain) | No. of Rain days in Oct 05 (% of total rain) | No. of Rain days in Nov 05 (% of total rain) |
|----------------------|----------------------|---|---|--|--|
| Penang Mill          | 264.0                | Below Average   | 10 (43)                                       | 8 (21)                                       | 10 (36)                                      |
| Monasavu Dam         | 1366.3               | Above Average   | 24 (28)                                       | 17 (22)                                      | 29 (50)                                      |
| Vatukoula Mine       | 619.8                | Above Average   | 07 (14)                                       | 8 (29)                                       | 17 (57)                                      |
| Rarawai Mill, Ba     | 287.3                | Average   | 07 (14)                                       | 7 (25)                                       | 13 (61)                                      |
| Yasawa-I-Rara        | 558.1                | Above Average   | 09 (19)                                       | 6 (57)                                       | 11 (24)                                      |
| Viwa Island          | 500.5                | Well Above Average  | 09 (29)                                       | 10 (28)                                      | 15 (43)                                      |
| Lautoka (FSC Res.)   | 275.6                | Average   | 06 (11)                                       | 8 (37)                                       | 13 (52)                                      |
| Nadi Airport         | 293.2                | Average   | 04 (12)                                       | 5 (44)                                       | 09 (44)                                      |
| Nacocolevu, Sigatoka | 517.7                | Above Average   | -   | -  | -  |
|                      |                      |   |   |  |  |
| Tokotoko, Navua      | 1275.6               | Above Average   | 17 (41)                                       | 16 (39)                                      | 19 (20)                                      |
| Laucala Bay, Suva    | 967.1                | Above Average   | 23 (28)                                       | 17 (33)                                      | 24 (39)                                      |
| Nausori Airport      | 1299.0               | Above Average   | 22 (40)                                       | 18 (34)                                      | 25 (26)                                      |
|                      |                      |   |   |  |  |
| Nabouwalu            | 337.3                | Below Average   | 15 (19)                                       | 13 (54)                                      | 22 (27)                                      |
| Labasa Airport       | 367.7                | Average   | 05 (18)                                       | 5 (17)                                       | 19 (65)                                      |
| Savusavu Airport     | 298.9                | Below Average   | 13 (14)                                       | 5 (38)                                       | 12 (48)                                      |
| Udu Point            | 545.0                | Average   | 13 (27)                                       | 13 (23)                                      | 22 (50)                                      |
| Matei Airport        | 532.1                | Average   | 14 (23)                                       | 9 (16)                                       | 22 (61)                                      |
|                      |                      |   |   |  |  |
| Lakeba Is.           | 549.5                | Above Average   | 12 (33)                                       | 10 (24)                                      | 10 (43)                                      |
| Matuku Is.           | 179.4                | Below Average   | 11 (48)                                       | 7 (30)                                       | 06 (22)                                      |
| Ono-I-Lau Is.        | 330.6                | Average   | 14 (35)                                       | 7 (35)                                       | 05 (30)                                      |
| Vunisea, Kadavu      | 466.6                | Average   | 18 (20)                                       | 12 (29)                                      | 15 (51)                                      |
|                      |                      |   |   |  |  |
| Rotuma               | 861.4                | Average   | 18 (25)                                       | 22 (29)                                      | 26 (46)                                      |

## RAINFALL IN THE LAST THREE MONTHS

### Rainfall in November

Rainfall in November was generally average across most of the country. Most of the month was affected by mobile troughs which brought significant rainfall during the month.

Sites in the Western Division recorded well above to below average rainfall that ranged from 60% to 236% of *Normal* rainfall.

Central Division recorded generally above average rainfall except Navua which recorded average rainfall. Rainfall ranged from 91% to 156% of *Normal* rainfall.

Eastern Division recorded well below average to above average rainfall that ranged from 31% to 170% of *Normal* rainfall.

Northern Division recorded below average to above average

rainfall. Rainfall ranged from 52% to 137% of *Normal* rainfall.

### Forecast Verification

#### Rainfall in the 3-months from September to November 2005

The Rainfall Outlook for the period September to November in the August Fiji Islands Monthly Weather Summary was for rainfall to be generally **Average to Below Average** for most parts of the country. The confidence level of the forecast was **low to moderate**.

Out of the twenty two sites that reported in time for this summary, four sites received **below average** rainfall, **nine** sites received **average** rainfall and **eight** sites received **above average** rainfall. Viwa was the only site that received **well above average** rainfall in the past 3 months.

Figure A

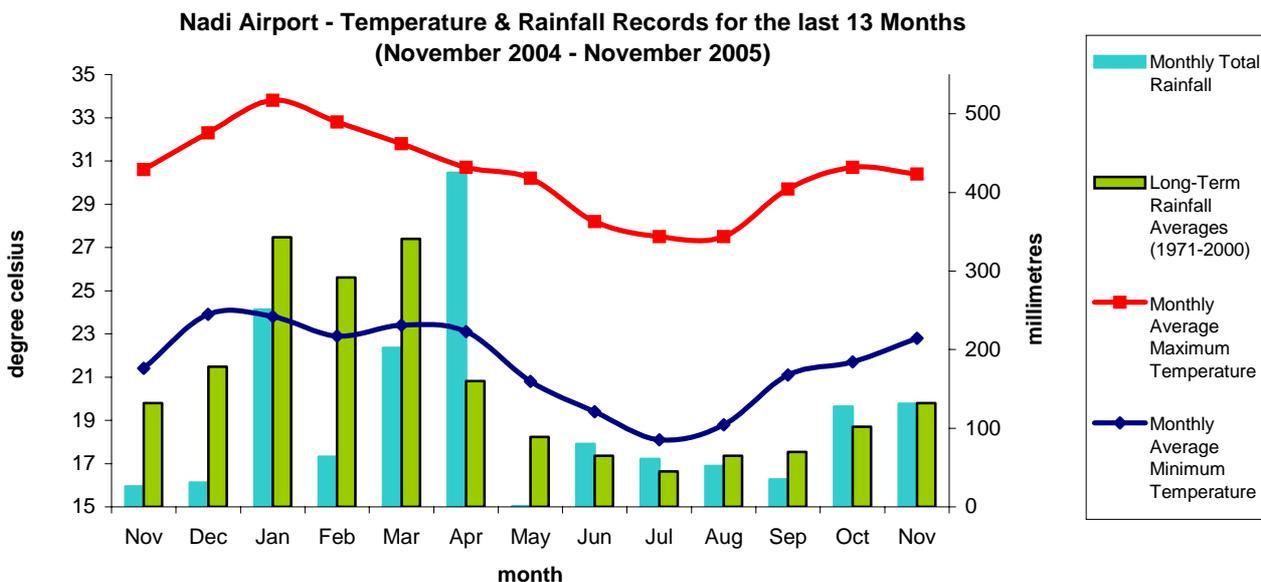


Figure B

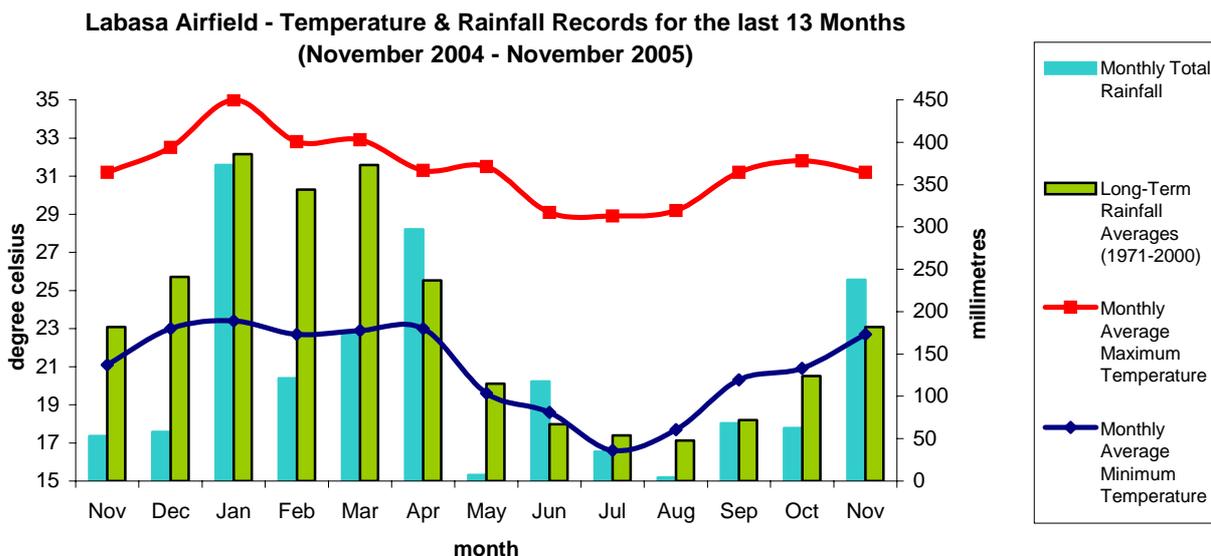
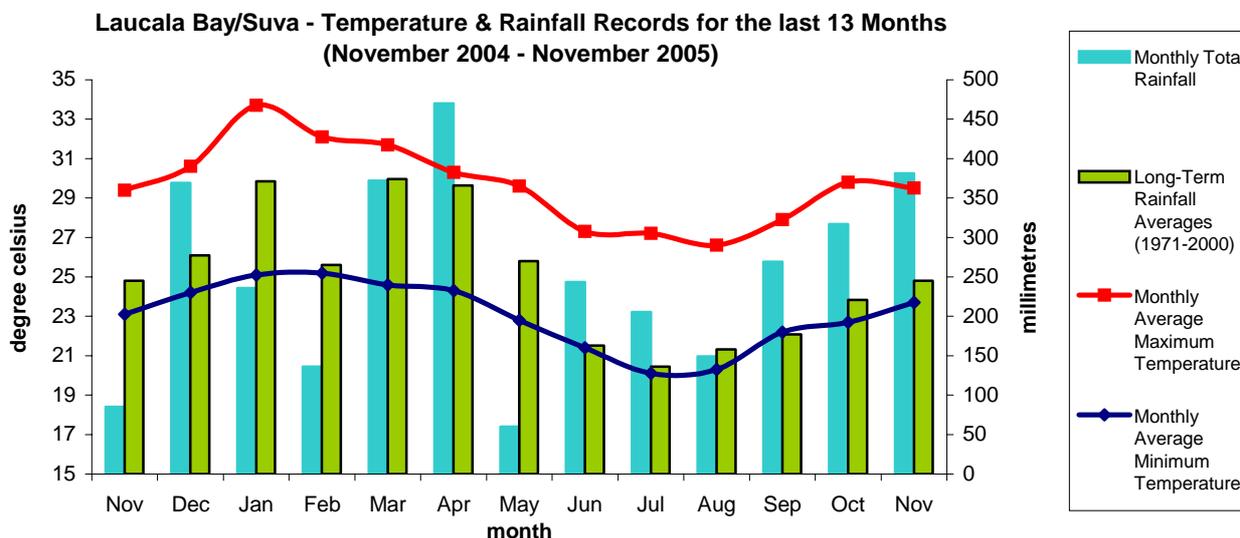


Figure C



## Climate in November 2005

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

Day-time air temperatures were around average at most of the recording sites. Greatest positive departures were recorded at Matuku, Penang Mill and Viwa which recorded 1.3°C, 0.9°C and 0.7°C above *Normal* respectively.

Night-time air temperatures were generally average to above average around the country except at Ono-I-Lau which recorded 0.9°C below *Normal*.

Relative Humidity (RH) at 0900hrs were generally above average across the country. The greatest negative departures were recorded at Matuku (8.3%) and Penang Mill (2.2%).

The highest positive departures were recorded at Yasawa– I-Rara (7.1%), Nadi Airport (6.5%), Viwa (6.1%), Lakeba (5.7%), Nabouwalu (5.1%) and Nausori Airport (4.9%).

### SOIL MOISTURE AND RUNOFFS

Soil moisture conditions were generally ample to moderate for most of the month.

In the Western Division, the soil moisture condition was generally limiting to dry for most of the month except at Monasavu which recorded excessive to ample conditions throughout the month.

In the Central Division, soil moisture conditions were generally ample during the first half than excessive to ample during the second half of the month.

Sites in the Eastern Division experienced generally ample to moderate than excessive to ample during the month. Matuku and Ono-I-Lau recorded generally limiting to dry conditions.

Northern Division experienced generally ample to dry soil moisture conditions at the beginning of the month. Nabouwalu and Savusavu recorded limiting to dry conditions in the second half of the month while other sites recorded excessive to ample soil moisture conditions. During the last third of the month, all sites in the Northern Division except Nabouwalu recorded ample soil moisture conditions.

In Rotuma, the soil moisture conditions were excessive to ample throughout the month.

Significant runoff was recorded at Monasavu (568.8 mm), Laucala Bay-Suva (244.4 mm), Rotuma (232.6 mm), and Nausori Airport (182.0 mm).

### SUNSHINE, RADIATION & WINDS

The total sunshine hours were below average at all recording sites. Rotuma, Nadi Airport, Nacocolevu and Laucala Bay,-Suva, recorded 91%, 82%, 68% and 60% respectively.

Global Solar Radiation (average per day) was 21.0 MJ/M<sup>2</sup> at Rotuma, 19.2.0 MJ/M<sup>2</sup> at Nadi Airport, 19.0MJ/M<sup>2</sup> and Laucala Bay– Suva recorded 15.3 MJ/M<sup>2</sup>.

Monthly average wind speed was below average for the fourth consecutive month at all wind recording sites around the country.

**TABLE 2: RECORDS SET IN NOVEMBER 2005**

| <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   | Vatukoula      | 118.9 mm                 | 18th      | New High    | 106.0 mm                 | 1990        | June 1984            |
| Monthly Rainfall | Vatukoula      | 353.3 mm                 | -         | New High    | 152.5 mm                 | 2000        | Jan 1984             |
| Av. Mly Min Temp | Labasa Airport | 22.7 °C                  | -         | New High    | 22.6 °C                  | 2000        | Aug 1956             |
| Av. Mly Min Temp | Vatukoula      | 22.2°C                   | -         | New High    | 22.1 °C                  | 2000        | June 1984            |
| Daily Min Temp   | Rarawai Mill   | 25.4                     | 13th      | Equal High  | 25.4 °C                  | 1998        | Jan 1925             |

## ENSO STATUS AND SOI GRAPH

### ENSO UPDATE

#### EL NIÑO - SOUTHERN OSCILLATION

The Southern Oscillation Index (SOI) for November was -2.7 (October was 10.9) with the five-month running mean of +1 centred on September (August was +2), the highest value since April 2001. (see Figure D below).

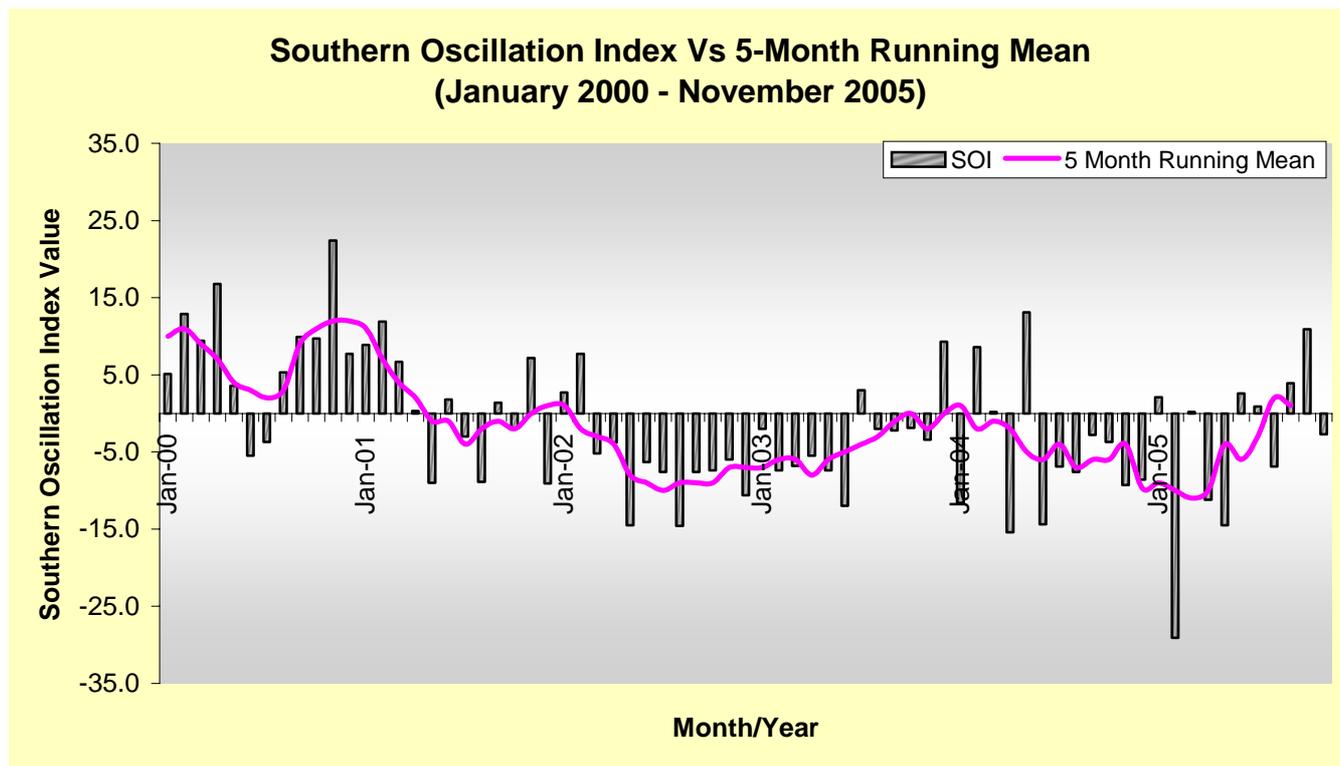
ENSO indicators from the Tropical Pacific show that a neutral climate pattern is persisting. Pacific Ocean temperatures have continued neutral conditions to cool both on and below the surface.

Consistent with the cooling oceans, Central Pacific cloudiness has been well below normal. The Trade Winds have generally been enhanced around and to the west of the date-line. Further east, they were mainly near to, or somewhat weaker than normal

Most computer models predict continued neutral conditions until the middle of next year. That is, it's unlikely that the cooling will be strong enough to reach La Niña thresholds.

*For more information and interpretation, please contact Fiji Meteorological Service. (The ENSO Update is provided by the Australian Bureau of Meteorology and visit the website <http://www.bom.gov.au> for a detailed information).*

**Figure D**



#### Tropical Cyclone Season—November 2005 to April 2006

The south Pacific Tropical cyclone Season officially began on 1st November and will continue till 30th April 2006.

Fiji's chances of being hit by a Tropical Cyclone (TC) is slightly higher in the neutral ENSO phase compared to El Niño phase and significantly reduced in a La Niña phase. It can be said that the chance of being hit would be higher this season than in the recent past.

Based on statistical information, Fiji can expect to be hit by 10 to 15 TCs in a decade of which 2 to 4 could do severe damage. Since 1995, the only major damage was done by TC

Gavin (1997—Western and South Western parts of Fiji) and TC Ami (2003—Northern and Eastern parts of Fiji). Therefore the chance of a big hit is rather high.

Due to neutral conditions, we are anticipating an average TC season with 7 to 9 TCs forming in the South-West Pacific region as a whole, based on statistics again. Once a TC forms only then will we be able to tell whether it will threaten Fiji or not.

Given the trend of more and more extreme events occurring in different parts of the world, one should always prepare for a worse one yet to come.

**RAINFALL PREDICTIONS AND OUTLOOK TO FEBRUARY 2006**

*FMS currently uses “The Seasonal Climate Outlook for Pacific Island Countries (SCOPIC) Model” for seasonal rainfall guidance.*

*The SCOPIC software system analyses the current sea surface temperature patterns across the Pacific Ocean and then finds the most similar patterns experienced throughout the available historical period.*

*For a particular location, the subsequent rainfall received in historical period is then used to construct a rainfall forecast for the next three month period in a form of a tercile probability distribution. It also allows for the predictor period to be varied to produce the maximum skills.*

The SCOPIC model predicts rainfall to be generally average to above average across the country.

The model is predicting rainfall to be generally below average at Rotuma.

**RAINFALL OUTLOOK FOR FIJI ISLANDS  
DECEMBER 2005 TO FEBRUARY 2006**

**With the current neutral state of ocean & atmospheric conditions rainfall is likely to be average to above average across the country over the next three months.**

As this is the Tropical Cyclone Season Fiji can expect above average rainfall if a tropical disturbance or tropical cyclone affects the Group or passes close to the Group.

**NOTE:  
The confidence level of this prediction is moderate.**

**PRELIMINARY CLIMATOLOGICAL SUMMARY FOR NOVEMBER 2005**

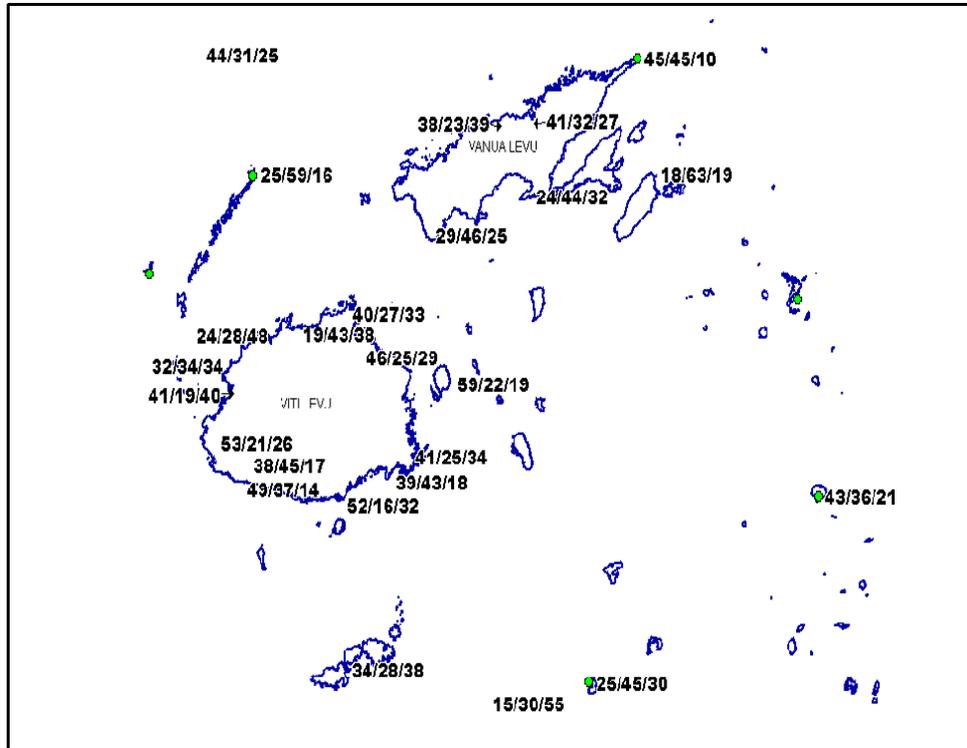
PRELIMINARY CLIMATOLOGICAL DATA FOR MONTH 11 , 2005 : SUMMARY FOR DAYS 1 TO 30

|                   | RAINFALL    |           |             |       | AIR TEMPERATURES |        |           |        |           |           |       |      | SUNSHINE |     |    |
|-------------------|-------------|-----------|-------------|-------|------------------|--------|-----------|--------|-----------|-----------|-------|------|----------|-----|----|
|                   | TOTAL<br>MM | RAIN<br>% | MAX.        |       | AVERAGE DAILY    |        |           |        | EXTREME   |           | TOTAL |      | *        |     |    |
|                   |             |           | * DAYS FALL |       | MAX.<br>C        | #<br>C | MIN.<br>C | #<br>C | MAX.<br>C | MIN.<br>C | ON    | ON   |          | HRS |    |
|                   |             |           | +           | MM ON |                  |        |           |        |           |           |       |      |          |     | C  |
| NADI AIRPORT      | 131         | 99        | 9           | 77    | 18               | 30.4   | -0.7      | 22.8   | 1.0       | 32.7      | 2     | 20.5 | 21       | 183 | 82 |
| SUVA/LAUCALA BAY  | 381         | 156       | 24          | 65    | 22               | 29.5   | 0.2       | 23.7   | 0.9       | 31.1      | 25    | 21.9 | 10       | 100 | 60 |
| NACOLEVU          | 279         | 205       | 10          | 81    | 17               | 30.0   | -0.4      | 23.1   | 2.2       | 31.6      | 23    | 20.2 | 8        | 126 | 68 |
| ROTUMA            | 396         | 140       | 26          | 75    | 4                | 30.9   | 0.6       | 24.9   | 0.4       | 32.1      | 3     | 23.2 | 30       | 178 | 91 |
| VIWA              | 218         | 208       | 15          | 71    | 13               | 31.0   | 0.7       | 24.5   | 0.1       | 33.0      | 26    | 22.0 | 5        |     |    |
| UDU POINT         | 276         | 136       | 22          | 63    | 15               | 30.5   | 0.4       | 24.1   | 0.4       | 32.5      | 28    | 22.3 | 19       |     |    |
| LABASA AIRFIELD   | 238         | 131       | 19          | 54    | 10               | 31.2   | -0.2      | 22.7   | 1.5       | 33.8      | 26    | 20.6 | 6        |     |    |
| NABOUWALU         | 91          | 52        | 22          | 19    | 19               | 29.3   | 0.4       | 23.8   | 0.4       | 31.4      | 23    | 22.6 | 11       |     |    |
| SAVUSAVU AIRFIELD | 145         | 77        | 12          | 41    | 18               | 29.1   | -0.3      | 22.5   | -0.1      | 32.0      | 20    | 19.0 | 1        |     |    |
| MATEI AIRFIELD    | 324         | 137       | 22          | 62    | 13               | 29.1   | 0.3       | 23.3   | 0.2       | 31.0      | 20    | 22.0 | 14       |     |    |
| YASAWA-I-RARA     | 136         | 105       | 11          | 55    | 10               | 29.9   | -0.0      | 23.9   | -0.1      | 31.8      | 27    | 22.0 | 11       |     |    |
| VATUKOULA         | 353         | 236       | 17          | 119   | 18               | 31.0   | -0.7      | 22.2   | 1.6       | 32.2      | 1     | 20.5 | 1        |     |    |
| MONASAVU          | 674         | 150       | 29          | 128   | 23               | 24.0   | 0.0       | 18.4   | 0.9       | 26.5      | 25    | 16.5 | 6        |     |    |
| NAUSORI AIRPORT   | 319         | 130       | 25          | 54    | 12               | 28.7   | -0.1      | 22.5   | 0.7       | 31.1      | 25    | 20.6 | 10       |     |    |
| NAVUA/TOKOTOKO    | 260         | 91        | 19          | 56    | 24               | 28.0   | -0.5      | 22.4   | 0.6       | 29.5      | 24    | 20.5 | 8        |     |    |
| ST. JOHNS COLLEGE | 179         | 120       | 16          | 76    | 18               | 28.4   | -0.5      | 23.5   | 0.2       | 29.8      | 22    | 19.0 | 21       |     |    |
| LAKEBA            | 241         | 170       | 10          | 53    | 10               | 29.1   | 0.3       | 24.2   | 1.1       | 31.2      | 6     | 22.5 | 23       |     |    |
| MATUKU            | 39          | 31        | 6           | 12    | 17               | 30.0   | 1.3       | 23.3   | 0.3       | 31.9      | 24    | 21.1 | 20       |     |    |
| VUNISEA           | 239         | 164       | 15          | 77    | 17               | 28.3   | -0.1      | 23.2   | 1.2       | 30.0      | 20    | 21.0 | 21       |     |    |
| ONO-I-LAU         | 97          | 85        | 5           | 50    | 18               | 28.0   | 0.4       | 21.7   | -0.9      | 30.6      | 21    | 19.6 | 4        |     |    |
| BA/RARAWAI MILL   | 176         | 122       | 13          | 49    | 18               | 31.3   | -0.6      | 22.4   | 1.6       | 33.0      | 3     | 20.3 | 1        |     |    |
| LAUTOKA AES       | 142         | 103       | 13          | 50    | 18               | 30.5   | 0.0       | 23.6   | 0.9       | 34.0      | 9     | 21.8 | 1        |     |    |
| PENANG MILL       | 96          | 60        | 10          | 36    | 18               | 30.6   | 0.9       | 23.2   | 0.2       | 33.0      | 25    | 21.0 | 10       |     |    |

## SCOPIC Model (Seasonal Climate Outlook for Pacific Island Countries Model)

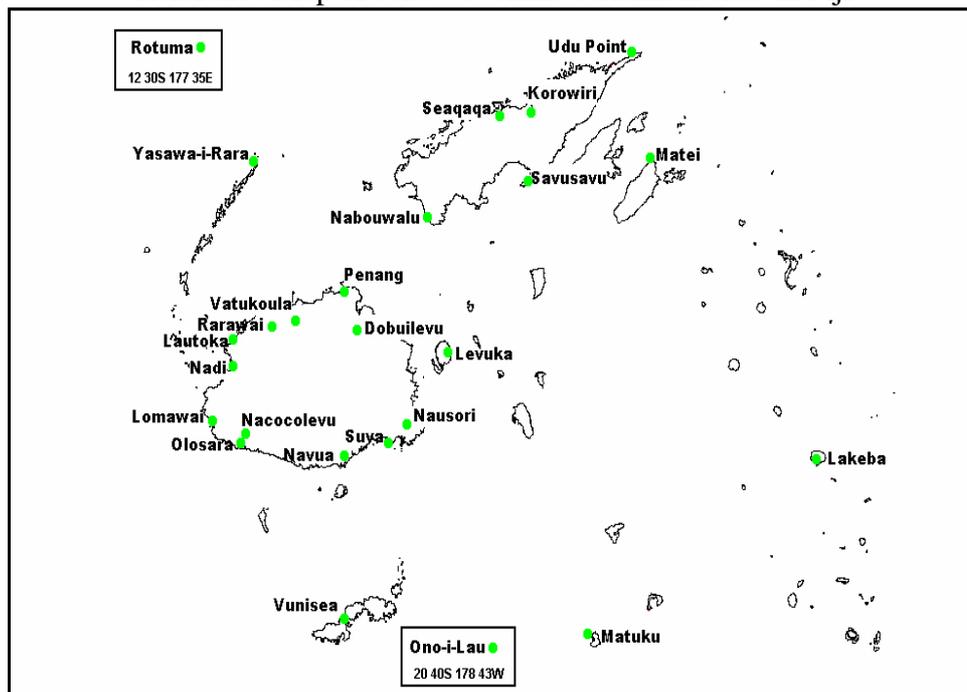
**FIGURE E**  
 Three Month Forecast for Selected Stations in Fiji using the SCOPIC Model

The forecast probabilities are presented as



Please note that the probabilities are listed beside the corresponding station marker or dot.

**FIGURE F**  
 Reference Map of selected Climate/Rainfall sites in Fiji



**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) |
|-------------------------|----------|----------|
| <b>Western Division</b> |          |          |
| Dobuilevu               | 845.8    | 1152.7   |
| Vatukoula               | 788.7    | 1212.4   |
| Rarawai                 | 795.0    | 1113.2   |
| Penang                  | 819.2    | 1093.4   |
| Lautoka                 | 639.6    | 974.4    |
| Nadi                    | 606.6    | 906.3    |
| Lomawai                 | 464.6    | 821.5    |
| Nacocolevu              | 638.0    | 802.8    |
| Olosara                 | 473.0    | 723.2    |
| Yasawa                  | 486.2    | 783.7    |

**Central Division**

|         |       |        |
|---------|-------|--------|
| Navua   | 883.2 | 1130.6 |
| Suva    | 777.9 | 1020.0 |
| Nausori | 770.0 | 978.0  |

**Eastern Division**

|           |       |       |
|-----------|-------|-------|
| Levuka    | 575.2 | 867.0 |
| Lakeba    | 580.5 | 724.7 |
| Matuku    | 472.2 | 652.9 |
| Ono-I-Lau | 444.2 | 595.0 |
| Vunisea   | 509.0 | 754.7 |

**Northern Division**

|               |              |               |
|---------------|--------------|---------------|
| Labasa Mill   | 882.6        | 1167.6        |
| Seaqaqa       | 883.1        | 1235.2        |
| Nabouwalu     | 738.8        | 1001.2        |
| Savusavu      | 612.9        | 855.4         |
| Udu Point     | 728.4        | 943.1         |
| Matei         | 795.9        | 1008.4        |
| <b>Rotuma</b> | <b>864.6</b> | <b>1063.3</b> |

**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.