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Fiji Islands Sugar Cane Rainfall Outlook November 2007 to January 2008

Late Harvesting and Crushing Season Rainfall Outlook for Sugar Sector



Introduction

This document contains a three-month rainfall outlook for the Fiji Islands sugar cane 'belt'. The chances of *below normal*, *normal* and *above normal* rainfall are given in probabilities and presented in pie charts. The Fiji Meteorological Service currently uses a statistical climate prediction model: SCOPIC (Seasonal Climate Outlook for Pacific Island Countries) for seasonal rainfall guidance. For the Fiji region, the model uses recent monthly anomalies of sea surface temperature from parts of the Pacific Ocean (Central - Eastern and South - Western Pacific regions) as predictors of Fiji Islands rainfall.

Summary Statement

- *Above average* rainfall experienced from July to September 2007;
- Air temperatures generally *warmer than normal* across the country in recent months;
- La Nina has developed. There is a 50% chance of it persisting until February 2008;
- Rainfall in the sugar cane 'belt' from November 2007 to January 2008 expected to be *near or above average*. The confidence in this prediction is *moderate*;
- Air temperatures expected to remain *above average* until late February 2008. The confidence in this prediction is *moderate*;
- The chance of tropical cyclones affecting Fiji this season is near average (average between 1 and 2). Slightly higher risk for the southern parts of the country.

Sugar Research Institute of Fiji - Advice to Farmers

"In the coming months, the weather will be conducive for weed growth. Weeds compete with the sugar cane crop for light, soil moisture and nutrients. Weed infestation affects germination of the crop and its development. This affects yield. The most critical period for weed control in sugarcane is before the cane canopy is formed i.e. the first 3 to 4 months after planting and the first 2 to 3 months for ratoon cane after harvesting. And the best time to control weeds is when they are young, 2 to 3 leaf stage and growing vigorously. A combination of chemical, mechanical and manual weeding has proved to be the most cost effective method for weed control."

Source: Sugar Research Institute of Fiji.

El Niño Southern Oscillation (ENSO) Status and Outlook

Current El Niño Southern Oscillation (ENSO) Status

La Nina conditions have become more developed in the tropical Pacific during September 2007. The Sea Surface Temperatures (SSTs) in the equatorial Pacific have become more strongly negative at the east of 140°W and the cold area anomaly expanded west as far as the Dateline. A region of warmer SST's extends from the Solomon Islands through Fiji. The latest monthly data show SST departures are negative in the Niño 1&2 (-2.3°C), Niño 3 (-1.2°C), Niño 3.4 (-0.6°C) regions while remaining near zero in the Niño 4 (0.0°C) region.

The upper-ocean heat content (average temperatures in the upper 300 m of the ocean) in the central and east-central equatorial Pacific continued to be below average, with significant sub-surface anomaly in the eastern equatorial Pacific region with an extensive 2°C below average at 100m depth. In contrast, positive anomalies of 1°C exist in the same layer in the west of the Dateline region. Easterly equatorial wind anomalies strengthened around east of dateline in September. The Southern Oscillation Index (SOI) is currently positive with September value of +1.5 with five month running mean of 0. The negative SST and positive SOI shows that La Nina is in progress with coupling between the ocean and atmosphere.

El Niño Southern Oscillation (ENSO) Outlook

Most of the ENSO forecast models predict cool conditions consistent with *La Niña* event to continue for the rest of 2007 with 50% chance of it persisting into early 2008.

Tropical Cyclone Season 2007/08

The 2007/08 tropical cyclone season will begin on November 1, 2007 and continue until April 30, 2008. On average Fiji is affected by 1 to 2 cyclones a season. Tropical cyclones are associated with destructive winds, prolonged heavy rainfall, severe flooding and storm surge. Tropical cyclones that have affected Fiji recently under similar conditions to that at present are Cyril (1984); Eric, Nigel, Gavin, Hina (1985); Keli and Martin (1986). There is a good chance that the first tropical cyclone of the coming season in the South Pacific region may occur before the end of December, which is normal in both neutral and La Niña seasons. Peak cyclone occurrence between January and March.

With the prevailing and predicted climate pattern in the Pacific, there is a *near-normal risk of tropical cyclones affecting the northern parts and slightly higher risk for the southern parts of Fiji.*

Explanatory Notes - El Niño and La Niña

El Niño Southern Oscillation (ENSO) is an irregular cycle of persistent warming and cooling of sea surface temperatures in the tropical Pacific Ocean. The warm extreme is known as El Niño and cold extreme, La Niña.

The term *El Niño* is given to a local warming of the ocean near the Peruvian coast in South America that appeared around Christmas. Scientists now refer to an *El Niño event* as sustained warming over a large part of central and eastern tropical Pacific Ocean. These events occur on a three to seven year basis and are characterized by shifts in normal weather and climate patterns.

La Niña sustained cooling of the central and equatorial tropical Pacific Ocean. The cooling is usually accompanied by persistent positive values of SOI, an increase in strength of the equatorial Trade Winds and higher than normal rainfall for most of the Fiji Islands (not immediate effects as there is a lag period).

La Niña events are usually associated with the South Pacific Zone (SPCZ) being more active than normal and displacement to the southwest of normal position resulting in above average amounts of rainfall, with frequent and sometimes severe flooding. The Southeast trade winds become more easterly than normal bringing moist and warm equatorial wind flow over the country and wet season thunderstorm activity is more pronounced.

Rainfall Outlook: Rainfall Probabilities - 'dry', 'wet' and 'normal' conditions

The rainfall outlook probability presents three monthly rainfall in three different categories. The *below normal* range is one where rainfall is less than the 33rd percentile. That is, rainfall for the period (in this case three months) which is in the lowest one third of occurrences. Here, three-month rainfall is arranged for a particular period from the highest on record to lowest on record. Rainfall below the one-third point would be considered *below normal*. Rainfall in the middle third would be considered *normal* and upper third *above normal*. A rainfall prediction of 48:31:21, for example, has the highest probability of rainfall in the below normal category (48%). This means that rainfall is most likely to be *below normal* for the on-coming three months. However there is still a 31% chance of normal rainfall and 21% chance of above normal rainfall. Similarly, with a prediction of 20:40:40, means *normal to above normal* rainfall would be expected. In the case of 33:33:34 there are **equal chances** of receiving below normal, normal or above normal rainfall (climatology).

The success or hit rate of the predictions is highest during the wet season and lowest during the dry season and transition months (dry to wet and wet to dry). The success rate is also high during El Niño events and La Niña events. Predictions during neutral period especially during the dry season and transition are the least successful.

Rainfall Outlook for November 2007 to January 2008

Sigatoka	Dry	33%	Normal	67%	Wet
Olosara	23	329.2	38	596.4	39
Nacocolevu	24	436.3	27	712.0	49
Cuvu	29	345.3	38	621.1	34
Lomawai	34	370.5	37	668.7	29

Rainfall in the Sigatoka sugar cane growing area is expected to be near *normal* or *above normal*.

Nadi	Dry	33%	Normal	67%	Wet
Nadi Airport	21	428.9	26	729.4	53
Malolo	23	326.2	37	642.3	40
Navo	34	415.2	33	621.1	33
Meiguynah	34	452.6	25	673.9	41

Rainfall in the Nadi sugar cane growing area could be *near normal* or *above normal*.

Lautoka	Dry	33%	Normal	67%	Wet
Lautoka Mill	24	466.2	18	743.5	58
Lovu	25	415.7	27	665.5	48
Drasa	19	492.1	18	695.0	63
Natova	24	490.2	32	748.7	43

Rainfall in the Lautoka sugar cane growing area is expected to be *above normal*.

Ba	Dry	3%	Normal	67%	Wet
Rarawai Mill	15	535.4	25	884.2	60
Koronubu	19	577.5	24	892.5	57
Mota	20	603.4	20	901.1	60
Navatu	08	435.0	23	740.5	69

Rainfall in the Ba sugar cane growing area is more likely to be *above normal*.

Tavua	Dry	33%	Normal	67%	Wet
Tavua	20	335.8	23	693.3	57
Tagitagi	24	370.6	21	731.6	55
Vatukoula	16	511.7	22	905.8	62

Rainfall in the Tavua sugar cane growing area is likely to be *above normal*.

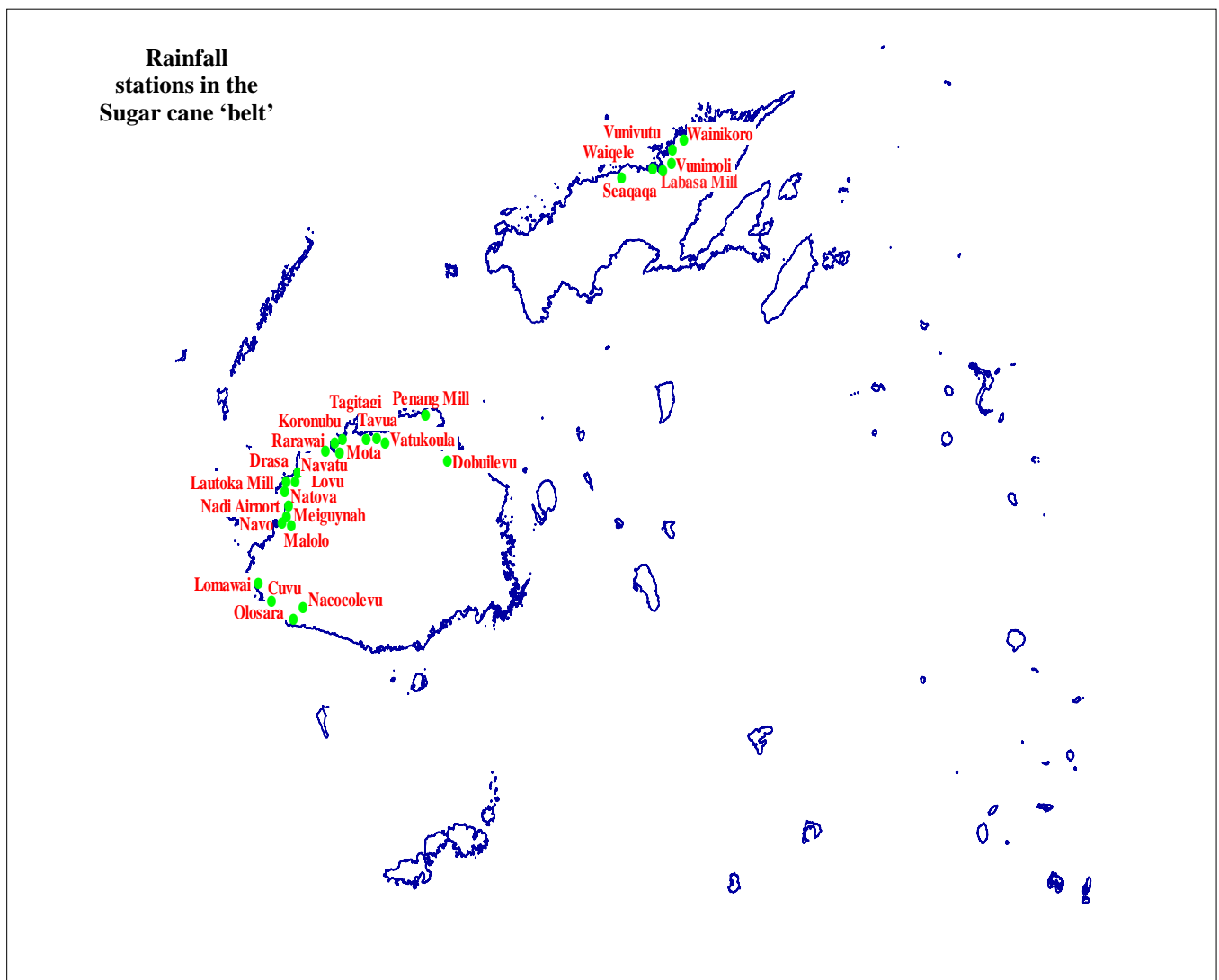
Rakiraki	Dry	33%	Normal	67%	Wet
Penang Mill	22	557.9	06	944.4	72
Dobuilevu	41	660.2	24	978.6	35

Rainfall in the Rakiraki sugar cane growing area is likely to be near *normal* or *above normal*.

Rainfall Outlook for November 2007 to January 2008

Labasa	Dry	33%	Normal	67%	Wet
Seaqaqa	26	716.2	24	965.0	50
Waiqele	17	611.0	34	960.1	49
Vunimoli	43	692.0	18	1063.3	39
Labasa Mill	19	687.8	32	988.7	49
Vunivutu	17	566.0	28	1068.4	55
Wainikoro	19	567.4	39	815.1	42

Rainfall in the Labasa sugar cane growing area is likely to be near *normal* or above *normal*.



Disclaimer: The seasonal rainfall predictions provided in this document is presented for the sugar sector and should be used as a guide only. While FMS takes all measures to provide accurate information and data, it does not guarantee 100% accuracy of the forecast presented in this summary. The department should be sought for expert advice, clarifications and additional information as and when necessary. The user assumes all risk resulting directly or indirectly from the use of the rainfall prediction information.

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