

Fiji Islands Climate Summary

August 2008

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IN BRIEF

Considerably drier than normal conditions were experienced in most parts of the country in August as stable weather conditions associated with ridges of high pressure had a more dominant (than usual) effect on the country. The South Pacific Convergence Zone (SPCZ) remained displaced to the north of Fiji Group for most of the month, occasionally becoming weak and inactive. An active trough of low pressure affected the eastern and the central parts of the country at the end of the month resulting in significant rainfall in these areas.

Overall, August rainfall was *well below average to below average* across most of the Western, Northern and Eastern Divisions. In the Central Division rainfall ranged from below average (69% of normal) at Koronivia to *above average* at (134% of normal) at Navua.

Rainfall for the June to August period was predicted to be generally *above average* across the country. Of the 23 stations that reported in time for this summary, 15 received *above average* rainfall and six received *average* rainfall.

Maximum air temperatures in August were *above average* across the country. Nine new monthly average and one daily maximum temperature record was established during the month. The monthly average maximum temperature at the Labasa and Nausori Airports were the highest in 34 years and in the case of Nacocolevu, 71 years.

Minimum air temperatures were *average to above average* across the country. Two new minimum air temperature records were established during the month.

The equatorial Pacific is currently in a *Neutral* ENSO state with a 75% probability of these conditions persisting over the coming months.

Average to above average rainfall is favoured across the Fiji Islands and there are equal chances of Rotuma receiving *below average, average or above average* rainfall for the September to November period. The skill of the prediction is *good to very good*.

WEATHER PATTERNS

It was a case of cold front-ridge-cold front-ridge that set the rhythm for the month of August. There was one significant trough of low pressure that affected mainly the eastern and southern parts of Fiji on August 30 and 31. The east to southeast wind flow associated with the ridges of high pressure brought frequent brief showers over the interior and southeastern parts of the larger islands, with isolated instances of heavy rainfall. This was coupled with the passing of weak, transient eastward moving frontal bands. There were periods of relatively cooler and drier southeast Trade Winds, which were occasionally strong over coastal waters.

The South Pacific Convergence Zone (SPCZ) remained to the north of the Fiji Group, occasionally becoming weak and inactive. There were instances during the month where troughs of low pressure moving westwards, would merge with the SPCZ and thus enhance convective activity. Rotuma was directly affected from time to time, during these occasions.

A weak front moved across most parts of Fiji on August 4 causing widespread rain with isolated heavy falls. The front slipped southeastwards on August 5 and 6, affecting

mostly the southern parts of the Group before dissipating on August 7. Isolated heavy rainfall was recorded in Matuku (72.1mm) on August 5, Monasavu and Penang Mill (73.0mm and 49.0mm) respectively on August 6.

On August 14, another weak front swept across the southern parts of the Group, bringing some light showers to these areas. A weak trough developed to the west of Fiji and merged with this front on August 18 and extended over Viti Levu and the southern parts of the Group. It remained slow moving over these areas until August 23 before weakening as an intensifying ridge followed immediately behind. Tokotoko-Navua recorded 95.0mm of rainfall on August 19.

A trough developed over the northern parts of Fiji on August 29 and extended southwards over the group on August 30 and 31. This system intensified and brought heavy rainfall mainly over the eastern and southern parts of Fiji. Navua received 123.1mm of rainfall on August 31.

Rotuma received rain for most of the month, largely due to the SPCZ. The station recorded 72.1 mm of rainfall on August 13.

RAINFALL IN RECENT MONTHS

Rainfall in August

Drier than usual conditions were experienced in most parts of the country in August (Table 1, Figures 1-4). Rainfall was *well below average* to *below average* in the Western, Northern and Eastern Divisions except near Rakiraki (Penang Mill), Monasavu, Matuku in the Lau Group and Rotuma where rainfall was near average. In the Central Division rainfall ranged from below average at Koronivia to above average at Laucala Bay, Suva and Navua.

The greatest departure from normal rainfall was experienced in Nadi, Lautoka and Labasa where less than 5% of normal rainfall was received during the month. Due to this very significant deficiency in August rainfall a meteorological drought warning is in place for the Nadi and Ba area from September 1, 2008.

Rainfall in the last three months

Rainfall for the June to August period was predicted to be generally *above average* across the Fiji Group. The confidence level of the prediction was *low to very good*.

Of the 23 stations that reported in time for this summary, fifteen sites received *above average* rainfall, six received *average* rainfall and two received *below average* rainfall. During this period, there was considerable variability in rainfall with most of the rainfall received in the month of June (Table 2).

The hit rate for the June to August prediction was just over 65%.

TABLE 1. PRELIMINARY CLIMATOLOGICAL SUMMARY FOR AUGUST 2008

	RAINFALL					AIR TEMPERATURES						SUNSHINE			
	TOTAL	RAIN		MAX.		AVERAGE DAILY				EXTREME		TOTAL			
		* DAYS	FALL			MAX.	#	MIN.	#	MAX.	MIN.	HRS	*		
	MM	%	+	MM	ON	C	C	C	C	C	ON	C	ON		
NADI AIRPORT	3	4	3	1	20	29.6	0.9	20.3	1.7	32.0	16	17.1	12	243	106
SUVA/LAUCALA BAY	191	121	20	95	31	28.7	2.0	22.4	1.7	32.1	17	20.0	10	169	117
NACOCOLEVU	27	32	7	11	17	29.3	1.8	19.6	1.7	32.5	12	16.0	12	171	93
ROTUMA	236	112	25	72	13	29.8	0.7	24.7	0.7	30.9	17	22.6	14	214	103
VIWA	17	28	6	9	15	30.0	2.2	24.0	1.6	31.7	25	22.1	25	0	0
UDU POINT	49	58	17	11	14	29.3	1.2	23.5	1.3	31.0	17	22.0	27		
SAVUSAVU AIRFIELD	27	23	9	8	4	28.3	1.2	21.3	0.5	31.9	16	19.0	1		
LABASA AIRFIELD	3	7	4	2	6	31.0	1.6	19.0	0.3	32.7	13	16.0	11		
NABOUWALU	67	64	20	11	31	27.9	1.6	22.8	1.2	30.1	18	20.0	11		
KORONIVIA	112	69	20	33	31	28.1	1.7	21.3	2.0	30.5	17	18.5	10		
NAUSORI AIRPORT	126	86	19	46	31	27.7	1.5	21.0	1.4	30.8	17	17.5	24		
NAVUA/TOKOTOKO	271	134	19	95	19	26.7	-0.2	20.3	2.2	29.5	16	15.5	29		
MONASAVU	243	93	16	73	6	23.1	1.8	17.2	1.6	26.0	16	14.0	10		
LAUTOKA AES	1	2	4	1	6	29.8	1.5	20.6	0.6	31.5	25	18.6	13		
BA/RARAWAI MILL	8	13	3	7	6	31.3	1.5	18.1	0.7	33.4	18	14.4	12		
PENANG MILL	75	102	8	49	6	29.5	2.1	21.9	1.2	31.8	1	18.5	26		
MATEI AIRFIELD	54	44	15	15	14	28.7	1.6	23.0	1.3	30.5	12	20.5	11		
VANUABALAVU	15	19	9	5	4			23.4	1.5			20.0	24		
LAKEBA	55	54	16	16	4	28.3	1.9	21.3	0.3	29.0	4	17.5	10		
ST. JOHNS COLLEGE	62	57	12	18	31	27.8	1.0	22.5	1.1	30.0	17	21.0	15		
VUNISEA	75	58	17	14	31	27.1	1.3	21.5	2.1	30.1	17	17.6	24		
MATUKU	91	82	11	72	5	28.7	2.9	22.2	1.7	31.5	30	19.5	24		
ONO-I-LAU	55	47	9	19	17	27.2	2.3	21.2	1.2	30.6	17	17.9	23		

RAINFALL OUTLOOK - SEPTEMBER TO NOVEMBER 2008

The tropical Pacific Ocean remains in a *Neutral* ENSO state. Over the past three weeks a slight cooling has occurred at the ocean surface, and slightly stronger cooling at depth in the central equatorial Pacific. The cooling has coincided with strengthening of the Trade Winds in the western half of the equatorial Pacific. As a result the Southern Oscillation Index rose to a value of +9 for the month of August. Computer models predict SSTs in the central to western Pacific Ocean to warm slightly but remaining *near neutral* (75% chance) in the coming months.

Average to above average rainfall is favoured across the Fiji Islands during September to October period. Rotuma has an equal chance of receiving *below average*, *average* or *above average* rainfall during this period. The skill of the prediction is *good to very good* (*More detailed climate predictions will follow in the "Fiji Islands Climate Outlook" to be released in the coming days*).

Normal - Long term average from 1971 to 2000.

Well Below Average - Rainfall less than 39%.

Below Average - Rainfall between 40 to 79%.

Average - Rainfall between 80 to 119%.

Above Average - Rainfall between 120 to 199%.

Well Above Average - Rainfall more than 200%.

TABLE 2. THREE MONTH RAINFALL : JUNE TO AUGUST 2008

<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 June 08 (% of total rain)</u>	<u>No. of Rain days in July 08 (% of total rain)</u>	<u>No. of Rain days in August 08 (% of total rain)</u>
Penang Mill, Rakiraki	197.5	Average	11 (53)	03 (09)	08 (38)
Monasavu Dam	918.3	Above Average	19 (53)	18 (21)	16 (26)
Rarawai Mill, Ba	117.5	Below Average	12 (47)	04 (46)	03 (07)
Nacocolevu	165.1	Below Average	11 (52)	05 (32)	07 (16)
Viwa Island	193.5	Average	05 (63)	03 (28)	06 (09)
Lautoka (FSC Res.)	235.2	Above Average	07 (48)	03 (52)	04 (0)
Nadi Airport	126.3	Average	11 (40)	02 (58)	03 (02)
Tokotoko, Navua	911.3	Above Average	19 (59)	13 (11)	19 (30)
Laucala Bay, Suva	580.6	Above Average	20 (54)	18 (13)	20 (33)
*Koronivia	592.4	Above Average	22 (68)	16 (13)	20 (19)
Nausori Airport	587.2	Above Average	23 (62)	16 (17)	19 (21)
Nabouwalu	248.9	Average	21 (54)	14 (19)	20 (27)
Labasa Airport	160.5	Average	09 (89)	03 (09)	04 (02)
Savusavu Airport	505.4	Above Average	20 (73)	09 (22)	09 (05)
Udu Point	491.1	Above Average	15 (69)	07 (21)	17 (10)
Matei Airport	554.4	Above Average	25 (68)	21 (22)	15 (10)
*Vanua Balavu, Lau	618.3	Above Average	20 (91)	10 (07)	09 (02)
Lakeba, Lau	679.7	Above Average	13 (84)	06 (08)	16 (08)
Matuku, Lau	269.5	Average	11 (53)	08 (13)	11 (34)
Ono-I-Lau, Lau	339.0	Above Average	13 (59)	05 (25)	09 (16)
Levuka, Ovalau	670.5	Above Average	19 (67)	09 (24)	12 (09)
Vunisea, Kadavu	572.8	Above Average	22 (74)	17 (13)	17 (13)
Rotuma	1063.3	Above Average	26 (35)	23 (43)	25 (22)

* Data missing : 2 days in June at Vanua Balavu, Lau , 1 day in July at Koronivia and 2 days in August at Matei.

Figure 1

**Nadi Airport - Temperature & Rainfall Records for the last 13 Months
(August 2007 - August 2008)**

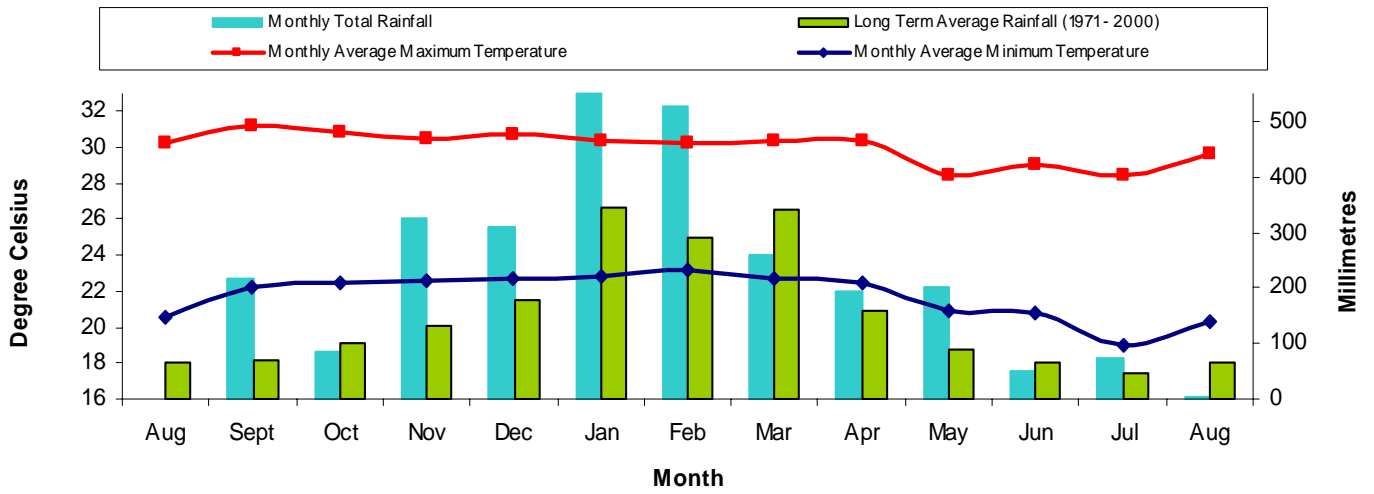


Figure 2

**Labasa Airfield - Temperature & Rainfall Records for the last 13 Months
(August 2007 - August 2008)**

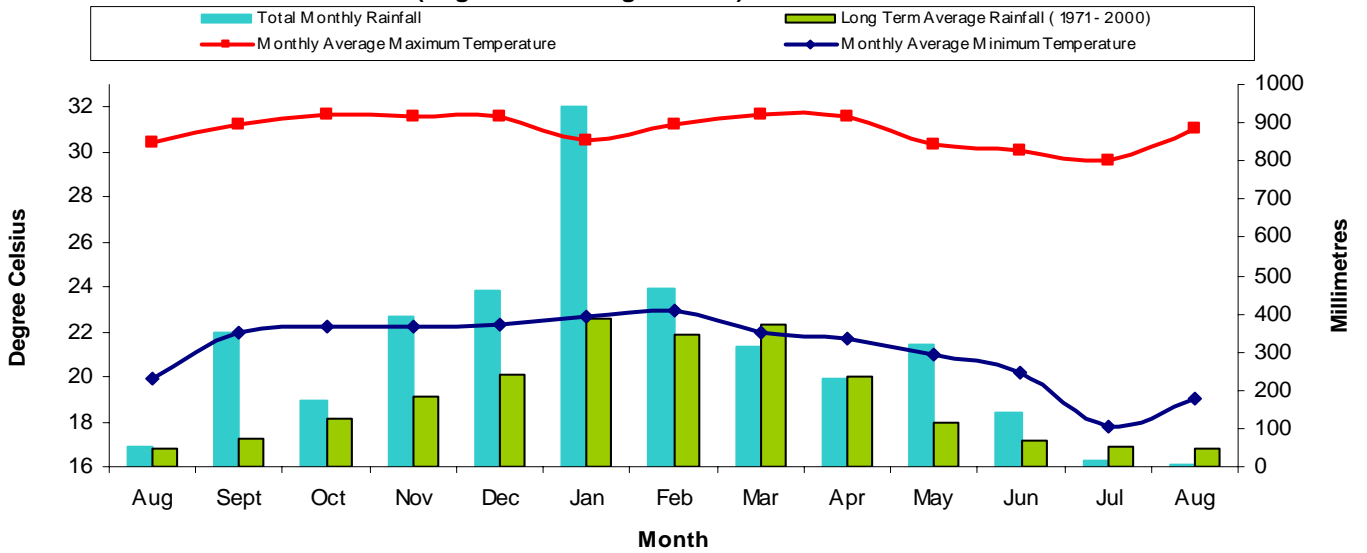
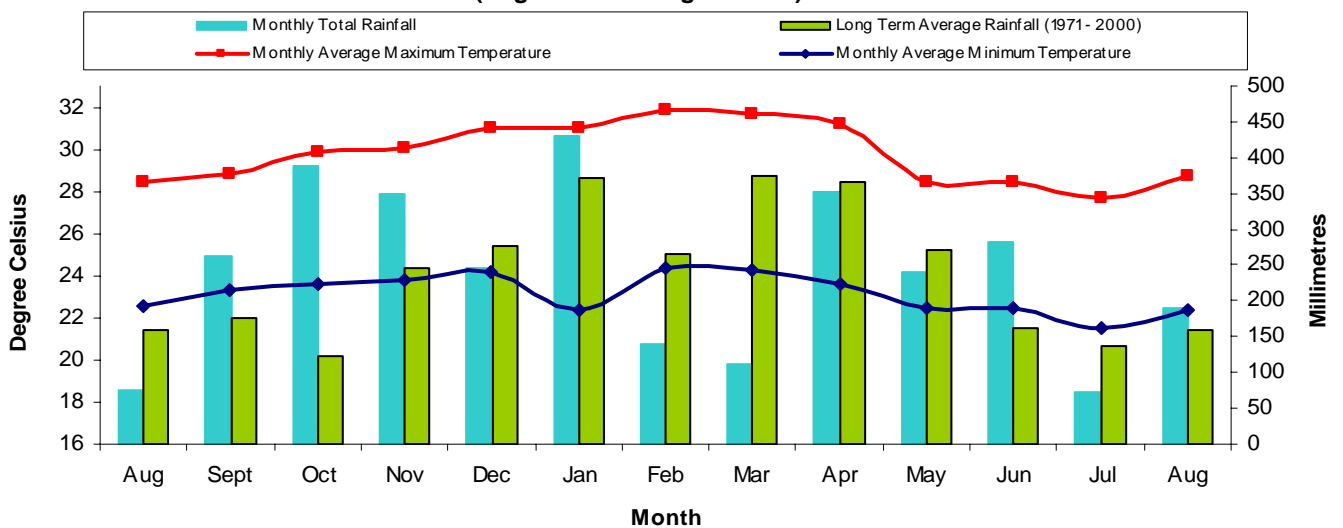


Figure 3

**Laucala Bay/Suva - Temperature & Rainfall Records for the last 13 Months
(August 2007 - August 2008)**



AIR TEMPERATURES, RELATIVE HUMIDITY AND SUNSHINE IN AUGUST

Maximum Air Temperatures were *above average* across the country in August. The greatest positive anomalies were recorded at Matuku (2.9°C), Ono-I-Lau (2.3°C) and Viwa (2.2°C) (Table 1).

Minimum Air Temperatures were *average to above average* around the country. The greatest positive departures were recorded at Tokotoko (2.2°C), Vunisea (2.1°C) and Koronivia (2.0°C) (Table 1).

Air temperature anomalies greater or equal to +1.0°C were recorded at a significant number of sites (Table 1). Twelve air temperature records were broken in August (Table 3).

Positive **Sea Surface Temperatures** anomalies in the order of 0.5 to 1.5°C existed in the Fiji region in August (Figure 5).

Positive **Sea Level** anomalies in the order of 5cm to just over 10cm existed in the Fiji region in August (Figure 6).

Relative Humidity at 0900hrs was generally *average to below average* in most parts of the country. The greatest positive anomalies were recorded at Ono-I-Lau (6.4%), Nadi Airport (6.2%) and Lakeba (6.0%). The greatest negative anomalies were recorded at St. Johns College (-8.0), Penang Mill (-5.9%) and Savusavu Airport (-4.5%).

Sunshine & Winds

Sunshine hours were *above average* at Laucala Bay, Nadi Airport and Rotuma and *below average* at Nacocolevu.

Wind direction was prominently from the south in the southwestern portion of Fiji's Waters and from the southeast across the rest of Fiji's Waters (Figure 7). **Wind speed** was *below average* at all wind recording sites in August (Table 1). Satellite images show *positive anomalies* especially across the centre and northern parts of Fiji's Waters (Figure 7).

TABLE 3. CLIMATE RECORDS ESTABLISHED IN AUGUST 2008

<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>
Monthly Max Temp	Laucala Bay, Suva	28.7°C	-	New High	31.5°C	2007	1942
Monthly Max Temp	Nacocolevu	29.3°C	-	New High	29.2°C	1938	1938
Monthly Max Temp	Labasa Airport	31.0°C	-	New High	30.6°C	1975	1956
Monthly Max Temp	Nabouwalu	27.9°C	-	New High	27.5°C	2000	1956
Monthly Max Temp	Nausori Airport	27.7°C	-	New High	27.5°C	1975	1956
Monthly Max Temp	Matei Airport	28.7°C	-	New High	28.3°C	2007	1956
Monthly Max Temp	Matuku	28.7°C	-	New High	28.0°C	2007	1955
Monthly Max Temp	Ono-I-Lau	27.2°C	-	New High	26.6°C	2007	1943
Monthly Min Temp	Koronivia	21.3°C	-	New High	21.0°C	1999	1965
Monthly Min Temp	Tokotoko, Navua	20.3 °C	-	New High	16.8°C	2007	1992
Daily Max Temp	Matuku	31.5°C	30th	New High	30.6°C	1981	1955
Daily Min Temp	Matuku	25.3°C	31st	New High	25.0°C	1958	1955

This summary is prepared as soon as possible following the end of the month, once climate data is received from various recording stations around Fiji and ENSO information is received from various Meteorological Agencies around the World. Delays in data collection, communication and processing occasionally arise. While every effort is made to verify observational data, the Fiji Meteorological Service does not guarantee the accuracy and reliability of the analysis and rainfall predictions presented, and accepts no liability for any losses incurred through the use of this summary and its contents. The contents of the summary may be freely disseminated provided the source is acknowledged. All requests for data should be directed to the Fiji Meteorological Service HQ in Namaka, Nadi.

SEA LEVEL, SEA SURFACE TEMPERATURE, CLOUD COVER AND WIND FLOW IN AUGUST

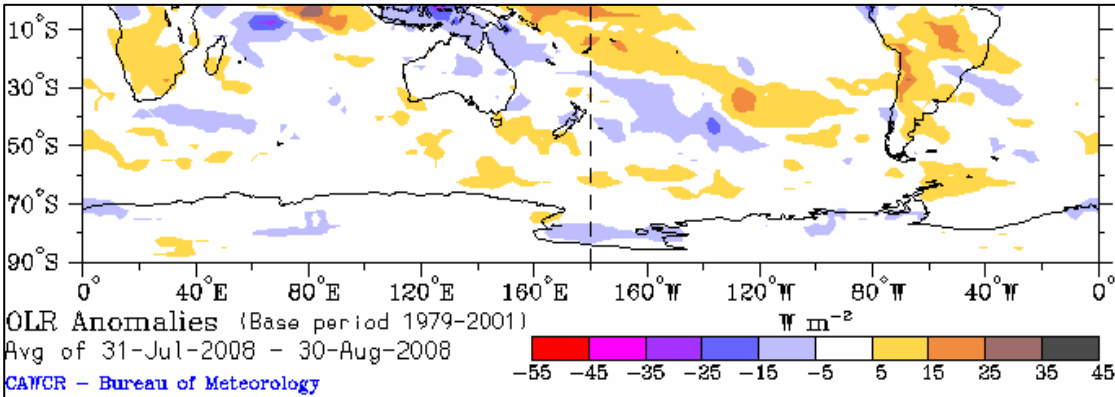


Figure 4. Southern Hemisphere Outgoing Longwave Anomalies (Wm^{-2}) for the period 31 Jul 2008 to 30 Aug 2008. Positive anomalies (less cloud cover than normal) existed in the Fiji region, ~17°S, 180°) <http://www.bom.gov.au/bmrc/clfor/cfstaff/matw/maproom/OLR/>

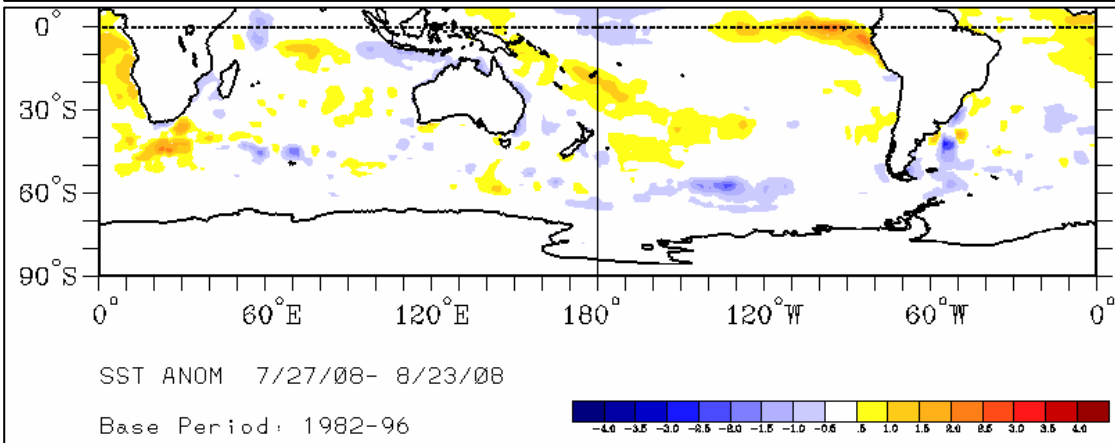


Figure 5. Southern Hemisphere SST Anomalies ($^{\circ}C$) for the period 27 Jul 2008 to 23 Aug 2008. Positive anomalies in the order of 0.5-1.5°C existed in the Fiji region, ~17°S, 180°) <http://www.cdc.noaa.gov/map/images/sst/sst.anom.month.gif>

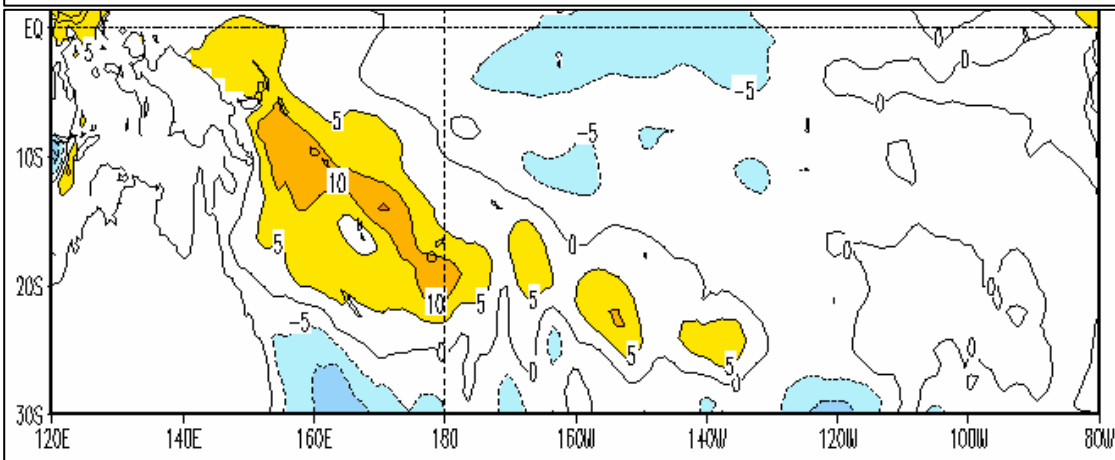


Figure 6. Southern Hemisphere Sea Level Anomalies (cm) as of August 21, 2008. Positive anomalies in the order of 5cm to just over 10cm existed in the Fiji region, ~17°S, 180°) http://www.cpc.noaa.gov/products/analysis_monitoring/enso_update/sealev.gif

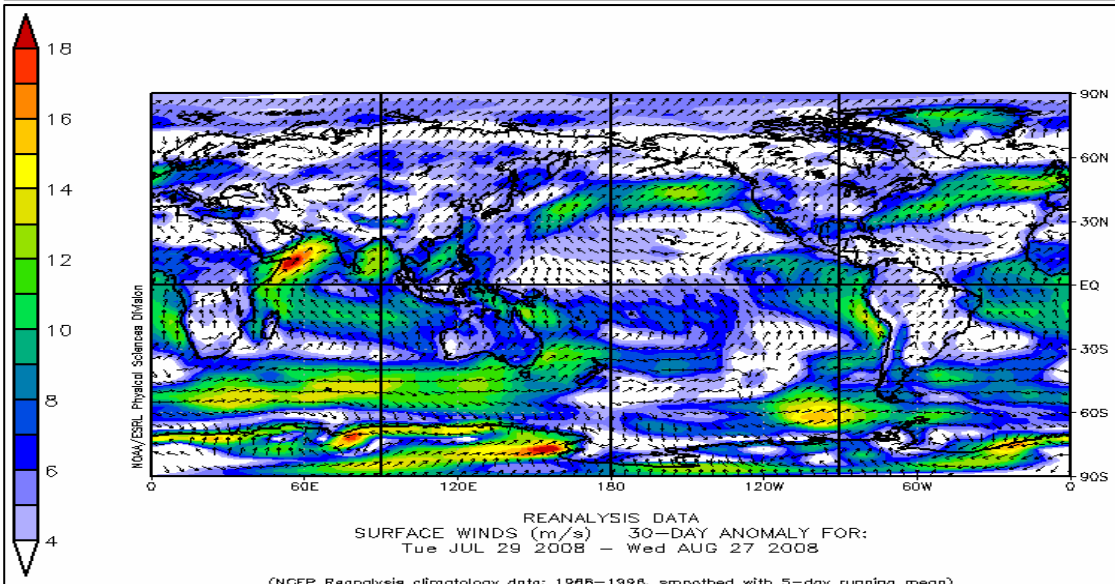


Figure 7. Global surface wind anomalies (m/s) for the period 29 Jul 2008 to 27 Aug 2008. Positive southerly to southeasterly anomalies existed in the Fiji region, ~17°S, 180°) http://www.cdc.noaa.gov/map/images/rnl/sfcwnd_30a.rml.html