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The Island Climate Update

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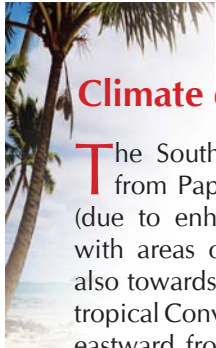
August's climate

- South Pacific Convergence Zone extended from Papua New Guinea to the south of Tuvalu
- Well above average rainfall in parts of New Caledonia and central French Polynesia; below average rainfall in the northern Cook Islands and northern New Zealand
- Above average temperatures in Western Kiribati, Tuvalu, Samoa, and northern French Polynesia; below average in parts of Vanuatu, southern French Polynesia, New Caledonia, Fiji, and New Caledonia

El Niño/Southern Oscillation and seasonal rainfall forecasts

- Tropical Pacific continues in a neutral El Niño/Southern Oscillation state
- Above average rainfall in the Solomon Islands
- Near or below average rainfall in Eastern Kiribati, Vanuatu, Tuvalu, and Fiji





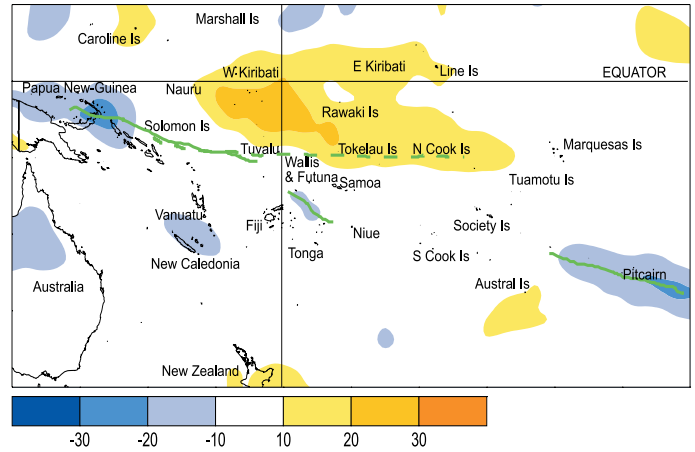
Climate developments in August 2005

The South Pacific Convergence Zone (SPCZ) extended from Papua New Guinea to the region south of Tuvalu (due to enhanced convection near Papua New Guinea), with areas of associated convection northeast of Fiji and also towards Pitcairn Island. North of the equator, the Inter-tropical Convergence Zone (ITCZ) was quite active, extending eastward from the region near the Marshall Islands across to South America. A large area of suppressed convection existed over Western and Eastern Kiribati, extending south to include Tokelau and the Northern Cook Islands.

Rainfall was more than 200% of average at several locations in New Caledonia (after heavy falls over 9–13 August) and also in parts of central French Polynesia and along Australia's north Queensland coast, and at least 125% of average in Vanuatu, northern Tonga, and Pitcairn Island. Rainfall was less than 50% of average in the Northern Cook Islands and northern New Zealand.

Mean air temperatures were about 1.0 °C above average in Western Kiribati, and about 0.5 °C about average in Tuvalu, Samoa, and northern French Polynesia. In contrast, they were about 1.0 °C below average in parts of Vanuatu and southern French Polynesia, and 0.5 °C below average in New Caledonia and Fiji.

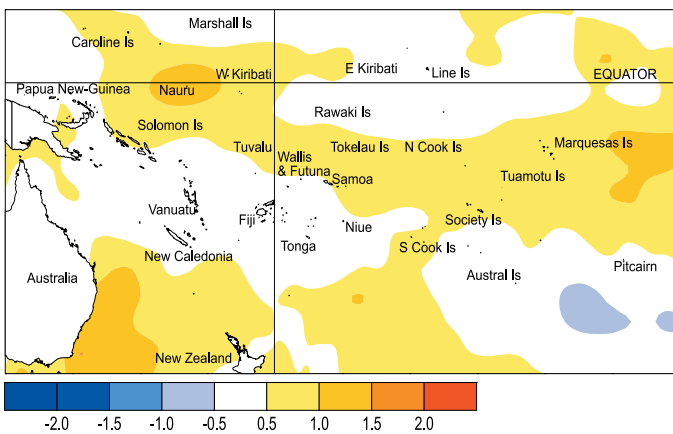
Tropical Southwest Pacific mean sea-level pressures were well above average over eastern Australia, extending towards New Zealand and further east, resulting in



Outgoing Long-wave Radiation (OLR) anomalies, in Wm^{-2} . The August 2005 position of the SPCZ, as identified from total rainfall, is indicated by the solid green line. The average position of the SPCZ is identified by the dashed green line (blue equals high rainfall and yellow equals low rainfall). The August position of the ITCZ is indicated by the solid blue line.

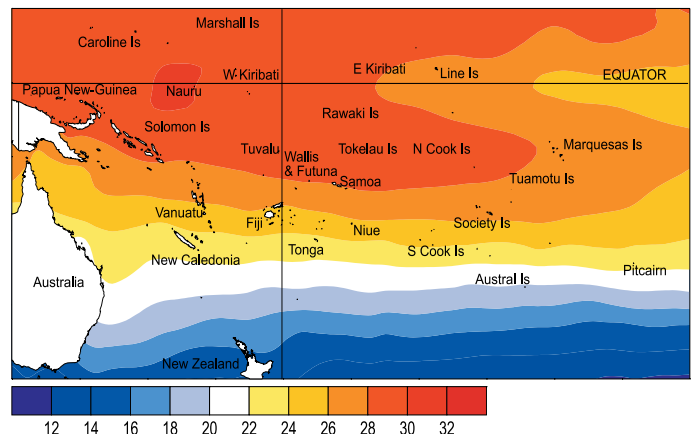
persistent southeasterlies over New Caledonia. Pressures tended to be below average in tropical latitudes east of the Date Line. Equatorial surface easterlies were persistent along the equator, occurring in 78% of observations at Tarawa.

Country	Location	Monthly Rainfall (mm)	% of average	Comments
New Caledonia	Ile Art, Belep	173	255	Well above average
New Caledonia	Koumac	119	284	Well above average
New Caledonia	La Tontouta	175	302	Well above average
New Caledonia	Ouloup	278	370	Well above average
French Polynesia	Hereheretue	163	259	Well above average
French Polynesia	Takaroa	15	23	Extremely low



Sea surface temperature anomalies (°C) for August 2005.

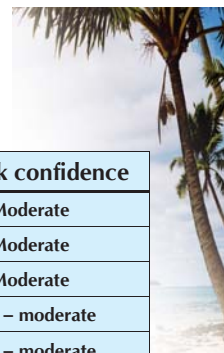
The tropical Pacific Ocean is in a neutral state (no El Niño or La Niña), although equatorial Pacific sea surface temperature (SST) anomalies remain positive. The Southern Oscillation Index (SOI) was negative in August (-0.9), mainly as a result of higher pressures at Darwin, but the 3-month June–August mean was near zero (-0.2). The NINO3, NINO4, and NINO3.4 SST anomalies in August were all near +0.5 °C, which is slightly cooler than they have been the past three months. Equatorial outgoing long-wave radiation (OLR) anomalies show a region of suppressed convection on the Date Line; about 20° west of the Date Line, convection remains enhanced but has weakened since July. OLR anomalies elsewhere remain small, and equatorial winds are near normal. The main feature in the Equatorial Pacific subsurface temperature profile is a region of negative anomalies (-2 °C)



Mean sea surface temperatures (°C) for August 2005.

centred at about 100 m depth near 140°W, which has moved about 20° eastward and has weakened since July.

Most available models indicate neutral conditions, mostly with positive NINO3.4 anomalies, for the rest of 2005. The Scripps/MPI and LDEO dynamical models continue to develop a warm event over the summer, while the Linear Inverse Model predicts a cooling over the next several months. The latest US National Center for Environmental Predictions statement suggests neutral conditions for the rest of the year, with SST anomalies in the "NINO regions" weakening. The International Research Institute for Climate Prediction summary gives an 80–85% chance of neutral conditions persisting until to December, with a 10–15% chance of an El Niño developing, and 5% for La Niña.



Tropical rainfall outlook: September to November 2005

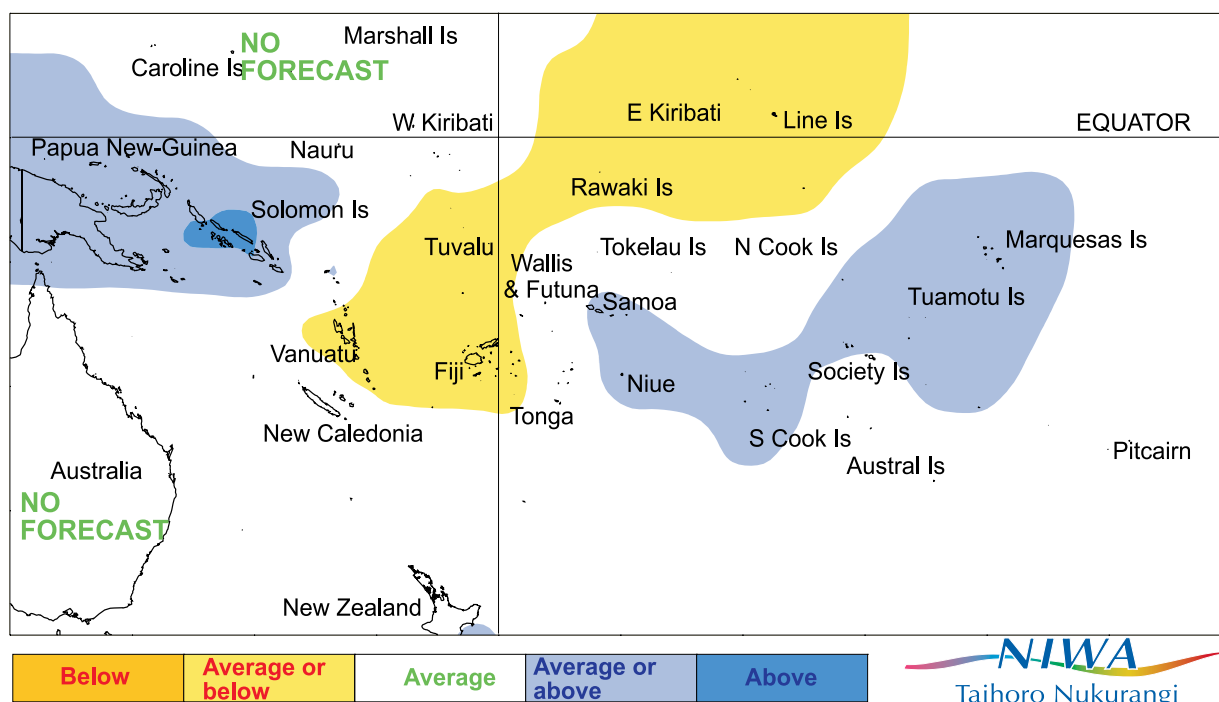
Enhanced convection is likely over the Solomon Islands, where rainfall is expected to be above average. A region of near or above average rainfall is expected over Papua New Guinea. Another region of near or above average rainfall extends from the Marquesas Islands west to Samoa including the Tuamotu Islands, the Southern Cook Islands, and Niue.

Suppressed convection is expected from Vanuatu to Fiji, including Tuvalu, and also over Eastern Kiribati. Near average rainfall is expected elsewhere in the region.

The seasonal forecast skill is in the low to moderate range as the forecast period coincides with the transition from the dry season to the wet season.

NOTE: Rainfall estimates for Pacific Islands for the next three months are given in the table. The tercile probabilities (e.g., 20:30:50) are derived from the interpretation of several global climate models. They correspond to the odds of the observed rainfall being in the lowest (driest) one third of the rainfall distribution, the middle one third, or the highest (wettest) one third of the distribution. On the long-term average, rainfall is equally likely (33% chance) in any tercile.

Island group	Rainfall outlook	Outlook confidence
Solomon Islands	20:35:45 (Above average)	Moderate
Papua New Guinea	20:40:40 (Near or above average)	Moderate
Samoa	20:40:40 (Near or above average)	Moderate
Niue	15:40:45 (Near or above average)	Low – moderate
Southern Cook Islands	20:40:40 (Near or above average)	Low – moderate
Tuamotu Islands	15:45:40 (Near or above average)	Moderate
Marquesas Islands	15:45:40 (Near or above average)	Moderate
Western Kiribati	20:45:35 (Near average)	Low – moderate
Wallis & Futuna	25:45:30 (Near average)	Low – moderate
Tokelau	25:50:25 (Near average)	Moderate
New Caledonia	35:40:25 (Near average)	Low – moderate
Northern Cook Islands	25:50:25 (Near average)	Moderate
Tonga	30:45:25 (Near average)	Moderate
Society Islands	20:45:35 (Near average)	Moderate
Austral Islands	30:50:20 (Near average)	Low – moderate
Pitcairn Island	25:45:30 (Near average)	Low – moderate
Eastern Kiribati	40:40:20 (Near or below average)	Moderate
Vanuatu	40:40:20 (Near or below average)	Moderate
Tuvalu	40:45:15 (Near or below average)	Moderate
Fiji	40:40:20 (Near or below average)	Low – moderate



Rainfall outlook map for September to November 2005.

Forecast validation: June to August 2005

Enhanced convection and above average rainfall was expected over Eastern Kiribati, with near or above average rainfall forecast for Western Kiribati and Tuvalu. Suppressed convection with average or below average rainfall was expected over the Marquesas Islands and Fiji. Near average rainfall was expected elsewhere in the region.

Areas of above average rainfall occurred from Tonga east to Southern French Polynesia. Rainfall was below average in

the Wallis and Futuna Islands, the Northern Cook Islands, the Society Islands, and the Marquesas Islands.

Rainfall was higher than expected in Tonga, Niue, and American Samoa. Rainfall was lower than expected in the Wallis and Futuna Islands, Tokelau, Eastern Kiribati, and the Society Islands. Rainfall was near average elsewhere. The overall 'hit' rate for the June-August 2005 rainfall outlook was about 50%.

Tropical Pacific rainfall – August 2005

Territory and station name	August 2005 rainfall total (mm)	Long-term average (mm)	August 2005 percent of average	Lowest on record (mm)	Highest on record (mm)	Records began
American Samoa						
Pago Pago Airport	343.1	174	197	7	437	1966
Australia						
Cairns Airport	58.6	27	217	0	140	1941
Townsville Airport	45.0	13	346	0	258	1940
Brisbane Airport	25.4	43	59	0	126	1929
Sydney Airport	1.4	79	2	1	378	1929
Cook Islands						
Penryhn	40.6	193	21	21	613	1937
Rarotonga Airport	97.7	109	90	7	475	1929
Rarotonga EWS	99.6	109	91	27	142	2000
Fiji						
Rotuma	244.8	210	117	24	593	1912
Udu Point	40.5	85	48	11	339	1946
Nadi	51.8	65	80	0	286	1942
Nausori	92.2	147	63	29	393	1956
Ono-I-Lau	125.3	121	103	2	348	1943
French Polynesia						
Hiva Hoa, Atuona	72.4	95	76	14	231	1951
Bora Bora, Motu	135.4	73	185	14	320	1951
Tahiti - Faaa	63.2	44	144	0	111	1919
Tuamotu, Takaroa	15.2	66	23	12	170	1953
Tuamotu, Hereheretue	163.0	63	259	6	177	1962
Gambier, Rikitea	185.0	119	155	38	332	1952
Tubuai	90.2	136	66	41	293	1953
Rapa	178.0	229	78	108	567	1951
Kiribati						
Tarawa	150.2	153	98	3	507	1946
New Caledonia						
Ile Art, Belep	173.4	68	255	9	193	1962
Koumac	119.4	42	284	0	194	1951
Ouloup	277.5	75	370	0	341	1966
Ouanaham	166.4	81	205	3	206	1961
Poindimie	171.6	103	167	4	246	1965
La Roche	92.8	92	101	16	246	1956
La Tontouta	175.4	58	302	6	251	1949
Noumea	146.8	71	207	10	290	1863
Moue	162.2	85	191	18	187	1972

Tropical Pacific rainfall – August 2005

Territory and station name	August 2005 rainfall total (mm)	Long-term average (mm)	August 2005 percent of average	Lowest on record (mm)	Highest on record (mm)	Records began
New Zealand						
Kaitaia	63.7	152	42	67	309	1985
Whangarei Airport	53.8	139	39	27	325	1937
Auckland Airport	38.4	108	36	35	218	1962
Niue						
Hanan Airport	157.0	99	159	39	212	1996
North Tasman						
Lord Howe Island	66.2	141	47	13	309	1886
Norfolk Island	77.8	123	63	46	230	1921
Raoul Island	144.0	128	113	6	494	1937
Pitcairn Island	159.0	118	135	15	325	1940
Tonga						
Queen Lavinia	149.8	117	128	10	444	1971
Lupepau'u	157.8	89	177	32	170	1995
Nuku'alofa	102.3	117	87	17	336	1944
Fua'amotu Airport	133.3	124	108	16	366	1980
Tuvalu						
Nanumea	137.1	233	59	35	705	1941
Nui Island	146.2	221	66	43	580	1941
Funafuti	240.4	232	104	41	1196	1927
Nuilakita Island	265.3	198	134	26	557	1942
Vanuatu						
Sola	223.7	226	99	25	827	1958
Pekoa	54.7	74	74	14	328	1951
Lamap	70.7	59	120	5	297	1960
Bauerfield	97.0	61	159	14	184	1985
Port Vila	84.3	52	162			1947
Tanna, Whitegrass	59.0	53	111			
Burtonfield	59.1	32	185	9	231	1961
Aneityum	158.6	92	172	14	404	1958
Wallis & Futuna						
Wallis Island, Hihifo	142.2	133	107	20	323	1951

Rainfall totalling 200 percent or more is considered well above average. Totals of 40 percent or less are normally well below average. **Highlighted values are new records.**

Data are published as received and may be subject to change after undergoing quality control checks. The data in italics are obtained from synoptic weather reports. These can sometimes differ from the true values, due to communications or station outage, etc.

Pacific Islands Climate Prediction Project

Janita Pahalad, Australian Bureau of Meteorology

Introduction

In 2001 a needs analysis for strengthening Pacific Islands meteorological services found that was of the National Meteorological Services (NMSs) in the region were encountering many difficulties in providing basic services for the citizens and industries of their countries. One of the clear priorities was the need to enhance the ability of NMSs to provide seasonal climate prediction services. The needs analysis report included a project concept that would not only enhance NMS proficiency in seasonal forecasting, but would also build expertise in the prudent use of the forecasts. In response to this identified need, the Australian overseas aid and development agency (AusAID) and the Australian Bureau of Meteorology (BoM) are implementing a project enabling several participating Pacific Island countries (PICs) to generate and make use of seasonal predictions. This project is viewed as a contribution by Australia to the World Meteorological Organization (WMO), Climate Information and Prediction Services (CLIPS) project.

The project commenced in mid 2003 and is scheduled to run for approximately three and a half years. Nine PICs are participating in the project: Cook Islands, Fiji, Kiribati, Niue, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.

The project objectives are:

- To strengthen PIC NMS capacity in climate prediction, through providing a proven seasonal prediction system (based on BoM's operational system), and training in its prudent use.
- Enhance the ability of PICs to provide a sustainable climate prediction service to meet needs of users in climate-sensitive industries, through in-country workshops involving NMSs and potential user representatives.

Major activities

Project objectives have been achieved principally through four major activities:-

Software: A software package called SCOPIC (Seasonal Climate Outlook for the Pacific Island Countries) has been provided to all participating NMSs. Version 3 was released in August 2005, which includes new features added following feedback from the NMSs.

Training Workshops for the NMSs: Initial training of participating NMS personnel took place from June to September 2004. The workshops included 3 to 4 days training for the NMS personnel and a half-day briefing session for potential clients. The training focused on the production of climate prediction information using SCOPIC and the preparation of generic reports that would need to be tailored to client needs.

Stakeholders' Workshop: Three-day workshops on the application of climate predictions took place in all nine participating countries from January to July 2005. The participants included government, NGOs, and private sectors such as agriculture, fisheries, environment, water, media, health, infrastructure, utilities, disaster management, education, forestry, etc.

New Caledonia and French Polynesia Météo-France, though not official partners in the project, have also been provided with the SCOPIC software and have participated in two of the in-country workshops (Vanuatu and Cook Islands).

Pilot Studies: To demonstrate the real benefits of climate information, including predictions in practical situations relevant to Pacific Island countries, the project is supporting a number of pilot schemes that will assist specific industries in identifying appropriate management responses to seasonal predictions.

Sugarcane in Fiji - The Australian Project Team, in collaboration with the Fiji Sugar Study Team, ran a two-day workshop on Raising Awareness on Linking Climate Forecasting and Decision Making Practice for the Fiji sugar industry in Lautoka, Fiji in mid March. The Project Team is now extending the pilot project to include software to predict sugarcane yield. This development is in response to a strong recommendation from the sugar industry during the March workshop.

Media, Public Awareness, and Communications - The objective of this pilot project is to improve communication between NMS staff and external agencies that use their products, notably the media and specialised stakeholder groups. Four PICs will participate under this project.

Application of Climate Forecasting in Water Management - The primary objective is to develop the capability of NMS staff to provide climatological information, including forecasts of droughts and their likely impacts on water resources, to water agencies and industries sensitive to water stress through the enhancement of the SCOPIC software package. Two PICs will participate under this project, which requires the existence of suitable data sets on water data availability.

Climate and Oceanographic Variability and their Impacts on Fisheries - The objective is to develop and deliver a "Fisheries Guide" to improve the awareness of NMS staff on: the impact of meteorological and oceanographic conditions on resource availability and fishing effort; how to access relevant supporting data and information; and how to present the material to interested stakeholders. The Fisheries Guide will be used as a specific example of communicating information to a client in the media workshop (as described above), and will be made available to all NMSs throughout the region.

The enhanced capabilities of PIC NMSs to generate and deliver local climate information, including seasonal predictions services using SCOPIC, will also improve their capacity to contribute to and draw from the advisory material provided in the ICU and the monthly teleconference discussions.

For more details on the project, please refer to the PI-CPP Website: <http://www.bom.gov.au/climate/pi-cpp/index.shtml>



The Island Climate Update

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Your comments and ideas about The Island Climate Update are welcome. Please contact:

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Sources of South Pacific rainfall data

This bulletin is a multi-national project, with important collaboration from the following Meteorological Services:

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Wendy St George,
NIWA

American Samoa, Australia, Cook Islands, Fiji, French Polynesia, Kiribati, New Caledonia, New Zealand, Niue, Papua New Guinea, Pitcairn Island, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu

Requests for Pacific Island climate data should be directed to the Meteorological Services concerned.

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This summary is prepared as soon as possible following the end of the month, once the data and information are received from the Pacific Island National Meteorological Services (NMHS). Delays in data collection and communication occasionally arise. While every effort is made to verify observational data, NIWA does not guarantee the accuracy and reliability of the analysis and forecast information presented, and accepts no liability for any losses incurred through the use of this bulletin and its content.

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