

Number 155, August 2013

The Island Climate Update

El Niño/Southern Oscillation (ENSO)

- The ocean - atmosphere system in the Tropical Pacific displayed some patterns reminiscent of a weak La Niña.
- The Pacific is currently in a neutral ENSO state.
- The international consensus indicates that neutral ENSO conditions are likely to persist for the coming three months (August to October 2013).

The South Pacific Convergence Zone (SPCZ)

- The SPCZ is forecast to be positioned slightly south of normal for the coming three months.

Multi-model Ensemble Tool for Pacific Island (METPI) rainfall and sea surface temperature forecasts

- Below normal rainfall is forecast for Eastern Kiribati.
- Near normal or below normal rainfall is expected for the Northern Cook Islands, Tuvalu, the Federated States of Micronesia, Western Kiribati and the Marquesas.
- Near or above normal rainfall is forecast for Fiji, Niue, Papua New Guinea, Tonga and Samoa.
- Near or above average SST is forecast for Niue and Tonga.

Collaborators

Pacific Islands National
Meteorological Services

Australian Bureau of
Meteorology

Meteo France

NOAA National Weather
Service

NOAA Climate Prediction
Centre (CPC)

International Research
Institute for Climate and
Society

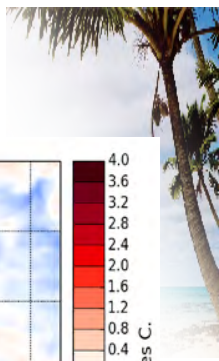
European Centre for
Medium Range Weather
Forecasts

UK Met Office

World Meteorological
Organization

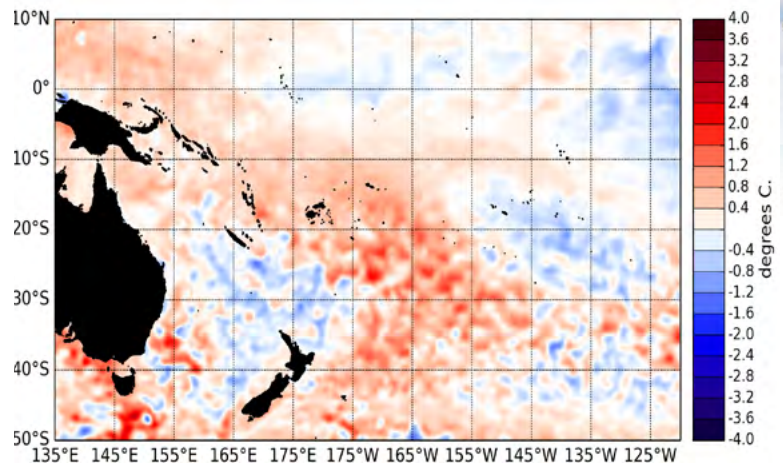
MetService of
New Zealand





El Niño/Southern Oscillation (ENSO)

The tropical Pacific remained in a neutral state (neither El Niño nor La Niña) in July 2013, despite the persistence of colder than normal sea surface temperatures (SSTs) in the eastern equatorial Pacific. July NINO values estimates are 0°C for NINO 3.4, -0.3°C for NINO 3 and 0.2°C for NINO 4, not very different from June values. The large area of cool SSTs that were present in June over the north Tasman Sea and the Coral Sea eased in July. The subsurface ocean is currently slightly warmer than normal from about 100 m to the surface, while colder than normal below (~ 150 m). However, in the eastern Pacific, a shallow cool layer remains at the surface, and is responsible for the weak La Niña – like pattern present in the SST field. The trade winds remained close to normal for this time of the year. The Intertropical Convergence Zone (ITCZ) was situated north of its climatological position in the eastern Pacific, while convection and rainfall within the ITCZ was mostly suppressed west of the Dateline. The South Pacific Convergence Zone (SPCZ) was well defined in the western Pacific and positioned slightly southwest of its climatological position. The latest value for the TRMM ENSO index for the 30 days to 31 July is -2.93 (weak La Niña) and the monthly SOI for July is +0.8. The Madden – Julian Oscillation (MJO) was inactive during most of July and is forecast to remain so over

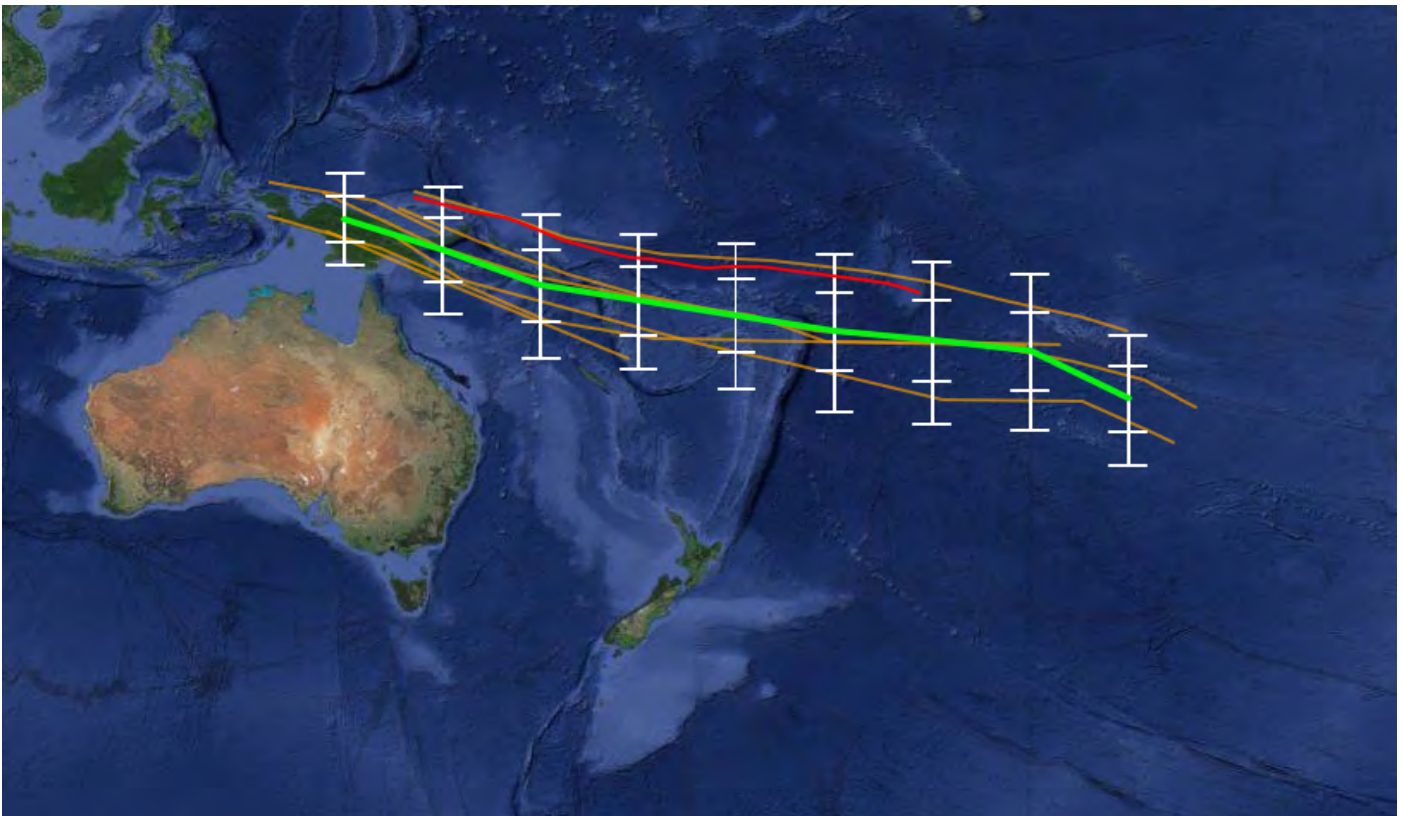


Surface temperature anomalies (°C) for July 2013, data is from the NOAA OISST Version 2 dataset, available at the NOAA's Climate Data Center (<ftp.cdc.noaa.gov/Datasets/noaa.oisst.v2.highres>).

the coming two weeks. The ensemble of dynamical and statistical climate forecast models that NIWA monitors indicates that neutral ENSO conditions are likely to persist over the August – October 2013 period, with 66 % chance, versus 22 % for La Niña and 12 % chance El Niño (source IRI / CPC).

South Pacific Convergence Zone forecast August to October 2013

The ensemble of global climate models for rainfall that are used in METPI show an area of higher than normal rainfall associated with the SPCZ position. The green line indicates the average SPCZ position for the forecast period based on the average of 8 climate models. The white vertical bars and 'whiskers' indicate the one and two standard deviations between the model projections of the SPCZ position every 5 degrees of longitude.



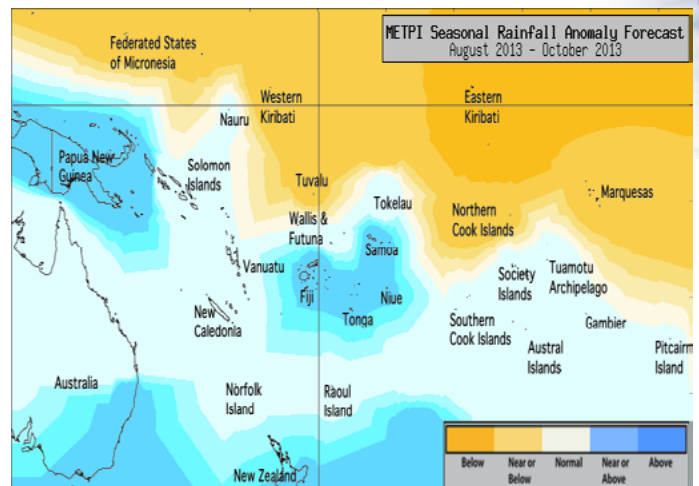
The forecast indicates the SPCZ will be positioned slightly south of its normal location for the coming three months. Confidence in the forecast is generally high..

Tropical rainfall and SST outlook: August to October 2013

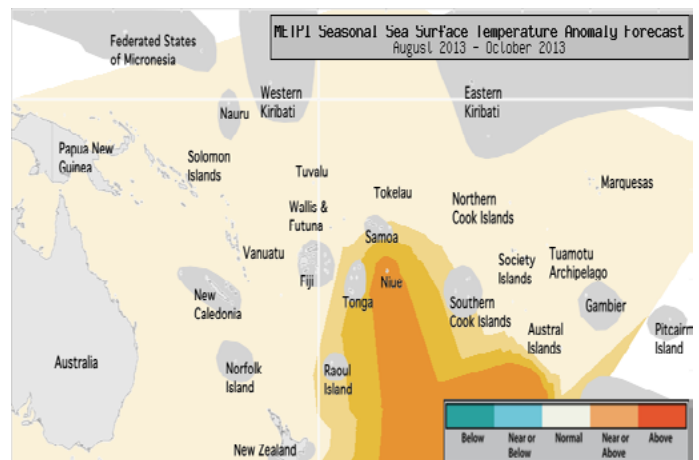
The dynamical models continue to indicate drier conditions than normal in the eastern Pacific along the Equator, while a slightly wetter than normal season is forecast for some island groups in the western and central Pacific, consistent with a SPCZ positioned south of normal for this time of the year. Near or above normal rainfall is forecast for Fiji, Niue, Papua New Guinea, Tonga and Samoa. Near normal rainfall is expected for the Austral Islands, the Southern Cook Islands, New Caledonia, Pitcairn Island, the Society Islands, the Solomon Islands, Tokelau, the Tuamotu Archipelago, Vanuatu and Wallis & Futuna. Normal or below normal rainfall is forecast for the Northern Cook Islands, Tuvalu, the Federated States of Micronesia, Western Kiribati and the Marquesas. Below normal rainfall is forecast for Eastern Kiribati.

The global model ensemble forecast for SST does not provide much guidance this month for several island groups. A region of slightly above normal SSTs is nevertheless shown in most models for parts of the southeast Pacific. Near or above average SST is forecast for Niue and Tonga. No guidance is provided for Fiji, the Southern Cook Islands, New Caledonia, Samoa, the Federated States of Micronesia, Western Kiribati and Eastern Kiribati. Near normal sea surface temperatures are expected elsewhere.

The confidence for the rainfall outlook is generally high, except for Eastern Kiribati, Western Kiribati Wallis & Futuna and the Solomon Islands, where uncertainty is greater. The average region-wide hit rate for rainfall forecasts issued in August is 55 %, 8 % lower than the long-term average for all months combined. For the Island groups for which guidance is provided, the confidence is generally high.



Rainfall anomaly outlook map for August to October 2013



SST anomaly outlook map for August to October 2013

NOTE: Rainfall and sea surface temperature estimates for Pacific Islands for the next three months are given in the tables below. The tercile probabilities (e.g., 20:30:50) are derived from the averages of several global climate models. They correspond to the odds of the observed rainfall or sea surface temperatures being in the lowest one third of the distribution, the middle one third, or the highest one third of the distribution. For the long term average, it is equally likely (33% chance) that conditions in any of the three terciles will occur. *If conditions are climatology, we expect an equal chance of the rainfall being in any tercile.

Island Group	Rainfall Outlook	Outlook confidence
Fiji	25:35:40 (Normal or Above)	High
Niue	25:35:40 (Normal or Above)	High
Papua New Guinea	25:40:35 (Normal or Above)	High
Tonga	25:40:35 (Normal or Above)	High
Samoa	25:40:35 (Normal or Above)	High
Austral Islands	30:40:30 (Near normal)	High
Cook Islands (Southern)	30:40:30 (Near normal)	High
New Caledonia	30:40:30 (Near normal)	High
Pitcairn Island	30:40:30 (Near normal)	High
Society Islands	30:40:30 (Near normal)	High
Solomon Islands	30:40:30 (Near normal)	Moderate-High
Tokelau	30:40:30 (Near normal)	High
Tuamotu Islands	30:40:30 (Near normal)	High
Vanuatu	30:40:30 (Near normal)	High
Wallis & Futuna	30:40:30 (Near normal)	Moderate-High
Cook Islands (Northern)	35:40:25 (Normal or Below)	High
Tuvalu	35:40:25 (Normal or Below)	High
FSM	35:40:25 (Normal or Below)	High
Kiribati (Western)	40:35:25 (Normal or Below)	Moderate-High
Marquesas	40:35:25 (Normal or Below)	High
Kiribati (Eastern)	45:35:20 (Below)	Moderate-High

Island Group	SST Outlook	Confidence
Niue	25:40:35 (Normal or Above)	High
Tonga	25:40:35 (Normal or Above)	High
Fiji	30:35:35 (Climatology)	Moderate
Cook Islands (Southern)	30:35:35 (Climatology)	Moderate
New Caledonia	30:35:35 (Climatology)	Moderate
Samoa	30:35:35 (Climatology)	Moderate
FSM	30:35:35 (Climatology)	Moderate
Kiribati (Western)	30:35:35 (Climatology)	Moderate
Kiribati (Eastern)	30:35:35 (Climatology)	Moderate
Papua New Guinea	30:40:30 (Near normal)	High
Austral Islands	30:40:30 (Near normal)	High
Pitcairn Island	30:40:30 (Near normal)	High
Society Islands	30:40:30 (Near normal)	High
Solomon Islands	30:40:30 (Near normal)	High
Tokelau	30:40:30 (Near normal)	High
Tuamotu Islands	30:40:30 (Near normal)	High
Vanuatu	30:40:30 (Near normal)	High
Wallis & Futuna	30:40:30 (Near normal)	High
Cook Islands (Northern)	30:40:30 (Near normal)	High
Tuvalu	30:40:30 (Near normal)	High
Marquesas	30:40:30 (Near normal)	High



The Island Climate Update

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

Sources of South Pacific rainfall data

This bulletin is a multi-national project, with important collaboration from the following Meteorological Services: **American Samoa, Australia, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Kiribati, New Caledonia, New Zealand, Niue, Papua New Guinea, Pitcairn Island, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna.**

Web links to ICU partners:

South Pacific Meteorological Services:

Cook Islands
<http://www.cookislands.pacificweather.org/>

Fiji
<http://www.met.gov.fj>

Kiribati
<http://pi-gcos.org/index.php> (follow link to PI Met Services then Kiribati Met Service)

New Zealand
<http://www.metservice.co.nz/>

Niue
<http://pi-gcos.org/index.php> (follow link to to PI Met Services then Niue Met Service)

Papua New Guinea
<http://pi-gcos.org/index.php> (follow link to to PI Met Services then Papua New Guinea Met Service)

Samoa
<http://www.mnre.gov.ws/meteorology/>

Solomon Islands
<http://www.met.gov.sb/>

Tonga
<http://www.met.gov.to/>

Tuvalu
<http://tuvalu.pacificweather.org/>

Vanuatu
<http://www.meteo.gov.vu/>

International Partners

Meteo-France
New Caledonia: <http://www.meteo.nc/>
French Polynesia: <http://www.meteo.pf/>

Bureau of Meteorology (Australia)
<http://www.bom.gov.au/>

National Oceanic and Atmospheric Administration (USA)
National Weather Service: <http://www.nws.noaa.gov/>
Climate Prediction Center: <http://www.cpc.noaa.gov/>

The International Research Institute for Climate and Society (USA):
<http://portal.iri.columbia.edu/portal/server.pt>

The UK Met Office
<http://www.metoffice.gov.uk/>

European Centre for Medium-term Weather Forecasts