

# The Island Climate Update

## El Niño/Southern Oscillation (ENSO)

- The Pacific remains in a neutral ENSO state.
- The weak La Niña – like pattern that was present in the previous months has vanished.
- The international consensus indicates that neutral ENSO conditions are very likely (89 % chance) to persist for the coming three months (October to December 2013).

### 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

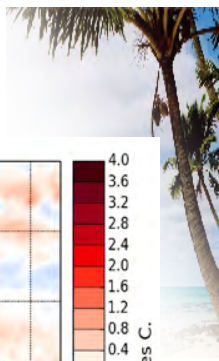
## The South Pacific Convergence Zone (SPCZ)

- 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

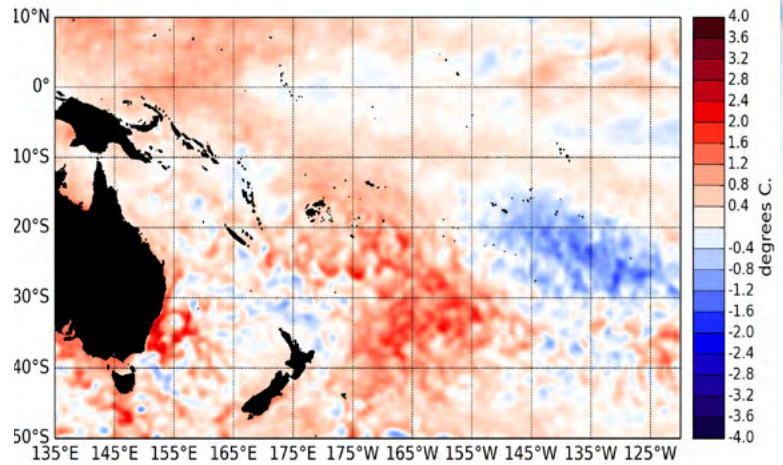
- Normal or below normal rainfall is forecast for Tuvalu and the Marquesas.
- Near or above normal rainfall is forecast for Fiji, Niue, Tonga, the Southern Cook Islands, Tonga, the Federated States of Micronesia and the Northern Cook Islands.
- Near or above average SST is forecast for Fiji, Niue, the Southern Cook Islands, Eastern Kiribati and Western Kiribati, Tonga and Wallis and Futuna.





## El Niño/Southern Oscillation (ENSO)

The tropical Pacific remained in a neutral state (neither El Niño nor La Niña) in September 2013. The weak La Niña – like pattern that was present in the sea surface temperatures (SSTs) over the past months has now vanished. Accordingly all NINO indices are now close to their climatological values. NINO 4 (in the western Pacific) presents the largest anomalies at 0.3°C for September, while NINO 3 is at - 0.1°C and NINO 3.4 is close to 0. SSTs continue to be warmer than normal over a large area in the central Pacific, extending from Fiji to the northeast of New Zealand, while the ocean is cooler than normal further east, around French Polynesia. The subsurface ocean is slightly warmer than normal from about 100 m to the surface, while colder than normal below (~ 200 m) in the west Pacific. The trade winds remained close to normal in September. The Intertropical Convergence Zone (ITCZ) was situated slightly north of its climatological position in the eastern Pacific. The dry conditions that affected the western equatorial Pacific in August have eased off in September. The South Pacific Convergence Zone (SPCZ) was intensified over its northern edge. The latest value for the TRMM ENSO index for the 30 days to 29 September is -0.46 (compared to -1.5 in August). The SOI is currently slightly positive (+0.3 for September). The Madden – Julian Oscillation

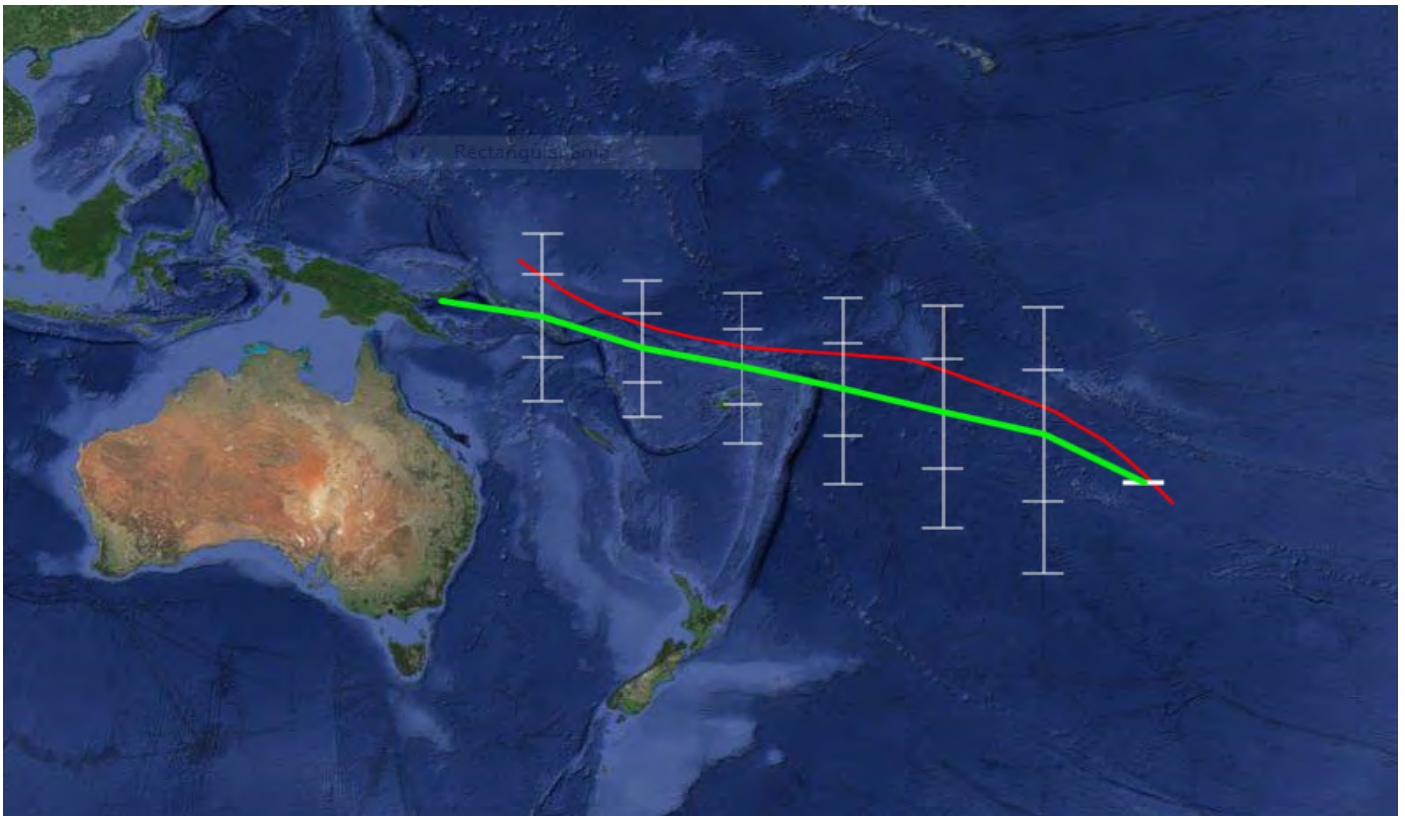


Surface temperature anomalies (°C) for September 2013, data is from the NOAA OISST Version 2 dataset, available at the NOAA's Climate Data Center (<ftp.cdc.noaa.gov/Datasets/noaa.oisst.v2.highres>).

(MJO) was active over the maritime continent over the past couple of weeks. Slightly enhanced convective activity associated with the MJO is forecast in the western Pacific over the coming two weeks. The ensemble of dynamical and statistical climate forecast models that NIWA monitors indicates that neutral ENSO conditions are very likely to persist over the October – December 2013 period, with 89 % chance, versus 9 % for La Niña and 2 % chance El Niño (source IRI

## South Pacific Convergence Zone forecast October to December 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 higher in the western Pacific than in the eastern Pacific..



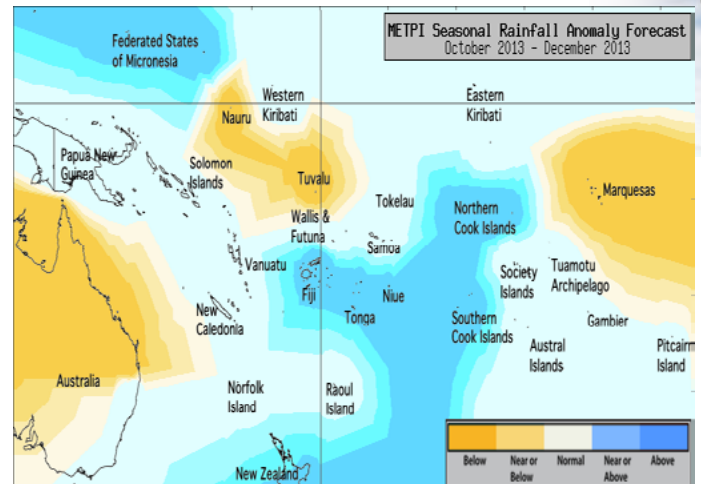
# Tropical rainfall and SST outlook: October to December 2013

The dynamical models indicate slightly drier conditions than normal in the far eastern Pacific south of the Equator, while the October to December period is forecast to be slightly wetter than normal in the western and central Pacific south of the Equator. Near or above normal rainfall is forecast for Fiji, Tonga, Niue, the southern Cook Islands and the northern Cook Islands, Tonga, the federated States of Micronesia. Near normal rainfall is expected for the Austral Islands, Eastern and Western Kiribati, New Caledonia, Papua New Guinea, Pitcairn Island, Samoa, the Society Islands, the Solomon Islands, Tokelau, the Tuamotu Archipelago, Vanuatu and Wallis & Futuna. Normal or below normal rainfall is forecast for Tuvalu and the Marquesas.

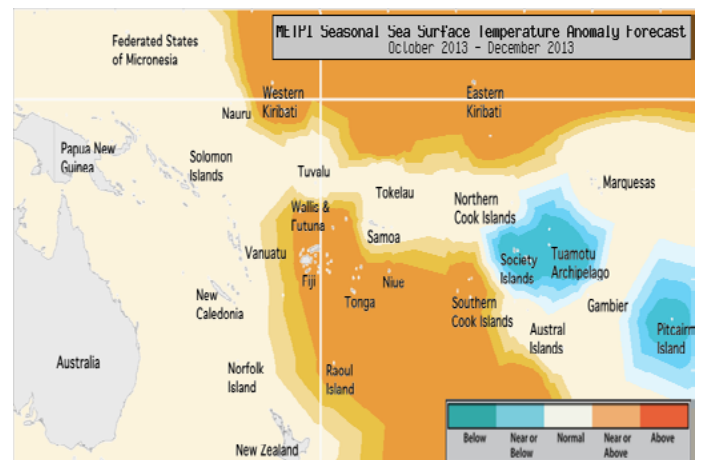
The global model ensemble forecast for SST indicates that the region of warmer than normal temperatures in the central and eastern Pacific that is currently present (see figure on page 2) is likely to persist over the coming three months. Several models also forecast slightly warmer than normal SSTs in the equatorial eastern Pacific. Near or above average SST is forecast for Fiji, Niue, the Southern Cook Islands, Eastern and Western Kiribati, Tonga and Wallis and Futuna. Near or below average SST is forecast for Pitcairn Island, the Society Islands and the Tuamotu Archipelago. Near normal sea surface temperatures are expected elsewhere.

The confidence for the rainfall outlook is generally high, except for the Northern Cook Islands, Eastern Kiribati and Western Kiribati and Papua New Guinea, where uncertainty is greater. The average region-wide hit rate for rainfall forecasts issued in October is 66 %, 3 % higher than the long-term average for all months combined. The confidence is generally high for the SST forecasts, expect for both the far western (Micronesia) and far eastern (French Polynesia) Pacific.

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.



Rainfall anomaly outlook map for October to December 2013



SST anomaly outlook map for October to December 2013

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

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



## The Island Climate Update

Cover Photo:  
Wendy St George,  
NIWA

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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.com/>

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