

Number 152, May 2013

The Island Climate Update

El Niño/Southern Oscillation (ENSO)

- The Tropical Pacific Ocean sea surface temperatures are slightly warmer than normal along the Equator.
- All oceanic and atmospheric ENSO indicators are in the neutral range.
- The international consensus indicates that neutral ENSO conditions will persist for the coming three months (May to July 2013).

The South Pacific Convergence Zone (SPCZ)

- For the coming three months, the SPCZ is forecast to sit slightly south of normal for this time of year.

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

- Normal or below normal rainfall is forecast for the Austral Islands, the Northern Cook Islands, Tokelau, Tuvalu, Eastern Kiribati and Western Kiribati and the Marquesas.
- Near or above normal rainfall is forecast for Papua New Guinea and the Solomon Islands.
- Normal or above normal SSTs are forecast for Papua New Guinea, the Solomon Islands, Vanuatu, Fiji, Niue, Tonga, Samoa, Wallis & Futuna, and the Tuamotu Archipelago.

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

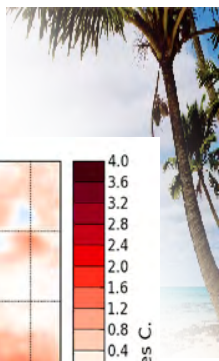
European Centre for
Medium Range Weather
Forecasts

UK Met Office

World Meteorological
Organization

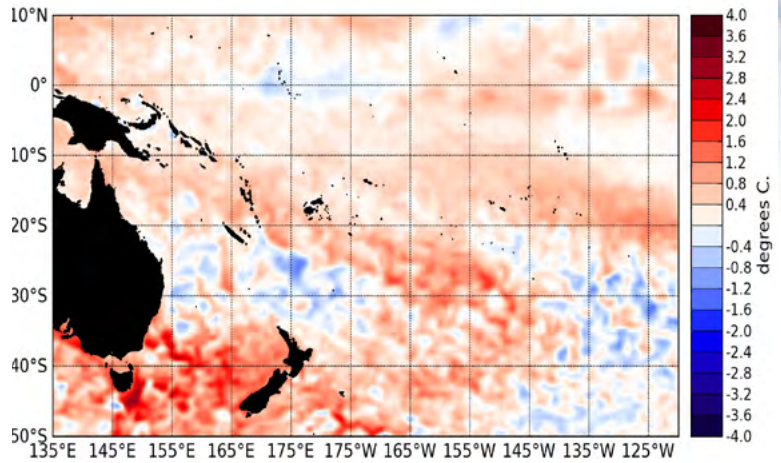
MetService of
New Zealand





El Niño/Southern Oscillation (ENSO)

The tropical Pacific remained in a neutral state (neither El Niño nor La Niña) in April 2013. Since March, the slightly cooler than normal sea surface temperatures (SSTs) in the central and eastern equatorial region have eased. April SSTs were slightly warmer than normal along the Equator. The region of warmer (up to + 2°C) than normal SSTs that extended from Tasmania to New Zealand in previous months is still a prominent feature this month. April NINO values estimates are 0.1°C for NINO3.4 , 0.2°C for NINO3 and 0°C for NINO4. Higher than normal subsurface temperatures still exist along the Equator at about 150m depth west of the Dateline, while lower than normal temperatures are present east of the Dateline at similar depths. However these cold subsurface waters are overlain by a thin warm layer. Oceanic integrated heat content anomalies (0–300 m) are currently close to zero all along the Equator but for the far western Pacific, where they are + 2°C. The trade winds are currently slightly stronger than normal in the western Pacific, but remain within the normal range. The South Pacific Convergence Zone (SPCZ) was positioned southwest of normal in April in the western Pacific. The latest value for the TRMM ENSO index for the 30 days to May 5th is - 1.29 (on La Niña side of neutral) and the monthly SOI for April is 0. The Madden – Julian

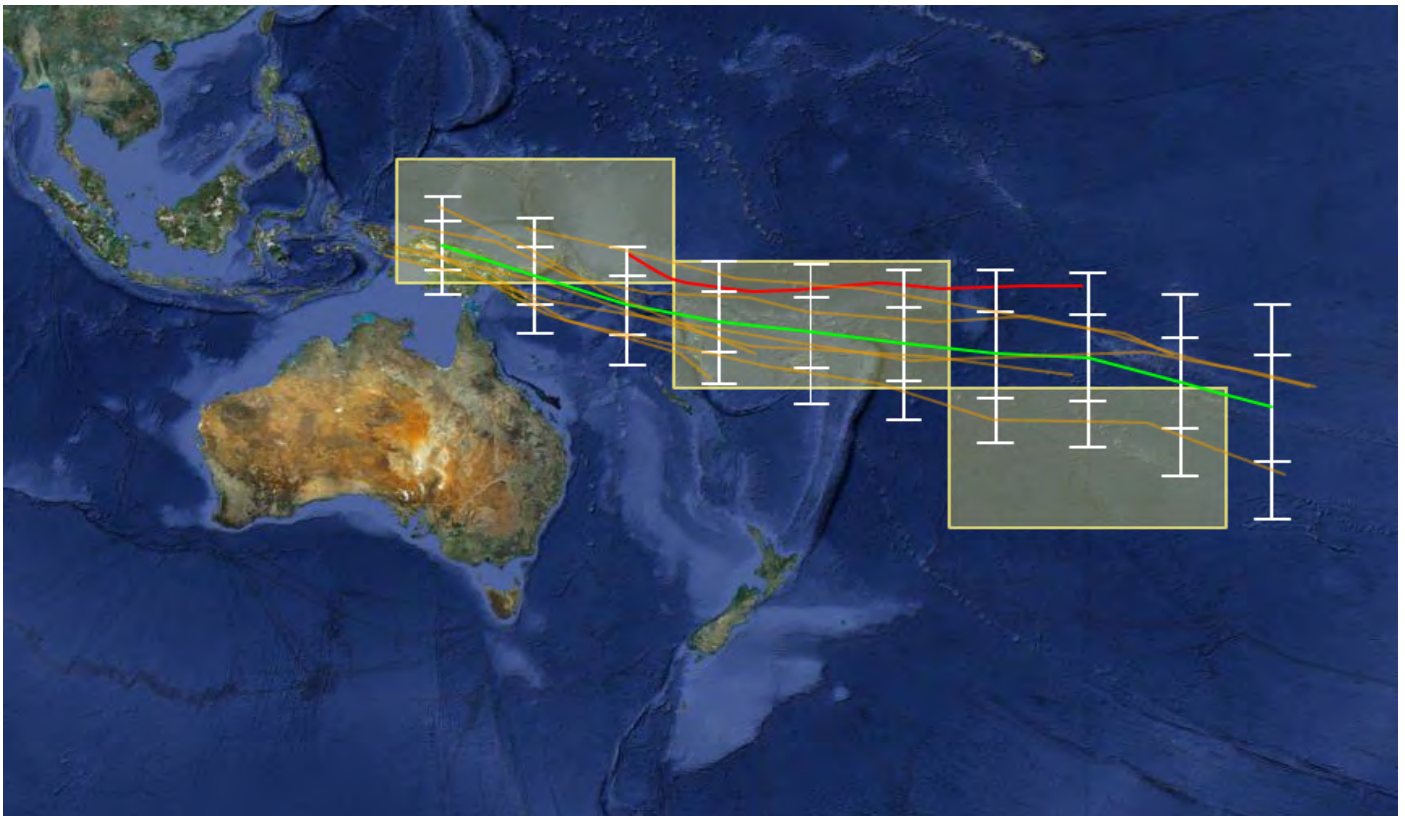


Surface temperature anomalies (°C) for April 2013, data is from the NOAA OISST Version 2 dataset, available at the NOAA's Climate Data Center (<ftp.cdc.noaa.gov/Datasets/noaa.oisst.v2.highres>).

Oscillation (MJO) was mostly inactive over the region in April. The MJO forecast indicates possible enhanced convective activity over the Maritime Continent mid-May. The ensemble of dynamical and statistical climate forecast models that NIWA monitors indicates that neutral ENSO conditions are likely to persist over the May – July 2013 period, with 69 % chance, versus 24 % for La Niña and 7 % chance El Niño (percentages from the latest IRI/CPC statement).

South Pacific Convergence Zone forecast May to July 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.



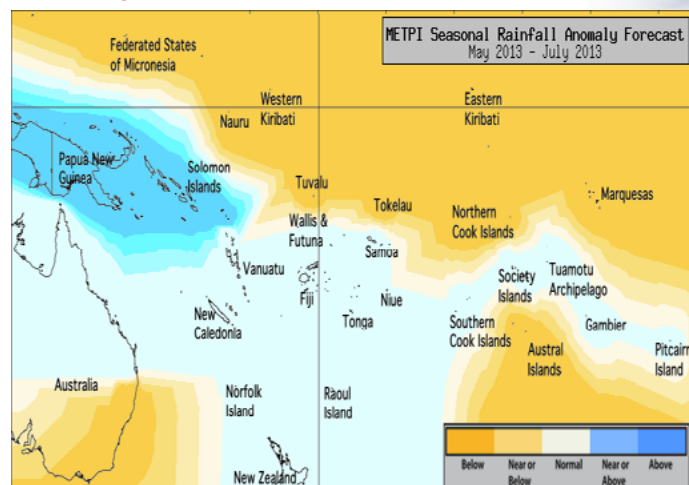
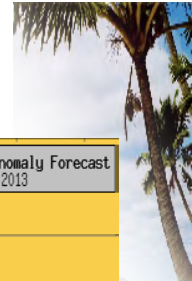
For May-July 2013, the SPCZ is expected to sit south of normal for the time of year. Uncertainty in the SPCZ position forecast is greatest to the east of the Dateline.

Tropical rainfall and SST outlook: May to July 2013

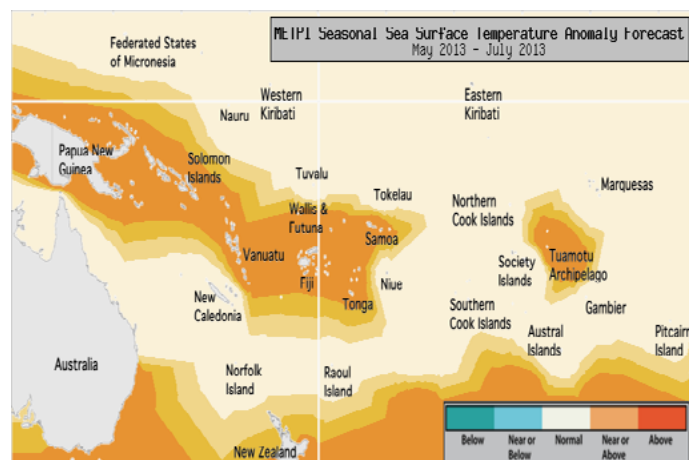
The dynamical models indicate that the SPCZ will be situated slightly south of its climatological position during May – July 2013. Near or above normal rainfall is forecast for Papua New Guinea and the Solomon Islands. Normal or below normal rainfall is forecast for the Federated States of Micronesia, the Austral Islands, the Northern Cook Islands, Tokelau, Tuvalu, Eastern Kiribati, Western Kiribati and the Marquesas. Near normal rainfall is expected for the Southern Cook Islands, Fiji, New Caledonia, Niue, Pitcairn Island, Samoa, the Society Islands, Tonga, the Tuamotu archipelago, Vanuatu and Wallis & Futuna.

The global model ensemble shows weak SST signals heading toward austral winter. Some warm anomalies in the western Pacific region and for areas that were warmer-than-normal in previous months are expected to persist. Equatorial SST anomalies are currently weak, and an ENSO signal is not evident in the NINO3.4 region. Near normal or above normal SSTs are forecast for Fiji, Niue, Papua New Guinea, Samoa, the Solomon Islands, Tonga, the Tuamotu Islands, Vanuatu and Wallis & Futuna. Normal sea surface temperatures are expected elsewhere.

The confidence for the rainfall outlook is moderate to high. The average region-wide hit rate for rainfall forecasts issued in May is 56 %, six points lower than the long-term average for all months combined. The SST forecast confidence is high across the region except for Eastern Kiribati and the Marquesas, where uncertainty is greater.



Rainfall anomaly outlook map for May to July 2013



SST anomaly outlook map for May to July 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
Papua New Guinea	25:35:40 (Normal or Above)	High
Solomon Islands	25:40:35 (Normal or Above)	High
Cook Islands (Southern)	30:40:30 (Near normal)	High
Fiji	30:40:30 (Near normal)	High
New Caledonia	30:40:30 (Near normal)	High
Niue	30:40:30 (Near normal)	High
Pitcairn Island	30:40:30 (Near normal)	High
Samoa	30:40:30 (Near normal)	High
Society Islands	30:40:30 (Near normal)	High
Tonga	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
FSM	35:40:25 (Normal or Below)	Moderate-High
Austral Islands	35:40:25 (Normal or Below)	Moderate-High
Cook Islands (Northern)	35:40:25 (Normal or Below)	High
Tokelau	35:40:25 (Normal or Below)	High
Tuvalu	35:40:25 (Normal or Below)	High
Kiribati (Eastern)	40:35:25 (Normal or Below)	Moderate-High
Kiribati (Western)	40:35:25 (Normal or Below)	Moderate-High
Marquesas	40:35:25 (Normal or Below)	Moderate-High

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



The Island Climate Update

Cover Photo:
Wendy St George,
NIWA

Visit The Island Climate Update at:
www.niwa.co.nz/climate/icu

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

Dr Nicolas Fauchereau, NIWA,
41 Market Place, Auckland, New Zealand
E-mail: Nicolas.Fauchereau@niwa.co.nz

Forecasts:

Dr. Andrew Lorrey and Dr. Nicolas Fauchereau (South Pacific rainfall and SST forecasts) and the NIWA National Climate Centre (ENSO wrap)

ICU Editorial team:

Nicolas Fauchereau:
Nicolas.Fauchereau@niwa.co.nz
Andrew Lorrey: a.lorrey@niwa.co.nz
Petra Chappell: p.chappell@niwa.co.nz

Acknowledgements

This bulletin is produced by NIWA and made possible with financial support from the New Zealand Ministry of Foreign Affairs and Trad (MFAT), with additional support from NOAA and the Secretariat for the Pacific Regional Environmental Programme (SPREP).

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.

The contents of The Island Climate Update may be freely disseminated, provided the source is acknowledged.

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, 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
<http://www.ecmwf.int/>