Number 167, August 2014

The Island Climate Update

El Niño/Southern Oscillation (ENSO)

- Sea surface temperatures (SSTs) have eased off in the central and eastern Pacific but remain warmer than normal in the western Pacific.
- The atmosphere has yet to respond to the ocean in order to initiate an El Niño event.
- Chances for El Niño over the August – October 2014 period remain at about 70%.

The South Pacific Convergence Zone (SPCZ)

- The SPCZ is expected to be positioned close to 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 Samoa, the Society Islands, Tonga, Wallis & Futuna, the northern Cook Islands, Fiji, the Marquesas, New Caledonia, Tokelau, Tuvalu and Vanuatu.
- Normal or above normal rainfall is forecast for Niue, the southern Cook Islands, eastern Kiribati, western Kiribati and the Federated States of Micronesia.
- Above normal SSTs are forecast for Eastern Kiribati. Normal or above normal SSTs are forecast for Western Kiribati, the Federated States of Micronesia and the Solomon Islands

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

NEW ZEALAND MINISTRY OF FOREIGN AFFAIRS & TRADE Aid Programme

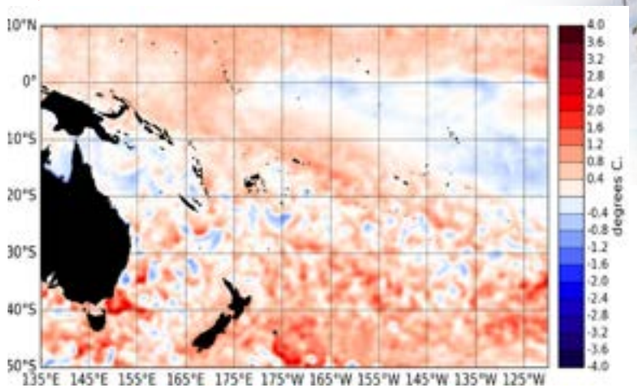
NOAA

SPREP

NIWA Taihoro Nukurangi

El Niño/Southern Oscillation (ENSO)

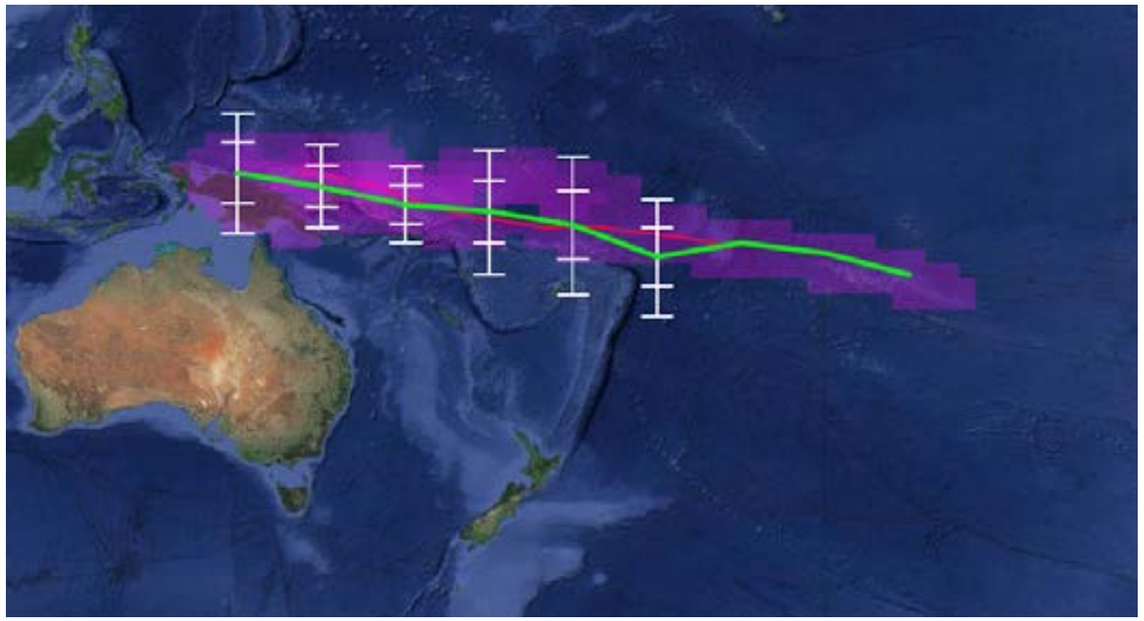
The equatorial Pacific Ocean remains ENSO-neutral at the end of July 2014, with atmospheric and oceanic conditions failing to sufficiently couple and thereby initiate an El Niño event. Equatorial sea-surface temperatures (SSTs) have eased back to below the +0.5°C El Niño threshold in the NINO3.4 region, while SST anomalies remain elevated in the western Pacific. Further, the very large sub-surface temperature anomalies present in the eastern Pacific in June have now all but disappeared. Thus, the chances of an El Niño event developing over spring appear to be lessening. The latest monthly anomaly values for the NINO SST indices are: 0.24°C for NINO3.4, 0.74°C for NINO3, and 0.39°C for NINO4, all down from June 2014. The Southern Oscillation Index (SOI) is at –0.3 for July 2014 (neutral), and the latest value for the TRMM ENSO index for the 30 days to 6 August is 0.78 (in the weak El Niño range). The Intertropical Convergence Zone (ITCZ) was much more intense than normal in July. The South Pacific Convergence Zone (SPCZ) was weaker than normal and shifted to the north of its climatological position in the western Pacific. As was the case in June, a large region of the south Pacific (from the southern parts of the Solomon Islands to east of Samoa, as well as parts of French Polynesia) experienced anomalously low rainfall in July 2014. The Madden – Julian Oscillation (MJO) was inactive over the Pacific in the last two weeks of July. The forecasts (CPC) indicate normal or reduced levels of intra-seasonal convective activity over the next two weeks. Despite the weakening of the SST and ocean subsurface signals, the consensus forecast from the IRI / CPC continues to indicate that El Niño is the most likely outcome (70 % chance) over the August to October 2014 period.



Surface temperature anomalies (ºC) for July 2014, data is from the NOAA OISST Version 2 dataset, available at the NOAA's Climate Data Center (ftp://ftp.cdc.noaa.gov/Datasets/noaa.oisst.v2.highres/).

South Pacific Convergence Zone forecast August to October 2014

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 eight climate models. The white vertical bars and 'whiskers' indicate the one and two standard deviations between the model projections of the SPCZ position every five degrees of longitude. The purple shading is proportional to the probability of intense convection developing within the SPCZ.



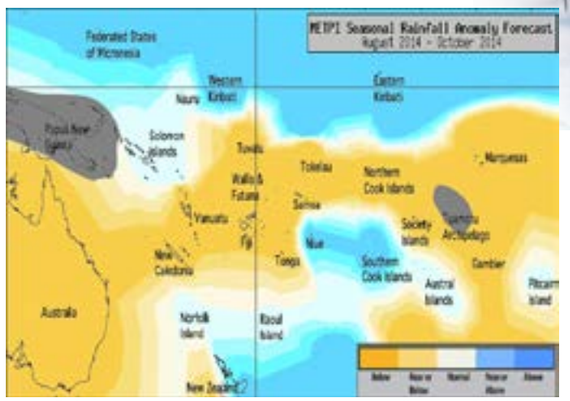
For August – October 2014, the South Pacific Convergence Zone is forecast to sit close to normal for the time of year. The models indicate a well-defined SPCZ to the west of the International Dateline. There is consensus between the models that the region of most intensive anomalous convection will occur in the Bismarck archipelago area. The greatest uncertainty for the position forecast is just to the west of the Dateline, and few models indicate the SPCZ will be prominent east of the Dateline.

Tropical rainfall and SST outlook: August to October 2014

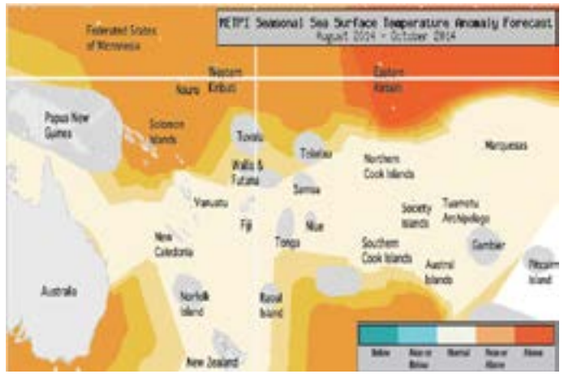
The dynamical forecast models continue to predict drier than normal conditions in large regions of the Pacific south of the Equator for August – October 2014. Normal or below normal rainfall is forecast for Samoa, the Society Islands, Tonga, Wallis & Futuna, the northern Cook Islands, Fiji, the Marquesas, New Caledonia, Tokelau, Tuvalu and Vanuatu. Normal or above normal rainfall is forecast for Niue, the southern Cook Islands, eastern Kiribati, western Kiribati and the Federated States of Micronesia. Near normal rainfall is expected for the Austral Islands and Pitcairn Island. No clear guidance is available this month for Papua New Guinea and the Tuamotu archipelago.

The global model ensemble forecast for SSTs still indicate higher than normal SSTs in the central and eastern Equatorial Pacific. Above normal SSTs are also forecast to persist from previous months to the east of New Zealand. Above normal SSTs are forecast for Eastern Kiribati. Normal or above normal SSTs are forecast for Western Kiribati, the Federated States of Micronesia and the Solomon Islands. Near normal SSTs are expected for the Austral island, Fiji, the Marquesas, New Caledonia, the Northern and Southern Cook Islands, the Society Islands, the Tuamotu archipelago and Vanuatu. No guidance was available this month elsewhere.

The confidence for the rainfall outlook is generally moderate to high. Climatological probabilities for Papua New Guinea and the Tuamotu archipelago are typically associated with moderate confidence. The average region–wide hit rate for rainfall forecasts issued in August is 60 %, three points lower than the average for all months combined. Confidence for the SST forecasts is generally high, but several Island groups are lacking strong guidance from the ensemble of models forecasts.



Rainfall anomaly outlook map for August - October 2014

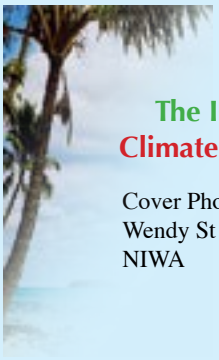


SST anomaly outlook map for August - October 2014

NOTE: Rainfall and sea surface termperature 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
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)	Moderate-High
Kiribati (Western)	25:40:35 (Normal or Above)	Moderate-High
FSM	25:40:35 (Normal or Above)	High
Austral Islands	30:40:30 (Near normal)	High
Pitcairn Island	30:40:30 (Near normal)	High
Solomon Islands	30:40:30 (Near normal)	High
Papua New Guinea	33:33:30 (Climatology)	Moderate
Tuamotu Islands	35:35:30 (Climatology)	Moderate
Samoa	35:40:25 (Normal or Below)	High
Society Islands	35:40:25 (Normal or Below)	High
Tonga	35:40:25 (Normal or Below)	Moderate-High
Wallis & Futuna	35:40:25 (Normal or Below)	High
Cook Islands (Northern)	40:35:25 (Normal or Below)	High
Fiji	40:35:25 (Normal or Below)	Moderate-High
Marquesas	40:35:25 (Normal or Below)	High
New Caledonia	40:35:25 (Normal or Below)	High
Tokelau	40:35:25 (Normal or Below)	Moderate-High
Tuvalu	40:35:25 (Normal or Below)	Moderate-High
Vanuatu	40:35:25 (Normal or Below)	High

Island Group	SST Outlook	confidence
Kiribati (Eastern)	25:30:50 (Normal or Above)	High
Kiribati (Western)	25:35:40 (Normal or Above)	High
FSM	25:35:40 (Normal or Above)	High
Solomon Islands	25:35:40 (Normal or Above)	High
Austral Islands	30:40:30 (Near normal)	High
Fiji	30:40:30 (Near normal)	High
Marquesas	30:40:30 (Near normal)	High
New Caledonia	30:40:30 (Near normal)	High
Cook Islands (Northern)	30:40:30 (Near normal)	High
Society Islands	30:40:30 (Near normal)	High
Cook Islands (Southern)	30:40:30 (Near normal)	High
Tuamotu	30:40:30 (Near normal)	High
Vanuatu	30:40:30 (Near normal)	High
Niue	33:33:33 (Climatology)	Moderate
Pitcairn	33:33:33 (Climatology)	Moderate
Papua New Guinea	33:33:33 (Climatology)	Moderate
Samoa	33:33:33 (Climatology)	Moderate
Tokelau	33:33:33 (Climatology)	Moderate
Tonga	33:33:33 (Climatology)	Moderate
Tuvalu	33:33:33 (Climatology)	Moderate
Wallis & Futuna	33:33:33 (Climatology)	Moderate



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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.

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 MicronesiaFiji, 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