

Climate and Oceans Monitoring and Prediction (COMP)

Pacific Islands - Online Climate Outlook Forum No. 107 Summary Report

Date: Tuesday 10 August 2016

Time: Australian Eastern Daylight Time 11:00AM (01:00 UTC)

Chair: Bureau of Meteorology

Main purpose for the OCOF:

- To provide a regular forum for the 11 participating PIC NMSs to discuss the current ENSO status, recent one and three-month rainfall, drought (if present) and their seasonal climate outlooks with other countries and the COMP project team.

In addition, it serves as an online training forum for recent SCOPIC^{*} development and gives the project team and the NMSs an opportunity to discuss other project related matters.

Agenda:

1. Brief introduction of PIC participants and the Bureau team.
2. Brief report on current ENSO status.
3. Each NMS report on their past one and three months' rainfall in relation to the current ENSO situation (include ranking and verification), and their three-month outlooks. Wherever appropriate NMS to report on their drought status.
4. Round-table discussion: addressing general concerns/queries on outlooks and SCOPIC.
5. Feedback on COSPPac products and services.
6. Country statements with regards to drought or drought-like conditions, drought module issues/concerns.
7. Next meeting (Tuesday 13 September - TBC) and Chair (Fiji).

Participants:

The Forum was attended by 18 climate officers (9 female) from ten partner PIC NMSs.

Cook Islands: Bates Manea

Fiji:

Kiribati: Kamaitia Rubetaake and Mauna Eria

Niue: Rossy Mitiepo, Mellisa Douglas and +1 (female)

Papua New Guinea: Nanao Bouauka, Ruth Apuqahe and Kisolet Posanau

Republic of Marshall Islands: Nover Juria

Samoa: Junior Lepale, Faapisa Aiono, Tile Tofaeono and Vaulei Su'a

Solomon Islands: Max Sitai, Noel Sanau and Lloyd Tahani

Tonga:

Tuvalu:

Vanuatu: Melinda Natapei

The Bureau team: Grant Smith and Simon McGree

OCOOF tables were received from eleven participating countries before the meeting.

* Seasonal Climate Outlooks in the Pacific Island Countries: climate prediction software developed under the PI-CPP.

Australian Aid Project: Climate and Oceans Support Program in the Pacific (COSPPac)

Observations and Verification of May to July 2016 outlooks:

Observed rainfall for the one and three-month periods ending June 2016 were discussed for each PIC. This month, several countries experienced extreme rainfall as shown in the following table:

Station	Period	Rainfall Amount (mm)	Rainfall Rank	Year of record
Penrhyn, Cook Islands	July	276.4	73	80
Penrhyn, Cook Islands	May-July	1033.6	76	77
Lakeba, Fiji	July	21.0	2	66
Ono-i-Lau, Fiji	July	26.1	6	70
Rotuma, Fiji	July	68.8	8	103
Lautoka Mill, Fiji	May-July	31.9	3	117
Rotuma, Fiji	May-July	347.2	4	102
Beru, Kiribati	July	7.2	2	61
Butaritari, Kiribati	May-July	434.1	7	73
Garoka, PNG	July	8.8	3	54
Garoka, PNG	May-July	141.4	4	49
Nui, Tuvalu	July	401.3	65	71
Niulakita, Tuvalu	July	79.8	4	64
Nanumea, Tuvalu	May-July	1031.8	71	75
Sola, Vanuatu	May-July	323	1	42
Pekoa, Vanuatu	May-July	167.2	4	46
Lamap, Vanuatu	May-July	148	2	56
Port Vila	May-July	146.6	2	64
Aneityum, Vanuatu	May-July	230.3	6	65

[Note: The above data may not have undergone quality control]

Validation of forecasts with observed rainfall for the April to June (OCOF #103) period showed 34 consistent, 11 near-consistent and 5 inconsistent outlooks (50 stations across ten countries).

A summary of results (C-consistent, NC-Near Consistent, I-Inconsistent, NA-not available) for each country for the April to June 2016 outlook is as follows:

Cook Islands (2C); Fiji (11C, 1NC); Kiribati (2C, 2NC, 1I); Niue (1NC); PNG (4C, 1NC, 1I); RMI (2NC); Samoa (2NC, 2I); Solomon Islands (4C, 2NC, 1I); Tonga (-); Tuvalu (4C) and Vanuatu (7C).

Overall: 34C, 11NC, 5I.

September to November 2016 Outlooks:

Thirty-five percent of the 54 stations outlooks had the highest probabilities in tercile 1, 12% in tercile 2 and 2% in tercile 3. The remaining 51% had either near equal probabilities in two terciles, near equal probabilities in three terciles or a mixed outlook.

POAMA outlooks: Twenty-three percent of the 43 station outlooks favoured tercile 1, 10% tercile 2 and 58% tercile 3. The remaining 9% had either near equal probabilities in two terciles, near equal probabilities in three terciles or a mixed outlook.

ENSO summary for OCOF 107 – 9 August 2016

ENSO Status and equatorial sea surface temperatures (SSTs)

Despite some cooling of the tropical Pacific Ocean surface waters, ENSO indicators remain neutral and well shy of La Niña thresholds. In contrast, a strong negative Indian Ocean Dipole (IOD) event continues, with ocean temperature well above average in the eastern Indian Ocean and below average near Africa.

All international climate models surveyed by the Bureau indicate the negative IOD will persist until the end of spring, which historically has brought increased rainfall to southern Australia. Sea surface temperatures have cooled slightly in the tropical Pacific over the past fortnight. Some atmospheric indicators have shifted slightly towards La Niña thresholds, but all remain within neutral bounds.

All climate models indicate more cooling of the tropical Pacific Ocean is likely, but only two of eight models exceed La Niña thresholds for an extended period. A La Niña WATCH (indicating a 50% chance of La Niña in 2016) remains, but if La Niña does develop it would most likely be weak.

July SST anomaly values for NINO3 were -0.3°C (down 0.4°C), NINO3.4 -0.3°C (down 0.3°C) and NINO4 $+0.2^{\circ}\text{C}$ (down 0.3°C). The latest weekly values to 7 August were - NINO3: -0.3°C ; NINO3.4: 0.3°C ; NINO4: $+0.2^{\circ}\text{C}$.

Tropical subsurface

The Bureau of Meteorology's four-monthly sequence of equatorial sub-surface water temperature anomalies plot ending in July shows cool anomalies spanning most of the entire equatorial Pacific Ocean. Temperatures in the top 50 m west of 180° were mostly close to average. The spatial extent of the cool anomalies decreased slightly in June and July, including drawing back from the western boundary.

The TAO/TRITON 5-day sub-surface temperature anomalies plot to 31 July shows temperatures cooler than average across the upper 200 m of the equatorial Pacific with the exception of the upper 100 m west of the Date Line. A small area of water more than 3°C cooler than average persists between 140°W and 170°W at about 150 m.

Coral Bleaching Status

The daily coral bleaching map to 30 July shows small Alert Level 1 alert patches in the Palau and western Micronesian region. Coral Bleaching Warnings are present further east to the westernmost Marshall Islands. A large proportion of the South Pacific is now in the Watch or Warning category. According to the four-week outlook, these alerts are likely to continue to be confined to the northwest tropical and subtropical Pacific.

Sea Level Anomaly

The daily near real time sea level anomaly map for 1 August shows near-normal sea level along the equator. Off the equator sea level is generally higher than normal in the northern and southeastern tropical Pacific. Sea level is also largely higher than normal in the subtropical regions of both hemispheres.

Ocean Currents

The Bureau of Meteorology's most recent seven-day ocean surface currents plot shows easterly anomalies across the entire equatorial Pacific, although weaker than what has been observed in recent months. (i.e. flowing towards the west). These currents act to increase surface temperatures in the western Pacific and cool the eastern Pacific.

Southern Oscillation Index (SOI)

The July 2016 SOI was +4.2 and the current running 30-day and 90-day values +5.0 and +3.3 respectively.

Trade Winds

Trade winds near the equator in the Pacific Ocean remained close to normal for the 5 days ending 31 July, and generally since late March. Off the equator there was a weak increase in the trade winds.

During El Niño, there is a sustained weakening of the trade winds across much of the tropical Pacific, or even a reversal of the trade winds, while during La Niña there is a sustained strengthening of the trade winds.

Modes of Variability

South Pacific Convergence Zone (SPCZ), West Pacific Monsoon (WPM), Intertropical Convergence Zone (ITCZ)

The 30-day OLR and TRMM rainfall anomaly maps show the ITCZ displaced north of its normal position especially east of the Date Line and the SPCZ northeast of its normal position. The SPCZ was also protracted further southeast than is normal for July. Satellite observations suggest July was wetter than normal in Tuvalu, Tokelau and the northern Cook Islands and drier than normal around the southernmost Micronesian and Marshall Islands, Kiribati and from the Solomon Islands southeast to just west of Niue.

Madden Julian Oscillation (MJO)

The Madden-Julian Oscillation (MJO) is currently weak and not likely to be influencing tropical weather. Some models indicate the MJO may re-invigorate in the western Pacific Ocean over the coming weekend and into early next week. Typically when the MJO is active in this region, tropical activity and the risk of typhoon development increases over the northwest Pacific region.

ENSO Outlook

Tropical Pacific sea surface temperatures have been in the neutral range for several months now, and may remain neutral for the remainder of 2016. The latest outlooks have lowered their chances of La Niña forming later in the year. Two of the eight models surveyed maintain a La Niña outlook throughout the southern spring. Several other models approach La Niña thresholds, with some exceeding for brief periods. The Bureau's model outlook comes close to the La Niña threshold in August and September but returns to neutral levels for the remainder of the year.

For more information please see:

COSPPac monthly climate bulletin at <http://www.bom.gov.au/cosppac/comp/bulletin/index.shtml>

Bureau of Meteorology ENSO wrap up at <http://www.bom.gov.au/climate/enso/>

Other Discussion

No other discussion during the teleconference.

Observed Rainfall and Validation

Country	July 2016	May to July 2016	Verification[†] for May to July 2016 outlooks
Cook Islands	Above normal	Below normal and above normal	Consistent
Fiji	Below normal to normal	Below normal	Consistent to near consistent
Kiribati	Below normal to normal	Below normal to above normal	Consistent to inconsistent
Niue	Normal	Below normal	Near-consistent
Papua New Guinea	Below normal to normal	Below normal to above normal	Consistent to inconsistent
RMI	Below normal to normal	Below normal to normal	Near-consistent
Samoa	Below normal	Normal to above normal	Near consistent to inconsistent
Solomon Islands	Below normal to above normal	Below normal to above normal	Consistent to inconsistent
Tonga			
Tuvalu	Below normal to above normal	Above normal	Consistent
Vanuatu	Below normal to normal	Below normal	Consistent

[†] Forecast is consistent when observed and predicted (tercile with the highest probability) categories coincide (are in the same tercile).

Forecast is near-consistent when observed and predicted (tercile with the highest probability) differ by only one category (i.e. terciles 1 and 2 or terciles 2 and 3).

Forecast is inconsistent when observed and predicted (tercile with the highest probability) differ by two categories (i.e. terciles 1 and 3).