

Climate and Oceans Monitoring and Prediction (COMP)

Pacific Islands - Online Climate Outlook Forum No. 87 Summary Report

Date: Tuesday 16 December 2014

Time: Australian Eastern Daylight Time 12:00PM (01:00 UTC)

Chair: Niue

Main purpose for the OCOF:

- To provide a regular forum for the eleven participating PIC NMSs to discuss the current ENSO status and their seasonal climate outlooks with the COMP project team.

In addition it will serve as the online training forum on the latest SCOPIC^{*} developments and will give the project team and the NMSs an opportunity to discuss other project related matters/concerns.

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 1 and 3 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 January) and Chair (PNG).

Participants:

The Forum was attended by 14 climate officers from nine partner PIC NMSs.

Cook Islands:

Fiji: Bipendra Prakash, Ravind Kumar and Swastika Devi

Kiribati: Kamaitia Rubetaake

Niue: Mellisa Douglas

Papua New Guinea: Kila Kila

Republic of Marshall Islands:

Samoa: Faapisa Aiono and Sunny Seuseu

Solomon Islands: Max Norman and Lloyd Tahani

Tonga: Uinita Vea and Seluvaia Finaulahi

Tuvalu: Eli Ene

Vanuatu: Melinda Natapei

The Bureau team: Grant Beard, Simon McGree and Elise Chandler

OCOF tables were received from all nine participating countries (plus Republic of Marshall Islands) before and during the meeting.

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

AUSAID PROJECT: Climate and Oceans Support Program in the Pacific (COSPPac)

Observations and Verification of September to November 2014 outlooks from OCOF #87:

Observed rainfall for the one and three month periods ending November 2014 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	Years of Record
Nadi Airport, Fiji	Sep-Nov	134.7	7	72
Beru, Kiribati	November	0.5	5	62
Honiara, Solomon Is.	November	21	3	58
Honiara, Solomon Is.	Sep-Nov	125	3	57
Henderson, Solomon Is.	Sep-Nov	189	4	40
Munda, Solomon Is.	Sep-Nov	1107	50	53
Vavau, Tonga	November	13.3	2	68
Haapai, Tonga	November	11.1	6	68
Nukualofa, Tonga	November	13.6	5	71
Vavau, Tonga	Sep-Nov	109.2	3	68
Haapai, Tonga	Sep-Nov	108	6	68
Nukualofa, Tonga	Sep-Nov	119.8	5	70
Fuaamotu, Tonga	Sep-Nov	130.9	3	35
Bauerfield, Vanuatu	Sep-Nov	559.1	38	42
Vanimo, Papua New Guinea	Sep-Nov	760.2	50	54

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

Validation of forecasts with observed rainfall across the region for September to November 2014 showed 21 consistent, 16 near-consistent and 15 inconsistent outlooks (52 stations in total across ten countries, excluding the Cook Islands).

The largest inconsistency was at Pekoa, Vanuatu, where above normal rainfall was observed (564.5 mm) against outlook probabilities of 57/28/15 with very high skill (LEPS=36.3%). The strongest consistent verification was at Majuro, Republic of Marshall Islands, where normal rainfall was observed (936.5 mm), with outlook probabilities of 34/34/32 and very low skill (LEPS= - 2.5%).

A summary of results (C-consistent, NC-Near Consistent, I-Inconsistent, NA-not available) for each country for the September to November 2014 outlook is as follows:

Cook Islands (NA); Fiji (9C, 1NC, 2I); Kiribati (1C, 2NC, 1I); Niue (1NC); PNG (1C,2NC,2I); RMI (1C,1NC); Samoa (3NC, 1I); Solomon Islands (2C,4NC, 1I); Tonga (5C, 1NC); Tuvalu (1C,3NC); and Vanuatu (7I).

Overall: 21C, 16NC, 15I.

January to March 2015 Outlooks:

Of the 11 countries contributing to the OCOF, the following predictors and periods were selected for the above period: Seven chose 3-month average NINO3.4 (September-November), three chose 2-month average NINO3.4 (October-November) and one chose 1-month average NINO3.4 (November). Two-month average NINO3.4 is the recommended option as this is associated with the highest three-month outlook skill.

AUSAID PROJECT: Climate and Oceans Support Program in the Pacific (COSPPac)

Fifty-nine per cent of stations had highest probabilities in tercile 1, 5% in tercile 2, 20% in tercile 3 (59 stations in total, Cook Islands not included). The remainder of the outlooks (15%) had either near equal probabilities in two terciles, near equal probabilities in three terciles or a mixed outlook.

POAMA outlooks: 35% of the station outlooks favoured tercile 1, 30% favoured tercile 2 and 35% favoured tercile 3 for the coming season.

ENSO summary for the December 2014 OCOF

Sea surface temperatures (SSTs), ENSO status and outlook

Tropical Pacific Ocean ENSO indicators remain close to El Niño thresholds. A number of countries around the Pacific Ocean Basin and further afield have shown some El Niño-like impacts in recent months and these impacts are likely to continue, as shown by recent seasonal outlooks.

Surface and subsurface temperatures in the equatorial Pacific Ocean remain warmer than average. However, atmospheric indicators have not shown sustained patterns consistent with the warm ocean below. The Southern Oscillation Index (SOI) has eased back from El Niño thresholds.

Rainfall/convection patterns in the western Pacific have been enhanced since late November due to MJO activity. Positive SST anomalies covered most of the equatorial Pacific in November. November SST anomaly values for NINO3 were +0.9°C (up 0.2°C), NINO3.4 +0.9°C (up 0.3°C) and NINO4 +1.0°C (up 0.3°C). The latest weekly values to 14 December were NINO3 +0.9°C, NINO3.4 +0.9°C, NINO4 +1.1°C.

Tropical subsurface

The Bureau of Meteorology 4-month sequence of sub-surface temperature anomalies (to 12 Dec) shows warm anomalies across much of the tropical Pacific subsurface with the warmest regions around +3°C to the west of the Dateline and at around 120W.

The TAO/TRITON sub-surface temperatures for the 5 days ending 15 December show shallow warm anomalies exceeding 3°C in the central and eastern Pacific between the surface and around 100m.

Southern Oscillation Index (SOI)

The November 2014 value was -10.0; a decline from the -8.0 in October. The current approximate 30-day SOI value is -5 (15 December) a reflection of the MJO moving through the western Pacific, while the 90-day value is around -6.

Trade Winds

The trade winds have been near average across most of the equatorial Pacific recently, although the western Pacific trade winds have strengthened recently associated with a westerly wind burst (TAO/TRITON 5 day mean ending on 14 Dec.)

Modes of Variability

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

Outgoing Longwave Radiation (OLR) and TRMM observations for the last 30 days show enhanced convection for the Maritime Continent, across the ITCZ and east Pacific. In the South Pacific there has been suppressed convection over the Solomon Islands, Vanuatu, New Caledonia, Fiji and Tonga associated with a northeast displacement of the SPCZ.

AUSAID PROJECT: Climate and Oceans Support Program in the Pacific (COSPPac)

Madden Julian Oscillation (MJO)

A moderate strength MJO event which pushed through the Maritime Continent at the end of November and into the western Pacific in early December, is likely to have contributed to the observed increase in tropical activity over the past week. However, the event is currently weakening as it pushes further eastwards into the Pacific.

Typhoon Hagupit (Ruby), which made landfall over the central Philippines on 6 December, was downgraded to a tropical storm before moving over the northwestern Philippines on 8 December. Although most climate models indicate the MJO will continue to weaken, there remains an increased risk of tropical cyclone development and enhanced tropical weather in the western Pacific while the MJO remains active in the region.

ENSO Update (Issued on 16 December 2014)

Tropical Pacific Ocean close to El Niño thresholds

The tropical Pacific remains close to El Niño thresholds, with a number of countries around the Pacific Ocean basin and further afield showing some El Niño-like impacts in recent months.

The equatorial Pacific Ocean remains warm, with surface temperatures exceeding El Niño thresholds for several weeks. Typically, after the ocean has exceeded thresholds for an extended period, an El Niño is considered to be underway. However some atmospheric indicators, such as the trade winds, cloudiness and tropical rainfall, have not shown sustained and widespread patterns consistent with El Niño. The Southern Oscillation Index, which has remained negative for several months, has recently eased back from El Niño thresholds; this is likely to be a weather related short-term fluctuation in the index.

International climate models surveyed by the Bureau indicate little change is likely in the tropical Pacific Ocean in the coming weeks and months, with ocean temperatures forecast to either remain close to, or just above, El Niño thresholds. If the atmosphere does start to reinforce the ocean, models suggest the resulting El Niño would most likely be weak or moderate at most.

Next update expected on 23 December 2014.

For up to date information on the state of ENSO please refer to the links below;

BoM ENSO Wrap Up - <http://www.bom.gov.au/climate/enso/>

BoM model survey - <http://www.bom.gov.au/climate/ahead/ENSO-summary.shtml>

IRI model summary - http://iri.columbia.edu/climate/ENSO/currentinfo/SST_table.html

AUSAID PROJECT: Climate and Oceans Support Program in the Pacific (COSPPac)

Observed Rainfall and Validation

Country	November	September to November 2014	Verification [†] for September-November 2014 outlooks
Cook Islands			
Fiji	Below normal to normal	Below normal Normal [Tokotoko], Above normal [Vunisea]	Consistent to inconsistent
Kiribati	Below normal, above normal [Kiritimati]	Below normal [Beru], normal, above normal [Kiritimati]	Consistent to inconsistent
Niue	Normal	Below normal	Near Consistent
Papua New Guinea			
RMI	Below normal	Normal	Consistent to Near consistent
Samoa	Above normal	Normal, above normal [Faleolo]	Near consistent to inconsistent
Solomon Islands	Below normal, normal, above normal [Lata]	Below normal to above normal	Consistent to inconsistent
Tonga	Below normal, normal [Niuafuou], above normal [Niuatoputapu]	Normal [Niuafuou] to below normal	Consistent to near consistent
Tuvalu	Below normal Above normal [Funafuti]	Below normal, above normal [Funafuti]	Consistent to near consistent
Vanuatu	Below normal [Pekoa], normal to above normal	Above normal	Inconsistent

[†] 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).