Climate and Oceans Monitoring and Prediction (COMP)

Pacific Islands - Online Climate Outlook Forum No. 90 Summary Report

Date: Tuesday 17 March 2015

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

Chair: Solomon Islands

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 21 April) and Chair (Tonga).

Participants:

The Forum was attended by 18 climate officers from nine partner PIC NMSs.

Cook Islands: Turi Tutai

Fiji: Arieta Baleisolomone and Swastika Devi

Kiribati:

Niue: Rossy Mitiepo, Mellisa Douglas, Robert Togiamana

Papua New Guinea: Kila Kila, Agnes Diap and Kisolel Posanau

Republic of Marshall Islands: Nover Jueia

Samoa: Billy Poulima, Faapisa Aiono and Junior Lepale

Solomon Islands: Max Norman and Lloyd Tahani

Tonga: Uinita Vea

Tuvalu: Eli Ene, Meelina Ailesi

Vanuatu:

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

OCOF tables were received from ten participating countries before and during the meeting.

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

Observations and Verification of December 2014 to February 2015 outlooks from OCOF #90:

Observed rainfall for the one and three month periods ending February 2015 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
Rarotonga, Cook Islands	Feb	42.9	5	87
Nabouwalu, Fiji	Feb	574.5	94	98
Nausori Airport, Fiji	Dec-Feb	1355.1	57	59
Kirakira, Solomon Islands	Feb	93	3	48
Kirakira, Solomon Islands	Dec-Feb	469	4	45
Ha'apai, Tonga	Feb	351	64	69

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

Validation of forecasts with observed rainfall for the December 2014 to February 2015 period showed 19 consistent, 24 near-consistent and 5 inconsistent outlooks (48 stations across ten countries, not including Vanuatu).

The largest inconsistency was at Nabouwalu, Fiji, where above normal rainfall was observed (1088 mm) against outlook probabilities of 40/37/23 with high skill (LEPS=21.4%). The strongest consistent verification was at Penrhyn, Cook Islands, where above normal rainfall was observed (881 mm), with outlook probabilities of 5/44/51 and exceptional skill (LEPS= 40.1%).

A summary of results (C-consistent, NC-Near Consistent, I-Inconsistent, NA-not available) for each country for the December 2014 to February 2015 outlook is as follows:

Cook Islands (1C, 1NC); Fiji (5C, 6NC, 2I); Kiribati (1C); Niue (1C); PNG (2C,5NC,1I); RMI (2C); Samoa (1C,3NC); Solomon Islands (4C, 2NC, 1I); Tonga (2C, 4NC); Tuvalu (3NC, 1I); and Vanuatu (NA).

Overall: 19C, 24NC, 5I.

April to June 2015 Outlooks:

Of the nine countries contributing to OCOF #90, the following predictors and periods were selected: Three-month average NINO3.4 (December-February) – 3 countries, Two-month average NINO3.4 (January-February) – 6 countries and one-month average NINO3.4 (February) – 1 country. NINO3.4 two-month average is recommended as this predictor/period is associated with the highest three-month outlook skill on a regional scale.

Sixty-two percent of the 53 stations outlooks had the highest probabilities in tercile 1, 2% in tercile 2 and 17% in tercile 3 (Kiribati and Vanuatu not included). The remaining 19% had either near equal probabilities in two terciles, near equal probabilities in three terciles or a mixed outlook.

POAMA outlooks: forty percent of the 35 station outlooks favoured tercile 1, 40% tercile 2 and 14% tercile 3. The remaining 6% had either near equal probabilities in two terciles, near equal probabilities in three terciles or a mixed outlook.

ENSO summary for the March 2014 OCOF

Sea surface temperatures (SSTs), ENSO status and outlook
Models surveyed indicate tropical Pacific SSTs are likely to remain above average, but within the neutral range, until May. By July, six of the eight models suggest a renewed warming, with the NINO3.4 index likely to exceed El Niño thresholds. As a result, the Bureau's ENSO tracker has been lifted from Neutral to El Niño Watch level, which indicates about a 50% chance of El Niño forming in 2015.

The tropical Pacific Ocean has cooled rapidly through the start of 2015 since peaking in mid-December, at which time surface temperatures briefly reached values typical of El Niño. February SST anomaly values for NINO3 were +0.2°C (down 0.1°C), NINO3.4 +0.5°C (no change) and NINO4 +1.0°C (up 0.1°C). The latest weekly values to 8 March are NINO3 0.0°C, NINO3.4 +0.5°C, NINO4 +1.1°C.

Tropical subsurface

The Bureau of Meteorology sub-surface temperature anomalies profile for the last fortnight shows a pool of warm anomalies centred to the east of the Date Line down to a depth of approximately 150m. This pool of warm water has intensified slightly and spread further east when compared with the sub-surface waters from February. Weak cool anomalies are present to the east of 140ºW in the eastern Pacific.

The TAO/TRITON sub-surface temperature anomaly profile for the 5 days ending 14 March presents a similar picture in the central and eastern Pacific, with anomalies in excess of +4ºC at around 150ºW.

Southern Oscillation Index (SOI)

The February 2015 value was +0.6; an increase of about eight points from the –7.8 in January. The current approximate 30-day SOI value to 14 March is –1.4 and the 90-day value is –5.0. The SOI has recovered from a dip into negative values which was primarily caused by transient weather systems in the vicinity of Tahiti as well as a break in the Australian monsoon.

Trade Winds

Trade winds were weaker than average over the western half of the tropical Pacific (TAO/TRITON 5 day mean ending 14 March). Westerly wind anomalies (weakened trades) have been present for over a month now; this is a possible indicator of El Niño development.

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

Satellite observations (OLR and TRMM) for the last 30 days (to 15 March 2015) show enhanced convection in the western Pacific extending east to the Date Line, while also being present between the Solomon Islands and Vanuatu. The ITCZ has been displaced to the north in the northwestern tropical Pacific, while being marginally enhanced east of the Date Line. The SPCZ was displaced south-westward in February and was largely suppressed, with the exceptions of an area between Vanuatu and Niue, and over Samoa.

Madden Julian Oscillation (MJO)

The MJO strengthened dramatically during the last week after remaining weak through most of the second half of February and early March. Most forecast models suggest that the MJO will remain active but will weaken over the next two weeks.

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

Observed Rainfall and Validation

Country	February 2015	December 2014 to February 2015	Verification† for December 2014-February 2015 outlooks
Cook Islands	Below normal to normal	Normal to above normal	Consistent to near consistent
Fiji	Normal to above normal	Below normal to above normal	Consistent to inconsistent
Kiribati	Normal to above normal	Normal	Consistent
Niue	Normal	Below normal	Consistent
Papua New Guinea	Below normal to above normal	Normal to above normal [below normal at Vanimo]	Consistent to inconsistent
RMI	Below normal to above normal	Below normal to normal	Consistent
Samoa	Normal	Below normal to normal	Consistent to near consistent
Solomon Islands	Below normal to normal [above normal at Munda]	Below normal to above normal	Consistent to inconsistent
Tonga	Normal to above normal [below normal at Niuatoputapu]	Below normal to normal	Consistent to near consistent
Tuvalu	Below normal [above normal at Funafuti]	Below normal [above normal at Funafuti]	Near consistent to inconsistent
Vanuatu			

† 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).