

Climate and Oceans Monitoring and Prediction (COMP)

Pacific Islands - Online Climate Outlook Forum No. 77 Summary Report

Date: Thursday 20 February 2014

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

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. Interactions with stakeholders (new or existing).
7. Next meeting (Thursday 20 March) and Chair (Tonga).

Participants:

The Forum was attended by 22 climate officers from 11 PIC NMSs.

Cook Islands: Turi Tutai

Fiji: Arieta Baleisolomone

Kiribati: Kamaitia Rubetaake, Ueneta Toorua

Niue: Rossy Mitiepo, Hingano Laufoli, Sean Tukutama and Melissa Douglas

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

Republic of Marshall Islands: Nover Juria

Samoa: Sunny Seuseu, Tile Tofaeono and Junior Lepale

Solomon Islands: Lloyd Tahani

Tonga: Seluvaia Finaulahi and Mele Lakai

Tuvalu: Hilia Vavae, Eli Ene and Meelina Ailesi

Vanuatu: Melinda Natapei

The Bureau team: Elisabeth Thompson, Simon McGree, Grant Beard and Adna Kazazic

OCOFC tables were received from all of the eleven participating countries before the meeting.

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

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Observations and Verification of July to September outlooks from OCOF #73:

Observed rainfall for the one and three month periods ending January 2014 were discussed for each PIC. This month, several countries experienced rainfall rankings within the top or bottom 5 of a station record, as shown in the following table:

Table of high or low rainfall rankings [within 5th highest or lowest rank in a station record]

Station	Period	Rainfall Amount (mm)	Rainfall Rank	Years of Record
Kiritimati, Kiribati	Jan	0.5	3	87
Afiamalu, Samoa	Jan	1664.7	58	60
Nafanua, Samoa	Jan	1188.2	40	40
Apia, Samoa	Jan	965.1	122	125
Afiamalu, Samoa	Nov-Jan	2696.3	53	56
Nafanua, Samoa	Nov-Jan	1939.9	34	38
Henderson, Solomon Is.	Jan	663	39	40
Honiara, Solomon Is.	Jan	646	57	59
Taro, Solomon Is.	Jan	502	37	37
Taro, Solomon Is.	Nov-Jan	1031	33	34
Bauerfield, Vanuatu	Jan	560.0	41	43
Whitegrass, Vanuatu	Jan	460.6	42	43
Bauerfield, Vanuatu	Nov-Jan	1034.8	39	41

* **Record rainfall** [Note: Quality control of the above data is not complete]

Additionally, there have been flooding events reported at Momote, within the New Guinea Islands region of Papua New Guinea, as well as areas within the central and western divisions of the Solomon Islands.

Validation of forecasts with observed rainfall across the region for November 2013 to January 2014 showed mostly consistent results (30 out of 57 stations) at the eleven countries. Near consistent results significantly outnumbered inconsistent results (21 versus 6 respectively). The largest inconsistency was at Kirakira, Solomon Islands, where below normal rainfall was observed (707mm) against outlook probabilities of 5/28/67 with high skill (LEPS=20.9%). The strongest consistent verification was at Fuaámotu, Tonga, where above normal rainfall was observed (810.6mm), with outlook probabilities of 3/19/78 and very high skill (LEPS=29.4%).

A summary of results (C-consistent, NC-Near Consistent and I-Inconsistent) for each country for the November 2013 to January 2014 outlook is as follows:

Cook Islands (2NC); Fiji (8C, 3NC, 2I); Kiribati (4NC); Niue (1NC); PNG (1C, 6NC, 1I); RMI (1NC); Samoa (4C); Solomon Islands (4C, 1NC, 2I); Tonga (5C, 1NC); Tuvalu (2C, 1NC, 1I); and Vanuatu (6C, 1NC).

Overall: 30C, 21NC, 6I.

March to May 2014 Outlooks:

Of the eleven countries contributing to the OCOF, six chose the combination of SSTa 1 and 9 over November 2013 to January 2014 as the predictors for the March to May 2014 outlook, one chose SSTa 1 and 9 over one month (January), one chose NINO3.4 over the same one month period, while three chose the November 2013 to January 2014 SOI.

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SCOPIC outlooks for the coming season mainly favoured tercile 3, i.e. above normal; with 24% of stations with high probabilities in tercile 1; 18% in tercile 2; 41% of the stations with the highest probabilities in tercile 3; 2% of the stations with equal chance of terciles 2 and 3; and 2% of the stations with equal chance of terciles 1 and 2. POAMA outlooks mainly favoured tercile 3 (18 out of 30 stations) and tercile 2 (11 out of 30 stations) for the coming season.

Current climate patterns:

The El Niño-Southern Oscillation (ENSO) state remains neutral, with climate models suggesting neutral conditions will persist at least until the end of the austral autumn.

Most climate models suggest the tropical Pacific Ocean will warm over the coming months. Some, but not all, models indicate central Pacific Ocean temperatures may approach El Niño levels by early winter. Model outlooks that span autumn tend to have lower skill than outlooks made at other times of the year, hence long-range outlooks should be used cautiously at this point. Neither neutral nor El Niño states can be ruled out for the second half of 2014.

Sea surface temperatures (SSTs) for January 2014 were near average along most of the equatorial Pacific. January values were NINO3 -0.2°C (down 0.3°C), NINO3.4 -0.3°C (down 0.4°C) and NINO4 $+0.0^{\circ}\text{C}$ (down 0.3°C). The latest weekly values are NINO3 -0.7°C , NINO3.4 -0.4°C , NINO4 $+0.4^{\circ}\text{C}$.

Subsurface temperature anomalies show waters cooler than average in the sub-surface of the equatorial Pacific east of the Date Line; a pattern which has strengthened over the past two months. Water in an area of the eastern equatorial Pacific Ocean sub-surface between 140°W and 120°W at around 120 m depth is more than 4°C cooler than average. Warm anomalies are present throughout most of the water column west of the Date Line and have increased in magnitude recently.

The official Southern Oscillation Index (SOI) for January was $+12.2$. The current approximate 30-day SOI value is $+5.2$, while the 90-day value is 6.7 .

Over the last 30 days (to 19 February) the WPM and SPCZ have been more active than normal west of the dateline (parts of the Solomon Is., Vanuatu and Tuvalu excluded). East of the dateline there has been less activity with the exception of the southeast Kiribati islands and French Polynesia region where it has been enhanced.

Other than immediately north of the Solomon Islands, the ITCZ has been displaced northward over the last 30 days across most of the equatorial Pacific. Islands north of the equator in Kiribati as a result would have received below normal rainfall.

The trade winds have returned to near-average strength across the far western tropical Pacific and are now near-average along the entire equator (5 day mean ending 18 February).

An active phase of Madden-Julian Oscillation (MJO) is passing through the western Pacific at the present time however. Over the course of the next week the MJO is forecast to strengthen further as it moves eastwards, thus enhancing convection in the region. Next week the MJO is forecast to reach the central Pacific Ocean. With the passage of the MJO, the chances of tropical cyclone occurrence are higher in the western Pacific over the next week to 10 days.

ENSO Update (Issued on 11th February 2014)

The El Niño–Southern Oscillation (ENSO) state is neutral, with climate models suggesting neutral conditions will persist at least until the end of the austral autumn. However, some warming of the Pacific is likely in the coming months.

Most international climate models surveyed by the Bureau suggest the tropical Pacific Ocean will warm through the austral autumn and winter. Some, but not all, models indicate central Pacific Ocean temperatures may approach El Niño levels by early winter. Model outlooks that span autumn tend to have lower skill than outlooks made at other times of the year, hence long-range outlooks should be used cautiously at this point. Neither neutral nor El Niño states can be discounted for the second half of 2014.

In the last fortnight, a westerly wind event over the far western tropical Pacific led to some warming beneath the surface of the tropical Pacific Ocean, though surface temperatures remain close to

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average. The current high values of the SOI are expected to reduce as recent volatile weather near Darwin and Tahiti eases.

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

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Observed Rainfall and Validation

Country	January	Nov 13-Jan 2014	Outlooks Issued for Nov 13-Jan 2014 (skill level)	Verification [†] for Nov 13-Jan 2014 outlooks
Cook Islands	Normal	Below Normal to Normal	Below Normal to Normal (moderate to high skill)	Near Consistent
Fiji	Normal to Above Normal Below Normal [Lakeba & Ono-I-Lau]	Normal to Above Normal Below Normal [Nausori & Lakeba]	Normal to Above Normal (low to very high skill)	Inconsistent to Consistent
Kiribati	Normal Below Normal [Kiritimati]	Normal Above Normal [Kanton]	Below Normal to Normal (high to exceptional skill)	Near Consistent
Niue	Normal	Normal	Above Normal (moderate skill)	Near Consistent
Papua New Guinea	Normal to Above Normal Below Normal [Nadzab]	Normal to Above Normal Below Normal [Misima]	Below Normal to Above Normal (very low to high skill)	Near Consistent to Consistent Inconsistent [Momote]
RMI	Above Normal	Below Normal	Normal to Above Normal (low skill)	Near Consistent
Samoa	Above Normal	Above Normal	Above Normal (low to high skill)	Consistent
Solomon Islands	Above Normal Normal [Lata]	Below Normal to Above Normal	Above Normal (very low to very high skill)	Inconsistent to Consistent
Tonga	Normal to Above Normal	Above Normal Normal [Haápai]	Above Normal (low to very high skill)	Consistent Near Consistent [Haápai]
Tuvalu	Below Normal to Above Normal	Below Normal and Above Normal	Below Normal to Above Normal (very low to high skill)	Near Consistent to Consistent Inconsistent [Funafuti]
Vanuatu	Above Normal	Above Normal Normal [Sola]	Above Normal (good to exceptional skill)	Consistent Near Consistent [Sola]

[†] 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).