

Climate and Oceans Monitoring and Prediction (COMP)

Pacific Islands - Online Climate Outlook Forum No. 80 Summary Report

Date: Thursday 15 May 2014

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

Chair: Tuvalu

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 12 June) and Chair (Vanuatu).

Participants:

The Forum was attended by 18 climate officers from 11 PIC NMSs.

Cook Islands: Turi Tutai

Fiji: Arieta Baleisolomone

Kiribati: Kamaitia Rubetaake, Ueneta Toorua

Niue: Rossy Mitiapo, Robert Togiamana, Sean Tukutama and Melissa Douglas

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

Republic of Marshall Islands: Nover Juria

Samoa: Sunny Seuseu, Tile Tofaeono and Junior Lepale

Solomon Islands: Lloyd Tahani

Tonga: Uinita Vea

Tuvalu: Eli Ene and Meelina Ailesi

Vanuatu: Melinda Natapei

The Bureau team: Elisabeth Thompson, Adna Kazazic, Grant Smith, Melissa Matthews and Grant Beard.

OCOF 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 February to April 2014 outlooks from OCOF #76:

Observed rainfall for the one and three month periods ending April 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
Nausori Airport, Fiji	April	107	3	58
Navua, Fiji	April	155	5	70
Vanimo, PNG	April	439	59	61
Misima, PNG	April	725	88	89
Majuro, RMI	April	589	33	33
Kwajalein, RMI	April	449	68	70
Majuro, RMI	Feb-Apr	1050	31	33
Kwajalein, RMI	Feb-Apr	1083	70	70
Auki, Solomon Is.	April	504	52	53
Henderson, Solomon Is.	April	553	40	40
Honiara, Solomon Is.	April	952	60	60
Kirakira, Solomon Is.	April	620	46	48
Munda, Solomon Is.	April	614	52	53
Auki, Solomon Is.	Feb-Apr	1309	49	53
Honiara, Solomon Is.	Feb-Apr	1508	60	60
Lata, Solomon Is.	Feb-Apr	758	1	39
Nui, Tuvalu	April	52	5	69
Niulakita, Tuvalu	April	59	2	62
Nui	Feb-Apr	376	4	69
Whitegrass, Vanuatu	April	23	4	43
Aneityum, Vanuatu	Feb-Apr	362	1	63

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

Validation of forecasts with observed rainfall across the region for February to April 2014 showed mostly near consistent results (38 out of 57 stations) at the eleven countries. Consistent results slightly outnumbered inconsistent results (11 versus 8 respectively). The largest inconsistency was at Bauerfield, Vanuatu, where below normal rainfall was observed (763.9mm) against outlook probabilities of 20/26/54 with very low skill (LEPS=-1.2%). The strongest consistent verification was at Niuafóú, Tonga, where above normal rainfall was observed (947.4mm), with outlook probabilities of 14/6/80 and moderate skill (LEPS=6.5%).

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

Cook Islands (2NC); Fiji (11NC, 2I); Kiribati (2C, 2I); Niue (1NC); PNG (2C, 4NC, 2I); RMI (2NC); Samoa (1C, 3NC); Solomon Islands (1C, 6NC); Tonga (4C, 2NC); Tuvalu (3NC); and Vanuatu (1C, 4NC, 2I).

Overall: 11C, 38NC, 8I.

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June to August 2014 Outlooks:

Of the eleven countries contributing to the OCOF, four chose the combination of SSTa 1 and 9 over February to April 2014 as the predictors for the June to August 2014 outlook, one chose SSTa 1 and 9 over one month (April), two chose NINO3.4 over February to April 2014, one chose NINO3.4 over March to April 2014; one chose SSTa 1 and 11 over February to April 2014; while two chose the February to April 2014 SOI.

SCOPIC outlooks for the coming season mainly favoured tercile 3, i.e. above normal, with 5% of stations with high probabilities in tercile 1, 33% in tercile 2 and 45% of the stations had the highest probabilities for tercile 3. The remainder of the outlooks had equal probabilities for two or three terciles. POAMA outlooks favoured tercile 2 (20 out of 31 stations) for the coming season.

Current climate patterns:

ENSO status and outlook

The equatorial Pacific continues to warm with positive anomalies now present across the whole equatorial band, reflecting a gradual warming of the tropical Pacific over the last few months. April SST anomaly values were NINO3 +0.4°C (up 0.3°C), NINO3.4 +0.3°C (up 0.3 °C) and NINO4 +0.5°C (down 0.1°C). There has been further warming in the last fortnight. The latest weekly values are NINO3 +0.6°C, NINO3.4 +0.5°C, NINO4 +0.8°C.

Climate models suggesting that further warming is likely, reaching El Niño levels as early as July. While El Niño in 2014 cannot be guaranteed, the likelihood remains at least 70%.

Tropical subsurface

Since January, a large volume of warmer-than-average water (known as a downwelling Kelvin wave) has developed and progressed from the western to the eastern Pacific subsurface.

The latest TAO/TRITON 5-day subsurface anomalies show positive anomalies in excess of 5 °C at about 50 m depth in the eastern Pacific and in the central Pacific in excess of 4°C at about 125 m depth around 155 °W.

Southern Oscillation Index (SOI)

The SOI currently remains neutral. The April 2014 value was +8.6, an increase from -13.3 in February. The current approximate 30-day SOI value to the 13th May is +0.4, while the 90-day value to the 13th May is -5.0.

Trade Winds

The trade winds are currently near-average over much of the equatorial Pacific. In early May westerly wind anomalies were present over the western equatorial Pacific.

Sea level

Positive sea level anomalies have strengthened further over the last 30 days in the equatorial Pacific and now extend from north of the PNG islands to the South American coastline. Negative anomalies extend from southern PNG southeast to the southern Cook Islands.

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 ITCZ activity extending eastward along and just north of the equator from immediately north of the Solomon Islands. The WPM has been largely suppressed over the greater New Guinea region.

The SPCZ has also been largely suppressed west of Samoa. There was enhanced SPCZ activity further east over the Cook Islands and French Polynesia.

MJO

Climate models indicate the MJO to propagate eastwards over the Indian Ocean this week and weaken. Tropical activity over the tropical Indian Ocean is likely to be enhanced while the MJO is

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active in this region. Convection over the western Pacific is usually suppressed when the MJO is in the Indian Ocean.

ENSO Update (Issued on 6th May 2014)

The tropical Pacific Ocean has warmed steadily in recent months, with large warm anomalies in the ocean sub-surface (5-day values up to +6 °C) and increasingly warm sea surface temperatures. Climate models surveyed by the Bureau suggest El Niño development is possible as early as July. These factors indicate that while El Niño in 2014 cannot be guaranteed, the likelihood of an event developing remains at least 70% and we are at El Niño ALERT level.

For El Niño to be established and maintained, coupling needs to occur between the tropical Pacific atmosphere and ocean, evident by further and persistent weakening of the trade winds and a consistent increase in cloudiness near the Date Line. These atmospheric characteristics of El Niño are forecast to become evident over the coming months.

El Niño impacts climate across much of the world, including below average rainfall in the western Pacific and Indonesian regions, and increased rainfall in the central and eastern Pacific.

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

Additional Discussions:

Several countries have had stakeholder interactions over the past month. In particular, the Vanuatu Meteorological Service has had productive stakeholder communication and liaison following the distribution of the ENSO status media release. The Solomon Islands Meteorological Service has also had significant stakeholder discussion as a result of the recent severe flooding events.

In addition, the transition towards the use of 2-month NINO3.4 SST anomalies as the default SCOPIC predictor was once again discussed.

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Observed Rainfall and Validation

Country	April	Feb-Apr 2014	Outlooks Issued for Feb-Apr 2014 (skill level)	Verification [†] for Feb-Apr 2014 outlooks
Cook Islands	Below Normal	Below Normal	Normal (low to high skill)	Near Consistent
Fiji	Below Normal to Normal	Below Normal to Normal Above Normal [Suva & Navua]	Below Normal to Above Normal (very low to good skill)	Inconsistent to Near Consistent
Kiribati	Normal to Above Normal	Normal to Above Normal	Below Normal to Normal (good to high skill) Above Normal [Kanton] (good skill)	Consistent [Butaritari & Kanton] Inconsistent [Kiritimati & Tarawa]
Niue	Below Normal	Normal	Above Normal (moderate skill)	Near Consistent
Papua New Guinea	Below Normal [Madang] Normal to Above Normal	Below Normal [Madang & Momote] Normal to Above Normal	Normal to Above Normal (very low to low skill) Below Normal (high skill) [Misima]	Inconsistent to Consistent
RMI	Above Normal	Above Normal	Normal and Climatology (low to moderate skill)	Near Consistent
Samoa	Normal to Above Normal	Normal to Above Normal Below Normal [Nafanua]	Normal to Above Normal and Climatology (very low to low skill)	Near Consistent to Consistent
Solomon Islands	Above Normal Below Normal [Lata] Normal [Taro]	Above Normal Below Normal [Lata] Normal [Taro]	Normal (very low to high skill)	Near Consistent Consistent [Taro]
Tonga	Normal to Above Normal	Normal to Above Normal Below Normal [Vavaú]	Normal to Above Normal (low to good skill) Below Normal [Vavaú] (low skill)	Near Consistent to Consistent
Tuvalu	Below Normal	Below Normal to Normal	Normal to Below Normal and Climatology (very low to high skill)	Near Consistent
Vanuatu	Below Normal to Normal	Below Normal to Normal Above Normal [Pekoa]	Normal to Above Normal (very low to good skill) Below Normal (low skill) [Lamap]	Inconsistent to Near Consistent Consistent [Lamap]

[†] 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).