

**AUSAID PROJECT
PACIFIC ISLANDS – CLIMATE PREDICTION PROJECT
(PI-CPP)**

***Report Regional Training Workshop on Drought Monitoring and
Forecast Validation***

Training Room, Fiji Meteorological Services, Nadi, Fiji
20th to 24th August 2007

Introduction

The Bureau is conducting an AusAID-funded project entitled “Pacific Islands – Climate Prediction Project”, which aims to develop a seasonal prediction capacity, and establish an ongoing seasonal prediction service, in ten Pacific Island Countries.

This was the first regional workshop in Phase 2 which involved advanced training on the climate prediction model (SCOPIC). Ten Pacific Island National Meteorological Services, who are participating in the project, were included in this regional training workshop.

The workshop aimed at NMS staff members who have been engaged in past training workshops and who have been given the responsibility of running SCOPIC and issuing the seasonal climate outlooks. The workshop included training on the Drought Monitoring Tool (DMT), a forecast validation exercise, introduction to climate monitoring, and tropical cyclone climatology.

Pahalad also took the opportunity to do the following:

- Meet with the representatives from the Fiji sugarcane industry to assess the possibility of continuing the sugarcane pilot project which was undertaken in Phase 1;
- Meet with the representatives from the Fiji Electricity Authority to assess the feasibility of running a pilot project on renewable energy (hydropower);
- Meet with the representatives from SOPAC in Suva to discuss ways to link SPSLCMP and HYCOS with PI-CPP; and
- Meet the AusAID second secondary, Ms Carrie Anne Best at the Australian High Commission in Suva and brief her on the project.

Workshop Arrangements

Once again due to Fiji’s central location in the Southern Pacific and availability of a wide range of hotels available close to Fiji Meteorological Service (FMS), it provided the most economical location for a workshop. The workshop was held at the Training Room at the FMS in Nadi, which has 10 to 15 desktop computers with Internet access.

Fifteen participants from ten Pacific Island Countries attended the workshop (see attached participants list). Upon request from Philip Malsale, a climate officer from the Vanuatu NMS who is currently studying at the University of the South Pacific, Suva, Fiji, the project funded his domestic travel and accommodation. Ms Hilia Vavae (Director of Tuvalu NMS) also attended the workshop from 21st to 23rd. Her trip was funded by Waikato University. Ms Linda Yuen, Pacific HYCOS* Officer from SOPAC also attended full days of the workshop, funded by SOPAC.

* Hydrological Cycle Observing Systems (http://www.whycos.org/rubrique.php3?id_rubrique=40)

All participants stayed at the Melanesian Hotel which was less than 10 minutes walk from the FMS. All tea breaks and meals were catered at the FMS in order to minimise time loss. This also gave the project team to spend more out-of-workshop time with the participants.

The Project Team comprised of: Janita Pahalad (Team Leader), Dr Scott Power and Dr Yuri Kuleshov from the Bureau, and Dr Yahya Abawi, Queensland Climate Change Centre of Excellence (QCCCE). Phil Parker (the Bureau) joined the workshop from 23rd and did a presentation on SPSLCMP[†] on Friday, followed by Llyod Smith, HYCOS Project Coordinator, SOPAC, who presented on HYCOS activities.

Pahalad took this opportunity to introduce the “e-learning” tool that is being developed for SCOPIC and to prepare the participants for a Online Climate Outlook Forum.

Evaluation

An evaluation of the workshop was carried out (see attached summary report). The overall rating for the workshop ranged from *very good* to *excellent*. There was no major criticism aimed at the training with the exception of 5-day training was too short for a number of participants. A couple of participants commented that they preferred spending more time on exercises than having any non-project related presentations (such as SPSLCMP and HYCOS on Friday). Most participants were pleased with the introduction of the tropical cyclone website.

Outcomes

During the opening session, Rajendra Prasad, Director of FMS, acknowledged the AusAID for funding the project and thanked the Bureau for once again considering Fiji as the venue for the workshop.

During the tropical cyclone session, conducted by Kuleshov, participants spent some time doing exercises on computing Southern Oscillation Indices and identifying El Niño and La Niña episodes base on sea surface temperatures. They found this exercise useful as it gave them a better understanding of the two main parameters used in the seasonal climate forecasting. Kuleshov also prepared a summary table for ENSO impacts on tropical cyclones in each PIC.

During the forecast validation exercise each participant presented a report on impact of ENSO on their respective country. They spent next day and a half running forecast verification analysis of the wet season rainfall (November to April) for selected sites around their country. The results were compiled as a report and submitted to Pahalad till the two weeks after the workshop. Power will prepare a paper on forecast validation for the PICs using the results from the workshop exercise for submission to a scientific journal.

Drought monitoring exercise also focussed on the wet season. The group used two types of drought indices (Rainfall Decile and Standardised Precipitation Index) with varying period (from 1 to 120 months). The results were summarised in a table for final documentation to be done by Abawi.

At the end of the workshop, all participants were presented with an attendance certificate and a CD with the workshop slides. All participants were given a copy of

[†] South Pacific Sea level and Climate Monitoring Project (<http://www.bom.gov.au/pacificsealevel/>)

the Bureau's ENSO poster to be taken back for their respective organisation.

Kuleshov and Pahalad also presented a copy of *Climate Change: An Australian Guide to Science and Potential Impacts* (Australian Greenhouse Office Publication) and *Manual of Aviation Meteorology - 2007 Edition* (Bureau Publication) to the Fiji Meteorological Service on the behalf of the Bureau as a token of appreciation for kindly hosting the workshop.

Comments

Both participants and the training team were very happy with the workshop and felt it achieved more than what was anticipated. There was a strong support for the outcomes of the workshop exercises to be well documented and be made available for future reference.

It was encouraging to hear that all NMSs, with some exception for PNG, are now using SCOPIC to issue regular climate outlook to their clients.

EVALUATION REPORT

Regional Training Workshop on Drought Monitoring and Forecast Validation

Introduction

An evaluation was done for the 5-day workshop held at the Training Room, Fiji Meteorological Services, Nadi, Fiji from 20th to 24th August 2007. The main purpose of the evaluation was to ensure that the objectives of the workshop were met.

Evaluation Form

The form consisted of five sections: the first three sections had rating ranging from 5 (strongly agree) to 1 (strongly disagree).

The participants were asked to rate the three main sessions (tropical cyclone, forecast validation and drought monitoring) by its contents (its usefulness and relevance).

Participants also had a chance to comment on each presenter: how well the presenter do and how could he/she improve.

Finally, there was a section on overall assessment: most valuable aspect; least valuable aspect, venue, entire workshop and any additional comments.

Results

Tropical cyclone session:

Overall, participants found this session relevant to their organisation and the contents useful, with generally high ratings of 4 to 5. There was a strong agreement that “*A website on TC climatology will provide useful information to my organisation*”. The average rating for this session was 4.7.

Forecast validation session:

Once again, most participants found this session relevant, and the contents useful with generally high ratings of 4 to 5. There was a strong agreement that “*The scientific report on climate variability and forecast validation for my country will be a useful source of information for my organisation and our clients*”. The average rating for this session was 4.7.

Drought monitoring session:

Most NMS participants found this session relevant, and the contents useful with generally high ratings of 5. They also found SCOPIC Drought Monitoring Tool (DMT) easy to understand and use, and most of them indicated that they will be using DMT to monitor drought in their respective country (only 3 gave a rating of 3...somewhat agree). The average rating for this session was 4.7.

All presenters were generally highly rated. The overall rating for the workshop was from very good (7) to excellent (7).

Some notable comments made by the participants:

- Got a good understanding of drought, drought indices and how to use the drought monitoring tool.
- Exercises were very hands-on and as a participant it did really enlightened and reinforced the lecture/presentations.

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Regional Training Workshop on Drought Monitoring and Forecast Validation
Training Room, Fiji Meteorological Services, Nadi, Fiji
20th to 24th August 2007

AGENDA

Monday, 20th August

- 8.30am Participants arriving...registration
- 9.00am Opening Ceremony (prayer)
Opening address
- 9.15am Overview of the workshop - Janita Pahalad
- 9.25am Self introduction of the participants, including a brief report on current status of climate forecasting service in their respective NMS

10.00am *MORNING TEA*

- 10.30am **Tropical Cyclones** - Yuri Kuleshov
- Introduction to Tropical Cyclones
 - El Niño – Southern Oscillation (ENSO) phenomenon

 - Southern Oscillation Index (SOI)
 - o Exercise 1: Based on values of the Tahiti and Darwin MSPL, compute the SOI and plot time series of values of the index

 - Sea Surface Temperature (SST)
 - o Exercise 2: Based on values of the SSTAs, determine El Niño and La Niña episodes

 - TC variability and the ENSO
 - TC archive, climatology and seasonal prediction

 - TC web site
 - o Exercise 3: Learning about TC web site.

1pm *LUNCH*

- 2pm **Forecast Validation Exercise** - Scott Power
- 2.00pm Introduction and Aims
- 2.10pm Activity 1: Impact of ENSO on Pacific Island Countries – participant presentations (10 mins each)
- 3.00pm *AFTERNOON TEA***
- 3.0pm Activity 1: Impact of ENSO on Pacific Island Countries – continued
- 4.10pm Discussion and overview of findings, submit reports
- 4.30pm *END OF DAY 1***

Tuesday, 21st August

- 8.30am Activity 2 - climate analysis
- 8.40am Stratify rainfall against SOI – synchronous and lagged and correlate.
- 10.00am MORNING TEA**
- 10.30am Activity 2 – climate analysis (continued) – participant presentations (5mins each) – any surprises?
- 11.20am How good are the outlooks? Introduction to verification
- 11.40am Using SCOPIC to do verification – Janita Pahalad
- 11.55am Activity 3: Verification of outlooks:
- Key questions:
- What is the overall skill of the system?
 - At what times of the year is skill evident?
 - How far ahead can you predict anomalies in wet season rainfall?
 - “How good are your outlooks”?
- Use two different skill measures for each exercise.
- a. each seasonal block at one key location
 - b. wet season at zero, 1, 2, 3,4 ,5, 6 month lead times.
 - c. Write a page summarizing the results
- 1pm LUNCH**
- 2pm Validation exercise continued...
1. Repeat (a)-(c) using a different key location
 2. Repeat (a)-(c) using a different key location
- 3pm AFTERNOON TEA**
- 3.30pm Activity 4: presenting results
- Each participant gives an overview of the findings and answers to the key questions.
- Audience notes which countries have similar results to their own and which are different.
- 4.10pm Discussion
- 4.30pm END OF DAY 2**

Wednesday, 22nd August

- 8.30am Activity 5: Results from Activities 1-4 are collated and synthesized into country reports.
- Any outstanding issues and action items identified.
- 10am MORNING TEA**
- 10.30am **Drought Monitoring** - Yahya Abawi
- Introduction to Drought:
- What is a drought?
 - Factors causing drought?
 - Types of drought?
 - Datasets required to assess drought

1pm **LUNCH**
2pm Round table discussion: drought impacts in PICs

3pm **AFTERNOON TEA**

3.30pm Drought Indices
Pros and cons of drought Indices

4.30pm **END OF DAY 3**

Thursday, 23rd August

8.30am Drought Indices continued
Example of using SPI as a drought monitoring tool - Simon McGree, Fiji Met
Example of using rainfall deciles as a drought monitoring tool in the Pacific - Yahya Abawi

10.00am **MORNING TEA**

10.30am Introduction to Drought Monitoring Tool in SCOPIC

1pm **LUNCH**

2pm Drought Monitoring Tool in SCOPIC continued
Work examples of Rainfall decile and Standardised Precipitation Index
Participants will be required to use these indices using data for their own country

3pm **AFTERNOON TEA**

3.30pm Drought Monitoring Tool as an early warning system
Effectiveness of DMT in each country
Participants will be required to use SCOPIC to compile a report identifying appropriate warning thresholds for impending droughts, ranking historical droughts and relating these to past climate types. Details will be given at the workshop.

4.30pm **END OF DAY 4**

Friday, 24th August

8.30am Drought Monitoring Tool continued and Wrap Up

10am **MORNING TEA**

10.30am Sea Level Rise and Climate Monitoring Project

11.30am HYCOS – Linkages with PI-CPP

12:15pm Briefing on Online Climate Outlook Forum
Introduction to e-learning tool on SCOPIC

1pm **LUNCH**

2pm Round-table discussion: software evaluation, feedbacks and recommendations (including written workshop evaluation and participants' competency analysis)

3.00pm Closure

3.15pm **AFTERNOON TEA**

Participants' List

Name	Address
Linda Yuen Pacific HYCOS Officer	SOPAC Pacific Islands Applied Geoscience Commission Private Mail Bag, GPO, Suva, Fiji Islands Tel: +679 338 1377 ext 227 Fax: +679 337 0040 Email: linda@sopac.org
Mr Simon McGree	Manager Climate Services Fiji Meteorological Services PMB NAP0351 Nadi Airport Fiji Email: simon.mcgree@met.gov.fj
Mr Ravin Kumar	Fiji Meteorological Services Email: ravin.kumar@met.gov.fj
Miss Praveena Patel	Fiji Meteorological Services Email: praveena.patel@met.gov.fj
Ms Arieta Baleisolomone	Fiji Meteorological Services Email: arieta.daphne@met.gov.fj
Niko IONA	Tuvalu Meteorological Services Vaiaku side Funafuti side Fax: (688) 20090 Email: niko.iona@gmail.com; tuvmet@tuvalu.tv
Miss Mellisa Kuleloto TALAGI	Niue Meteorological Services P O Box 82 Alofi Niue Fax: (683) 4602 Email: lisa_talagi@yahoo.com
Mr Ngatokorua Teremoana RAURAA	Cook Islands Meteorological Services P O Box 127, Rarotonga Cook Islands Fax: (682) 21603 Email: nrauraa@oyster.net.ck
Sunny SEUSEU	Meteorology Division Ministry of Natural Resources, Environment and Meteorology P.O. Box 3020 Apia, Samoa Fax (685) 20857 Email: sunny.seuseu@mnre.gov.ws
Tareti KIREUA	Kiribati Meteorological Service P O Box 486, Tarawa Kiribati Fax: (686) 26089 Email: tkireua@gmail.com
Mrs Seluvaia Toe'Umu O Vava'u FINAULAHU	Tonga Meteorological Service Ministry of Transport P O Box 845, Nuku'alofa Tonga Fax: (676) 35 123

	Email: seluf@met.gov.to
Mercy Nearvi NALAWAS	Vanuatu Meteorological Services PMB 9054, Port Vila Vanuatu Fax: (678) 22310, 22310 Email: climate@meteo.gov.vu
Mr Lloyd TAHANI	Solomon Islands Meteorological Services P O Box 21, Honiara Solomon Islands Fax: (677) 28054 Email: lloyd_tahani@yahoo.co.uk
Arnollie TIMBO	National Weather Office P O Box 1240 Boroko, NCD Papua New Guinea Fax: (675) 3255201 Email: misspng00@yahoo.com.au Email: climate@pngmet.gov.pg
Philip MALSALE	University of the South Pacific (USP) Laucala Campus, Suva Fiji Fax: Email: malsale@yahoo.com

Project Team/Presenters	
Janita Pahalad	National Climate Centre Australian Bureau of Meteorology GPO Box 1289 Melbourne, Victoria, 3001 Australia Tel: 613 9669 4781; Fax: 613 9669 4678 mobile: 0417 315 609; email: j.pahalad@bom.gov.au www.bom.gov.au/climate/pi-cpp/
Yuriy Kuleshov	National Climate Centre Australian Bureau of Meteorology
Scott Power	Bureau of Meteorology Research Centre Australian Bureau of Meteorology
Phil Parker	WOSPB/Public, Marine and Oceanographic Services Australian Bureau of Meteorology
Yahya Abawi	Queensland Climate Change Centre of Excellence Department of Natural Resources and Water Toowoomba, Australia email:Yahya.Abawi@climatechange.qld.gov.au
Llyod Smith Pacific HYCOS Project Coordinator	SOPAC Pacific Islands Applied Geoscience Commission Private Mail Bag, GPO, Suva, Fiji Islands Tel: +679 338 1377 ext 228 Fax: +679 337 0040 Email: llyod@sopac.org

