

**AUSAID PROJECT
ENHANCED APPLICATIONS OF CLIMATE PREDICTIONS IN
PACIFIC ISLAND COUNTRIES
(PI-CPP)**

***Report on the Stakeholders Workshop on Application of Climate
Predictions in Cook Islands***

Pukapuka Hostel, Rarotonga, Cook Islands
6th to 10th June 2005

Introduction

The second phase of the project has involved the roll-out of the revised (near-final) Seasonal Forecast System (called SCOPIC) to the local NMSs, training of local NMS personnel in statistics and forecast production and distribution, and the holding of stakeholder workshops. In addition, the visiting parties investigated possible third-phase pilot projects, for the application of climate forecast information in climate sensitive industries, most notably fisheries, agriculture and water.

The seventh of a series of workshops under the second phase was held in Rarotonga, Cook Islands. The project team spent 2 days (6th and 7th) training the Cook Islands Meteorological Service (CIMS) personnel on advance statistics and SCOPIC. They also assisted the CIMS personnel with the preparation of their presentations and other relevant materials for the following 3-day workshop. About five met staff (generally technical officers and 1 climate officer) underwent training.

The stakeholders' workshop started with an opening address delivered by Mr Greenfield Pira Wichman, Commissioner of Police, Ministry of Health, Internal Affairs, Social Services and Police. Mr Arona Ngari, the Director of CIMS chaired the session. The stakeholders who attended were generally from the following sectors: environment, energy waterworks, police, health, marine resources, agriculture, Red Cross and a pearl farmer. Mr Varney Patrick from Meteo France, French Polynesia also attended the workshop.

The objectives of the workshop were as follows.

- To demonstrate available information and stress the limitations of the forecasts, the nature of probability-based predictions;
- To demonstrate to decision-makers in climate sensitive activities the availability of, and effective and prudent use of probabilistic climate predictions as an input to decision-making;
- To train decision-makers in climate sensitive activities on the usage of probabilistic climate predictions in decision making to minimize risks in their respective sectors;
- To establish effective communication delivery channels from the PIC National Meteorological Service to its clients;
- To ascertain specific information needs, provide a forum for identifying desirable software modifications
- To train the media contacts in order to ensure most effective and accurate dissemination of the climate information, including predictions to the general public; and
- To identify and/or commence one of more pilot projects in some of the PIC.

The workshop was structured into six sessions: Formal Opening; The Climate System, its behaviour and consequences; Seasonal Climate Forecasting; Managing Climate Risks (case studies); The Forecasting and Decision-Making exercise and Climate Outlook Forum.

The Project Team (PT) was represented by Ms Janita Pahalad (Project Team Leader), Dr David Walland (Bureau of Meteorology), Dr Anthony Falkland (Australian Marine Science and Technology Ltd), and Dr Yahya Abawi (Queensland Department of Primary Industries).

Outcomes

The turnout at the workshop was encouraging. There were about twenty participants during most of the workshop including five from the met service.

An evaluation of the workshop was carried out (see attached summary report). The overall rating for the workshop ranged from *very good* to *excellent*. Fifteen participants evaluated the workshop.

Representative from the Red Cross, Mr Charlie Numanga stated he had learnt a lot from the workshop and thanked the organisers for inviting the Red Cross. He mentioned that he will add the information into his training programs for the ten outer islands.

Discussion

Arona Ngari mentioned that some users are not sure about the “link” between SCF (seasonal climate forecast) and the activity in their industry. Need to try and find the link so as to enhance use of the model (SCOPIC). Abawi replied that in Australia, rainfall is not the only potential predictor and showed how streamflow has greater variability than rainfall. If want to influence political decision making, best to show shifts / impacts of climate variability in dollar terms.

Mr David Bishop, a representative from the Cook Islands Investment Corporation, raised the issue of flooding. There is a need for simple rainfall – runoff” tools” to develop culvert design procedures. Abawi mentioned that we are not looking at short term forecasts in this project, but other techniques are applicable (eg unitgraph). There was a mention of Professor Hay, University of Waikato who has developed a model (CLIMAP) that used rainfall – runoff data for Rarotonga (included projecting flow data back to 1929 using available rainfall record).

Department of Waterworks (DOW) has set up their own hydrological network, and the data is used for predicting water supply and floods. This project is funded by the New Zealand government, but it will cease later in the year. DOW hopes to continue the network but the maintenance of the equipment is very expensive. Mr Ben Parakoti gave a presentation on the DOW hydrological network during the workshop.

Pasha Carruthers, the Climate Change Officer, mentioned sea surface temperatures around the country are very important and need to be used in decision making. Ngari told the workshop that the SSTs are only measured at the two lagoon buoys in Manihiki & Penrhyn lagoons.

Carruthers also raised her concern about the current weather for the Cook Islands issued by the Fiji Meteorological Service. It was argued that it does not give enough information, and that there could be more extensive weather information each month

in the newspaper. In response, Ngari said that this information could be placed on the CIMS Webpage. He also mentioned the (commercial) TV channel is issuing forecasts for the six months (now three months through) but this has to be paid for, and there is no guarantee of continuation due to limited funding.

Terminology used by the CIMS and the French Polynesia was discussed. There was a request to harmonise the terms used by the both countries: eg FP uses Maori word “tokerau” to mean “north”, while in Cooks it means “northwest” (as per Maori dictionary). Arona mentioned it is going to be hard to harmonise with FP given that CIMS is already using the Maori dictionary.

Ngari emphasised that there is a need for integration of outputs for all government departments in a common vision. Dialogue could be continued amongst Cook Islanders and ask for the Bureau to assist as required. Try to use economic analyses to promote the validity of climate forecasting.

Mr Jean William, rep from the Red Cross, said there is a need for government and private sector to be involved. He said he learnt from SCOPIC as it uses a lot of information to generate forecasts. Many agencies should be using climate outlook information including Marine Resources. There also needs to be information provided on sea level (‘tide’) rises which occur in Manihiki.

Napa said the forecasting exercises were very useful, for example, in agriculture which is a high risk sector in terms of climate. He provided further comments on agricultural practices and their importance. Issue is how to get growers to use the SCOPIC output. Ngari mentioned CIMS could collaborate with agriculture.

Kori Raumea, Marine Resources, said fishing industry would greatly benefit from SST information. He mentioned first data report on water quality from Manihiki and Penrhyn lagoon buoys (\$0.5M each) is now available. There is a need to get the information more meaningful. There is a need to invite more people from marine industry at similar workshops in the future.

Inspector Arama Tera said it was very important to identify relevant stakeholders who benefit the economy and community (e.g. tourism, agriculture, fisheries) and it is important to make them aware of such information.

Recommendations

- CIMS to provide more comprehensive and regular climate information to the media.
- CIMS to use clear terminology when issuing forecasts (e.g. north v northeast).
- Participants recommended for follow-up workshops for wider community in how to use climate forecasts in planning.
- Involve more participants in future workshops (e.g. more from agriculture, marine and tourism sectors).
- Include more local speakers at any such future workshops.
- Emphasise preparedness, lessons learnt from past experience and need for monitoring at the future workshops.
- CIMS to promote the validity of climate forecasting using economic analyses.
- CIMS to promote the use of climate forecasting in government agencies and private sector.

- CIMS to implement ways to improve communications with the key sectors (e.g. agriculture)
- Develop ways of predicting short term sea level rises particularly in Northern Cook Is (e.g. Manihiki).
- Develop ways of making lagoon water quality data more meaningful (to pearl industry).
- CIMS to include stations in the Southern Cook Islands that are closed in SCOPIC to indicate rainfall pattern in respect to Rarotonga.

Additional Comments

The Project Team was quite impressed with some of the new staff at CIMS. Mr Motu Samson and Mr Leon Teao showed keen interest in SCOPIC and managed to grasp some basic understanding of seasonal forecasting.

Overall, the workshop was well organised and attracted some media attention. ATL was interviewed by the local TV and the newspaper. The project team's photo with the Director of CIMS was published in the local paper *Cook Islands News*.

Mr Ngari during his closing remark stated that he was quite pleased with the workshop and its outcomes. Nagri thanked the AusAID, the Bureau, and the participants. In response ATL thanked Prasad and his team for their assistance in organising the workshop, and also acknowledged the participants for their contributions over the 3 days. She encouraged the participants to provide feedbacks on the SCOPIC outlook products to CIMS.

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EVALUATION REPORT

Stakeholders Workshop on Application of Climate Predictions (Cook Islands)

Introduction

An evaluation was done for the 3-day workshop held at the Pukapuka Hostel, Rarotonga from 6th to 10th June 2005. The main purpose was to ensure that the objectives of the workshop were met and to measure the success of the project.

Evaluation Form

The form consisted of eight sections with rating ranging from strongly agree (5) to strongly disagree (1). The five workshop sessions and training handout were evaluated with an overall assessment.

The workshop sessions were:

- Climate System, its Behaviour and Consequence;
- Seasonal Climate Forecasting;
- Managing Climate Risks;
- The Forecasting and Decision Making Exercise; and
- Climate Outlook Forum.

The participants were asked to rate the above sessions by its contents (its usefulness and relevance), time allocation, the structure of the presentations, and its effectiveness. The contents and the amount of materials provided in the handouts were rated.

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

Twenty-six people registered on the first day of the workshop but the number dropped slightly from the next day. The following results are summarised from 15 forms.

The average rating for each workshop session ranged from 4.4 to 4.5 (out of 5). The lowest rating was given to “*the time allocation*” for each session (as low as 3.9). The highest average rating of 4.9 was given to the usefulness of Forecasting and Decision Making exercises, and “I would recommend others to attend sessions like CFO if it is held on regular basis”.

Most participants found the *Forecasting and Decision Making Exercise* as the most valuable aspect of the workshop.

The overall rating:

Workshop: excellent (13); very good (2); good (1)

Some notable comments/recommendations made by the participants:

- Need more than 3 days for the workshop.
- More workshops of similar type are needed.

- There is a need to share such information with the public and other government departments through an effective communication mechanism.
- There should have been more participants from the outer islands.
- There should have been a representative from the Ministry of Marine Resources to present on water quality and the pearl farming monitoring.
- Need an interactive exercise during the earlier part of the workshop such as brain storming session on how participants might use their climate information in their work.
- Some materials were irrelevant to the region.
- Groups exercise results to be recorded and included in the report.

Further Comments

All presenters had a chance to read the evaluation forms. Once again, they noted the comments/criticism (if any). The presentations (including format and contents) and their form of delivery are continually revised. Though there are a set of generic training materials, the presentations are modified (if need be) for each Pacific Island Country.

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Stakeholders' Workshop on Application of Climate Predictions

Pukapuka Hostel, Rarotonga, Cook Islands

8th to 10th June 2005

AGENDA

Wednesday

Formal Opening: Chaired by the Director of the Cook Islands Meteorological Service,
Mr Arona Ngari

- 9.00 Opening prayer
 Welcome remark: Mr Arona Ngari
- 9.10 Keynote Address by the Head of the Ministry, Mr Greenfield Pira
 Wichman, Commissioner of Police
- 9.20 Introduction to PI-CPP project and the Workshop: Janita Pahalad
- 9.40 Brief self introduction of the participants
- 10.00 *MORNING TEA*

Session Two: The Climate System, its behaviour and consequences

- 10.30 Background on the climate system including key process (small
 scale/large scale variability): David Walland, BOM
- 11.15 Local climatology (eg seasonal variation, ENSO teleconnections
 including some of the past events and tropical cyclones): Arona Ngari

Session Three: Seasonal Climate Forecasting

- 11.45 Seasonal climate forecasts: what makes it possible (predictability in the
 system), processes, what do they tell us and their limitations: David
 Walland
- 12.15 Seasonal Climate Outlook for the Pacific Island Countries (SCOPIC):
 Demo and what user products are available?: Yahya Abawi, QDPI
- 13.00 *LUNCH*

Session Four: Managing Climate Risks (case studies)

- 14.00 Agricultural: Yahya Abawi
- 14.45 Atiu Water Project: Sam Napa
- 15.15 *AFTERNOON TEA*
- 15.45 Water management: Tony Falkland
- 16.30 *END OF DAY 1*

Thursday

Session Five: THE FORECASTING AND DECISION-MAKING EXERCISE

- 9.00 Regional and Local Seasonal Forecast Products: what's available regionally and locally; dynamic models: David Walland
- 9.20 Briefing on F&D-M Exercise
Presentation of 1st 3-month rainfall outlook and ENSO outlook
Group session
Presentation "what actually happened"
- 10.30 *MORNING TEA*
- 11.00 Brief report from each group
- 11.30 Presentation of 2nd 3-month rainfall outlook and ENSO outlook
Group session
Presentation "what actually happened"
Brief report from each group
- 13.00 *LUNCH*
- 14.00 Presentation of 3rd 3-month rainfall outlook and ENSO outlook
Group session
Presentation "what actually happened"
- 13.15 *AFTERNOON TEA*
- 13.45 Brief report from each group
- 16.30 *END OF DAY 2*

Friday

9.00 Lessons Learned from the F&D-M Exercise

9.30 Presentation on RANET: Janita Pahalad

Session Six: Climate Outlook Forum

9.50 Presentation of the following 3-month rainfall outlook: CIMS

Round-table discussion

10.30 MORNING TEA

11.00 Recommendations and the next steps (Wrap-up): how to establish an effective communication channel/ service delivery channels; software modification specification.

12.00 CLOSURE (followed by lunch)

THE STAKEHOLDERS WORKSHOP ON APPLICATION OF CLIMATE PREDICTIONS

RAROTONGA, COOK ISLANDS

8TH TO 10TH JUNE 2005

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