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Contribution by the Australian Bureau of Meteorology to the Development and Provision of Climate Services in the Southwest Pacific

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Pacific Islands Climate Prediction Project

- **Purpose:** to provide Pacific Island National Meteorological Services with the skills to generate useful seasonal predictions and to communicate them effectively, along with other climate information, to government and industry.
- **Goal:** to strengthen capacity within climate sensitive sectors and industries in Pacific Island Countries to make effective use of climate information, including seasonal predictions, provided by the local National Meteorological Services.



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Pacific Islands Climate Prediction Project PI-CPP

- Funded by Australian Aid Agency, **AusAID** (Phase 1: AUD2M; Phase 2: AUD2.6M).
- Project manager is Australian Bureau of Meteorology
- Phase 1: Aug 2003 to Dec 2006;
Phase 2: Jan 2007 to Dec 2009.
- Likely extension from 2010



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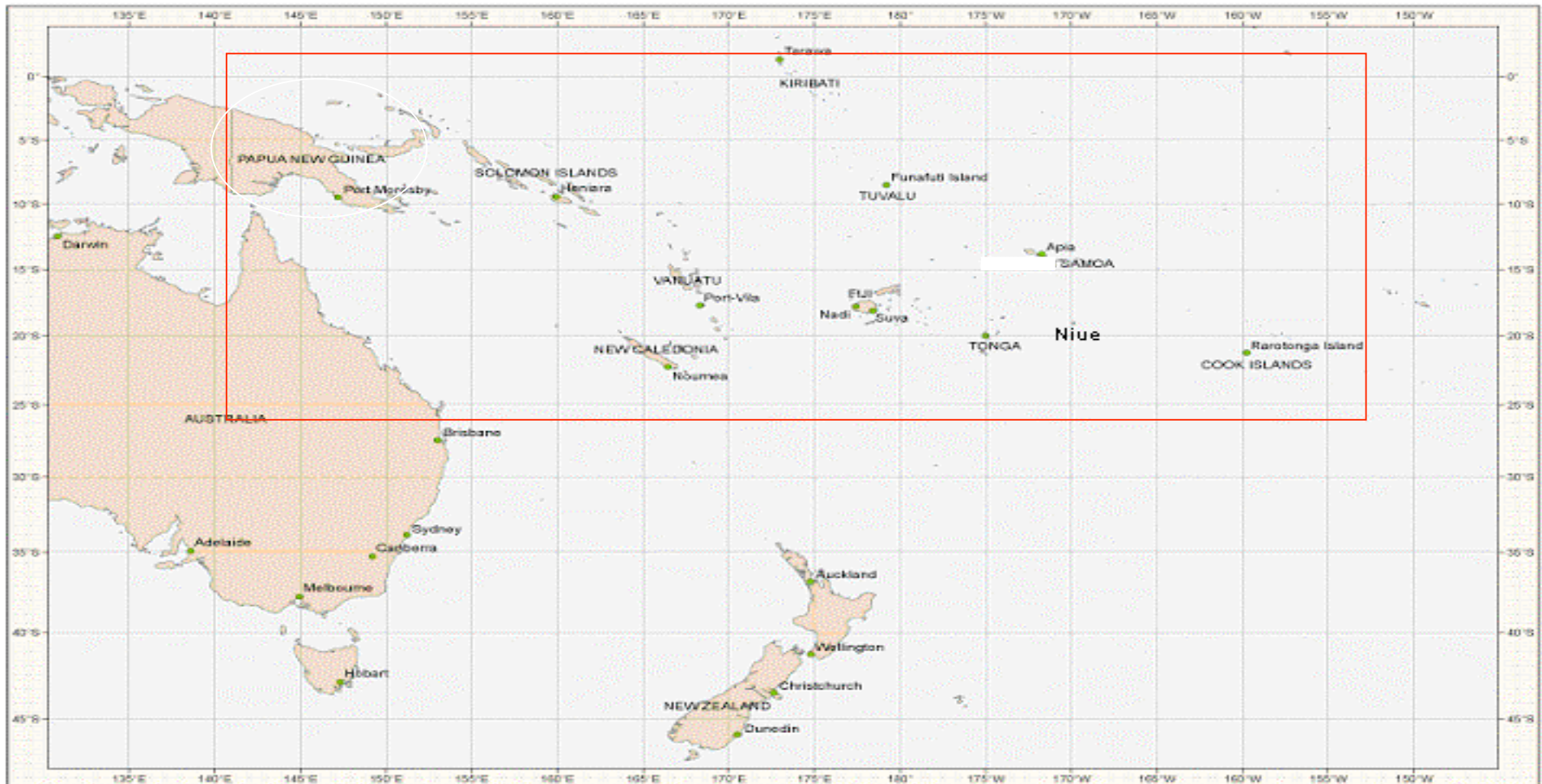
PI-CPP Key Components

- Enhanced NMS knowledge of climatology
- Delivery and use of customised climate predictions.
- Enhanced NMS capacity to monitor climate variability and climate change.



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Ten participating PICs: Fiji, Cook Islands, Vanuatu, Samoa, Tonga, Niue, Solomon Islands, Kiribati, Tuvalu and Papua New Guinea





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SCOPIC: Centrepiece of PI-CPP

- Climate prediction software (SCOPIC) developed and now operational in 9 PICs.
- Météo-France-Nouvelle Calédonie and Singapore NMS are also using the software.
- SCOPIC includes Drought Monitoring Tool and automatic downloading of tidal gauge data (SPSLCMP).



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SCOPIC

SCOPIC V1.01 BETA! : <D:\PROJECTS\ENSO\bin\Projects\Fiji.scp>

File Edit Window Help

Fijian Outlook



Project Manager

- [-] Predictors (3 Files)
 - [-] SSTA's 1 and 2
 - SSTA_EOF1
 - SSTA_EOF2
 - [-] SSTA's 1 and 9
 - SSTA_EOF1
 - SSTA_EOF9
 - [-] SSTA's 1 and 11
 - SSTA_EOF1
 - SSTA_EOF11
- [-] Predictands (5 Files)
 - Labasa Rainfall
 - Laucala Rainfall
 - Lau Rainfall
 - Nabouwalu Rainfall
 - Nacocolevu Rainfall

- 1 Organise Data
- 2 Explore Data
- 3 Analyse Relationships
- 4 Test Skill
- 5 Generate Report

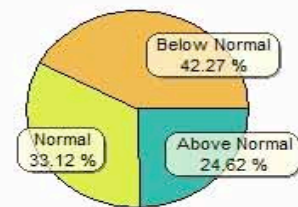
February 2005

Produced by Fiji Meteorological Service. Phone: 6724888

Based upon the May - July SSTA's 1 and 2
(Central Eastern Pacific and Indian Oceans sea-surface temperatures)

Labasa Rainfall

Based upon the 3mth average value of the Central Eastern Pacific and Indian Oceans sea-surface temperatures from May to July (), there is only a 24.6% chance of getting *above normal* rainfall for January through to the end of February for Labasa Rainfall. More than likely, there will be *below normal* rainfall in this XXX month period as the probability of this occurring is 42.3%. The likelihood of *normal conditions* occurring is about 33.1%.

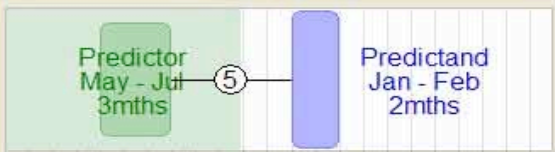


Another way of looking at this, is that given the current climate conditions, in about 4 out of every 10 years the rainfall in the January-February period would be expected to be *below normal*; about 3 out of 10 years are expected to be *normal*; and about 2 out of 10 years are expected to be *above normal*.

Note: *Below-normal* rainfall for the January to February period at Labasa Rainfall includes rainfall less than 1021.3. *Above-normal* rainfall is that which is greater than 1347.7. *Normal* rainfall lies between 1021.3 and 1347.7.

Laucala Rainfall

Based upon the 3mth average value of the Central Eastern Pacific and Indian Oceans sea-surface temperatures from May to July (), there is only a 27.5% chance of getting *above normal* rainfall for January through to the end of February for Laucala Rainfall. More than likely, there will be *below normal* rainfall in this XXX month period as the probability of this occurring is 38.8%. The likelihood of *normal conditions* occurring is about 33.7%.





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Contact → Contact → Contact → ...

- Intensive in-country training from outset
- Regional Training Workshops on SCOPIC and Seasonal Forecasting Prediction Scheme
- Regional Training Workshop on Drought Monitoring and Forecast Validation
- Online Climate Outlook Forum (NMSs) initiated in August 2007 and continues every month.
- Training through attachment for 7 PICs.
- E-learning tool developed and made available.



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Upgrade Climate Observing Networks

- Climate networks in Solomon Islands and Papua New Guinea, in particular are in need of immediate attention and priority
- Equipment (mainly evaporation pans) have been purchased and delivered. Installation will take place in next few months.



Data Rescue..

- Project entitled “Pacific Island – Climate Data Security” was carried out in Cook Islands, Niue, Tonga and Tuvalu from May to June 2008.
- Project was an extension of an earlier Australian Government data rescue project implemented in the other 6 PICs.
- Training personnel spent 2 weeks in each country:
 - reorganising climate data records (hard copies),
 - restoring climate records in acid-free storage boxes,
 - Digitisation of paper records
 - installing and on-site training on database software (CLIMSOFT).



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Other related activities

Pacific Climate Change Science Program

New \$3M program of research on climate change in the Pacific Region

- **Climate Change Website**

- Purpose: develop a robust website for the upload, download, analysis and graphing of climate variations the South Pacific for locations where good, long-term are available.

- **Tropical cyclone forecasting tool**

- Experimental seasonal forecasting scheme for TCs



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PI-CPP PILOT PROJECTS

- Improved management of drought and crop production (sweet potato) in Papua New Guinea (Tonga and Samoa)
- Relationship between El Niño-Southern Oscillation and Incidence of Malaria in the Solomon Islands (Vanuatu and PNG)
- Improved management of hydropower production in the Pacific Islands - A case study of Afulilo dam, Samoa. (Fiji)
- Improved Sugarcane production in Fiji
- Water Management: Solomon Islands, Vanuatu, Kiribati, Tuvalu, Cook Islands and Tonga (Samoa)
- Impact of climate variability and climate change on water security - A case study of Vaturu dam in Fiji



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PI-CPP Achievements (1)

- Improved NMS Capacities in Science of Climate Variability & Change, Media Relations, Public Awareness and Communications: Samoa, Tonga, Vanuatu, Cook Islands, Fiji, PNG, Solomon Islands and Kiribati
- Several Pilot projects completed
- Fisheries Guide: Climate and Oceanographic Variability and Their Impacts on Fisheries
- 7 to 9 PICs participate in the monthly OCOF (~20 OCOFs have been held since late 2007)



PI-CPP Achievements (2)

- SCOPIC-based Seasonal Climate Service operational in 9PICs:
 - National climate bulletins are issued monthly via email, hardcopies through post or hand delivery, and posted on NMS websites
 - Bulletins are also issued in local language (Cook Islands and Tonga)
 - Special bulletins for sugarcane industry and hydropower authority (Fiji)
- Key clients: Power authorities, Agriculture (private and govt), National Disaster Management Office, Tourism Industry, Forestry, Insurance Companies, Health, Ministries of Information and Media, Construction Industry, Water Supply, Reserve Bank, Bureau of Statistics, Red Cross, Lands and Surveys Department, Fisheries bodies.



Lesson Learned

- High level discussion should be conducted early in the project
- There should be provision for necessary hardware e.g. PCs including antivirus software and auto power backup units
- As much training as possible should be conducted in-country
- Engage local experts from the start until the end of a project in order to create a sense of ownership
- Engage local experts as partners
- Follow-up on every activity
- Use traditional/local methods of information dissemination (e.g. paper copies and CDs): do not totally rely only on Internet – yet.
- Use simple and clear language, and local language: avoid jargon and technical terminology as far as possible
- Need to train the local broadcast and print media
- Understand the culture
- There should be some flexibility in every activity timeline and design



Issues and Concerns

- Long-term sustainability:
 - demands for seasonal climate information have increased....can NMS meet that demand within their current resources at project's end?
 - Staff turnover is high in some PICs
 - Ongoing software maintenance/updating will likely be required after the project is formally finished



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More information:

PI-CPP: <http://www.bom.gov.au/climate/pi-cpp>

PCCSP: <http://www.csiro.au/partnerships/Pacific-Climate-Change-Science-Program.html>