

## **Building robust and reliable data management infrastructure for climate change monitoring**

**Partner Countries:** Australia, New Zealand and USA.

**Objectives:** Undertake a series of activities to ensure that climate data in Pacific Island countries is secure, accessible, and in a form capable of being utilised in the mitigation of the adverse impacts of climate change and variability. The specific objectives are:

1. Act upon recommendations from the current AGO-funded Pacific Climate Data Rescue Project (PDRP) to ensure that Pacific Island climate and meteorological data are secure and accessible in the five countries visited during that project (Kiribati, Vanuatu, Solomon Islands, Fiji and Papua-New Guinea), along with Samoa, where a previous visit indicated that records were at high risk of loss. Currently, much of the data exists only as paper records, which are in danger of destruction or loss, and in their present form, are inaccessible for climate services and research;
2. Support/complement existing efforts to establish in-country climate database management systems (CDMSs) appropriate to the needs and resources of Pacific Island Countries (PICs). This will include the development of tailored user interfaces and documentation to ensure data management software is used effectively and sustainably;
3. Build in-country capacity and expertise in data management techniques, through in-country visits designed to ensure that data management software is properly set up and that National Meteorological Service staff are proficient in its use.

**Project Description:** The aim of the project is to help develop a robust infrastructure for the collection, storage of, and access to climate data, which as described below are essential for mitigating the adverse effects of climate variability and change. It will do so by building upon existing projects and initiatives in the Pacific Region, and thereby taking advantage of the efforts and communication links already established. The chief activities associated with each of the above objectives are:

1. Recommendations from PDRP: Assistance regarded as necessary to secure paper records (e.g., the provision of acid-free boxes) will be rendered, and guidance provided in carrying out the data preservation and organising the data in an efficient manner. Where appropriate, assistance will be provided in scanning, transferring from other media, or digitising the data (the latter would essentially be a capacity building exercise, as for various reasons it is better that PIC National Met Service staff undertake their own data entry);
2. Climate Data Management System support: In 2005, countries in the southwest Pacific – SE Asia region were provided with Data Management System software, ClimSoft, developed by an African development team (with support from the UK Met Office), and therefore designed for use in developing countries. The Bureau's intended role is to support the use of this software in the South Pacific and New Guinea where it can, and in collaboration with the ClimSoft development team. For 2006-07 we envisage

the support including: (a) producing an easy-to-read user's manual (identified by users as lacking at present), and distributing printed copies to the Pacific Islands; (b) funding the tailoring of user interface screens according to the needs of individual countries; (c) funding the development of customised reports according to the needs of individual countries; (d) establishing an e-mail based discussion group so that users can ask and answer questions from other users, the ClimSoft team, and the project team. These developments would ensure that the full data management functionality of the system is used effectively and confidently on a sustainable basis, provide a secure location for all digitised data, and ensure that data can be extracted in a form suitable to support climate monitoring and prediction activities. These activities would be carried out by a combination of in-house expertise and some contracted assistance. It is likely at least one country (Papua-New Guinea) may require the provision of a dedicated PC on which to store the software and data.

3. **Training and capacity building.** The Bureau would provide training and advice in data preservation, implementing the functionality of the data management software, and in other aspects of data management. To ensure that the ClimSoft software is used effectively, project staff would visit each country and facilitate NMS staff in using the software effectively, confidently and sustainably. In collaboration with partner countries and the WMO, work would commence on the production of training materials (on CD/DVD, or possibly on-line) on various data management methodologies, such as quality control and archiving.

**Project Rationale:** To the people of small PICs, climate variability and long-term change pose major threats to agriculture, water supply, health, and even life and livelihood. Mitigation of these threats involves close monitoring of climate conditions, the development and implementation of climate prediction systems, and in the broader scale, climate research to better understand climate variability and especially climate change and their likely future impacts. **Fundamental to all these activities is the need for adequate historical climate data and metadata.** The activities described above are all aimed at developing and maintaining the necessary databank and data management infrastructure. The activities build on existing projects and initiatives; however they are largely beyond the scope of these pre-existing projects and therefore cannot proceed without extra funding.

The activities described also complement existing activities being undertaken by NIWA and the US Global Climate Observing System Program.

**Deliverables:**

1. Data in five PICs (identified above), plus western Samoa (whose records were previously identified as at high risk) are secured against loss or decay, using logical storage techniques. Report on actions prepared.
2. Where possible, data from existing electronic storage modes (e.g., spreadsheets) is transferred into robust data management software (ClimSoft), and/or action is taken to image some data in danger of loss or decay.
3. User-friendly instruction manual in the use of the data management software is produced, and an e-mail discussion group established.
4. User interfaces and report facilities in ClimSoft software tailored to ensure it best meets need of individual countries.

5. NMS staff are trained in effective records management and data management techniques, they are assisted with utilising the ClimSoft software to its potential, and work commences on developing training materials on CD/DVD, or online, or both.
6. A final report (due end June 2007) describing key outcomes of the project, as described under “Project evaluation and Reporting Plan”: