Australian Government
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Reading between the eruptions:
An Information Management System for the Rabaul Volcanological Observatory

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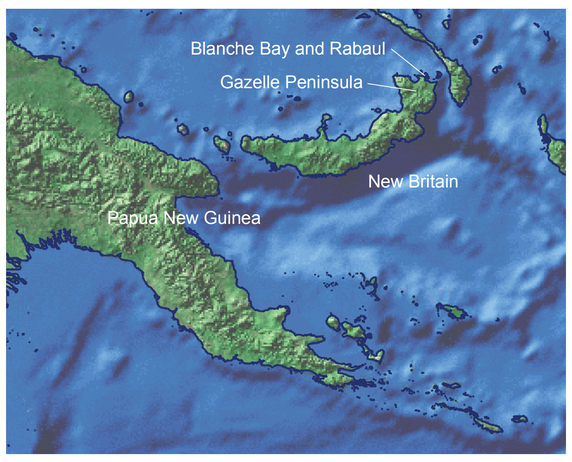
Rabaul Harbour is a huge flooded caldera lined by volcanic peaks, including Tavurvur (steaming quietly at left) and Vulcan (of similar height on the opposite shore)

Introduction

Rabaul, in East New Britain Province, Papua New Guinea, lies in one of the most active volcanic regions of the world. A number of volcanic peaks encircle Rabaul Harbour and several have had major eruptions in the modern era. The largest occurred in 1937 when Vulcan and Tavurvur exploded, killing 500 people, burying Rabaul Town in ash and generating a tsunami. The most recent major event, in 1994, claimed 5 lives and required widespread evacuation before much of the town was destroyed by heavy ashfall.



Regional map of eastern Papua New Guinea

In response to the 1937 event, the Australian government created a volcanological observatory in Rabaul. Norman Fisher, its first Director, returned after the war and expanded the Rabaul Volcanological Observatory (RVO) to cover all active volcanoes in the country. Since 1973 the Observatory has been operated by the PNG government, with technical assistance provided by Geoscience Australia and funded by AusAID. The current Rabaul Volcanological Observatory Twinning Program (RVOTP) identified the need for an information management system (IMS) in 2010.

Purpose of the IMS

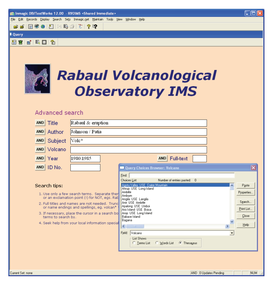
Access to current and historical records of volcanic activity is vital to understanding how the volcanoes in PNG have behaved over time and is thus essential for the work of the RVO's staff. Over the years, a traditional library collection of journals, books, reports and Observatory records and correspondence has been maintained. The environmental conditions in Rabaul are far from ideal for such materials--the humid tropical climate combined with fine volcanic dust from ongoing eruptions, mould, insect and rodent infestations all contribute to their slow deterioration.

Many RVO records were microfilmed by the Pacific Manuscripts Bureau (PAMBU) in recent years to ensure their preservation, but this did not improve accessibility for RVO staff. Scanning materials for inclusion in a storage and retrieval system was recognised as a more comprehensive and practical long-term solution to their information management needs. The Doc Fisher Library staff was approached for advice on the project and was delighted to assist given the Library's connection with the first Director of the RVO.

A minor eruption of Tavurvur in August 2011 covers the town in ash

Creating the IMS

The first step in developing the IMS was to update a bibliography on PNG volcanics prepared by former Library Manager Bev Allen as a ProCite database in 2004. The more recent incarnation of this software (EndNote) was also among the applications considered for the IMS. InMagic DB\TextWorks was eventually chosen for a number of reasons, including its greater functionality and versatility in designing the database structure, search screens and data input forms. A prototype IMS was created by Library staff, demonstrated to members of the RVOTP project team and modified over several months as feedback was received from RVO staff.



Features of the Advanced search screen of the IMS

Sourcing content for the IMS led to Geoscience Australia contributing PDFs of agency publications on research completed in PNG and some additional material held in private collections was also scanned. PAMBU digitised RVO records from its previous microfilms and also helped in obtaining permission to scan and include an archive on the social consequences of the 1994 disaster. The scope of the IMS thus expanded to include sociological and disaster management material as well as scientific publications and records. Lynette Andrew catalogued virtually all of the additional materials, expanding the number of records in the database to just over 3000, with 82% available as full-text PDFs.

Examples of IMS content

Training and Further Work

The IMS will be expanded by RVO staff as new material is acquired, so after installing the system in July 2011 Chris Nelson also conducted training in Rabaul. Introductory sessions for all staff covered the scope and design of the IMS, effective search techniques and various features of DB\TextWorks. Practical exercises were used to evaluate these sessions and aid selection of staff for advanced training on data entry and editing.

The IMS was well-received by RVO staff and AusAID representatives who attended a demonstration of the system. The possibility of installing the system in Port Moresby and expanding its scope to include other work performed by the Department of Mineral Policy and Geohazards Management has been raised.

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GA 12412. CatCat #71837