

Recent Sea-level Change and Coastal Management Implications for Oceania (APN 2000-11)

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Australia, Fiji, Kiribati, the Marshall Islands, New Zealand, Samoa, Tuvalu

Introduction/Background

International attention has recently been focused on the extent to which coastal environments in the Pacific are under stress and the potential of future global change to exacerbate this stress. Much focus has been placed on the scientific assessments conducted by the Intergovernmental Panel on Climate Change (IPCC), in particular the IPCC predictions of sea-level rise for this century. However, it is becoming clear that significant sea-level variations have been affecting the Oceania region for the last few thousand years and that coastal processes have responded to these variations. In addition, sea-level variations in historic time show that coastal response to significant regional variations, of a similar order of magnitude to longer term predicted sea-level rises, may be instructive in examining the coastal impacts of broader scale sea-level changes. This project aims to conduct some primary sea-level research, principally in atoll-states and attempts to link scientific knowledge on sea-level change and coastal response/evolution in the region to coastal management practices and training.

Outline of activities conducted

Primary research has been conducted in Fiji and Kiribati with plans to extend this research to one of the other nominated countries of The Marshall Islands and Tuvalu. A number of sediment samples have been submitted for radiocarbon dating and the results of these together with detailed surveying of sample sites relative to modern sea-level will contribute to an understanding of different sea-level histories for the region. Current geological investigations in Kiribati being conducted with the assistance of 'in-country' coastal researchers are providing data related to atoll island evolution during longer term sea-level changes.

An atoll-based workshop is being held in Kiribati from 13-21 February. The workshop is seen as a key mechanism for bringing global change researchers for atoll environments, together with managers and policy makers from the region. It is essential to maximise participation and have meaningful regional input for this workshop to be successful. Participants come from the three atoll states of Kiribati, The Marshall Islands and Tuvalu together with coastal experts from Australia, Samoa and New Zealand.

The workshop is a sub-regional atoll-based workshop with the following themes:

- 1) Coastal Change issues and problems in atoll environments with specific issues and case studies related to the three atoll-based countries.

- 2) Existing legislation and management strategies for addressing the problems in these three countries.
- 3) Need for further input: Linking coastal science to policy (current understanding of sea-level research in the region and usefulness of this).
- 4) Need for further studies.
- 5) Outcomes, recommendations and policy implications aimed to provide useful directions for the three countries.

Linked to the workshop is a fieldwork and training component for 'in-country' researchers to provide an essential capacity building element of the project. In addition, a few graduate coastal researchers from the region will be given the opportunity to obtain the opportunity for further training and 'hands on' experience in Australia where they can apply new skills and techniques to coastal issues in their own countries.

Outcomes/Products

The outcomes of this project are threefold. First, there will be a capacity building component through field training of coastal researchers in the region. There will also be additional skills training for a few graduates from the region who will have the opportunity to obtain a Professional Certificate in Coastal Management from Adelaide University, Australia. The course content of this program is based on current scientific knowledge on sea-level change and on international coastal management practices. These are linked directly to project-based case study material from 'home country' coastal issues in Oceania to provide practical capacity building outcomes.

Second, the project will provide new scientific data on sea-level change from selected sites in the four countries covered by the project. Analysis and interpretation of data obtained will be written up and published in refereed scientific journals after the completion date of the project itself.

Third, there will be outcomes from the workshop in the form of proceedings comprising three main elements:

- 1) A concise summary of the relevant coastal science research in the region relating to sea-level change impacts (this would be written in a style that can be read by informed laypersons so that it is useful to managers and policy makers).
- 2) A detailed section relating coastal impacts, resulting from sea-level change, to policy and management. It is anticipated that this would have a major input from the workshop participants who would have the local expertise and knowledge of regional and country differences in methods for policy and management formulation in their respective countries.
- 3) A shorter final section that spells out, in some detail, mechanisms for implementing the findings of this project and workshop. This may include

strategies for awareness raising or even a separate ‘guidelines’ section that spells out a sequential action list for implementing workshop recommendations.

Future directions/Follow-up work

This project is still underway at the time of this report and the outcomes of the workshop and final scientific research are not yet known. Once these are completed, the project has the real potential to create a stronger coastal research base in the region and draw better links between sea-level science and the practice of coastal management and climate change policy. It is likely that the research will provide preliminary results on atoll-island evolution that will need to be followed up with a more detailed and targeted project in the future. It is likely that the results of this project will provide an excellent foundation for a future APN project in Oceania.

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