



The official Newsletter of the South Pacific Sea Level and Climate Monitoring Project.

December 2005

Introduction

Welcome to the December 2005 Newsletter for the South Pacific and Climate Monitoring Project, the AusAID funded project that aims to provide an accurate, long term record of sea levels in the South Pacific. This is the last newsletter for this year and will provide an update on activities and progress of the project from June to end of December 2005.

I. Surveying in Nauru.

As part of the South Pacific Sea Level and Climate Monitoring Project (SPSCLMP), Geoscience Australia and SOPAC staff of the project have been busy undertaking a trial survey using Continuous Global Positioning System (CGPS), using total station method in comparison with the common technique of the Precise Levelling Surveying to determine very accurate differences in height connected to the tide gauge stations (SEAFRAME).

The team visited Nauru in October to continue with this calibration exercise. The installation of the tide gauge was in 1993 and that of the CGPS was in 2003. On this field trip project personnel from the Geoscience Australia and South Pacific Applied Geoscience Commission successfully completed the tenth precise differential levelling survey of the deep benchmark array. The levelling run was made from the SEAFRAME Station at the Boat Harbour to the CGPS station at the southern end of the airport runway. Along the levelling run, connections were made to all the six deep benchmarks and to the three reference marks of the CGPS Pillar.

The Precision Monitoring Levelling Survey Program using the two methods was performed in 10 days. The geodetic survey program carried out along the Nauru Road was successful. All the deep benchmarks were found from the previous survey. The two methods carried out in the Geodetic Survey Component 2 of the project were:

- Precise Differential Levelling Survey using Leica NA3003 Digital Level and Starves
- Precision Levelling Survey using Leica TCA180 Total Station with Prism and Poles

Both the survey methods achieved the standard of accuracy as per first order geodetic levelling of within the limits of $2\sqrt{k}$.

As per schedule the survey team arrived in Nauru on the 10th October 2005 and the precision levelling survey using the Digital Level (conventional) and the Total Station (digital) was completed in 10 days. The field survey visit concluded on the 20th October 2005. During the survey visit, maintenance visit and the reference mark monitoring survey were also accomplished.

The Lands & Survey Department and the Department of Industry and Economic Development of Nauru provided valuable support during the field survey visit.



CGPS Station at the Airport End

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Tide gauge in Nauru

The results from these two techniques will be compared to assist the management and member governments in achieving the objectives and goals of the project; and incorporation into future Phases of the project.

2. Reporting to Forum Officials in Fiji.

As part of the Information and Training strategy, the project's staff has attended important regional organizations annual governing council meetings and reported on issues of climate change and sea level rise and the project results. This included organizations like SPREP, SOPAC and Forum Secretariat.

For this year, the project was represented by Bill Mitchell (Bureau of Meteorology, Australia) and Dr Chalapan Kaluwin (AMSAT, Fiji) at the Forum Officials Meeting held in Suva, Fiji at the Forum Secretariat Conference Room, from 3-5 October 2005.

During the meeting, the project presented a Technical Report and update on the Project Results.

More than 60 government officials and media were present during Mr. Bill Mitchell's presentation on the project's results since 1991. In summary, he presented the results of sea level trends, relative sea level changes, atmospheric and land movements for individual countries and the regional analysis.

He pointed out that there is still a large influence from climate variability (El Nino) signals and so far there is no evidence of acceleration in sea level change for the region or countries. He cautioned that data and results are of great quality but the period of monitoring is too short.

It was pointed out that a full report for each country was available at the display desk for interested government officials and media.

It was quite noticeable that a lot of the government attendees are new to this project and issue, as they did not appreciate and understand the results fully.

Governments later spoke to us on the importance of the project and need to be advised on the results and its implications for important sectors like the marine/ fisheries, water resources, coastal protection and policy developments.

The delegations for both Tuvalu and Kiribati expressed concerns over the potential of a high tide being predicted for the month of February 2006 and suggested the project closely monitor the tides and impacts as well.

Display of the Project's Information Products.

During the three days of Forum Officials Committee Meetings, the project was the only one that had displayed all its information products,- posters, calendars 2005 and 2006, fact sheets, country reports (2004 and 2005), CDs, curriculum books, June CD data and Models.

All the 2005 country reports were taken by the countries and the most popular item was the calendars for 2006.

Generally the project display had a great impact and we were very pleased with the outcomes especially with governments collecting their material and able to discuss the project with us.



Bill Mitchell (L) hands calendars to the Ambassador Kodaro Gallen of Federated States of Micronesia



Conclusion.

The technical presentation and the display of the project had an impact, especially with a lot of new delegates attending the FOC meeting who were able to learn about this programme. It was evident that a lot of the projects products (2006 Calendars, Country Report 2005) were taken from the display area indicative of the interest in this issue and their country.

Since the Forum Secretariat has now changed its meetings by separating the Leaders and FOC meetings, it will be useful to strategise on who the project should target in terms of having a positive impact.

The original idea when the project started was to show case the results to the Leaders during their meetings and promote it with them. Even 1-2 minutes discussions with couple of leaders using display/products were an enormous impact.

Whilst it is important to promote the programme through these types of meetings/forums the next phase (IV) should seriously review this strategy again.

3. Oceanography Training in Pacific

A two week intensive course from 3-15 July 2005 was developed at the University of South Pacific with major financial assistance from Japanese Nippon Foundation/ POGO and also support from SOPAC and South Pacific Sea Level & Climate Monitoring Project to give Pacific Island university students and regional professionals a better knowledge and understanding of physical oceanography and climate change and sea level issues in the South Pacific.

Topics include: introduction to atmospheric and ocean sciences ; waves and tides; ocean circulation; ENSO; sea level; global climate change; tsunamis; inshore or coastal oceanography; application of remote sensing; modeling, Argo program; South Pacific Sea Level & Climate Monitoring Project; application of oceanography to ocean productivity and fisheries, coral reef ecology, coastal management, education and public awareness.

It was observed that students were from varying backgrounds, and the content of the courses were delivered at a general technical level. Those who completed the course were given a Certificate of Completion.

The two weeks intensive course was developed to give Pacific island governments, university students and regional professionals a better knowledge and understanding of physical oceanography and issues in the South Pacific.

Field trips were organized to visit the coastal areas of Fiji , reef communities, ocean research sites, research and monitoring tools such the Suva Tide Gauge.



Participants at Suva Tide Gauge.

Resource people from different projects and organizations had been invited to support this regional oceanography course. This included the AusAID funded South Pacific Sea Level & Climate Monitoring Project with its information products.

4. Samoa's Contribution to the Project.

In June 2005, the government of Samoa informed the project management that the Faagalii's airport in Apia, Samoa was going to be closed. This would mean a security risk to the CGPS Facility at the airport.

The Samoan Government led by Mr. Ueligitone Seiuli of Lands and Survey Department was able to coordinate with the AMSAT office in Fiji on the building of a security fence around the CGPS site.

This involved the selection of a winning contractor and managing the contractor to complete the work in time.

The fencing was completed in August 2005 and the project management is grateful and appreciative of Mr. Seiuli's work, efforts and time.



Fencing of CGPS at Faagalii Airport, Samoa.

5. BOM will Manage Phase IV

As Phase III comes to closure at the end of December 2005, Phase IV of the project will commence from 1 January 2006.

It is now official that the **Australian Bureau of Meteorology (BOM)** and its partners will manage the Phase IV of the project for the next 5 years, starting in January 2006.

6. Reminder

Readers are reminded that a broad range of data and information products are available on the project web site, www.pacificsealevel.org. Newsletters, fact sheets, posters, tidal prediction calendars, monthly data reports and Pacific Island Country Status Reports can all be downloaded for free from this site.

- The Calendars for 2006 have been mailed to all and included on web site and CDs.
- June and September 2005 data and information CD has been mailed to Governments and stakeholders.

Also available on the project web site are the projects sea level data (including associated meteorological data) from the start of the project and Continuous Global Positioning System (CGPS) data.

7. Contact Details

For more information on project activities, please contact either:

Please note that these contacts are only effective up until 31 December 2005. The Bureau of Meteorology will advise new contact details in due

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