



Permanent Committee on GIS Infrastructure for Asia and the Pacific

**Report on the
Regional Geodesy Workshop**

Held in Rydges Hotel Cairns, Australia

20-21 August 2005

Report prepared by John Manning, co-vice chair WG1

1. Introduction

The 8 th Regional Geodesy Workshop of the PCGIAP Geodesy Working Group was held in Cairns, Australia at the Rydges Plaza Hotel as a pre-meeting of the Dynamic Planet Conference for the IAG/IAPSO/IABO Scientific Assembly.

The workshop was arranged jointly between PCGIAP WG1, the IAG Commission 1 Sub Commission on the Asia Pacific Reference Frame; and the Commission 2 Sub Commission on the SE Asian Geoid. In the absence of the WG chairman the workshop was chaired by John Manning co vice chair PCGIAP WG1, and as chair Commission 1 sub commission on the Asia Pacific Reference Frame. Geoscience Australia was the host sponsor.

The workshop was conducted in a semi informal manner with interactive presentations and discussion. Some 30 people from 11 countries participated in the workshop , see Annex 1. The agenda was as shown in Annex 2. Apologies were recieved from Dr Imakire Japan and Dr Saandar Mongolia. Unfortunately Russia, Bangladesh and Vietnam representatives were were not able to attend as they had last minute visa problems.

2. Workshop presentations and discussions

John Manning welcomed participants to the two day meeting and noted the participation of the PCGIAP President, Peter Holland ; IAG Commission 5 chairman, Matt Higgins; working group members from the PCGIAP; Dr Kearsley Sub Commission on SE Asian Geoid chairman from IAG Commission 2; the Director of the IERS Cenral Bureau, Dr Bernd Richter ; and the deputy Director of BKG, Dr Johannes Idhe. He advised that in order to further linkages between PCGIAP and IAG all members of the PCGIAP Geodesy Working Group are considered to be members of the IAG Commission 1 sub commission on the Asia Pacific Reference Frame. It was noted that where a country is not a full member of IAG, individual membership to IAG is available at very little or no cost.

Ramesh Govind reported on the regional Tsunami workshop held in Bali in May 2005 and Minghai presented the results from processing of GPS data made available from adjacent countries.

The impact of the Banda Aceh tsunami and subsequent geodetic and geophysical activity in the establishment of monitoring systems both in individual countries and in overall regional Tsunami warning systems was the subject of continued discussion following the Bali meeting. Shigeru Matzuka presented the comprehensive Japanese Daphne project on earthquake monitoring in the region on behalf on Dr Imakire from GSI.

Johannes Idhe presented the German approach to the combination of different Geodetic Techniques for Geohazards Monitoring at the Wetzell fundamental geodetic station.

Cecep Subarya presented a very comprehensive summary of the status of Indonesia geodetic development using GPS tools and the linkages with a number of agencies in contributing towards a country wide geodetic and offshore infrastructure in monitoring potential earthquake and Tsunami impacts.

Country reports were presented by all countries attending giving the status of geodetic networks in the region and future plans.

Bernd Richter presented the global geodetic viewpoint from the IERS perspective and spoke of the progress on the new International Terrestrial Reference Frame. Johannes Idhe presented European experiences with integration of individual countries height networks and gravity to produce a combined European height datum.

Bill Kearsley presented the background on the IAG Commission 2 sub commission on the Geoid over SE Asia and proposed an integration of the activity of this study group with PCGIAP in the coordination of gathering terrestrial and satellite gravity data for the production of a regional geoid.

John Manning summarised discussion and reviewed the PCGIAP Regional Geodesy Workplan which is the activity approved by the UNRCC-AP at Okinawa in 2003 for the period 2003 to 2006. The outcome of each aspect of this workplan will need to be reported to the next UNRCC-AP in Bangkok in September 2006, where a new direction will need to be established and endorsed for a forward three years. The next related PCGIAP activity for the regional working group will be the regional Geodetic campaign in October and meeting of PCGIAP working groups immediately prior to the 8th South East Asia Survey Congress in Brunei Darussalam in November. Geodesy expertise input to the Cadastral and Fundamental Data working groups will be important and members of the Regional Geodesy Working Group should attend where possible. Advice had been received for Dr Saandar from Mongolia for a proposal for a Geoid/Gravity workshop in Mongolia in late May/early June 2006 immediately following a related meeting in Wuhan, China. Dr Kearsley said the Mongolian meeting was being co chaired by Rene Forsberg from Denmark and followed on the aerial gravity survey completed over Mongolia last year.

The power point presentations made during the workshop are listed below :

Peter Holland , President PCGIAP *The permanent Committee for GIS infrastructure for Asia and the Pacific*

John Manning Co- vice chair WG1 *The role of the PCGIAP Regional Geodesy Working Group*

Minghai Jai *Monitoring the effects of the Tsunami events in the Banda Aceh region*

Graeme Blick *NZ Geodetic Programme 2004/05*

Graeme Blick *NZ Tsunami Hazard – Sea Level Monitoring Proposals*

Ramesh Govind *Towards a regional Tsunami warning system*

Johannes Idhe *Combination of different Geodetic Techniques for Geohazards Monitoring - a Case Study at Fundamental Station Wettzell*

Garry Johnstone *Australian country report*

Cecep Suryabaya *Present and Future Geodetic Activities in Indonesia*
 David Chang *Geodetic Infrastructure for Various Applications*
 Peter Holland *Tsunamis, Earthquakes & Early Warning Systems*
 Shigeru Matzuka *Daphne*
 Shigeru Matzuka *GSI's GEONET: History and Evolution*
 Matt Higgins *International Federation of Surveyors and PCGIAP Geodesy*
 Bernd Richter *The International Earth Rotation and Reference Systems Service*
 Bill Kearsley *IAG Sub-commission 2.5.6: South East Asian Geoid*
 Johannes Idhe *Steps Forward to a World Height System*
 John Manning *The PCGIAP WG1 workplan*

3. Workshop Outcomes

Workshop outcomes were identified from discussions arising from the presentations. These resolutions together with suggested actions can be summarised as follows.

1. Linkages to be developed with FIG Commission 5 concerning joint approaches to capacity building in geodesy for developing nations and access to GPS equipment especially for Pacific Island countries. Prospect of a joint meeting in Fiji in 2008 to be explored. *Action. John Manning/Matt Higgins.*
2. Input to ITRF to be strengthened by data access from well established CGPS sites. *Action . Brunei and Malaysia to consider joining the International GPS Service.*
3. Formalise linkages with IAG Commission 2 sub commission on SE Asia Geoid Actions arising :
 - WG1 chair to invite appropriate persons from each country to become part of the Commission 2 sub commission.
 - Bill Kearsley chair of sub commission to be involved as coordinator in WG1 gravity and geoid development workplan projects
4. Refresh and update PCGIAP WG1 listserv contact list. *Action. Shigeru Matzuka/ Geoff Luton*
5. The date for the next APRGP regional geodesy campaign was set as 9-16th October 2005 (GPS week 1344) . The APSG /IVS VLBI campaigns are 11 October and 12 December 2005 . *Action . Project Coordinator Geoff Luton to arrange APRGP2005 campaign.*
6. Following the resolution at the May 2005 Bali meeting, , a 3 year plan requesting funding assistance for absolute gravity is to be prepared for presentation to the 12th UNRCC-AP in September 2006 in Bangkok. *Action. Ramesh Govind.*
7. A CD with powerpoint presentations for this Cairns workshop to be prepared and to include the report and results of the regional densification of the 1997-2002 regional campaigns. *Action Geoff Luton/Garry Johnstone.*
8. A regional metadata database listing the absolute gravity sites observed in the region to be prepared for the WG1 web site. *Action. John Manning/Shigeru Matzuka/Geoff Luton*
9. Data from the tide gauges and GPS sites for the period of significant earthquake events to be made available for regional impact analysis. Communication with

- India to be continued on the matter and on making GPS data available to IGS
Action. Ramesh Govind/Peter Holland.
10. Papers to be prepared for input to the planned workshop on pan-Asia/Pacific framework data sets of tsunami affected areas, being held in conjunction with PCGIAP executive Board and the 8th SE Asia Survey Conference in Bandar Seri Begawan, Brunei Darussalem in November 2005. *Action John Manning*
 11. A PCGIAP WG1 electronic communication outreach newsletter to be trialled with details of the Cairns meeting. *Action John Manning /Shigeru Matzuka*
 12. The proposal from Dr Saandar for a geoid workshop in Ulan Baatar in mid 2006 was supported as an important event for IAG Commissions 1 and 2 and for the PCGIAP development preparation for a regional geoid

Annex 2

REGIONAL GEODESY WORKSHOP AGENDA

Rydges Plaza Hotel, Cairns 20 and 21 August 2005

Saturday 0900 -1700

1. Introduction and historical outline (PCGIAP) and IAG Commission 1 sub commission on Asia Pacific Reference Frame.
2. Tsunamis
 - a. Report from the special Tsunami workshop Bali May 2005
 - b. Results from PCGIAP campaign- data collection and analysis
 - c. Results from other studies
 - d. Progress towards a quick response regional Earthquake/Tsunami warning infrastructure. Australia, Indonesia, New Zealand
 - e. Ongoing access to real time data and products from key sites
3. Country reports - the status of geodetic networks and continuous tide gauge and GPS stations in individual countries
 - a. Australia
 - b. Brunei Darussalam
 - c. Indonesia
 - d. Japan
 - e. Malaysia
 - f. New Zealand

[Group Dinner 1900 Mondo's on the Waterfront]

Sunday 0900 -1700

4. Asia Pacific contribution to the next International Reference frame/ Global Regional perspective
 - a. Regional Submission to ITRF
5. Status of gravity in the region
 - a. Absolute gravity
 - b. Satellite gravity models
 - c. Regional Geoid
6. Unification of vertical datums
7. Status reports on PCGIAP Regional Geodesy Working Group current work plan
8. Review of WG objectives
9. Recommendations and Resolution