



Geodesy for Planet Earth IAG 2009 Buenos Aires, Argentina August 31 – September 4

INTRODUCTION

The International Association of Geodesy organised the “Geodesy for Planet Earth” conference in Buenos Aires, Argentina, and FIG were invited to participate. Mikael Lilje (Sweden) and Rob Sarib (Australia) represented FIG. Mikael Lilje is the incoming Chair of FIG Commission 5 (Positioning and Measurement) and Rob Sarib is the Vice Chair of Administration of the same Commission. The following report details their business liaisons whilst at the event and proposes several recommendations for FIG to consider.

CONFERENCE IN GENERAL

This scientific symposium is a biannual IAG event and attracted approximately 500 delegates from 65 different countries. The event was held at the Intercontinental Buenos Aires Hotel, in the historic neighbourhood of Monserrat. There were 500 technical / scientific papers submitted and 280 of them were delivered as oral presentations. The technical program was run in two parallel sessions with numerous business meetings held in the evenings outside the ordinary technical program. There was also a poster program prepared for this event and was open to delegates for 2 days.

The conference technical program was focussed on IAG Commissions, key projects and geodetic issues in the South Americas. Consequently the sessions covered the following themes -

- Gravity
- Reference Frames
- Positioning and Applications (Co-sponsored by FIG, ION and ISPRS)
- Geodynamics
- Positioning and Remote Sensing
- GGOS
- IAG Services
- Geodesy in Latin America

There were two social events organised by IAG –

1. Ice Breaker Reception at the exclusive “Circulo Militar; located in the Palacio Paz.
2. Gala Dinner at the “Madero Tango” in the modern area of Puerto Madero which is a unique river and city view.

MOU WITH IAG

FIG and IAG signed in 2001 a Memorandum of Understanding (MoU), which recognised each organisation and the potential benefits of working together. Since this signing a number of joint efforts have been made. This has primarily consisted of IAG being very active at FIG events by giving technical presentations, leading panel discussions, chairing sessions and so on. It also needs to be noted that the IAG President and Vice-President as well as other prominent IAG officials have regularly participated at FIG events. Even though FIG is generally perceived by IAG delegates as a wealthy organisation comprising of large network of operational surveyors there is a genuine and strong interest in further collaboration. It is therefore necessary that for the new FIG term (2011-14), FIG needs to continue this relationship with IAG and also develop new areas of cooperation with several IAG Commissions so as to deliver tangible outcomes. Consequently this report has provided several recommendations for consideration by the FIG Council.

MEETINGS

Mikael and Rob were invited to participate at several IAG Commission and Executive meetings and held numerous formal / informal discussions. The outcomes of these meetings are as follows -

IAG Executive Committee (EC)

A presentation on previous and future FIG and IAG liaisons was delivered to the IAG EC. FIG was then given the opportunity to discuss with the IAG EC on the current cooperation between the organisations. The outcomes of this discussion were –

1. To update the existing “Liaison” document that is based on the MoU. Professor Chris Rizos, incoming President of IAG, will take the lead on this document and will use input from FIG representatives as well as from the discussion within the IAG EC.
2. It was clear that IAG would like to see more co-operations with FIG and for the Commissions of IAG and FIG to identify some specific projects that will produce tangible outcomes. Note - Some suggestions for such projects are listed throughout this report.

IAG Commission 1 (Reference Frames)

IAG Commission 1’s work plan is to promote the International Reference Frames, especially the ITRF-solutions globally and regionally. An invitation for FIG Commission 5 to be involved in this IAG working group was extended by the Chair Zuheir Altamimi. At the Commission meeting the progress of sub working groups was discussed. From an FIG ‘capacity building’ perspective the most interesting aspect was the discussion of a “School on Reference Frames” which was to be held in mid 2010. Upon hearing this Mikael Lilje advised the group of the EUREF symposium which was occurring at a similar time. As a result this IAG proposed school may need to be re-scheduled. In addition, IAG has been conducting a similar school on geoid determination for many years. FIG has not been involved but during discussions it was identified that it is important for such schools to address implementation and application issues from both the geoid and reference frame school perspective. Consequently this is a possible role FIG could play at such schools, and this needs to be considered. Also, maybe such schools (with a revised program) could be convened at locations for surveyors who need the knowledge and be part of an outreach program for specific geodetic projects, such as “AFREF” or “APREF”.

During the conference week, there were numerous discussions concerning terrestrial ties or connections between various geodetic instruments (ie VLBI, SLR, GNSS CORS etc) at ‘fundamental’ observation stations. According to IAG, they asked for assistance at the “FIG 13th Symposium on Deformation Measurement and Analysis” last year but did not receive a reply from FIG. It is recommended that Commission 6 needs to follow this up and discuss the issues

FIG also needs to note that IAG Commission 1 are organising a Reference Frame symposium in Paris, October 2010, and FIG should encourage its National Member organisation to attend and contribute.

IAG Inter Commission Project-1.2 IAG Vertical Reference Frame

This working group is lead by Johannes Ihde from Germany. Mr Ihde has also been involved in the FIG Publication No 37 (FIG Guide on the Development of Vertical Reference Surface for Hydrography). At this commission meeting and at the “Ice Breaker” reception Mr Ihde requested a representative from FIG to be part of this IAG working group. The role of FIG in this project would be to assist with the technical aspects and especially the implementation and application of any findings or proposals that are developed. . It was also suggested by both IAG and FIG representatives that FIG Commission 4 should also be involved with this IAG project. Subsequently it is recommended the FIG Chair of Commission 4 should contact Johannes Ihde to identify their level of participation.

IAG Commission 2 (Gravity)

As previously mentioned this Commission frequently organises the “School on Geoid Determination” and this year it will be held in Argentina directly after the IAG Conference. Note - FIG Commission 5 and IAG representative, Georgia Fotopoulos, will be one of the lecturers teaching at this school. From examination of this IAG initiative, it appears this school concept is a good example of how to organise education on a specific subject especially in areas where there is a need for assistance. Consequently, it is recommended FIG should seriously consider developing similar initiatives by itself or in collaboration with others, such as IAG or ION.

IAG Commission 4 (Positioning and Applications)

At this Commission meeting the joint seminars organised by FIG, ION, IAG and ISPRS was discussed. Examples of these are the Mobile Mapping, Deformation Measurement, and the 3D-Optical Instrument symposia series. It was agreed at the meeting that these symposia series should continued and be supported. It was also noted that key people from each organisation need to be identified to ensure the on-going success of this collaborative project.

In addition, a ‘specific’ project was identified by FIG and this IAG Commission and this involved developing a “Special Issue” in the publication of “Journal of Applied Geodesy”. The special topic discussed involved ‘new positioning techniques and infrastructure’. Consequently, it is recommended that both FIG Commission 5 and 6 should be involved in this initiative and each Commission should contact representatives from this IAG Commission.

GGOS

The Global Geodetic Observing System (GGOS) is being promoted as the ‘flagship’ of IAG and that it will have an even greater impact in the future of geodesy. According to Mike Sideris (IAG President) –

- "GGOS is still evolving, but it is operational"
- The future operations of GGOS are through IAG Services and Commissions.
- IAG Services provide the infrastructure and products to the Geoscience community.
- IAG Commissions provide the expertise and support
- GGOS will assist to address 'Global Change' - especially in the study areas of disaster management, global heating and climate change as they are dependent on GGOS.

GGOS has also published a book called "GGOS 2010" which articulates the above and gives the current status of geodesy and visions for the contribution of GGOS to the community.

From an FIG perspective it is recommended that FIG should note the efforts as well as encourage and facilitate this work. A possible way to do so is to have dedicated sessions at FIG events, especially at the FIG World Congress 2010, Sydney. It also should be noted that GGOS has an impact on all FIG Commissions.

TECHNICAL ISSUES

An IAG event is a scientific and technical symposium. Most of the presenters need to publish their findings in a peer-reviewed publication. To access these papers the general delegate will need to pay a fee and each scientific or technical paper will not be available till sometime after each event. Also, at this event it was clear that most of the invited presenters were asked to give overview or status papers and / or state-of-the-art papers.

The quality of presentations varied of course as per most conferences, however the overall quality of the presentations was of a high standard.

The technical /scientific papers and issues that were of relevance to FIG Commission 5 were topics relating to -

- The new global reference frame ITRF 2008, which is not yet available but expected in a few months.
- The maintenance and the management of geodetic infrastructure are vital and will become even more vital as time progresses.
- Time series and discontinuities in time series and how to manage them were issues that were discussed lively amongst the delegates throughout the week.
- The Regional Reference Frames EUREF, AFREF, APREF, SIRGAS and so on are moving forward but at their own pace due to regional issues (ie politics, resources, capability)
- GGOS vision requires 40 Super sites globally but at the moment only 2 exists. There is a major need to gather support to build more sites / observatories
- Precise Point Position was discussed and it was apparent that the technique is getting more and more possible for real-time applications, but the accuracy is still much lower than for network-RTK.
- It will take about one year for all the Conference proceedings to be available but all papers will have gone through a peer review process. No paper is published in the proceeding without being reviewed.

Mikael Lilje
Chair-Elect FIG Commission 5

Rob Sarib
Vice- Chair Admin Commission 5