

**Report to the 28th General Assembly
FIG Working Week in Cairo, April 2005**

**FIG Commission 5 – Positioning and Measurement
Report of Activities 2004-2005**

1. Introduction

In the past year Commission 5 has been very active at FIG and other related events. There has also been increased emphasis on cooperation with our Sister Associations and with the United Nations. Major new developments include:

- Commission 5 had very strong participation in the 2004 Annual Working Week in Athens.
- In December 2004 the FIG President signed a Memorandum of Understanding with the United Nations Office for Outer Space Affairs. This followed lead up work by Commission 5.
- We have established Commission 5 Sub Group 5.3.3 on Development and Modernization of Global Navigation Satellite Systems (GNSS). The goal is present current information to FIG members about international efforts on the development and improvement of GNSS (i.e. GPS, GLONASS, GALILEO and others).
- Cooperation with the International Association of Geodesy (IAG) continues to progress very well with joint participation at several events and close cooperation on some key international projects.
- We also continued to build our web pages as a repository of information for delegates and other interested parties.

2. Events

FIG Working Week in Athens, Greece May 22 - 27, 2004

In Athens, the General Assembly appointed Prof. Jean-Marie Becker (the immediate past Chair of Commission 5) as a new Honorary Member of FIG. Those of us who have worked closely with Jean-Marie in the past were very happy to see the Federation recognise his long and very constructive involvement in FIG and his contribution and devotion to our profession.

Commission 5 assisted in inviting keynote speeches from the United Nations Office for Outer Space Affairs and the International Association of Geodesy. The Commission was involved in 7 sessions with 42 presentations in the following sessions in the technical symposium:

- TS3 Standards, Quality Assurance and Calibration
- TS7 Reference Frame in Practice
- TS11 Positioning and Measurement Technologies and Practices I – GNSS Networks
- TS26 Positioning and Measurement Technologies and Practices II – Laser Scanning and Photogrammetry
- TS29 Positioning and Measurement Technologies and Practices III – Applications and Processing

Commission 5 was also involved in the following joint sessions:

- TS13 Appropriate Technologies for Good Land Administration I
- WSH3 – Vertical Reference Frame & Marine Construction/Dredging

The Commission had three meetings during the week; an open Commission meeting and two Steering Committee meetings. The open Commission meeting was attended by 17 people and enabled good discussion of the Work Plan and future FIG events. Key activities during the Steering Committee meetings were:

- A review of Working Group progress at the half way point in the 2002 to 2006 Work Plan.
- Planning for Commission 5 involvement in coming events.

A full report on our activities in Athens is available on the Commission 5 web pages.

FIG Regional Conference for Asia and the Pacific, 3-7 October, 2004, Jakarta, Indonesia

It was planned that Rob Sarib, Vice Chair for Administration and I would represent Commission 5 in Jakarta. Unfortunately due to the bombing of the Australian embassy in Jakarta shortly before the Regional Conference, we were both unable to obtain travel approval from our employers. This was a great shame, especially given that I am one of only two Commission Chairs based outside Europe and took the lead on behalf of Commissions in the coordination of the technical programme for Jakarta. Even so, the President of the International Association of Geodesy (IAG) attended the event and several technical sessions on Commission 5 topics went ahead and were well attended.

I am also very honoured to report that in Jakarta, the Advisory Committee of Commission Officers (ACCO), elected me to represent all the Commissions on the FIG Council for 2005 and 2006.

United Nations Workshop on Global Navigation Satellite Systems (GNSS), Austria

In December 2004, I represented FIG at the latest in a series of meetings and workshops on the use and applications of Global Navigation Satellite Systems (GNSS) hosted by the United Nations Office for Outer Space Affairs (UN OOSA) and also supported by the State Department of the USA. This follows my attendance at the same event in December 2003. My involvement comes from representing FIG as a member of the UN Action Team on GNSS.

The meetings and workshops in December 2004 involved the key players delivering GNSS components including the USA's Global Positioning System (GPS), Russia's GLONASS and Europe's planned Galileo system. Another feature of the series of meetings has been a strong focus on improving infrastructure and capacity building for GNSS use in developing countries and countries in transition. The global user community was also well represented with major players in the many application areas, including other key organisations for the surveying and mapping community, the International Association of Geodesy (IAG), IAG's International GPS Service (IGS) and the International Cartographic Association (ICA).

There were three highlights for FIG and the surveying and mapping community generally:

- The signing of a Memorandum of Understanding (MoU) by Sergio Camacho, the Director of UN OOSA and Holger Magel, the President of FIG. A meeting at working level later in the week, explored concrete areas of cooperation between UN OOSA and FIG and three main topics were identified:
 - Space Science and Technology education generally;
 - GNSS education specifically and;
 - Space Technology for Disaster Management
- The establishment of an International Committee on GNSS (ICG) under the auspices of the UN, of which FIG will be a member.
- There were many presentations, workshops and working group meetings on issues related to GNSS applications, infrastructure and capacity building globally and also with a focus on the needs of developing countries and countries in transition. The presentations are freely available at:
<http://www.oosa.unvienna.org/SAP/act2004/vienna/presentations/>

My full report on these GNSS meetings and workshops is available on the Commission 5 web pages.

FIG Council Meeting

I attended the FIG Council meeting in Munich, Germany on the last weekend of January 2005. That was in my new capacity as Commission representative on Council for 2005 and 2006.

3. Future Events

FIG Working Week in Cairo, Egypt in April 2005

The Commission has been heavily involved in the development of the technical programme for Cairo, with a record number of Commission 5 papers for a Working Week. Preparation work for Cairo included working with the IAG and UN OOSA to facilitate work on the AFREF project, which is working towards a unified geodetic reference frame for the African continent.

International Association of Geodesy Scientific Assembly in Cairns, Australia in August 2005

I am on the Local Organising Committee for this event. There will be some sessions on operational geodesy issues where FIG will be a joint participant. It is also planned that several members of the Commission 5 Steering Committee will attend Cairns and there will be a joint meeting with the Chairs of the IAG Commissions and relevant IAG Services. FIG Commissions 4 and 6 may also be involved in that meeting. The meetings in Cairns will enable us to make even more concrete plans for cooperation between FIG and IAG, and give more substance to our MoU.

4. Working Group Business

The Working Groups of Commission 5 continue to make good progress on their Work Plans. Some highlights from 2004 are given below.

WG 5.1 Standards & Quality assurance

Chair Rudolf Staiger (Germany)

- FIG Commission 5 was well represented at a meeting in Washington DC in September, 2004 of ISO Technical Committee 172 Sub-Committee 6, which covers Geodetic and Surveying Instruments. A report on the meeting by Hans Heister is available at: http://www.fig.net/standards_network/rep_tc172_c6_sept_2004.pdf
- Work has begun to capture a digital version of the previous FIG publication on EDME Calibration. The plan is to then update the content and republish it on the FIG web site in electronic form.

WG 5.2 Reference Frame in Practice

Co-Chairs Mikael Lilje (Sweden) and Cyril Romieu (France)

- Work continues on redesigning the content on the FIG web pages for this Working Group. The intention is to make it more user focussed by presenting practical information on reference frame issues and giving links to key web sites and other resources on the topic.
- In December 2004, Cyril Romieu took over from Michel Kasser as a Co-Chair of WG 5.2. Cyril works with Michel at the National School of Geographic Sciences (ENSG) near Paris. In the same campus are the people responsible for the International Reference Frame. Michel will continue to be a member of the Commission 5 Steering Committee.

WG 5.3 Integrated Positioning, Navigation and Mapping Systems

Chair Naser El-Sheimy (Canada)

- Planning has begun for the next Mobile Mapping Symposium in Padova, Italy. The symposium series is organized in collaboration with the IAG Commission 4 and ISPRS Commission II and continues to be a good example of cooperation with IAG and ISPRS.
- The membership of Commission 5 Sub Group 5.3.3 on Development and Modernization of Global Navigation Satellite Systems (GNSS) continues to grow. Georgia Fotopolous (Canada) and Larry Hothem (USA) lead the Sub Group. The goal is present current information to FIG members about international efforts on the development and improvement of GNSS (i.e. GPS, GLONASS, GALILEO and others). The Sub Group will also act as a forum to raise issue about future development of GNSS that can then be taken to the new International Committee on GNSS (ICG – as outlined above). The intention is to give FIG members a voice in and feedback on deliberations about the future of this key technology, which is used by many thousands of surveyors around the world.

WG 5.4 on Cost Effective Surveying Technology and Techniques for Developing Countries

Chair, Dan Schnurr (UK)

- This joint activity with Commissions 3 and 7 is progressing. The Chair, Dan Schnurr has been in contact with UN Habitat to get feedback on the draft structure for the proposed FIG publication on the topic.

- WG5.4 has also been discussing tightening its focus to concentrate more on "Informal Settlements", which better reflects the original requirement put to FIG by UN Habitat.

WG 4.2 Vertical Reference Frame Issues in Hydrographic Surveying

- This is a Joint Working Group led by Commission 4. I have been actively involved on behalf of Commission 5. The current focus is the development of a Position Paper with Ruth Adams from UK Hydro Office taking the lead. This follows on from the excellent workshop in Athens.
- I met with Ruth in London in late December to discuss the next draft of the Position Paper, which will be presented and discussed in Cairo. It is also planned to discuss this issue with relevant people from IAG at their Scientific Assembly in Cairns, Australia in August 2005.

5. Steering Committee Business

My trip to the UN GNSS meeting in Vienna in December enabled a two Steering Committee meeting in Paris. As well as myself, the meeting was attended by the Chair Elect and Chair of Working Group 5.1, Rudolf Staiger and the Co-Chairs of Working Group 5.2, Mikael Lilje and Cyril Romieu. The meeting was hosted by Vice Chair Michel Kasser at the National School of Geographic Sciences (ENSG). Work at the meeting focused on the following issues:

- A review of Working Group progress;
- Discussion of the ACCO and Council meetings in Jakarta;
- FIG Liaisons with UN and IAG;
- FIG Surveyors Reference Library;
- Update and detailed review of Working Group progress, work plans and achievements;
- Possible additions and modification to the Commission web pages, and;
- Planning for Commission 5 involvement in coming events, including detailed work on the Commission 5 Technical Programme for Cairo.

Matt Higgins
Chair of the FIG Commission 5
February 2005