

FIG WORKING WEEK 2001

” New Technology for a New Century”

By Jean-Marie Becker, Mikael Lilje and Matt Higgins

INTRODUCTION

The FIG Working Week was organised in Seoul, South Korea between the 6th and 11th of May. There were over 950 delegates from 50 countries. The number of international delegates was around 250.

Commission 5 was well represented by almost its entire Steering Committee of Chair, Vice Chair, Secretary and all Working Group Chairs (Jean-Marie Becker, Matt Higgins, Mikael Lilje, Vaclav Slaboch, Hansbert Heister, Michel Kasser and Naser El-Sheimy).

This report is a summary of events. For more information on a specific topic, please contact the relevant Steering Committee member.

GENERAL ASSEMBLY

The General Assembly met at the start and end of the working week, as usual. 35 countries were represented by 40 member organisations of the federation. During the plenary sessions, many items passed with little discussion or controversy. The agenda with appendixes as well as minutes are available on the FigTree (www.fig.net). Below is just a short report.

Five new member associations from Armenia (2 member organisations), Finland, USA and Morocco were accepted. Also three organisations became affiliate members (El Salvador, Guatemala and Cambodia).

Ian Williamson (Director FIG/UN Liaison) reported as usual from the progress that FIG has with the relationship with UN. Helge Onsrud also gave a report on the FIG Agenda 21 and Iain Greenway on the FIG Task Force on Standards.

The Bureau has agreed on one MoU with International Society for Mine Surveying (ISM) and another with the International Association of Geodesy (IAG). The MoU with IAG can be found as Appendix 1 to this report and Commission 5 is the lead Commission for FIG its implementation.

Tom Kennie, Chair of Task Force to Review Commission Structure, reported on the progress of this work and there was a break out session concerning this work. There was also much discussion in the ACCO group (Advisory Committee of Commission Officers) and this item is reported separately below.

Calender for the future FIG Working Weeks and Congress

- Congress 2002: 21-26 April, Washington D.C., USA
- Working Week 2003: 19-23 May, Eilat, Israel
- Working Week 2004: May, Athens, Greece
- Working Week 2005: April-May, Cairo, Egypt

- Congress 2006: 27 August – 9 September, Munich, Germany

ACCO and Inter-Commission meeting

Prior to the ordinary ACCO meetings, the Chairs and Vice Chairs of all Commissions decided to meet and discuss without the Bureau or FIG Director present. There is a feeling that discussion of inter-Commission issues is not possible during ACCO meetings, which have had a tendency to be more a report from the Bureau to the Commissions. The separate meeting allowed the group to discuss purely inter-Commission issues. The preparations for this meeting were made by a sub-group of Jes Ryttersgaard (Chair Commission 3), Dennis St. Jaques (Chair Commission 4) and Matt Higgins (Vice Chair Commission 5).

The ACCO-meeting elected John Parker as the official Commission representative on the Bureau for the period of January 2002 to December 2002. The meeting also nominated Matt Higgins and Jes Ryttersgaard as substitutes.

Task Force on Review of Commission Structure

A significant focus of the inter-Commission meeting was the paper by Tom Kennie and his Task Force on Review of Commission Structure. Matt Higgins and Michel Mayoud started by stressing that even though they were appointed members of the Task Force, they had not participated in the preparation of the paper. The discussion was mainly divided into two parts. The first part concerned the proposed committees and present Task Forces and the second concerned the proposed structure of the Commissions themselves.

Summary of the discussion: The summary can be divided in following statements:

- The meeting **agreed** on the early sections of the original paper including Section 3 on “The context and pressure for change”, which is a good description.
- The meeting **did not agree** on the creation of committees other than the present ACCO. The concern being a loss of co-ordination across groups working in FIG.
- The meeting **did not agree** on the structural issues presented in the paper nor on an alternative structure of commissions. The concern was that if change is needed it should be well considered and should not just be tinkering at the edges.
- The meeting **agreed** that management and co-ordination issues are more important than structural issues and these issues were discussed during the meeting.
- The meeting **recognised** the need for the Council to create Task Forces (TF). However, the meeting would prefer to have a procedure whereby before a TF is created it is considered whether it is possible to do that within an existing Commission. If a TF needs to be created it could be done as an ad-hoc Commission. That approach would enhance the possibility for co-ordination while separate TFs detract from that. On certain sensitive issues it may be best to have a TF and appoint the right person to lead it as opposed to election.

These summaries were then discussed at several meetings during the following week between the Task Force members and during and after the break out session of the General Assembly. Discussions culminated in Tom Kennie presenting a revised approach to the General Assembly at the end of the week.

The revised approach puts more emphasis on co-ordination between Commissions and the Bureau and less emphasis on purely structural issues. It recognises how important it is that for the first time there is now a Commission representative directly involved in the Bureau and this will be a significant first step to improving co-ordination.

Another substantial development is to suggest changes to the way Vice Chairs are elected. The currently suggested model is that working group Chairs be appointed by the new Chair (as normal) at the start of the 4 year period (eg 2002) but that their role and that of the Secretary be better recognised by calling them Vice Chairs of the respective Commission. Two years into their term (eg 2004) one or more Vice Chairs can nominate for election by the General Assembly to the position of Chair-Elect. While it is expected that most Chair-Elects will come from existing Vice Chairs with demonstrated ability, to preserve the democratic process, it is suggested that candidates for Chair-Elect can also be nominated by member organisations at the General Assembly. The Chair-Elect would then sit on ACCO for the second two year period (eg 2004 to 2006) and move to become Chair for the next 4 years (eg 2006 to 2010). As with other aspects of the structural work, current models are subject to discussion and input is welcome.

Progress in Seoul on the Review of Commission Structure will now be reflected in a revised paper for discussion with the TF members and at the ACCO meeting in October 2001 (at the Permanent Office in Copenhagen). That will lead to recommendations to be presented to the General Assembly in Washington DC in April 2002.

Co-ordination of Future Work Plans for the Commissions

As well as the somewhat bureaucratic issues of structural change, the inter-Commission meeting was also able to discuss content by focusing on the need for co-ordination of future work plans for the Commissions (for the period 2002 to 2006). Current Vice Chairs need to draft their work plans for discussion at the ACCO meeting in October and working toward final plans to present in Washington. As well as inter-Commission co-ordination, these work plans should then be integrated into the Bureau's work plan for 2002 to 2006. From the discussion at the meeting, the following topics were identified for consideration by Commissions within their work plans but especially for joint working groups between appropriate Commissions:

- Sustainable development
- Low-cost survey technology
- End user approach
- Capacity building
- Integration of advanced technology
- Harmonisation
- Best practise
- Public/Private partnership
- Consumer protection
- Mutual recognition
- Multi-disciplinary approach
- New trends in research and science
- Role of information technology
- Role of economics
- Knowledge management
- Knowledge economy
- Quality management
- Spatial data infrastructure
- Appropriate technology

The inter-Commission and ACCO meetings also considered the FIG Congress 2002 in Washington DC with the Congress Director Mary Clawson and Deputy John Hohol informing the Commissions on the preparations. The overall theme of the congress was decided to be *Geomatics and Property Valuation for Global Sustainable Development*. The ACSM and ASPRS will hold their normal annual congresses in parallel with the FIG XXII Congress. A call for paper is out and the final date for sending in an abstract is in August. Mary Clawson and John Hohol informed the meeting about the progress for the congress. There will be a room for each commission, big enough for 25 persons, to use for internal meetings during the whole congress.

The number of sessions is large and there are also several parallel sessions going on all the time, both for FIG and also for the American Congress. The ACCO meeting in Copenhagen in October is soon after the close of the call for papers and there will be a session in Copenhagen to finalise the technical program for Washington.

FIG Commission 5 meeting and Steering Committee meeting

Commission 5 had two meetings during the week. The first meeting was an open commission meeting on the Monday afternoon and the second was a Steering Committee meeting. Separate minutes are available for those meetings but highlights are given below.

Possible Seminar on “GIS, Land Management for sustainable development” in Vietnam

Prof Le Qui Thuc from Vietnam reported on the preparation of a seminar with the title **Seminar on “GIS, Land Management for sustainable development”** to be held in Hanoi in November, 2001. The seminar will be a joint seminar including experts from several Commissions. It is not clear yet if there will be only invited papers, an open call for papers or both. The solution will probably be that FIG can provide a small group of experts if the hosts can attract funds to pay for accommodation and air fares. The need that the organisers have for input from Commission 5 is on the topic of building up the geodetic infrastructure for GIS implementation. More information about the need can be found in the paper that Prof Thuc presented in the technical programme in Seoul. After consideration, Commission 5 decided that the experts that Commission 5 can contribute are Michel Kasser, Matt Higgins and Jean-Marie Becker.

Working Group reports

WG-5.1: Hansbert Heister and Vaclav Slaboch reported on the activities in their working group and their main focus is now on the work shop to be held in Seoul. This will give them some good ideas for the continuation of the preparations of the guidelines that will be presented in Washington at the Congress.

WG-5.2: Michel Kasser reported for the WG and mentioned that not much work has been done lately in the working group. However, he will write a report for the NKG Height Determination Group meeting on Iceland in June and this document will be circulated among the working group members.

WG-5.3: Naser El-Sheimy reported that the seminar in Cairo was a success with 350 attending. It was decided during this seminar that the next meeting will be held in China in 2003 and in France in 2005. He also mentioned that the working group is active incoming

seminars as the KIS-seminar in June in Banff where WG-5.3 will have 2 sessions with 14 papers.

WG-5.4: Nicolas Paparoditis was not present and could therefore not give a report.

WG-5.5: Matt Higgins reported that there has not been much action since Prague last year. One promising development however, has been that a software company found the Fact Sheet on WGS84 quite useful and sought permission to use it as the basis of a section in their software manual.

Forthcoming events

The following event are sponsored by FIG Commission 5:

Banff, Canada, June, 2001: International symposium on kinematic systems in geodesy, geomatics and navigation (KIS 2001), Banff, Canada. Contact conference secretary: Marguerite Anderson, Tel. (403) 220-4982 marguerite@geomatrics.ucalgary.ca, Internet: <http://www.ensu.ucalgary.ca/KIS2001.htm>

Vienna, Austria, October, 2001: 5th "Conference on Optical 3-D Measurement Techniques". Contact: Department of Applied and Engineering Geodesy, Institute of Geodesy and Geophysics, Vienna University of Technology, Gusshausstrasse 27-29, A-1040 Wien, Austria, Tel.: +43/1/58801-12804 Fax: +43/1/58801-12894, E-mail: o3d2001@pop.tuwien.ac.at

Nairobi, Kenya, October, 2001: International Conference on Spatial Information for Sustainable Development Nairobi, Kenya. Joint seminar organised by FIG Commission 3, the Institution of Surveyors of Kenya ISK and UNCHS(Habitat), co/sponsored by FIG Commissions 1, 2, 5, 7, 8 and 9 and ECA. Contact: FIG Office, email: fig@fig.net. **Matt will co-ordinate for FIG Commission 5.**

Hanoi, Vietnam, November, 2001: Seminar on "GIS, Land Management for sustainable development. **Jean-Marie will co-ordinate for FIG Commission 5.**

Fulda, Germany, November, 2001: Quality Measurements in Geodetic Methodology. Organised by Hansbert Heister.

Washington D.C., USA, April, 2002: FIG Congress

Beside the mentioned meetings, Jean-Marie or others will represent FIG Commission 5 at:

Akranes, Iceland, June, 2001: The working group on height determination techniques within the Nordic Commission on Geodesy will have its annual meeting in Iceland as well as a 2 day seminar concerning establishing a new height network.

Cologne, Germany, September, 2001: Intergeo 2001, Cologne, Germany, Contact: Fax + 49 2241 308 299, email: intergeo2001@t-online.de Internet: <http://www.intergeo.de>

Tokyo, Japan, November, 2001: ISO-meeting

FIG Congress Washington, April, 2002

The Congress has sent out a call for papers. It will expire in August and a co-ordinating meeting of the papers will be done during a meeting in Copenhagen by the ACCO-group in October. FIG Commission 5 is discussing sessions concerning the following subjects:

- * At least one session per working group (5 sessions)
- * Location based service session (1 session, jointly with Com 3?)
- * GPS Modernisation or GNSS overall (1 session)
- * TC 211-session (1 session, jointly with the Task Force and other commissions)

This would give us a minimum of 8 sessions. There are more or less no limits in Washington concerning the number of session. We should also add a technical tour to our program and some interesting areas were discussed with the Congress Director during a meeting with her and John Hohol.

FIG Commission 5 2002 – 2006

The Steering Committee meeting also briefly discussed the future of Commission 5 during the next four year period. As outlined above, all Commission Vice Chairs need to take draft work plans to the ACCO meeting in Copenhagen in October. Matt will be developing his draft work plan between now and October and is interested in any ideas that current working group members and Commission 5 delegates may have for the future work of the Commission.

TECHNICAL PROGRAM IN SEOUL

All technical papers from the Working Week are on the FIG Web Site. (See <http://www.fig.net/figtree/pub/proceedings/korea/full-papers/papers-index.htm>).

Commission 5 had 28 presentations in 7 different sessions during the technical program. The program was extensive and there were unfortunately no joint sessions with other Commissions. There was also a problem that it was little opportunity to listen to other Commissions sessions during the technical program.

The attendance at all of our Technical Sessions and the workshop was good. The rooms were more or less full throughout the Working Week. The arrangements were excellent apart from the significant problem for the large number of local attendees that there was no translation from English to Korean.

The general opinion is that it was a successful week with interesting technical sessions and workshop. The presentations were of high quality and there were good discussions, especially during the panel discussion in the Standards Workshop. The presence of the president of ISO TC 172 SC6 , Karl Zeiske and other members of this TC 172 (Hansbert Heister and Jean-Marie Becker) enabled better comprehension of FIG needs in relation to Standards. One outcome was the realisation that FIG needs to engage more experts in ISO and contribute to the promotion and explanation of the standards to the practising surveyors in our member organisations.

Outside the direct Commission 5 activities, the Task Force on Standards also had a workshop on more general issues of Standardisation as well as being involved in an ISO TC 211 Workshop organised on the Friday separate to the FIG events. This workshop was an invitation only event. Unfortunately Commission 5 did not have sufficient information about these workshops in advance and had no participation.

As outlined above, the full technical programme and all papers are available on the FIG Web site. Details of the Commission 5 sessions were as follows.

Sessions 4: Digital Photogrammetry and Remote Sensing, Chaired by Michel Kasser.

Jongchool Lee, Sungyeol Cha and Dongju Seo: Improvement of geometric correctional accuracy according to GCP disposition of KOMPSAT

Kiin Bang and Woosul Cho: KOMPSAT – EOC Sensor Model Analysis

Hyosung Lee, Yangdam Eo, Yongil Kim and Kiwon Ahn: Objects surface roughness measurement using high resolution digital camera.

Session 8: Reference Frame in Practise, Session chaired by Matt Higgins

Hongsic Yun: On the new national geodetic datum 2000 in Korea

Michael Cory, Roy Morgan, Colin Bray and Iain Greenway: A new co-ordinate system for Ireland

Chen Yong-qi and Yang Zhan-ji: A hybrid method to determine the Hong Kong geoid

Session 11: Permanent GPS Reference Networks, Session chaired by Naser El-Sheimy

Tetsuro Imakiire and Yoshiro Nakajori: GPS Earth Observation Network (GEONET) of Japan.

Gunnar Hedling, Bo Jonsson, Christina Lilje and Mikael Lilje: SWEPOS – The Swedish network of permanent GPS reference stations

Junguk Park, Jeongho Joh, Hyungchul Lim, Pilho Park and Sangwoon Lee: The development of DGPS service system using FM DARC (EYEDIO) in Korea

Matthew B Higgins: An Australian pilot project for a real time kinematic GPS network using the virtual reference station concept

Chulsoo Yang and Sangsoo Kim: The current status of GPS network, datum transformation and real time kinematic GPS positioning in Korea.

Session 14: New Technology and applications, Session chaired by Mikael Lilje

Cameron M Ellum and Naser El-Sheimy: Portable Mobile Mapping

Jeongheon Seo and Sangdeuk Han: Study on Geographic Information production using airborne laser scanning

Dekkie Tcha and Kyojon Cho: The development of data capturing and geocoding modules by speech-voice recognition

Jongchool Lee and Hosik Jang: Determination of least observation time classified by baseline grade according to GPS satellite combination.

Workshop on Guidelines for check, Maintenance and calibration of survey instrument

Jean-Marie Becker: Why this workshop

Mikko Takalo, Paavo Rouhiainen, Pekka Lehmuskoski and Veikko Saaranen: On calibration of Zeiss DiNi12

Jean-Marie Becker: Field procedures for determining achievable precision of surveying instruments: Levels

Volker Schwieger: Time dependent correlation's using GPS – A contribution to determine the uncertainty of GPS-measurements

Matt Higgins: Guidelines for GPS surveying in Australia

Michel Mayoud: Large scale metrology at CERN – Length and offset calibration benches at micrometric accuracy

Naser El Sheimy: Guidelines for check of Multi-Sensors equipment

Hans Heister: A new concept for stating accuracy in standards – exemplified by ISO/CD 17123-6 Rotating Lasers

Karl Zeiske: Current Status of the ISO standardisation of Accuracy – Determination Procedures for surveying instruments.

Vaclav Slaboch and Jiri Lechner: Quality Management and instruments certification in the Czeck Republic

Panel Discussion with Jean-Marie Becker, Karl Zeiske, Hansbert Heister and Matt Higgins about the needs of standards, guidelines, quality management, etc.

ACTIONS

Apart from the need for all to continue as appropriate with Working Group plans and events, the following specific action items arose from Seoul:

- Investigate possible Commission 5 involvement in FIG/UN workshop in Kenya in October 2001. Higgins to co-ordinate.
- Investigate possible Commission 5 involvement in Seminar in Vietnam in November 2001. Becker to co-ordinate.
- Kasser to investigate and make a firm proposal on a database of Commission 5 relevant papers from journals etc.
- Higgins to develop a draft work plan for 2002-2006 by end of September for discussions at ACCO-meeting in Copenhagen in October, 2001 and as input for Task Force for Commission Structure.

Appendix 1

**MEMORANDUM OF UNDERSTANDING
BETWEEN
THE INTERNATIONAL ASSOCIATION OF GEODESY (IAG)
AND
THE INTERNATIONAL FEDERATION OF SURVEYORS (FIG)**

1. Background

The International Association of Geodesy (IAG) and the International Federation of Surveyors (Fédération Internationale des Géomètres FIG) both recognise that each is an international organisation with many complementary activities serving similar professional constituencies involving research and development into varied aspects relating to surveying, engineering surveying and surveying techniques.

FIG specialises in technical and professional areas such as positioning and measurement, engineering surveys, hydrography, geographic information systems, infrastructure development, land and environmental planning, development and management, property valuation, and construction economics and procurement.

IAG specialises in scientific and professional areas such as positioning, advanced space technology, determination of the gravity field, general theory and methodology and geodynamics. IAG furthermore coordinates the work of a number of international services such as the International GPS Service.

2. Purpose

The purpose of this Memorandum of Understanding is to provide an effective framework for a continuing liaison between the two organisations, for maintaining and increasing the opportunities of technical exchange between their members through a continuing programme of co-operation leading to mutual sharing of knowledge and expertise to the advantage of the membership of both organisations.

3. Programme of Activities

In accordance with the background and purpose as described above, both organisations agree to endeavour to intensify their co-operation for mutual benefit. By way of implementation, the following steps will be taken, among others:

1. Regular contact should be established between the secretariats of both organisations and their elected leaderships to introduce and maintain continuing liaison between the two organisations.
2. Each organisation should inform the other of all Commissions, Working Groups etc. that it has established and invite representation from the other on to each of these groups where it is agreed that it would be appropriate and sensible.
3. The themes of mutual interests identified at the moment are:

- reference frames and observing systems
 - positioning, measurements and applications
 - hydrographic surveying, marine geodesy
 - geoid determination, height systems
 - special applications of geodesy to engineering
 - education
 - history of surveying and geodesy
 - cooperation with other international organisations (e.g. UN, ISO)
4. Each organisation should inform the other of its programme of proposed schools, seminars, workshops, etc. to enable consideration as to whether joint participation would be of mutual benefit and further inform its members on these events when appropriate (e.g. on its home page on Internet).
 5. Both organisations should study possibilities to organise specialised seminars or workshops under the both banners.
 6. Each organisation should invite a representative from the other organisation to attend each respective Congress.
 7. Decision on joint or co-sponsored events which are covered by the subjects listed under 3.3 will be made at a meeting between the IAG Secretary General and the Director of the FIG Office.

4. Financial Commitment

It is understood that neither organisation can commit the other to any expenditure, save that from administering this agreement, without the specific written agreement of both organisations.

5. Legal Status

This Memorandum does not create a legal link between the two organisations who will maintain their mutual independence.

This Memorandum of Understanding is valid until IAG or FIG proposes changes to it. Each organisation has the right to propose changes to this Memorandum at any time. Any changes shall be subject to the agreement of both organisations.

Neither IAG nor FIG will make any agreements with associations which may conflict or compete with this Memorandum of Understanding before giving advance notice and securing the agreement of the other organisation.

On behalf of IAG

On behalf of FIG

Prof. Fernando Sanso
President of IAG

Robert W. Foster
President of FIG

Appendix to the Memorandum of Understanding between IAG and FIG

Events and activities of joint interest in 2001 – 2003

2001

6–11 May, Seoul, Korea

- FIG working week and XXIV General Assembly
- Hosted by FIG
 - www.fww2001.or.kr or www.fig.net

22 – 24 May, Wuhan, China

- Monitoring of Constructions and Local Geodynamic Processes.
- Workshop organised by IAG WG2 and WG3 and Special Commission SC4.
 - <http://info.tuwien.ac.at/ingeo/sc4/wuhan01.htm>

5-8 June, Espoo, Finland

- Workshop and Seminar - Virtual Academy.
- Organised by FIG Commission 2 Working Group 2.2
 - http://ns.foto.hut.fi/fig/FIG_Helsinki_2001/fig4.pdf

5-8 June, Banff, Alberta, Canada

- International Symposium on Cinematic Systems in Geodesy, Geomatics and Navigation KIS 2001.
- Sponsored by IAG and FIG Commission 5
 - <http://www.geomatics.ucalgary.ca/KIS2001>

2–8 September, Budapest, Hungary

- IAG Scientific Assembly
- Hosted by IAG
 - Also meeting of Presidents and Secretary Generals of former IUSM members
 - <http://www.sztaki.hu/conferences/iag2001/>

1 – 3 October, Vienna, Austria

- 5th Conference on Optical 3D Measurement Techniques
- Co-sponsored by IAG Special Commission 4 and FIG Commissions 5 and 6
 - <http://info.tuwien.ac.at/ingeo/optical3d/o3d.htm>

2002

19–26 April, Washington DC, USA

- [The XXII FIG Congress and XXV General Assembly](#)
- Organised by FIG, ACSM and ASPRS
 - <http://www.fig2002.org>

August, TBA

- Hotine-Marusse Symposium
- Hosted by IAG
 - <http://www.gfy.ku.dk/~iag/symposia.html>

2003**19–23 May, Eilat, Israel**

FIG working week and XXVI General Assembly

- Hosted by FIG
- <http://www.fig.net>

August, Sapporo, Japan

IUGG 23 General Assembly

- Hosted by IAG
- <http://www.gfy.ku.dk/~iag/symposia.html>