

**Report for the 28th General Assembly
FIG Working Week in Cairo, Egypt, 16-21 April 2005**

**FIG Commission 6 – Engineering Surveys
Report on Activities 2004–2005**

1. General

FIG Commission 6 deals with activities concerning:

- Acquisition, processing and management of topometric data and of all related information throughout the life cycle of a project;
- Development and implementation of adequate survey methods in Engineering projects;
- Metrology, quality control and validation for civil construction and manufacturing of large objects;
- Deformation monitoring, analysis and interpretation;
- Prediction of deformation and movements in Engineering projects, mines and areas of geological hazard.

The goals of Commission 6 are to:

- Promote the knowledge, skills and abilities of surveyors in civil and industrial works within the various professional fields of Engineering;
- Support all development and multidisciplinary expertise leading to integrated survey methods, using various instruments and sensors and combining geometry with all other data relevant to each Engineering problem;
- Provide a forum for exchange of knowledge related to Engineering analysis of survey data for the study of structures;
- In addition to the links with related Working Groups of IAG, ISM and ISPRS, look for possible connections within organizations of civil, structural and mechanical engineers and within those dealing with metrology and quality control - at the national and international level.

2. Working Groups

A substantial part of the results from Commission 6 is the symposiums and seminars within professional specific fields. In general, the number of participants to these seminars is high and therefore the goal of knowledge sharing has been obtained.

Each working group is during the period 2002 – 2006 responsible for one or two Symposiums for representing results in the relevant field of theory and practical experience.

2.1. Working Group 6.1 – Deformation Measurement and Analysis

Chair: Adam Chrzanowski (Canada); Vice-chair Cecilia Whitaker (USA)

One of the main activities this year has involved preparing the 12th International Symposium on Deformation Measurements, in Qingdao, China, September 12-15, 2005, hosted by the Shandong University of Science and Technology.

Unfortunately only about 25 abstracts were received. Therefore the symposium is postponed to May 2006 in Austria.

Apart from that a Special Issue of "Engineering Geology" on Applications of Geodesy in Engineering Geology has been prepared by S. Stiros & A. Chrzanowski as guest editors.

Futhermore there has been activities within the framework of the WG on Crustal Deformation with delegates from four countries and six institutions involved so far.

Task Force Group 6.1.5

During the first 15 months of its mandate, the Task Force Group 6.1.5 "Terrestrial Laser Scanning in Deformation Monitoring" has focussed to promote *the use of terrestrial laser scanning* as a recognised tool for spatial data capture in engineering projects. More specifically, the group aims to advance the use of this new technology for geometric documentation and deformation monitoring in a variety of environments. Further objectives are to investigate the integration of laser scanning measurements with other measuring techniques, such as conventional geodetic systems and photogrammetric techniques, and to explore the 3D modelling and visualisation issues of laser scanning data. Also, the group aims to investigate quality control and metrological aspects of the laser scanner data in order to provide recommendations on checking that the terrestrial laser scanner instrument is working correctly prior to its use, as well as recommendations on its field use regarding issues such as data collection, storage, instrument independent exchange data format and registration issues.

While most members are in periodic contact with the chair as well as among each other, there has not been an opportunity yet to hold a formal meeting with all the members at the occasion of a conference or other event. However, the Task Force and its members have an on-going collaboration with the ISPRS Working Group V/3 *Terrestrial Laserscanning*

Selected Symposia with major input by members:

- May 2004: FIG Working Week, May 22-27, Athens, Greece
- June 2004: 1st FIG Symposium on Engineering Surveys for Construction Works and Structural Engineering, 28 June- 1 July, Nottingham, UK
- July 2004: XXth Intl. Congress, 12-23 July, Istanbul, Turkey.
- November 2004: INGEO 3rd Int. Conference on Engineering Surveying and FIG Regional Conf. for Central and Eastern Europe, 11-13 Nov., Bratislava, Slovakia

2.2. Working Group 6.2 – Engineering Surveys for Industry and Research

Chair: Thomas Wunderlich (Germany); Vice-chair: Alojz Kopacik (Slovak)

The major activity this year was the joint event for working group 6.2 and 6.3 - the INGEO 2004 / FIG Regional Central and Eastern European Conference on Engineering Surveying, held in Bratislava, November 11-13, 2004.

The aim of the conference was to bring together professionals in the field of engineering surveying and facility management, to discuss the new technologies, their applicability and operability. The conference discussion was focused on present-day questions of laser

scanning, usage of laser scanners in industry surrounding, for dynamic deformations, data acquisition for facility management.

The conference was very successful with 39 papers presented and representatives from more than 15 countries. Also IAG contributed to the conference with some skilled presentations.

Selected Symposia with major input by members:

- September 2004: INGEO 3rd Int. Conference on Engineering Surveying and FIG Regional Conf. for Central and Eastern Europe, 11-13 Nov., Bratislava, Slovakia

2.3. Working Group 6.3 – Engineering Survey Data Bases and Facility Management

Chair: Lothar Gründig (Germany); Vice-chair Hande Demirel (Turkey)

The major activity in this WG was of course also the joint event for working group 6.2 and 6.3 in Bratislava described above. Contributions to the Technical Sessions was with special emphasis on:

- new techniques for as-built documentation and facility inventory,
- data integration in facility management, exchange, provision and presentation of facility management data in computer networks
- industrial and city information systems

Selected Symposia with major input by members:

- May 2004: FIG Working Week, May 22-27, Athens, Greece
- September 2004: INGEO 3rd Int. Conference on Engineering Surveying and FIG Regional Conf. for Central and Eastern Europe, 11-13 Nov., Bratislava, Slovakia

2.4. Working Group 6.4 – Engineering Surveys for Construction Works and Structural Engineering

Chair: Gethin Wyn Roberts (UK); Vice-chair: Jin Fengxiang (China)

The major activity this year was the 1st International Symposium on Engineering Surveys for Construction Works and Structural Engineering held in Nottingham, United Kingdom, 28 June – 1 July. In addition, there was a workshop held as part of the Special Task Force 6.1.1 established under Working Group 6.1, “Measurements and Analysis of Cyclic Deformations and Structural Vibrations”.

The conference was attended by 70 people from a vast array of countries around the World. The symposium was held over the first three days, with a workshop on the forth. The symposium and workshop saw 56 papers being presented, covering all aspects of the symposium’s field.

Overall the conference was very successful, allowing international researchers to be able to discuss and disseminate results.

Selected Symposia with major input by members:

- May 2004: FIG Working Week, May 22-27, Athens, Greece
- June 2004: 1st FIG Symposium on Engineering Surveys for Construction Works and Structural Engineering, 28 June- 1 July, Nottingham, UK

3. Calendar of forthcoming Events

2005

- FIG Working, Week, Cairo, Egypt, 16-21 April 2005
- FIG Regional Conference for Latin America and the Caribbean. 25-29 September, Havana, Cuba;
- 7th conference on Optical 3-D Measurement Techniques, Vienna, Austria, 3–6 October, co-sponsored by WG 6.2 and WG 6.4;

2006

- 12th International Symposium on Deformation Measurements, May 29-31, 2006, Baden, Austria, as a joint event with IAG
- FIG XXIII Congress and XXIX General Assembly, Munich, Germany 8-13 October

4. Other issues of interest

Newsletter

Commission 6 succeeded in launching a newsletter in November. This Newsletter included mainly reports from the seminars held since the latest Newsletter published in February 2003. The Newsletter also included a significant memorandum about Commission 6. The newsletter is forwarded to the national delegates where the proceedings from the seminars held in the period are included on a CD-rom.

Closer Corporation with IAG

This year Commission 6 has had a very valuable corporation with IAG in several areas on common interest. Especially on laser scanning techniques and deformation measurements the forces in Commission 6 and IAG are united. We are very pleased about that hope to extend in the future. The series of second yearly '*International Symposium on Deformation Measurement*' have been run by FIG Commission 6 since 1975, and we have now an ongoing discussion with IAG to make this events as joint FIG – IAG events in the future, starting with the 12th International Symposium on Deformation Measurements, 29-31 May, 2006, Baden, Austria.

The new Chair of Commission 6 for 2006-2010

During the FIG Working Week in Athens, 22-27 May, Dr. **Alojz Kopáček**, was elected as the new Chair Elect of Commission 6 for 2004-2006, which means he will be the chair of the commission 2006-2010. Dr. Kopáček is ass. Prof., PhD. from Slovakia. He is the Vice Dean of the Faculty of Civil Engineering at the SUT Bratislava. We congratulate Alojz and wish him good luck and the best love of working.

Svend Kold Johansen
Chair of FIG Commission 6
January 2005