

A Report on the Joint Symposium “Measuring the Changes” of the FIG 13th Symposium on Deformation Measurement and Analysis and the IAG 4th Symposium on Geodesy for Geotechnical and Structural Engineering, May 12 – 15, 2008, Lisbon, Portugal

Adam Chrzanowski¹, Chris Rizos², Maria Joao Henriques³ and Cecilia Whitaker⁴
Canadian Centre for Geodetic Engineering, University of New Brunswick, Canada¹
School of Surveying & Spatial Information Systems, University of New South Wales, Australia²
Laboratorio Nacional de Engenharia Civil (LNEC), Portugal³
Metropolitan Water District of Southern California, USA⁴

The second jointly held symposium on deformation measurements and analysis was held May 12 – 15, 2008 in Lisbon, Portugal. The symposium was a combined meeting of the FIG Commission 6, Working Group 6.1, Deformation Measurements and Analysis (13th FIG



Symposium on Deformation Measurement and Analysis) and the IAG Sub-commission 4.2, Applications of Geodesy in Engineering (4th IAG Symposium on Geodesy for Geotechnical and Structural Engineering). The

theme of the symposium “Measuring the Changes”, reflects the importance, and demand, for fully automated, continuous, and reliable deformation monitoring in the civil engineering, mining, and energy sectors. In addition there is a strong trend to incorporate deformation systems into new structures from the very beginning, driven by concerns for whole-of-life structural health monitoring.

Automation, multi-sensor integration, continuous data collection, integrated



analysis and physical interpretation, and enhanced accuracy and reliability are the key developments in new monitoring systems. These issues are the subject of studies of these two international working groups.

The symposium was attended by about 160 (unofficial count) delegates from 30 countries. Maria Joao Henriques and her colleagues from Laboratorio Nacional de Engenharia Civil



(LNEC), EDP Producao and several local organizations did a wonderful job of organizing the symposium and events, and the meeting was a great success. (Information about the symposium can be found at the official site of the organizers: <http://measuringchanges.lnec.pt> and soon to be posted proceedings.)

The symposium had 20 technical sessions with topics ranging from modeling (4 sessions), monitoring of structures (3), GNSS (2), geodeformations (2), radar (2), equipment (2), laser scanning, engineering geodesy, multi-techniques and poster papers (2). In addition, there was a special session for those interested in fiber optic sensors hosted by the FIG WG 6.4 (Engineering Surveys for Construction Works and Structural Engineering) task force on fiber optic sensors. Keynote presentations by each chair of the two organizations started off the symposium and were followed by many excellent presentations and poster papers throughout the event.

There was also great participation by supporting vendors in the exhibitor's session. There were exhibits from Leica Geosystems, Sokkia Europe, Topcon, Fiber Sensing, Emilio de Azevedo Campos and Measurand Geotechnical. These exhibitors were very active participants with all types of equipment demonstrations taking place inside and outside of the symposium event hall. Many attendees received personalized



and hands-on experience with the equipment.

Another aspect of the symposium is the great support the organizing committee received from the vendors to help sponsor this event. The vendors that sponsored the symposium at the platinum level were Leica Geosystems, Topcon and Trimble. At the silver level, support was received from GAUSS, SPGO, Portuguese Geographic Institute, Sokkia Europe, Sol Data Iberia and Technasol FGE. The organizers and chairs of the symposium sincerely express their appreciation for the support these organizations provide for these meetings to take place.



It is also important to stress that several organizations provided financial support for 7 young colleagues to attend the symposium. The grants were supported by: IAG: 3 (fees and accommodation), TOPCON: 1 (fees and accommodation), Ordem dos Engenheiros (Engineers Association of Portugal): 3 (fees only because they lived in Lisbon area). We sincerely thank these

contributors for their support of our future leaders.

No symposium is complete without a social event to “loosen up” the attendees for a night of mingling and making new friends and connections. The LNEC provided a wonderful evening of fun by hosting a dinner at the Lusitania Horse Training Center. The evening started with a show of the horse’s skill in historic battlefield maneuvers and was followed by an excellent dinner with a show of the traditional Portuguese fado music.



The first morning of the symposium coincided with the devastating earthquake in China. The symposium

participants prepared a condolence letter for the victims of the Chengdu earthquake to express their sadness and solidarity with the peoples of Sichuan Province. To show further support, at



the closing session, discussion was held regarding holding the next symposium in mainland China. Canada and Hong Kong were also offered as possible venues. The proposers of these locations are tasked with submitting a proposal to Adam Chrzanowski (chair FIG WG 6.1) and Chris Rizos (vice president IAG) for consideration. Proposals

should address topics like local and international travel to site, hotel accommodations, conference facilities, cost to participants and local appeal.



The day after the symposium end was a “not-for-the-faint-of-heart” technical field trip to visit Alqueva Dam and the three Alamos Dams. This trip provided attendees the opportunity to observe the Portugal countryside and to see the issues that Portuguese dam engineers and surveyors face close up. Bad weather shortened the visits somewhat but everyone enjoyed a short detour to the ocean at Miradouro dos Capuchos on the way home.

One of the action items from the closing session was to provide a web site specifically for deformation topics, which would include the past proceedings and other related documents. While this is not accomplished yet, links for the proceedings for all the past events with digital proceedings can be seen below. The majority of the proceedings are at this general link - <http://www.fig.net/commission6/reports/reports.htm> , with specific links as below. The Lisbon proceedings will be added in the near future. The purpose of the web site will be to disseminate information on deformation topics to all interested parties. Thought was also given to the possibility of adding a user thread to aid interaction and discussion. These items are hoped to be accomplished in the near future.

All registered attendees have been added to the Working Group 6.1 email list. This email list is used to disseminate information on FIG and IAG events and newsletters. Others interested in joining this distribution list may contact Cecilia Whitaker at cwhitaker@mwdh2o.com .

Past Proceedings:

2006 - 12th FIG/3rd IAG symposium (Baden, Austria) proceedings:

http://www.fig.net/commission6/baden_2006

2004 - 3rd International Conference on Engineering Surveying INGEO (Bratislava, Slovakia)

<http://www.fig.net/pub/bratislava/programme.htm>

2004- 1st FIG International Symposium on Engineering Surveys for Construction Works and Structural Engineering: <http://www.fig.net/nottingham>

2003 - 11th FIG Deformation Symposium (Santorini, Greece) proceedings:

<http://www.fig.net/commission6/santorini>

2001 - 10th FIG Deformation Symposium (California, USA) proceedings:

http://www.fig.net/com6_orange/index.htm

2001 - FIG PUBLICATION NO. 25 "MODELS AND TERMINOLOGY FOR THE ANALYSIS OF GEODETIC MONITORING OBSERVATIONS", Official Report of the Ad-Hoc Committee of FIG Working Group 6.1; <http://www.fig.net/pub/figpub/pub25/figpub25.htm>