



## **Technical Seminar Reference Frame in Practice - Reference Frames, Datum Unification and Kinematics**

Christchurch, New Zealand, 1-2 May 2016

Report by Joanna Kuczynska-Siehn

The Technical Seminar Reference Frame in Practice - Reference Frames, Datum Unification and Kinematics was held at the Rydges Latimer in Christchurch, New Zealand, on 1-2 May 2016 in conjunction with the 78th FIG Working Week 2016, 2-6 May 2016. The seminar was organized by IAG (International Association of Geodesy), FIG (Fédération Internationale des Géomètres), UN-GGIM-AP (UN Global Geospatial Information Management for Asia and the Pacific), ICG (International Committee on GNSS) and NZIS (New Zealand Institute of Surveyors). The seminar was attended by over 50 participants from 18 countries. I was there as one of the five participants funded by the International Committee on Global Navigation Satellite Systems (ICG) United Nations Office for Outer Space Affairs (UNOOSA) - as shown in the photo below with Convenor Mr. Nic Donnelly.



Participants were welcomed by the organizing committee: Mr Nic Donnelly (Convenor), Prof. Volker Schwieger (FIG Commission 5 Chair), Mr Gary Johnston (IAG), Dr. John Dawson (UN-GGIM-AP) and Miss Rachelle Winefield (NZIS).

The technical program comprised of eight technical sessions, including two focused on case studies. There were fifteen presentations given by speakers from New Zealand, Australia, Japan and USA, two presentations on behalf of sponsors: Leica and Trimble, and five brief presentations given by ICG-supported delegates from Philippines, Poland, Fiji and Nepal.

The first day's program dealt with the following topics:

- Introduction to 3D and vertical reference frames / datums  
The first presentation was prepared by Prof. Chris Rizos (UNSW Australia) and was presented by Mr. Nic Donnelly (Land Information New Zealand, LINZ). He comprehensively explained theoretical foundations of global reference systems and frames. Prof. Bill Kearsley (UNSW Australia) gave us theoretical foundations of different height systems, both geometric and physical.
- Kinematic frames and deformation modelling  
Dr Chris Pearson (University of Otago, NZ) and Dr Chris Crook (LINZ) presented methodology of deformation modelling with the focus on New Zealand case study.
- Case studies from Japan, USA and New Zealand

Topics of the second day were:

- Case studies from Australia, Philippines, Poland, Fiji and Nepal
- International geodesy initiatives  
Dr John Dawson (Geoscience Australia) introduced Asia-Pacific Reference Frame (APREF) and United Nations initiative on Global Geospatial Information Management (UN-GGIM), whereas Mr Larry Hothem told us about geodetic initiatives at International Organization for Standardization (ISO).
- Geodetic infrastructure and GIS  
The speakers, Mr. Richard Stanaway, Ms Ruth Neilan and Dr Suelynn Choy emphasized the importance of GNSS in a development of a modern national reference frame.
- Geodetic software  
RTKLIB open source GNSS software, SINEX Manipulation Software and SNAP Least Squares Adjustment Software were introduced by Dr John Dawson, Mr Ryan Ruddick, Mr Nic Donnelly and Dr Chris Pearson.

The event was supported by:

