ZENITH POINTS: INTEGRATION AND 3D DATA ACQUISITION AND PRESENTATION

Impressions of Intergeo 2005

The 11th annual Intergeo conference and trade fair was held at the Messe DÃ¼sseldorf, the state capital of North Rhine-Westphalia, Germany from Tuesday 4 October to Thursday 6 October. Under the theme Exceeding Limits more than 16,000 trade-fair visitors, among which 1,600 congress participants, could get an overview on standards, trends and innovations in the fields of geodesy, geoinformation and land management.

The theme Exceeding Limits was chosen by the DVW – the German Association for Geodesy, Geoinformation and Land Management – the organisers of the congress. The organisers claim to be the largest conference and trade fair worldwide for geodesy, geoinformation and land management. With 2.5 ha gross exhibition area this year, the claim does not seem to be overstated.

Exhibition
Over 500 exhibitors occupied the show floor. One of the eye-catchers was Topcon City. With the catch-phrase, "Welcome to the future", the company broadcasted the message to the market that it offers the world's first developments in integrating technologies with which customers can do their work more efficiently, more productively and with higher quality (see also the interview with Ewout Korpershoek, this issue). Like Topcon, Trimble also raised integration with its product innovations to the zenith, particularly along the software line. Intergraph displayed its products in a 15-metre high air hall shaped as a globe covering a 140-m2 floor area. Thales focussed on the presentation of the new ProMark3 GPS receiver. In line with its predecessor ProMark2, the system is based on a single-frequency (L1) solution. One claims centimetre-level accuracy in post-processing and promises few unproductive moments because the system keeps working even in urban canyons and dense foliage using optimised multi-path migration. Autodesk focused their presentation on Topobase, a database development on the basis of Oracle 9i Spatial Extension according to OpenGIS specifications; all geometric and attribute data can be stored in a single database. In the open-air exhibition area, covering 2,700 m2, Leica Geosystems amongst others demonstrated their total stations, GPS receivers and other surveying items.

Conference
As usual, the number of participants attending the conference is a whole digit smaller than the number of people visiting the show. In the blue part of the conference programme, consisting of two parallel streams, speakers with mainly a background in research and science discussed subjects including disaster management, e-learning, water management, cadastres, e-government and data-acquisition technologies, such as terrestrial and airborne laser scanning. The vast majority of the speakers came from Germany and The Netherlands; notably the speakers from The Netherlands did not need to travel large distances to exceed limits as they mostly came from peripheral cities such as Arnhem, Deventer, Apeldoorn and Enschede. In the pink part of the programme, exhibitors held half-hour presentations on their products, solutions and innovations during one stream of sessions parallel to the blue part of the programme.

Trends
This year's Intergeo conference confirmed once again that the need for modelling the world in its full three dimensions (3D) is paramount. The maturing of terrestrial and airborne laser scanning (Lidar) is definitely progressing. These laser-based technologies enable the reconstruction along virtual lines of constructions, landscapes and cities in 3D in a highly automated way by accurately capturing dense point clouds. In addition, digital cameras, which enable the collection of stereo views and hence 3D information, are still subject to refinement. Jena-Optronik from Germany, for example, showcased its new digital aerial scanner JAS 150. Further, Applanix, a Trimble company for 2 years now and well known for its integrated real-time GPS/Inertial Measurement Unit (IMU) navigation systems for airborne applications, has stepped into the arena of putting digital sensor systems on the market. Their DSS322, a medium-format camera, has an inbuilt IMU, which provides – when coupled with a GPS receiver – direct georeferencing capability. However, further 3D developments are occurring not only at the data-acquisition front end of the geoinformation processing cycle, but also at the visualisation end. SeeReal Technologies, for example, developed a stereo viewing tool based on interlacing technology, which enables 3D visualisation with the naked eye, without the need for accessories such as red and green or polarised glasses. For stereoscopic viewing, two different images of the scene have to be displayed: one is presented to the left eye and the other to the right eye. Next, the brain fuses the two views giving a 3D sensation of the scene. Previously, interlacing technology enabled us to sense the 3D effect only in a narrow range but today a much wider range of movement is allowed. KISTERS AG demonstrated the Contex 3D Printer, which produces physical models from digital, 24-bits data of real-world objects. With this, not only the data from magnetic resonance imaging of parts of the human body or designs of product prototypes can be perceived but also city models, historical buildings and landscapes. The model is built up layer by layer by using folio; the production takes just a few hours.

Intergeo 2006 will take place in Munich's Neue Messe Convention Center from 10 to 12 October 2006. The fair trade will be the sandwich's savoury filling of the simultaneously held XXIII FIG Congress taking place from 8 to 13 October 2006. The theme of Intergeo 2006 is: *Knowledge and Action for the Earth.*