A REVIEW OF INTERGEO 2014

Berlin: Three-day **Geomatics Capital of the World**

Intergeo is the annual gathering in Germany of geomaticians, surveyors and GIS experts from around the world. The show provides an excellent opportunity to meet other professionals and to compare products. It is also an occasion to assess the state of business and innovation in the field of geomatics. This year, Intergeo was celebrating its 20th anniversary and enjoyed an increase of around ten percent in overall attendance (attracting over 17,000 visitors). A survey held among the visitors indicated that more than 45 percent of them were responsible for, or involved in, decision-making processes, which further enhanced the status of the world's largest geomatics event.

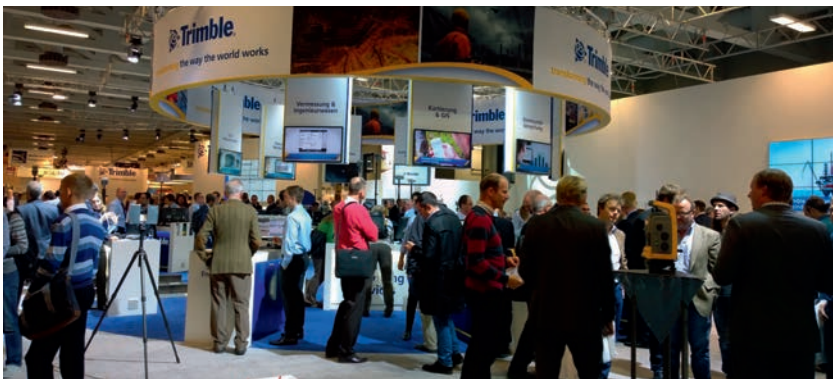
In terms of exhibitors and visitors alike, Intergeo gets more international every year, and the 2014 event saw a further rise in the number of visitors from outside Germany (around 35 percent of the total). Intergeo also gets 'younger' every year: Karl Friedrich Thöne, president of the DVW (German Surveying Association) remarked that he had never seen so many young visitors attend Intergeo, which he regarded as a very good sign for the future of the geomatics sector.

Chinese manufacturers exhibited their latest survey instruments among the booths belonging to the well-known US and European brands. As at previous editions, a number of French companies once again joined forces to display their products in a large 'Made in France' area, and this year several British companies did the same. The Brazilian company Bradar was one of the very few representatives from South America. As in previous years, Leica Geomatics and Trimble covered a lot of space of the exhibition floor. Leica staff presented the broad spectrum of products and services at a multitude of differentiated stands within the booth. Trimble had chosen to inform (potential) clients by holding PowerPoint presentations in a large, open theatre area. Live demos relevant to particular branches such as Inpho's photogrammetric software or eCognition had to be followed in rather narrow spaces, if you could find them at all.

TRENDING: UAVS

About five years ago, when mobile mapping had just been introduced to the market, many companies at Intergeo exhibited their mobile mapping solutions. While mobile mapping was still prominently present at the show this year, the focus has clearly shifted onto a new trend: UAVs. To illustrate the changing face of the geomatics world, it is worth mentioning that 55 of this year's exhibitors were UAV

▲ *The Brandenburg Gate.*



▲ *The Trimble booth. Trimble is one of the members of the Intergeo Advisory Board.*

▲ *GIM International senior editor Mathias Lemmens guided his TU Delft students through Intergeo.*

▲ *senseFly demonstrated the brand-new eXom.*

companies. All around the tradeshow, UAV producers and service providers displayed their capabilities. Clients can now select from a wide range of UAVs with various specifications. Many UAVs rely on the use of cameras to capture images that can be processed into point clouds or orthoimages. However, the use of laser scanners in drones is rapidly accelerating too. The company RIEGL, normally known as a manufacturer of laser scanners, even launched a new UAV complete with laser scanner and INS system at this year's Intergeo.

The Swiss company Pix4D and the Russian company Agisoft both develop advanced software to process images that are captured with UAVs, and both companies exhibited their latest developments in Berlin. It is becoming increasingly simple to process a large amount of images, even images taken from the ground, and render them into beautiful 3D scenes and accurate point clouds.

POINT CLOUD

Terrasolid from Finland had come to Berlin with a solid bunch of technical people and specialists able to give in-depth details of their pioneering point cloud processing software – a real relief. In the large, centrally located booth Terrasolid displayed a demo of a pilot showing how images and point clouds captured by a mobile mapping system mounted on a car can be processed with its software to support road damage detection and asphalt repair work, as many parameters can be accurately calculated from the 3D model. The pilot has previously been covered in the July 2014 issue of *GIM International*.

Although RIEGL introduced an innovative airborne scanner, there have been no major improvements to the mobile and terrestrial laser scanners available on the market apart from incremental changes. However, the developments in point cloud processing are moving fast. Over the past few years, the Australian company Euclidion has become known for its very fast rendering of 3D point clouds, for example. The British company PointFuse joined the show this year for the second time, approaching point clouds from a different angle. Instead of displaying all points, an automatically generated mesh represents the structure of the cloud with much less data. In addition, many companies presented solutions for manual or semi-automatic modelling from point clouds.

PHOTOGRAMMETRY

Around the year 2000, it seemed that airborne Lidar would emerge as a serious threat for photogrammetry as the main source of 3D point clouds for producing DEMs and DSMs, and some people even predicted the downfall of photogrammetry. Microsoft Ultracam, Pix4D, PhaseOne, Leica and many others cogently showed that predicting the future is perilous. As a result of two developments – aerial multi-camera systems, which are able to capture oblique and nadir imagery at the same time, and dense image matching – photogrammetry is more vivid than ever before. Oblique images allow a full and intuitive view of both building footprints and facades which is a great benefit when creating 3D city models. Dense image matching allows point densities similar to the ground sampling distance (GSD) of the imagery from which they are derived. For example, images with a GSD of 10cm may deliver a density of up to 100 height points per square metre.

FUTURE OF GEOMATICS

Intergeo is the ideal occasion to take stock of the latest situation in 'geomatics land'. During the traditional press conference, held as always on the Wednesday, it became apparent that the key players in the sector have clear views on the industry and its future. Eric Arvesen, vice-president of Trimble's geospatial division, and Jürgen Dold, president of Leica Geosystems, seemed to be in agreement with one another about the sector's future direction.

Arvesen stated that the trend is towards meeting the needs of surveyors and their customers by providing 'ready-made', all-in-one solutions which reveal to them which action to take and which decisions to make. In a world in which apps and UAVs are becoming ever-more important, he does not expect a slow death of traditional surveying equipment. After all, laptops and iPads exist alongside each other, he said by way of example, since they are not rival technologies. Jürgen Dold interjected that it is necessary to give customers choices. The industry must modernise its software to be more 'app-like'. Dold looked back at 20 years of Intergeo by saying that the measurement market was the primary focus back then and it remains so today, although now much more in the form of GNSS-integrated applications. He also pointed out the rise of UAVs and the rapidly growing opportunities they offer. Companies such as Google and Microsoft have served as a catalyst for making geomatics techniques familiar to a wide audience, he added.

The 21st Intergeo will be held in Stuttgart, Germany, from 15-17 September 2015. The focus of the conference has already been announced and will be on modernising infrastructure. With the *Stuttgart 21* project in mind, the capital of the state of Baden-Württemberg certainly is an interesting place for this particular focus. ◀