Three Shows in a Row

The cusp carrying winter into spring saw three interesting geomatics shows across the USA from east to west. Tom Gibson, editor-in-chief of our US sister magazine, Professional Surveyor, visited one after the other and sent us this report.<P>

The Annual Conference and Technology Exhibition of American Congress on Surveying and Mapping (ACSM) took place at Spokane Convention Center in Washington, attended by about 1,550 people, up slightly on last year.

More Work
As usual the conference featured a slew of workshops. Gavin Schrock discussed GPS Communications by network transportation of RTCM via internet protocol (NTRIP). NTRIP is the most commonly used protocol for transmitting data to and from reference stations in real-time networks. As Schrock told us, “NTRIP is the lifeblood of a network for the user. It’s how you get corrections”. The radios originally used were found not to be suited for bridging wide areas. Then cellular technology came into vogue, he said, and now this is a caster (as opposed to broadcaster) client on a server. “With NTRIP, it is out there for everybody, like a webpage.” In the workshop on ‘Riparian Boundaries’ led by Frank Hardt of the Bureau of Land Management in Alaska, water boundaries were the main theme. “Everybody is going to encounter a water boundary someday. It’s a matter of whether you’ll recognize it,” said Hardt. He went on extensively to treat determination of the ordinary high water mark (OHWM). This may sound simple, but it changes over time with drought, and things like oil rights and biological assets changed peoples’ perception of land. Aerial photography was, he explained, valuable in determining water boundaries, and witnesses could help, as could railway records and highway surveys. “Field examination ties it all together.”

LIS - Where Are the Surveyors? This was the title of another session. Land information systems (LIS) are being developed by government agencies for large-scale construction projects, and by utility and transportation providers along their rights of way. But surveyors rarely get involved in developing these and are missing an opportunity for new business. Surveyors needed to understand this market and how they could apply their expertise. A LIS is basically a type of GIS involving cadastre and based on the Public Land Survey System, as instructor Karen Zollman, a surveyor by background, and her sister Helen Kayser, a GIS specialist extrapolated. “More surveyors are becoming knowledgeable on GIS,” Zollman told conference, but “surveyors have a speciality that nobody else can match and there is a lot of room in utility mapping and parcels. It can become a lot more work.”

More than sixty exhibitors displayed their wares in the exhibition hall. This venue also hosted the Surveying Sports Competition, with events such as Guess the Elevation Difference, Chain Throw, and Angle Turning Skill. The next ACSM will take place from 19th to 24th February 2009 in Salt Lake City.

GITA
The Geospatial Infrastructure Solutions Conference organised by the Geospatial Information & Technology Association (GITA) was held at the Washington State Convention & Trade Center in Seattle from 9th to 12th March 2008, attended by over 1,500 participants. During the opening session president David Nemeth commented, “GIS is in just about every household. People use it and they don’t even know it.” The themes were infrastructure, emergency management, and going green. In 2007 GITA decided to refocus on solving infrastructure issues - “a $1.6 Trillion Problem” as 27% of US bridges are deficient, 3,500 dams declared unsafe, 33% of US roads in poor to mediocre condition, and 34% of sewage treatment plants ditto. In his keynote address Tom Murphy, former mayor of Pittsburgh, talked about the price of gas and how we had come to expect services that nobody wants to pay for. He stressed regional co-operation in solving problems, and remarked how China invested three times more in infrastructure than does the US. Someone later questioned him about China’s human rights record. “You can show how the world has to change,” he responded. “You have the will.”

Dana Trethewy of Marshall & Associates of Olympia in Washington gave an overview of GPS and how to obtain corrections for RTK surveying, remarking that GIS people carried out post-processing because they were unfamiliar with real-time corrections. A trial of mapping-grade versus survey-grade accuracy showed an average 13-foot difference, a surprisingly high figure. Mrs Trethewy stressed the need always to test a GPS receiver and system before believing manufacturer’s accuracy claims. David Boyles and Brian Elliott described how their surveying firm had come to use GIS extensively on large construction projects, especially in documenting as-built conditions. Having had no GIS background before 2002, the firm now employs two certified GIS practitioners and a professional GIS surveyor.
In a unique educational format, GITA held four-hour Knowledge Immersion Seminars on the first two days and then 45-minute Educational Sessions the following days. They added a Survey track this year. Over eighty vendors populated the exhibition floor and gave half-hour Solutions Spotlights to explain their products and services. New was the Geospatial Dimensions of Emergency Response Symposium, “an event within an event” that included twelve sessions and created to bridge the gap between the emergency-response and geospatial communities. This symposium covered applying geospatial and mapping technologies such as GIS, GPS and remote sensing to emergency and disaster response.

ConExpo-Con/Agg
ConExpo-Con/Agg was held in conjunction with IFPE 2008, the International Exposition for Power Transmission, at the Las Vegas Convention Center. Tall cranes crowded the sky, blurring the line between show and normal urban construction works. This show features everything in construction, from portable cement plant to earthmoving vehicle to hydraulic and electrical components used in vehicles. The show also includes education sessions and competitions such as the Concrete Mixer Truck World Cup and the Construction Challenge for students. Held every three years, ConExpo attracted over 144,000 people, including 25,000 international visitors, and 2,651 exhibitors.

The numbers represent a 20% increase in size over the last show, in 2005.

All the survey companies were in the South Hall: Leica Geosystems, Sokkia, Topcon, Trimble, and Tripod Data Systems. Their emphasis was on machine control and surveying of construction sites. Topcon had huge stands set up inside and out. Inside, the Dozer Arena, a small theatre built on a simulated bulldozer, took visitors into a job site and showed them the new 3D-MC squared system, technology claimed to improve the speed of a bulldozer up to 200% while grading a smooth surface. Positioning with GPS alone limits the speed at which an earthmoving machine can be controlled. By incorporating inertial sensors to measure X,Y,Z and pitch and roll, these limits can be resolved. Topcon also announced its new SiteLINK system, a wireless communications mapping, data-logging, reporting, and asset-management system for off-road equipment. Based on low-grade GPS, it remotely tracks machines via the internet and monitors parameters such as the amount of material removed per day. It uses Mesh Radio Networks built on a standard Wi-Fi configuration.

Trimble introduced its new CM310 Compaction Sensor that enables the display of real-time material density to an earthworks compactor operator. Using the Trimble CCS900 Compaction Control System with the new sensor, the contractor can better control the compaction process, making operations more efficient and productive. Trimble had previously announced the introduction of new wireless capabilities for the LM80 Layout Manager. This incorporates a new rugged controller and office software for real-time two-way data transfer between the project design team in the office and the general and concrete contractors on site, increasing efficiency and productivity. The LM80 creates a digital replica of the building blueprint in the field and connects to both mechanical and robotic total stations for accurate, fast and simple building layout.

Leica Geosystems introduced the PowerDigger 3D, an excavator-guidance system with a choice of single- or dual-GNSS (GPS + Glonass) and PowerBox and PowerAntenna sensors. It compares the bucket position with the 3D design model and screen-displays differences to the operator. Leica also showed RedLine, a construction-site positioning-range solution that combines total-station and GNSS technologies to eliminate interruptions due to obstacles and offer accuracies for every task, from rough to finish grading. Even with no available GPS signal, such as under a bridge or in a tunnel, Total GPS allows the Leica PowerTracker total-station to automatically take over positioning and continue to provide millimetre accuracy. In the case of visibility between the PowerTracker and prism being lost, Total GPS uses GNSS technology to keep the machine on grade.

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