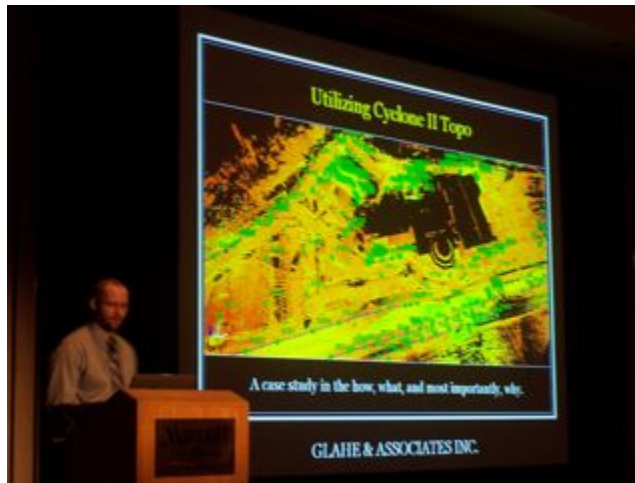


Laser Scanning on the Other Side of the Bay



Eron Singleton of Glahe & Associates discusses a case history involving a hotel and casino project.

Leica Geosystems HDS and Airborne Sensor Worldwide User Conference

By Tom Gibson, PE

After rising at 5:00 a.m. and flying all day across the country to San Francisco, picking up a rental car, and driving for over an hour to the other side of the San Francisco Bay, I arrived at the Marriott hotel in San Ramon, California. Several buses waited in front, and one by one they pulled out as they filled with people, until one was left. I walked into the hotel looking for a conference registration desk when an official-looking woman asked if I was with the Leica conference. When I said yes, she replied, "Come on, let's get on the bus."

The bus would take us to a marina on the bay in Oakland, where we boarded the Galaxy Commodore for a dinner cruise. They treated attendees to an open bar and buffet while the craft plied the bay, taking in sights such as Alcatraz, the San Francisco skyline, and Oakland shipyards.

All day long, I thought it would be nice if I made it to the hotel on time to make the cruise shuttle, but I also figured it wouldn't be the end of the world if I didn't. Part of me yearned just to check in, wind down, enjoy a leisurely dinner, and prepare for the conference the next day. But looking back, I'm glad I made it to the cruise, as it proved a terrific introduction to what would follow.

This is Leica Geosystems' version of a users conference. On the boat, I spoke with people from locales like Norway and Belgium, giving an indication of the international flavor of the event. Leica has manufacturing and office facilities near San Ramon, and they invite users of their laser scanning and airborne sensing equipment and software to learn more about their products and exchange ideas with Leica staff about their needs.

For the first time, it consisted of two conferences running concurrently. This was the 6th high definition surveying (HDS) conference and 17th airborne sensor conference. Geoff Jacobs, senior vice president, strategic marketing for Leica Geosystems, HDS, headed the HDS track and served as primary moderator for the conference. George Southard, vice president Americas, digital imaging for Leica, facilitated the airborne sensor track. Jacobs said that until recently, each conference operated without knowing about the other. Southard visited the HDS conference last year and liked what he saw, so he expressed a desire to merge the two conferences.

The HDS and airborne sensor tracks ran in parallel and included a few joint presentations applicable to everyone. Attendees could take in any of the sessions. The HDS track consisted of 20- to 25-minute presentations by Leica customers describing case histories in which they

used Leica equipment on a project or as part of a program to adopt laser scanning. These were followed by a five-minute question-and-answer session.

Jacobs asked many questions himself and engaged the speakers and audience. He told stories of how he met the presenters at other venues and asked them to tell about their experiences at this conference. He seemed to have a rapport with the users.

The airborne sensor track was divided into three parallel product tracks: ADS (Airborne Digital Sensor), ALS (Airborne Laser Scanner), and RCD/RC30 (row camera). Leica staff presented these sessions, which consisted more of hands-on training and went into greater detail. These took place in smaller rooms, giving them a more intimate flavor.

Reflecting the prevalence of laser scanning in industrial plant applications, one afternoon featured two optional tracks, a plant track and general track geared toward broader civil applications. And the HDS track featured a Product Input session, a closed-door event for customers to make product recommendations to Leica staff.

After the conference, Leica presented a day of hands-on workshops at their offices in San Ramon. These covered topics such as ScanStation setup and use, plant modeling, advanced point cloud registration, and tips on using Cyclone software.

"This is truly a worldwide event," Jacobs proclaimed. He said there were 320-plus attendees from 25 countries. Many people came from Europe and Asia.

Sample HDS Track Sessions

Eron Singleton of Glahe & Associates in Idaho talked about a project involving an Indian hotel and casino. They used aerial photos, GPS RTK, and total stations to augment laser scanning as well as AutoCAD and TruView software. They were one of the first firms to use the new Leica Cyclone II TOPO that combines point clouds and CAD. Singleton told how they had a CAD drafter using Cyclone II TOPO who had never even collected data in the field. He estimated that laser scanning is 50 percent faster than conventional surveying on some projects.

Frode Edvardsen of Skansa based in Norway, one of the world's largest engineering and construction companies, told how the firm scanned both the inside and outside of precast concrete sections of a tunnel to be submerged underwater. The 2215-foot-long tunnel will carry vehicle traffic to divert it from downtown Oslo. As part of this, they surveyed the bottom where the tunnel will lie with a Kongsberg Maritime EMS 3000 system.

Steven Phillips of ESM Consulting Engineers, a civil engineering, survey, and landscape architecture firm in Federal Way, Washington, revealed how they use Cloudworx software for AutoCAD and often give the customer web-based deliverables because they're easier to use. They have scanned several projects for the University of Washington campus in Seattle and find themselves getting most of their work from city planners and zoning departments. They like to go beyond the actual scanning and try to capture the market for processing data into many forms. In one project, they built and erected a structure to hang a scanner over a waterfront wall to scan it.

In a plant track session, Leandros Zeppos, managing director of Unison Engineering & Consultants, a small plant engineering firm in Berlin, Germany, told how you can use software—Navisworks, in their case—to follow a pipeline in the model of a plant such as a refinery to see where it goes. They can go from a scanned model view to a CAD drawing to an isometric drawing in performing tasks like this. They use Autodesk Realviz and have developed a portal called Plant View for displaying their work.

In a unique twist for the conference, a panel discussion convened, Laser Scanning Education, Recruiting, and Attracting Staff. This marked the first time they held this; Leica had received requests for it. The panel consisted of four people, two from the education sector and two from companies that use scanning. Many valid points emerged. No formal classes in laser scanning are offered at schools now, but we will probably see some soon.

Surveying provides a good background for entering the laser scanning field, but on the other hand, the younger computer generation fits in well too. Students adapt well but lack surveying savvy; it's important to have knowledge of control networks. The industry is seeing a shortage of surveying and geomatics graduates. Schools shouldn't teach how to use a scanner as much as the theory behind scanning. With its fascinating images and computer applications, scanning can turn youngsters on to the world of surveying.

Sample Airborne Sensor Track Sessions

Tauno Saks of Leica talked about GNSS and IMU (inertial measurement unit) systems for airborne sensors. Using precise point positioning (PPP) increases accuracy. Using GNSS on flights reduces the number of ground control points required. GNSS aids the IMU, which is integrated into the sensor. Flight planning should involve a GNSS constellation overview to ensure that at least six satellites are available.

In another airborne sensor track session, ADS40/80 Applications—New Generation Sensors, Ruedi Wagner, Leica product manager, airborne sensors, stated, "Sciences are converging," explaining that airborne sensing technology does more than just generate data. This session contrasted with the HDS ones, as Wagner started by having everyone in the room introduce themselves and tell why they were there. People came from Lebanon, Brazil, Japan, Canada, and Taiwan, in addition to the U.S.

One person mentioned OMNR, a forest inventory project in Canada that ranks as the largest airborne sensing project ever with 600,000 square km flown in five years. Wagner told how airborne sensing is used in Berlin, Germany to map trees, as the city gets acid rain from an industrial plant 150 km away. He stated that oblique imagery has become more prominent because people like viewing it better. One attendee remarked that his company keeps planes busy flying 70 to 80 hours a week. Another one added, "We've come a long way, even from two, three, or four years ago," saying LiDAR has been part of that.

With lidar, laser scanning, and airborne sensing advancing as they have, it certainly makes sense to have a conference to bring users from around the world together so they can learn about the latest technology and exchange their experiences.