



## Editorial

>> Marc Cheves, LS

# THE American Surveyor

A FOOT IN THE PAST... AN EYE TO THE FUTURE

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## ESRI UC and Survey Summit

**J**ack Dangermond, who founded ESRI in 1969, has long envisioned products that allow us to view and interpret graphical data, and in doing so, deepen our understanding of how we interact with planet Earth. In the ESRI User Conferences that I've attended for the past 10 years, there has been a gradual shift from the display of data to "geodesign," a concept that portrays and enables the world as it could be, not just as it is. From monitoring deforestation and the resultant impact on wildlife, to establishing wealth-building cadastres for the third world, the July 2009 UC in San Diego amply demonstrated this sea change in GIS.



For the past seven years the Survey & Engineering GIS Summit has been held immediately preceding the UC. With this year's economy, attendance at the Summit was down 16 percent, but even so, 30-40 percent were first time attendees. The program was great, full of success stories about companies that wisely diversified before the current land development downturn.

Industry Manager for Survey & Engineering Brent Jones, PE, LS, (above) gave the opening remarks and presented many eye-opening statistics about data and the opportunities available to surveyors. NGS sent a large contingent, evidence that the GIS crowd understands the need for accuracy. Of course, accuracy has to start in the field, and ESRI has done its part by educating its users on the need to move away from cartoon data, and I believe we are fortunate that Dangermond has high regard for surveyors and surveying.

Jones reminded the audience that accuracy is in a surveyor's DNA, and it's why we turn multiple sets of angles and double-check our measurements. But in addition to measurement accuracy, there is also attribute accuracy (is it what we say it is?), topological accuracy (how is this data connected to that data?), and relative versus absolute accuracy. Something new is data currency (is this the latest version?).

When the current recession is over, Jones believes our industry will be different: some market segments will disappear, and new ones will be created. To illustrate this, he said the top 10 jobs in 2010 won't have even existed in 2004. As another example, he used MapQuest, which turned map data into knowledge. Consider how many vehicles now contain a GPS nav unit! Jones drew an analogy with NGS

data: not only is there a lot of it, but the quality is high and the currency is also high. He said, "Surveyors simply have to stop just using data, but selling it as well." Because new workflows with data are coming, he encouraged surveyors to start harvesting value from data—that is, stop seeing data as project-centric and more system-centric. Instead, use it to create a competitive advantage.

As an example of how technological developments in our world are speeding up, Jones discussed how long it took to reach an audience of 50 million: radio, 38 years; television, 13 years; Internet, four years; iPod, three years; Facebook, two years. And if MySpace were a country, it'd be the sixth largest nation on the planet. Adobe invented the PDF in 1992, and now, 10 percent of the data on the Internet is in PDF form. The shrinking of the newspaper industry is just one dramatic result of how things are changing before our eyes.

Jones noted that accuracies are improving, acquisition times are dropping, and predicted a time when we will know where everything is. Patents for achieving  $\pm 10\text{cm}$  accuracies with a cell phone are held by Nokia, something he believes will be a disruptive capability. For years, ESRI has pleaded with software manufacturers to create a direct link from ArcPad to the ESRI geodatabase, ArcServer. To that end, he mentioned the new JAVAD GNSS ArcPad extension for handhelds. ArcPad is one of ESRI's field tools, and is used to gather GIS locations.



Javad Ashjaee and Brent Jones discuss the new JAVAD GNSS ArcPad extension at the Survey Summit.

At the recent ESRI Developers Conference in Palm Springs, Javad Ashjaee met with Dangermond and Jones. On a napkin, they developed the workflow, and in three months, Javad's software engineers—along with an ESRI software engineer sent to Moscow from Egypt—kicked out the new extension. ESRI is very excited about this development because it means, for the first time, office people can benefit, real-time, from what is going on in the field.



### New Mobile Mapper

Also of note at the conference was Topcon's introduction of its new mobile mapping solution, the IP-S2 (above). As I have written many times, I believe mobile mapping will play a large part in our future, because like regular laser scanning, it offers millions of data points as opposed to one angle-one distance positions. In terms of pricing, the unit will be in the \$150-200K range. I had the pleasure of riding around San Diego in a pickup fitted with the new unit, and must say that it's very impressive. Topcon says the unit will reach 30 meters each way at a typical accuracy of  $\pm 45\text{mm}$ .

### LiDAR Compressor

In another of a long line of productivity tools, and in response to long-standing requests, LizardTech announced the release of LiDAR compression for industry-standard MrSID. Designed for LAS and text files, the Generation 4 (MG4) format offers two compression levels. The first will result in a 75 percent reduction in file size while retaining all the points and precision and accuracy of the original file. The second level, virtually lossless, can reduce file sizes by 90 percent, and contains less root mean square error than

the sensor that captured the original data. The software readily handles huge point clouds generated by airborne or terrestrial laser scanners, and allows users to easily extract derivatives.

### Archer Longbow Remote Positioning GPS Handheld

The result of a cooperative effort between Juniper Systems and Surveylab Ltd., this all-in-one field data collection unit combines an Archer Field PC, a GPS receiver, 3D compass, digital camera, and also a laser range finder. The device features rapid data capture, accuracy, ruggedness, ease of use, and safety. The laser range finder is available in 100, 300, and 1,000 meter versions. Just point the Archer Longbow at a target, push a button, and you'll capture the target's GPS coordinate plus a picture of the target. It then produces a verifiable, geo-tagged digital image with crosshairs and other information superimposed on the image to precisely record which target was recorded.

### GeoEye

Because imagery is always a huge topic at the user conference, GeoEye and its half-meter-resolution imagery had a popular booth. With applications and services like ArcGIS Online, ArcGIS Server, and other web services designed to help geo-technology users share imagery and data, the end users are hungry for data, imagery, aerial photography, and other datasets. Since the launch of GeoEye-1, the world's highest resolution commercial imaging satellite, the company has expanded its operations and scored rich contract wins from the likes of the U.S. Government and Google—most recently a \$25 million win from the NGA. The company, along with its subsidiary MJ Harden, collects tens of millions of square kilometers of imagery per year with satellites and aerial assets. The GeoEye imagery is so sensational it is even being used in the new Tom Clancy flight simulation video game HAWX.

### Surveyors and GIS

I'm impressed with the way ESRI continues to draw surveyors into its fold. Granted, amongst the more than 12,000 attendees at the user conference, surveyors were a tiny minority. But ESRI has done a lot to educate its users about surveying and the need for accuracy and geodesy. The door has been propped open so to speak. 