



# INTERVIEW: DON CARSWELL, PRESIDENT - OPTTECH INC.

OPTTECH INCORPORATED IS BASED IN CANADA AND IS INVOLVED INTERNATIONALLY IN THE DEVELOPMENT, MANUFACTURE AND SUPPORT OF ADVANCED LASER-BASED SURVEYING, MAPPING AND IMAGING INSTRUMENTS. MR. DON CARSWELL IS THE PRESIDENT OF THE COMPANY.



**Geoconnexion:** Opttech is a growing company that is expanding internationally. To what do you attribute that growth? What do you see as the key drivers behind demand for your products?

**Carswell:** Over 30 years ago, Opttech pioneered lidar solutions on a project to project basis. We've worked with and continue to work with organizations such as NOAA, US Army Corp of Engineers, Japan Coast Guard etc. Due to the success of these projects, we've been able to adapt the resulting technology into products and have developed global applications for scanned time of flight lidar technology. We're proud to have helped to develop the lidar community as a whole and we've been able to stay ahead of demand by focusing on our clients needs long before they even realize the demand for a certain technology or application. Our customers are also very responsive and provide a critical information exchange that enables Opttech to continue to develop cutting-edge technology in anticipation of future needs.

**Geoconnexion:** The company's Airborne Laser Terrain Mapper is used widely. Can you explain what it does and what makes it different from other laser mapping devices available?

**Carswell:** Opttech's ALTM or Airborne Laser Terrain Mapper systems are the most widely accepted system in the airborne lidar mapping industry. We are truly the world-leader in this technology and have sold the majority of the systems in use globally. That being said, our ALTM has many differentiating features over our competition, such as Enhanced Vertical accuracy of  $\pm 3\text{cms}$  2-sigma, the ability to shape the laser footprint to improve accuracy, and the fact that our scanners operate at a constant speed in a saw tooth pattern which results in the



highest density of points currently available in the 0°- 15° portion of a scanning swath – just to name a few advantages for all our Optech customers.

**Geoconnexion:** Laser mapping is becoming more important. What are some of the types applications that you see are gaining popularity?

**Carswell:** The popularity of lidar mapping has increased dramatically over the last 10 years. There are many uses both commercially and in government applications. We have seen some of the greatest growth come from Urban planning, corridor mapping as well as marine coastline, shallow water and disaster management mapping applications. Tripod mounted LIDARS are also rapidly expanding in popularity due to their ability to measure with centimeter accuracy over distances up to 1km and to allow measurement of areas not visible from the air.

**Geoconnexion:**The new ALTM 3100EA was recently released. Can you describe what it is useful for and the innovations incorporated into the instrument?

**Carswell:** The EA in the Optech ALTM3100EA moniker stands for Enhanced Accuracy and in fact the 3100EA does just that. With vertical accuracies now as sharp as 2cms 1-sigma, or 3cms 2-sigma the 3100EA is an extremely accurate lidar system. These accuracy advancements coupled with our 24/7 customer support has really helped Optech to maintain our market leader position. Optech is always focused on helping our customers maintain their strategic advantage by keeping ours.

**Geoconnexion:** What challenges do you see for the laser mapping industry over the next few years? Where and how do you see Optech meeting some of those challenges?

**Carswell:** Accuracies are always a challenge for our customers and in turn their clients. In the next few years, we foresee the industry working through the challenges of not only accuracy, but also throughput - both in acquisition, and in data processing. Our customers are being driven to ever increasing levels of productivity for the same survey dollars and Optech has, and is responding by improving the productivity of our equipment. Optech continues to lead the way in productivity enhancement and a large portion of our revenue dollars are reinvested into R&D so that we can ensure that our products remain the industry leading products that they always have been.

**Geoconnexion:** Recently you established a Service Centre for ILRIS products in Europe, what prompted that move?

**Carswell:** At Optech, we're always looking for ways to improve customer support. As a

global company, we constantly look for ways to improve responsiveness. While we are headquartered in Canada, we do not believe that a one location strategy best serves the needs of our clients around the globe – thus the Industrial and 3D Imaging Service Centre was developed. We're confident that this enhanced proximity to many of our European customers will further improve customer support.

**Geoconnexion:** There is a growing interest in 3-D visual representation. Which software can be used for processing data derived from Optech instruments for 3-D purposes and where do you see the strongest interest in 3-D applications?

**Carswell:** We have seen a dramatic growth in the interest over 3D visualization over the last few years. Virtually any software which can import X,Y,Z information from older methods can be used with Lidar data. The main challenge for the software is not the format of the data just the sheer quantity of it.

We recommend many software packages able to produce information from the data our Lidar sensors provide. Most of the interest in 3-D applications comes from applications where you wish to produce results which are readily identifiable to people, for example the accurate representation of a 3-D city. Our ILRIS line of ground-based lidar products has been quite successful in this marketplace and is gaining market share at an astonishing rate. We also have developed the capabilities to use many of the other data sets acquired from instrumentation such as our ALTM and SHOALS lines of products to produce similar representations.

**Geoconnexion:** Optech is also involved in space mapping. How did the company get involved in this area and could you describe some of the projects that you are involved in?

**Carswell:** Optech has been involved in space LIDAR applications since our earliest days, although initially only in a consultation or preliminary design role. About five years ago the level of business in space grew to the point where we decided to create a separate division in the company to respond to customer requirements in this area. Shortly after this, Optech partnered with MDA, a leading provider of space robotics, to improve our joint ability to respond to the growing interest in and demand for space lidar technology. It has been a successful partnership with one LIDAR sensor now in orbit on the USAFRL XSS-11 satellite and another sensor being readied for delivery to NASA to send to MARS in 2007 as part of their Mars Scout mission, Phoenix. We continue to be very excited by the possibilities in bringing even more advanced LIDAR systems to applications line planetary landing and spacecraft docking.

**Geoconnexion:** As Homeland Security and other security related issues become more prevalent, how is laser mapping being used to meet some of those challenges?

**Carswell:** An advantage of mapping with Lidar for security applications is that it is a stand-off technology so can be used to map an area without interfering with the area being mapped. This is a major consideration for public roadways, city infrastructure and ports/harbors and airports. Overall security applications are really no different from standard surveys, they are just being undertaken with a different view to the end use of the data. Optech customers have used our equipment in such unusual applications as fuel volume calculations (for estimating damage should a forest burn), evacuation/rescue route planning and centimeter level mapping of objects hidden by foliage.

**Geoconnexion:** Are there differences between laser mapping users in Europe, Middle East and Africa as compared to North America?

**Carswell:** The answer to that is complicated and involves both a yes and no answer. The actual operation of the equipment is the same for users world-wide and while different areas are met with different challenges in terms of climate, the systems Optech manufactures are very robust and respond well in all climates. Historically Europe led the way in the acceptance of Lidar as a tool for mapping and the very first ALTM system Optech developed was for a customer in Germany. The US has more recently caught up in adoption of LIDAR technology and probably represents the majority of LIDAR surveys being undertaken.

**Geoconnexion:** What are the benefits of laser mapping over other approaches for gathering the similar data?

**Carswell:** One of the main advantages Lidar has is that it is an active system; it does not depend on ambient light for operation. Due to this it delivered the same type of results whether operated day or night. Many of our customers prefer flying at night since there are fewer flight restrictions, around airports for example, and flying conditions are usually more acceptable. The other big advantage of an active system is its ability to see beneath forest canopies to map terrain or objects beneath. LIDAR is also the fastest way of obtaining accurate elevation information over large areas. No other technique offers the combination of speed of coverage and accuracy.