MEET DR JOHANNES RIEGL

AT THE INTERGEO 2012 CONFERENCE AND TRADE FAIR IN HANOVER, GERMANY, GEOCONNEXION'S PETER FITZGIBBON INTERVIEWED DR JOHANNES RIEGL, THE FOUNDER AND CHIEF EXECUTIVE OFFICER OF RIEGL LASER MEASUREMENT SYSTEMS GMBH

3D laser scanning is evolving with great rapidity, with a constant flow of innovations and patents for terrestrial, mobile and airborne applications. What do you see as the next big breakthrough that will bring down cost? Again, is there a practical limit to the accuracy achievable using LIDAR?
Mr Fitzgibbon, you are absolutely right. The laser scanning market is indeed evolving rapidly. RIEGL has a very long history and over 30 years of experience in introducing revolutionary, market-changing products, now with laser scanners. We always strive for perfection and delivering cutting-edge technology at competitive prices.

RIEGL innovations have resulted in lowering the cost-curve of ownership. RIEGL's focus on performance, reliability and precision allow our customers to be the most cost-effective providers. For example, the VZ-6000: this ultra-long range addition to the TLS [terrestrial laser scanning] family enables researchers of large glaciers and ice fields worldwide to safely and accurately measure and monitor, faster and more economically than ever before.

As our solutions are the most advanced within the industry, we see ourselves as a key driver in this growing market. The waveform technology, which we introduced in 2004, offers incredible value and performance and enables our customers to approach new applications and markets. At the same time, we have improved the precision of measurements to levels once considered impossible.

There are many algorithms to achieve full waveform analysis from echo signal digitisation and it has been exploited commercially for more than a decade. Yet there are still some who claim the technique is impractical. How does RIEGL combat this claim?
RIEGL is the pioneer in providing full waveform data. RIEGL's echo digitisation and full waveform analysis allow us to exploit advantages of this technology, such as improvements in accuracy, precision, and precise time stamped multi-target resolution.

Our customers have come to rely on the benefits of this advanced signal processing: high accuracy and precision, more complete datasets, industry-leading amplitude and reflectance. These benefits and more allow them to do their work faster, more accurately and with greater confidence.

The convergence of technologies, the merging of datasets and the democratisation of data are clear market trends. How does RIEGL see this playing out?
While there has been a great debate for a while regarding LIDAR [light detection and ranging] replacing photogrammetry or vice versa, I understand these technologies are complementary and therefore, we'll continue to see even more advanced sensor fusion in the future.

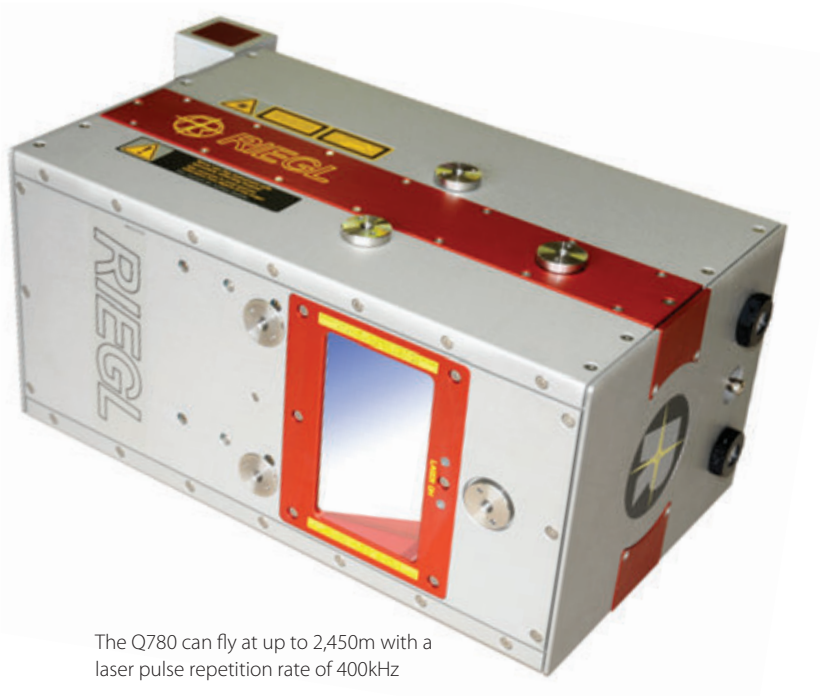
We observe a diversification of technologies but at the same time, also see a higher degree of compatibility of the data formats. This trend is due to standardisation on one hand and higher flexibility of software solutions on the other. The concurrent operation of different sensors will certainly gain importance in the following years and therefore, it is necessary to support smooth data fusion.

Democratisation of data is a way of circulating and advertising the technology. RIEGL supports convergence of data by disclosing its data formats and by actively participating in the definition of standardised data exchange formats, like the ASTM E57 or PulseWaves.

Your launch of the LMS-Q780 ALS at this year's show marks another breakthrough, with its ability to overcome the limitations of laser scanning at high altitude. In what market sectors do you envisage this instrument generating most interest and being of greatest practical value?
It is a breakthrough indeed and we are very proud to introduce this new high performance airborne laser scanner here at Intergeo.

The system offers unique automatic multiple-time-around processing, which allows us to fly at up to 2,450m at a laser pulse repetition rate of 400kHz. At the same time, up to nine pulses are in the air simultaneously. This results in a unique, highly efficient airborne data acquisition process and unrivalled point density.

Along with the technical specifications, the size and weight of this instrument is still only 20kg. This opens opportunities for installing this scanner in planes with low payloads or in unmanned aerial vehicles for emerging and important new applications, such as glacier and snowfield mapping, agricultural and forestry applications, along with the continuing demands of wide area mapping.

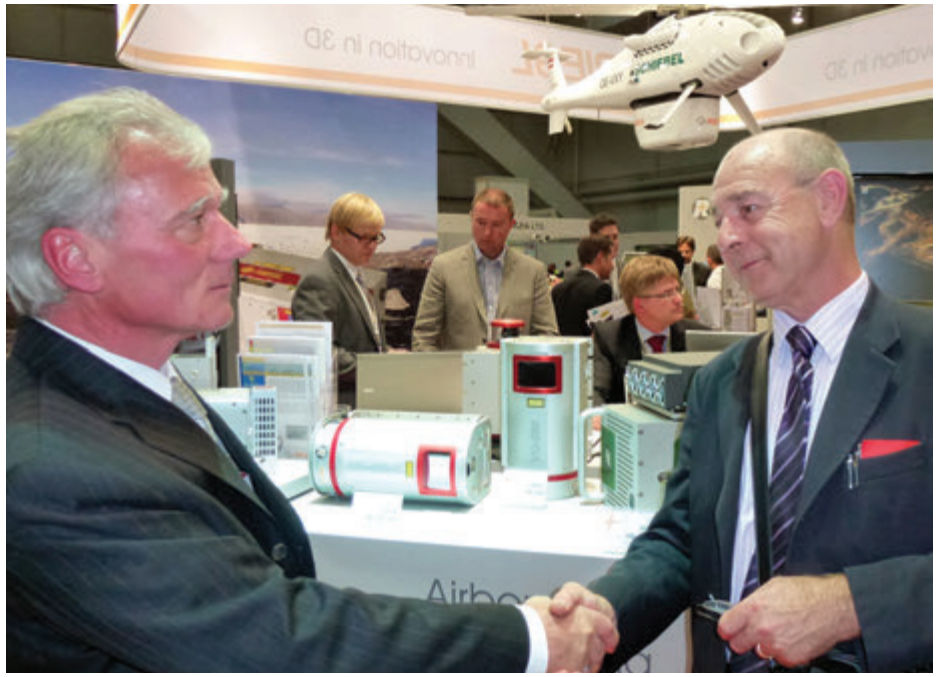


The Q780 can fly at up to 2,450m with a laser pulse repetition rate of 400kHz

What key user requirements or expectations surfaced during your user conference in Orlando in the United States earlier this year and how is RIEGL responding to these?
We had a great experience in sharing knowledge and experiences with our customers, partners and friends from all over the world in Orlando. One response to this conference has been discussed: the aim to acquire airborne data from higher altitudes, which directly resulted in the development and introduction of the LMS-Q780.

Another expectation that surfaced came from our mobile segment. In mobile laser scanning, service providers and users are striving for higher efficiency. We've recently introduced a plug-in, RiPrecision, for our mobile processing software to fully and automatically adjust the raw trajectory to result in a perfectly aligned point cloud. These are two key examples of direct results from our user conference. All in all, the feedback we received was, as always, highly appreciated and motivated us in our ongoing development efforts.

The VZ-6000 enables researchers of large glaciers and ice fields worldwide to safely and accurately measure and monitor, faster and more economically than ever before



Dr Riegl with Peter FitzGibbon at last year's Intergeo

Our next user conference is already scheduled for June next year in beautiful Vienna, Austria. We would like to welcome our airborne, mobile, terrestrial and industrial users and potential users. We hope to see you in Vienna next year!

How is the economic situation affecting RIEGL sales, both in Europe and globally?
Our terrestrial laser scanners are very fast; they are reliable, robust and offer a straightforward and efficient workflow. In airborne and mobile laser scanning, RIEGL stands out with unique technologies like waveform processing that offer our users unrivalled competitiveness. As we offer outstanding technology, our customers acknowledge the value and achievable return on investment. Therefore, I'm glad that I can say our present sales situation is both excellent and promising. We've seen significant growth over the last few years and a lot of confidence in our products and ourselves. Thus, a further expansion of our production facilities is planned for spring 2013.

AS WE OFFER OUTSTANDING TECHNOLOGY, OUR CUSTOMERS ACKNOWLEDGE THE VALUE AND ACHIEVABLE RETURN ON INVESTMENT

Peter FitzGibbon is editor of Geo:UK and the former editor of GeoConnexion International.