5 Questions to… Dr Martin Pfennigbauer and James van Rens, RIEGL

To gain real insight into today's hydrographic business landscape, *Hydro International* asked some of the sector's most influential companies for their opinions. This series of Q&As focuses on the current state of the industry from various perspectives, such as which technological developments will have the most impact on the market, which market segments are the most promising and which areas offer the most growth. Here, Martin Pfennigbauer, director of research, and James van Rens, strategic advisor, from RIEGL share their views and expectations for the business.

How do you expect the hydrographic market to evolve over the coming year?

Martin: We have seen excellent development in 2018, with more systems ordered and in operation worldwide. Furthermore, there have been a couple of very interesting new products introduced to the market. Drone operation of airborne laser bathymetry sensors seems to be the hot topic with a couple of announcements in 2018. RIEGL paved the way with its Bathycopter which was introduced in 2016. At Intergeo 2018, we presented the VQ-840-G, which features a form factor and weight suitable for UAV-borne deployment without having to significantly compromise performance. With this to come, I expect a thrilling 2019.

In what ways could the ocean technology industry benefit from artificial intelligence and/or machine learning?

Martin: Point classification and waveform analysis are complex and demanding processes, especially with respect to computational power. Machine learning has the potential to bring improvements and acceleration for both. It has already been successfully demonstrated for point cloud analysis and we will certainly see more applications in the near future.

How is your company addressing the market for autonomous vehicles?

Martin: Lidar is one of the key enabling technologies for ground-based autonomous vehicles (cars, robot carts). Autonomous UAVs currently only rely on cameras but will probably also use Lidar sensors, especially for higher speeds and larger ranges. RIEGL sensors are already used for such purposes and with the shrinking size of sensors, the field of applications is going to increase.

What could governments do to support the new market for automated surveying?

James van Rens: The UN-GGIM (United Nations Global Geospatial Information Management Committee) has an important initiative on Global Geospatial Information Management. The initiative has five principles of Statistical Geospatial Framework (SGF). This policy framework is a critical structure for all surveying and mapping information. Governments need to adopt the UN-GGIM Framework and Sustainable Development Goals. This process will facilitate automated surveying to flow naturally into each nations geospatial information system and then globally. Good Policy is Good Government!

What is the main technological advancement to watch for in the future?

Martin: When it comes to airborne laser bathymetry, UAV-based solutions seem to be the next greatest thing. Flexibility in deployment, low operational costs, and improved compact sensor equipment are the key factors that currently drive this field. Another quite interesting field is sensor data fusion – there are an increasing number of applications requiring the combination of Lidar data not only with RGB imagery but with all sorts of other data ranging from hyperspectral to radiation sensors.