

Joint scientific article on LiDAR for bathymetry of very shallow waters, under the leadership of RIEGL, wins ISPRS Best Paper of 2019!



For Immediate Release
HORN, Austria
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The full article is available in the ISPRS Journal, Volume 150, April 2019 pp.1-11 <https://doi.org/10.1016/j.isprsiprs.2019.02.002>

Every year the ISPRS (International Society of Photogrammetry and Remote Sensing) chooses the Best Paper of the Year from the wide range of publications in the ISPRS Journal of Photogrammetry and Remote Sensing.

For 2019, this award goes to the scientific article *Design and Evaluation of a Full-Wave Surface and Bottom-Detection Algorithm for LiDAR Bathymetry of Very Shallow Waters* by Roland Schwarz, Gottfried Mandlbauer, Martin Pfennigbauer and Norbert Pfeifer.

In cooperation with the Vienna University of Technology and the University of Stuttgart, Roland Schwarz and Martin Pfennigbauer from RIEGL Research succeeded in issuing a new and innovative contribution to topographic underwater mapping with the SVB algorithm (surface, volume and bottom) presented in their article. A considerable advantage of their method is that it relies only on a single laser wavelength. The jurors were impressed with the detailed modeling of the return waveform, the clarity of the explanation, the convincing experimental results, and the potential for broader applicability of the method.

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The full scientific paper is available under the following link:

<https://doi.org/10.1016/j.isprsjprs.2019.02.002>

(*ISPRS Journal of Photogrammetry and Remote Sensing*, Volume 150, April 2019 pp.1-110)

As *Best Paper 2019*, the article is automatically nominated for the *ISPRS U.V. Helava Award* which is awarded every four years, and is selected by a jury of five members with high scientific standing.

RIEGL, an internationally recommended manufacturer of laser scanners for surveying applications with headquarters in Horn/Lower Austria, has always invested massively in research and development. Its own subsidiary, *RIEGL Research Gesellschaft mbH*, continuously develops groundbreaking innovations in the field of LiDAR technology.

For more than 10 years *RIEGL* has been intensively involved in the development of topo-bathymetric LiDAR sensors. These systems allow for simultaneous acquisition of measurement data from the environmental topography, the water surface, and the underwater topography.

For applications such as mapping of coastal areas and shallow water zones, surveying for hydraulic engineering, or hydro-archeological missions, *RIEGL* offers the fully integrated laser scanning system VQ-880-G II and VQ-880-GH (optimized for helicopter use), as well as the compact, lightweight VQ-840-G laser scanner which is also suitable for use on drones.

In addition to these LiDAR sensors, *RIEGL's* proprietary software package RiHYDRO allows to provide extensive additional information from the bathymetric data by means of *Full Waveform Analysis* of the digitized echo signals.



The authors of the awarded paper 2019 (from left to right):

Roland Schwarz, *RIEGL Research Austria*, Gottfried Mandlbauer, *Vienna University of Technology and Stuttgart University*, Martin Pfennigbauer, *RIEGL Research Austria*, Norbert Pfeifer, *Vienna University of Technology*.

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About RIEGL:

RIEGL is an international leading provider of cutting-edge technology in airborne, mobile, terrestrial, industrial and unmanned laser scanning solutions.

RIEGL has been producing LiDAR systems commercially for over 40 years and focuses on pulsed time-of-flight laser radar technology in multiple wavelengths.

RIEGL's core Smart-Waveform technologies provide pure digital LiDAR signal processing, unique methodologies for resolving range ambiguities, multiple targets per laser shots, optimum distribution of measurements, calibrated amplitudes and reflectance estimates, as well as the seamless integration and calibration of systems.

RIEGL's Ultimate LiDAR™ 3D scanners offer a wide array of performance characteristics and serve as a platform for continuing *Innovation in 3D* for the LiDAR industry.

From the first inquiry, to purchase and integration of the system, as well as training and support, RIEGL maintains an outstanding history of reliability and support to their customers.

Worldwide sales, training, support and services are delivered from RIEGL's headquarters in Austria; main offices in the USA, Japan, China, Australia and Canada; and a worldwide network of representatives.

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