

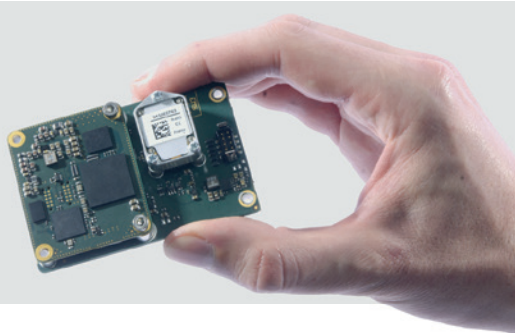
# SUCCESS STORY

## UAV-based Bathymetry



### Direct Georeferencing

ASTRALiTe's edge™, the world's first small-scale topographic and bathymetric scanning LiDAR, embeds a Quanta inertial navigation system for direct georeferencing.



#### CLIENT

ASTRALiTe

#### APPLICATION

UAV-based Bathymetry and Topography

#### PRODUCT

Quanta Direct Geo-referencing Solution

#### PROJECT

LiDAR data geo-referencing

#### WORLD'S FIRST SMALL-SCALE TOPO & BATHY LiDAR

ASTRALiTe's edge™ is the world's first small-scale topographic and bathymetric scanning LiDAR that can detect small underwater objects, measure shallow water depth, and survey critical underwater infrastructure from a small UAV platform.

The edge™ can see beneath the water surface at depths from 0-5 meters, and is completely self-contained with its own INS/GNSS, battery, and onboard computer. It weighs about 5 kg and is designed for deployment

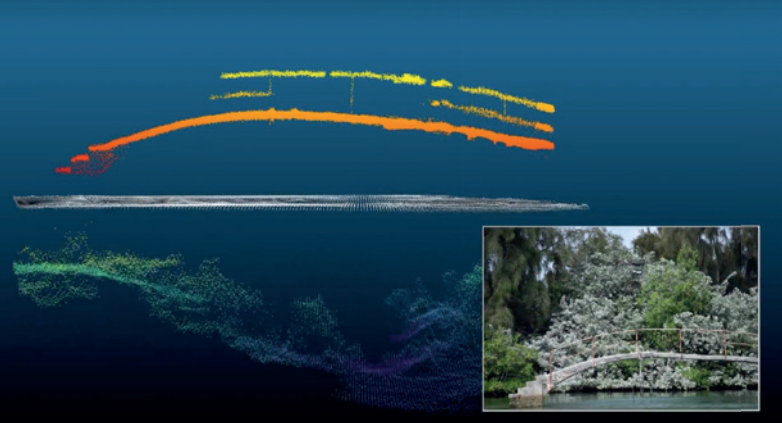
on UAV systems for faster, safer, and more accurate bathymetric surveys.

#### SBG DIRECT GEO-REFERENCING SOLUTION

"We needed a motion and navigation solution for our LiDAR. Our requirements included high accuracy along with low size, weight, and power" explains Andy Gisler, Director of Lidar Systems with ASTRALiTe. In addition, the system needed to be able to apply a PPK correction to the LiDAR data to provide higher accuracy results to ASTRALiTe's customers.

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Andy Gisler, Director of Lidar Systems with ASTRALiTe



ASTRALiTe's edge provides high-definition measurements both above and below the water surface and accurately measures the transition from land to water. Additionally, the equipment provides simultaneous water and bottom surface detection at sub-centimeter accuracy and precision from shore through shallow waters – an industry first.

More on ASTRALiTe: <https://www.astralite.net/edgelidar>

### QUANTA, THE DIRECT GEO-REFERENCING INS/GNSS

The company chose the new georeferencing solution from SBG Systems named Quanta. This Inertial Navigation Systems (INS) is specially designed to be integrated into mobile mapping systems. "The weight of the INS solution was especially important to us," adds Andy. ASTRALiTe's system is to be flown on most UAVs, where light payload capacities are required for UAV compatibility. The ability to use two GPS antennas was key in our choice as we required good heading knowledge at slow flight speeds.

Quanta directly and precisely geotags the point cloud in real-time and provides even higher performance in post-processing. One year of post-processing with the SBG in-house PPK software called Q inertia is offered for UAV applications.

■ Hélène LEPLOMB, SBG Systems, February 2020

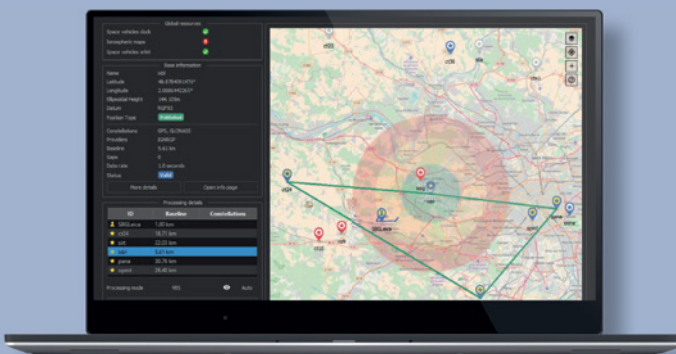
*"Accurate and lightweight IMU performance leads to high accuracy LiDAR point clouds. Combined with the ASTRALiTe scanner and LiDAR performance, point clouds with typical densities of 100-300 pts/m2 and centimeter-level resolution can be achieved"*

Andy Gisler, Director of Lidar Systems with ASTRALiTe

## About the SBG INS/GNSS and PPK Software

### QUANTA KEY FEATURES

- » 0.03° Roll and Pitch over 360°
- » 0.2° Heading (Dual Antenna RTK GNSS)
- » 1 cm RTK GNSS Position
- » Post-processing with Q inertia PPK Software



### Q INERTIA POST-PROCESSING SOFTWARE

After the survey, this full-featured software gives access to offline RTK corrections and processes inertial and GNSS raw data to further enhance accuracy and secure the survey. Trajectory and orientation are greatly improved by processing inertial data and raw GNSS observables in forward and backward directions. This advanced software also computes your base station position to quickly get your project to the centimeter accuracy.