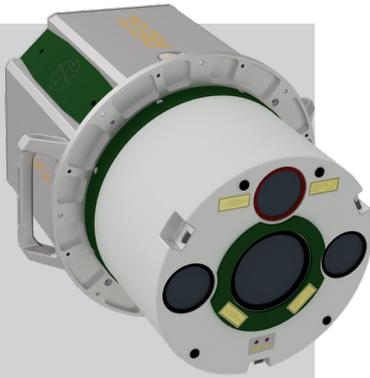


AIRBORNE LIDAR SENSORS



RIEGL VQ-880-G II **Topobathymetric lidar**

Our VQ-880-G II topobathymetric lidar system creates laser range measurements for high-resolution surveying of underwater and over land topography with a narrow, visible green and near-infrared laser beam, emitted from a powerful pulsed-laser source. Subject to clarity, the green laser beam penetrates water, enabling measurement of submerged targets. It's a fully integrated airborne laser scanning system for combined hydrographic and topographic surveying.



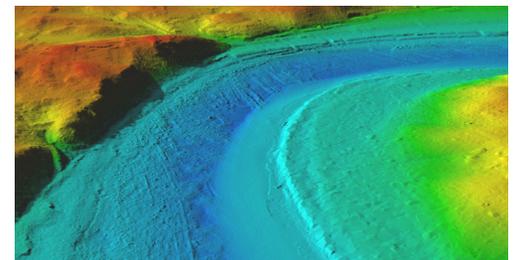
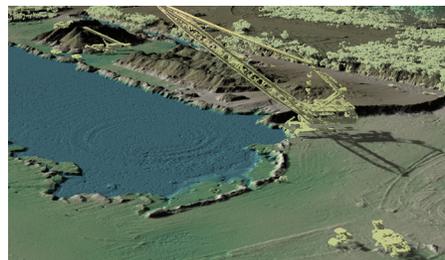
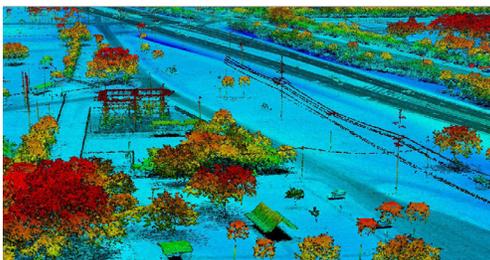
RIEGL VQ-1560 II-S **Topographic lidar**

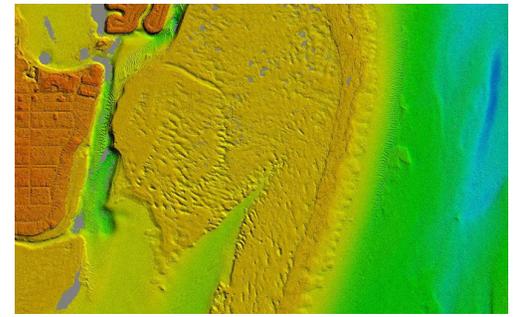
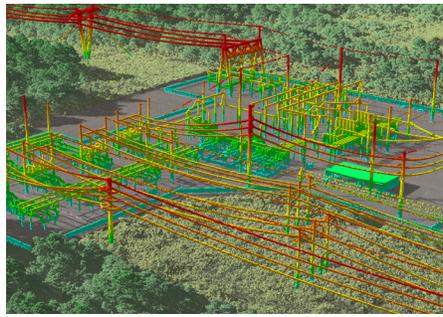
The RIEGL VQ-1560 II-S system, with its rotating mirror design and high-output dual laser technology, allows our team to fly higher and faster on large-scale mapping projects and corridor work. This system gives our clients access to more dense, high-precision data with uniform point distribution, faster acquisition, and more responsive service. It also expands the market for lidar data and derivative products to support forestry, agriculture, floodplain mapping, and urban planning.



CZMIL SuperNova **Hydrographic and topobathymetric lidar**

We take pride in our role as a leader in the field of remote sensing by offering the Teledyne Geospatial CZMIL SuperNova lidar sensor, equipped with the most powerful green laser on the market to provide maximum depth penetration and superior coverage in turbid waters. The addition of this sensor to our service offerings provides our clients with the most innovative technology to deliver the highest caliber data and the ability to produce seamless topography and bathymetry in coastal, lacustrine, and riverine environments with significant cost savings for our clients.





RIEGL VQ-880-G II Highlights

- Designed for combined high-density topographic and bathymetric airborne survey
- Green laser channel (up to 700 KHz) and IR laser channel (up to 279 KHz) enables very high density (20+ ppsm) seamless topobathy data
- High-accuracy ranging based on echo digitization and online waveform processing with multiple-target capability
- Co-acquired imagery, 100-megapixel integrated 4-band camera (RGB-IR)
- Concurrent full waveform output for all measurements for subsequent full waveform analysis for the green channel
- Capable of modeling ~1.5 x Secchi depth in nearshore coastal and riverine environments

Applications

- Coastline and shallow water mapping
- Acquiring base data for flood prevention
- Measurement for aggradation zones
- Habitat mapping
- Surveying for hydraulic engineering
- Hydro-archaeological surveying

RIEGL VQ-1560 II-S Highlights

- High efficiency – 4 MHz sensor capable of 2.66 million measurements per second and unlimited returns per laser pulse
- Co-acquired imagery, 150 megapixel integrated RGB camera
- Can achieve accuracies of 2" (< 5 cm RMSE) or better
- High density offers 40 ppsm and 1 km swath when flown at 3,000 ft AGL
- Small footprint and short pulse duration for accurate modeling of small-scale features

Applications

- Wide-area/high-altitude mapping
- Corridor mapping for utilities and transportation
- Forestry and agriculture
- Ultra-high point density mapping of complex urban environments
- Mapping lakesides/riverbanks

CZMIL SuperNova Highlights

- Powerful topographic/hydrographic mapping
- Unique green-wavelength lidar with QL1 topography, bathymetry from seven shallow channels and one deep channel
- Capable of modeling ~3.5 x Secchi depth
- Best performance in turbid waters: $K_d \cdot D_{max} = 4.4$
- Co-acquired imagery from 150 megapixel RGB camera
- Field-programmable for maximum performance in wide range of environments
- CARIS BASE Editor for processing data using artificial intelligence/machine learning techniques

Applications

- Seamless capture of topography and bathymetry, and integration with hydrographic data
- Coastal and shoreline mapping
- Riverine systems
- Shallow lake bathymetry
- Submerged habitat detection
- Estuarine wetland mapping

Advancing our role as a leader in the airborne remote sensor community.



Jason Dolf, CP, CMS
jdolf@dewberry.com
813.327.5069

in @ y
www.dewberry.com

