

Demo of Hydrographic Airborne Laser Scanning System



From 12 March to 16 March 2012, RIEGL carried out an extended bathymetric test with the new VQ-820-G hydrographic airborne laser scanning system in South Florida, USA. With assistance from the National Oceanic and Atmospheric Administration (NOAA), the new scanner was demonstrated to showcase and highlight its capabilities. The event also allowed the attendees the opportunity to meet RIEGL experts and to examine details of the VQ-820-G more closely.

The bathymetric demonstration took place over the course of a week in various locations of South Florida, including Tampa, Fort Lauderdale and Key West. The basis of the operation was located at the Westin Fort Lauderdale in Fort Lauderdale, Florida.

The new RIEGL VQ-820-G hydrographic airborne scanner was mounted in NOAA's Twin Otter together with an aerial camera system and flew four test sites, not including the boresight calibration area in Tampa, Florida, at altitudes of 2,000 feet and typical speeds of 100 knots. Throughout the tests, 10 to 15 points per square metre were acquired and ocean penetration was 5 to 10 metres under 'normal' sea state circumstances - in other words, not perfect conditions.

Attendees were impressed by the simplicity of the integration, the installation, and the operation of the VQ-820-G, as well as the ease and speed of data processing.

The test also revealed the performance of the VQ820-G over shallow water areas, canals, shallow water ways, shorelines, buildings and land. Excellent coverage was achieved in areas where other current bathymetric technologies such as multibeam sonar systems, side scan sonar systems, and current bathymetric Lidar systems could not get as good results.

The VQ-820-G achieved consistent results in less than perfect water conditions. In some areas we observed up to 10m water penetration. According to RIEGL, excellent results were obtained especially in areas with dense vegetation. Due to the scanner's multiple target capability, it is possible to discern water surface, bottom, and several returns coming from vegetation.

Martin Pfennigbauer, director of Research at RIEGL and also product manager of the VQ-820-G, announced that the true range performance of the VQ-820-G to a 60% reflective surface is approximately 10,000 feet. The laser pulse measurement rate is 550,000 shots per second. RIEGL also provides the complete suite of software to calibrate, acquire, process, georeference and export the data.

Applications for the RIEGL VQ-820-G include riverbed profiling, coastline and shallow water mapping, habitat mapping, acquiring base data for flood prevention, measurement for aggradation zones, monitoring of hydraulics laboratories, surveying for hydraulic engineering, and hydro-archaeological surveying.