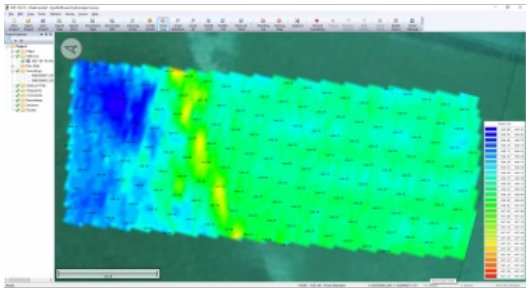
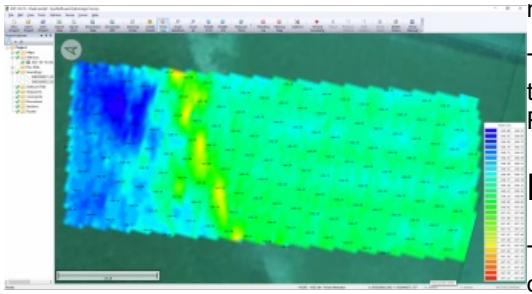
Bathymetric Surveying with UAV and Echosounder in Dead Sea



Israeli drone service provider ERELIS recently conducted a number of pilot projects using a drone equipped with a single-beam echosounder in the Mediterranean and Dead Sea. The reference bathymetric data was collected using a manned boat and multi-beam and single-beam echosounders and demonstrated a good match between the results of new drone-based and traditional methods.



The data was validated by authorized local surveyors and reports from previous surveys of the same areas by Michmoret Campus – Faculty of Marine Sciences, which is part of the Ruppin Academic Center.

Hydro Sensing Meets Hydrography

The bathymetric system consisted of a standard commercial DJI drone (UgCS SkyHub onboard computer and terrain-following system with radar altimeter) and Echologger ECT400 single-beam echosounder provided by SPH Engineering, Latvia. For data processing, the Eye4Software Hydromagic software package was employed.

“I was surprised by the manoeuvrability of the system and how easy it is to conduct bathymetric surveys using a UAV equipped with an echosounder. Some of our survey areas were 400–500m away from take-off/landing positions and that means that the term remote sensing comes to the world of hydrography and becomes available to any drone service companies,” Roman Kirsanov, CEO of ERELIS, commented.

Drone equipped with a single-beam echosounder surveying the Dead Sea.

“It is good to see that the applicability of our system with a single-beam echosounder has been validated in conditions outside of its initial focus on small-scale surveys of inland water bodies, first of all for surveys without actual physical access to the area under investigation, and secondly in situations where it is not reasonable to employ traditional methods. Furthermore, thanks to our partner, we can now also recommend our system for small-scale surveys in coastal areas and virtually in any liquids, as the density of the water in the Dead Sea is 1.24kg/L,” Alexey Dobrovolskiy, CTO of SPH Engineering, added.

SPH Engineering announced the launch of a UAV drone, integrated with an echosounder, as a new product for bathymetric surveys of inland and coastal waters in May 2020. This data collection method has been used in a number of countries, including Denmark and the UAE. The method has proven to be both time- and cost-efficient and suitable for mapping, measuring and inspections, as well as environmental monitoring. This bathymetry solution is also synchronized with the Hydromagic Survey software package.

Survey data of the Dead Sea bathymetry project.