

Application Note

GeoSwath Plus Compact



KONGSBERG

Shallow Water Bathymetry and Side Scan Surveys

GeoSwath Plus Compact

The *GeoSwath Plus Compact* shallow water multibeam offers efficient simultaneous swath bathymetry and side scan seabed mapping with accuracies that exceed the IHO standards for hydrographic surveys.

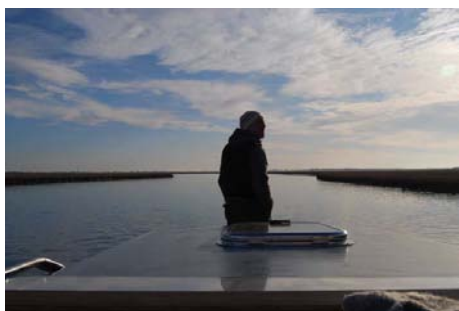
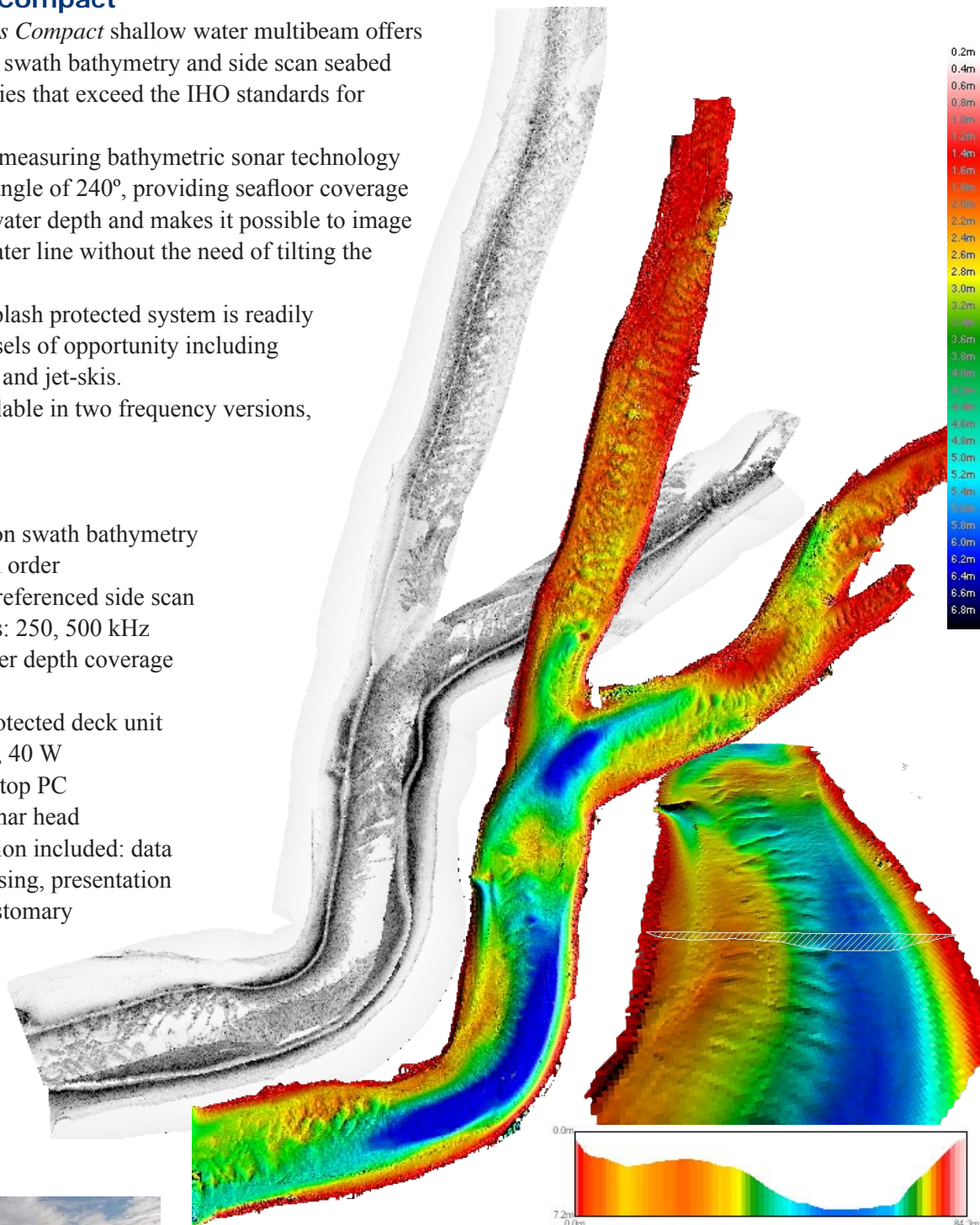
The applied phase measuring bathymetric sonar technology has an insonification angle of 240°, providing seafloor coverage beyond 12 times the water depth and makes it possible to image structures up to the water line without the need of tilting the sonar head.

The lightweight, splash protected system is readily installed on small vessels of opportunity including inflatable crafts, RIBs and jet-skis.

The system is available in two frequency versions, 500 kHz and 250 kHz

Features

- Ultra high resolution swath bathymetry
- IHO SP-44, special order
- Co-registered geo-referenced side scan
- Frequency versions: 250, 500 kHz
- Up to 12 times water depth coverage
- 240° view angle
- Compact splash protected deck unit
- 24 V power supply, 40 W
- Operation from laptop PC
- Dual transducer sonar head
- Full software solution included: data acquisition, processing, presentation
- Interfaces to all customary peripheral sensors



GeoSwath Plus Compact 500 kHz data gathered in the Venice lagoon. The data shows a natural salt marsh channel with water depth ranging from below 1 m to 7 m. The channel is imaged up to the water line. The bathymetry reveals its morphology in great detail. The co-registered geo-referenced side scan data allows the interpretation of seafloor types. In the shallow part of the survey area a coverage up to 20 times the water depth was achieved.



GeoSwath Plus Compact set-up

The typical set-up for over-the-side installation for small boat operations comprises the wet-end transducer t-plate, which holds the sonar head consisting of two transducers moulded into a single element for easy calibration. In addition it holds a sound velocity sensor (MiniSVS) and a motion reference unit (MRU). The sonar head is deployed on an over-the-side pole together with the GPS and heading sensor. This way the sonar system is separated from the vessel, which facilitates the calibration and makes the system truly portable.

The compact deck unit houses the sonar electronics together with an integrated PC. It runs of 24 V power supply, drawing only 40 W. The system uses *GeoSwath Plus* software under Windows for data acquisition, system calibration, post-processing and data presentation, making the *GeoSwath Plus* a truly turn-key solution. It can be operated directly from the unit via keyboard and monitor or from a laptop computer.

The vessel's position and heading sensors also link to the deck unit with tide information and sound velocity profiles added to complete the calculation.

In an alternative set-up the system can be used as a sonar sensor with most commercial hydrographic survey software packages.

In addition to wide swath bathymetry data *GeoSwath Plus Compact* simultaneously acquires real **geo-referenced side scan data**. Particularly in shallow water environments both surveys can be accomplished simultaneously without the need for a towed side scan, which can be operationally challenging.



***GeoSwath Plus Compact* 500 kHz geo-referenced side scan data collected in 5 m water depth in a Kleipeda port, showing debris including car tires.**



***GeoSwath Plus Compact* installation on an inflatable craft. All sensors are installed on the over-the-side mount pole.**
Courtesy of TOYO Corporation, Japan.

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