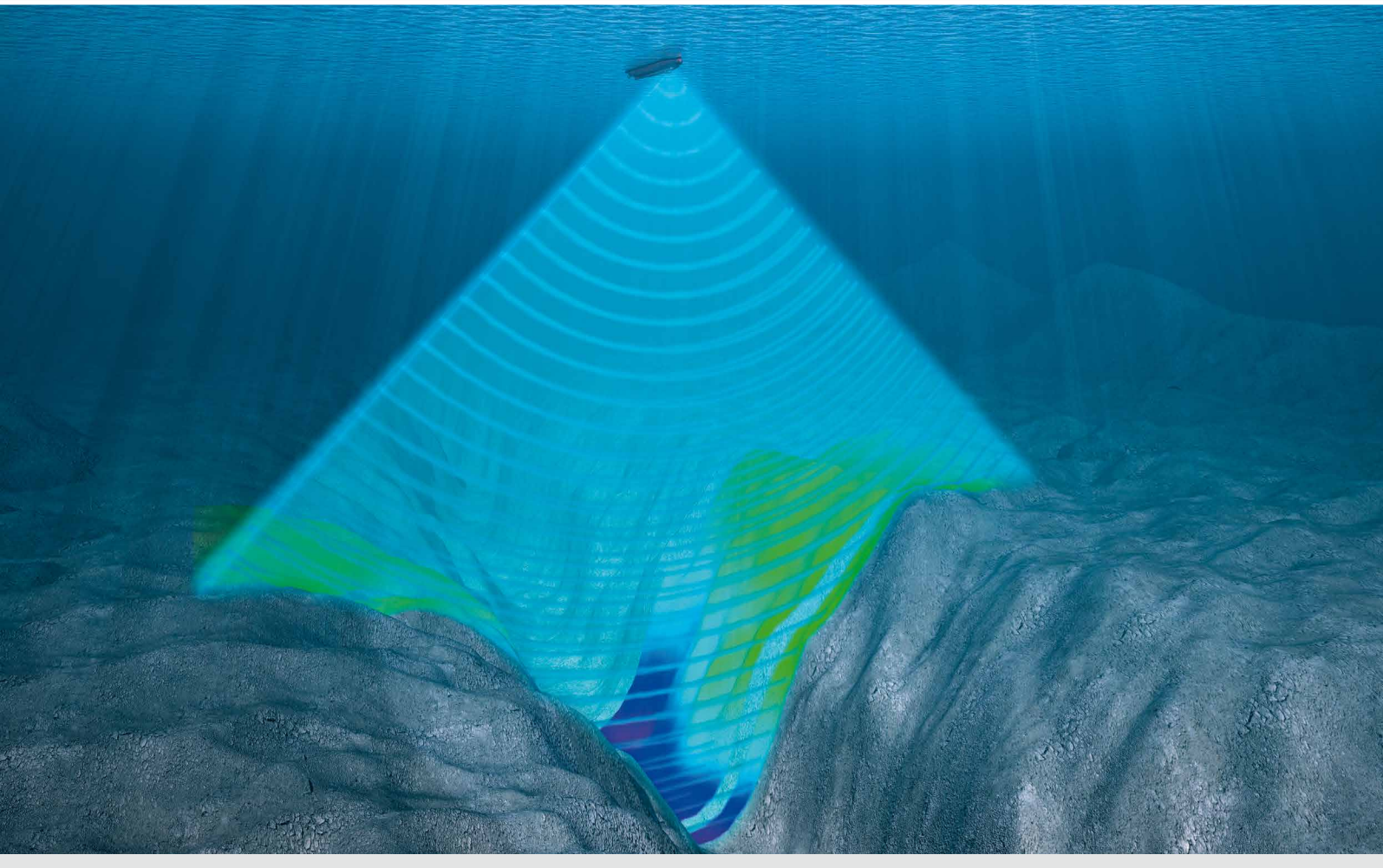
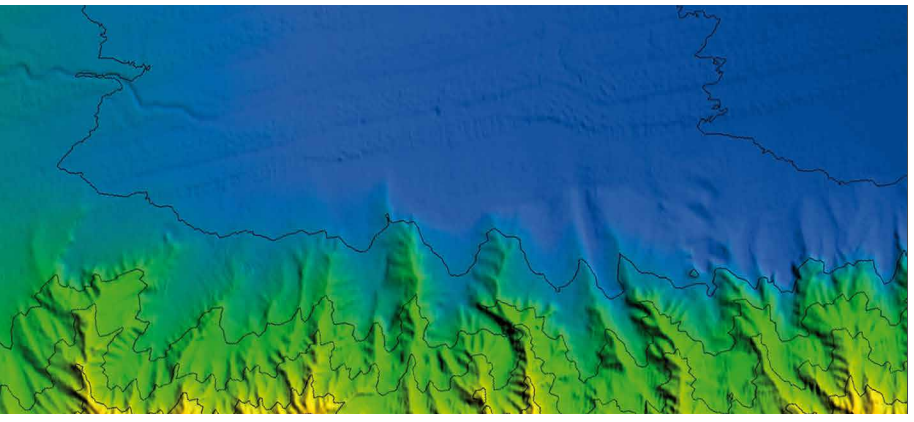
WÄRTSILÄ

Wärtsilä ELAC SeaBeam 3012

Full Ocean Depth Multibeam System

12 kHz | 11,000 m Depth Performance | 31,000 m Swath Coverage | Swept Beam™ | Multi-Ping | WCI





System Overview

Modular Design for Customized Beam Width Solutions

Transmitter and Receiver Control Units
The transmitter control unit supplies the drive signals to the entire projector array. Each output is separately controlled for power level, phase and frequency. This facilitates programmable shading and steering as well as transmit beam stabilization using Swept Beam™.

The receiver control unit is responsible for the overall ping cycle. It contains the receiver circuits for the hydrophones as well as the signal processors for beamforming, bottom detection and data reduction. The receiver control unit has an Ethernet connection to the operator station.

Transducer Array
The transducer array includes a projector array and a hydrophone array in a mills cross configuration. The projector array consists of up to 25 identical modules, depending on the along-ship beam width. Typically, the projector array has an along-ship beam width of 1° or 2°. However, also intermediate along-ship beam widths like e.g. 1.5° are possible in order to satisfy specific customer requirements. The projector modules utilize Tonpilz resonators.

ELAC SeaBeam 3012 multibeam sonar electronics

The hydrophone array consists of up to 15 identical modules, depending on the across-ship beam width. Typically, the hydrophone array has an across-ship beam width of 1° or 2°. Intermediate across-ship beam widths like e.g. 1.6° are also possible in order to satisfy specific customer requirements. The hydrophone modules utilize ceramic elements which have broadband performance to provide excellent phase uniformity across the array and multi-frequency capability.

Operator Station
The operator station is a PC of the latest technology, providing a graphical user interface on high-resolution TFT monitor(s) for controlling the system, using the Wärtsilä ELAC HydroStar operator software. It communicates with the sonar electronics via Ethernet, both for sonar control and acquisition of sonar data.

The ELAC HydroStar operator software records bathymetric data as well as WCI data and provides various real-time data displays for quality control. It also supports third-party software packages for data acquisition like HYPACK, EIVA or QINSy.

Water Column Imaging (WCI)
WCI data can always be logged without any extra installation. In order to display real-time data from the water column and seafloor, an additional WCI station is required (option).

The WCI station is a PC of the latest technology with high-resolution TFT monitor, receiving data for each ping from the operator station via Ethernet. The HMI for water column imaging is the Wärtsilä ELAC HydroStar WCI Client software.

Bottom Slope Data Interface
ELAC SeaBeam 3012 provides a serial data output of bottom slope data. These data are calculated via linear regression and are e.g. useful for the automatic steering of a sub-bottom profiler.