



GeoSwath Plus

Wide Swath Bathymetry with co-registered Side Scan

Introduction

GeoSwath Plus provides very efficient multibeam swath bathymetry and side scan mapping for all survey applications; the same area can be mapped 30% to 40% faster using GeoSwath Plus than with a typical beamforming multibeam echosounder. GeoSwath Plus offers ultra high resolution, accurate and repeatable seafloor bathymetry, with the added bonus of simultaneous true side scan data. The seafloor coverage provided by GeoSwath Plus is up to 12 times the water depth, and can be even greater than this in very shallow water.

Software

Operating on Windows XP, the GeoSwath Plus software package provides a complete turnkey solution, including:

- grid-based calibration
- data acquisition with 1pps time stamping
- data processing with a full audit trail
- data display with fly-through capability

As an option GeoSwath side scan data can be analysed using GeoTexture, our software for Side Scan Sonar Image Processing, Mosaicing, Texture Mapping and Classification which provides users with more information about the seafloor than can be obtained using conventional multibeam echosounders.

Interfaces also exist to a wide variety of 3rd party software. GeoSwath Plus data can also be interfaced to third party implementations of the CUBE algorithms.

Hardware

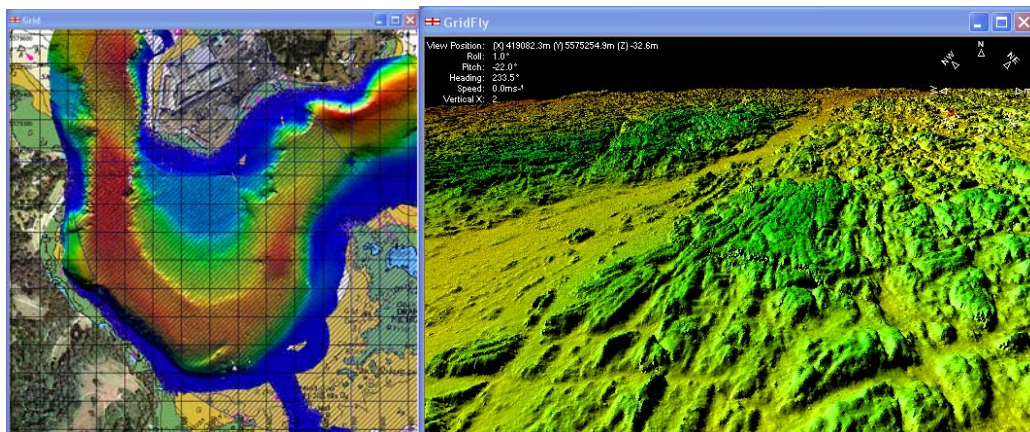
GeoSwath Plus is a compact and lightweight system. The 19 inch rack mountable workstation contains the system electronics as well as the acquisition and processing PC. All peripheral sensors (motion, heading, transducer face sound velocity, sound velocity profiler, position & tide) interface directly to the workstation. The transducers are small and can be either hull mounted or installed over the side on vessels of opportunity. There are two standard versions for vessel mounting with operating frequencies of 125 kHz and 250 kHz. There is also a 500 kHz version for mounting on AUV's and ROV's which can also be mounted on small craft in very shallow water.

Installation

The hardware has been designed to make it ideal for small boat operation. GeoSwath Plus is regularly installed on vessels of opportunity in less than 4 hours.

Performance

GeoSwath Plus provides ultra high resolution bathymetry data which meets or exceeds the Special Order specifications, as set out in *IHO Standards for Hydrographic Surveys, Special Publication 44, 4th Edition, April 1998*. Simultaneously recorded true side scan data extends the capabilities of the system. The bathymetry and side scan data sets can also be processed in parallel which provides a powerful combination for interpretation of the survey dataset.



From the Plymouth Dataset acquired for the Shallow Survey 2005 Conference



Over the side mount, bow mount, temporary or permanent installation, large or small vessels, GeoSwath Plus is suitable for all situations

GeoSwath Plus Specifications

GeoSwath is available in three frequency versions, 125 kHz, 250 kHz and 500 kHz. The system accuracy of all versions exceeds the Special Order specifications, as set out in *IHO Standards for Hydrographic Surveys, Special Publication 44, 4th Edition, April 1998.*

Sonar Frequency	125 kHz	250 kHz	500 kHz
Recommended Maximum Operating Depth Below Transducers	200 metres	100 metres	50 metres
Maximum Slant Range	390 metres	195 metres	95 metres
Maximum Swath Width	780 metres	390 metres	190 metres
Range	Up to 12 x depth	Up to 12 x depth	Up to 12 x depth
Depth Resolution	6mm	3mm	1.5mm
Two Way Beam Width	0.85° Azimuth	0.75° Azimuth	0.5° Azimuth
Transmit Pulse Length	128 µS to 896 µS	64 µS to 448 µS	32 µS to 224 µS
Swath Update Rate			
50m Swath Width	30 swaths per second	30 swaths per second	30 swaths per second
150m Swath Width	10 swaths per second	10 swaths per second	10 swaths per second
300m Swath Width	5 swaths per second	5 swaths per second	
600m Swath Width	2.5 swaths per second		

Note: GeoSwath Plus may be operated at depths greater than the recommended maximum operating depth below the transducers. In this case the maximum depth of operation and swath width achievable are limited by the maximum slant range.

*Specification sheet subject to change without notice.
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