

# Sams Series

## Synthetic Aperture Mapping Sonars for deep water (6,000 m)

Sams Series (Synthetic Aperture Mapping Sonar) is a high-resolution seafloor mapping sonar that simultaneously produces backscatter images of the seafloor and a bathymetric model by interferometry. The Sams Series has been designed to cover the full ocean depths down to 6000m. It comes in 2 kit versions Sams-150 & Sams-50. The kits can be integrated on a multitude of platforms: towfish, ROTV, ROV, USV, AUV, and submersibles down to 6000 meters deep. Through its unique Delph SAS processing technique, combined with ultimate resolution, it expands the capabilities of conventional imaging side scan sonar.

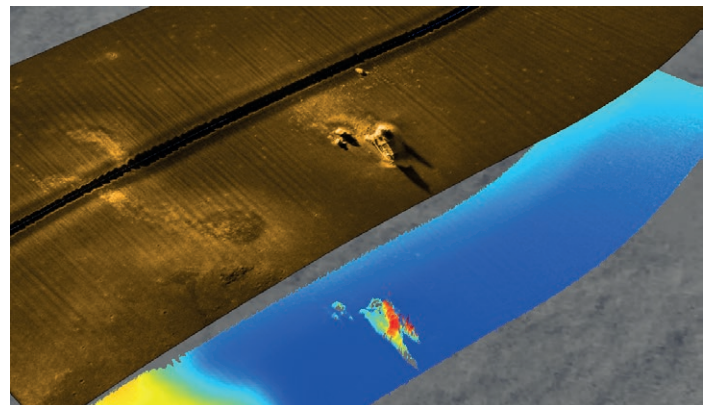
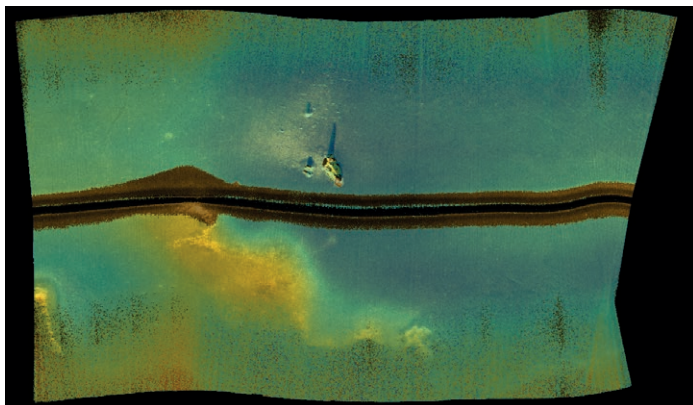


### Operational conditions

- Offers full swath of the seabed mapping in real-time and high-resolution (Synthetic Aperture Sonar and Gapfiller)
- Provides real-time high-quality maps
- Provides simultaneous imagery and bathymetry data
- Allows saving time during survey and post-processing
- Builds in sonar motion compensation
- Multi-platform integration: towfish, ROTV, ROV, USV, AUV, and submersibles down to 6000 meters deep
- Running by Delph Geophysical software from acquisition to post-processing
- OEM version available
- Deep Tow platform available, multi-sensors integration capability: echosounder, sub-bottom profiler, magnetometer, pinger locator

### Main applications

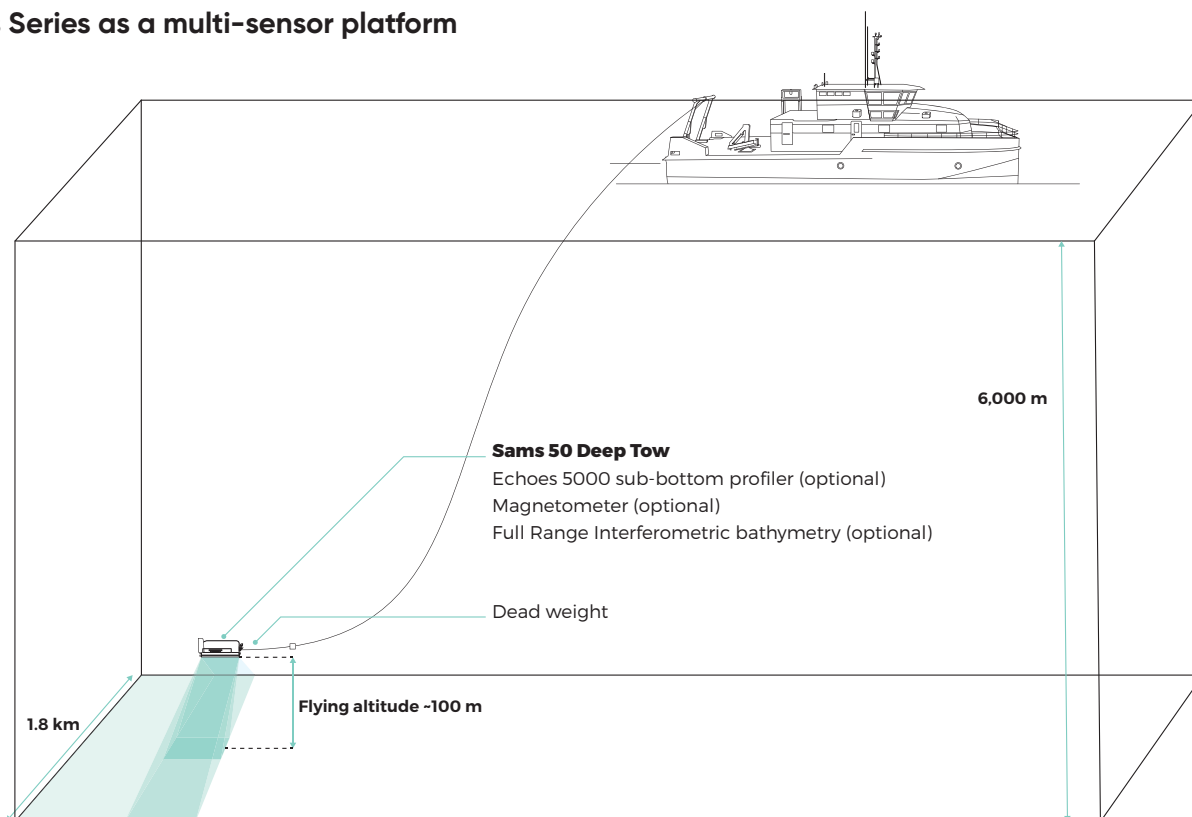
- EEZ mapping, continental shelf extension, marine boundaries delimitations
- Law of the sea
- Wreck research
- Debris and site survey
- Survey
- Cable route survey
- Deep-sea mining
- Marine renewable energy
- Cable tracking and inspection



## TECHNICAL SPECIFICATIONS

	Sams-150	Sonar kit Sams-50
SSS Frequency	150 kHz	55 kHz
Bandwidth	30 kHz	15 kHz
Full swath	Up to 500 m	Up to 1.8 km
Gap filler	3 <sup>rd</sup> . part backscattering echosounder	3 <sup>rd</sup> part multibeam echosounder (backscatter data)
Depth	Up to 6,000 m	Up to 6,000 m
Along-track resolution	6 cm constant resolution in optimal condition	40 cm constant resolution
Across-track resolution	2.5 cm	5 cm
Max Tow Speed	15 knots	6 knots
Navigation & Positioning	USBL + INS + DVL + pressure sensor + SVP	USBL + INS + DVL + pressure sensor + SVP
Additional sensors/payload	Multibeam echo-sounder, sub-bottom profiler, magnetometer	Multibeam echo-sounder, sub-bottom profiler, magnetometer
Dimensions (l x w x h)	58.1 cm x 9.5 cm x 13.8 m	3.3 m x 1 m x 1.5 m
Weight in air/water	6.2 kg / 1.7 kg	1,300 kg/neutral
Electrical power supply Tow fish without//with 10km cable	150 W	350 VDC / 400 W // 600 VDC / 1,200 W
AUV Kit	Available	Available

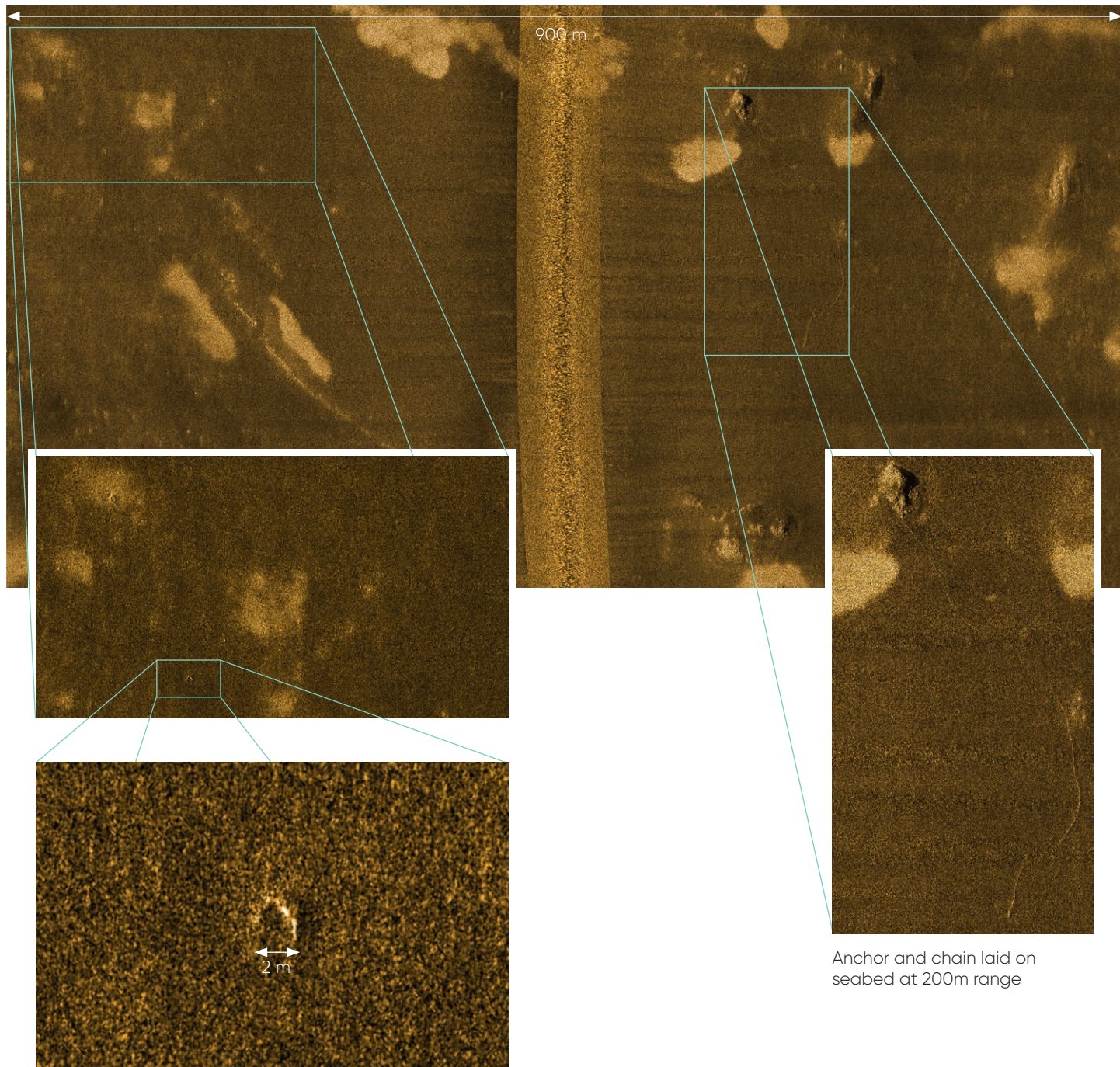
### Sams Series as a multi-sensor platform





## HIGH-QUALITY DATA GUARANTEED BY GEOREFERENCING

Sams Series drastically improves the range-resolution ratio of the produced images compared to traditional deep sea sonar. Images produced by Sams Series are generated and georeferenced in real time thanks to the integrated Exail inertial acoustic navigation system Phins coupled with the medium-range Gaps M7 (or long-range Posidonia) acoustic positioning. Sams Series allows very high productivity survey by improving the coverage rate per hour with constant high resolution on the full swath.



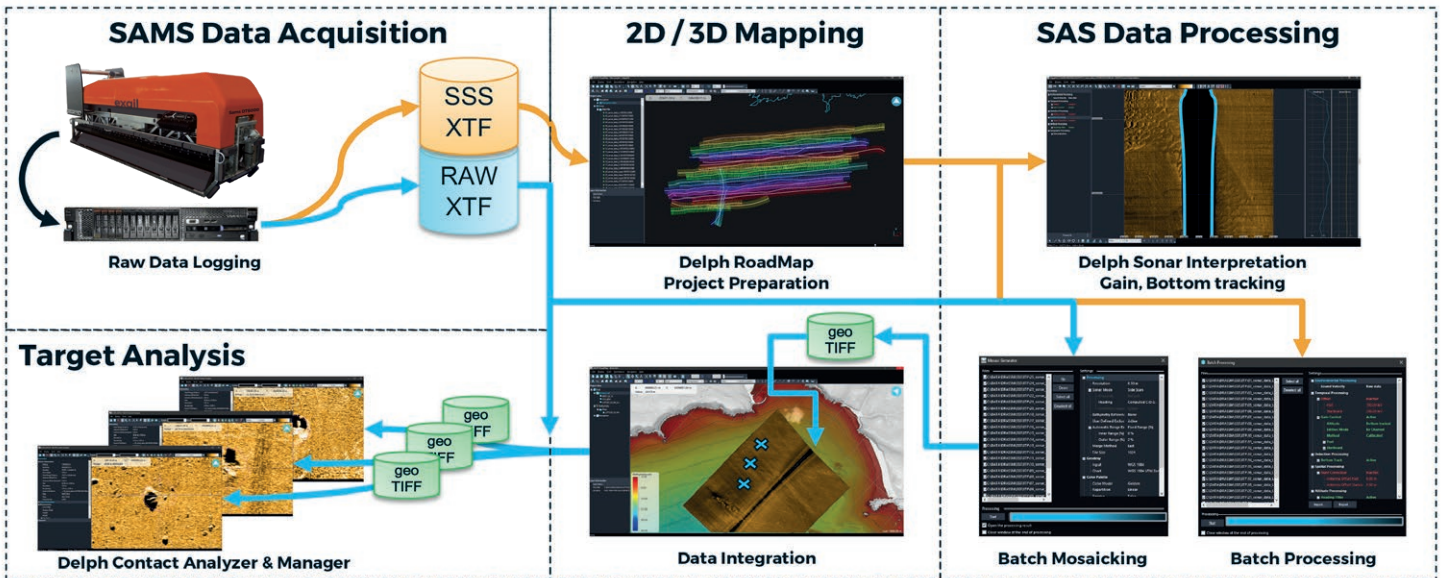
Undistorted image of a high-reflectivity object at 400m range

Anchor and chain laid on seabed at 200m range



## DELPH SAS: OPTIMAL POSITIONING FOR HIGH-QUALITY SEABED IMAGING

Delph SAS streamlines synthetic aperture sonar processing within the industry leading Delph Sonar Interpretation software. Advanced side-scan sonar processing, mapping and analysis now share common tools with regular side-scan sonars and benefit from Delph optimized workflow.



### Real-time imagery positioning

- Real-time absolute positioning accuracy
- Full-resolution INS-based navigation and motion compensation
- Real-time USBL data fusion
- Micro-navigation computation
- Native production of standard XTF records and GeoTIFF mosaics
- Navigation post-processing available (Delph INS Software)

### Full image derived from long range capability

- Robust SAS processing against sensor motion
- Natural 100% across and along-track coverage at any speed
- Co-registered gap-filler, sub-bottom profiler and bathymetry (option)
- SAS multi-channel beam-forming
- Spatial multi-ping integration
- User choice between image quality (classification) and resolution (detection) at any desired resolution.
- Optimized multi-core parallel processing

### Benefits from Delph Sonar Interpretation software

- Native production of standard XTF records and GeoTIFF mosaics
- Target analysis and databasing tools
- Manual and automatic seabed classification
- Batch data processing
- Seamless integration with conventional side-scan sonar data
- 3D Multi-Sensor cartographic visualization in Delph RoadMap
- Multi-Sensor integration with sub-bottom profiler, magnetometer, bathymetry and any georeferenced dataset
- Navigation post-processing available (Delph INS Software)