

# iXblue Delivers SAS Dedicated to Ifremer's New 6,000m-rated AUV



Ifremer, the French research institute for ocean science, has received its new synthetic aperture sonar (SAS) from iXblue. It will equip the institute's new 6,000m-rated autonomous underwater vehicle (AUV) dedicated to deep-sea exploration.

This SAS, the Sams-150, offers a unique seabed mapping solution perfectly suited to deep-sea autonomous vehicles.

Benefiting from more than 20 years of development within iXblue, this technology is already being operated by world-class navies and scientific institutes. This interferometric SAS allows for simultaneous real-time imaging and high-resolution bathymetric mapping of the seabed.

## Interferometric Processing

"With a swath width of 500m for a constant resolution of 6cm, our new Sams-150 sonar optimizes the compromise between the resolution and range of imaging solutions. Thanks to its interferometric processing, a high-resolution bathymetric model can be generated simultaneously with the production of the imaging data, thus ensuring a coverage equivalent to more than ten times the height of water under the sensor," explains Bertrand Chemisky, head of civil activities at iXblue Sonar division. "Our SAS technology, coupled with an inertial navigation system and an acoustic positioning system, will ensure precise georeferencing of each pixel, thus enabling the creation of homogeneous maps over large areas."

The Sams (Synthetic Aperture Mapping Sonar) solution as designed by iXblue responds to the operational objective of significantly reducing the duration of operations at sea and therefore the cost of data acquisition. Following these same considerations, iXblue's Sams sonar aims to optimize the autonomy of underwater vehicles by seeking the best compromise between mapping coverage and energy consumption.

## Modular Scientific Sensors

"The UlyX AUV is capable of diving down to 6,000m and navigating on mapping profiles or in quasi-stationary flight near the bottom," explains Jan Opderbecke, project manager for the development of the UlyX system at Ifremer. "It is equipped with a suite of state-of-the-art sensors to produce a set of data on the explored area: high-resolution imagery-bathymetry data with the Sams-150, multibeam bathymetry, and optical images aided by a laser profiler for photogrammetry. The AUV also implements a set of modular scientific sensors adapted to the scientific mission: physical parameters, chemical analysis, magnetometry, and more. Sams-150 has been selected based on its specifications for integration and use on the UlyX AUV: size, survey parameters such as altitude, resolution and swath. The unprecedented performance of the sonar and the data processing software chain are real assets. By combining imagery and bathymetry, the data from the Sams-150 sea trials shows a significant potential that will bring scientific exploration to a whole new level."

"We are very proud to contribute to this technological breakthrough in deep-sea exploration alongside Ifremer and to be able to participate, at our level, to France's leadership in deep-sea exploration," adds Bertrand Chemisky.



The UlyX AUV being deployed during its first dives.