Smart Echo Sounder for Seaglider

Imagenex has developed a modified compact echo sounder for the iRobot 1KA Seaglider unmanned underwater vehicle (UUV). Successful integration and ocean-testing of the Imagenex Model 853 echo sounder with Seaglider was recently completed, and it will be used to support Antarctic research conducted by the University of East Anglia (UEA), UK.

"We plan to calibrate the Imagenex echo sounder on the iRobot Seaglider for krill biomass estimation," said Professor Karen Heywood from the University of East Anglia. "Working with British Antarctic Survey colleagues, we aim to show that this system could enable long-term measurements of krill abundance in Antarctic water. This would help us to better understand the basis of the food chain supporting cetaceans and penguins."

The UEA mission is supported by the UK National Environmental Research Council.

Imagenex developed the 120kHz Model 853 echo sounder along with an onboard self-logging processor and interface to Seaglider's open serial interface protocol. The onboard processor supports a "glider mode", which allows sample data profiles and statistics to be transmitted via Seaglider's Iridium satellite phone each time it surfaces. The echo sounder is also able to store up to 200 days of raw data on its flash memory for download upon recovery. Its small size and low power consumption is ideal for long-range, high endurance missions supported by Seaglider.

The iRobot Seaglider is designed for missions lasting many months and covering thousands of miles. It is the first UUV to complete a greater than nine month mission without needing to recharge its battery and the first to complete a mission of greater than 3,800 kilometres (approximately 2,360 miles). Seaglider is able to perform long endurance missions because its efficient propulsion system is based on buoyancy. These long-duration capabilities allow for very cost-effective operations.