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Eco News

New sonar detects concealed underwater objects

Last Updated: Friday, November 19, 2010, 18:23 351 0 0 0

Tags: Sonar , Underwater objects , Concealed



London: Scientists have developed a new kind of underwater sonar that can detect objects like reefs and wrecks through bubble clouds that blind conventional sonar.

Just as ultrasound is used in medical imaging, conventional sonar 'sees' with sound. It uses differences between emitted sound pulses and their echoes to detect and identify targets.

These include submerged structures such as reefs and wrecks, and objects, including submarines and fish shoals.

Standard sonar does not cope well with bubble clouds resulting from breaking waves or other causes, which scatter sound and clutter the sonar image, according to a statement of the Institute of Sound and Vibration Research, UK.

Timothy Leighton from the Institute of Sound, who led the research, said: "Better detection and classification of targets in bubbly waters are key goals of shallow-water sonar."

Leighton and his colleagues have developed a new sonar concept called twin inverted pulse sonar (TWIPS). It uses trains of twinned pairs of sound. They set out to see whether TWIPS would work in practice.

Using a large testing tank, they showed experimentally that TWIPS outperformed standard sonar at detecting a small steel disc under bubbly conditions resembling those found under oceanic breaking waves.

Encouraged by their findings, they next conducted trials at sea aboard the University of Southampton's coastal research vessel the RV Bill Conway.

They compared the ability of TWIPS and standard sonar to discern the seabed in Southampton Water, which handles seven percent of Britain's entire seaborne trade. The seabed in this area varies in depth between 10 and 20 metres.

"TWIPS outperformed standard sonar in the wake of large vessels such as passenger ferries," said co-author Justin Dix of the School of Ocean and Earth Science (SOES) based at the National Oceanography Centre, Southampton.

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