Large Glider Experiment in the Sardinian Sea



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The REP14-MED sea trial includes 21 partners from six nations. From 6 to 26 June 2014, onboard NRV Alliance and German vessel Planet, and at research centres ashore, experts from those institutions are working on the future of ocean monitoring and seabed characterisation. The Sardinian Sea will be the site of the REP14-MED experiment, lead by the NATO Centre for Maritime Research and Experimentation (CMRE), part of the NATO Science and Technology Organization.

Onboard the NATO Research Vessel Alliance, operated by CMRE, and onboard

Research Vessel *Planet*, operated by the German Research Centre WTD71, as well as remotely at research centres ashore, scientists and engineers from 21 partners and six nations, will test and develop new systems, technologies and solutions for ocean monitoring and seabed characterisation, in order to enhance current Environmental Knowledge and Operational Effectiveness (EKOE) capabilities.

The main pillar of the experimentation is the use of underwater gliders from four nations (UK, Germany, France, USA) and from NATO CMRE. Gliders are Autonomous Underwater Vehicles (AUVs) that use changes in buoyancy to dive and surface, and have wings to generate horizontal motion as part of this process. This unconventional method of propulsion (without the use of a propeller) is very energy-efficient and provides gliders with a long endurance that is well suited to monitoring the ocean.

In REP14-MED, a large number of gliders from different Institutions and manufacturers are simultaneously at sea to collect ocean physical data in order to to improve the performance of ocean forecast models; diagnose and predict physical properties of the waters west of Sardinia; develop and test efficient sampling strategies; develop and test new methods to characterise the seabed; record underwater ambient noise; and test recent developments in underwater observation techniques. CMRE gliders will be operated from the CMRE Command and Control Room in La Spezia, including new hybrid gliders capable of being switched between the standard gliding mode of propulsion and a faster (but less energy-efficient) mode that uses a propeller.

The partners' consortium also comprises, among others, the Area Marina Protetta Penisola del Sinis (AMP) and the Istituto per l'Ambiente Marino Costiero del CNR (IAMC-CNR), both active in the local area.

Through REP14-MED, NATO will enable collaborative research to increase automation and effectiveness of coordinated geographical, meteorological, and oceanographic support for NATO operations.

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