



The EGIM, EMSO generic instrument module, step towards standardization

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EMSO ERIC, the “European Multidisciplinary Seafloor and water column Observatory”, has developed an EMSO Generic Instrument Module, called EGIM, in the frame of the H2020 project “EMSO-Dev”. The module aims at consistently and continuously measuring seven Essential Ocean Variables for the science areas at the various regional facilities pertaining to EMSO, placed at key sites around the European seas.

The EGIM core variables include temperature, conductivity, pressure, dissolved O₂, turbidity, ocean currents, and passive acoustics. These parameters are of great interest for different disciplines, ranging from geosciences to physical oceanography, to biogeochemistry and marine ecology addressing Grand Challenges such as ocean acidification and warming. They also support the Global Ocean Observing System, and the Marine Strategy Framework Directive towards evaluating environmental status of the European seas.

The EGIM is designed to adapt to the various EMSO node configurations: mooring line, cabled or non-cabled sea bed station and surface buoy. Its compact and modular nature, low power requirements, mechanical design and embedded software allow for flexible deployment scenarios and can accommodate new instruments. This are key points to the modularity, inter-operability and capacity of the future evolution of the EGIM.

In July 2017, after a 4-month shallow water test period on OBSEA observatory offshore Barcelona, the EGIM prototype was installed on EMSO-Azores observatory on the mid-atlantic ridge, at a 1700 m water depth (<https://campagnes.flotteoceanographique.fr/campagnes/17000500/>),. It was set at the Lucky Strike hydrothermal vent site, to monitor local hydrodynamic variability and complement the data obtained by the numerous sensors set on this site: oceanographic mooring deployed south of the vent field, the multidisciplinary SeaMoN East node, autonomous current meters, array of temperature probes (<http://www.emso-fr.org/fr/EMSO-Azores>)... The recovery took place in August 2018 and the data are made available through precisely documented DOIs referenced in EMSO data catalogue.

Replicated units of the EGIM are ready for pending deployments on other EMSO nodes. One of them will be connected to the Western Ionian node (East of Sicily) at the end of the north branch of the cable which runs from Catania. The second one will be deployed in the Atlantic Ocean, near the Canary Islands, under different configurations including open-ocean mooring on ESTOC site.

Using the EGIM as a common EOVS measurement reference for all nodes is a crucial step towards standardization, increasing global reliability, data quality and reducing costs across EMSO consortium. The EGIM can be considered as a milestone to meet the marine community need for of standardization and interoperability.

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