Acquisition system for the "EMSO Generic Instrument Module" (EGIM) and analysis of the data obtained during its first deployment at OBSEA site (Spain)

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The EMSODEV project (EMSO implementation and operation: DEVelopment of instrument module) is an Horizon-2020 UE project whose overall objective is the operation of eleven seafloor observatories and four test sites. These infrastructures are distributed throughout European seas, from the Arctic across the Atlantic and the Mediterranean to the Black Sea, and are managed by the European consortium EMSO-ERIC (European Research Infrastructure Consortium) with the participation of 8 European countries and other associated partners.

Recently, we have implemented a Generic Sensor Module (EGIM) within the EMSO-ERIC distributed marine research infrastructure. EGIM is able to operate on any EMSO observatory node, mooring line, seabed station, cabled or non-cabled and surface buoy. The main role of EGIM is to measure homogeneously a set of core variables using the same hardware, sensor references, qualification methods, calibration methods, data format and access, maintenance procedures in several European ocean locations.

The EGIM module acquires a wide range of ocean parameters in a long-term consistent, accurate and comparable manner from disciplines such as biology, geology, chemistry, physics, engineering, and computer science, from polar to subtropical environments, through the water column down to the deep sea. Our work includes developing standard-compliant generic software for Sensor Web Enablement (SWE) on EGIM and to perform the first onshore and offshore test bench, to support the sensors data acquisition on a new interoperable EGIM system. EGIM in its turn is linked to an acquisition drives processes, a centralized Sensor Observation Service (SOS) server and a laboratory monitor system (LabMonitor) that records events and alarms during acquisition. The measurements recorded along EMSO NODES are essential to accurately respond to the social and scientific challenges such as climate change, changes in marine ecosystems, and marine hazards.

This presentation shows the first EGIM deployment and the SWE infrastructure, developed to manage the data acquisition from the underwater sensors and their insertion to the SOS interface.