



## **Integrating sea floor observatory data: the EMSO data infrastructure**

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The European research infrastructure EMSO is a European network of fixed-point, deep-seafloor and water column observatories deployed in key sites of the European Continental margin and Arctic. It aims to provide the technological and scientific framework for the investigation of the environmental processes related to the interaction between the geosphere, biosphere, and hydrosphere and for a sustainable management by long-term monitoring also with real-time data transmission.

Since 2006, EMSO is on the ESFRI (European Strategy Forum on Research Infrastructures) roadmap and has entered its construction phase in 2012. Within this framework, EMSO is contributing to large infrastructure integration projects such as ENVRI and COOPEUS.

The EMSO infrastructure is geographically distributed in key sites of European waters, spanning from the Arctic, through the Atlantic and Mediterranean Sea to the Black Sea. It is presently consisting of thirteen sites which have been identified by the scientific community according to their importance respect to Marine Ecosystems, Climate Changes and Marine GeoHazards.

The data infrastructure for EMSO is being designed as a distributed system. Presently, EMSO data collected during experiments at each EMSO site are locally stored and organized in catalogues or relational databases run by the responsible regional EMSO nodes. Three major institutions and their data centers are currently offering access to EMSO data: PANGAEA, INGV and IFREMER.

In continuation of the IT activities which have been performed during EMSO's twin project ESONET, EMSO is now implementing the ESONET data architecture within an operational EMSO data infrastructure. EMSO aims to be compliant with relevant marine initiatives such as MyOceans, EUROSITES, EuroARGO, SEADATANET and EMODNET as well as to meet the requirements of international and interdisciplinary projects such as COOPEUS and ENVRI, EUDAT and iCORDI.

A major focus is therefore set on standardization and interoperability of the EMSO data infrastructure. Beneath common standards for metadata exchange such as OpenSearch or OAI-PMH, EMSO has chosen to implement core standards of the Open Geospatial Consortium (OGC) Sensor Web Enablement (SWE) suite of standards, such as Catalogue Service for Web (CS-W), Sensor Observation Service (SOS) and Observations and Measurements (O&M). Further, strong integration efforts are currently undertaken to harmonize data formats e.g NetCDF as well as the used ontologies and terminologies.

The presentation will also give information to users about the discovery and visualization procedure for the EMSO data presently available.