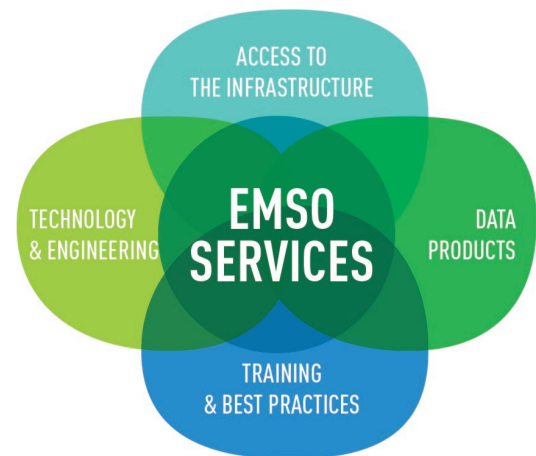


## SERVICES



EMSO offers access to deploy additional sensors, autonomous or connected to the existing platforms, deploy stand-alone instruments and platforms and to carry out in situ experiments in some of its observatories throughout the Transnational Access.



## OBJECTIVES

**Ocean processes impact human societies directly.** Changes relating to resource availability, climate change, habitat, biodiversity loss and geo-hazards have increased society's need for an improved understanding of the driving factors and the effects of such changes. EMSO's areas of study span geophysics, geology, oceanography and biology in the marine environment. EMSO contributes to the collection of crucial and synchronous measurements in its fixed observatories and provides free and open access to its database for researchers worldwide. EMSO will also bring important scientific, technological and socio-economic benefits to innovative European marine-related enterprises allowing industrial competitiveness to take a leap forward in the strategically key marine sector.



[www.emso.eu](http://www.emso.eu)

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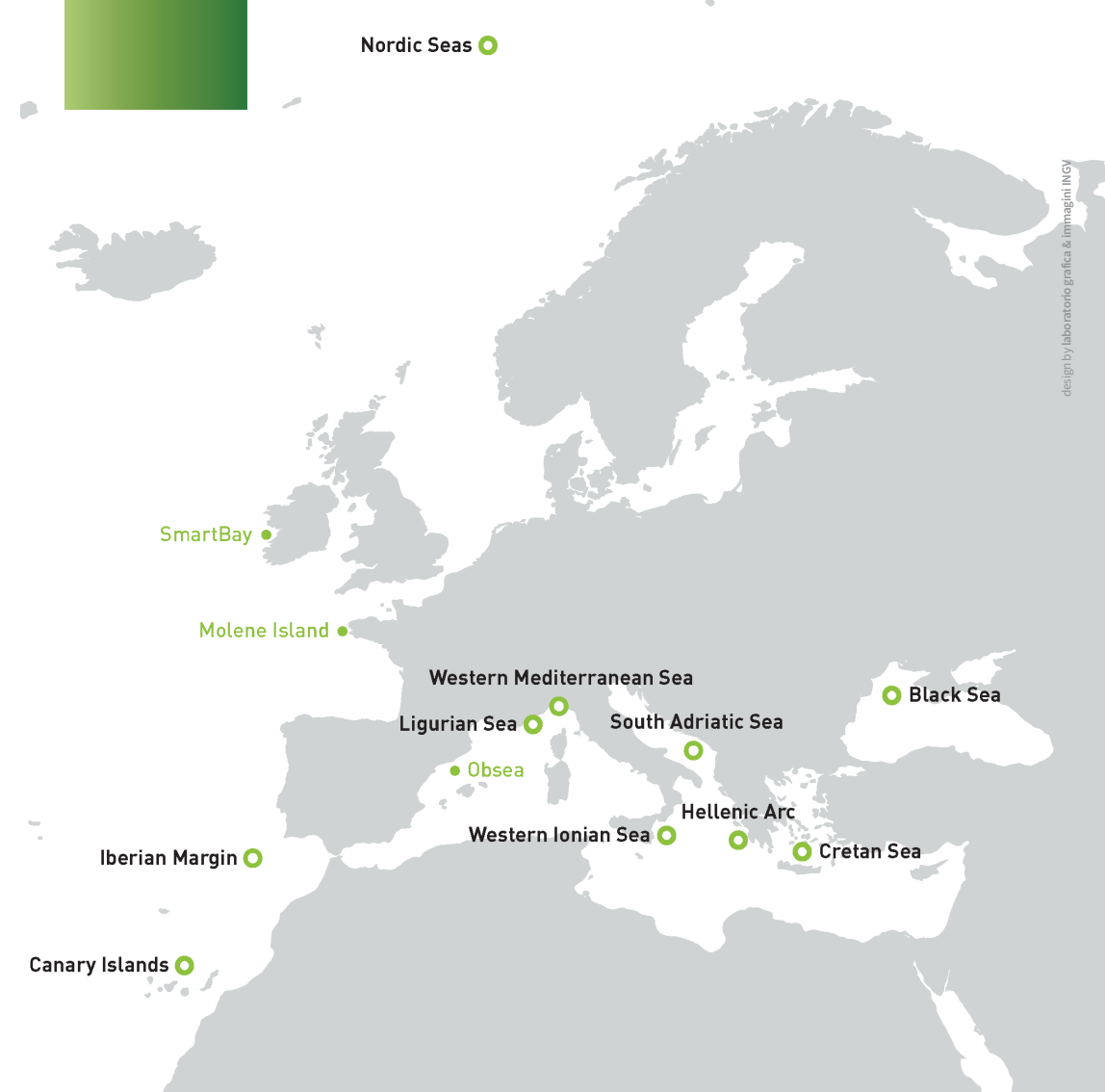
Observing the ocean to save the earth





**The European Multidisciplinary Seafloor and water-column Observatory (EMSO) is a new large scale, distributed, marine pan-European Research Infrastructure of ocean observation systems for long-term, high resolution, (near) real-time monitoring of environmental processes including natural hazards, climate change, and marine ecosystems.**

EMSO is composed of fixed point open ocean observatories, whose aim is to provide coherent long-term marine data sets to study and monitor European seas. Ocean processes impact human societies directly since they regulate heat flux, greenhouse gases and climate whilst harbouring many different life forms and resources. Climate change is also seriously affecting the oceans and their ecosystems and biodiversity. Climate models predict an increase in sea level as a result of the melting of ice caps, with overwhelming consequences beginning in Earth low areas. Society demands better information about the determining environmental factors and their possible consequences. With this consortium, European scientists are joining forces in applying sophisticated new marine research and monitoring technologies to better interpret and address phenomena across the geosphere, biosphere, and hydrosphere that will enhance our knowledge of the ocean .



## OCEAN OBSERVATORIES

**The most striking characteristic of observatory design is its ability to contribute to the understanding of the complex ocean dynamic systems, measuring essential ocean variables in high resolution and for long-time-series.**

Data are collected from the ocean's surface, through the water column, to the seafloor, and the sub-seafloor. Depending on the application, in situ infrastructures are either attached to a cable, which provides power and enables data transfer, or they operate as independent benthic and moored platforms with data transmitted through acoustic networks that are connected to a satellite-linked buoy. Cabled infrastructures provide important benefits such as a) real-time data transfer, important when processing huge amounts of data (as in bioacoustics), or b) real-time integration with land-based networks, important for rapid geo-hazard early warning systems.

EMSO represents a unique marine infrastructure in the world, the observatories have been deployed at key sites around Europe from the Atlantic, through the Mediterranean to the Black Sea. Within EMSO, EGIM, the EMSO Generic Instrument Module, has been designed and developed to consistently and continuously measure accurate records on marine environmental changes. EGIM is able to operate on any EMSO node, mooring line, sea bed station, cabled or non-cabled and surface buoy. In fact a central purpose-objective-result-outcome of EGIM is to have, within the EMSO infrastructure, a number of ocean locations where the same set of core variables are measured homogeneously using the same hardware, sensor references, qualification methods, calibration methods, data format and access, and maintenance procedures.

