



Enhancing the EMSO ERIC Regional Facilities by integrating and harmonizing EMSO strategies across facilities

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The European Multidisciplinary Observatory of Seabed and Water (EMSO) ERIC, as a Distributed Research Infrastructure, responds to the key environmental challenge of Marine Ecosystems, Climate Change and Geological Risks by continuously monitoring the oceans and the seafloor for understand the interactions between the hydrosphere, the biosphere and the geosphere EMSO ERIC includes 11 regional facilities deployed in "key environmental sites" in European seas. Each platform participates in long-term multidisciplinary and interdisciplinary broad scientific research like marine geology, geophysics, physical oceanography, marine meteorology, geochemistry, biochemistry, environmental variables (ie, Essential Ocean Variables- EOVS).

The Action Plan of EMSO builds upon the mapping, based on a 3-phase approach: understanding the present status of the distributed EMSO ERIC Regional Facilities (RF); analysing and synthesising the inputs to identify the value of the RFs and the gaps to be addressed. One example of the impact of this strategic framework is the achievement of one of the main objectives of EMSO ERIC, developing synergies among several observatories deployed in the strategic key sites of the oceans at a global level. EMSO ERIC is already coordinating the activities in the oceanographic field with the integration in the EuroGOOS Work Teams and is contributing to the development of a European Oceans Observing System (EOOS). This path towards integration goes through the measurement of the EOVS and also requires the codification of existing practices, the implementation of effective policies, the maintenance of high standards, joint plans and accessible financing strategies for the EMSO ERIC Regional Facilities, integrating and harmonizing EMSO actions through them.

This approach allows EMSO ERIC to respond to the European socioeconomic challenges that recognize the ocean as a support for human life and well-being and the direct consequences for an environmentally sustainable ocean. A systematic observation of the water column and seafloor and sub-seafloor will allow a better understanding of how multiple stressors such as climate change, or the massive use of natural resources and biogeochemical variations of the Earth system disturb several regions in European seas.

Science, industry and policy can find a harmonized response by placing the principles of sustainability and governance of the oceans in the same direction; Therefore, the distributed research infrastructures are crucial to face the social demand of greater investment in the acquisition of oceanic data and the exchange of information.