

# ESONET-EMSO DEEP SEAS OBSERVATORIES IN EUROPE: TOWARDS A COMMON INFRASTRUCTURE

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## Abstract

ESONET is a Network of Excellence launched in March 2007 for 4 years (2007-2011) and coordinated by IFREMER. It involves 14 European countries, more than 50 institutions and SMEs, about 300 scientists, engineers and technicians. The network prepares the technical specifications to implement a permanent observatory infrastructure in the deep ocean around Europe with the ability to monitor a large range of physical, chemical and biological parameters. Amongst eleven key areas around Europe, four of them, located in the Mediterranean zone will be presented. An overview of the possible infrastructure at European scale will be presented. The conclusions will explain how this European observatory initiative is well integrated in a world wide “Deep sea observatory wave”.

*Keywords: Open Sea, Sampling Methods*

European Seas Observatory NETWORK (ESONET, <http://www.esonet-emso.org>) is a Network of Excellence (NoE) launched in March 2007 for 4 years (2007-2011) and coordinated by IFREMER (France). ESONET involves 14 European countries, more than 50 institutions and SMEs, about 300 scientists, engineers and technicians. Its budget is around 70 M€ as total cost, with a EU grant of 7 M€

The ESONET network prepares the technical specification to implement a permanent observatory infrastructure in the deep ocean around Europe with the ability to monitor a large range of physical, chemical and biological parameters and to constitute a part of the marine branch of the global monitoring system of the Earth. The ESONET observatories will provide information on global change, warnings of natural hazards and a basis for sustainable management of the European Seas. The NoE unifies the communities and prepares the technical specifications of the seafloor and water column infrastructure that will be implemented by the European infrastructure project EMSO (coordinated by INGV). The NoE manages some common activities programs of members organisations and the main part of the work is driven in the framework of observatories Demonstration missions. Amongst networked tasks the most important ones are:

- the establishment and the recognition of involved international groups per site to prepare the implementation of Regional Legal Entities on the nodes of the infrastructure (EMSO PP project),
- to update the scientific objectives relevant to deep sea observatories at the top research level ([1]),
- the preparation of standardisation issues: sensor interface, sensor registry, data management for instance ([2]).
- to build a general business plan to be updated according each ESONET node and to prepare the implementation strategy,
- education, outreach and communication, for users, scientists, stakeholders, students, customers.

Eleven key areas around Europe have been identified as specific targets selected for relevant science programmes of potential hazards, geo hot spots, ecosystem processes, and oceanography: Arctic ocean, Norwegian margin, Nordic Sea, Porcupine Seabight and Abyssal Plain, MOMAR zone (Azores), Gulf of Cadiz, Ligurian Sea, East Sicily, Hellenic node, Black Sea, Marmara Sea (figure 1). The five former sites will be presented: scientific issues, infrastructure and their possible future as deep sea observatory. The Ligurian site has already been described in a previous article ([3]) and some updates will be given. As it is partly linked with the Antares neutrinos telescope and the KM3net project the link with the Hellenic node will be explained. The Black Sea activity in ESONET is still seldom. The East Sicily node is managed partly in the framework of an ESONET demonstration mission named LIDO ([http://www.esonet-noe.org/main\\_activities/demonstration\\_missions](http://www.esonet-noe.org/main_activities/demonstration_missions)). LIDO raised from a need to understand more about the role of sound production and reception in the behaviour, physiology, and ecology of marine organisms. Anthropogenic sound, including sound necessary to study the marine environment, can interfere with the natural use of sound by marine organisms. The Marmara zone is one place where great ESONET activity takes place, in the framework of an other Demonstration Mission, named MARMARA –DM, focused on Seismic science. A specific attention will be paid on this 2 Mediterranean Demonstration missions and on testing operations to be deployed on cabled sites.

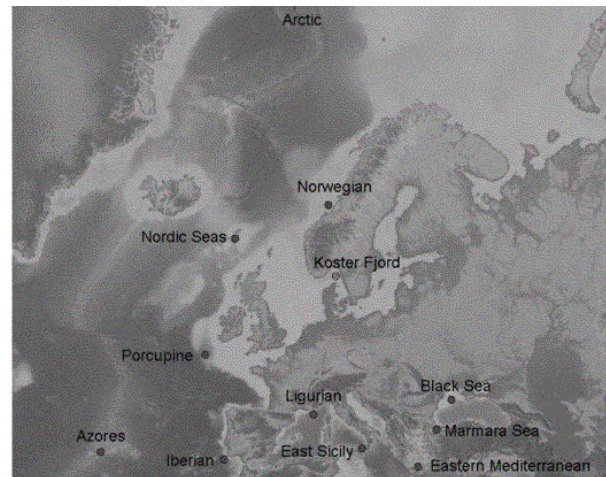


Fig. 1. Eleven ESONET nodes plus one testing site (Kosterfjord)

Launched the 1st march 2007, great progress has been driven regarding all this issues on the ESONET sites. Here will be presented an overview of the progress made on Mediterranean sites and of the possible infrastructure at European scale. The conclusions will explain how this European observatory initiative is well integrated in a world wide “Deep sea observatory wave”.

## References

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