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The European deep sea observatories network of excellence ESONET after one year activity

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ESONET is a European Network of Excellence (NoE) associating 50 partners (research centres, universities, industrials and SMEs) from 14 countries. More than 300 scientists and engineers are participating to its activities.

The goal of the ESONET NOE is the lasting integration of European research on deep sea multidisciplinary observatories. Over the 4 years, the approach will be to merge the programmes of members Organisations through research activities addressing the scientific objectives and networking activities specially designed for integration and spreading Excellence.

ESONET NoE will create an organisation capable of implementing, operating and maintaining a network of multidisciplinary ocean observatories in deep waters around Europe. The NoE will structure the resources of the participating institutes to create the necessary critical mass, remove barriers and through a joint programme of activities arrive at durable solutions for this future organisation.

Long-term observatories are crucial for European scientist. Only long-term observatories allow continuous observation of large numbers of parameters collected through power intensive sensors. This capability is crucial for observing natural processes that are either very episodic or statistically require long time series to detect because they are hidden by noise of higher frequency. The ESONET predecessors have identified

such processes in all fields of marine sciences. The most important ones are: (1) the episodic release of methane from the seabed affecting climate change, (2) the relationship between earthquakes, tsunami generation and submarine slope failures, and (3) the short term biogeochemical processes affecting the marine ecosystem. These processes are of fundamental importance for European society, because we need to devise sensible climate change policies, protect our coastal population and infrastructure, and manage our marine resources. The establishment of long-term marine observatories is justified because they are the only means of acquiring continuously large amounts of different data. The ESONET project has identified crucial scientific objectives. Until funding for installing the observatories becomes available, it is tantamount to continuously update these objectives as new scientific results become available, to sharpen the objectives, and to adapt the technological requirements to the refined scientific objectives.

The ESONET observatories will provide information on global change, warnings of natural hazards and a basis for sustainable management of the European Seas. They will be a sub-sea segment of the GMES and GEOSS initiatives and linked to the EU INSPIRE initiative.

The NoE is working towards establishing sea floor and water column infrastructure which will provide power for instruments and real-time two-way data communications. Key areas around Europe have been identified from which specific targets are selected for relevant science programmes of potential hazards, geo hot spots and ecosystem processes. Sea floor infrastructure will provide platforms for instrumentation deployed throughout the water column and the geosphere below.

These ambitions are to be realized with new, advanced organisational structures linking scientific institutes, industries, governments and agencies throughout Europe and by initiating integration processes..

The integration process of ESONET NoE, a permanent effort during the project, is based on :

- Building up active groups sharing their knowledge, methods and resources.
- acting as one body towards funding institutions (including EC), stakeholders, potential users and similar international projects,
- Jointly acting for a strong cooperation with other networking efforts (GEOSS, MERSEA, GMES, EUR-OCEANS, SEADATANET).
- Establishing functional relationships with the above.

- Advancing the infrastructure policy of subsea observatories in Europe.
- On line monitoring to make the investment safer including quality control.
- Combination of oceanographic, geological, and biological themes at one station to enhance cost effectiveness compared to short term deployments

From the beginning of the project, lasting integration is in perspective through the construction of a permanent structure able to provide a set of ESONET CORE SERVICES, related to ESONET REGIONAL LEGAL ENTITIES (RLE). All of them will be linked for their implementation scheme as well as for a scientific and technical improvement process.

ESONET NoE is fostering energies in Europe to constitute a permanent organisation before the end of the 4 years project duration. ESONET NoE have to experimentally verify the initial idea that it is only feasible and cost efficient with a permanent structure, owner of the ESONET LABEL and offering “Core Services”: the NoE intends to give birth, if feasible, to such a structure.

Amongst other actions, it works by establishing sea floor infrastructure that will provide platforms for instrumentation deployed throughout the water column and the geosphere below. Those platforms will provide power for instruments and real-time two-way data communications. “Demonstration missions” were also initiated during this first year of activities. They contribute to the integration of European teams and to demonstrate the need of permanent long term observatories.