NEMO-SN1 (western Ionian Sea, off Eastern Sicily): Example of architecture of a cabled observatory

Paolo Favali (1), Ingv Team (1), Infn Team (2), and Tecnomare S.p.A. (3)
(1) Istituto Nazionale di Geofisica e Vulcanologia, Sez. Roma-2, RIDGE UF, Roma, Italy, (2) Istituto Nazionale di Fisica Nucleare (INFN), Laboratori Nazionali del Sud, Catania, Italy, (3) Venezia, Italy

NEMO-SN1, located in the Western Ionian Sea off Eastern Sicily (at 2100 m depth, 25 km off the harbour of Catania), is a prototype of a cabled deep-sea multiparameter observatory, the first real-time operating in Europe since 2005. NEMO-SN1 is one of the node of the incoming European large-scale research infrastructure EMSO-European Multidisciplinary Seafloor Observatory, the network of seafloor and water column observatories recommended by ESFRI (European Strategy Forum on Research Infrastructures, http://cordis.europa.eu/esfri/roadmap.htm). EMSO addresses the long-term monitoring of environmental processes related to ecosystems, climate change and geo-hazards.

NEMO-SN1 is also an important test-site for the realisation of KM3NET (Kilometre-cube Underwater Neutrino Telescope), another large-scale research infrastructure included in the ESFRI Roadmap. NEMO-SN1 has been recently enhanced thanks to Italian resources and to the EC project ESONET NoE that has funded the LIDO Demonstration Mission and a Technological Test (http://www.esonet-emso.org/esonet-noe/).

NEMO-SN1 is devoted to the neutrino detection, the geophysical and environmental monitoring, specifically the long-term monitoring of earthquakes and tsunamis and the characterisation of the ambient noise, marine mammal sounds and anthropogenic sources.

(1) Istituto Nazionale di Geofisica e Vulcanologia: Lucio Badiali, Laura Beranzoli, Maria Grazia De Caro, Angelo De Santis, Fawzi Dumaz, Davide Embriaco, Paolo Favali, Gabriele Giovanetti, Nadia Lo Bue, Giuditta Marinari, Stephen Monna, Stefano Vinci.