The Ligurian sea User oriented Networked Experimental observatory project

(LUNE observatory project)

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The Ligurian sea is a large multidisciplinary area of interest with many technical advantages for a demonstration observatory. It would play in ESONET a similar role to the Monterey Accelerated Research System (MARS) in the American NEPTUNE development. Many subsystems are already available such as the land fall station, the cable landing and one junction box from the Antares neutrino observatory project. All the technology and sub sea intervention know-how is mastered by the partners. Moreover, the site is in deep water not far from important harbours and sea state conditions are well known and favourable for tests and sea operations.

Almost all scientific packages within ESONET will have a scientific interest at the Ligurian region. Long term series of data exist in many fields and scientists now require real time high frequency sampling rates to understand processes and develop predictive modelling.

Why the Ligurian region?

Consequently, the Ligurian Sea observatory will comprise:

(1) three stations with at least broadband seismometers, biogeochemical sensors and physical sensors;

(2) a local array with acoustic networking will monitor slope stability (piezometer, geodesic and turbidity –current sensors, turbidimeter, . . .);

(3) moorings on DYFAMED area will monitor the dynamic flux studies (particle samplers, fluorimeter, chemical analysers, . . .).

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	It is a seismic area not far from an inhabited region. The active fault in deep water cannot be mo
x_	
	Slope instabilities are located on the continental slope. The last catastrophic event occurred at Ni
x_	
	Hyperpycnal and turbidity currents appear at the Var river month during overflow events an
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	In the Ligurian Sea, the offshore area is completely isolated from coastal influence by the L
x_	More than 20 parameters are collected on a monthly basis. Since 2003, the area is used as a
x_	Dynamics of oceanographic processes: wind driven coastal upwelling, particle plumes, nut
x_	The site is an international sanctuary for marine mammals. The observatory will allow an u

Experimental study of the Var canyon (ENVAR project) is running included in HER-MES project. The 685 IODP proposal proposes to drill three test boreholes in this area.