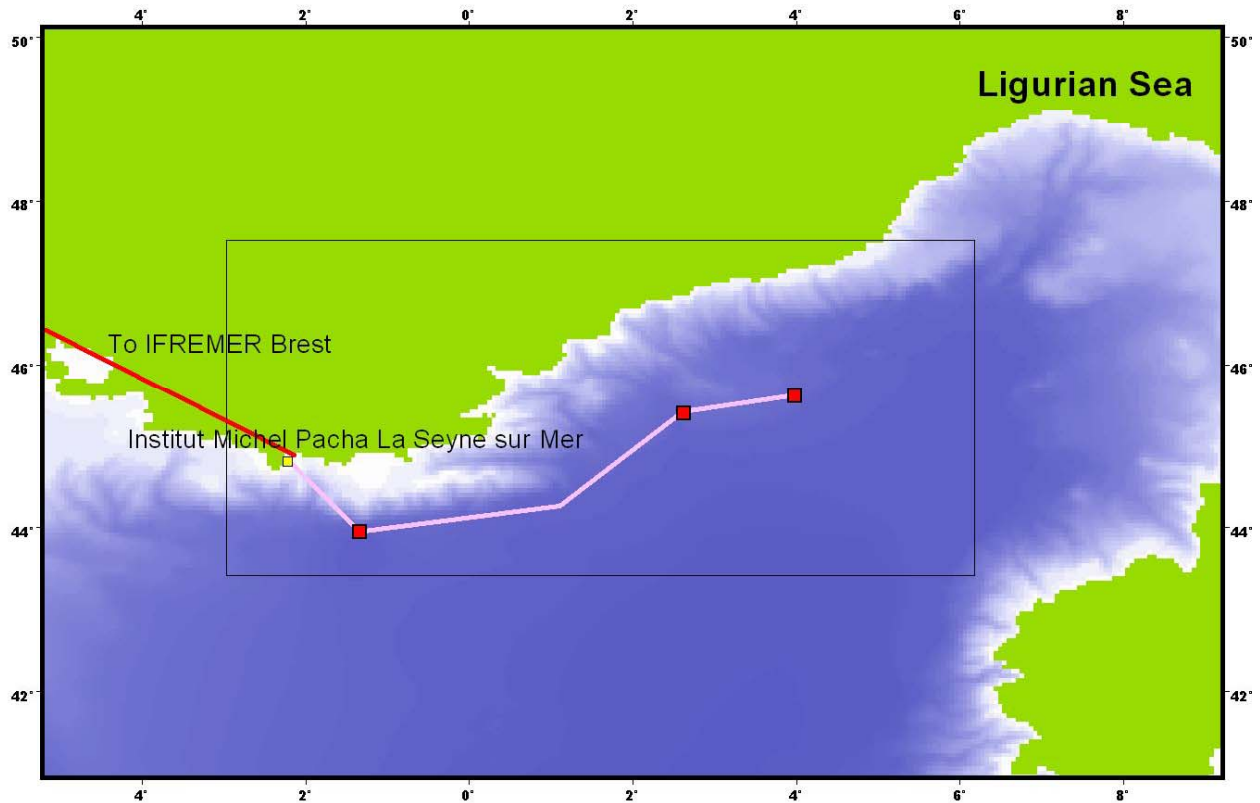




Ligurian region

Existing cables installed for the ANTARES neutrino detector experiment and long term data for the nearby Banyuls Sola site (SOMLIT network) make this a practical early site for development.



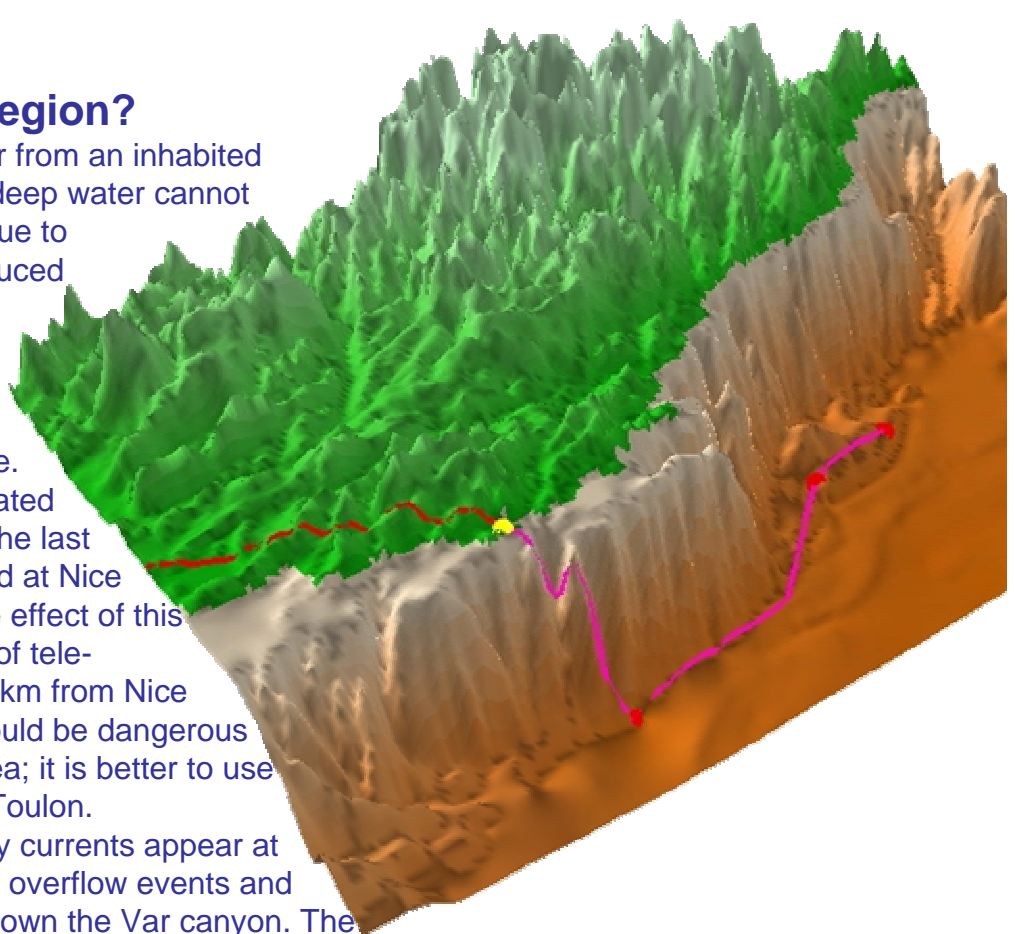
Background

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 subsea intervention know-how is mastered by the partners. Moreover, the site is in deep water not far from important harbours and seastate 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?

- It is a seismic area not far from an inhabited region. The active fault in deep water cannot be monitored from shore due to propagation anomalies induced by the geologic structure. An instrumented ODP borehole will complement seismometer measurements in the future.
- Slope instabilities are located on the continental slope. The last catastrophic event occurred at Nice airport, October 1979. One effect of this land slide was the rupture of tele-communication cables 110km from Nice (2500m water depth). It would be dangerous to land the cable in this area; it is better to use the Antares installation in Toulon.
- Hyperpycnal and turbidity currents appear at the Var river mouth during overflow events and their effect is propagated down the Var canyon. The same phenomena at larger scale appear in major river systems like the Zaïre. The site is convenient to develop a scientific knowledge on this process.
- In the Ligurian Sea, the offshore area is completely isolated from coastal influence by the Liguro-Provençal current. It is representative of large areas of the world ocean. Dynamics of Fluxes in this region have been monitored since 1988, participating to the JGOFS program.
- More than 20 parameters are collected on a monthly basis. Since 2003, the area is used as a calibration point (BOUSSOLE buoy) for water colour satellite sensors.
- Dynamics of oceanographic processes: wind driven coastal upwelling, particle plumes, nutrient benthic exchange, bottom boundary layer processes, mesoscale variabilities,...
- The site is an international sanctuary for marine mammals. The observatory will allow an understanding of their behaviour in relation with oceanic processes.



Regional chairperson

Roland Person
IFREMER
Direction de la Technologie Marine et
des Systèmes d'Information,
Technologie des Systèmes Instrumentaux
BP70, 29280 Plouzane
France

Tel + 33 298 22 4108
Fax + 33 298 22 4135
email: roland.person@ifremer.fr

Consequently, the Ligurian Sea observatory will comprise:

-three stations with at least broadband seismometers, biogeochemical sensors and physical sensors;

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

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