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ESONET LIDO Demonstration Mission: the Iberian Margin node.

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The Gulf of Cadiz is one of two the test sites chosen for the demonstration of the ESONET - LIDO Demonstration Mission (DM) [1], which will establish a first nucleus of regional network of multidisciplinary sea floor observatories. The Gulf of Cadiz is a highly populated area, characterized by tsunamigenic sources, which caused the devastating earthquake and tsunamis that struck Lisbon in 1755. The seismic activity is concentrated along a belt going from this region to the Azores and the main tsunamigenic tectonic sources are located near the coastline. In the framework of the EU - NEAREST project [2] the GEOSTAR deep ocean bottom multi-parametric observatory was deployed for a one year mission off cape Saint Vincent at about 3200 m depth. GEOSTAR was equipped with a set of oceanographic, seismic and geophysical sensors and with a new tsunami detector prototype. In November 2009 the GEOSTAR abyssal station equipped with the tsunami prototype was redeployed at the same site on behalf of NEAREST and ESONET - LIDO DM. The system is able to communicate from the ocean bottom to the land station via an acoustic and satellite link. The abyssal station is designed both for long term geophysical and oceanographic observation and for tsunami early warning purpose. The tsunami detection is performed by two different algorithms: a new real time dedicated tsunami detection algorithm which analyses the water pressure data, and a seismic algorithm which triggers on strong events. Examples of geophysical and oceanographic data acquired by the abyssal station during the one year mission will be shown. The development of a new acoustic antenna equipped with a stand alone and autonomous acquisition system will allow the recording of marine mammals and the evaluation of environmental noise.

References

[1] M. André and The ESONET LIDO Demonstration Mission Team, "Listening to the deep-ocean environment: an ESONET initiative for the real-time monitoring of geohazards and marine ambient noise", EGU General Assembly, Vienna 2-7 May 2010

[2] EU - NEAREST Project web site: http://nearest.bo.ismar.cnr.it/