



New infrastructure at Alboran island (Western Mediterranean): a submarine and on-land Geophysical Observatory

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The Eurasian-African plate boundary crosses the called "Ibero-Maghrebian" region from San Vicente Cape (SW Portugal) to Tunisia including the South of Iberia, Alboran Sea, and northern of Morocco and Algeria. The low convergence rate at this plate boundary produces a continuous moderate seismic activity of low magnitude and shallow depth, where the occurrence of large earthquakes is separated by long time intervals. In this region, there are also intermediate and very deep earthquakes.

Since more than hundred years ago San Fernando Naval Observatory (ROA), in collaboration with other Institutes, has deployed different geophysical and geodetic equipment in the Southern Spain – North-western Africa area in order to study this broad deformation. Currently a Broad Band seismic net (Western Mediterranean, WM net), a permanent geodetic GPS net and a Geomagnetic Observatory have been installed by ROA in this area.

To complement the available data, since past October a permanent marine-on land geophysical observatory is being installed by ROA in Alboran Island and surrounding marine zones. Till now the following facilities has been installed:

- Submarine: 2 km submarine fibre optics cable (power and data transmission); Broad Band Seismometer (CMG-3T, buried); Accelerometer (Guralp 3 channels), buried); Differential Pressure Gauge (DPG); Thermometer.
- On land: Permanent geodetic GPS station; Automatic meteorological station; Data acquisition system for submarine equipment; Satellite Data Transmission system.

Data are already being transmitted in real time to ROA headquarters via satellite Intranet. The marine part, currently installed in a 50 m depth platform, has been designed to be enlarged by extending the cable to greater depths and/or installing additional submarine equipment, such a way in short an ADCP profiler will be installed.

In this work we aim to show the present status, scientific possibilities and the next future plans of this submarine-on land installation.