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FOMAR NET: A combined OBS (permanent and temporary) net deployed at Gulf of Cadiz - Alboran Sea region (Western Mediterranean)

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The Eurasian - African plate boundary crosses the so called “Ibero Maghrebian” region from Gloria fault to Tunisia in a more or less West - East direction. The convergence at this boundary is accommodated in a broad deformation zone, without a clear boundary line, producing a moderate seismic activity of low to moderate magnitude and shallow depth earthquakes (h$<$ 30 km). Nevertheless, big events are well documented: Lisbon (1755, I0= X) and Gulf of Cadiz (1964, Ms= 6.4 and 1969, Ms= 8.1) on the west part, and Orán (1790, 1887, I0= X), Asnam (1980, Ms= 7.1) and, more recently Bourmedes (2003, Mw= 7.1) on the east part, are good examples. Some then have produced tsunamis: Lisbon, Gulf of Cadiz and Bourmedes, among others. An intermediate seismic activity is also clearly registered from mid Gulf of Cadiz to the East (30$<$h$<$150 km), and very deep earthquakes have also been registered at Granada basin (1954, M= 7.0).

To study this complex area, the Royal Naval Institute and Observatory in San Fernando (ROA) and the University Complutense of Madrid (UCM) together with the GeoforschungZentrum of Potsdam (GFZ) have deployed, from 1996 on, a broad band seismic net with stations located at southern Spain and Spanish possessions located northern Africa, mainly surrounding the Alboran sea. This net has been named as “Wetern Mediterranean net” (WM code).

Nevertheless, due to a great deal of events are located at marine areas (Gulf of Cadiz

and Alboran sea) this BB deployment lacked of high quality data at those marines areas. To solve this problem and also to improve the geographical coverage, the Spanish Research Council (Ministerio de Educación y Ciencia) has funded an Ocean Bottom Seismometer (OBS) deployment through the projects: RIOA05-23-002 (OBS Alboran) and CGL2005-24194-E (Red FOMAR), to complement WM net. The OBS will be deployed with the support of the Spanish Navy ships. This deployment will start within 2006 and includes a permanent OBS at Mid Alboran Sea (OBS Alboran) and three long term OBS located at Gulf of Cadiz and Alboran Sea, which will remain deployed for at least a three years period, and some them could be finally converted to a permanent devices.

At this work we will describe the present status of the OBS deployment, and the planned next steps, in the frame of the Western Mediterranean (WM) net activities.