From 1996, ROA and the Universidad Complutense de Madrid (UCM), with the support of GeoforschungsZentrum of Potsdam (GFZ), have installed a broad band seismic network in the Ibero-Maghrebian region (figure 3). The headquarters of the network are located in the ROA facilities in San Fernando, Spain.

All WM Network stations have Streckeisen STS-2 sensors, Quanterra or Earth Data digitizers, and a Seiscomp system. Data are available in real time (phone line or Internet) except for PVLZ, CEU and AVE, which will be available in the near future.

“Fomar” ocean botton (OBS) seismic network

Due to the fact that part of the seismic activity is located at marine areas (figure 1), and the poor geographic azimuthal coverage at some zones provided by the land stations, in order to complement the WM broadband network, ROA and UCM will deploy an OBS network with a permanent OBS near the Alboran island (OBS ALBORAN), linked to a land station at the Underwater Cable station, and four temporary (three years) OBS in the Gulf of Cadiz and Alboran Sea (FOMAR network) (figure 3). The deployment of the OBS will be carried out within 2007 with the support of the Spanish Navy.

Conclusions

In order to study the seismicity associated to the western part of the Eurasia-Africa plate boundary at the Ibero-Maghrebian region, the Real Instituto y Observatorio de la Armada in San Fernando (ROA) has installed, since 1898, different types of seismological stations. At present two networks are in operation: Long Period seismic station and Short Period net (ROA) and Western Mediterranean Broad Band (WM) seismic network in collaboration among several institutions. The installation of a network of ocean-bottom seismographs (FOMAR) is underway. The Ibero-Maghrebian region corresponds to the western part of the Eurasia-Africa plate boundary and is of great seismological and tectonic interest. It extends from 12W to 3E, comprising Southern Iberia and northern Africa, including the Gulf of Cadiz and Alboran Sea (figure 1). Seismicity is characterized by the occurrence of moderate and large magnitude earthquakes at shallow depth, intermediate depth earthquakes (30-60 km) and some very deep events (400 km). The whole area constitutes a broad deformation zone, without a well defined plate boundary line, with a plate convergence in a NNW-SSE direction at a rate of 1 to 5 mm/yr (Buforn et al., 2005).

Since 1976 a three components long period station (SFS Network) is operating in a tunnel in San Fernando. Western Mediterranean (WM) Broad-band seismological network

From 1996, ROA and the Universidad Complutense de Madrid (UCM), with the support of GeoforschungsZentrum of Potsdam (GFZ), have installed a broad band seismic network with stations located in Southern Spain and Spanish sites located in Northern Africa surrounding the Alboran Sea. This network, initially known as ROAUCM, has been renamed as Western Mediterranean network (WM FDSN code) as new stations have been added outside Spanish territory. At present the stations in operation are the following: San Fernando (SFS), Málaga (EMAL), Cartagena (CART) and Alborán Sea (EURO), EVO in the Iberian Peninsula, Mahón (MAHO) at Minorca Island, and three stations at Melilla (MELI), Petín de Villas-Gomera (PVLZ), and Ceuta (CEU), in Northern Africa. In most of them, permanent geodetic GPS stations are also installed. One of them has been recently installed in Averroes Observatory (Morocco) in collaboration with the Instituto Geográfico del Ejército (Institut Scientifique de Rabat (Université Mohammed V, Morocco). It is planned to install two stations in the north future, in Ifrane (Morocco) and Oran (Algeria), the last one in collaboration with Université d’Oran (figure 4). The headquarters of the network are located in the ROA facilities in San Fernando, Spain.

All WM Network stations have Streckeisen STS-2 sensors, Quanterra or Earth Data digitizers, and a Seiscomp system. Data are available in real time (phone line or Internet) except for PVLZ, CEU and AVE, which will be available in the near future.

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