



## **“Western Mediterranean” (WM) broad band network: permanent seismic monitoring at the Ibero-Maghrebian region.**

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The “Ibero-Maghrebian” region, a western part of the Eurasia-Africa plate boundary, is a broad deformation area without a well defined plate boundary line, comprising the Southern part of the Iberian Peninsula, the Northwestern part of Africa, the Gulf of Cadiz and the Alboran Sea, with a convergence between Iberia and Africa at some mm/year (Nuvel-1A model, DeMets et al, 1994) in a NNW-SSE direction, and a differential motion at Alboran Sea area (Bufoin et al, 1995). Although seismic activity is characterized by a low to moderate magnitude and shallow depth earthquakes, big events are also well documented, among others: Lisbon earthquake (1755,  $I_0 = X$ ), Gulf of Cadiz (1969,  $M_s = 8.1$ ), or, more recently Bourmedes (2003,  $M_w = 7.1$ ), some them with an associated tsunami, like Lisbon or Bourmedes earthquakes. An intermediate seismic activity is also clearly registered from Gulf of Cadiz to mid Alboran Sea (Martin Davila and Pazos, 2003), and very deep earthquakes ( $h > 650$  km) have been registered at Granada basin (1954,  $M = 7.0$ ).

In order to better study the seismic characteristics of this area, from 1996 on, ROA and the University Complutense of Madrid (UCM), with the collaboration of Geoforschungszentrum of Potsdam (GFZ), have deployed a broad band seismic net with stations located at Southern Spain and Spanish possessions located Northern Africa,

mainly surrounding the Alboran Sea, complementing the previously installed ROA SP and LP stations. This net has been named as “Western Mediterranean net” (WM FDSN code). As net was evolving, new Institutes and stations joined WM net, such a way at present is formed by ten stations located at: San Fernando (SFS), Málaga (MALA), Cartagena (CART), and Evora (UEVO, University of Evora, Portugal) at Iberian peninsula, Mahón (MAHO) at Minorca island, three stations at Melilla (MELI), Peñón de Vélez-Gomera (PVLZ), and Ceuta (CEU) at Spanish villages located Northern Africa in South Alboran Sea area, and Averroes (AVE) and Ifrane (IFR) installed at Morocco mainland as a joined effort among ISRABAT (Institut Scientifique, Université Mohammed V), ROA and UCM. Most stations are collocated with permanent geodetic GPS stations (Gárate et al, 2004). Next future plans include the installation of five stations by U. Evora at Southern Portugal area, a new station at Morocco by ISRABAT, ROA and UCM and also a new station at Oran (Algeria), as a collaboration among Université d’Oran (Algeria), ROA and UCM. All them will be associated to WM net.

All WM network stations include Streckeisen STS-2 sensor, a Quanterra or Earth Data digitizer, and a SeiscompP process system (Heinloo, 2004), and all them are available in real time via phone modem or Internet, except PVLZ and CEU, which will be in short.

In this work, partly funded by the Spanish Ministry of Education and Science (MEC) through the project REN2006-10311-C03-01/02 (RISTE), we will present the present status, the next future plans and some related activities of WM net.