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Probing the deep structure of the Eastern Alboran Basin (Western Mediterranean) by wide-angle seismics

A. Galvé, (1,*), J. Gallart (1), J. Díaz, M. Fernández (1), I. Grevemeyer (2), C.R. Ranero (3) and the WestMed Team

1: Institute of Earth Sciences 'J. Almera' (ICTJA) -CSIC, Barcelona, Spain

2: Geodynamics Dep., IFM-Geomar, Kiel, Germany

3: Institute of Marine Sciences (CMIMA) - CSIC, Barcelona, Spain

*: Presently at: IRD-Géosciences Azur, Nice, France

The WestMed Team is composed of scientists from the aforementioned institutions, as well as from the Andalusian Institute of Earth Sciences-Univ. Granada, Spain

The deep structure of the Western Mediterranean region has been constrained to date by modelling of potential field data combined with scarce previous seismic data. In September-06' a combined marine and terrestrial wide angle seismic survey has been performed in the region, in the framework of the WestMed-Euromargins project, to characterize the crust and upper mantle beneath the Eastern Alboran and South Balearic/Algerian basins, by establishing the velocity-depth distribution, the crustal geometry of the south Iberian and the north-Moroccan continental margins and its spatial evolution when passing from continental to oceanic environments. The experiment includes 5 deep seismic profiles, four of them N-S and one E-W oriented. The marine survey, carried out by the R/V Meteor from Geomar-Kiel, with a total length of about 500 nautical miles ($\sim$940 km) includes the deployment of 24 Ocean Bottom Seismometers (OBS) in each profile, spaced 5-8 km, which recorded the air gun shots with a total volume of 64 l ($\sim$3900 inch^3). The N-S oriented profiles have been extended on land into the south Iberian mainland, the Ibiza and Mallorca islands, and the Moroccan mainland, using a total of 15 3-component seismic stations deployed by the ICTJA-CSIC. Preliminary results of this survey will be presented, with special emphasis on the N-S profile across the Alboran domain. This transect provides a complete image of the lateral variations of the crustal structure in a key area of the Betic-Rif

orogenic system that will be the object of subsequent multidisciplinary studies in the next years within large-scale initiatives such as Topo-Iberia, TopoEurope or Picasso, combining geophysical surveys with geology, geochemistry and modelling studies.