



Deep structure of the Gulf of Cadiz from reflection/refraction seismic data

E. Thiebot (1), F. Camurri (2), M.A. Gutscher (1), F. Klingelhöfer (3), J. Perrot (1)
(1) IUEM, Univ. Bretagne Occidentale, Plouzané, France, (2) Dipartimento di Scienze della Terra, Università di Parma, Italia, (3) Ifremer, Dept. Géosciences, Plouzané, France

The SISMAR marine seismic (reflection and OBS refraction) data has imaged the deep structure between the SW Iberian and NW Moroccan margins. Using the available multichannel seismic profiles in the studied area, we were able to construct a depth to basement map. On each profile, the basement was picked in two-way travel time and converted to depth using a mean sedimentary velocity of 3 km/s. Then these x, y, z points were converted into a grid using the GMT gridding algorithm surface. This depth to basement map reveals well known basement highs such as the Goringe bank or the Ampere seamount and deeper regions corresponding to the abyssal plains (Tagus, Horseshoe and Seine). At the same time a regional trend appears within the Gulf of Cadiz, the depth to basement increases progressively from the West to the East in the Gulf of Cadiz. In the abyssal plains, the depth is about 9 km but it reaches 12-13 km in central-eastern Gulf of Cadiz.

The pre-stack depth migration performed on two profiles (middle part of the Gulf) and one seismic refraction profile (perpendicular to the Moroccan margin) allow a comparison to the basement map obtained by simple TWT data depth conversion (with constant velocity). The overall trends are confirmed. The seismic refraction profile also provides additional information on the deep structure, allowing to make some hypotheses to be made concerning the nature of the crust between the Portuguese and Moroccan margins.