



New deep multichannel seismic reflection images from the Alboran Basin: The TOPOMED-GASSIS dataset

Laura Gómez de la Peña, César Ranero, Eulàlia Gràcia, and Rafael Bartolome

Barcelona-CSI, Institut de Ciències del Mar – CSIC, CMIMA, Pg. Marítim de la Barceloneta 37-49, 08003 Barcelona, Spain
(lgomez@icm.csic.es)

The Alboran Basin (Western Mediterranean) is located between the Iberian Peninsula and Africa. Along this basin runs the diffuse plate boundary between Iberia and Africa. In order to improve the knowledge of the lithospheric structure in this region, the TOPOMED-GASSIS cruise took place during October 2011 on board the RV Sarmiento de Gamboa. During this cruise, the new deep multichannel seismic acquisition system was used for the first time. The equipment used were two high volume G-gun arrays (2000 psi / 2500 psi) and up to 6 km long Sercel multichannel digital streamer (408 / 480 active channels) towed behind the vessel. The results correspond to a series of multichannel seismic profiles with unprecedented quality, which allows us to apply state of the art processing and imaging techniques to obtain the deep tectonic structure of the plate boundary while keeping a good resolution in the sedimentary infill of the basin. A complete processing sequence has been used in order to increase the signal to noise ratio, including deconvolution, multiple attenuation and time migration. A high-quality deep penetration dataset has been acquired using the new instrumentation allowing to image the whole basin at a crustal scale. The results are high-quality sections for interpretation through frequency preservation, effective multiple attenuation and velocity analysis. Moreover, we will carry out Pre-Stack Depth Migration algorithms to selected profiles, in order to obtain the real geometry of the structures at depth.