



The ALCUDIA project: A Deep Seismic Reflection Image of Mechanisms Controlling the Evolution of the Crust in Central Iberian Zone (Iberian Massif)

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The lithosphere of the Central Iberian Zone (CIZ) differs from the lithosphere of the southwestern Iberian Massif, there is geologic and geophysic evidence that suggests that the crust of the CIZ resulted from a singular crustal evolution. Furthermore, the existence within the CIZ of the Almadén mine, one of the largest mercury mine in the world, favours that the crust in this area is the result of anomalous lithospheric processes. The ALCUDIA Deep Seismic Reflection transect images the crustal structure along an approximately 300 km long profile. It extends towards the north the IBERSEIS (seismic reflection) line until the Tajo depression. Jointly both transects complete almost 600 km of deep seismic reflection data, crossing the southern half of the Iberian Variscides. The ALCUDIA transect crosses some important structures, such as the Toledo fault, Santa Elena Fault, Alcudia anticline, Almadén syncline, and some major magnetic anomalies. The preliminary results reveal that the crust is 30 km thick in average, with a horizontal Moho, a highly reflective mid-to-lower crust with

a few mantle reflectors and well defined features in the upper crust with the indication of detachments zones that might link to the mid-crustal reflective zone. There is a prominent reflector suggesting a frozen subduction zone dipping to the north.