



MT Alcudia: a magnetotelluric profile across the south-eastern part of the Central Iberian Zone

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The western part of the Iberian Peninsula (Iberian Massif) is the best exposed fragment of the Variscan orogen in Europe. Its southern half was generated by an oblique collision between three continental terranes belonging to the margins of Laurasia (Avalonia) – the South Portuguese Zone- and Gondwana – the Ossa Morena Zone (OMZ) and the Central Iberian Zone (CIZ). The boundaries between them are considered to be sutures. A 210 km long magnetotelluric profile across the eastern part of the Central Iberian Zone is presented. The profile crosses the boundary between the Ossa Morena and Central Iberian zones and spans up to the Tajo basin, crossing the Sierra de Alcudia and the Toledo Mountains. The main structures investigated are: the Los Pedroches batholith, the Alcudia anticline – Domo Extremeño, the Almadén syncline, the fold structures located to the north and the Toledo fault. We present the results of this profile, which consists of 33 MT sites, with the five components of the electromagnetic field and period ranging from 1000 Hz to 1000 s. In each MT site a TEM sounding was carried out in order to characterize the shallow electrical resistivity and to control the galvanic distortion (static shift). The results of two-dimensional inversion reveal a high conductivity zone with the transition OMZ/CIZ. Apart from the shallow structure, the most striking feature is a high conductive layer at middle to lower crust in the whole CIZ, confirming the prolongation of the same layer detected in the OMZ in previous studies.