MT TOPOIBERIA: DEEP STRUCTURE OF A TRANSECT ACROSS THE WESTERN BETIC CORDILLERA (SOUTHERN SPAIN)

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Two profiles combining long-period (LMT) and broadband data (BBMT) have been carried out within the context of Topoiberia project in the central and southern Iberian Peninsula. The main aim of this study is to provide new information about the crustal structure and mantle resistivity properties below the Betics, the Iberian Massif and the transition between both domains. The southern magnetotelluric profile is a 140-km-long profile that runs approximately NNW-SSE orthogonal to the major geological structures: from the internal zones of the Betic Cordillera, across the external zones, and onto the Guadalquivir foreland basin and the Iberian Massif. Data were acquired with Metronix ADU-06 (BBMT) and LEMI-417 (LMT) equipments and consist of fourteen broad-band MT sites and nine long-period MT sites. The studied period range is comprised between 10^{-4}–10^{4} s. MT data along this profile are integrated with other geophysical (gravity, magnetic, seismicity) and geological data to highlight the main crustal and upper mantle structure of the western Betic Cordillera. The new data contribute to discuss the recent geodynamic evolution of the western Mediterranean, where many controversial models have been proposed to explain the development of the Gibraltar Arch in the frame of the NW-SE Eurasian-African convergent plate boundary.

Long period magnetotelluric data, deep structure, Betic Cordillera.

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