

PICASSO PHASE I: MT INVESTIGATION OF SPAIN FROM MADRID TO THE BETICS - PRELIMINARY RESULTS AND MODELS

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The PICASSO (Project to Investigate Convective Alboran Sea System Overturn) project is an international, multi-disciplinary project that aims to improve knowledge of the internal structure and plate-tectonic processes in the highly complex three-dimensional region formed by the collision of the African and European plate under the effect of the Mediterranean plate motion. The first phase of the DIAS magnetotelluric (MT) component of PICASSO was carried out in Southern Spain from Sept.-Nov., 2007.

Two different types of magnetotelluric (MT) equipment – Phoenix V5 broadband (BBMT) and Lviv LEMI long period (LMT) - were used along a profile from the outskirts of Madrid to the Mediterranean Sea across the Betic Mountain Chain. In spite of low solar activity during acquisition and the high noise due to DC train lines etc., the time series data are of reasonable to good quality at most sites due to the excellent instrumentation and careful site location. The modified acquisition design of the LEMI long period system facilitated separate recording of each telluric channel independently, which allowed for advanced investigation of the dataset. The data were processed using four different robust algorithms, and the different responses have been compared. Strike direction varies along the profile and with depth due to the intricate morphology, and its choice has an enormous impact on the responses to be modelled and thereby provides a challenging framework for MT data interpretation.

Preliminary models derived from the distortion-corrected data show features in the Betics similar to previous studies. Rather surprisingly, to the north the central part of Spain exhibits a highly resistive lower crust. Other model features will be discussed.

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