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On-going Magnetotelluric (MT) activities within the Topo-Iberia project

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A large number of Spanish scientists and research groups have been gathered within the Topo-Iberia project to achieve relevant structural constraints on the deep structure of Iberia by combining new multidisciplinary geophysical datasets. An instrumental platform named IberArray, composed by high quality seismic, GPS and MT networks has been built up. This presentation summarizes the MT profiles that are being carried out in the Iberian Peninsula and Morocco. Until now, 4 MT profiles oriented approximately N-S have been acquired in Iberia, forming together a NS transect crossing the whole Peninsula, from San Vicente de la Barquera in the Cantabrian Sea to Malaga in the Mediterranean Sea. This long profile would provide a crustal and lithospheric section on the electrical properties and their lateral variations across major units such as Cantabrian Mountains, Duero basin, Central System, Tajo basin, Toledo mountains, Sierra de Alcudia, Central Unit (boundary between Central-Iberia and Ossa Morena Zones), the Guadalquivir foreland basin and the External and the Internal zones of the Betic cordillera. In Morocco, two profiles have been carried out, in cooperation with different Moroccan research groups. One of them crosses the Rif cordillera, in a SW direction through the Internal and External zones and reaches the associate foreland basin of Gharb-Saiss. The second profile, from the Rif Mountains and the Saïss foreland basin crosses in a NNW-SSE direction the Middle Atlas and High Atlas, reaching the Anti-Atlas. All together, these Topo-Iberia MT profiles delineate a long NS transect across the whole Iberian Peninsula and Morocco. On the other hand, a number of MT profiles are just starting and planned to be carried out in the coming months: One through the Leon Mountains, in the Northwest Peninsula and another through the Iberian System in eastern Iberia. The target being the electrical properties of the crust and of the lithospheric mantle, all the profiles have been recorded both with BBMT system, with periods ranging from 1000 Hz to 1000 s and a distance of 5-10 km between sites, and LMT system with periods up to 20.000 s and sites separated 20 km. An overview of main features and preliminary results will be presented.