



Geoelectrical characterization of the Pyrenean lithosphere from four MT profiles. Main geoelectrical structures and its evolution along the strike.

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The Pyrenean range resulted from the continental collision between the Iberian and European plates. The significant amount of available geophysical data and the well constrained geological evolution corroborate the subduction of the Iberian subducted lower crust, as a main geological result, and determine the physical and chemical processes of the Pyrenean subsurface. However, although the large amount of data acquired in the Pyrenees, in the Eastern Pyrenees, close to the Mediterranean Sea, only few lithospheric-scale studies have been carried out, being this region less characterised than other areas of the Pyrenees.

Seventy broadband magnetotelluric (BBMT) sites, twenty-nine of them also with long period magnetotelluric (LMT) data, have been acquired in four MT profiles along the Pyrenees from the Mediterranean Sea to the Atlantic Ocean. The apparent resistivity, phases and the induction arrows are used to image the geoelectrical structures of the Pyrenees at lithospheric scale. Major results are associated with a partial melting region associated with the Iberian Subducted Lower Crust (IBSLC) and with the asthenosphere. Moreover, major crustal structures associated with the presence of fluids, sediments and graphite have been also characterized. Comparison between the four MT profiles determines the lateral evolution of the main geoelectrical structures characterizing the geology and the physical and chemical processes of the Pyrenees along the strike.