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# Electrical lithosphere of the Iberian Peninsula: integrating existing magnetotelluric databases and models.

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The term lithosphere can be defined as the upper layer of the Earth, the transition zone from the surface to the convecting mantle (asthenosphere). However, the definition of the boundary layer between the lithosphere and the asthenosphere (LAB) remains a fuzzy concept with several definitions depending on the geophysical technique used to determine it (Artemeiva, 2009). This transition zone encompasses several boundary layers whose thickness depends on each other (Cooper et al., 2017). The electrical lithosphere is usually defined as the highly resistive upper layer above the highly conducting asthenosphere. Similarly, to seismic velocity–temperature conversions, the strong temperature-dependence of the electrical conductivity of olivine can be used to estimate regional geotherms from magnetotelluric field observations (Ledo and Jones, 2005).
In this work, we present the first approach of a 3D lithospheric electrical resistivity model of the whole Iberian Peninsula. To obtain it, we have done a selection from the existing magnetotelluric soundings collected in the last 30 years in the Iberian Peninsula by several individuals and research institutions (more than 3000 soundings) and the electrical resistivity models obtained in several zones. In this initial model, the geometry of the sedimentary basins, topography, and bathymetry has been imposed as well as the LAB depth (Artemieva, 2006). The current model also shows the regions in the Iberian Peninsula that had less coverage, thus defining locations for the new data to be acquired in the following years before performing a full 3D magnetotelluric inversion.

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