First MT Observations in the Vilarica Graben (NE Portugal)

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The geological structure of northeastern Portugal is complex and manly associated with the late Variscan tectonic episodes. These events originated two main structures: the Penacova-Chaves-Velin and the Manteigas-Vilarica-Bragança faults. Several basins were generated associated with those fractures. The Vilarica basin is one of them. This consists of an elongated depression approximately 20 km long and 2 to 3 km wide, trending NNE-SSW. It is located astride the Manteigas-Vilarica fault, suggesting that it might correspond to a structural depression related to reactivation movements on that fault (Cabrál, 1989). Its tectonical evolution is of great interest and several geological studies have been performed in the last decades.

Our goal is to produce a geoelectrical picture of the region from MT data. To date, fourteen soundings (180 0.01 Hz) were carried out in the northern part of the basin. One-dimensional (1D) interpretation of the determinants of the impedance tensors, provided the first approach for a preliminary three-dimensional (3D) model. This one evidences conductive zones related to sedimentary fill and faults.

Reference