



The volcano-tectonic dynamic of Ischia island (Southern Italy): inference from magnetotelluric survey

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A magnetotelluric survey of the central-western sector of the Ischia Island has been performed with the aim to reconstruct two resistivity profiles (N-S and WSW-WNE), about 5km and 3km long respectively, and to infer the main geological features of the crust (0-3km in depth), such as its thermal state, fluid circulations and structural discontinuities. The interpretation of data provides new evidences on both the thermal state of the central-western sector of the island and the circulation of geothermal fluids, and confirms the presence of a crystalline structure (intrusive rocks with very low permeability) located beneath the Mount Epomeo block, which possibly represents the apical part of a degassed and cooling magmatic source. This result is a further evidence of the presence of a very shallow magmatic intrusion beneath the island (<2km), possibly a laccolith, which has been the source of volcanic activity since at least 29ka. The study of the crustal geology of the island, its thermal state and rheology, and the assessment of the magma volume at depth, are fundamental elements to understand the volcanic risk. This latter is possibly strictly correlated to the renewal of Mt Epomeo resurgence process, which in turn is pushed by the shallow laccolith.