Title: Interpretation of gravity data to delineate structural features connected to low-temperature geothermal resources at Northeastern Portugal

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Abstract: A great number of low-temperature geothermal fields occur in Northern-Portugal related to fractured rocks. The most important superficial manifestations of these hydrothermal systems appear in pull-apart tectonic basins and are strongly conditioned by the orientation of the main fault systems in the region. This work presents the interpretation of gravity gradient maps and 3D inversion model produced from a regional gravity survey. The horizontal gradients reveal a complex fault system. The obtained 3D model of density contrast puts into evidence the main fault zone in the region and the depth distribution of the granitic bodies. Their relationship with the hydrothermal systems supports the conceptual models elaborated from hydrochemical and isotopic water analyses. This work emphasizes the importance of the role of the gravity method and analysis to better understand the connection between hydrothermal systems and the fractured rock pattern and surrounding geology. (c) 2013 Elsevier B.V. All rights reserved.

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