

Potentials methods and crustal structure in the southeast Brazil, continental margin of Santos Basin.

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RESUMO: The Southeastern Brazilian Continental Margin has been under intense evolutionary studies since the 1970s, from the Discovery of oil in the Campos basin. With the recent significant discoveries of giant fields in the regions of the Campos and Santos basins have become a challenge of strategic importance for the Brazilian economy clearly understand the origin and geological evolution of this portion. The objective of this work is to recognize the magnetic and gravimetric patterns associated with major tectonic features and to associate them with the structural framework crust at different depths. The methods used to investigate the crustal framework were: (i) upward continuation at different depths, (ii) Euler deconvolution, (iii) matched filtering technique and (iv) evaluation of Moho using Bouguer anomaly. The results indicate that the NE structuring is the main structural feature of Ribeira Belt. It spreads to depths greater than 16 km, suggesting ductile-brittle regime together with structural features that indicate a dextral transcurrent tectonics in this area. This orientation characterizes a tectonic setting of distinct crustal blocks and major shear zones defined by Brazilian Orogeny. This trend also controls the formation of Santos Basin (SB). The NW structure represents the secondary setting and spreads to depths of up to 4 km, which constitutes a brittle regime. Dyke swarms, and Ponta Grossa arc are associated with these features. This structure is linked mainly to the break up of Gondwana South -West, and is associated with a clockwise rotation of the South American Plate in the Eo-Cretaceous. The Moho surface in the area indicates a crustal thinning of about 13 km. The greatest depths are close to Parana basin (crustal thicknesses of 38 km) and the lowest depths are in the Santos Basin coastal portion (crustal thicknesses of 25 km). The top of the asthenosphere for this region was estimated through the power spectrum analysis and indicates an approximate depth of 84 km.

KEYWORDS: POTENTIALS METHODS, CRUSTAL STRUCTURE, SANTOS BASIN.