ARCHITECTURE OF MAJOR PRE-CAMBRIAN TECTONIC BOUNDARIES IN SANTA CATARINA STATE BASED ON GEOLOGICAL, MAGNETIC AND GRAVIMETRIC DATA.

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ABSTRACT: A new geological map was generated from the compilation of recently published data, integrating geology and geophysichs (potential methods) including magnetic and gravimetric data and regional and local geology of the pre-cambrian terranes of the Santa Catrina state. In this area the tectonic and lithological boundaries are oblique to the coast line, and shall continue towards the continental margin. The pre-cambrian part of the study area is mainly composed by the the Luis Alves microplate, Itajaí and Campo Alegre volcano-sedimentary neoproterozoic basins and the Dom Feliciano folded belt. The latter encompassing the granites of the Florianópolis batholith and the Neoproterozoic meta-volcanoclastic sequences of the Brusque Group. Theses domains are considered to be the southern onshore basement of the Santos Basin, located in the brazilian continental margin. The tectonic boundaries of the various aforementioned tectonic domains, that separate crustal blocks of different rheology and thickness, are considered as zones of weakness that may have been reactivated during the rift phase of the Gondwana supercontinent. These limits are highlighted as the Itajaí-Perimbó and Major Gercino shear zones. The aim of this study is the identification, hierarchization and distinction of major crustal discontinuities between the known tectonic blocks in the onshore and offshore portions of the study area, regarding the existing knowledge found in the literature and the results obtained in this project. In order to achieve this objective, the methodology applied includes the combined analysis of field data, magnetometry and gravimetry to create an integrated model based on structural data, mainly regarding brittle tectonics. The integration of geological and geophysical data, including field geological stations and magnetic and gravimetric data, allowed the identification of important structural lineaments, crustal limits and the presence of Mesozoic igneous rocks, including the NW trending Ponta Grossa and NNE trending Florianópolis Cretaceous dyke swarms. The continuation of a number of basement structures such as crustal scale shear zones, and the major tectonic boundaries between the Pre-Cambrian terranes of the Luis Alves Terraine and the Dom Feliciano orogenic belt, can be observed in the onshore and offshore geophysical sections. The product brought forth a pattern of crustal scale structures crossing the pre-cambrian terrane with continuity to the offshore area.

KEYWORDS: Structural Analysis; Tectonic Boundaries; Shear Zones