

CENOZOIC TENSIONS IN THE SERRA DO MAR, PARANÁ STATE (SOUTHERN BRAZIL)

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The Serra do Mar mountain range runs parallel to the southeastern Brazilian coast along approximately 1000 km between the latitudes 19oS and 28oS. In the Paraná State it is characterized by neoproterozoic granitic massifs, which are intruded in a paleoproterozoic basement constituted of milonitic schists, quartzites, amphibolites, gneisses and migmatites. The geomorphological framework is marked by scarps and residual plateaus, which were generated during the Cretaceous and lower Tertiary.

The brittle structures, characterized by regional, N-S, E-W, NW-SE and NE-SW, striking lineaments, the last ones inherited from pre-Cambrian structures, control the morphotectonics. In outcrop three distinct fracture systems are seen: (a) subhorizontal NNW-SSE to NNE-SSW striking and to W dipping normal faults, (b) NE-SW and NW-SE striking, conjugated, steeply dipping normal faults, and (c) N-S reverse faults with low to medium dips to E.

The first two systems reflect a distension tectonics with oblique almost subvertical T1 (max) tensors and subhorizontal WNW-ESE striking T3 (min). Such structural features are related to the lower Tertiary opening responsible, too, for the south-atlantic marginal basins. The third set corresponds to a compressional regime, with approximately E-W or WNW-ESE striking T1 (max) and nearly vertical T3 (min). It is interpreted to have been initiated in the Neogen on account of the E-W movement of the South-American plate, which was partitioned by strike-slip and reverse faults.