

Neotectonics in the Mantiqueira highlands, Campos do Jordão Plateau, Southeastern Brazil

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The Campos do Jordão Plateau (1950-2050m), part of the Mantiqueira highlands capping the northern flank of the continental rift of southeastern Brazil, was subject to Quaternary tectonic activity, as evidenced by drainage anomalies and morphotectonic and structural features. Morphotectonic features - including river captures, asymmetric valleys with straight scarps, triangular and trapezoidal facets, hanging amphitheaters, shutter ridges and poorly marked drainage divides - are directly associated with Quaternary faults developed along zones of weakness in the Precambrian basement. Isovalue maps of drainage and lineament density, relief roughness, hydraulic gradients and isobase surfaces show the plateau to be subdivided into blocks limited by the main trends of lineaments. Structural analysis of the plateau revealed three superposed neotectonic regimes: an initial NW-SE compression related to an E-W right-lateral strike-slip binary (Late Pleistocene/Holocene), followed by E-W extension characterized by normal faults, and a final E-W/NW-SE compression that generated neotectonic joints in colluvium compatible with the present-day direction of maximum horizontal stress (SHmax) obtained from geophysical data. Thus, tectonic regimes in the Campos do Jordão Plateau are similar in pattern and age to those observed in neighboring areas of the Paraíba do Sul Valley and the Queluz Structural High.