

THE RIO DE JANEIRO STATE SEGMENT OF THE SANTOS-RIO DE JANEIRO DYKE SWARM, AS PALEOSTRESS INDICATOR

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The Early Cretaceous (129-133 Ma), mainly NE-trending, Santos-Rio de Janeiro tholeiitic dyke swarm has been considered a rifted arm of a triple junction with the Florianópolis Dyke Swarm (NNE-trending) and the failed Ponta Grossa Dyke Swarm (NW-trending). The 52 analyzed dykes are distributed from Sepetiba, westward of the Rio de Janeiro City, to the Cabo Frio region, almost 200 km eastward. They range from 0.5 to 50 m thick, with azimuth angle between 45° and 110° and steep dip angle. Some of them present cataclasis in the contacts concomitant with the late metassomatism, especially with the formation of calcite veins. The micro and mesostructural geometric analysis of calcite and cataclastic veins, and the kinematic analysis of striae associated with them indicates that they were controlled by a strike-slip regime, with the principal stress axis orientated E-W to WNW. The en echelon pattern of some of the E-W to ENE-WSW tholeiitic dykes suggests that strike-slip regime was active since its emplacement. The counterclockwise rotation of these dikes indicates a control by an E-W left-lateral shear couple. In this way, there was a clockwise rotation in the principal stress axis, soon after its emplacement. In the eastern portion of the area this rotation was more intense, to NW-SE.