

CRUSTAL FRAMEWORK AND TECTONICS DURING OBLIQUE COLLISION BETWEEN THREE PLATES IN THE PRECAMBRIAN OF SOUTH-EAST BRAZIL

1EBERT, H. D.; 1HASUI, Y. 1Instituto de Geociências e Ciências Exatas-UNESP, Rio Claro-SP, Brazil

The Precambrian Ribeira and Brasília orogenic belts south of the São Francisco Craton have been formed as a product of the consecutive collision of three continents. The paleosuture zones that delineate their boundaries are marked by distinct magnetic and gravimetric anomalies and they coincide with the lower boundary of granulite-belts, which are interpreted as lower crust of upperplates exhumed during collision. These belts comprise a complex lithostructural arrangement of reworked basement rocks, Proterozoic metavolcano-sedimentary sequences and granitic intrusions. Crustal scale shear belts have developed both between and inboard the amalgamated borders. They record either frontal, oblique and lateral displacements during oblique convergence and A-type subduction. The oblique confluence of the late wrenching shear belts delineates the Guaxupé Syntaxis. The structural style of each belt depends on the angle subtended between the approximate E-W convergence vector and the orientation of the continental margins. The E-W Campo do Meio shear-belt has undergone sinistral transpression. The NE-SW Rio Paraíba do Sul shear belt has undergone dextral transpression, whereas the north-south branches of the Brasília and Ribeira-belts are essentially frontal thrust-systems with large displacements and minor strike-slip. Strain-partitioning between coeval sub-parallel folds, ductile thrusts, strike-slip shear zones and regional flower structures was an important mechanism to accommodate orogen-parallel movements and shortening during plate convergence. This model of crustal framework, kinematic and tectonic evolution based in the integration of geophysical, lithological and structural data was tested by physical experiments. The simulation of the plates geometry and movements produced structures which are consistent with the present tectonic arrangement.