

Structural framework of the central Ribeira belt

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The Pan-African/Brasiliano orogenic Ribeira belt (CRB) in Rio de Janeiro State exposes two tectonic compartments: occidental terrane, comprising the Juiz de Fora thrust system (JFTS), and oriental terrane, encompassing the Paraíba do Sul klippe (PSK) and Costeiro Domain (CD).

The Rio Preto shear zone (RPSZ), the lowest discontinuity of JFTS and limit of orthogranulite occurrence, displays to SE dipping mylonitic foliation. Stretching lineations range between NE-SW-strike and down-dip. Shear sense indicators record North-Northwestward thrusting. The JFTS shows lenticular shapes and duplications along crustal scale duplexes.

The Paraíba do Sul shear zone (PSSZ) has subvertical mylonitic foliation and subhorizontal lineation. Dextral displacement and vertical coaxial strain is recorded. The PSSZ affect different lithologies and it coincides with a regional, symmetry axis of the foliation dip.

The Arcádia-Areal shear zone (AASZ) has NW-dipping foliation and NNE oblique stretching lineations with top down to NNE shear indicators. Late subhorizontal shear zones with top to SE displacements and asymmetric folds disturb the mylonitic foliation.

Lithological contacts parallels the foliation, to which partial melting and high-grade metamorphism was contemporaneous. Static recovery and recrystallisation are widespread. Mylonites show ribbon quartz and porphyroclasts of feldspar, orthopyroxene and amphibole.

An evolution starting with an oblique plate convergence and subduction of a restricted ocean to SE is envisaged. Subsequent collision of both continental terranes provoked imbrication and delamination of the arc over and inside the occidental terrane.