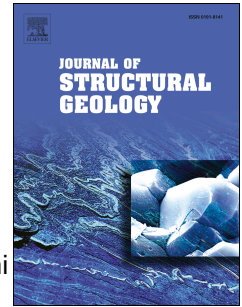


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Subseismic deformation in the Vaza-Barris Transfer Zone in the Cretaceous Recôncavo-Tucano-Jatobá rift system, NE Brazil

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1 **Subseismic deformation in the Vaza-Barris Transfer Zone in the Cretaceous**
2 **Recôncavo-Tucano-Jatobá rift system, NE Brazil**

3

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9

10 **Abstract**

11 We investigate the subseismic structural expression of the major Vaza-Barris
12 Transfer Zone in the Early Cretaceous Tucano rift basin, NE Brazil based on field
13 observations. Subseismic structures in the Tucano rift fill encompass cataclastic
14 deformation bands, deformation band clusters and deformation band faults. In general,
15 these subseismic structures indicate a ~120° extension direction and document oblique
16 extension across the N-S Tucano Rift, consistent with the movement direction inferred
17 from plate-scale reconstructions. The transfer zone itself is dominated by a large
18 population of NE-SW trending deformation band structures that developed into
19 deformation band faults making a high angle to the transfer zone. The deformation band
20 faults are quite evenly distributed along the transfer zone, which we attribute to
21 extension related to its arcuate cross-sectional shape with flanks dipping toward the rift
22 margins. Additional subordinate structures, many of which are oriented parallel to the
23 transfer zone, show strike-slip dominated motion, and indicate that the finite strain field
24 in the transfer zone involves a component of NNW-SSE shortening in addition to the
25 main extension along the transfer zone. In terms of subseismic fault prediction,
26 however, the evenly distributed zone-perpendicular structures dominate and could

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