

## CONNECTING OROGENIC (SUBDUCTION-RELATED) AND ANOROGENIC (INTRAPLATE-LIKE) MAGMATISM: SOME INSIGHTS FROM CEARÁ STATE, NE BRAZIL.

*Carlos Eduardo de Araujo (1).*

(1) SERVIÇO GEOLÓGICO DO BRASIL.

**Resumo:** Though spatially disconnected to orogenic disturbances, it has been found that anorogenic magmatism can be temporally related to orogenic events. Emplacement ages range from immediately after a collisional episode to up to 500 My after, when they are replaced by silica-undersaturated alkaline rocks. Although still not precisely constrained, the improvement of the geological knowledge of the adjacent tectonic elements (which surround the Transbrasiliano Lineament) has supported the fact that it delineates roughly a zone of Late Neoproterozoic age continental collision. In this context, the Transbrasiliano Lineament seems to represent the ultimate stages (550-520 Ma) of the escape collisional processes combined with a northeastward extrusion. It is expected that the crustal thickness of this region along the Transbrasiliano Lineament should have been similar to that of the young active collisional orogens (e.g. Hymalayas, Alps) during the end of Neoproterozoic. Yet recent data of group-velocity tomography and lithospheric S-wave velocity demonstrated that the Transbrasiliano Lineament is characterized by a belt of low S velocities, separating the high velocity thick lithospheric domains to the NW and SE. These findings suggest that the Transbrasiliano Shear System is not only a surface feature but also a zone with thinner lithosphere. Since the anorogenic magmas are occurring in intraplate tectonic environments, it seems reasonable to attribute these to the disturbance of the lithospheric mantle. This disturbance alongside collisional belts might be caused by lithospheric delamination, due to eclogitization at the base of crust or by convective removal of a thickened thermal boundary layer. Widespread Cambrian-Ordovician non-subduction related magmatic activity with a bimodal production of alkaline crustal-enriched mantle affinities dated between ca. 530 to 460 Ma (e.g. Mucambo, Meruoca, Barriga, Tauá, Quintas, Pagé igneous suites and the Tauá linear dike swarm(?)) as well as the extensional Cambrian-Ordovician troughs and their bimodal volcanic content (e.g. Jaibaras and Cococi Troughs), developed along shear zones of the Transbrasiliano system attest to a crustal extension involving lithospheric mantle dynamics. The onset of the sediment infilling of the intracratonic Parnaíba basin at the Silurian times is probably a consequence of the thermal subsidence that postdates the mantle activated mechanical subsidence. Furthermore, the occurrence of the time equivalent (ca. 530 Ma) non-subduction related magmatic associations on the vicinities of both SW and NE Transbrasiliano Lineament prolongation (Kandi Lineament in Africa) attests for the importance of this extensional episode along the Pan African-Brasiliano chain. Therefore, the so-called anorogenic magmatism may actually be linked with the very late orogenic activity triggered by mantle lithospheric disturbance arguably caused by eclogitization and the subsequent delamination of the crustal root leading to extensional collapse.

**Palavras-chave:** transbrasiliano lineament; anorogenic magmas; delamination.