



## CHRONOLOGY AND THERMO-TECTONIC EVOLUTION OF THE EASTERN SECTOR OF THE PATOS SHEAR ZONE (BORBOREMA PROVINCE, NE BRAZIL)

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**ABSTRACT:** The Patos Shear Zone (PSZ) is an important crustal structure of the Borborema Province (NE Brazil) resulting from the intense crustal remobilization due to the Neoproterozoic collision of cratons (West African, Congo-São Francisco). Shearing and milonitization of the regional rocks was accompanied by crustal melting and the emplacement of syn-kinematic granitic plutons (Solânea Batholith), local development of granulites, followed by the localization of deformation and the formation of green-schist facies mylonites. Recent geochronological data suggest that the syn-kinematic magmatism of the central sector of the PSZ is younger than the metamorphic peak of the adjacent metapelitic belts, suggesting that the deformation of the PSZ was localized even at high temperature. In this project, we will investigate the deformation processes associated to partial melting, cooling and subsequent exhumation of the structure combining field observations, aeromagnetic and gamma-spectrometric maps, that are the basis for the structural models related to the emplacement of granitic dikes and plutons. Applying the anisotropy of magnetic susceptibility (AMS) technique, we pretend to establish the tectonic links between the emplacement of the granitic plutons (Solânea Batholith) and the formation of high-T mylonites. Additionally, we will complement the structural study with mineral chemistry of the rocks to estimate the P-T conditions that occurred during the magmatism. Furthermore, we will complement the structural study with  $^{40}\text{Ar}/^{39}\text{Ar}$  method to date the exhumation and apply U-Pb results in monazite for estimation of the metamorphic peak supported with the development of pseudo-sections. Finally, integrating all analytical techniques we intend to shed light in the tectonic history of eastern PSZ as well establish the basis for correlation of the structures between the northeastern Brazil and the western Africa.

**KEYWORDS:** Patos Shear Zone (PSZ), Borborema Province, magmatism, metamorphic peak, mylonite