

## **Azul Shear Zone (ASZ), an Example of Precambrian Stress Metamorphism in Tandilia, Argentina.**

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Azul and Tandil mylonite belts are E-W major-ductile shear zones affecting igneous-metamorphic rocks of southern Rio de la Plata Craton, recording bulk dextral and sinistral lateral motions, respectively. Petrographical and microstructural evidences from Peregrino (PH) and Boca de la Sierra – Pablo Acosta hills (PAH), point-out that rocks are chiefly augen mylonites to ultramylonites, broadly granitic in composition (Qtz, Kfs, Pl, Bt, Hbl), with a complex geometry and deformational history. Horizontal sections parallel to the stretching lineation from PH samples, allowed to examine the significance of a lot of shear sense indicators as anticlockwise  $\delta$ -type mantled Kfs porphyroclasts, subordinated  $\sigma$ -type ones or complex objects, hornblende-fish, quarter structures, S-C fabrics, and Kfs/Hbl stepped-fragments, sometimes with internal opposite sense of shear, suggesting that simple heterogeneous shearing was an important process during the build-up of these rocks. The presence of Kfs augen with undulose extinction, synthetic micro-shears with recrystallised material, flame-shaped perthite or myrmekite at highly-stressed grain domains, fine-grained mantles with relatively sharp boundaries, support that main deformation was reached at less under medium-grade conditions ( $\sim 450^{\circ}\text{C}$ ), followed by rehydration processes (replacements of Hbl by Bt+Ep+Mt or Hbl by Chl) more effective in some ultramylonite zones. K-Ar ages on Hbl in amphibolites and migmatites from PAH, has yielded  $2145 \pm 51$  Ma and  $2038 \pm 29$  Ma, respectively (Transamazonian cycle). As the mylonites are overprint protoliths like these one, and they are cross-cut by diabase dykes of 1700 Ma, a Proterozoic timing for the main deformation of ASZ is accepted.