

Tomar-Badajoz-Córdoba shear zone in Abrantes region; the presence of a kilometric sheath fold?

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The Tomar-Badajoz-Cordoba shear zone (TBCSZ) and the Porto-Tomar-Ferreira do Alentejo shear zones (PTFASZ) are two of the major variscan structures in the Iberian Massif. Their characterization is thus crucial to understand the geodynamic evolution of the Iberian Variscan Chain. These two major shear zones intersect in the Abrantes region (Ribeiro *et al*, 2007), which is regarded as a structural key sector. The sinistral of TBCSZ and the dextral of PTFASZ Variscan kinematics induced space problems and controls the structure of Abrantes region in the western segment of the TBCSZ.

Previous field-work this region (Gonçalves *et al*, 1979) reports a flower structure geometry with changes in the vergence change from SW in the western sector to NE in the eastern one of Abrantes region. However, latter studies along the TBCSZ emphasize the possibility of a kilometric sheath fold structure instead of the flower structure geometry that characterize most of the TBCSZ (*e.g.* Ribeiro *et al*, *in press*; Romão *et al*, 2010).

Nonetheless, recent data, presented in this work, show a more complex structure in the Abrantes region resulting from two Variscan distinct deformation phases.

The first phase (D₁) generate a penetrative foliation slightly dipping to SE, stretching lineation plunging to SE and macro- and micro-structural kinematic criteria indicating transport to NW. The D₁ phase is evident in the syn-tectonic Granite of the Pedreira de Maiorga where flow structures, with *c-planes*, and thrusting kinematics to NW are observed. The L and SL tectonic fabrics are frequently observed in this granite and indicates tectonic stress during the magmatic cooling process. In the “*Série Negra*” (classic definition assigned to the neo-Proterozoic formations of the Ossa-Morena Zone) sheath folds are associated with D₁ foliation. This foliation is characterized by rich green amphibole levels (actinolitic hornblende?) interspersed with rich alkali feldspar + quartz + plagioclase levels.

The second deformation phase (D₂) produces isoclinal folding of the D₁ foliation and generate an incipient cleavage, defined by microscopic textures of amphibole. Furthermore the D₁ thrusting structures are also affected by D₂ and shows, side by side, sinistral and dextral kinematic criteria.

Therefore, in the Abrantes region the D1 should be associated with the genesis of a kilometric sheath fold, with transport to NW, while the D2, with isoclinal folding, obliterate the earlier structures.

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