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EUR-07 Comparison of the Uralides and Variscides

Kinematics and deep structure of a major Variscan strike-slip deformation belt

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The Tomar-Badajoz-Córdoba shear Zone (TBCSZ) is a major boundary in the SW branch of Iberian Variscides, between the Centro-Iberian Zone (CIZ) in NE and Ossa Morena Zone (OMZ) in SW. At least 380km long and 10 to 20km wide it is a left lateral transpressive flower structure with decaying strike-slip displacement from SE to NW. Its axial zone contains high grade metamorphic rocks, including suture lithotypes as eclogites and ophiolites; it has been interpreted as a Variscan suture or a Cadomian suture reworked in intraplate regime during the Variscan cycle (Ribeiro *et al.*, 2007). Its kinematics has been fully discussed and it was seismically imaged recently. Recent field work indicates that the intraplate TBCSZ has a NW tip in the Abrantes region.

Indeed, the NE-verging NE branch of TBCSZ is connected to its SW-verging SW branch by means of a macro-sheath fold whose nose points to NW; this is due to the buttress effect of the Porto-Tomar-Ferreira do Alentejo Shear Zone, an inter-plate transform that blocks the TBCSZ propagation towards NW, also implied by geochronological data. The deep structure and kinematics of the TBCSZ during the Variscan cycle (Ribeiro *et al.*, submit.) constitutes a good example of vertical coupling/decoupling across the lithosphere, including the concept of attachment or accommodation zones. Along most of its trace, from the Abrantes sector in NW to the Hinojosa del Valle - Hornachos sector in SE, the axial zone (or Central Unit) of TBCSZ is a steep structure with strike-slip sinistral kinematical regime, separating the two branches of the transpressive flower structure with opposing vergences. The NW tip sector of Abrantes and the flat-lying sector of Hinojosa Del Valle - Hornachos correspond to attachment or accommodation zones with top to NW sense of shear; in these zones, the strike-slip regime evolves downwards to a ductile regime, with sub-horizontal shear to NW, compatible with the sinistral dominant strike-slip regime. The interpretation of the IBERSEIS seismic profile (Simancas *et al.*, 2003) favours the concept of accommodation rather than attachment for the whole structure, with roots in the IBERSEIS reflective body at the middle-lower crust interface (unless this body is due to an intrusive process later than the main displacement in TBCSZ).

Anyway, the presence of an attachment or accommodation zone in the TBCSZ deeper part favours a model of predominant strike-slip inter-plate or intra-plate regime with partial but strong vertical coupling across the lithosphere. Therefore, the preserved suture rocks (HP metamorphic rocks and ophiolitic remnants) must be inherited from a previous Cadomian cycle, recording an early subduction/obduction geodynamic process. It is concluded that the kinematical regime during the Variscan cycle is compatible with all the other evidence for a poly-cyclic evolution (Cadomian suture controlling a Lower Palaeozoic intracratonic rift overprinted by Variscan), along this main structure.