

Kinematical and dynamic analysis of the major shear zones at the SW Iberian Variscan Fold Belt. Essay on geodynamic interpretation.

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The southern border of the Ossa-Morena Zone displays a relatively complex fracture network that affects all geologic and lithostratigraphic units belonging to three main domains: the Autochthonous Iberian Terrane, the oceanic exotic terrane known as the Beja-Acebuches Ophiolite Complex and a calc-alkaline intrusive complex - the Beja Igneous Complex. The fracture network comprises mainly four different systems: 1) NNE-SSW to NE-SW left-handed strike-slip faults, represented by several major accidents (e.g. the Messejana Fault), whose development is usually ascribable to the late-variscan stress-field; 2) N-S to NW-SE right-handed faults, generally of minor extension and commonly interpreted as the conjugate system of the prevailing structures referred to in the previous item; 3) ENE-WSW left-handed, brittle shear zones (e.g. the Ficalho Fault) that form complex structural arrays with the structures mentioned below; and 4) major E-W to WNW-ESE shear corridors of predominant sinistral kinematics, generated during the variscan collisional events (under a left-lateral transpressional deformation regime) between the Iberian and the South Portuguese Terranes (Quesada *et al.*, 1994; Fonseca, 1995) and object of late, polyphasic reactivation.

The Ferreira-Ficalho Thrust, which presently forms the northern border of the South Portuguese Terranes, is one of the most important tectonic accidents that belong to the last mentioned fracture system. In fact, there are many subparallel, E-W to WNW-ESE shear corridors that can be followed for several tens of kilometres and whose geological importance is noteworthy, since they often mark the main contacts between all the domains, destroying the initial geometric relationships, and being also responsible for the strong tectonic dismembering of the ophiolite sequence. Structural and geological mapping together with the available magnetic and gravimetric surveys confirm the lateral continuity of the shear zones and their importance in the regional structural arrangement of the OMZ southern border.

According to the proposed geodynamic models (Quesada *et al.*, 1994, Fonseca, 1995), the structural/metamorphic evolution of the OMZ southern border can be generally envisaged as a continuous succession of phenomena developed during three main variscan deformation phases; the genesis of the major shears took place during the late stages of continental collision.

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