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Abstract book

Strain partitioning in transpression; a major feature in the evolution of the Ibero-Moroccan Variscides

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As the wavy pattern of fold belts is a common feature, since its recognition, the transpressive regimes were expected to be a pervasive mechanism on their evolution. Nevertheless, even in regions where oblique shortening is inferred, typical structures of transpression (e.g. transected cleavage and en echelon folds, shear or veins) are often absent. Instead, what is frequently observed is the juxtaposition of narrow domains where non-coaxial fabrics predominate, coexisting with large regions where the structures emphasize a coaxial deformation. Such heterogeneous pattern is interpreted in the context of strain partitioning, which led to the coeval development of adjacent blocks, bounded by shear zones, either deformed in a simple shear to simple shear dominated transpression, or in pure shear to pure shear dominated transpression. Thus, the understanding of the factors controlling strain partitioning regimes is fundamental to a better understanding the evolution of an orogenic belt. The assembling of the Pangaea supercontinent, due to the collision between Gondwana and Laurussia, gives rise to the Ouachita-Appalachian, Mauritanide and Variscan belts. The predominance of oblique collision in such Upper Paleozoic tectonic process, coupled with the irregular margins of the continental blocks, induced a complex orogenic belt, often presenting heterogeneous transpressive regimes.

The formation of the Ibero-Armorican Arc, a major structure in the SW Variscan Belt gives rise, in its southern branch, to a pervasive sinistral transpressive regime, with significant heterogeneous deformation. Although Morocco had a slightly marginal position to the main fold belt, the coeval heterogeneous deformation is also well represented. The presence, in both domains of pre- and syn-orogenic steep planar anisotropies presenting a low angle to the main structural trend, gave rise to important and diverse strain partitioning processes of the Variscan-Mauritanide deformation, well developed from the microscopic to the lithospheric scales. Detailed structural mapping of well-exposed Iberia-Moroccan key sectors, emphasize a complex heterogeneous deformation pattern, where adjacent blocks often have different geometric and kinematic relationships between the main shear zones and the coeval folding and magmatism, often controlling the genesis of ore deposits. The Variscan structural diversity observed in each key sector, helps to understand how independent sectors, of the same fold belt, could compensate the orogenic shortening by different amounts of vertical thickening *versus* horizontal lateral escape. This explains why tectonic domains where the structures are related with a stretching subparallel to the a kinematic axis (X ≡ *a*kin), could coexist in the

vicinity of domains where the stretching is subparallel to the b kinematic axis (X ≡ *b*kin).

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