Variscan structural evolution of the western High Atlas and the Haouz plain (Morocco)

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\textbf{Article Info}

\textbf{ABSTRACT}

The Variscan belt is one of the major geological features of Morocco. Based on the paleogeography of the Paleozoic formations and related tectonometamorphic evolution, different domains have been proposed for this segment of the orogen. The western High Atlas is one such domain, which is usually considered as an external zone of the orogen where most of its deformation is ascribed to a first and main Variscan tectonic event (D\textsubscript{1}). Such a deformation has been described in previous studies that emphasize a N–S trending folds with a western vergency. These folds, having an axial plane cleavage, locally rotate in a continuous way to a NE–SW trend, becoming sub-parallel to major dextral coeval shear zones.

In this work a late D\textsubscript{1} stage is characterized (D\textsubscript{1b}), which is restricted to the vicinity of regional scale WNW–ESE trending sinistral shear zones. The earlier structures (D\textsubscript{1a}) are deflected by these shears with kinematics compatible with their sinistral displacement. The previously described Lalla Takerkoust fault in the Haouz plain and the newly proposed Adassil shear zone are ascribed to such an event.

The ENE–WSW dextral shears and the WNW–ESE sinistral ones are here considered as a kind of conjugated system during the D\textsubscript{1} Variscan event. However, the dextral shears not only slightly predate the onset of the sinistral shears, but they also predominate at a regional scale. Such heterogeneity could be understood by considering that the dextral family, not only is synthetic with respect to the main oblique collision between Laurentia and Gondwana that gives rise to the Variscan orogeny, but also follows previous basement anisotropies.

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