



Quantitative approach on the large-scale fold mechanisms along the HP-LT Sanandaj-Sirjan metamorphic belt, Iran

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The study of fold mechanisms in non-coaxial deformation regimes has been the subject of increasing interest of structural geologists throughout the world in recent years. These types of mechanisms are reflected in the rock fabrics which are controlled by the strain history. Using 3D finite strain analysis and kinematic vorticity measurements which carried out on the Loghon anticline. This anticline allows us to suggest fold mechanism along the HP-LT Sanandaj-Sirjan metamorphic belt, southwestern, Iran. The study of different patterns provides insight into the kinematic of folds. Several strain measurement methods were used by different strain markers (e.g. deformed conglomerates) to interpret geometric signatures of the deformation zones within the anticline. Quantitative kinematic analysis (e.g. W_k , kinematic vorticity number) of the strain markers within this anticline have shown that the pure-shear dominated with high-proportion of simple shear components flow, which support the establishment of a dextral transpression system. The transpressional flow is responsible for the development of the large-scale dextral shear zones which is sub-parallel the major folding. The finite strain within folded layers result from the accumulation of deformations affecting the layers. Finally it is suggested that flexural shear combined with regional dextral shear seem to be the most common mechanisms of folding in the HP-LT Sanandaj-Sirjan metamorphic belt along the Zagros orogenic belt.