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Integrated Studies of the Zagros Mountain Front (SE Lurestan, Iran): Structure and Timing of Deformation

The Zagros Mountain Front Flexure (MFF) limits the Zagros Fold Belt region showing an irregular geometry along the boundaries of Fars Arc to the SE, Dezful Embayment, and Push-e Kush Arc to the NW. The Push-e Kush Arc is constituted basically by folds detached at different Mesozoic and Cenozoic stratigraphic levels (e.g., Garau and Gachsaran respectively). The extent and depth of these detachment levels control the geometry and elevation of anticlines. The MFF bordering the Push-e Kush Arc shows a prominent feature characterized by about 5,000 m of different structural relief between the outcropping anticlines of the Zagros Fold Belt and the buried anticlines in the Dezful Embayment and Mesopotamian foreland. Regional cross-sections and scaled analogue models have been used to understand what controls the large-scale distribution and structure of the MFF in the front of the Zagros Fold Belt. The results of our field work and models indicate the existence of an inverted basin, which roughly mimics the present MFF trace. The footwall of the MFF along the Push-e Kush Arc shows several growth strata, which permit to constrain the timing of deformation of this frontal structure by means of magnetostratigraphic analysis.

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