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The Effect of Basement Transverse Faults Reactivation on the Deformation of Sedimentary Cover in Zagros Fold-Thrust Belt, Izeh Fault Zone Case Study

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The major structures of Zagros fold- thrust belt (ZF-TB) are transversely cross cut by two sets of subsurface fault zones during the Late Alpine Zagros orogeny. The first set oriented NNW- SSE and shows right- lateral strike- slip movement such as the Izeh, Kazerun, Sabzpushan and Sarvestan fault zones. The second set oriented NE- SW and demonstrates left lateral strike- slip movement such as the Balarud, Nezamabad, Firuzabad and Razak fault zones. Geometry and kinematics analyses of structures developed in the Izeh fault zone have been presented to document the effect of this fault on the cover sequence and to discuss its basement origin. The Izeh fault zone trending N-165 is a right- lateral strike-slip fault located in Dezful Embayment. Surface deformation of Izeh fault zone on the cover sediments are including changes on the Zagros major structural trends as well as development of new minor structures with different trends. Detailed aspect ratio of the major and minor folds across the fault zone as well as the results of inversion on the minor fault slip data documented the presence of three major restraining zones between the mapped strike-lateral en-echelon faults.
Analysis of facies variation of formations, using isopach maps, together with interpretation of seismic reflection profiles across the Izeh fault zone showed that it is a reactivated basement fault. Oblique convergence of the Arabian Plate and the Central Iran since Late Miocene has been in favor for the reactivation of this basement fault. Based on earthquake data, this reactivation is continuing until the present time. The result of this study can also be used for the influence of the both major sets of the transverse fault zones on the sedimentary cover of the ZF-TB.