



Geometry and kinematics of fault related folds in thin-skinned Shadad fold and thrust belt at western edge of Lut block, southeast Iran

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Shadad fold and thrust belt is a young pliocene-Quaternary structure developed between two tectonic blocks of central micro-plate of Iran. This micro-plate consists of three NS trending tectonic blocks of: Yazd block to the west, Lut block to the east and Tabas block in central part that are all bordered by major faults.

Geometry and kinematic of kilometre scale extended sub-parallel folds in Shadad fold and thrust belt demonstrate a young thin-skinned structure. It is produced by late Pleistocene-Quaternary compression tectonic between two blocks of central micro continent of Iran Tabas block (Kerman plateau) against Lut block up on a very low angle detachment in southeast Iran. Fault related folds are produced over detachment ramps on shallowly dipping splays through two (northern area) up to five (southern area) ranges. These faults are not cutting surface but younger thrust faults cut the folded sequence. This fold and thrust belt contains Pliocene-Quaternary sedimentary sequence of gypsiferous marl at the lower part overlain by well-stratified gypsiferous siltstone, sandstone and conglomerate. Erosion of the folded strata and syn-folding sedimentary deposition occur over two distinct unconformity surfaces by young gypsiferous conglomerates at frontal ranges. Detachment is developed through the lower elastic gypsiferous marls at the contact with the stratified Paleocene volcanic rocks on Lut block.

Decolment of the Shadad fold-thrust belt proposed a shallowly dipping sole thrust based on active earthquake data. In spite of strong recent earthquakes in this region, few part of stress release along this active fold-thrust belt exists and aseismic deformation by synthetic aperture is suggested.