



Geometry and Kinematics of the High Zagros Belt (Iran)

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The High Zagros Belt (HZB) is the most internal part of the wider Zagros Fold-Thrust Belt (ZFTB). It is an elevated domain (up to 4400 m) bounded to the south by the High Zagros Fault (HZF), which we define as the southernmost principal thrust-fault carrying out Lower Paleozoic strata over Mesozoic or Cenozoic rocks. To the north the HZB is bounded either by the Main Zagros Thrust (MZT), which corresponds to the fundamental limit (Neo-Tethys suture) with the internal Sanandaj-Sirjan Zone (pertaining to the Eurasian Plate) or by the front of the discontinuous "Crush Zone" (CZ) in which are exposed rocks coming from the distal margin of the former Neo-Tethys Ocean. Following our definition the HZB, exists in two disconnected prominent and elevated domains: the Central and Eastern High Zagros (CHZB & EHZB) respectively. The CHZB is a funnel shape region with a length of about 450 Km and variable width between 40 to 80 Km broadening from the NW to the SE. We will present a new tectonic map of this region and four new balanced cross-sections with associated kinematic models. From a geometric point of view, we show the existence of an important intermediate décollement level located within Ordovician-Silurian shale. This décollement, together with the well-known Hormuz basal décollement, allows the development of duplexes confined at depth in the core of the anticlines. For the kinematics, we confirm a two-steps model with a first thin-skinned phase leading to the development of large detachment folds developed over the Hormuz salt layer. At this stage the different intermediate décollement levels were activated. The second phase is thick-skinned and corresponds to the inversion of deep-seated basement faults and occurrence of large out-of-sequence thrusts, responsible for the exhumation of Lower Paleozoic rocks. The Eastern High Zagros Belt is a more restricted area composed by three giant anticlines, namely the Gakhum, Faraghan and Kue-e-Khush anticlines. Here also, we will present a new tectonic map and balanced-sections crossing the three anticlines. From a geometric point of view, the most striking structure is a major back-thrust floored by Ordovician shale in the Faraghan anticline. We will show that this back-thrust developed during an early thin-skinned phase of deformation and is subsequently cut out by basement faults. Finally, we will present an integrated kinematic model for the whole HZB.