Geophysical Research Abstracts,
Vol. 11, EGU2009-221-3, 2009
EGU General Assembly 2009


# Present-day slip-rate of Kazerun Fault insight from Numerical Modeling

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Abstract

Geological and seismic evidence suggests that nearly one half of the convergence between Arbia and Eurasia is accommodated by the crustal deformation of Zagros. Two competing mechanisms were proposed to describe this accommodation: distributed crustal thickening and localize strain along main faults. The kinematics of kazerun fault is critical in determining the relative importance of these two mechanisms, in as much as the slip-rates predicted by hypotheses of these competing mechanisms are very different. Using a finite element formalism to construct a thin-sheet model, we seek a velocity solution approaching the current kinematics of the kazerun. The GPS data in the Zagros and neighboring regions are employed as constraint conditions, in successive steps. The predicted velocity distribution near the kazerun fault fits well to the observations, with overall standard deviations of 1.1 mm/yr and 1 mm/yr for the northward and eastward components, respectively. The inferred average slip-rate of the kazerun is (3.6 $\pm$ 1) mm/yr, with some variation along the fault.