



New strain field in Iran: Insight from GPS and numerical modeling

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A network of 107 Permanent GPS station was implemented in Iran to measure displacements and crustal deformation monitoring in Arabia-Eurasia collision zone. We present the GPS velocity field obtained from 2 years performed in 2005, to 2007 and the deduced strain tensor. The Strain tensor decompose to symmetric and antisymmetric parts which its symmetric part is the strain rate tensor while its antisymmetric part gives a local measure of the rate of rigid rotation . The strain rate calculated from the horizontal velocity field is shown in terms of their principal axes. In this paper we find out by distorting a finite element model of Iran using GPS derived displacements and linear rheologies. The model was constructed using spatially varying crustal thickness, and creeping faults and loaded according to 10-year displacements. The mesh covers a rectangular area in Iran with horizontal dimensions of (1600 × 1600) km and structure of the collision zone and faults will be represented by contact surface with the coulomb friction law. The short term strain field result from GPS velocity field is compared with those obtain with numerical modeling and the previous result by Masson et al., 2007 and focal mechanism in the Iran.