



## **Numerical modeling of long term strength in the Zagros Mountains of Iran**

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A three-dimensional lithosphere model with horizontal dimensions of 1500 km x 600 km and a depth extent of 70 km for the Zagros is constructed from available geophysical data to find out strength of the outermost layers in this area. The structural boundaries of the model are based on the results from the deep seismic sounding profiles. First the finite element model for the temperature is solved in order to obtain initial temperature and the geotherm, after that structural viscoelastic problem is solved using the same mesh as in the thermal initial condition. Preliminary results for wet and dry rheology indicate that the depth of the BDT is about 8 km and 11 km for hot geotherm and 10.5 km to 14 km for cold geotherm. The results are in good agreement with focal depth in the Zagros that most earthquakes occur in 8 to 15 km depth (Tatar et al., 2004) and Jackson et al., 2008, that the long-term strength of the continental lithosphere resided only in its upper part, which was contained wholly within the crust.