



Hidden earthquakes in the Zagros Fold-Thrust Belt

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The Zagros mountains of SW Iran are one of the most seismically active inter-continental fold-and-thrust belts on earth, and an important element in active tectonics of the Middle East. The basement-involve in this active fold-thrust belt is underlain by numerous seismogenic blind basement thrust faults covered by the folded Phanerozoic sedimentary rocks. These faults are responsible for some of the hidden earthquakes in the active Zagros Fold-Thrust Belt, with rare surface faulting. For simplicity, the following two assumptions are made: A) the earthquake source volume is spherical in shape with radius () and B) the occurrence of fracture is restricted within the earth's crust of thickness (H). Based on these assumptions we have derived empirical relationship for determining the probability of surface fault appearance. The result obtained from these probabilistic models is in good agreement with the field observations