



## **Stress transfer relations among moderate earthquakes in Kerman Province, southern Iran since 1981**

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We explore the stress triggering relationships of the  $M \geq 6.4$  earthquakes that occurred in Kerman Province, southern Iran since 1981. We calculate stress changes due to both coseismic sudden movement in the upper crust and time-dependent viscous relaxation of the lower crust and/or upper mantle following each event. Four events of  $M \geq 6.4$  occurring between 1981 and 2005 on and close to the Gowk fault, show a clear advance to failure Coulomb stress relation. The 2003  $M=6.5$  Bam earthquake, however, which occurred approximately 95 km SW of the closest Gowk event, shows a very weak stress relation to preceding earthquakes. The coseismic static stress change at the hypocenter of the Bam earthquake is quite small ( $\sim 0.006$  bars). The time-dependent postseismic stress change could be 26 times larger or 7 times lower than that of coseismic static stress alone depending on the choice of viscoelastic crustal model and the effective coefficient of friction. Given the uncertainties in the viscoelastic Earth models and the effective coefficient of friction, we cannot confidently conclude that the 2003 Bam event was brought closer to failure through coseismic or postseismic stress loading. Interestingly, the southern Gowk segment with a similar strike to that of the Bam fault, experienced a stress load of up to 7.4 bars between 1981 and 2003, and is yet to have a damaging earthquake.