Geophysical Research Abstracts, Vol. 7, 05161, 2005 SRef-ID: 1607-7962/gra/EGU05-A-05161 © European Geosciences Union 2005



The role of small earthquakes in redistributing crustal elastic stress

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It was shown (e.g., Brune 1968) that only the largest earthquakes contribute significantly to the total seismic moment accumulated on a given fault segment, so that one does not need to know the small magnitude seismicity in details to estimate the seismic coupling. A very different conclusion is reached (Hanks, 1992) when considering stress rather than moment: due to the earthquake/fault spatial clustering, the small earthquakes are an important source of stress, roughening the stress field at small wavelengths on the fault network, and therefore contributing significantly to the triggering of impeding earthquakes. This talk will describe how the contribution of small earthquakes in redistributing elastic stress can be accounted for in a model and a case study.