**Fault interaction and stress transfer along the Algerian plate boundary zone**

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**Abstract**

We address the rôle and distribution of stress transfer that may trigger destructive earthquakes in the Central Tell Atlas (Algeria). A sequence of historical events reaching M 7.3 and related stress tensor with thrust faulting mechanism illustrates the Coulomb Failure Function (CFF) modeling. We explore here the physical pattern for a stress transfer along the Tell thrust-and-fold belt taking into account an observed northeast trending earthquake migration from 1891 to 2003. An effective friction coefficient µ’=0.4 shows stress loading lobes on targeted coseismic fault zone and location of stress shadow across other thrust-and-fold regions. Jaumé and Sykes (1992) suggest that one explanation for this apparently low value of µ’ would be the presence of high fluid pressure. The Computation integrated the seismicity rate in the CFF computation, which is in good agreement with the migration seismicity.

The CFF calculation provides the critical value of 2 bars sufficient to trigger the largest earthquakes as for instance (Mw 7.3 El Asnam earthquake), The CFF values for other moderate earthquakes being 0.1-0.8 bar. Recent InSar studies and aftershocks of the 2003 Zemmouri earthquake (Mw 6.8) are integrated in the post-seismic stress loading reach some selected faults by a value of 1bar with the same co-seismic fluid effect. The presence of fluid and related poroealstic deformation can be considered as decisive topics of debate for the occurrence of majors earthquakes in the western Mediterranean regions.