



Fault interaction around Algiers (Algeria) region from 1980 to 2014

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This study deals with stress transfer around Algiers (capital of Algeria) region ($0\text{--}6^\circ\text{E}$, $34^\circ\text{--}38^\circ\text{N}$) that suffered 10 $M \geq 5.5$ events for the period 1980-2014, particularly those of El Asnam (10-10-1980, $M_s=7.3$, 1.35°E - 36.20°N) and Zemmouri (21-05-2003, $M_s=6.8$, 3.63°E - 36.96°N). It is based on Coulomb failure function changes (ΔCFF) stipulating that a source-fault (known by its size and its focal mechanism) acting on a target-fault (known by its focal mechanism) configures the space in regions with positive and negative ΔCFF . The first ones would be the sites of future seismicity; the latter would be devoid. The starting point is the El Asnam earthquake. Step by step, we compute the accumulated ΔCFF from 1980 until the date where an earthquake occurred among those with $M \geq 5.5$ for the period 1980-2014. Then, we correlate its location with the corresponding sign of ΔCFF . A fairly correlation is observed, leading to a possible fault interaction. The calculations are made at nodes of a kilometric grid in a half space, using Okada's subroutine. As a particular result, the occurrence of the 1980 and 2003 earthquakes enhanced CFF between El Asnam and Zemmouri, catching in a trap the Algiers region.

Key words: Algeria, Coulomb failure function, El Asnam earthquake, Zemmouri earthquake.