



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

Mohamed Salah Boughacha (1) and Merzouk Ouyed (2)

(1) USTHB, FSTGAT, Geophysics Department, Algiers, Algeria (msboughacha@gmail.com), (2) USTHB, FSTGAT, Geophysics Department, Algiers, Algeria (mkouyed@yahoo.com)

This study deals with stress transfer around Algiers (capital of Algeria) region ( $0-6^{\circ}\text{E}$ ,  $34^{\circ}-38^{\circ}\text{N}$ ) that suffered 10  $M \geq 5.5$  events for the period 1980-2014, particularly those of El Asnam (10-10-1980,  $M_s=7.3$ ,  $1.35^{\circ}\text{E}-36.20^{\circ}\text{N}$ ) and Zemmouri (21-05-2003,  $M_s=6.8$ ,  $3.63^{\circ}\text{E}-36.96^{\circ}\text{N}$ ). It is based on Coulomb failure function changes ( $\Delta\text{CFF}$ ) 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  $\Delta\text{CFF}$ . 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  $\Delta\text{CFF}$  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  $\Delta\text{CFF}$ . A fairly correlation is observed, leading to a possible fault interaction. The calculations are made at nodes of a kilometeric 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.