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Seismotectonic zonation Case study: Constantine region (Eastern Algeria)

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The Northern domain of Algeria is submitted to seismicity due to its location close to the plates boundary. The main tectonic structures marking the geological domain of Constantine region [Tell mountain and Mio-Plio-Quaternary basins] are NE-SW, NW-SE, E-W directions. These faults are associated with anticlines and synclines atlasic direction.
The principle of seismotectonic zonation consists of modeling the identified and supposed actives faults as sources lines, and the geological domain marked by diffuse seismicity and neotectonic deformation are modeled as sources zones. Therefore, the study area was divided into three seismic sources zones; ZI includes all identified active faults (observables), ZII corresponds to the geological domain characterized by seismicity and deformation of its Neogene, ZIII: corresponds to the geological domain characterized by low seismicity and uplift of its older massives.

The parameters (length, width, depth...) of these active faults are integrated in the empirical formulas for the estimation the maximal magnitudes of probable earthquakes designated (MCE).

Keywords: Seismicity, neotectonic structures, seismotectonic zonation, seismic hazard assessment, Constantine region, North Algeria.