



RECENT SEISMIC ACTIVITY IN THE UPPER-CHELIFF BASIN, WESTERN ALGERIA

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The goal of this work is to provide a better understanding of the relationship between seismicity, active tectonics and crustal structures in the upper-part of the Cheliff basin. The structural feature of the Cheliff basin and its northern position in the Tellian atlas allow a rather compressive deformation that generates reverse faults but strike slip fault also exist. The Neogene and quaternary structures of the Cheliff valley are situated in the intermountain Chliff basin of the Tellian atlas, northwest of Algeria. The upper-Cheliff basin is situated between the Boumaad mountains in the north and in the south by the mountain chain of the Ouersenis. It is oriented EW. Only moderate earthquakes occurred in or near that basin. The historical event, M5.0 and intensity IX, occurred in El-Abadia 15 km NE of the 1980 El-Asnam epicenter. The most known earthquake in the region is the Rouina earthquake in 1992 M5.2. The event was the first important event recorded by the Algerian telemetered seismological network. Particularly the mechanism of the mainshock indicates a thrust fault with a large component of strike-slip movement. The mainshock and its aftershocks seems to be related to a north-south oriented fault which is situated about 70 km east of the El-Asnam thrust fault. The recent seismic activity was essentially recorded by the new digital seismic network (ADSN).

10 events ($3.0 < M_d < 4.1$) were analysed. Depths vary from 5 to 9 km. All the analysed events are located in the northern part of the basin. The RMS of the located events vary between 0.09 and 0.13 s, the horizontal ERH vary between 1.1 and 1.8 km and the vertical ERZ errors vary between 2.1 and 7.4 km. the gaps vary between 74° and 199° . Four from six calculated focal mechanisms showed a reverse fault with a strong strike-slip component. The focal solutions (P-axis) are in agreement with the direction of the maximum compressional stress (σ_1). In all the six focal solutions, one of the two fault solutions is oriented nearly in the north-south direction, in the same direction of the Rouina fault. In the absence of strong earthquakes, the study of low-magnitude earthquakes if available may certainly contribute to better understand the seismic hazards in these regions.

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