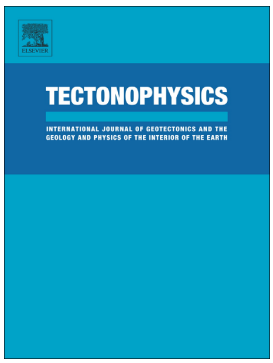

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The 2016 Mihoub (north-central Algeria) earthquake sequence: seismological and tectonic aspects

M. F. Khelif [1,2], A. Yelles-Chaouche [1], Z. Benaissa [2], F. Semmane [1], H. Beldjoudi [1], A. Haned [1], A. Issaadi [1], A. Chami [1,2], R. Chimouni [1,2], A. Harbi [1], S. Maouche [1], G. Dabbouz [1], C. Aidi [1,2], A. Kherroubi [1].

[1] *Centre de Recherché en Astronomie, Astrophysique et Géophysique, Algeria*

[2] *Université des Sciences et de la Technologie Houari Boumediene, Algeria*

m.khelif@craag.dz

Abstract

On 28 May 2016 at 23:54 (UTC), an M_w5.4 earthquake occurred in Mihoub village, Algeria, 60 km southeast of Algiers. This earthquake was the largest event in a sequence recorded from 10 April to 15 July 2016. In addition to the permanent national network, a temporary network was installed in the epicentral region after this shock. Recorded event locations allow us to give a general overview of the sequence and reveal the existence of two main fault segments. The first segment, on which the first event in the sequence was located, is near-vertical and trends E–W. The second fault plane, on which the largest event of the sequence was located, dips to the southeast and strikes NE–SW. A total of 46 well-constrained focal mechanisms were calculated. The events located on the E–W-striking fault segment show mainly right-lateral strike-slip (strike N70°E, dip 77° to the SSE, rake 150°). The events located on the NE–SW-striking segment show mainly reverse faulting (strike N60°E, dip 70° to the SE, rake 130°). We calculated the static stress change caused by the first event (M_d4.9) of the sequence; the result shows that the fault plane of the largest event in the sequence (M_w5.4) and most of the aftershocks occurred within an area of increased Coulomb stress. Moreover, using the focal