ESC2016-14, 2016
35th General Assembly of the European Seismological Commission

35th General Assembly of the European Seismological Commission
4–10 September 2016
Trieste

The Algiers earthquake of 1st August 2014 and its aftershocks sequence

Mohamed Fadhlallah Khelif, Abdelkarim Yelles-Chaouche, Abderahman Haned, Zahia Benaissa, Adel Chami, and Yahia Larbes

Usthb, fstgat, geophysics, Algeria (khelif.mohamed@hotmail.fr)

During history, the Algiers region (north-central Algeria) was affected by a number of destructive earthquakes. Two well-known historical earthquakes were occurred in 1365 and 1716 (Benhallou, 1985), and more recent one was recorded on 21may 2003, in the Boumerdes district (Mw 6.9), about 50 Km east from Algiers (Yelles-Chaouche et al, 2003).
On August 1st, 2014 a moderate earthquake of magnitude Mw: 5.6 hit the Algiers (the Capital of Algeria) region. This marine event occurred more precisely in the bay of Algiers 25 NE from the Bologhine coastal village and 15 km NW of Borj el Bahri in the opposite side. The earthquake occurred at 4h11 am, and caused serious damages on buildings in Bologhine but also along the coastal part of the Algiers bay. This moderate event was strongly felt in the Capital Algiers and also by the whole population of the Mitidja basin.
From the P-wave first motion polarities picking on the vertical component of 40 stations of the Algerian Digital Seismic Network (Yelles-Chaouche et al., 2013), and some others internationals stations, the focal mechanism determined, indicates a NE-SW reverse fault with a strike slip component
The earthquake was followed by several aftershocks. The activity lasted about two months until October 2014. Nevertheless some shocks are still recorded episodically in the area, one year later. In this study a number of 650 events no greater than magnitude 4 were analyzed.
Depending on two types of geological structures in this area, two models are used in this study, the first is from one of the deep seismic profiles made during the Spiral Program (Yelles-Chaouche et al., 2010), of Tipaza, Algeria (Lepretre et al., 2013), specific to the mitidja basin. The second is relative to the Bouzareah massive, counter to the first one, it's characterized by high velocities. Vertical sections and 3D view are plotted to exhibit the aftershocks distribution.