



## SEISMIC ACTIVITY ALONG THE ALGERIAN COASTLINE

AbdelKarim YELLES-CHAOUICHE<sup>1</sup>, Abdelaziz KHERROUBI, Boualem  
BENABDELOUED, Hamoud BELDJOUADI and Fethi SEMMANE<sup>2</sup>

Since the recent installation of the Algerian Digital Network from 2009 (Yelles et al., 2013), seismic activity is now well recorded and well located more precisely in a critical region which is the coastline. Previously, two events suggest such a coastal activity as the Chenoua event of October 29<sup>th</sup>, 1989 (M:6.0, Meghraoui, 1991, Bounif et al., 2003) and the one of Ain Benian of September 4<sup>th</sup>, 1996 (M:5.7, Maouche et al., 1998). During history, three important earthquakes could have happened along the shoreline as the one of Algiers in 1716, the Oran event of October 1790 and the one of Djidjelli of August 1856.

In these last recent decade, several moderate to strong events occurred in these several coastal seismogenic zones of northern Algeria. The first one is the strong Boumerdes event of May 21<sup>th</sup>, 2003 (M:6.8, Yelles et al., 2003) located 50 Km east of Algiers (the capital) near the Zemmouri coastal village. In the western part of Algeria, many events occurred recently as in the Oran bay in 2008 (09/01/2008, M:5.2 and 06/06/2008, M:5.5), near Arzew (March, 21<sup>th</sup>, 2014, M: 4.3) or Mostaghanem (May, 2<sup>nd</sup>, 2013, M:4.7)(80 Km east from Oran). These events are in general in relation with the complex tectonics of the eastern end of the Alboran domain near Algeria. More east, two events happened near the coastal village of El Marsa (March, 5<sup>th</sup>, 2008, M:4.1 ) or Beni Haoua (April, 25<sup>th</sup>, 2012, M: 5.0). Many events also happened near the coastal cities of Tenès or Cherrhell, 200 Km west of Algiers. These events traduce the active deformation of the northern part of the Cheliff basin where the strong El Asnam earthquake occurred in October, 10<sup>th</sup>, 1980 (M: 7.3).

Some events also occurred in the Algiers (The capital of Algiers) bay. This activity could be in relation with the previous Boumerdes earthquake of May, 2003. In the eastern part of Algeria, many events happened in the region of Azzefoun or in the region of Bejaia (200 Km east of Algiers) where three moderate events happened in 2012 (November, 28<sup>th</sup>, 2012, M:5.1) and 2013 ( May, 19<sup>th</sup>, 2013, M: 5.5; May, 26<sup>th</sup>, 2013, M: 5.0). In the last period some events occurred near the Djidjelli city (event of March, 25<sup>th</sup>, 2014, M:4.1) where the strong 1856 event happened. One can note the lack of seismicity in the Annaba bay region where only minor events happened in the past.

The occurrence of these many coastal events may indicate that: first, many active faults could extent from inland to offshore in the continental platform of the Algerian margin. Second, these earthquakes outline the progressive uplift of the coast outlined by the general inverse focal mechanisms determination of these events. In other hand in the regions of Boumerdes, Djidjelli or Annaba from detailed mapping of the margin by the previous Maradja surveys, the presence of perched basins attest a gradual uplift of the margin since the plioquaternary. Third, these events are in relation with the general tectonic of each part of the Algerian segmented margin

Finally, although some faults have been already mapped as the one in the Bou Ismail bay near Algiers, the next survey of the plateau, not carried out by the Maradja surveys will give more informations about the extent of these structures. Mapping of these structures are also urgently needed as they could play a role of the tsunami triggering in the western Mediterranean region.

<sup>1</sup> Doctor, CRAAG, Algiers, a.yelles@craag.dz

<sup>2</sup> Doctor, CRAAG, Algiers, f.semmane@craag.dz

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