

Seismotectonics and Seismology the North of Algeria

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Abstract : The slow coming together between the Afro-Eurasia plates seems to be the main cause of the active deformation in the whole of North Africa which in consequence come true in Algeria with a large zone of deformation in an enough large limited band, southern through Saharan atlas and northern through tell atlas. Maghrebin and Atlassian Chain along North Africa are the consequence of this convergence. In junction zone, we have noticed a compressive regime NW-SE with a creases-faults structure and structured overthrust. From a geological point of view the north part of Algeria is younger than Saharan platform, it's changing so unstable and constantly in movement, it's characterized by creases openly reversed, overthrusts and reversed faults, and undergo perpetually complex movement vertically and horizontally. On structural level the north of Algeria it's a part of erogenous alpine peri-Mediterranean and essentially the tertiary age It's spread from east to the west of Algeria over 1200 km. This orogenesis is extended from east to west on broadband of 100 km. The alpine chain is shaped by 3 domains: tell atlas in north, high plateaus in mid and Saharan atlas in the south. In extreme south we find the Saharan platform which is made of Precambrian bedrock recovered by Paleozoic practically not deformed. The Algerian north and the Saharan platform are separated by an important accident along of 2000km from Agadir (Morocco) to Gabes (Tunisian). The seismic activity is localized essentially in a coastal band in the north of Algeria shaped by tell atlas, high plateaus, Saharan atlas. Earthquakes are limited in the first 20km of the earth's crust; they are caused by movements along faults of inverted orientation NE-SW or sliding tectonic plates. The center region characterizes Strong Earthquake Activity who locates mainly in the basin of Mitidja (age Neogene). The southern periphery (Atlas Blidéen) constitutes the June, more Important seismic sources in the city of Algiers and east (Boumerdes region). The North East Region is also part of the tellian area, but it is characterized by a different strain in other parts of northern Algeria. The deformation is slow and low to moderate seismic activity. Seismic activity is related to the tectonic-slip earthquake. The most pronounced is that of 27 October 1985 (Constantine) of seismic moment magnitude $M_w = 5.9$. North-West region is quite active and also artificial seismic hypocenters which do not exceed 20km. The deep seismicity is concentrated mainly a narrow strip along the edge of Quaternary and Neogene basins Intra Mountains along the coast. The most violent earthquakes in this region are the earthquake of Oran in 1790 and earthquakes Orléansville (El Asnam in 1954 and 1980).

Keywords : alpine chain, seismicity north Algeria, earthquakes in Algeria, geophysics, Earth

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