The strong earthquake of 26 November 2019 (MW6.4) and its associate active tectonic of Durresi Region in Albania.

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On November 26, 2019, a strong earthquake (Mw6.4) occurred about 16 km, north of the Durresi city in the Adriatic Sea, and 35 km NW from the capital city of Tirana, in the western part of Albania. The main shock of November 26 at 15:20 (UTC) was followed by a great number of aftershocks.

The main event is not a shallow one, with the hypocentral depth at 39 km. This fact explains the localized destruction, not only in the epicentral zone but in a larger zone. This earthquake expresses the increase of recently seismic activity of the Adriatic seismogenic zone. The main shock has caused cracking of the earth, especially in the region where the epicenter of the earthquake is located. The largest cracks are in the vicinity of the Erzen river estuary. These cracks have widths ranging from few cms to 1m and extending from several hundred meters to 1 km. The depth of cracking in some cases reaches into 2 meters. Those cracks are numerous and often create parallel systems between them that follow the current river bed or traces of the old river beds (paleoalvei).

Liquefaction phenomena have been observed extensively in the area between the villages of Juba and Hamallaj. In this area, there have been observed outflows of pressure water associated with sand and clays. The height of the water has often reached up to 1 meter around the water wells. The phenomenon of liquefaction in these areas has been associated with soil cracks of several cms wide and several tens of meters long.

Based on the neotectonic mapping and the focal mechanism of the mainshock, strike 219°, dip 40°, rake -90°, it is considered that the seismotectonic source that generated this earthquake is related to NW-SE longitudinal tectonic of the Adriatic Sea. Based on the focal plane solutions provided by the IGEWE website, the mainshock was generated by the activation of an NW-SE striking thrust fault with the compression axes in the NE-SW direction.

Sea Adriatic neotectonic extend from Dalmatic coast to Ionian coast is an ancient tectonic, a reverse fault thrust, thus activated during the Quaternary geologic period to the present day, occasionally with strong earthquakes. The seismic movement has also caused a 10 cm elevation of the terrain in the epicenter of the earthquake, which has been accompanied by a coastline retreat in this area (Hamallaj beach).

The 21 September and 26 November 2019 earthquake sequences, as well as the 1926 seismic event that took place in the Durresi region, exhibit a rough NW–SE-trending structure, which is an active seismotectonic zone in western Albania, therefore constituting a threat for nearby urban
areas.