



Seismotectonics of Marasesti region (Eastern Romania) revealed by earthquake relocations and moment tensor determinations

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A large seismic sequence occurred between 22 November 2014 and 31 January 2015 in the Foredeep area of the South-Eastern Carpathians at a distance of about 10 km north-east relative to Marasesti city. The sequence was located in the lower crust, close to 40 km depth. Although the moment magnitude of the largest event was 5.4 according to Romplus (Romanian earthquakes catalog) the largest aftershock did not exceed 4.0 (M_w) and most of the aftershocks were weak (magnitude below 3). From a total of 230 well-located events, we relocated 178 using more than 17000 P and S differential travel times. The results show a NW-SE alignment consistent with the focal mechanism solution computed through the broadband seismic waveforms inversion. An important aspect of this sequence is the distribution in time of the seismic events, which reveals an aftershocks migration with an average velocity of about 3 km/day. This seismicity behavior might be due to the presence of the fluids. We interpret all these features in terms of the seismotectonics of the region.