



Correlation between crustal seismicity and the active fault systems in the south-eastern part of Romania

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Crustal seismicity of Romania reached magnitudes less than 6.5, being significantly lower than the intermediate depth seismicity of the Vrancea region. A few important active crustal seismogenic areas are located in the SE part of the country in front of the Eastern Carpathian Bend: Focsani depression, Barlad and Predobrogean depressions, North Dobrogea orogen and the eastern part of Moesian Platform. The earthquakes in the Focsani depression are often generated in sequences. Thus, three sequences occurred in the last decades within the Focsani-Ramnicu Sarat area: 21-22.02.1983 with $ML = 4.7$, 27-29.11.1986 with $ML = 5.0$ and 30.04.2004 with $ML = 4.1$. All the three sequences show a tension stress field with the main compression axis oriented on the SE-NW direction, parallel to the Carpathian arc. Within the Barlad depression the highest events did not exceed $M_w = 5.6$. All the available fault plan solutions showed a prevalent horizontal extensional regime with a normal component. At the boundary between Predobrogean depression and North Dobrogea orogen, on the Sfantu Gheorghe fault and close to Tulcea town, two significant earthquakes occurred in the last decades: 13.11.1981, $m_b = 5.2$ with aftershocks migrating on a NE-SW direction, and 03.10.2004, $M_w = 5.1$ that was felt up to Constanta and Kishinev in the Republic of Moldavia. To the west of Danube, the eastern part of the Moesian Platform, events with magnitudes less than 5 were recorded. The most significant are: 04.01.1960, $M_w = 5.4$ from Cazanesti (on the Ialomita river, between the Urziceni and Slobozia towns) and 27.02.1967, $M_w = 5.0$ from Radulesti (15 km North of the Urziceni town). Earthquakes having magnitudes less than 4 occurred around the Ploiesti town, in between Ploiesti town and Bucharest city at Peris, Targu Fierbinti, Otopeni, Varasti and Hagi-

esti. Other small magnitude earthquakes were felt within the Bucharest city area and south of it at Vidra, Frumusani and Ciorusel. On the overall, the mechanisms of the crustal solutions do not apparently provide a consistent stress regime, this one covering all types of deformations. The link between crustal seismicity and active geological structures in the SE part of Romania is widespread between the Trotus and Intramoesian faults having a high concentration within foreland. The Quaternary deformations have a non-cilindrical character, the earthquake related active structures indicate different type of structures with various kinematics along the overall SE Carpathians folding corridor. Thus some extensional solutions are noticed for the large scale normal faulting on the eastern and southern flank of the Focsani basin, the compressional solutions are matched with the thrust basement below the nappe pile and out-of-sequence Wallachian thrusting, and the strike-slip solutions are observed towards the strike-slip boundaries of the folding corridor. Mainly the overall active deformation mechanism is the same for the whole area, which is on the WNW-ESE direction, within a corridor flanked by the Intramoesian and Trotus faults.