



Seismic evidences of the crustal faults at bottom of the Focsani basin (Romania)

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Focsani basin is located in front of the SE Carpathians Bend on the Moesian Platform basement. The subsidence of basin started in the Miocene time and continued until recent time. About 13 km of Badenian to Quaternary sediments fill the basin. Pre-Tertiary sediments are buried underneath down to 18-20 km depth.

A crustal seismicity with hypocenters ranging from 5 to more than 40 km depth was observed in the basin and its neighbourhood. A peculiarity of the seismicity within the basin is the grouping of events in swarms and clusters with small to moderate magnitudes ($M_w \leq 5.6$). During the last four decades as much as 20 sequences of swarms and clusters were recorded, some of them lasting for a few weeks. The main shocks were followed by smaller aftershocks which usually migrated towards SW. The grouping of epicenters along two parallel NE-SW directions is observed, and most of the focal mechanisms indicate fault plane solutions oriented parallel to the Carpathians Bend, also in NE-SW direction.

The Vrancea 2001 seismic crustal profile displays the structure of the basin and its crustal basement on the ESE-WNW direction. The shape of basin with two asymmetric flanks is well outlined on the seismic section. A subsided bottom and the raised flanks are observed not only at the sedimentary level but down to Moho. A steeper slope is evidenced on the W flank of the basin while on the E flank the slope is more gentle. The broken shape of all interfaces at the flanks of the basin, observed on the seismic section, suggests some crustal faults delimiting its margins at the contact with the adjacent units.

A vertical projection of the crustal hypocenters located within a 20 km wide band along the seismic section Vrancea 2001 shows their rough alignment along the two flanks of the basin from 5 km down to Moho.

The space distribution of the seismicity together with the focal mechanisms of the earthquakes from the study area support the existence of two active fault systems oriented NE-SW, located at the margins of the basin.