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# Seismic activity of the Shahroud fault system and crustal velocity of the eastern Alborz, Iran, deduced by local networks

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We have investigated local seismicity around Shahroud fault system at the eastern Alborz. This fault system plays significant role in the tectonic of the east Alborz. In this paper we analyzed micro-earthquakes recorded by three networks; two local temporary dense seismological networks installed around a part of Shahroud fault system for several months during 2007 and 2008 and the permanent seismological network of the Geophysics Institute of University of Tehran. The seismicity of both permanent and temporary networks have been distributed around Shahroud fault system, especially the Astaneh fault. Processing the data concludes a P wave velocity structure range within the east Alborz from 5.4 km/s to 6.3 km/s between the surface and upper than the Moho depth. We suggested 4 km for sedimentary cover thickness and the seismogenic zone thickness was obtained 20 km. Also two near vertical seismicity dips corresponding with two segments of the Astaneh fault were specified. We detected a north-dipping blind fault at the south of the area which helps us suggesting the flower structure as subsurface geometry of the faults at the eastern Alborz.

Key words: Shahroud fault system, Micro-earthquake, Crustal velocity, Local network and East Alborz.