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Magnitude scale in a local seismic network in northwest Iran

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To record the local earthquakes, Tabriz digital seismic network comprises eight three component seismic stations installed in northwest of Iran. This network started its operation at the end of 1995. The majority of recorded events are shallow indicating that the seismic activity is mainly taking place in upper crust and the seismogenic layer has a thickness of about 20 km. Investigation of archived data in Tabriz seismic network shows that magnitude values in the database have not been determined using a single formula or a specific method. Comparison of magnitude values in the database with those values that have been published in the ISC Bulletin shows that magnitude values calculated in the Tabriz network are underestimated for events occurred in distances greater than 140 km. By using magnitude values in the database and corresponding m_b^{ISC} values, a magnitude scale is derived for determination magnitude in epicentral distance up to 600 km. Using new formula gives a better estimate for the magnitude of earthquakes in comparison with the formula that is presently used in the Tabriz seismic network.

Keywords: Key words: Seismic Network, magnitude, Iran.

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