To determine magnitude of recorded events in Tabriz seismic network, the $M_N$ (Nuttli, 1973) scale is used. But, among the several magnitude scales in current use, the local magnitude, $M_L$ has the most direct relevance to engineering applications. For seismic hazard estimations and seimicity rate-change studies, a uniform magnitude scale, such as $M_L$ scale, over years is important. It is well-known that regional geology has great influence on attenuation of seismic waves as calibration function of magnitude scales. Therefore, for each region a specific calibration function has to be developed. The archived data by Tabriz network is large enough that provides an opportunity to determine the attenuation curve for Tabriz region. We computed a collection of about 130000 synthetic Wood-Anderson seismograms corresponding to about 7200 events with $M_N \geq 2.0$ that occurred from Jun 1996 to September 2009. Investigation shows that using the zero-to-peak value is tends to overestimate the magnitude of an event by as much as 0.07 magnitude units in comparison to using the one-half the peak-to-peak value. Also, using vector sum of horizontal measurements overestimate the $M_L$ values by 0.16 magnitude units in comparison to magnitude values determined by using arithmetically means of horizontal measurements.

In this study the distance attenuation curve, station correction terms, and the magnitude of events were simultaneously estimated by using parametric and nonparametric approaches. In both cases, estimations and separate attenuation curves were determined for the vertical component and for the arithmetic mean of horizontal components. These two approaches yielded very similar results. The resulting nonparametric distance correction are given by $-\log A_0 = 1.159 \log(\delta) + 0.0025(\delta) + 0.432$, and $-\log A_0 = 1.275 \log(\delta) + 0.0024(\delta) + 0.210$ for vertical and horizontal components respectively, where $\delta$ is the epicentral distance in kilometers. The distances considered ranged from 1 to 500 km. Also, the estimated $M_N$ and $M_L$ values are compared with $m_{iSC}$ values that are published by the International Seismological Centre.