

Zoning spatial variability of Frequency-Magnitude distribution of earthquake in Iran (Mw is greater than 4)

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The goal of this study is to map variation of b and a values based on Gutenberg-Richter relationship in Iran. The zoning of Iran in this way can create new idea in seismotectonic provinces. Main focus in this research is Iran earthquakes catalogue specially from historical earthquakes to the 2008 for MW is greater than 4 and completed by data from ISC, NEIC, IIEES stations and institute of geophysics .In this investigation Iran is subdivided in to 2...x 2...grids and by using ZMAP program, dependent events manually removed from catalogue then b and a values in slope of $\text{LogN} = a - bM$ graph respectively computed and these parameters are considered as central point of every zones.By using ArcGis some contours based on mentioned parameters are mapped and b and a values ranges from 0.4-1.3 and 2.9-7.6 are obtained respectively.

With consideration of b value and seismic rate variation, southeast and northwest of Iran have low b value and low seismic rate and also large earthquakes occur in this region and southeast of Iran have high b value and seismic rate and cluster of moderate earthquakes.

Comparing our data and seismic zones by Mirzaee et al.1998 that low b value is situated in Markan and Alborz zones and high b value is situated in Zagros zone.