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Preliminary statistical analysis of Kandilli earthquake catalog

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In this current study, our basic goal is to evaluate the quality, consistency and homogeneity of Kandilli Observatory Earthquake Data Catalog covering the period 1900 - 2007. In order to estimate the magnitude of completeness (Mc) the Entire-Magnitude-Range method (EMR) (modified by Ogata and Katsura, 1993) has been used. Since Mc and b values vary with space and time accurate knowledge of Mc is crucial from many seismicity-based studies, especially for mapping out seismicity parameters such as the b-value of the Gutenberg-Richter relationship. Mapping the earthquake–size distribution in Turkey and surroundings areas help us to find out statistical variations in the frequency-magnitude distribution for the b value. These changes are mapped in detail in two and three dimensions and temporal changes of b can be mapped quantitatively by using ZMAP. Statistical analysis is require a sufficient amount of high-quality data for the process. It is well known that there is a problem that many of the existing catalogs are incomplete and inhomogenous. Therefore, as mapping the earthquake–size distiribution in study area, we have taken the properties of the earthquake clusters, such as mainshock-aftershock sequences and earthquake swarms in order to decrease the negative effects on the catalog.