

## Microseismicity of the Tehran Region Based on Three Seismic Networks

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**Abstract :** The main purpose of this research is to show the current active faults and active tectonic of the area by three seismic networks in Tehran region: 1-Tehran Disaster Mitigation and Management Organization (TDMMO), 2-Broadband Iranian National Seismic Network Center (BIN), 3-Iranian Seismological Center (IRSC). In this study, we analyzed microearthquakes happened in Tehran city and its surroundings using the Tehran networks from 1996 to 2015. We found some active faults and trends in the region. There is a 200-year history of historical earthquakes in Tehran. Historical and instrumental seismicity show that the east of Tehran is more active than the west. The Mosha fault in the North of Tehran is one of the active faults of the central Alborz. Moreover, other major faults in the region are Kahrizak, Eyvanakey, Parchin and North Tehran faults. An important seismicity region is an intersection of the Mosha and North Tehran fault systems (Kalan village in Lavasan). This region shows a cluster of microearthquakes. According to the historical and microseismic events analyzed in this research, there is a seismic gap in SE of Tehran. The empirical relationship is used to assess the  $M_{max}$  based on the rupture length. There is a probability of occurrence of a strong motion of 7.0 to 7.5 magnitudes in the region (based on the assessed capability of the major faults such as Parchin and Eyvanekey faults and historical earthquakes).

**Keywords :** Iran, major faults, microseismicity, Tehran

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