COMPARISON OF SEISMIC MOMENT RATES OBTAINED BY GEOPHYSICAL AND GEOLOGICAL METHODS IN STRUCTURAL ZONES OF IRAN

Soran Parang

Geodesy MSc. student, Dept. of Surveying and Geomatics Eng., College of Eng., University of Tehran, Tehran, Iran, Soran_Parang@ut.ac.ir

Abstract: Seismic moment, as the released energy of earthquake or the available energy in the fault and according to time, is discussed as seismic moment rate. This rate, which is functional in the determination of the Seismicity of different regions, can be calculated according to different data and ways. In this research, the geological and geophysical methods have been used for calculating this parameter. Geological method uses the fault′s parameters and geophysical method employs Earthquake catalog .In this study, by considering Structural Zones of Iran and density of earthquakes, seven regions for the calculation of moment rate have been chosen. As a result, the maximum value of moment rate acquired by geophysical method is related to the east of Iran (including Lut block) which is 3.7×10^{18} Nm/yr. In fact high seismic moment rate in this region indicates the concentration of earthquakes in the east of Iran according to Structural Zones. Also the maximum value of moment rate acquired by geological method is in the South-East part of Iran (Makran) that is 14.9×10^{18} Nm/yr, which shows the excessive activity of Makran fault. The ratio of two rates indicates that the Earthquake catalog in the considered Structural Zones, will estimate the number of earthquakes and the value of scalar moment less.

Keyword: Seismic Moment Rate, Structural Zones, Fault, Geological Method, Geophysical Method