

Investigation of Regional Differences in Strong Ground Motions for the Iranian Plateau

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Abstract : Regional variations in strong ground motions for the Iranian Plateau have been investigated by using a simple statistical method called Analysis of Variance (ANOVA). In this respect, a large database consisting of 1157 records occurring within the Iranian Plateau with moment magnitudes of greater than or equal to 5 and Joyner-Boore distances up to 200 km has been considered. Geometric averages of horizontal peak ground accelerations (PGA) as well as 5% damped linear elastic response spectral accelerations (SA) at periods of 0.2, 0.5, 1.0, and 2.0 sec are used as strong motion parameters. The initial database is divided into two different datasets, for Northern Iran (NI) and Central and Southern Iran (CSI). The comparison between strong ground motions of these two regions reveals that there is no evidence for significant differences; therefore, data from these two regions may be combined to estimate the unknown coefficients of attenuation relationships.

Keywords : ANOVA, attenuation relationships, Iranian Plateau, PGA, regional variation, SA, strong ground motion

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