عنوان مقاله:

ASSESSMENT OF NGA IN CONSIDERATION OF UNCERTAINTY RELATED TO FAULT RUPTURE MODEL PARAMETERS

محل انتشار:

هشتمین کنفرانس بین المللی زلزله شناسی و مهندسی زلزله (سال: 1398)

تعداد صفحات اصل مقاله: 6

نویسندگان:

Mohammadreza Amini - *M.Sc., Department of Civil Engineering, Faculty of Engineering, Arak University, Arak, Iran*

Mehdi Mousavi - *Associate Professor, Department of Civil Engineering, Faculty of Engineering, Arak University, Arak, Iran*

Ali Farhadi - *PhD Candidate, Department of Civil Engineering, University of Memphis, Memphis, United state*

Kaveh Horri - *B.Sc., Department of Civil Engineering, Faculty of Engineering, Arak University, Arak, Iran*

خلاصه مقاله:

The earthquakes are the only naturally occurring unpredictable catastrophe. Seismic Hazard Analysis (SHA) is a technique to calculate the probable future earthquake. Magnitude, source to site distance, site characteristic and seismology parameters are the effective element in (SHA). Magnitude and source to site distance have more prominent role than others. Dip angle (δ), down dip rupture Width (W) and rupture Length (L) directly affect the source to site distance. Accurate determination of these parameters is not always possible and have uncertainty. Due to integration limitation in classic (SHA) the uncertainty of these parameters neglected. Mont-Carlo simulation can consider these uncertainty in SHA. Ignoring uncertainty of fault rupture leads to over/underestimation of hazard, especially at shorter periods in a characteristic band of region. In this study, mentioned uncertainties utilizing the Monte Carlo simulation method the results of the Next Generation Attenuation 2014 (NGA-WEST2 2014) examined in comparison with NGA08. The results show that ground motion models of Boore, Stewart, Seyhan and Atkinson (BSSA14) lead to a better consideration of fault rupture uncertainties than Boore and Atkinson (BA08). In other words, ignoring these uncertainties has less impact on the final results of seismic hazard analysis. BSSA14 in its functional form doesn't has any of the fault rupture parameters (δ, W, L) obviously as input and difference is improving the database, therefore it is expected to provide a better prediction. At more than 50 km from fault trace, Abrahamson, Silva and Kamai (ASK14) ground motion prediction equation shows weaker performance than Abrahamson, Silva (AS08), that s because of adding horizontal distance of the end of rupture measured parallel to strike parameter (Ryo) to ASK14. This parameter describes the fault length, by adding this parameter the standard deviation of NGA model has increased.

کلمات کلیدی:

Dip Angle, Down Dip Rupture Width, Subsurface Rupture Length, Probabilistic Seismic Hazard Analysis, Monte-Carlo Simulation

لینک ثابت مقاله در پایگاه سیویلیکا: