عنوان مقاله:
Comparing E-CMS and CMS for Nuclear Design Spectra

محل انتشار:
فصلنامه زلزله شناسی و مهندسی زلزله, دوره 14, شماره 2 (سال: 1391)

تعداد صفحات اصل مقاله: 6

نویسندگان:
Mohamadreza Shahri - *Arak University*

Alireza Azarbakht - *Arak University*

Mehdi Mousavi - *Arak University*

خلاصه مقاله:
The target spectrum, which has been used most frequently for the seismic analysis of structures, is the Uniform Hazard Spectrum (UHS). The joint occurrence of the spectral values in different periods, in the development of UHS, is a key assumption that remains questionable. Baker et al [۳-۴] have recently developed the Conditional Mean Spectrum (CMS) as an alternative for UHS. The CMS provides the expected response spectrum, conditioned on the occurrence of the target spectral acceleration value in the period of interest. It is shown that CMS can be accounted as an improvement of UHS. The correlation between the Peak Ground Velocity (PGV) and the spectral acceleration values is investigated in the current study and a newer form of the target spectrum has been proposed. It is shown that the emerged new spectrum, named Eta-based Conditional Mean Spectrum (E-CMS), is more efficient than the conventional CMS in order to modify the UHS. The nuclear industry design guidelines (i.e. Nuclear Regulatory Commission Guide ۱.۱۶۵) provide an alternative procedure for defining the design spectrum, which has been compared with using the proposed E-CMS. The results show that the alternative procedure may not be conservative for stiff structures such as nuclear facilities.

کلمات کلیدی:
Uniform Hazard Spectrum (UHS), Conditional Mean Spectrum (CMS), Epsilon Indicator, Eta Indicator, Record Selection