عنوان مقاله:

Application of wavelet theory in determining accumulative absolute velocity of earthquakes

محل انتشار:

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نویسندگان:

Jalil Raisi Dehkordi - *MSc student, Department of Civil Engineering, Shahrekord University, Iran*

Ali Heidari - *Associate professor, Department of Civil Engineering, Shahrekord University, Iran*

Reza Kamgar - *Assistant professor, Department of Civil Engineering, Shahrekord University, Iran*

خلاصه مقاله:

Accumulative absolute velocity is an important parameter for detection of structural failure in an earthquake. In this paper, accumulative absolute velocity parameter has been investigated using wavelet transform theory. In fact, a series of selectedearthquakes are decomposed to a pre-defined certain level using wavelet transform theory. In this paper 28 earthquakes have been used and the high and low frequencies are separated. Since higher frequencies do not have a significant effect onthe dynamic response, the low frequency of earthquakes are used. For this purpose, each earthquake is decomposed in 5 levels. Then, the accumulative absolute of low frequency of earthquake in each level is calculated and the results are compared with the intensity characteristic of the original earthquake. The results show that the value of error is less than 10% in the third level. This value is more than 15 percent for fourth and fifth levels. Therefore, it is recommended that third level decomposition is used for determining this parameters, so that the error value of calculations is low and also the velocity of analyzing results is improved. Therefore, third level decomposition is used

کلمات کلیدی:

Strong ground motion; accumulative absolute velocity; wavelet transform; earthquake

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