

Evaluation of the Strong Ground Motion during the Great 1923 Kanto Earthquake based on the Empirical Green's Function Method

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1.Introduction

The great 1923 Kanto Japan Earthquake (Ms 8.2) occurred directly beneath the Tokyo metropolitan area with a tremendous damage in the area. It is important to evaluate the strong motion in Tokyo Bay area during the earthquake because the earthquake occurring repeatedly at an interval of about 200 years.

In this study, we evaluate the strong ground motion during the great 1923 Kanto earthquake based on the empirical Green's function method, using the broadband records in Tokyo Bay area observed by the broadband network maintained by Tokyo Electric Power Company.

2.Method

The source model of the earthquake used in the analysis is a characteristic model based on the recipe by the Headquarters for Earthquake Research Promotion, and the source model by Wald and Somerville (1995) and Dan and Sato (1998). The scheme of the empirical Green's function method used here is proposed by Irikura (1986), in two steps. The broadband records used as Green's functions were derived during an earthquake of M3.4 occurred on 28, September, 2005, at MYK and YKS located in Tokyo Bay area.

3.Results

The strong ground motion derived in this study at MYK and YKS show strong response spectra, with peaks up to about 200 cm/s, near 0.3s, 1s and 5s at MYK, and from 0.2s - 2s at YKS. The instrumental seismic intensities calculated from the results, 6+ at MYK, 7 at YKS, are close to that derive by Takemura (2003), 6+ at both site, based on their investigation. These implicate that our results are consistent with the existed results.

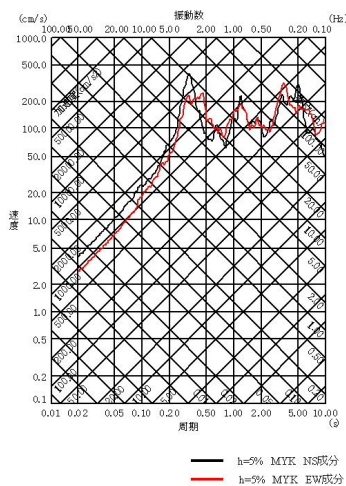


FIG-1 MYK地点において評価した応答スペクトル(減衰定数h=5%)