

On propagation characteristic of long period ground motion in the large-scale basin

Kosuke Chimoto, Faculty of Engineering and Design, Kagawa University

e-mail chimoto.kosuke@kagawa-u.ac.jp

(1) Introduction

Basin-induced surface wave is generated at the edge of the large-scale basin, and causes the damage due to the edge effect. Because the basin-induced surface wave propagates for a long time inside the basin, then it sometimes fails to record the strong ground motion. However, the MeSO-net, constructed in the Kanto basin records the ground motion continuously. In this study, the basin-induced surface wave is observed and discussed about its propagation characteristic.

(2) the 2020 near Choshi earthquake M6.0

The epicenter of the 2020 near Choshi earthquake is shown in Fig.1. The Hachioji Tectonic Line lies at the epicentral distance of 160 km. The velocity waveform is shown in Fig.2, which was numerically integrated from the observed acceleration record by MeSO-net stations colored by red in Fig.1. The waveform of the NS component shows the S-wave arrival at Hachioji Tectonic Line at 60 s and it propagates backward after the arrival. This is the basin-induced surface wave. The direct surface wave is observed with a slow velocity of 0.5 km/s, while another surface wave is visible with 1.0 km/s in the UD component, which could be a higher mode of surface wave.

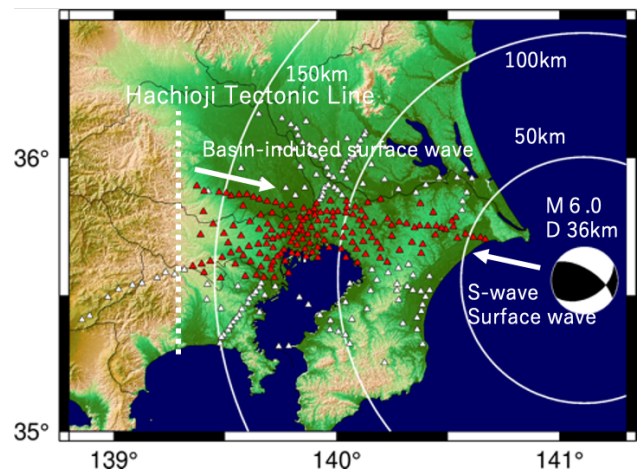


Fig.1 The MeSO-net stations and the epicentr of the 2020 near Choshi earthquake.

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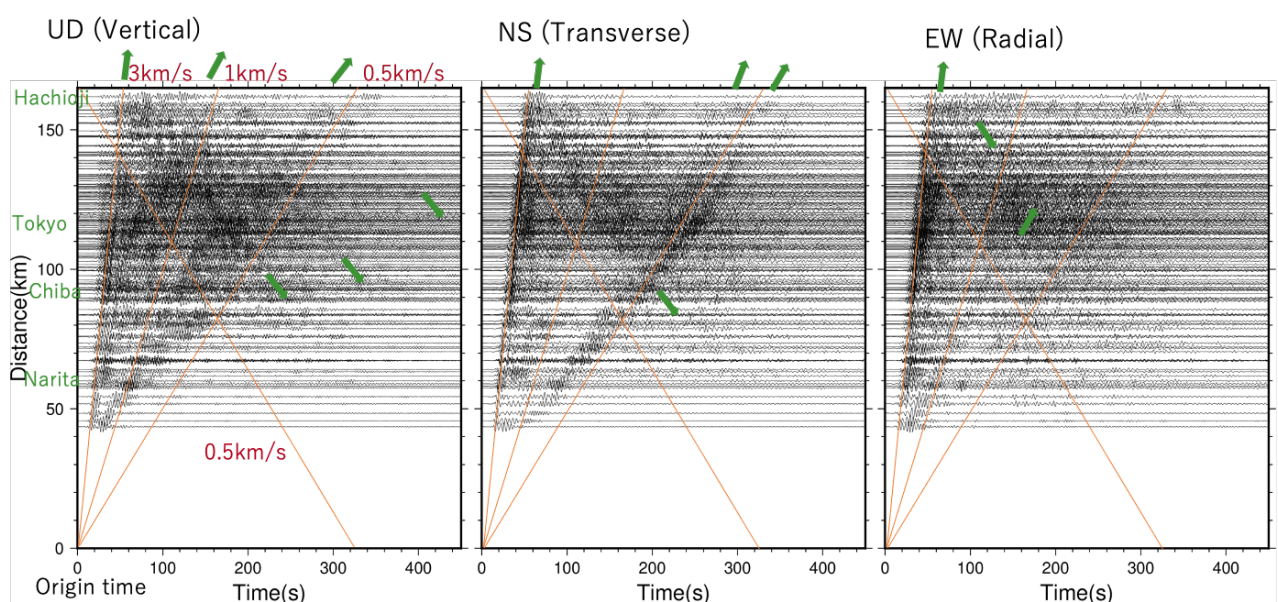


Fig.2 The velocity waveform for the 2020 near Choshi-City earthquake observed by the MeSO-net. The waveform was filtered at the period of 3-9 s. The amplitudes are normalized.