

SSS023-P25

Room:Convention Hall

Time:May 24 16:15-18:45

## Period-Dependent Site Amplification and Source Process for the 2008 Iwate-Miyagi Nairiku, Japan, Earthquake Sequence

Rami Ibrahim<sup>1\*</sup>, Kazuki Koketsu<sup>1</sup>, Hiroe Miyake<sup>1</sup>, Kazuhito Hikima<sup>2</sup>

<sup>1</sup>Earthq. Res. Inst., Univ. Tokyo, <sup>2</sup>TEPCO

The 2008 Iwate-Miyagi Nairiku earthquake on 14 June 2008 mainly struck the Tohoku region, northeastern Japan. The JMA magnitude  $M_{JMA}$  was estimated to be 7.2 and the moment magnitude  $M_W$  by Global CMT Project was 6.9. The 5% damped acceleration and velocity response spectra maps reveal different features in the source area and at other stations out of the source area. The predominant period was shown in a short period range of 0.1-0.2 s. AKTH04 station which is located at 22 km away from the source area was recorded a JMA-intensity of 6 upper as large as in the source area. The large acceleration amplitude was observed at short periods at the same station. Large velocity amplitudes at stations MYG005 and MYG006 were observed at periods of 2, 3, and 5 s to the south of the source area. In this study, we use aftershock data to obtain amplification factors in and around the source area. The H/V spectral ratios were investigated at 27 station sites close to the source area. The data recorded by K-NET and KiK-net were used for five aftershocks. The spectral ratios of the horizontal components (H/H spectral ratio) of surface and borehole data were investigated for KiK-net stations. H/H spectral ratios of soft soil sites to hard rock sites were also calculated for comparison with previous studies. Amplification factors of 3 to 6 at short periods of 0.1 to 0.5 s are observed at many stations such as AKTH04, AKTH06, IWTH19, and so on. The stations of MYG005, MYG006, IWT011 and IWTH20 have shown amplification factors of 3 to 5 at long periods of 3 to 5 s. On the other hand AKT023, IWT010, and MYGH04 show flat response spectra compared to hard rock sites. The results reveal that the different features shown by response spectra can be attributed to the site effects. The H/V and H/H spectral ratios were used to get information about the predominant periods and the amplification factors at the station sites. The peak velocity amplitude distribution maps were calculated for different period ranges of 0.1-0.2, 0.2-0.3, 0.3-0.5, 0.5-1, 1-2, 2-3, 3-5, and 5-10 s. We are going to collect site amplification factors for the mentioned period ranges. The collected data will be used to retrieve the period-dependent source process for the 2008 Iwate-Miyagi Nairiku earthquake.

Keywords: 2008 Iwate-Miyagi Nairiku earthquake, source process, amplification