



SOURCE CHARACTERISTICS OF AFTERSHOCKS FOR THE 2008 IWATE-MIYAGI NAIRIKU EARTHQUAKE AND SITE AMPLIFICATION AROUND THE SOURCE REGION BASED ON SPECTRAL INVERSION TECHNIQUE

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ABSTRACT: We performed temporary strong motion observation in the source region of the 2008 Iwate-Miyagi Nairiku earthquake. Based on aftershock records at the temporary stations and K-NET/KiK-net stations, we applied spectral inversion to estimate source, propagation path, and site amplification effects. The estimates of stress drop for the aftershocks are within a range of 0.1-2 MPa. Spatial pattern of stress drop was seen; approximately 1 MPa near the large slip region and 0.5 MPa or less at the northern and southern edges of the fault plane. Site amplification factors at 0.5-1 Hz are 1-3 times for the near-source stations and 0.8-2 times for stations on the east-southeastern side of IWTH26. On the other hand, site amplification factors at 1-7 Hz are 3-8 times for the near-source stations, and 1-3 times for the stations on the east-southeastern side of IWTH26. Site amplification factors at the HND0FF station located above the top edge of the mainshock fault plane have different characteristics; 3 times at 0.5 Hz, about 1 time at 1-7 Hz, and a spectral sag at 3 Hz. For the propagation path effect in the fore-arc region within 100 km of the source region, Q_s is estimated to be $40f^{1.0}$ in a frequency range of 0.5-7 Hz.

Key Words: *Source Characteristics, Site Amplification, Spectral Inversion Technique, Temporary Strong Motion Observation*