

Seismic Intensity Distribution Map based on Estimation of Surface Amplification factor by using High Density Observation Network Data

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The planner surface seismic intensity is shown on real time and the maximum intensity distribution map on 1 km mesh estimated by using the surface amplification factor (J-SHIS(NIED)) and it was shown the ability of prediction of the maximum intensity distribution map estimated from the 5-th times (theoretical amplitude ratio) of the observed S-wave and P-wave amplitudes.

In this study, the amplitude of the incident wave to the engineering infrastructure from KiK-NET data set up in Miyagi prefecture was calculated using an M7.1 event, which occurred off Miyagi prefecture on April 7, 2011. The evaluation was performed, and the surface amplification factor was determined from the surface observation data in Miyagi Prefecture. The average value (170 gal) of the underground data (18 points) of KiK-NET (NIED) is adopted as the engineering base amplitude, and the surface ground amplification factor at all surface observation points is within 2 km from the observation point (4) The area surface amplification factor was shown by interpolation into the area.

This analysis is simply performed at the maximum amplitude of the acceleration, so it should be based on the spectral analysis, and it is also important to consider whether the influence of the propagation effect of the deep structure such as the plate boundary must be considered. In this analysis, the maximum acceleration amplitude was used.

Anyway, using the obtained surface amplification factor, the event occurred on April 7, 2011 (M7.1, h = 66km) using the network data of 31 seismic intensity meters operated by Miyagi Prefecture. , Off Miyagi prefecture. The real-time monitor can grasp the entirety of the

earthquake that occurred, and the maximum seismic intensity distribution can be used to understand the damage prediction, and it is a useful tool for damage estimation. In addition, the maximum seismic intensity and its distribution map using the maximum amplitude of the P wave can obtain the actual seismic intensity distribution of the generated earthquake almost simultaneously with the incidence of the P wave. The detection is useful information because it can be notified with a time delay (6 to 10 seconds (depth: 50 to 90 mm)) to notify the arrival of the S wave that causes destruction. The detailed place name search function in mesh units will be an effective tool for concrete restoration work.

Keywords: Engineering bed strong motion , Surface layer amplification factor , Area seismic intensity disp, Real Time Seismic Intensity Display, Maximum Seismic Intensity Display