

Site amplification and damages of wooden houses in the Shimoenoki area, Hino, by the 2000 Tottori-ken Seibu Earthquake

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Shimoenoki district in Hino town received big damages of wooden houses by the 2000 Tottori-ken Seibu Earthquake. From a comparison of the site-amplification, natural frequency of wooden houses and the damage level, we obtained the following results.

(1)Shimoenoki is characterized by strong site amplification at 2 to 5 Hz. The 2- to 5-Hz amplification well correlates with the damage level of wooden houses in the district. (2)The natural frequency is 2.5 to 4 Hz for wooden houses in the district. This frequency-band well agrees with that of the strong site-amplification. (3) From (1) and (2), it is concluded that the big damage of wooden houses is due to resonance excited by the strongly amplified 2- to 5-Hz ground motion.

Shimoenoki district in Hino town received big damages of wooden houses by the 2000 Tottori-ken Seibu Earthquake. To investigate why the damage was big in the district, we observed aftershocks at 6 stations in the district, and estimated site amplification there. We also examined natural frequency of wooden houses by measuring microtremors on the ground and on the second floor of wooden houses. From a comparison of the site-amplification, natural frequency of wooden houses and the damage level, we obtained the following results.

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