

Site amplification characteristics at the strong motion observation sites in Iwate Prefecture

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Site amplification factors for JMA seismic intensity at each observation points were evaluated from 2003 and 2005 Off-Miyagi earthquake records of seismic intensity network, K-NET and KiK-net in Iwate Prefecture. A site amplification factor for an observation site is defined by the difference between observed seismic intensity and calculated one by using empirical attenuation equation for distance. The attenuation empirical equation was estimated by regression analysis for seismic intensities observed with an underground seismograph at the KiK-net station. Estimated amplification factors of seismic intensity were ranging from 0.16 to 2.17 for the 2003 earthquake. The maximum value obtained at the Ohno site, Hirono Town was 2.17, and the minimum value obtained at the KiK-net Ashiro site was 0.16. The standard deviation was 0.39. Estimated amplification factor of seismic intensity was ranging from 0.16 to 2.32 for the 2005 earthquake. The maximum value obtained at the Fukuoka site, Ninohe City was 2.32, and the minimum value obtained at the Tanohata site, Tanohata Village was 0.16. The standard deviation was 0.49. The amplification factors at sites of Hirono Town, Ninohe City, Tamayama Village and at the sites around Kitakami River, were large for both earthquakes. The amplification factors at sites in Kitakami Mountain were small. Estimated amplification factor distribution was similar to one calculated by using micro topography classifications. However, at several points, estimated one was not similar to calculated one because of the deep S-wave velocity profile.