EVALUATION OF RELATIVE SITE AMPLIFICA-TION FACTORS BY COMBINING AVERAGE SPEC-TRAL RATIOS OF STRONG GROUND MOTIONS SIMULTANEOUSLY OBSERVED AT ADJACENT TWO SITES — APPLICATION TO K-NET AND KiK-net SITES IN THE PACIFIC COAST SIDE OF THE TOHOKU DISTRICT —

Tomonori IKEURA [1] and Kenichi KATO [2]

[1] Member of JAEE, Kajima Technical Research Institute, Tokyo, Japan,
ikeura@kajima.com
[2] Member of JAEE, Kobori Research Complex Inc., Tokyo, Japan,
katokenichi@kobori-takken.co.jp

ABSTRACT: A new method to evaluate relative site amplification factors (RSF) of strong motion sites scattered in a wide area without assumption of attenuation functions is proposed. In this method RSF between adjacent two sites is evaluated by average spectral ratio of strong ground motions simultaneously observed at those two sites. RSF of distant sites are estimated by least squares method, combining RSF of adjacent sites in the network consists of adjacent site pairs in the area. This method is applied to K-NET and KiK-net sites in the Pacific coast side of Tohoku district. Evaluated RSF between adjacent sites are interpreted by theoretical amplification factors based on one dimensional wave theory. Relations of the evaluated RSF with geological condition, and with those estimated by spectral inversion analysis are discussed.

Key Words: *Earthquake, Strong Ground Motion, Site Amplification*