ESTIMATION OF S-WAVE VELOCITY STRUCTURE USING LONG PERIOD MICROTREMORS BY CONVENTIONAL AND TWO-SITE SPATIAL AUTOCORRELATION METHOD

Sos Margaryan[1]; Toshiaki Yokoi[2]

[1] IISEE, BRI; [2] IISEE,BRI,Japan

In recent years mictrotremors widely used as a tool for estimation of shear wave velocity structure. The well known one is conventional spatial autocorrelation method (SPAC). In this study we performed two arrays of microtremors for shear wave velocity structure estimation in Tsukuba city, which is located in Kanto Basin. We deployed two concentric-equilateral triangle 900m arrays consists of 4 sensors. For both arrays 10 sets of data were recorded simultaneously, with duration 655.35 second. First we calculated SPAC coefficients for both array by using simultaneous recorded data of 4 sensors. Then we calculated SPAC coefficients by using only 2 sensors (2sSPAC). Results showed that SPAC coefficients calculated by conventional and two-site spatial autocorrelation methods are in good agreement for the same frequency range, which allows to conclude that phase velocities which will be obtained by using SPAC and 2sSPAC methods also will be in good agreement.

This implies that the 2sSPAC proposed by Morikawa et al. is efficient tool for estimation of shear wave velocity structure.