Microtremor array survey with spatial autocorrelation technique of Kazo lowland in Saitama prefecture,Japan

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We have conducted microtremor array survey with spatial autocorrelation (SPAC) techniques to estimate deep S-wave velocity structures up to 3,000 meters depth of Kazo lowland in the northeast of Saitama prefecture.
Three types of SPAC arrays, each of radii is 100m, 300m and 600m, have been deployed on the ground surface at observation sites and we have conducted microtremor observations during about one hour. Eleven sites in total have been spread out over region of approximately east-west 20km by north-south 15km. Phase velocity dispersion curves of fundamental-mode Rayleigh waves about 0.2 Hz to 1.5 Hz have been acquired.
S-wave velocity structures have been estimated through inversion analysis of dispersion curves with genetic algorism (GA) and initial structure models have been diverted from models that had been made for an earthquake disaster prevention plan.
We have estimated one dimensional S-wave velocity structures for all of eleven sites and have made comparison the results with existing explorations. The results are generally consistent, details are however assumed that require minor modification of existing models.

Keywords: Microtremor survey method, Spatial autocorrelation technique, S-wave velocity structure

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