

S-wave velocity structure of southern Niigata estimated with ambient noise array surveys

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We conducted ambient noise array survey in active fold area in Niigata prefecture, Japan, to estimate subsurface S-wave velocity structure. Thirteen noise arrays each with 12 temporal velocity seismometer stations have been set in the area spreading 50 km x 15 km. Each array is an equilateral arrays whose radii ranges from several hundred meters to several kilometers. Each observation is carried out for more than 10 days to assure reliable survey, since the survey needs statistically enough data. Velocity seismometers with natural period more than 5 sec. are deployed connected with 24bit A/D, GPS time-calibrated data loggers to obtain continuous noise data. Each continuous data are segmented to hourly data sets, and are analyzed with SPAC method and V method (Tada et al,2007) to estimate phase velocity using BIDO 2.0 software (Tada et al, 2010,<http://staff.aist.go.jp/ikuo-chou>). In addition, the ambient noise interferometry for surface waves is applied for the data of some stations to estimate group velocities. We successfully obtained phase velocities in the frequency 0.13 to 1.0 Hz, but with large fluctuation at the frequency lower than 0.2 Hz that seemed to be influenced by weather condition.

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