

SSS018-P11

Room: Convention Hall

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Cross correlation analysis of seismic data observed by the sensors on the surface and the buried one at 30m depth

Kuroda Seiichiro^{1*}

¹National Agriculture Research Org.

We conduct the monitoring for natural seismic wave at the array of the seismic velocity sensors at the surface and the 30m depth. We applied the cross correlation type analysis to these seismic data and compared its results to the S-wave velocity profile obtained by PS-logging data.

We analyzed the data of 2 seismic event which obtained Dec.18.2009. The seismic waveform was collected in 100Hz sampling. The correlation analysis was applied to 128 points data and filtered by hanning window. Then we estimate the cross spectrum and spectrum by averaging 100 seconds data.

The horizontal waveforms of seismic velocity data of the surface seismic sensor and the buried sensor at 29m depth. The correlation analysis showed the maximum peak at 0.13sec. Especially by the deconvolution analysis, we retrieved the response functions which has the low absolute value around the zero second and the obvious high peak at the 0.13sec. This value is coincident with the one way travel time of the averaging S-wave velocity from the surface and the 29m depth, 0.133 sec.

Keywords: Seismic monitoring, Seismic sensor, Cross correlation, Deconvolution, S-wave velocity