An application of Pseudo-Reflection Profiling on the shallow structure of Unzen volcano.

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Pseudo-Reflection Profiling method (Tsutsui, 1991) are applied to discussing the shallow structure of a volcano. A report and discussion about characteristics of the pseudo-reflection method will be made about the obtained pseudo-reflection records from seismic records with various conditions.

Pseudo-reflection records construct a pseudo-reflection profile. Pseudo Reflection Profiling method from vertical incidence record provides a seismogram which equivalent to the conventional zero-offset seismogram. The most important advantage of this method is that the in-line seismic sources as conventional method are not necessory to obtain seismic reflection profiles. The all part of the obtained pseudo-reflection record correspond to the exact zero-offset seismograms in ideal condition that the wave is coming vertically. In spite of its advantege, there is exactly undefined available length of the obtained pseudo-reflection records in the case of using slant incident records. The undefined available length about the pseudo-reflection profiling is examined in this presentation through the processings actual data.

These data from two experiments were processed. One is the seismic experiment which is carried out on December, 2001 in order to investigate the precise structure of Unzen volcano, Kyushu, Japan, by Institute of Seismology and Volcanology, Faculty of Sciences, Kyushu University. A temporal stations with three-component recording are installed at Tashiro-baru which locate 1km west of the major seismic line. Seismic records with various source distances, ranging 1.5 to 2km and 5.6 to 6.3km, were obtained and seven earthquakes were caught. Another is the 1995 experiment which used chemical explosions as sources. The same location was used and various source distance records ranging 1.6 to 11km had been obtained.

A characteristics of the incident angle dependency of the available length of the pseudo-reflection records is concluded through the processing results from these records in this presentation.

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