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Multiple fold seismic reflection structure of Sakurajima volcano, south Kyushu, Japan.

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Seismic reflection structure beneath the north to east part of Sakurajima Volcano is revealed through themultiple fold reflection analysis.
Sakurajima Volcano is an andesitic post-caldera volcano,which is located at the south margin of Aira Caldera. Great effusive eruptions have been recorded on historical records as several lava flow units, Tenpyo(764), Bunmei(1471-1474), Anei(1779), Taisho(1914). Sakurajima Volcano has continued explosions at the summit crater of Nakadake since 1955. Although frequency of the explosion has been decreased at the summit crater since 2000, a flank crater, Showa crater revived its activity on June 2006. Then activity at Showa crater have been enhancing year by year and the most frequent eruptions up to 548 times for a year was recorded on 2009.
Magma chamber have been presented in 10km depth at the north of the volcano, the center of Aira Caldera and its volume have been estimated up to 90 million cubic meters by previous studies. How magma travels to the craters from the chamber, where is magma pathway, and how much magma is transported to the crater are the important problem for volcanology. Discussion on the seismic reflection structure is an important role to approach the problem.
Data in this study is obtained through the controlled seismic experiment, the project Sakurajima 2 009 along two seismic reflection lines with 221 stations for 7 shotpoints. The software package SU is used in the seismic reflection analysis of the data. The seismic reflection profiles were finished in the depth migration processing after conventional CDP processing.
Some significant features are observed in the two profiles of the lines NS and EW. The first, swelling structure appears around the shot point S11 at the northeast part of Sakurajima. The second, steeply dipping structure appears in the central part of the line NS. The third, low impedance zones are presented in the northeast part of the Sakurajima Volcano. Deeper low impedance zone corresponds to the low velocity zone presented by Tsushima et al. (this conference) from independent seismograms. The steeply dipping structure corresponds to the margin of the caldera. Swelling structure and low impedance zones are inferred as evidences of magma pathway.

Keywords: Sakurajima Volcano, Aira Caldera, Seismic reflection profile, Seismic survey, Volcanic earthquakes