

A preliminary report on a seismic reflection experiment in Sakurajima volcano, Japan.

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Sakurajima volcano is one of the most active volcanoes in Japan. Sakurajima volcano had the lava eruption up to 1.34 km³ on 1914 and 0.14 km³ on 1946 from the fan craters. Since 1955, repetitive Vulcanian eruptions have been occurred at the summit crater of Minamidake. Various scientific researches have been made about Sakurajima volcano because of its activity. The magma feeder system and structure have been presented Kamo(1989) with the double supply model from seismicity and geodatic interpretation. Then Hidayati et al(2007) presents the detailed supply model from northeast off Sakurajima volcano from seismic source mechanisms and geodatic interpretations. Recently, Iguchi(2007) presented that magma accumulation is now proceeding beneath Sakurajima volcano on the basis of ground deformation pattern around Kagoshima bay during recent decade.

The seismic experiment, SAKURAJIMA2008, is carried (Another presentation in this conference) in order to constrain seismic structures of Sakurajima volcano and Aira caldera. The experiment includes 15 shot points and about 700 temporary stations. Each explosion was observed on these stations as seismic signals. The reflection experiment mentioned here is a part of the experiment, SAKURAJIMA2008.

Two seismic lines, named NS and EW, are spread above the presented magma supply in this experiment. NS line spanned at the east foot of Sakurajima volcano between Kurokami at the south end and Wariishizaki at the north end for 5.6km long. EW line spanned at the north flank of Sakurajima for 6.1km long. NS line had 126 temporary stations with about 48m separation and EW line had 95 stations with about 71m separation. The all temporary stations comprised the recorder LS-8200SD (Kurashimo et al., 2006) and vertical motion seismometer with natural frequency of 4.5Hz.

Five parties with 3 to 5 persons deployed 44 temporary stations in average for three days with mobile or infantry style. Deployments were completed in two days for almost mobile parties and three days for the infantry party.

The rapid-static method with GPS system GB-500 was used for the positioning of the stations. The receivers are distributed to each party and acquired the data with 1 second interval during daily deployment as mobile stations. The reference stations were provided by some permanent stations of SVO with the same 1 second sampling. The position analysis are made with the reference stations and stay time at the station during the deployment work at a station.

The seismic lines include 8 shot points. The shots were successfully carried on midnight of 5 Nov. to early morning of 6 Nov. The shot S11 was located at the intersection of both lines and other shots were located on each line. The seismic records were successfully obtained during 2100JST to 0500JST.

Distinguish seismic records obtained in the experiment and preliminary result of reflection analysis are presented at this session.

The reflection survey party is consist of these 19 members, Tomoki Tsutsui, Masato Iguchi, Takeshi Tameguri, Yuichi Morita, Hitoshi Mikada, Takeshi Nishimura, Kyosuke Onishi, Atsushi Watanabe, Mikihiro Imai, Kazuki Tsushima, Naofumi Yagi, Titi Anggono, Kenshi Yamasaki, Yutaka Okano, Tetsuya Kawabayashi, Atsushi Fujitani, Akira Tanaka, Hironori Sakaguchi, and Michiaki Imaizumi.