

SVC050-09

Room:302

Time:May 23 10:45-11:00

Volcanic earthquakes and tremor associated with the 2008-2011 Shinmoe-dake eruption

Jun Oikawa^{1*}, Atsushi Watanabe¹, Hiroshi Tsuji¹, Yuuichi Morota¹, Takao Koyama¹, Takao Ohminato¹, Minoru Takeo¹, Setsuya Nakada¹, Yosuke Aoki¹, Mie Ichihara¹

¹ERI, University of Tokyo

Shinmoedake, one of a volcano in Kirishima volcanic chain, southwest, Japan, erupted on 30 March 2010, for the first time since 22 August 2008. Subsequently, it erupted on 17 April, 27 May, 27 June, 28 June, and 5 July. Here we overview seismic observation associated with these eruptions.

Figure shows a displacement seismogram of the volcanic tremor associated with an eruption on 27 May recorded with a broadband seismometer with a natural frequency of 40 seconds. This seismogram was recorded at a site approximately 1 km north of the eruption site. The record shows that an outward-upward impulse preceded the eruption by about 4 minutes, followed by a large inward movement. This can be interpreted to be due to a combination of a translation and tilting by a pressurization at the conduit. Similar observations are made during eruptions on 27 June, 28 June, and 5 July, too.

Seismic activity around the area is relatively high with depths at 2 km below sea level or shallower. The activity consists of temporal clustered earthquakes; for example, significant quiescence was observed right before an eruption on 27 May. This quiescence preceding the eruptions is a common feature for the 2010 eruptions, in contrast with the 22 August eruption, where a seismic swarm continued since 3 days before the eruption.

Keywords: Kirishima Volcano Group, Volcanic Earthquake, eruption