[JJ] Evening Poster | S (Solid Earth Sciences) | S-VC Volcanology

[S-VC41]Active Volcanism

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This session discusses various aspects of active volcanisms including, but not limited to, recent and historical eruptions, various phenomena associated with the volcanic activities, underground structures of the volcanoes, and developments of new instruments based on geophysical, geochemical, geological, and multidiscipline approaches. We also welcome studies on understanding and predicting the transitions of the eruptive activities from observational, theoretical, and experimental approaches.

[SVC41-P44]Crustal deformation and volcanic earthquakes associated with the 2008-2011 Shinmoe-dake eruption

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Keywords:volcanic earthquake, expansion of magma reservoir, magma process lead to volcanic eruption

Kirishima volcanic chain is one of the active volcanoes in southern Kyushu, Japan and is categorized into a composite volcano whose active vents are Shinmoe-dake and Ohachi. The latest eruptive activity of Shinmoe-dake started on August 22, 2008. Subsequently, it erupted on March 30, April 17, May 27, June 27 and 28, and July 5 and 10, 2010. In 2011, the eruption started on January 19 included subplinian and vulcanian explosions. and was followed by sub-Pulinian eruption on 27 January. Eruptive activity gradually ceased since February 2, and moved to Vulcanian activities.

Hypocenter distributions around Kirishima volcano group indicates intense seismic activity under Shinmoe-dake, Ohachi, western and northern area of Karakuni-dake. Figure shows daily number of earthquakes from July, 2008 to January, 2011 around Shinmoe-dake (a), western and northern area of Karakuni-dake (b). Figure (c) indicates the crustal deformation around the western area of Karakuni-dake. Before the 2011 eruption, an inflated crustal deformation around the western area of Karakuni-dake started after the end of 2009. By GPS observation, the inflation source is found at the depth of 8-9km beneath the point of about 5 km WNW-ward from the summit crater of Shinmoe-dake (Nakao, S., et. al., 2013). The total volume charged at the source is estimated 21 million cubic meters under the assumption of Mogi’s model. The seismic activity around Shinmoe-dake became high at the same time the crustal deformation started, we interpret that the pressure change at the magma reservoir caused both ground deformation and elevated seismic activity.