

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

[S-VC41]Active Volcanism

convener:Yuta Maeda(Nagoya University), Takahiro Miwa(National research institute for earth science and disaster prevention), Yosuke Aoki(東京大学地震研究所, 共同), Takeshi Nishimura(Department of Geophysics, Graduate School of Science, Tohoku University)

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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-P41]Vertical ground deformation of Iwo-yama, Kirishima volcanoes measured by precise leveling survey (during Jun. 2015 - Oct. 2017)

*Kaori Morita¹, Takeshi Matsushima¹, Yoshiko Teguri¹, Kazunari Uchida¹, Rintaro Miyamachi¹, Shiori Fujita¹, Manami Nakamoto¹, Hiroshi Shimizu¹, Keita Chiba¹, Yuki Koga¹, Hitoshi Yamashita Mori², Masayuki Murase³, Takahiro Ohkura⁴, Hiroyuki Inoue⁴, Akihiko Yokoo⁴ (1.Kyushu University Faculty of Science, 2.Hokkaido University, 3.Nihon University, 4.Kyoto University)

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Iwo-yama of Kirishima Volcanoes is located in Ebino kogen volcanic area, southern Kyushu. In Iwo-yama, volcanic earthquakes and volcanic tremors come to occasionally occur from December 2013. Since December 2015, the fumarolic gas and the expansion of the thermal anomaly area are seen around the Iwo-yama area.

We estimate that the volcanic activity around the Ebino kogen is a new magma movement. We conducted the precise leveling survey in the Ebino kogen volcanic area for 9 times from June 2015 to October 2017 in order to clarify the position and the volume change of the pressure source.

Inflation of the Iwo-yama was detected since we initiated this survey to March 2016. After that, the uplift tendency remained almost level until February 2017. Based on June 2015, the maximum uplift of 17.2mm was observed at the benchmark closest to the Iwo-yama. From February 2017, subsidence has begun around the Iwo-yama.

We estimated pressure source models based on the vertical deformation. We assumed the presence of an inflation spherical source as Mogi's model. The optimum value of the variation was obtained by using MaGCAP-V software (Meteorological Research Institute, 2008) for analyzing crustal activity for volcano.

As a result, inflation spherical source has been inferred 150 m east of Iwo-yama's fumarolic gas area, the depth about 700 m. The lower limit of low resistivity layer assumed to be the clay layer is estimated in this depth (Aizawa et al., 2013).

Accordingly, the inflation source by using precise leveling survey is located under the impermeable clay layer. In addition, the increase of pressure source volume since June 2015 is maximum detected $4.8 \times 10^4 \text{ m}^3$ in November 2016. And it is presumed that the pressure source is currently the most contracted. The volume change of pressure source was similar to the vertical deformation obtained by the precise leveling survey. In this study, we found that the volume change of pressure source was fluctuating

prior to the surface activity of Iwo-yama.

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