Oral | Symbol S (Solid Earth Sciences) | S-VC Volcanology

[S-VC55_1PM2]Active Volcanism

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Thu. May 1, 2014 4:15 PM - 5:30 PM 416 (4F)
This session discusses various phenomena associated with active volcanisms including, but not limited to, geophysical and geochemical observations, geology, historical eruptions, and development of modern instruments.

4:15 PM - 4:30 PM

[SVC55-P12_PG]Pressure sources of Miyakejima volcano estimated from crustal deformation

3-min talk in an oral session
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Keywords:GPS, Miyakejima, Crustal deformation, Volcano, Magma chamber

Miyakejima volcano had deflated after the 2000 eruption. The deep region of the volcano has inflated since 2006 (JMA, 2013). It suggests magma accumulation for future eruptions. JMA, GSI, JCG and NIED independently observe crustal deformation using GPS. However, the observation networks are not enough to reveal the magma accumulation model.A dense GPS campaign observation started in Miyakejima from 2011 associate with Kyushu University, University of Tokyo, Nagoya University and NIED. New GPS observation points have been established every year to improve spatial resolution of crustal deformation and estimation of the magma source parameter. In 2013, our observation network are constructed 21 points in total including new two points near summit crater where no observation after the 2000 eruption.By assembling all the continuous GPS data that has been observed by each institution, and our observation data, integrated processing was made so as to measure the precise crustal deformation on the island for two years in 2011-2013.As the result, the obtained deformation in this study indicates inflation in the south region of Miyakejima and deflation around the crater. The estimated magma sources are a shallow deflation sill source under the crater, a southern inflation dyke source and a deep inflation spherical source. Ozawa &Ueda (2011) estimated a flat source under the caldera using InSAR technique. The parameters of this model are consistent with our sill model. Further, only deep spherical inflation source estimated in prior studies cannot be described the observed deformation during this period. We think the supply of magma began to new inflation dyke source from deep spherical inflation source. In order to monitor the inflation source, it is necessary to enhance the southern observation network and obtain more detailed geodetic data.