

Evaluation of Recent Activity at Miyakejima and Increase of Volcanic Gas Discharge in May 2016

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At Miyakejima, the volcanic activity has gradually declined in since the 2000 eruption, and no eruption occurred after January 22, 2013. At the same time, the volcanic gas (sulfur dioxide) emission rate which was beyond 10,000 tons per day at peak also decreases, and now decreased to near the detection limit after June, 2016. The thermal activity in the vicinity of the main fumaroles, in the summit crater, shows a tendency to decrease in recent years, and the geothermal areas seems to be narrow from September 2016 onwards.

On the other hand, focus on recent activities, volcanic earthquakes in the shallow location beneath the summit crater occurred steadily, though it's relatively rare. In addition, according to GNSS observation, the relatively long baseline was growing since around 2006, suggesting that magma accumulation in the deep area continues. Also with the short baseline, shrinkage fluctuation since 2000 has passed through the stagnation from around 2013, and has started to be growing in the beginning of 2016.

Under such circumstances, volcanic tremor accompanied by crustal deformation occurred in February and May 2016, and a temporary increase in volcanic gas discharge amount was observed after this phenomenon. Especially the event in May 2016 showed a more obvious change than the other. Some fluctuations in southeast to southward sedimentation were observed by the inclinometer, and the amount of volcanic gas released, which was less than 100 tons per day before the volcanic tremor, increased to 1,200 tons. The volcanic tremor and tilt can be separated in two states. Estimated pressure source by Mogi model, can be explain the contraction source at a somewhat deep position was predominant at first, next then the inflation source just under the crater was increased. And the position of the source estimated using the amplitude ratio (Ogiso, 2015) was consistent with the position of the shallow inflation source.

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