

## Vertical ground deformation in Sakurajima volcano measured by precise leveling surveys (during Nov. 2010 - Nov. 2011)

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We conducted the precise leveling survey in Sakurajima volcano in November 2011, in order to evaluate the vertical ground deformation associated with the recent eruptive activity of this volcano. In this paper, we report the results of this survey and discuss the recent ground deformation of this volcano. From the measured survey data, we calculated the relative height of each bench mark referred to the reference bench mark S.17 which is located at the western coast of Sakurajima. The calculated relative heights of the bench marks were then compared with those of the previous survey conducted in November 2010, resulting in the relative vertical displacements of the bench marks during November 2010 - November 2011. No remarkable vertical displacements are obtained during this period at bench marks around the northern part of Sakurajima, where the ground uplifts which reflect the inflation of the magma reservoir beneath Aira caldera have been observed since 1991. On the other hand, the resultant displacements indicate the ground subsidence near the central part of this volcano. This subsidence is thought to reflect the deflation of the magma reservoir located beneath the summit crater, caused by the recent increase of the volume of ejected magma associated with the eruptive activity at Showa crater. These results suggest that it is needed to monitor the future change of the ground deformation associated with the volcanic activity of this volcano.

Keywords: Sakurajima volcano, Aira caldera, precise leveling survey, vertical ground deformation