

Ground deformation at Sakurajima volcano measured by precise leveling surveys and the relation to the volcanic activities

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The ground deformation at Sakurajima volcano measured by the precise leveling surveys during the period of 1996-2003 is discussed in relation to the volcanic activities. After the leveling survey on October 1996 (Eto et al., 1997), we have conducted the surveys along two routes in Sakurajima: Northwestern coast route (on April 1999, July 2000, November 2001, November 2002 and November 2003) and Western flank route (on July 1998, June 1999, October 2001, November 2002 and November 2003). The data of Northwestern coast route indicate that the ground uplifts at the northern part of Sakurajima are continued but the rate of uplifts changes during the study period. From the data of Western flank route, the ground near the center of Sakurajima is revealed to subside at a small rate until 1998 and then the subsidence stopped or turned to be a minor upheaval. We analyze the data of relative height changes of the bench marks according to Mogi's model. The results suggest that the magma storage at the deep primary magma reservoir beneath the Aira caldera is progressed during the study period with quiet eruptive activity. Eto et al. (1997) pointed out that the magma storage began since around 1991 when the eruptive activity was gradually decayed. At the shallow magma reservoir beneath the center of Sakurajima, deflation is inferred to occur until 1999 and then it seems to stop.