

Precise photographic measurements in Asama volcano associated with the eruptive activity in 2004

Ken'ichiro Yamashina[1]

[1] Earthq. Res. Inst., Univ. Tokyo

Asama volcano in central Japan started to erupt on 1 September 2004. Considering the repetition of small eruptions, precise measurements from photographs were intended to detect a possible inflation-deflation process, which would be, if any, helpful to predict the future activity. In the present study, digital images were taken repeatedly at exactly the same observation points on the mountain foot, roughly about 10 km from the summit crater. According to the distance from the summit area, the resolution of the present digital data was about 10 cm.

In the observational period after 1 October 2004, no obvious change was proved by the time-differential stereoscopy. Consequently, displacements more than 10 cm were unlikely to occur in this period, corresponding with the fact that the eruptive activity did not extend but settled down gradually. However, based on careful reading of the data, locations of many corresponding blocks and fragments of rocks suggest that the uplift of several centimeters might have occurred at the top area of the central cone Kamayama during 4 and 9 November. Such an inflation process might have continued to the time of a slightly noticeable eruption on 14 November.

The present results were not so conclusive because the amount of the change was almost within a range of errors, i.e. ± 5 or 6 cm. But they suggest a hope that the present method of photographic measurements may help to predict a future volcanic eruption.