論　説

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GPS観測による2000年7月14日三宅島火山噴火に伴う地殻変動

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Crustal Deformation Associated with the July 14, 2000 Eruption of Miyakejima Volcano Detected by GPS Measurements

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Based on GPS data at adjacent 15 stations, a process of the 2000 eruption at Miyakejima volcano is analyzed for the period before the first phreatic eruption on July 14. Consequently the following results are obtained: 1) Deflation was remarkable up to around a caldera collapse with a small eruption on July 8. The observed data are explained by a deflation source of -1.2×10^8 m^3 in volume, which was located 3 km south west of the center of the summit (i.e, the formerly highest peak of Oyama) at 6 km in depth. The location was close to the first deflation source detected by the kinematic GPS data on June 27, suggesting that the deflation started on June 27 at around 6 km in depth (Meilano *et al.,* 2003). 2) After then the volcano inflated slightly at a shallower depth, and resulted in a phreatic eruption on July 14. In this period, however, the deflation at 6 km in depth is assumed to have continued with a rate suggested by an exponential curve fitted to the data during June 29 and July 8. The inflation during July 8 and 12 was considered to be 1.3×10^7 m^3 in volume, which was located 2 km south-southwest of the center of the summit at 3.5 km in depth. The shallow inflation source was just below the source of low frequency tremors (Kikuchi *et al.,* 2001). It suggests a close correlation between the inflation source and occurrence of the tremors.

Key words: 2000 Miyakejima Volcano eruption, spherical source, deflation, eruption process, magma intrusion, GPS measurements

1. はじめに

三宅島火山は最近60年間に1940年，1962年，1983年と約20年間隔で山腹噴火を繰り返した．1983年の活動後，次の噴火過程を準備過程から明確にする目的で，各

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