

Crustal deformation detected by kinematic GPS analysis at the early stage of the 2000 Miyakejima Volcano Eruption

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The kinematic GPS analysis at Miyakejima volcano captured rapid ground deformation on 26 and 27 June 2000 in the early stage of the 2000 Miyakejima volcano eruption. The deformations from earthquake swarms began at 6:30 PM on 26 June to submarine eruption at 9:00 AM on 27 June were modeled with three dikes intrusion and one spherical source deflation by Irwan et al. (2006).

The aim of this study is to reconsider magma migration and dike intrusion at Miyakejima volcano on two days preceding 2000 Miyakejima volcano eruption by using kinematic GPS analysis. We tried to obtain the ratio between vertical deformation and horizontal deformation at displaced stations by dike intrusion.

What's new about this study is that first and second dike were opening with no elevation, and third dike was opening with elevation. Rapid deformation at MYK2 suggests that dike inflated rapidly during the brief period. Furthermore, we discussed the possibility of local uplifts at the western part of Miyakejima interpreted as the deformation associated with magma migration beneath the island and submarine eruption.