

Dike Intrusion Model at Hachijo Island, Izu Islands, Japan estimated from ground deformation by GPS measurement in August 2002

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The Earthquake swarm has been observed near Hachijo Island, Izu Islands, central Japan, since August 13 until September in 2002. GPS measurements at four sites in Hachijo Island detect the displacements. The ground deformation shows the eastward displacements of 2-6 cm in the period of August 13-16. After then the displacements turn to northwestward. We estimate the dike intrusion models from the ground deformation observed by GPS measurements.

The intrusion dike is located 3km under in the west coast of Hachijo, with a dimension of 3 km x 5 km, and tensile of 2 m. The dike intrusion model estimated from the ground deformation show a good consistent with the model estimated from the low frequency earthquake mechanism by Kumagai et al. (2003). As the northwestward displacements are detected on the GPS sites in the period of October 16-22, it suggests that another new dike is intruded toward northwestward from the northern part of the estimated dike intrusion until August 16. Because the ground deformations observed at GPS sites shows homogeneous, the depth of the second dike is deeper than that of first dike.