

## Local deformations in Izu-Oshima Detected by D-InSAR

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Izu-Oshima is a volcanic island located on Philippine Sea plate near the collision front between Eurasian plate. At the last eruption which took place in 1986, cone A at the summit erupted first, and Fissure B at north of summit, Fissure C at northwestern part outside the caldera also erupted. The result of GPS observations since the eruption shows increase of baseline length, which is considered as an effect of magma accumulation into the magma chamber under Izu-Oshima. By leveling measurements, on the other hand, local subsidences are observed at fissure C and southeastern part of the island.

D-InSAR (Differential SAR Interferometry) is a technique to detect distribution of line-of-sight deformation over wide area. Its high resolution is suitable for detecting local deformations in Izu-Oshima.

We applied D-InSAR on Izu-Oshima and obtained deformation map. Our result shows inflation of the island and local subsidences in the caldera. Assuming that the deformation is purely vertical, deformation speed of inflation is around 2.5cm/year and the deformation center is located at northeast of summit. Maximum subsidence in the caldera is around 2cm/year under same assumption.

We explained the inflation of the island by Mogi-model. Simulated interferogram shows good agreement with our result. After that, we tried image matching on our result with geological map to determine the exact location of subsidence. Its result showed that the subsidence points are at slightly east of cone A, on scoria deposits of 1986 eruption, and on lavaflow from fissure B. We will discuss about their mechanism at presentation.