

Detection of crustal deformation in Izu-Oshima by means of D-InSAR

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Izu-Oshima is a volcano island located southeast of Izu peninsula. Since eruption in 1986, inflation of whole island has been observed by GPS and leveling survey. These study revealed that 1) whole island shows inflation, while a small region inside cardera and the southeastern part of the island show subsidence. 2) episodic variation in time series of deformation is observed by GPS, and 3) the seismicity becomes active when crustal deformation accelerates. (Geographical Survey Institute, 2002)

In this study, we applied the D-InSAR (Differential SAR Interferometry) technique on Izu-Oshima and detected crustal deformation. Since SAR is an imaging rader, its data have higher spacial resolution than GPS or leveling survey. This enables us to analyze local deformation in detail.

The result images show inflation of whole island and subsidence inside cardera, but subsidence at the southeast part could not be confirmed clearly.

The amount of deformation is about 1cm/yr for maximum upheaval at north from summit, and 4cm/yr for maximum subsidence at cardera formed by eruption in 1986.

In this presentation, we discuss the time series and existence of the episodic component using the least square adjustment method for as many interferometric pairs as available. The better understanding of temporal evolution of crustal deformation will be useful to understand the mechanism of caldera subsidence.