

A Model on Subsidence of Izu-Oshima Volcano

Makoto Murakami[1], Shinzaburo Ozawa[2], Hiroyuki Nakagawa[3], Satoshi Fujiwara[4], Mikio Tobita[5]

[1] Crustal Deformation Lab., The GSI, [2] Geographical Survey Institute, [3] Space Geodesy Lab., GSI, [4] GSI, Mizusawa, [5] Construction Coll.

An Inflation of Izu-Oshima volcano (a few centimeter) and subsidence of summit caldera (a few centimeter) are detected by interferometric SAR measurement of JERS-1. A model is proposed to explain the deformations. This model assumes a conical formation of normal fault of creeping nature whose intersection with surface is the inside surface of caldera rim. When an inflation is produced by Mogi-source occurs the outside of normal fault circle will move outward so that the total volume of conical shape will increase. This expansion of normal fault cone produces the gravitational subsidence of caldera surface. This mechanism explains well the geodetic measurement results of Izu-oshima which is now in the inter-eruption stage.