

## The volcanic activity monitoring with the concentrated observation in Izu-Oshima Island

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Izu-Oshima Island is one of 110 active volcanoes which exist in Japan and is given status as the volcano where needs suitable monitoring system for volcanic disaster prevention. The cycle of middle-scale eruption is about 30-40 years on and after twentieth century. The last eruption in this volcano occurred in 1986 and about 30 years passed. So we have to prepare for next eruption.

Geospatial Information Authority of Japan is monitoring volcanic crustal movement by 6 GNSS monitoring points including GNSS-based Control Station. We have installed the automated distance and angle surveying system (Total Station) around the caldera in 2002 and have been monitoring the movement.

In 2012 we conducted the concentrated observation that is leveling and gravity survey addition to usual monitoring. The leveling that survey both bench marks and temporary points allows us to the following vertical movement. That movement has high space density and accuracy. By comparing with result in 2008, we could find the elevated area in caldera and the downward area at northeast and southwest part of the Island. In addition, it conducted gravity survey on bench marks in caldera, GNSS-based Control Stations and absolute gravity points in circumference of Island. In consequence of comparing with gravity value at 2008, it trend to increase the value of points around a crater of summit, MOTOMACHI port in west side of island and HABU port in south side, on the other hand, to decrease it at east and north side in the outer rim of a crater, and north side of island. We will report the review and a comprehensive consideration for their results.

Keywords: Izu-Oshima Island, GNSS Earth Observation, Leveling survey, Gravity survey, Automated distance and angle survey