

## Caldera structure of Izu Oshima Volcano, Japan. revealed by new drilling survey

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Izu-Oshima volcano is basaltic stratovolcano with a summit caldera. The caldera is high gravity anomaly type and the eastern rim is almost buried by the younger deposits. It is thought that this caldera was formed by collapse with steam explosion about 1700 years ago. Some drilling survey, such as Isshiki et.al.(1963) were done in western part of the caldera but there are no survey in eastern part. To investigate the structure of the basaltic caldera, we conducted a new drilling survey of 100m depths in the eastern part of caldera.

The proportion of lava in the core is 42% and pyroclastics is 58%. 7 lava units are found in the lower and the upper part of the core except the 4th unit. Thick volcanic breccia and ash fall deposit with accretionary lapilli are found in 38m to 50m deep. This lithology and stratigraphy is very similar to the products at the time of the latest period of caldera formation. The trace element composition of the lava also have different element ratio above and below this breccia, same as the surface distributed lava, thus it indicates this layer is the latest caldera forming deposits. So, the caldera floor height is about 400m above sea level, 60m shallower than expected from Isshiki et.al.(1963). From lithology and  $^{14}\text{C}$  dating, the eastern caldera had been in the environment that pyroclastic fall only deposited and lava did not come about 5,000 years ago until several hundred years ago. From these, at least three caldera is assumed in Izu-Oshima volcano, the younger western caldera formed about 1700 years ago and the older western caldera about 5,000 years ago and the oldest eastern caldera. Using the estimated spread of the younger western caldera by this study and the caldera floor altitude by previous research, the volume of caldera filled material is estimated. The estimated volume is about  $1.6 \text{ km}^3$  and using the lava-pyroclastic ratio (75:25; Isshiki et.al. 1963), the volume of lava is estimated about  $1.2 \text{ km}^3$ .