

## Volcanic Activity of Izu-Torishima Island and ejecta of the 2002 eruption.

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Torishima is an active volcanic island located on the Izu Arc, 570 km south of Tokyo at Honshu island. During the historic period eruptions of Torishima volcano has occurred in 1902, 1939, and 2002. We conducted the 3rd landing observation of Torishima in September, 2005 since March, 2003.

Seismic activity of the volcano was low during the period. No volcanic tremor were observed since October, 2003. Eleven GPS bench marks were reoccupied to detect ground deformation of the island. There were several subsidence inside of outer rim of the volcano. From May 2004, also we started continuous tilt observation at Hatsunozaki, west coast of the island, however, no remarkable tilt change was detected during this period.

Temperatures of the fumes and ground and compositions (CO<sub>2</sub>, SO<sub>2</sub>, H<sub>2</sub>S) of volcanic gases were measured in and around the Io-yama cone, which is the central major cone of Torishima volcano. The current activity of Torishima volcano is as follows: The highest temperature region showing approximately 100 degree centigrade is distributed along the narrow band inside the westside rim of Torishima caldera, and around the 2002 crater on the Io-yama cone.

The fume and ground temperatures at the north side in Io-yama, are nearly constant at 100 degree centigrade from 1957 to present. CO<sub>2</sub> concentrations in volcanic gases from the fumaroles of the north side in Io-yama are in levels that have almost unchanged from 1965 to the present. A remarkable change of the fumarolic activity resulting from the eruption in 2002 was not detected in this observation.

Three fresh scorias were collected near the 2002 crater. These 2002 Io-yama scorias contain 54±0.4 wt.% SiO<sub>2</sub>, 0.65±0.02 wt.% TiO<sub>2</sub>, 10.2±0.2 wt.% Fe<sub>2</sub>O<sub>3</sub>, 10.3±0.2 wt.% CaO. The 2002 Io-yama scorias and the previous eruptive materials at the central cones of Torishima (the Komochiyama basalts and the 1939 Io-yama lavas) show distinct linear distributions of bulk compositions. The 2002 Io-yama scorias are plotted between the Komochi-yama basalts and the 1939 Io-yama lavas, suggesting that the 2002 Io-yama scorias were produced by mixing between new basaltic magma such as Komochi-yama basalts and 1939 magma beneath the Io-Yama volcano.