

## Present condition of submerged volcano, Teishi Knoll, off Ito, Eastern Izu Peninsula

\*Toshiro Yamanaka<sup>1</sup>, Yoshifumi Kawada<sup>2</sup>, Takuro Noguchi<sup>3</sup>, Mayumi Hatta<sup>3</sup>, Kei Okamura<sup>3</sup>

1. Tokyo Univ. Marine Science and Technology, 2. Tohoku University, 3. Kochi University

Teishi Knoll is a submerged volcano belonging to Eastern Izu volcanic zone and located c. 4 km east off the coastline of Ito City, Eastern Izu Peninsula. The volcano erupted in July, 1989, then the cone shaped knoll with a crater on the summit was formed. The Japan Meteorological Agency has reported that the Eastern Izu volcanic zone is composed of some small volcanoes including scoria cones, tuff rings, maars, and lava domes, erupted on land and many submerged volcanoes distributed densely on the seafloor off the coast. Detail of the submerged volcanoes has been unknown yet. The volcanoes have been considered to distribute on several lines of northwest-southeast direction reflecting the stress field of this area. Previous activities of the volcanic zone have been reported; Ohmuroyama Volcano was formed by eruption about 4 ka, Kawago-daira Volcano was formed about 3.2 ka, and Iwanoyama-Iwoyama volcanic chain was formed by a fissure eruption about 2.7 ka. The last eruption of the volcano belonging to the zone is considered the Teishi eruption in 1989.

In Japan there are confirmed 110 active volcanoes, 12 volcanoes of them are located below sea surface. Such submerged volcanoes have not been observed continuously due to its difficulty by visual observation, therefore, those volcanoes have not ranked according their activity by Japan Meteorological Agency. Therefore, we started observation of Teishi volcano in December, 2017, for evaluation whether active magma supply is still continuing or the intrusive magma causing of 1989 eruption is just cooling. Geochemical (water chemistry) and geophysical (heat-flow) observation has been done using training vessels of TUMSAT every half year.

We have not accumulated enough data yet, measurements of geothermal gradient were performed every time. For calculation of the heat-flow it is required the temperature record of the bottom water, so we started long-term temperature observation on the seafloor from the last December. On the other hand, chemistry of the bottom water in the crater showed slight positive anomaly of dissolved inorganic carbon and significant positive anomaly of manganese relative to the bottom water obtained from outside of the crater. Those chemical anomalies suggest that any thermal activity is still alive in the volcano.

Keywords: Teishi Knoll, Submerged volcano, Activity, Chemical flux, Heat flow