Cruise Summary (NT12-19)

1. Cruise information

R/V NATSUSHIMA　NT12-19　ROV Hyper-Dolphin3000

2. Cruise title

Understanding the activities and volcanic processes of the submarine silicic volcanoes in the Northern Izu-Bonin Arc

3. Chief scientist & representative of science party

Kenichiro Tani
Research Scientist, Institute for Research on Earth Evolution (IFREE),
Japan Agenc y for Marine-Earth Science and Technology (JAMSTEC)

4. Ship board scientific party

Osamu Ishizuka	(GSJ, AIST)
Hiroshi Shukuno	(IFREE, JAMSTEC)
Yuka Hirahara	(IFREE, JAMSTEC)
Alexander Nichols	(IFREE, JAMSTEC)
Yuka Masaki	(IFREE, JAMSTEC)
Richard Fiske	(Smithsonian Institution)
Katherine Cashman	(University of Oregon/University of Bristol)
Philip Leat	(British Antarctic Survey)
Rebecca Carey	(University of Tasmania)
Iona McIntosh	(University of Durham)
Ayaka Onoue	(Shizuoka University)
Satoshi Okada	(Nippon Marine Enterprises, Ltd.)
Mituteru Kuno	(Nippon Marine Enterprises, Ltd.)
Tomokazu Kurihara	(Nippon Marine Enterprises, Ltd.)
Masashi Ito	(Nippon Marine Enterprises, Ltd.)
Toshimasa Nasu	(Nippon Marine Enterprises, Ltd.)

5. Shore-based scientific party

Kei Okamura	(Kochi University)
Takuroh Noguchi	(MARITEC/JAMSTEC)
Jun-Ichi Kimura	(IFREE, JAMSTEC)

6. Cruise period

July 20, 2012 – August 4, 2012

7. Port call

JAMSTEC pier, Yokosuka – JAMSTEC pier, Yokosuka

8. Research area

Northern Izu-Bonin Arc

(Oomurodashi, Kurose Hole, and Kurose-Nishi Hole)

9. Cruise summary

R/V NATSUSHIMA and ROV Hyper-Dolphin3000 cruise NT12-19 was held from July 20, 2012 to August 4, 2012, a round trip from JAMSTEC pier in Yokosuka. The chief targets of this cruise were to investigate the eruption histories of the submarine silicic volcanoes in the Izu-Bonin Arc and to understand the volcanic processes that occur during the explosive submarine silicic eruptions. For these purposes, we have selected three silicic submarine volcanoes situated in the volcanic front region of the Northern Izu-Bonin Arc: Oomurodashi, Kurose Hole, and Kurose-Nishi Hole (Figure 1).

The surveys during the cruise were generally smooth and successful, except that we were forced to anchor at the Takeyama Bay from July 31 to August 2 as a result of strong swell from Typhoon No. 10, losing 2 of our planned dive survey days. We have completed a total of 14 ROV Hyper-Dolphin3000 dives, collected over 650 kg of rock, sediment, and water samples. Collected rock samples were predominantly rhyolitic to dacitic pumice and lava, as well as basalt, andesite, and hydrothermal deposits. In addition, SEABAT bathymetric survey and single-channel seismic survey were conducted to understand the detailed volcanic structures of the studied submarine volcanoes. Further shore-based volcanological, petrological, geochemical, and geochornological studies will enable us to unravel the detailed eruption histories of the studied volcanoes and to understand the volcanic processes associated with the silicic submarine volcanic eruptions.

10. Acknowledgements

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support of this project.

Figure 1. NT12-19 surveyed sites