

## Submarine eruption of NW Rota-1 volcano, Mariana arc

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During NT05-17 cruise, JAMSTEC's R/V Natsushima and ROV Hyper-Dolphin and a Japan-US team of scientists studied volcanism and sedimentation near the southern end of the active Izu-Bonin-Mariana arc (Stern et al., 2003). We focused on the Southern Seamount Province of the active Mariana Arc. The targets lie just west of the Mariana frontal arc islands, especially Rota, Tinian, and Saipan. The cruise completed additional multibeam maps of the seafloor, completed ten dives of Hyper-Dolphin, and recovered more than 130 samples of rocks, water, and sediment.

The cruise provided important insights into active venting of sulphur, hyaloclastite formation, vent biology, and water chemistry at the summit of NW Rota-1 volcano. Dives 480 and 481 (Oct. 9 & 10) revisited the summit region of this young submarine volcano. Activity near the summit region of NW Rota-1 was discovered by CTD casts in 2003 and observed with ROV ROPOS during TT-167 in 2004 (Embley et al., in press). These studies discovered a deep pit (Brimstone Pit) just south of the summit that was throwing out sulphur globules and basaltic lapilli. Acidic vent fluids stimulated a biological community, dominated by shrimp. NW-Rota-1 Brimstone Pit represents extremely early stage in the evolution of a submarine arc hydrothermal field. The associated biota also seems to be in the earliest stages, with a low diversity community that consists of only the most mobile invertebrate species, especially shrimp. Studies during NT05-17 indicate that vigorous activity around the pit continues and is at an increased level of intensity relative to observations in 2004.

