

## 1. Cruise Information

Cruise ID: YK10-05

Name of vessel: R/V YOKOSUKA

Title of the cruise: New insights into the oceanic lithosphere from petit-spot volcanoes around the Marcus Island

Chief Scientist: Naoto Hirano [Tohoku University]

Representative of the Science Party:

Naoto Hirano [Tohoku University]

Title of the proposal: New insights into the oceanic lithosphere from petit-spot volcanoes around the Marcus Island

Cruise period: May 16 to June 5, 2010

Ports of call: Yokosuka Branch, JAMSTEC to Takamatsu Port

Research area: Around the Marcus Island (Minami-torishima), western Pacific

Research maps:

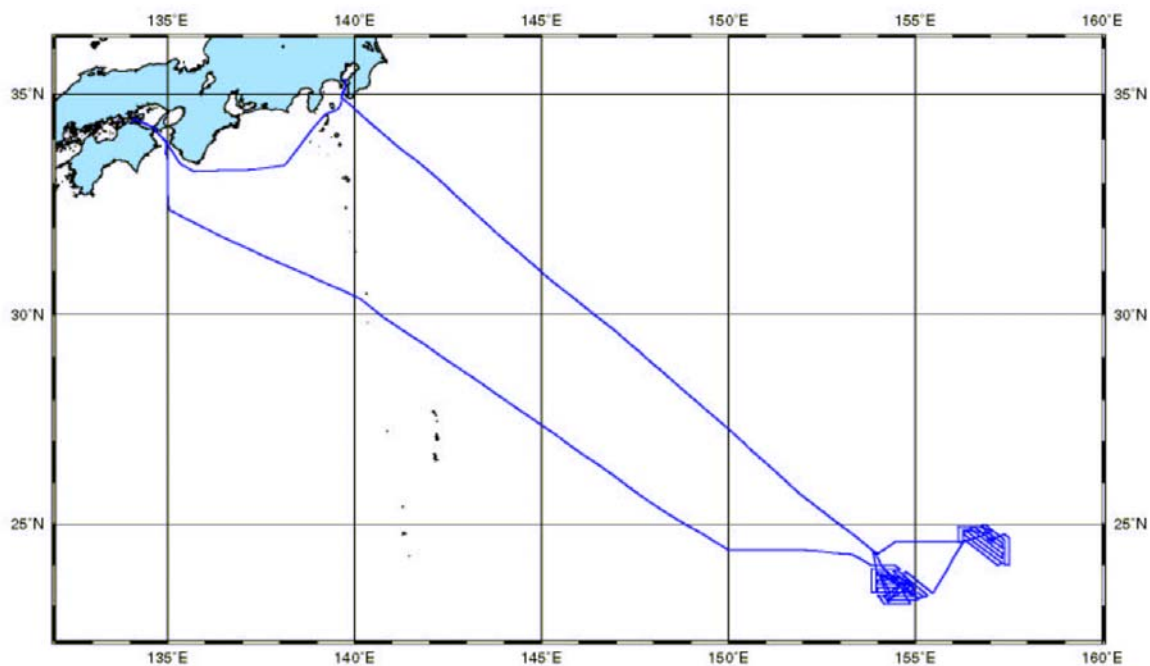


Fig. 1. Cruise track during the YK10-05 research cruise.

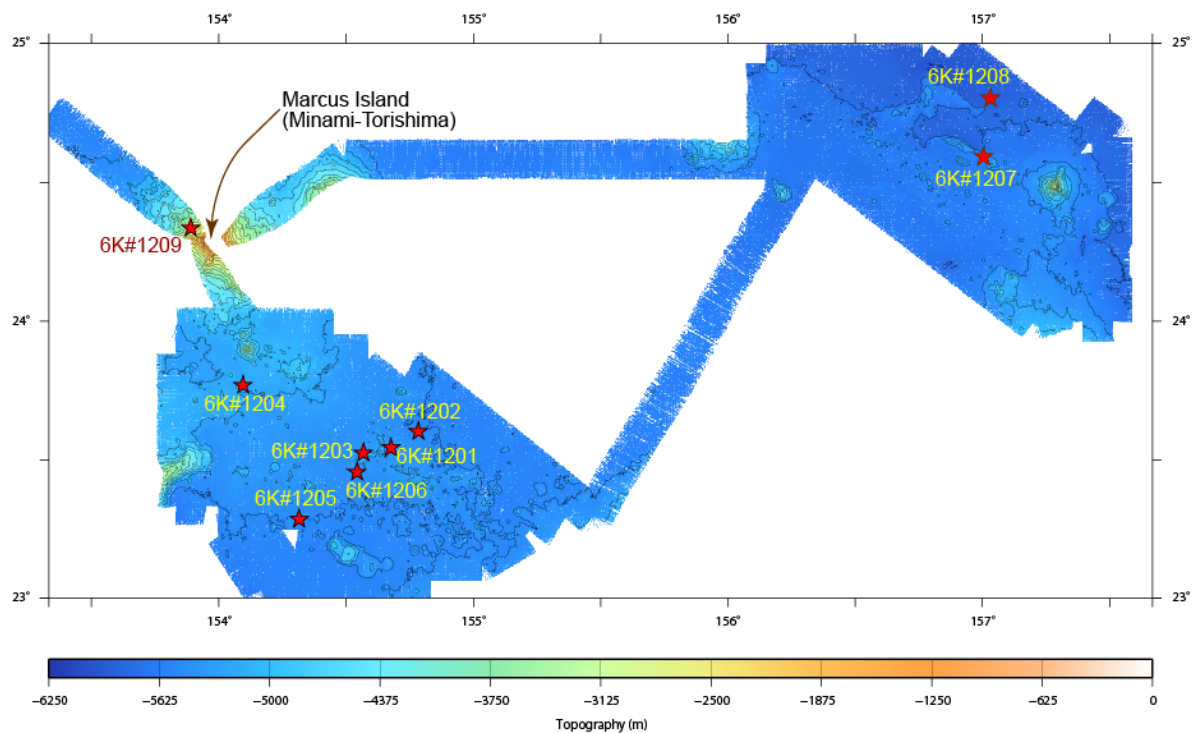


Fig. 2. Nine dive sites of 6K#1201 to 1209 by submersible *SHINKAI6500*.

## 2. Overview of the Observation

Hirano et al. (2001; 2006; 2008) reported the presence of anomalously young volcanoes (petit-spot) on the subducting Pacific Plate. Hirano et al. (2006) proposed that magma from the asthenosphere may have escaped along plate fractures that occur in the flexed outer-rise of the Pacific Plate. Based on their model, petit-spot volcanoes could be ubiquitous in the ocean basins. Oikawa and Morishita (2009) showed the precise bathymetric data acquired by Japan Coast Guard around the Marcus Island. The clusters of small conical volcanoes were discovered in this area located at southeast of Marcus Island (Minami-Tori Shima). Here we research the young volcanoes and the surrounding geology around the Marcus Island, western Pacific, during YK10-05 cruise.

The detail bathymetry and other onboard data were obtained during the cruise to search the volcanoes as well. Submersible *Shinkai6500* dives observed some lava flows and obtained basaltic samples. The dive data and rock samples are going to be analyzed after disembarking the cruise.