

Cruise Summary

1. Cruise information

Cruise ID and ship name: YK19-04S, R/V Yokosuka

Title of the cruise: New window into backarc basin lithospheric study: a Shinkai dive study at a Shikoku Basin oceanic core complex

Chief-Scientist: Yasuhiko Ohara (Hydrographic and Oceanographic Department of Japan, and JAMSTEC)

Cruise period: April 8 to April 18, 2019

Ports: Yokosuka, Japan to Futami, Chichi-jima Island, Japan

Research area (Figs. 1 and 2): Mado Megamullion, Shikoku Basin

2. Overview of research activities

Two cruises in the 2018 summer (YK18-07 and KH-18-2) collected peridotites and gabbros from the main Shikoku Basin oceanic core complex (OCC), here we named “Mado Megamullion”, significantly increasing the information on the lithospheric composition of the Shikoku Basin [Ohara et al., 2018]. In order to advance our understanding of the lithospheric composition of the Philippine Sea Plate, we decided to utilize Mado Megamullion and the associated OCCs as tectonic windows to sample the lower crust and upper mantle materials.

The objective of this cruise was to increase the sampling point within Mado Megamullion and make detailed bathymetric survey of the parts of Mado Megamullion to reveal the morphological characteristics of the Mado detachment fault.

During the YK19-04S cruise, we carried out six Shinkai 6500 dives at Mado Megamullion and also conducted geophysical mapping of its vicinity. Among the six Shinkai dives, we made detailed bathymetric survey of the parts of Mado Megamullion with a multi-beam sonar Seabat 7125 installed on the Shinaki in three dives.

Reference

Ohara, Y., K. Okino, N. Akizawa, M. Fujii, Y. Harigane, N. Hirano, K. Hirauchi, S. Machida, K. Michibayashi, A. Sanfilippo, J.E., Snow, and H. Yamashita, A new tectonic window into the backarc basin lower oceanic crust and upper mantle: Mado Megamullion in the Shikoku Basin, 2018 AGU Fall Meeting, T32C-05B, Washington, DC, USA, 2018.

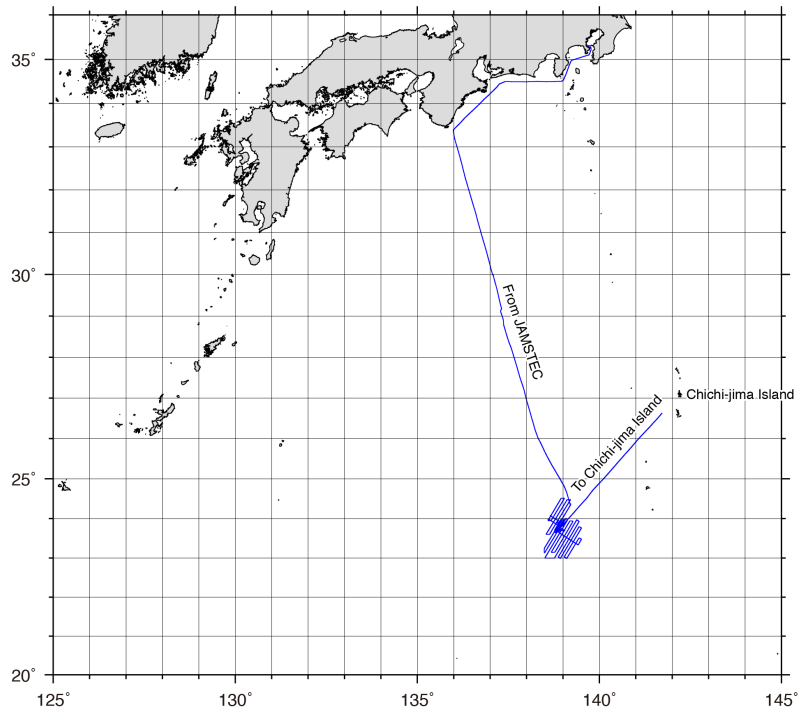


Fig. 1. Index map showing the location of studied area during YK19-04S cruise. Cruise track lines are also shown.

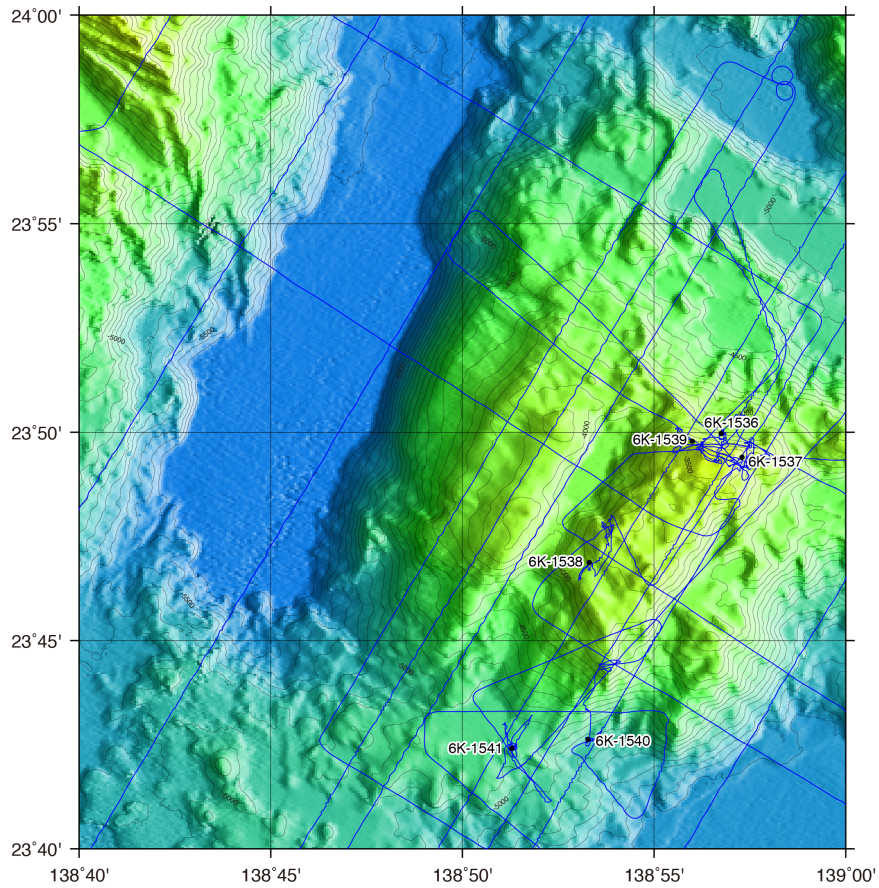


Fig. 2. Location of the dives during YK19-04S cruise. Cruise track lines are also shown.