

Cruise summary

1. Cruise information

● **Cruise ID:** YK13-02

● **Vessel:** YOKOSUKA

● **Title of the cruise:** Biological, geochemical and geological expedition to the hydrothermal fields in the Central Indian Ridge

● **Chief scientist:** Dr. Manabu Nishizawa (JAMSTEC)

● **Representative of the science party and Title of the proposal**

IS12-01: Experimental study for sclerite formation in the scaly-foot gastropod based on onboard culture experiments (Proponent: Dr. Manabu Nishizawa, JAMSTEC)

IS12-02: Clarification of the diversity of geo- and bio-systems and of the potential principles linking the systems in Central Indian Ridge hydrothermal activities (Proponent: Dr. Ken Takai, JAMSTEC)

IS12-05: Understanding of developmental process of morphological changes associated with symbiotic acquisition in hydrothermal vent gastropods (Proponent: Dr. Hiromi Watanabe, JAMSTEC)

● **Cruise period:** February 6 – February 25, 2013

● **Ports of call:** Port Louis – Port Louis

● **Research area:** The CIR segments 15 and 16 at 18°-20°S

2. Overview of the observation

Main scientific purposes of YK13-02 are to understand 1) geochemical and geobiological features of the recently discovered hydrothermal fields in the Indian Ocean (the DODO and Solitaire fields), 2) novel mechanism of sulfide biomineralization by scaly-foot gastropod, and 3) acquisition mechanism of end- and ecto-symbiosis by scaly-foot gastropod and *Alviniconcha* sp. In this cruise, we have successfully conducted six Shinkai6500 dives; one dive in the DODO field and five dives in the Solitaire field. Though we couldn't conduct Shinkai6500 dive in the Kairei and Edmond fields due to bad weather condition, we alternatively performed MBES mapping and geophysical surveys in the CIR segments 15 and 16 (18°-20°S) to understand geography and geophysical properties in the Solitaire field, the DODO fields and the median ridge.