

Cruise Summary

1. Cruise Information

- Cruise ID: NT11-09
- Name of vessel: R/V Natsushima
- Title of the cruise: FY2011 Hyper-Dolphin 3000 Dive Research
- Chief scientist [Affiliation]:
Koji Inoue [Atmosphere and Ocean Research Institute (AORI), The University of Tokyo]
- Representative of the Science Party [Affiliation]
Koji Inoue [AORI, The University of Tokyo], Tsukasa Mori [Nihon University], Yasumitsu Nakamura [JAMSTEC], Tomoko Koito [Nihon University], Kazue Oishi [JAMSTEC]
- Title of proposal
Studies on mechanisms of hypotaurine synthesis and its role in adaptation to sulfides in hydrothermal vent-specific organisms.
Culture experiment of *Paralvinella hessleri* in different temperature, and cDNA cloning of heat resistance relating gene.
The analyses of symbiosis mechanism by in situ PLA technique and the symbiotic-specific monoclonal antibody library in connection with the *Calyptogenia* symbiosis.
Is it universal phenomenon for the hydrothermal vent community to detoxify hydrogen sulfide using thiotaurine?: Study on correlation between hydrogen sulfide concentration and the amount of amino acids.
Immune defense system of deep-sea hydrothermal-vent mussels belonging to *Bathymodiulus*.
- Cruise period
June 15, 2011-June 26, 2011
- Ports of call
Yokosuka (JAMSTEC) to Yokosuka (JAMSTEC).
Change of Scientists on June 23 at Yokosuka (JAMSTEC)
- Research area
Izu-Bonin Area (Myojin Knoll and Suiyo Seamount), Sagami Bay (Off Hatsushima)

2. Overview of the Observation

- Overview of the observation

In this cruise, two days of researches were performed at each of three areas, Myojin Knoll, Suiyo Seamount, and Off Hatsushima (6 days in total). Five research groups participated to this cruise. As the main research subjects of the five groups were physiological, biochemical or molecular-biological studies of hydrothermal vent- or cold seep-specific invertebrates, we spent most time to collect live samples, e.g., deep-sea mussels, vesicomyid clams, polychaetes, and so on. In addition, environmental parameters, including water temperature and sulfide concentration, of the mussel and polychaet colonies were analyzed. Fixation and biochemical analyses were performed on some of the live samples immediately after collection. Some samples are also used for short-term rearing experiments. Other samples were kept alive and brought back to AORI, JAMSTEC, and Enoshima Aquarium for rearing experiments. Detailed analyses of genes, amino acids, enzymes, and histology will be performed after the cruise.