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YOKOSUKA Cruise Report

YK12-19, Leg 1

SHINKAI6500 engineering dive,

North part of Mariana Trench

Dec.04,2012-Dec.15,2012

Japan Agency for Marine-Earth Science and Technology

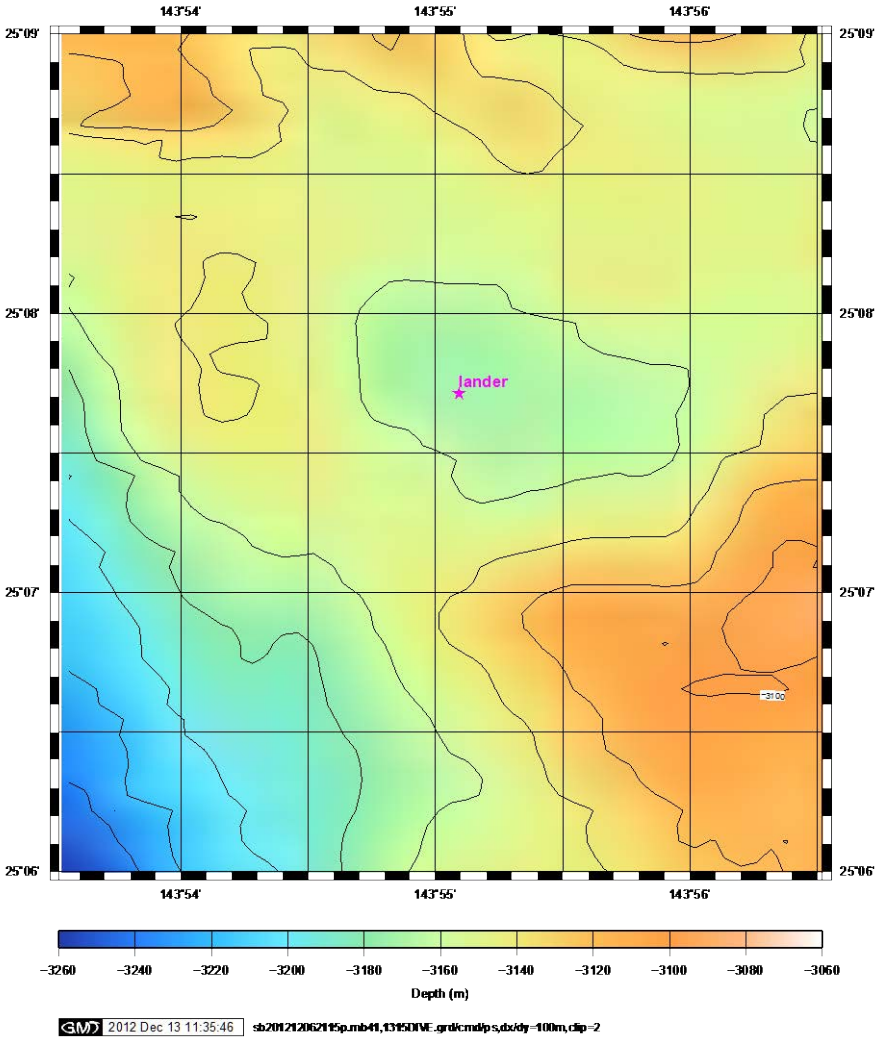
(JAMSTEC)

1. Cruise Information

- Cruise ID: YK12-19
- Name of vessel: Yokosuka
- Title of the cruise: SHINKAI6500 engineering dive
- Title of proposal: Isolation of DNA and RNA from hadal sea amphipod to get cellulase gene sequence
- Cruise period: Dec., 04, 2012-Dec., 15, 2012
- Ports of call: Yokosuka, JAMSTEC Dec., 04, 2012 - Shimizu Dec., 15, 2012
- Research area: North area of the Mariana Trench

  25° 30.0’ N , 143° 00.0’ E, 25° 30.0’ N , 144° 30.0’ E

  23° 30.0’ N , 143° 00.0’ E , 23° 30.0’ N , 144° 30.0’ E
- Research Map: WGC-64



2. Researchers

● Chief scientist [Affiliation]

Tetsuya KOMUKU, Japan Agency for Marine-Earth Science and Technology

● Representative of the science party [Affiliation]

Hideki KOBAYASHI, Japan Agency for Marine-Earth Science and Technology

● Science party (List) [Affiliation, assignment etc.]

Wataru ARAI, Japan Agency for Marine-Earth Science and Technology

3. Observation

● Observation

- Purpose, Objectives, background

In this cruise, one of purposes is capturing hadal sea lives to isolate their DNA and RNA. Main target organism is amphipod closely related to *Hirondellea gigas*, which is living in the deepest point of the Challenger Deep in the Mariana Trench. We reported *H. gigas* had a novel cellulase, which was very useful for production of glucose from cellulose (1). However, we cannot isolate complete DNA or RNA, because of degradation caused by leaving at room temperature for a while. So, we try immediate isolation of DNA and RNA from amphipods as soon as possible in this cruise.

(1) Kobayashi H, Hatada Y, Tsubouchi T, Nagahama T, Takami H (2012) The Hadal Amphipod Hirondellea gigas Possessing a Unique Cellulase for Digesting Wooden Debris Buried in the Deepest Seafloor. PLoS ONE 7(8): e42727. doi:10.1371/journal.pone.0042727

- Methods, Instruments

We attached 8 baited traps (baits: fish filets) at a mooring system. The baited traps have a cooling material, and are covered by insulation to keep low temperature.

- Research results

We tried sinking a mooring system twice. First try is only a test to measure descent and ascent rate, and check taking off system at the depth of 3116 m. We cannot find any lives in baited traps after 5.5 h stay at the bottom of sea floor. Second try is planned to capture hadal sea lives at the depth of 8800 m. However, second try was not executed because of bad sea condition.

- Future plans

We should try capturing hadal sea lives at the Challenger Deep in the Mariana Trench.

○ Research Information

- Research points

25-07.7134N, 143-55.0725E; D=3161m

- Sampling point information

Sand and conglomerates

- Sample lists

Nothing

4. Notice on Using

Notice on using: Insert the following notice to users regarding the data and samples obtained.

This cruise report is a preliminary documentation as of the end of the cruise.
This report may not be corrected even if changes on contents (i.e. taxonomic classifications) may be found after its publication. This report may also be changed without notice. Data on this cruise report may be raw or unprocessed. If you are going to use or refer to the data written on this report, please ask the Chief Scientist for latest information.
Users of data or results on this cruise report are requested to submit their results to the Data Management Group of JAMSTEC.