

Submission date 2012/07/07

Cruise Summary

- : must be included
- : may be included as necessary

1. Cruise Information

- Cruise ID NT12-16
- Name of vessel RV Natshusima
- Title of the cruise Study on the giant squid, *Architeuthis dux*, off Ogasawara
- Chief scientist [Affiliation] Tadashi Maruyama [Marine Biodiversity Research Program, JAMSTEC]
- Representative of the Science Party [Affiliation] (If there are no scientific proposals, it is not necessary to fill this section for exception) Tadashi Maruyama [Marine Biodiversity Research Program, JAMSTEC]

- Title of proposal Study on the giant squid, *Architeuthis dux*, off Ogasawara

- Cruise period: June 26 –July 3, 2012
- Ports of call: JAMSTEC warf, Yokosuka
- Research area: Off Ogasawara

○ Research map

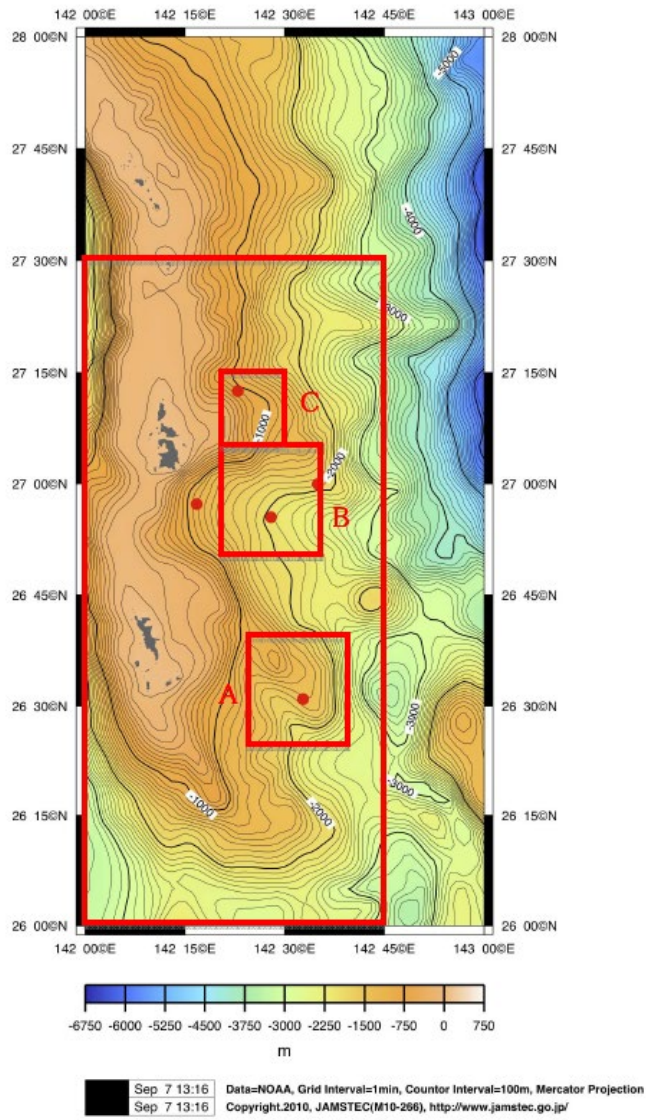


Figure 1. Map of the study area (The area A was studied).

2. Overview of the Observation

- Overview of the observation
- Title of project

Study on the giant squid, *Architeuthis dux*, off Ogasawara island

The giant squid, *Architeuthis dux* is one of the well known large marine mysterious organisms in the world. Its life in the deep-sea remains mysterious and very little is known about its physiology, behavior and ecology. Recently off Ogasawara islands, Japan, some photographs of live *A. dux* have been taken by using a fishing gear with a raw squid bait and a deep-sea camera (Kubodera and Mori, 2005). To observe the live giant squid and obtain some of its live material, we made a mooring system having a raw squid bait, a pseudo-squid bait and a deep-sea trigger-camera.

On June 28th, we deployed the mooring system, which had three fishing gears and a trigger camera, in the A area off Ogasawara island (Figure 1). In the next morning (June 29th), we used the hyperdolphin (HPD) to observe the fishing gears on the mooring system. Neither giant squid nor any other squid or fish was trapped by the fishing gears. In the next morning (June 30th) we made observation again but nothing was trapped by the fishing gears (Figure 2A). The trigger of the camera was not released either. We then pulled the trigger with the arm of the HPD (Figure 2B). One of the two lights of the camera was turned on but the other was not (Figures 2C, D). This indicated that the mooring system and the trigger camera worked all right. However, unfortunately we could not get even one shot of the giant squid image.

We also used an echo-sounder (Quantitative Fish Detector) equipped on the RV Natsushima to detect the giant squid in the deep. Signals of the downward moving/upcoming HPD (Figure 3) and buoys of the mooring system were successfully and clearly detected. In addition, we detected signals of possibly large animal such as the giant squid moving at the depths of 1330-1420 m (Figure 4).

Although we failed to get images of the live giant squid or its live tissue samples, we realized that the echo-sounder (Quantitative Fish Detector) is a useful tool to detect the large animal like the giant squid in the deep.

Reference

T. Kubodera and K. Mori (2005) First-ever observations of a live giant squid in the wild. Proc. R. Soc. B. 272, 2583-2586.

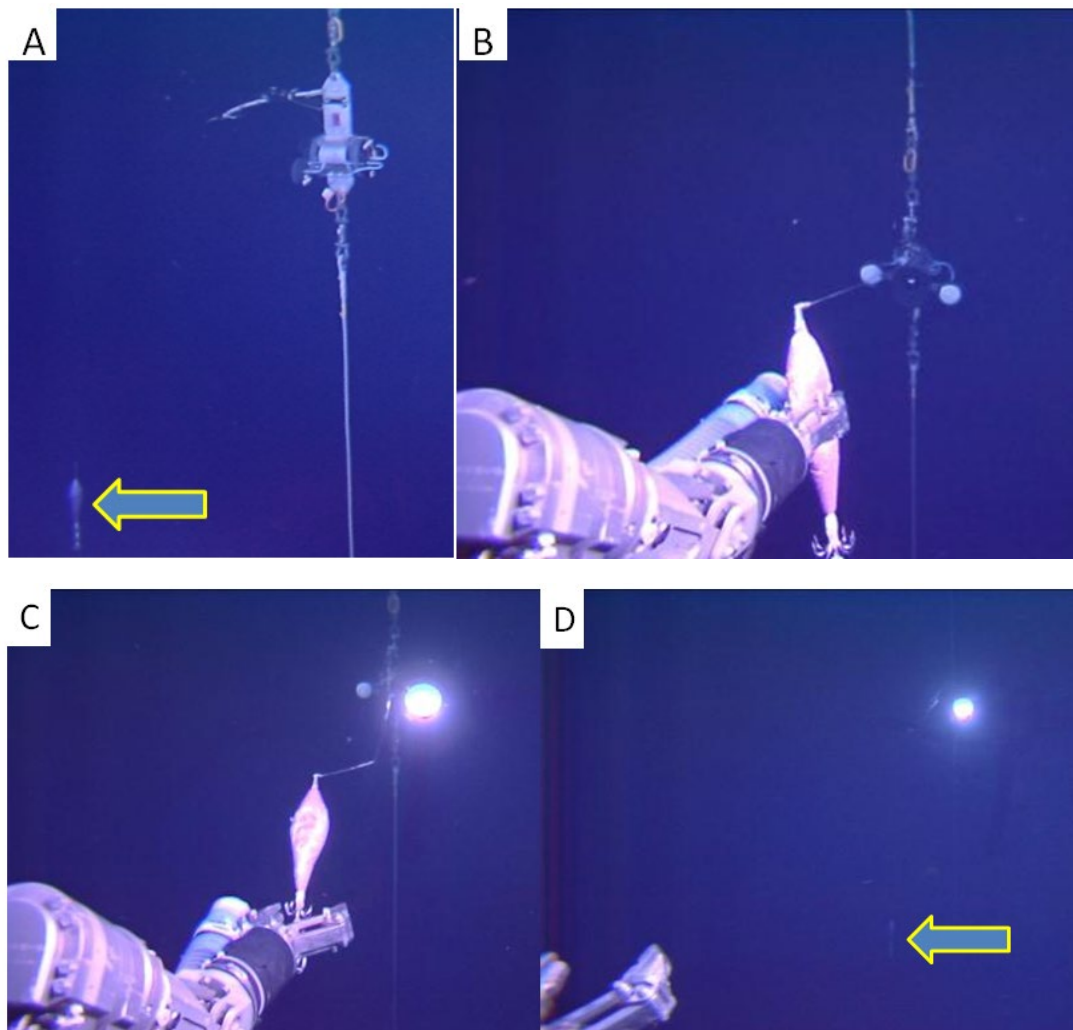


Figure 2. Triggered the trigger camera (June 30th, Dive #1397). A, Before pulling the trigger. B, Grabbing the pseudobait to trigger the camera. Note the lights were off. C. After pulling the trigger, the light was on. D. The light was kept on and the pseudobait was hanging (arrow) still.

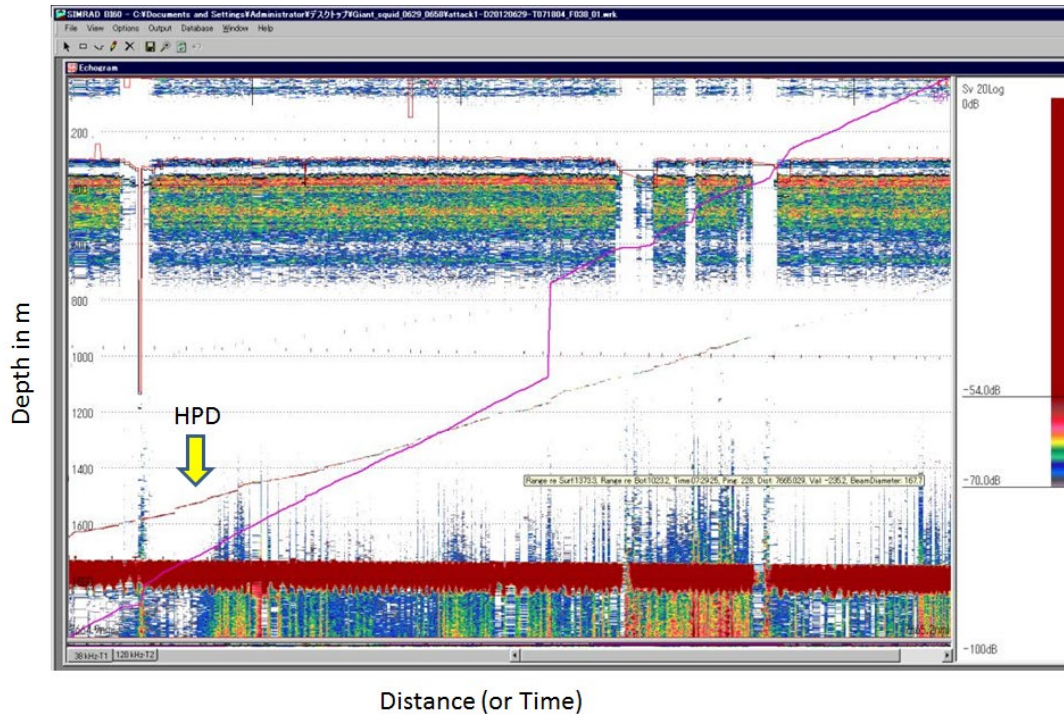


Figure 3. Eco-sounder image profile of diving track of the HPD (arrow) off Ogasawara

Echo sounder (Quantitative fish detector)

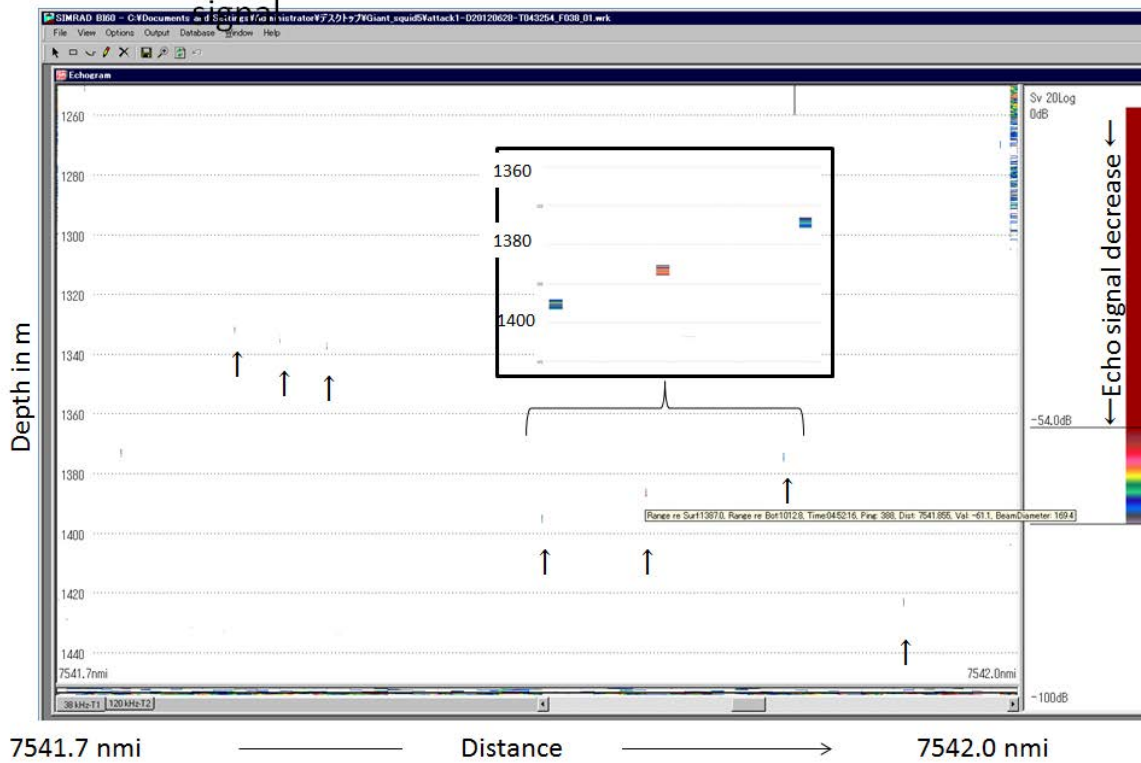


Figure 4. Signals obtained with the quantitative fish detector (Echo-sounder). Insert is the enlarged images of the part of this figure.