Cruise summary

1.1 Cruise information

Cruise number	KR12-04
Ship name	R/V Kairei, ROV Kaiko 7000 II
Chief scientist	Takafumi Kasaya (IFREE, JAMSTEC)
Proposal title	Recovery of long-term ocean bottom sensors attached to the Off-Toyohashi submarine cabled station for monitoring earthquakes and crustal deformations
Date	13 Feb. 2012 – 17 Feb. 2012
Ports of call	Yokohama port – Yokohama port
Research Area	Fig.1

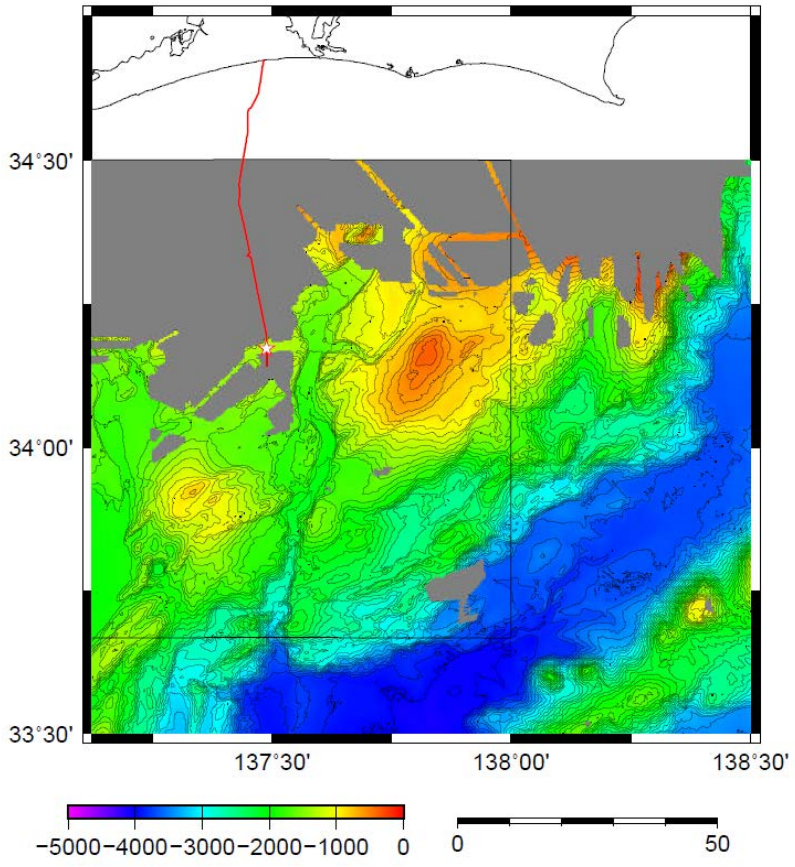

Fig.1.1 Research and operation area of KR12-04 cruise around the Off Toyohashi submarine cable. Red stars show a position of the junction unit. A red line shows the Off Toyohashi submarine cable.

1.2 Cruise objective and summary

The off-Toyohashi seafloor cabled observatory is constructed to obtain the real time data related to seismic events using the many instruments at March. 2007 (Aasakawa et al., 2009; Goto et al., 2009). Figure 1.2 shows the p lain view of the off-Toyohashi submarine cabled observatory. In 2009, the junction unit of observatory system at the tip of the seafloor cable was damaged because of a lighting serge of the falling of thunderbolt around the Toyohashi area. This accident makes an unstable condition of a power supply to seafloor units including some instrument. At the last, we decided to stop the observation. Therefore, we proposed to recover our scientific instrument connected to the junction unit. At first, this cruise planned in May 2011. Because of the Tohoku earthquake, our cruise postponed until Feb 2012.

This cruise carried out from 13 Feb. to 17 Feb. 2012. In this cruise, we tried to recover the Electromagnetic observation system (DOMES) and the seismic observation system package (S-SMAD). We completed all operation using three dives. At 3rd dive, we disconnected the underwater mating connector of the GPS acoustic observation system of University of Tokyo from the junction unit. Figure 1.3 shows the recovered DOMES main unit. In addition, we attached dummy plugs to each connector on the junction box for protection from dust. We also collected the bathymetric data around the off-Toyohashi seafloor cabled observatory for data analysis after this cruise.

Reference

K. Asakawa, T. Yokobiki, T. Goto, E. Araki, T. Kasaya, M. Kinoshita and J. Kojima, New scientific underwater cable system Tokai-SCANNER for underwater geophysical monitoring utilizing a decommissioned optical underwater telecommunication cable, IEEE J. Ocean. Eng, 34, 539-547, 2009.

T-N. Goto, T. Kasaya, M. Kinoshita, E. Araki, K. kawaguchi, K. Asakawa, T. Yokobiki, T. Nakajima, H. Nagao, M. Harada, K. sayanagi, Development of the off-Toyohashi seafloor cabled observatory, JAMSTEC-R IFREE Special Issue, 149-162, 2009.

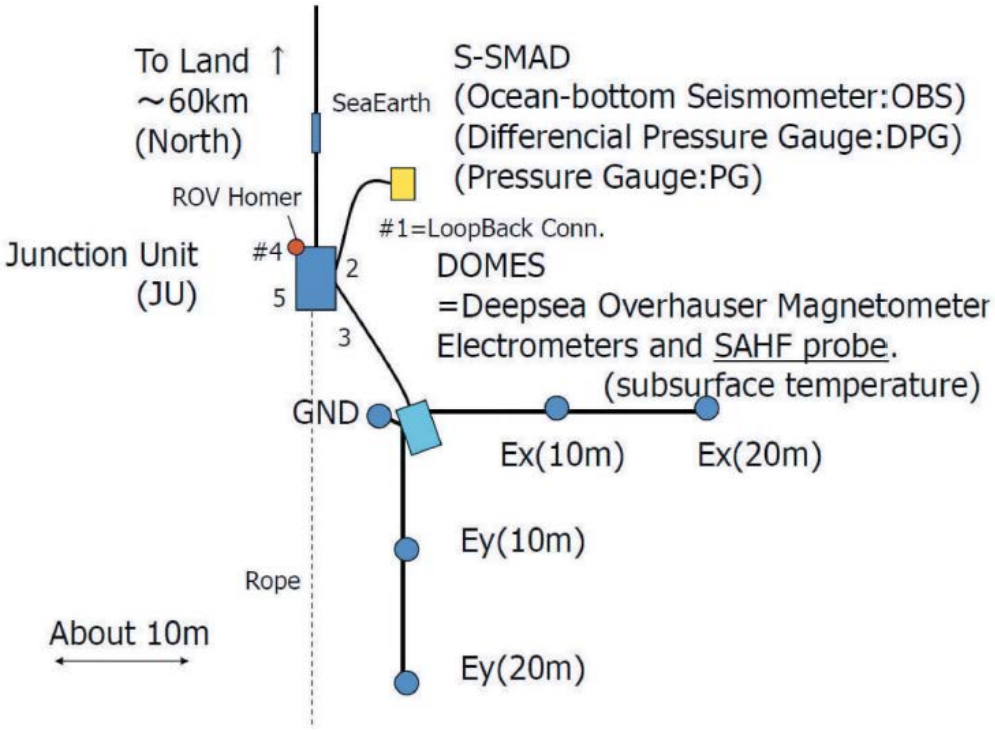

Fig. 1.2 Plain view of the off-Toyohashi submarine cabled observatory. The position of the junction box is 34-10.466 N and 137-29.377 E at the depth of 1310 m (After Goto et al., 2009).

Fig. 1.3 Photo of the recovered DOMES main unit.