doi : 10.17596/0003874

R/V Hakuho-maru Cruise Report
KH-24-JE02C

Quick response survey
for the 2024 Noto Peninsula Earthquake

Off Noto Peninsula, Japan Sea

Feb. 19, 2024-Mar. 1, 2024

Japan Agency for Marine-Earth Science and Technology
(JAMSTEC)

Contents

1. Cruise Information

Cruise ID:

KH-24-JE02C

Name of vessel:

R/V Hakuho-maru

Title of project:

Quick Response Survey for the 2024 Noto Peninsula Earthquake

Title of cruise:

Quick Response Survey for the 2024 Noto Peninsula Earthquake

Chief Scientist [Affiliation]:

Tsutomu Takahashi [JAMSTEC]

Cruise period:

Feb. 19, 2024-Mar. 1, 2024

Ports of departure / call / arrival:

Niigata / Toyama / Toyama

Research area :

Off Noto Peninsula, Japan Sea

Research map

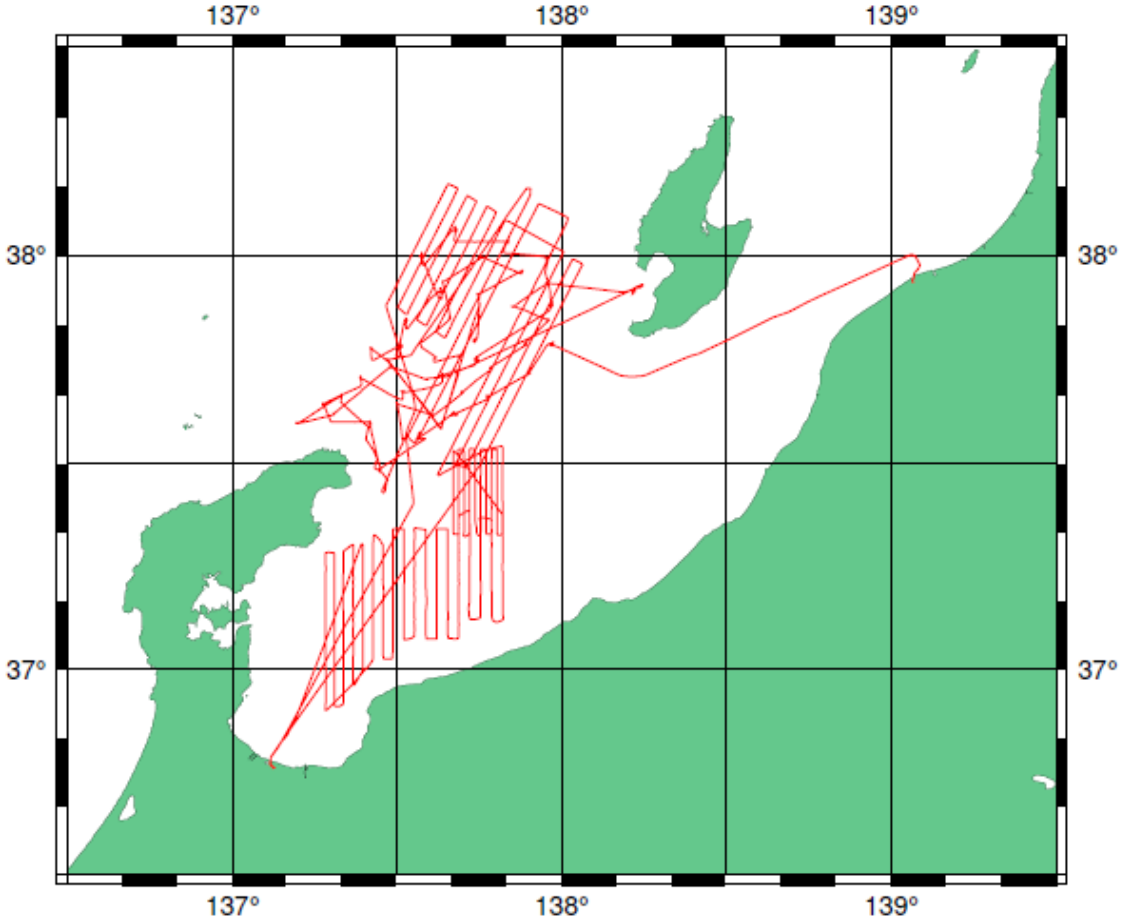

Fig 1. Ship track during KH-24-JE02C cruise

2. Research Proposal and Science Party

Title of proposal:

Quick Response Survey for the 2024 Noto Peninsula Earthquake

Representative of Science Party [Affiliation]
Gou Fujie [JAMSTEC]

Science Party (List) [Affiliation, assignment etc.]

Onboard Scientists:

Tsutomu Takahashi	JAMSTEC
Masanao Shinohara	The university of Tokyo
Yoshio Murai	Hokkaido University
Ryosuke Azuma	Tohoku University
Shuichi Suzuki	Tohoku University
Tomoaki Yamada	The university of Tokyo
Masataka Masuda	The university of Tokyo
Hideji Abe	The university of Tokyo
Shin'ichi Tanaka	The university of Tokyo
Takafumi Kasaya	JAMSTEC
Satoshi Ogura	JAMSTEC
Hisatoshi Baba	Tokai University
Shun Fukushima	The university of Tokyo
Ching Yu HU	The university of Tokyo
Hiroaki Yamahana	The university of Tokyo
Nagisa Nakao	Tokai University
Ryotaro Fujimura	Tohoku University
Yuto Hirayama	Tohoku University
Aina Idoguchi	Tokai University
Takuya Maekawa	NME
Taro Shirai	NME
Yu Suzuki	MOLMEC

Onshore Scientists:

Takeshi Akuhara	The university of Tokyo
Takehi Isse	The university of Tokyo
Kazuo Nakahigashi	Tokyo University of Marine Science and Technology
Nanami Murai	Tokyo University of Marine Science and Technology
Yuzuru Kaneko	Tokyo University of Marine Science and Technology
Kansuke Takahashi	Tokai University
Teruki Ohta	Tokai University
Ryota Hino	Tohoku University
Yusaku Ohta	Tohoku University
Toshinori Sato	Chiba University
Yojiro Sasagawa	Chiba University
Yusuke Yamashita	Kyoto University
Yoshihiro Ito	Kyoto University
Tadanori Goto	University of Hyogo
Hiroshi Yakiwara	Kagoshima University
Shuichiro Hirano	Kagoshima University
Yukihiro Nakatani	Kagoshima University
Gou Fujie	JAMSTEC
Yusuke Ohta	JAMSTEC
Junji Kaneko	JAMSTEC
Tetsuo No	JAMSTEC
Koichiro Obana	JAMSTEC
Shuichi Kodaira	JAMSTEC
Kyoko Okino	The university of Tokyo
Jin-Oh Park	The university of Tokyo
Asuka Yamaguchi	The university of Tokyo
Seitaro Ono	The university of Tokyo

3. Research/Development Activities

1. Objective

The 2024 Noto Peninsula earthquake (M7.6) that occurred on January 1, 2024 at Noto peninsula, Japan, and the accompanying tsunami caused extensive damage in the Noto Peninsula and surrounding areas.

As a part of the quick response survey for the 2024 Noto Peninsula Earthquake, we conducted deployment and recovery of ocean bottom seismographs (OBS) and ocean bottom electromagnetometers (OBEM). We also acquired bathymetry data and subsurface acoustic profiles to investigate the earthquake fault, the mechanisms of earthquake and tsunami generation, and the subsequent seismic activities.

2. Activities

2.1 OBS & OBEM deployment

We deployed 20 OBSs and 5 OBEMs off northeast of the Noto peninsula. Deployed OBSs consisted of 5 short-period OBS (SPOBSs), 13 long term OBSs (LTOBSs) and 3 compact broadband OBSs (CBBOBSs). The SPOBSs were operated by JAMSTEC, and LTOBSs and CBBOBSs were operated by the earthquake research institute (ERI) of the university of Tokyo. We also deployed 5 OBEMs of JAMSTEC. Positions of deployed OBSs and OBEMS were calibrated using the acoustic transducer of R/V Hakuho-maru. These deployed OBSs and OBEMs will be recovered in summer of 2024.

2.2 OBS & OBEM recovery

We recovered 26 SPOBSs and 2 OBEMs off northeast of the Noto peninsula. These SPOBSs and OBEMs had been deployed during KH-24-JE01 cruise. Their deployed positions had been calibrated using the acoustic transducer of R/V Hakuho-maru.

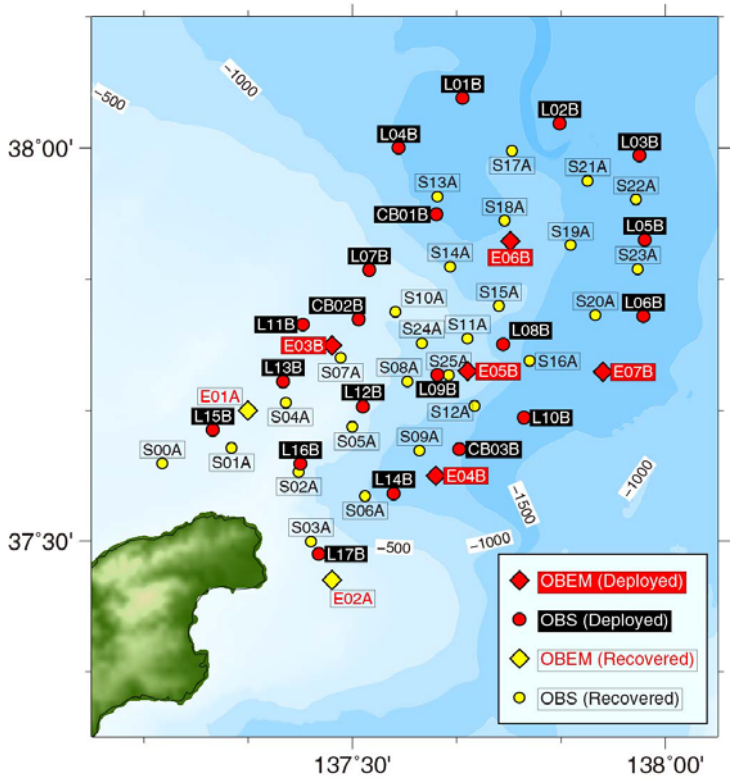

Fig. 2. Positions of recovered (yellow) and deployed (red) instruments during KH-24-JE02C cruise. Circles and squares represent OBS and OBEM, respectively.

2.3 Bathymetry and sub bottom surveys

Bathymetry data and subsurface acoustic profiles were acquired using the Multi beam echo sounder (MBES) and sub bottom profiler (SBP) throughout the cruise except during acoustic communication with OBS or OBEM. We also conducted grid surveys of MBES and SBP at Toyama Bay and off east of the Noto peninsula.

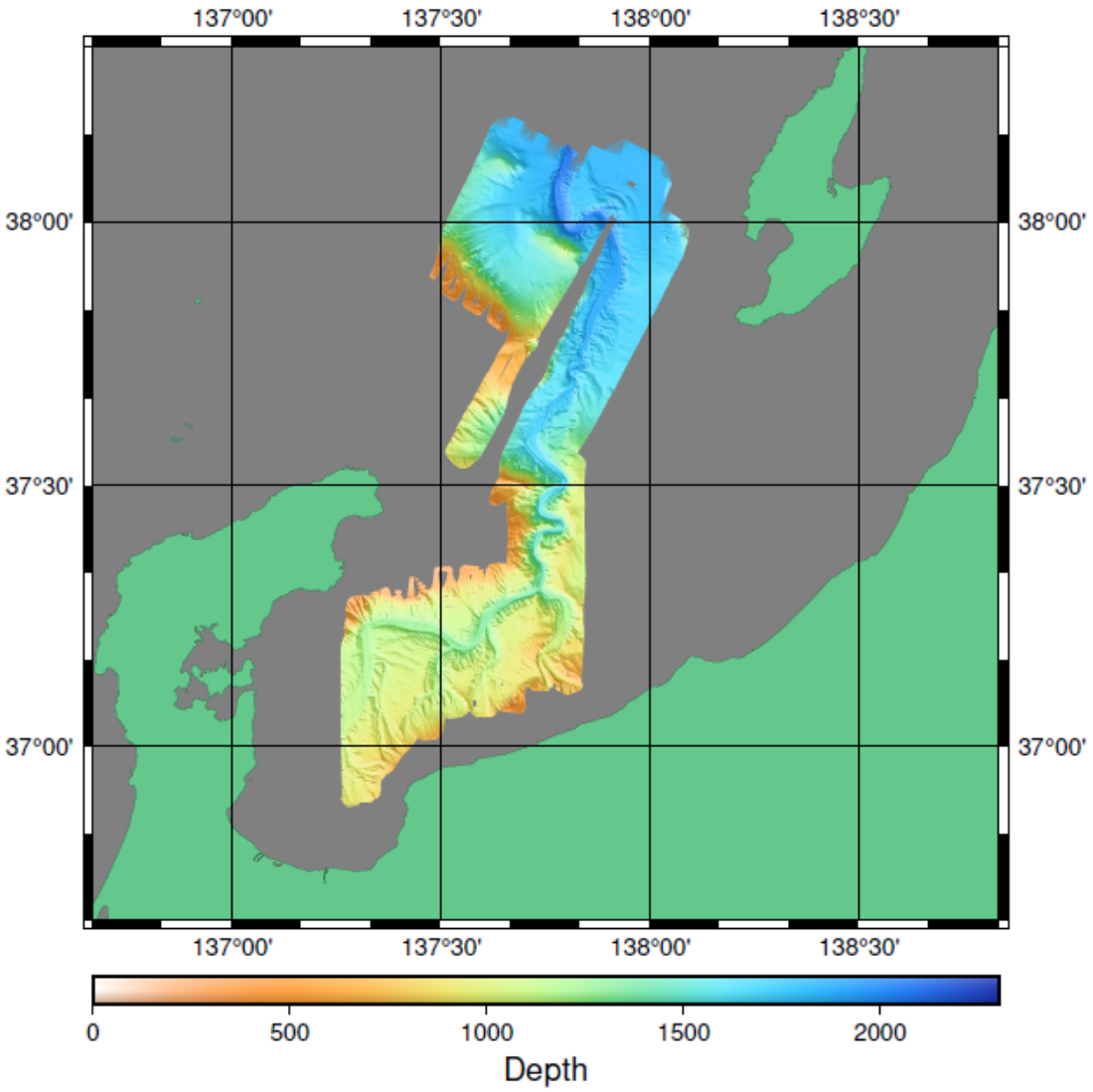

Fig 3. Bathymetry data acquired by the grid survey.

2.4 Drone flights

Drone flights were conducted to take 4K movies of recovery and deployment operations of OBS and OBEM.

4. Cruise Log

2024/2/19	Departure from Niigata. Transit to the survey area. Deployment of OBS (L06B, L10B) and OBEM (E07B)
2024/2/20	Deployment of OBS (CB03B, L14B, L17B, L16B, L15B, L13B, L12B, L09B, L08B, L05B, L03B, L02B, L01B, L04B)
2024/2/21	Deployment of OBS (CB01B, L07B, CB02B, L11B) and OBEM (E03B, E04B, E05B) Standby near Sadoga-shima due to a bad sea condition
2024/2/22	Standby near Sadoga-shima due to a bad sea condition Drone test flights near Sadoga-shima Recovery of OBS (S22A, S19A, S23A)
2024/2/23	Recovery of OBS (S20A, S16A, S12A, S09A, S05A, S06A, S03A, S02A, S00A, S01A, S04A, S07A, S08A, S25A) and OBEM (E02A, E01A) Drone flights at E02A and S02A
2024/2/24	Recovery of OBS (S11A, S24A, S10A, S14A, S13A, S17A, S21A, S18A, S15A). Deployment of OBEM (E06B) Drone flights at E06B and S15A
2024/2/25	MBES and SBP surveys off northeast and east of the Noto peninsula
2024/2/26	MBES and SBP surveys off east and southeast of the Noto peninsula
2024/2/27	MBES and SBP surveys off southeast of the Noto peninsula and at Toyama-Bay
2024/2/28	MBES and SBP surveys at Toyama-Bay. Call at Toyama-port for unloading.
2024/2/29	MBES and SBP surveys off northeast and east of the Noto peninsula
2024/3/1	MBES and SBP surveys off northeast and east of the Noto peninsula Arrival at Toyama port.

5. Notice on Using

This cruise report is a preliminary documentation as of the end of cruise.
This report is not necessarily corrected even if there is any inaccurate description (i.e. taxonomic classifications). This report is subject to be revised without notice. Some data on this report may be raw or unprocessed. If you are going to use or refer the data on this report, it is recommended to ask the Chief Scientist for latest status.
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