

R/V SHINSEI-MARU Cruise Report
KS-19-5

Tsunamigenic normal faults generating large outer-rise
earthquake in the Japan Trench margin

Japan Trench margin off Sanriku of northeast Japan

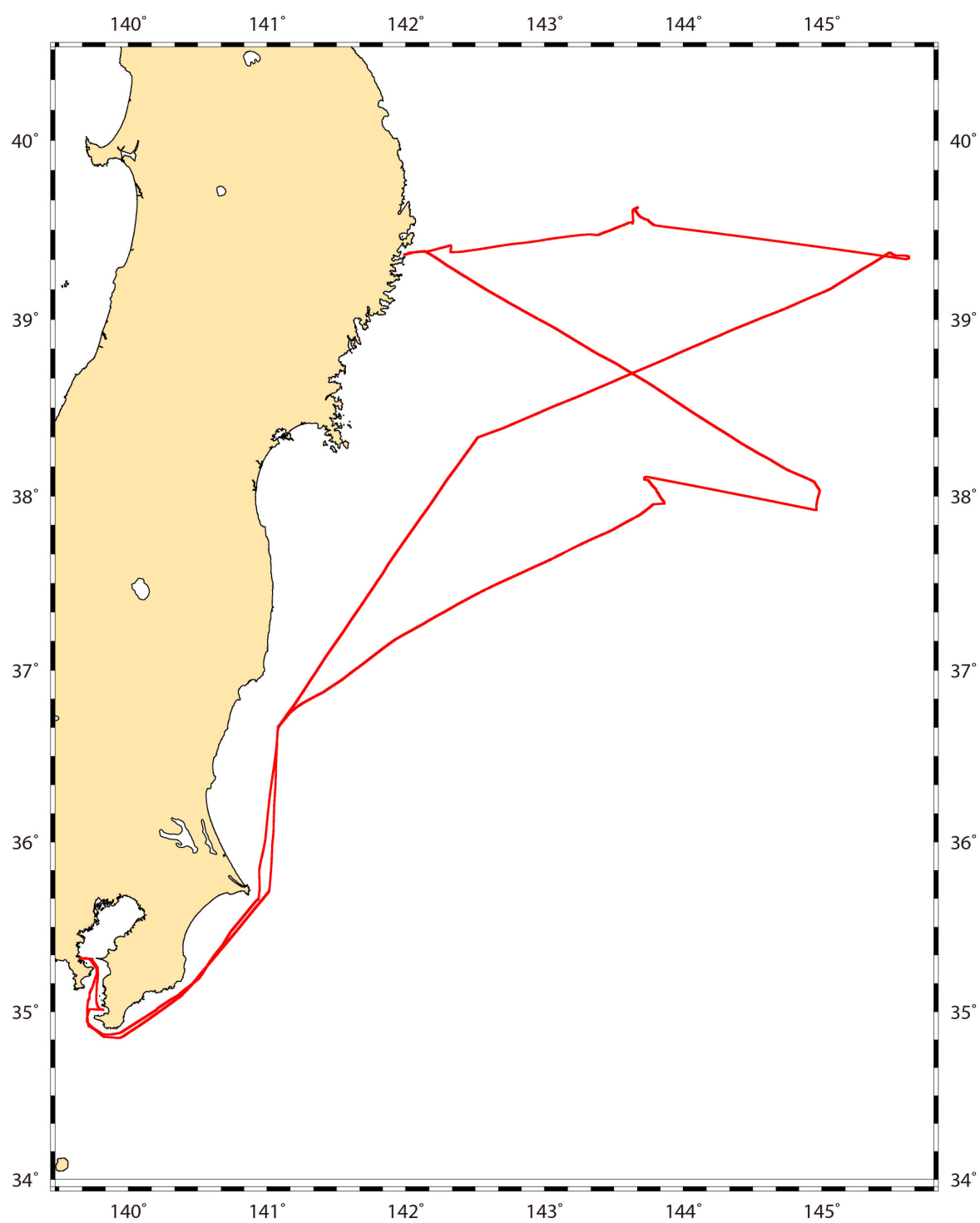
April 7, 2019 - April 15, 2019

Joint Usage/Research Center for Atmosphere and Ocean
Science (JURCAOS)

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

1. Cruise Information

- Cruise ID KS-19-5
- Name of vessel R/V SHINSEI-MARU
- Title of project Tsunamigenic normal faults generating large outer-rise earthquake in the Japan Trench margin
- Title of cruise Tsunamigenic normal faults generating large outer-rise earthquake in the Japan Trench margin
- Chief Scientist [Affiliation] Jin-Oh Park [University of Tokyo]
- Cruise period April 7, 2019 - April 15, 2019
- Ports of departure / call / arrival Yokosuka - Yokosuka
- Research area Japan Trench margin off Sanriku of northeast Japan
- Research map



2. Research Proposal and Science Party

- Title of proposal Tsunamigenic normal faults generating large outer-rise earthquake in the Japan Trench margin
- Representative of Science Party [Affiliation] Jin-Oh Park [University of Tokyo]
- Science Party (List) [Affiliation, assignment etc.]
Juichiro Ashi [University of Tokyo, SBP]
Tomoko Hanyu [University of Tokyo, MNB]
Ehsan Jamali Hondori [University of Tokyo, MCS]
Katsura Kameo [University of Tokyo, MCS]
Masanari Ashida [University of Tokyo, MCS]
Yue Sun [University of Tokyo, MCS]
Hyun-Woo Youn [University of Tokyo, MCS]
Gou Fujie [Japan Agency for Marine-Earth Science and Technology, MCS]
Seishiro Furuyama [Tokyo University of Marine Science and Technology, MCS]
Mayu Ogawa [Tokyo University of Marine Science and Technology, MCS]
Ayanori Misawa [National Institute of Advanced Industrial Science and Technology, MCS]
Keita Suzuki [Nippon Marine Enterprises, Ltd., MCS]
Akie Suzuki [Nippon Marine Enterprises, Ltd., MCS]
Waka Komatsu [Nippon Marine Enterprises, Ltd., MCS]

3. Research/Development Activities

- MCS data acquisition

We have designed multi-channel seismic (MCS) reflection profiling, 3.5 kHz subbottom profiling, and multi narrow beam investigation on total five survey lines to figure out crustal structure including tsunamigenic normal faults in the outer rise of the Japan Trench margin off Sanriku, northeast Japan. Due to delayed departure and bad weather, however, we could acquire MCS data on two survey lines (Line-5 and Line-1).

(1) MCS Line-5 (about 100 km long)

We used two GI guns (~12 liters) with 50 m shot interval to obtain high resolution image of the tsunamigenic normal faults in the outer rise. Shot number ranges from 1000 to 3059. We recorded the MCS data with recording length of 14 sec and sampling interval of 1 msec by a 1,650 m, 264-channel streamer with 6.25 m group spacing, which was reduced from normal 288-channel streamer owing to troubles in two active sections. Navigation data by Trigger Fish 2D was stored in formats of P1/90 and P2/91.

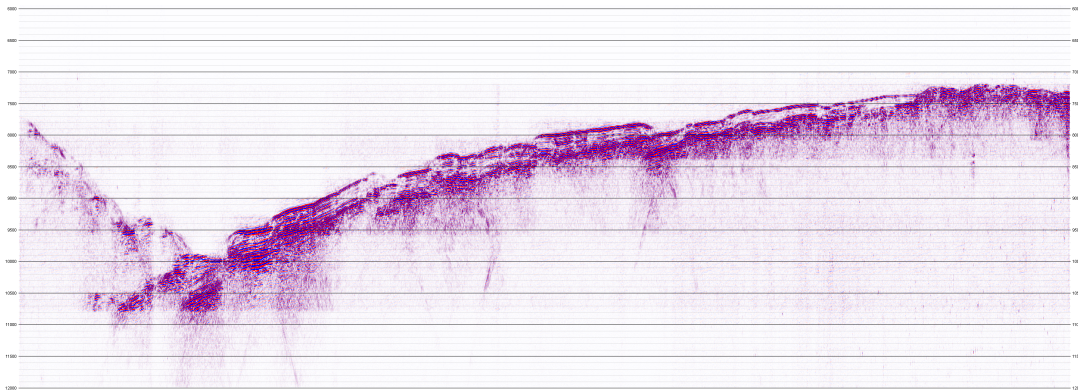
(2) MCS Line-1 (about 150 km long)

We used two GI guns (~12 liters) with 37.5 m shot interval to obtain high resolution image of the tsunamigenic normal faults in the outer rise. Shot number ranges from 991 to 5051. We recorded the MCS data with recording length of 14 sec and sampling interval of 1 msec by a 1,800 m, 288-channel streamer with 6.25 m group spacing. Navigation data by Trigger Fish 2D was stored in UKOOA formats of P1/90 and P2/91.

- Quality control of the MCS data on board

We have performed quality control of the MCS data by using seismic processing software of SPW 3.2. After applying UKOOA P1/90 navigation data to the MCS data for geometry setting, we used a seawater velocity of 1,500 m/sec for quick normal moveout correction and carried out CMP stacking, producing conventional CMP stacked section. Moreover, we carried post-stack time migration using the CMP stacked data.

<CMP stacked section of Line-5>



4. Cruise Log

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.
Users of information on this report are requested to submit Publication Report to Cooperative Research System Office.

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