



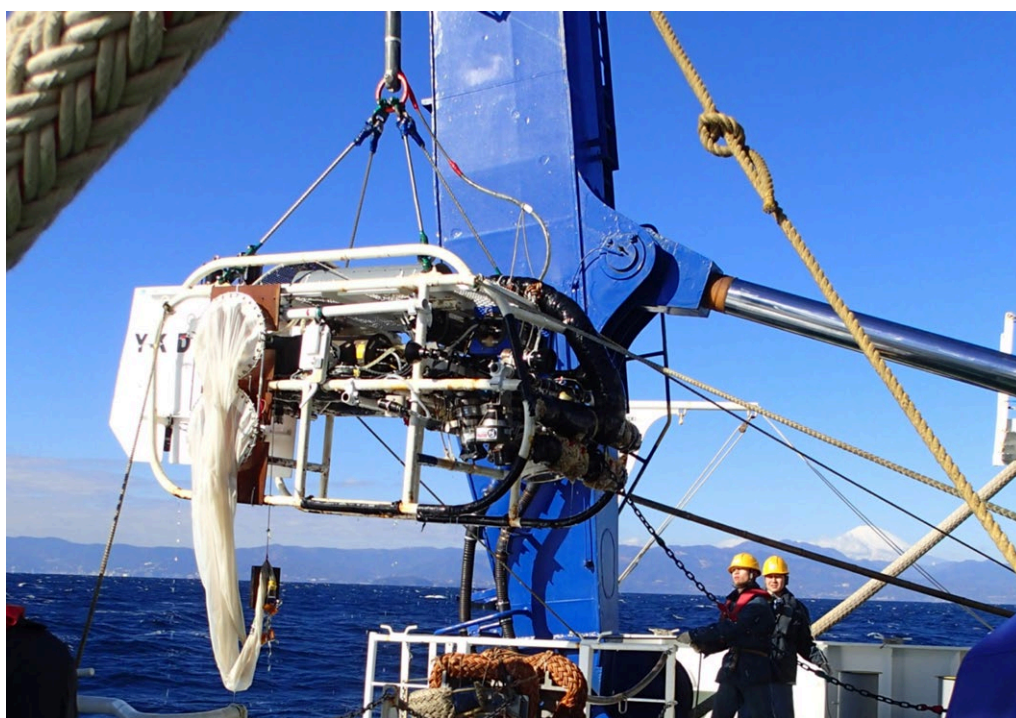
Yokosuka Cruise Report

YK14-22

Publicity Cruise collaborating with the museums and
aquariums

Offshore of Izu Peninsula and Sagami Bay

December 26, 2014 – December 29, 2014



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

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1. Cruise Information

1.1. Cruise ID: YK14-22

1.2. Name of vessel: Yokosuka

1.3. Title of the cruise: Publicity Cruise collaborating with the museums and aquariums

1.4. Title of the proposal: Publicity Cruise collaborating with the museums and aquariums

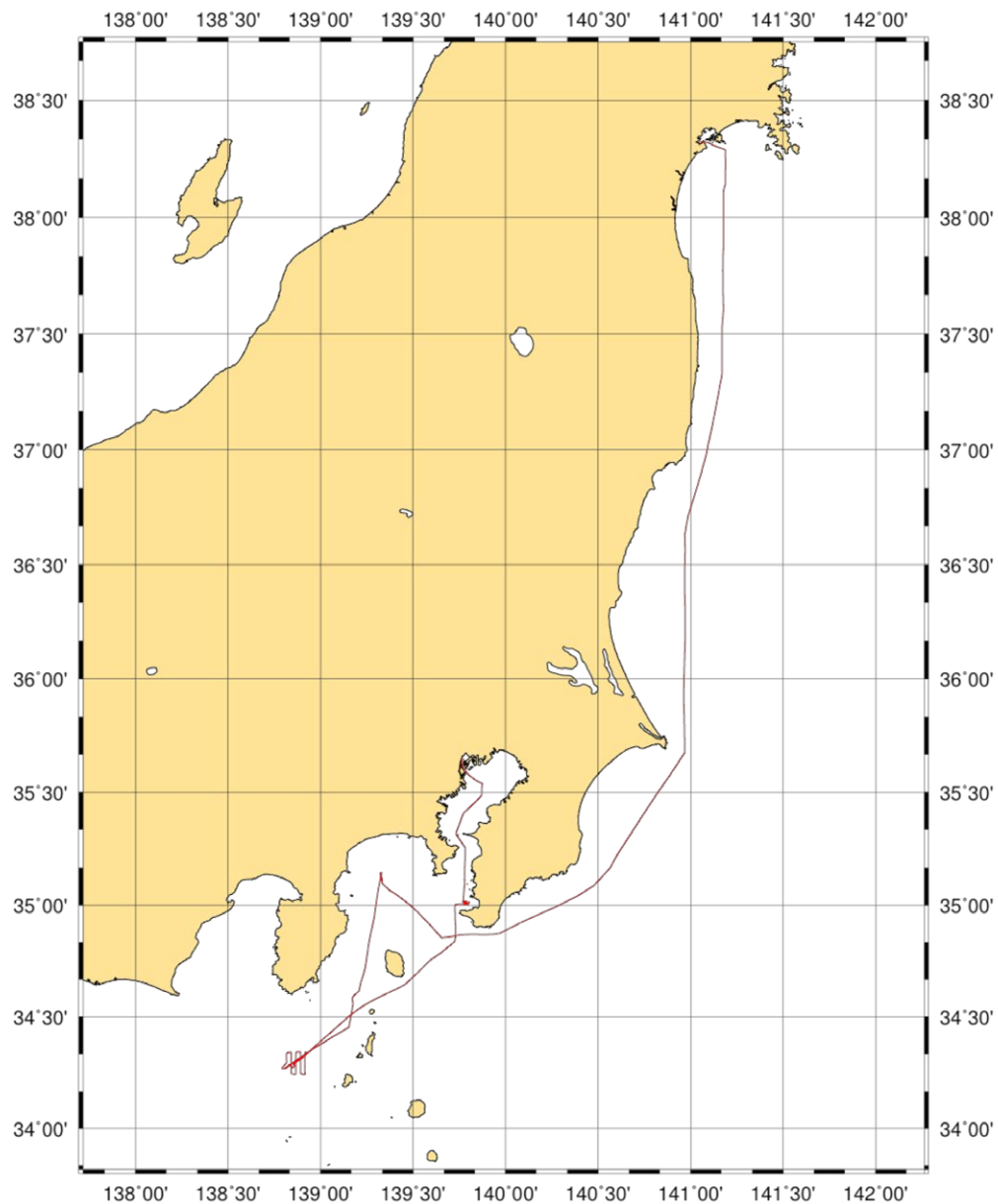
1.5. Cruise period: December 26, 2014 – December 29, 2014

1.6. Ports of call: Shiogama – Harumi

1.7. Research area: Offshore of Izu Peninsula and Sagami Bay

1.8. Research Map

(1) Cruise track

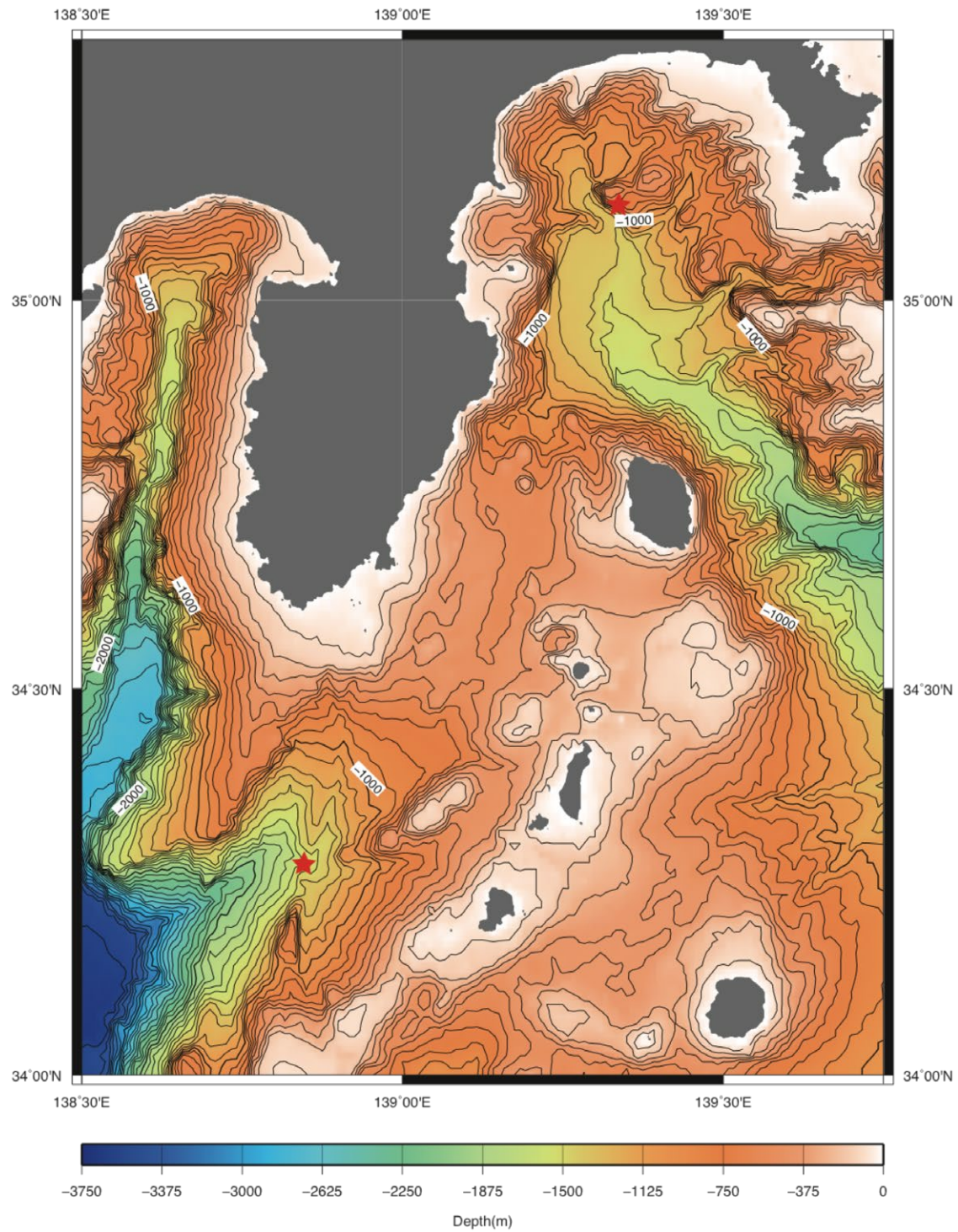


Cruise track of YK14-22

(2) Research points

December 26: 35°07.50'N, 139°19.50'E (Depth: 510–1,120 m)

December 27: 34°17.00'N, 138°50.50'E (Depth: 1,440–1,700 m)



Research points of YK14-22

2. List of Participants

- 2.1. Chief scientist: Shigeyuki Hirose [JAMSTEC, Public Relations Division (PRD)]
- 2.2 Representative of the Science Party: Shigeyuki Hirose [JAMSTEC, Public Relations Division (PRD)]
- 2.3. Scientist: Hajime Kawakami [JAMSTEC PRD]
 - Yukiko Fujii [JAMSTEC PRD]
 - Kantaro Fujioka [under contract with JAMSTEC]
 - Naoki Takahashi [Natural History Museum and Institute, Chiba]
 - Ryousuke Komi [Tokyo Sea Life Park]
 - Satoru Matsumura [Tokyo Sea Life Park]
 - Suguru Nemoto [Enoshima Aquarium]
 - Saki Tominaga [Enoshima Aquarium]
 - Naritomo Iwase [Keikyu Aburatsubo Marine Park]
 - Mistuharu Oshima [Kanagawa Prefectural Museum of Natural History]
 - Shin'ichi Mori [Hiratsuka City Museum]

3. Observation

3.1. Cruise summary

The purpose of this cruise is geological and biological research at around Sagami Bay collaborating with the museums and aquariums. The research of geology and biology in Sagami Bay is useful for understanding of deep sea because the maximum depth of Sagami Bay is about 1,500 m. The results of this cruise contribute to the public awareness of marine science and technology, and to the public relations of the museums, aquariums, and JAMSTEC.

Survey of sea floor and sampling of organisms and rocks were carried out at around Sagami Sea Hill and at Iro Submarine Canyon using the deep ocean floor survey system “Deep Tow” on R/V Yokosuka (YKDT).

On December 27, Surveys of sea floor (YKDT#160 and #161) were carried out at southern slope of the western part of Sagami Sea Hill. Mudstones, volcanic rocks, shrimps, jerry fish, zooplankton, and sandworms were sampled using the dredger and plankton net attached on YKDT.

On December 28, Surveys of sea floor (YKDT#162) were carried out at Iro Submarine Canyon. Current at around sea floor was fast, and ripple marks were observed on the sandy mud floor. Although there were many brittle stars, there were few crabs and attached organisms. In addition, dusts were seen everywhere.

3.2. Survey information

(1) YKDT #160

Date: December 27, 2014 (JST)

Site: Sagami Sea Hill (35°07.50'N, 139°19.50'E); Depth: 510–1120 m

Landing (Time, Depth): 07:58, 1120 m

Leaving (Time, Depth): 10:00, 510 m

(2) YKDT #161

Date: December 27, 2014 (JST)

Site: Sagami Sea Hill (35°07.50'N, 139°19.50'E); Depth: 650–1100 m

Landing (Time, Depth): 13:47, 1100 m

Leaving (Time, Depth): 14:50, 650 m

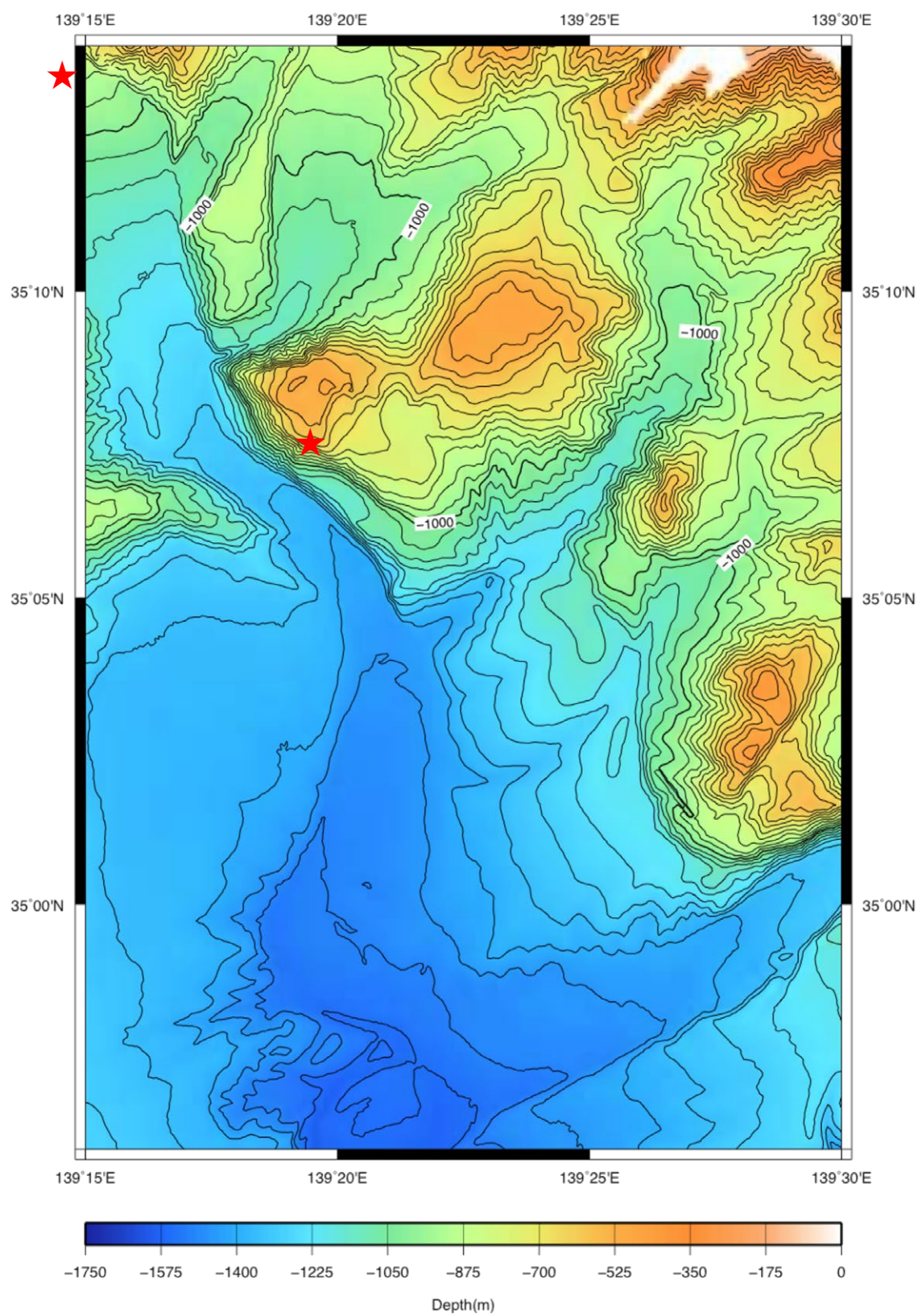
(3) YKDT #162

Date: December 28, 2014 (JST)

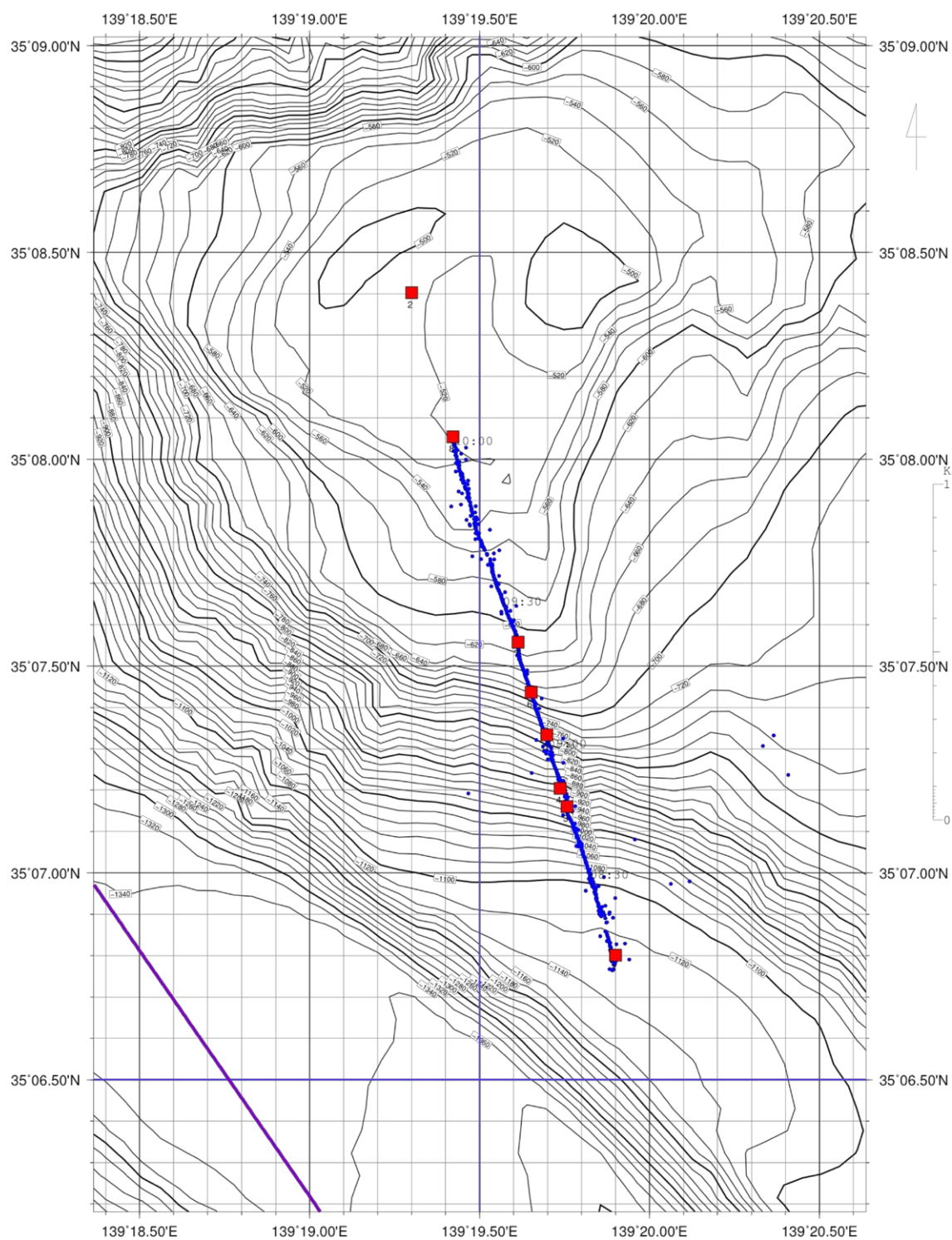
Site: Iro Submarine Canyon (34°17.00'N, 138°50.50'E); Depth: 1440–1700 m

Landing (Time, Depth): 08:21, 1700 m

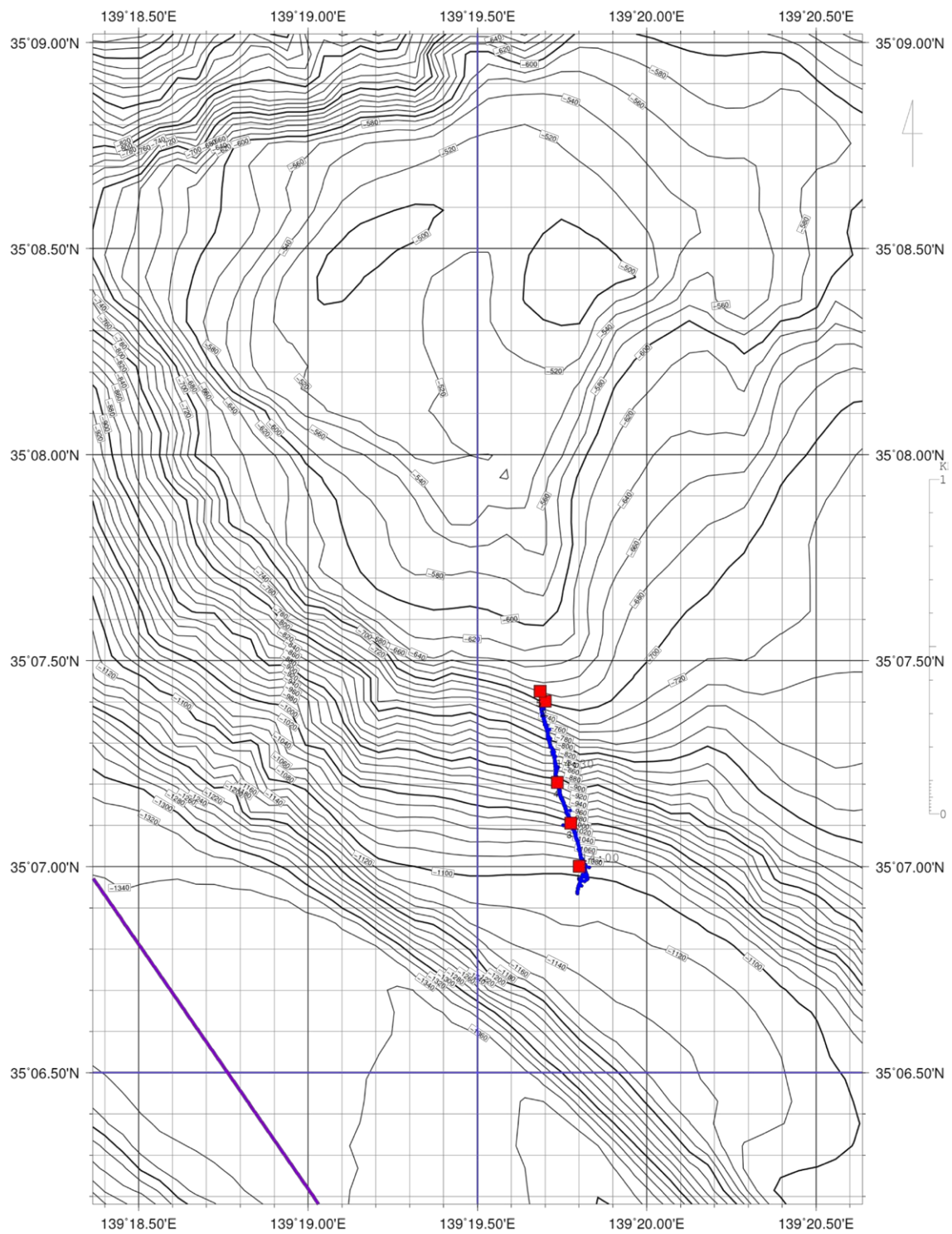
Leaving (Time, Depth): 13:55, 1440 m



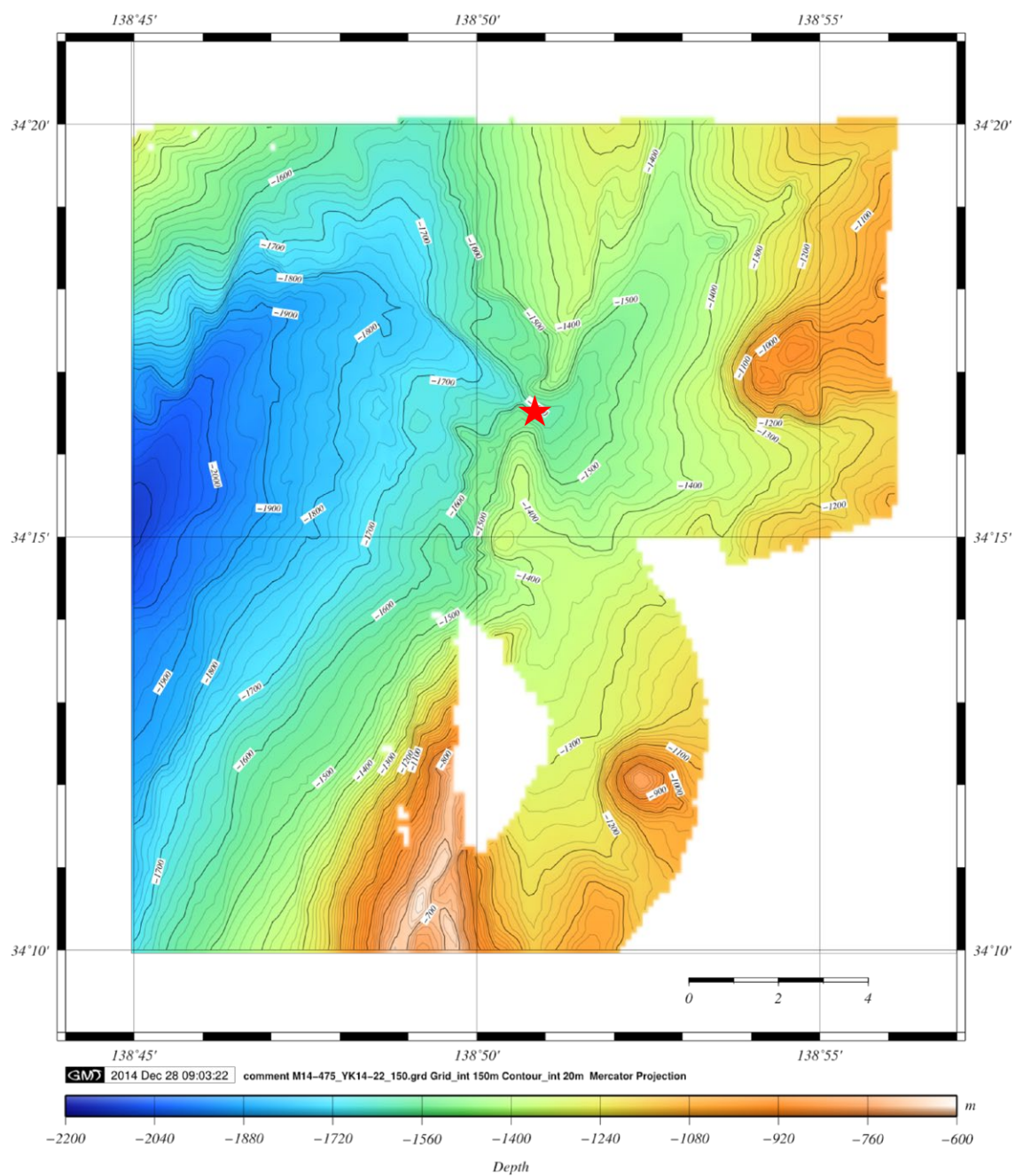
Bathymetric map at around YKDT#160 and #161



Navigation map of YKDT#160

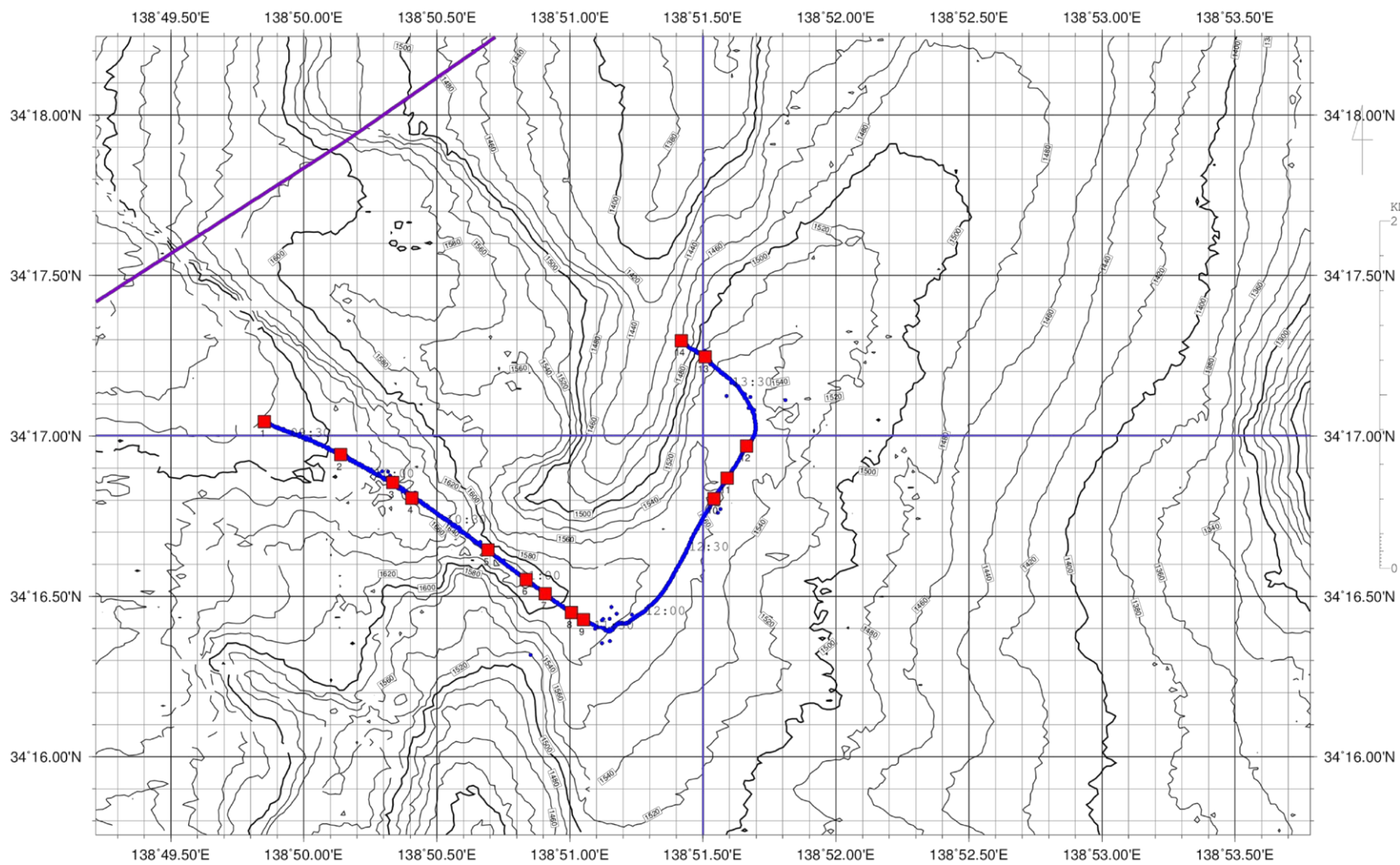


Navigation map of YKDT#161



Bathymetric map at around YKDT#162

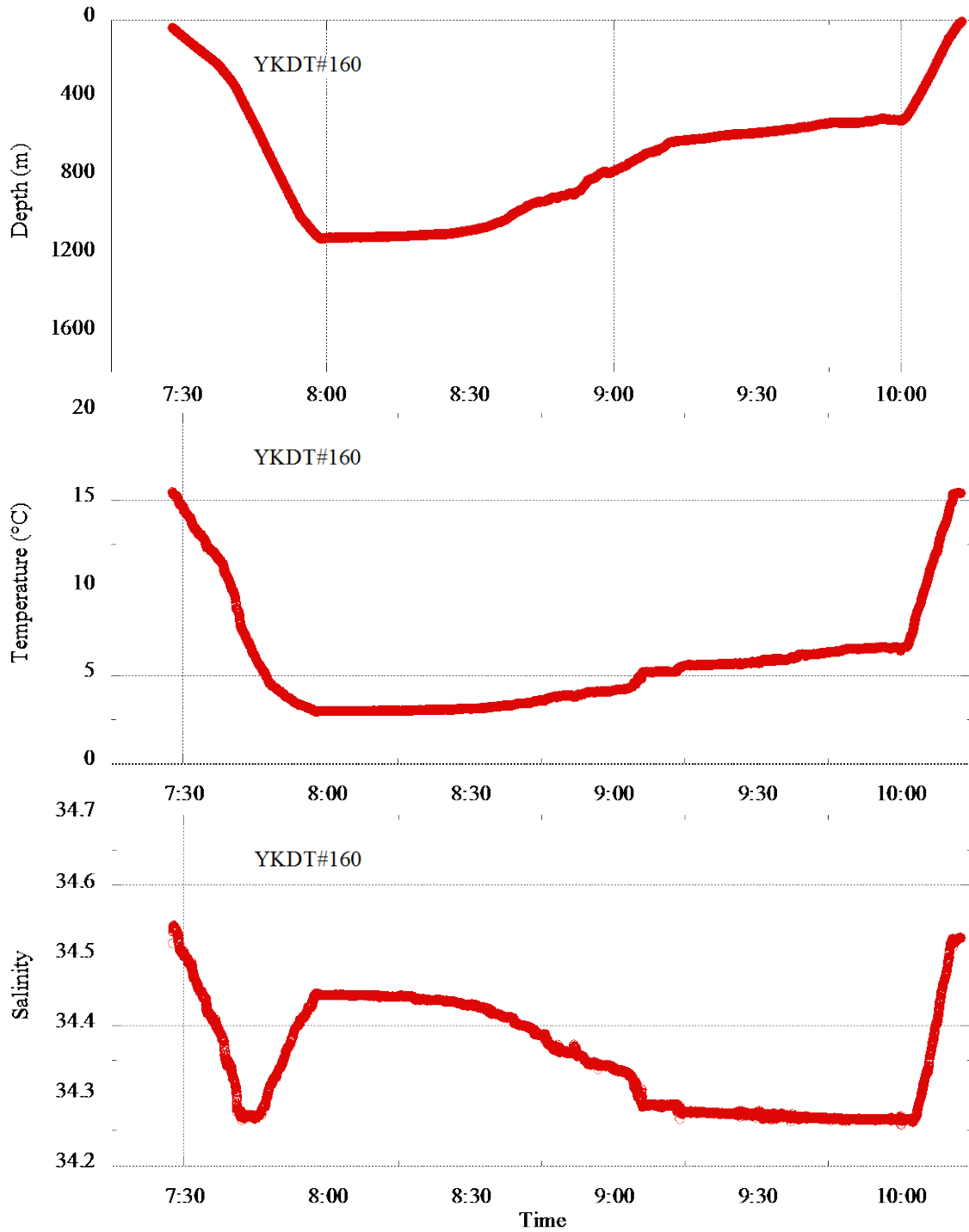
Navigation map of YKDT#162



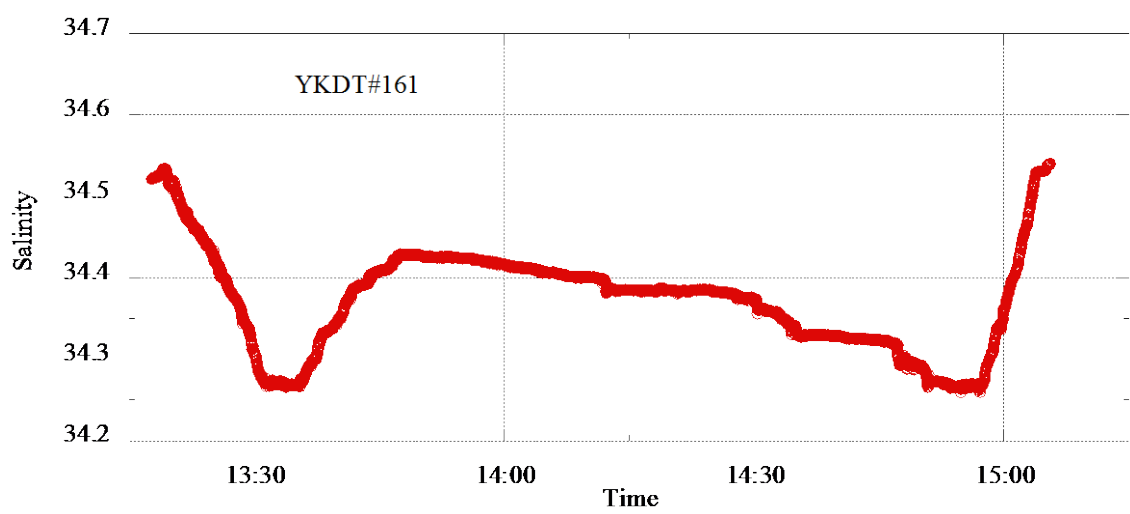
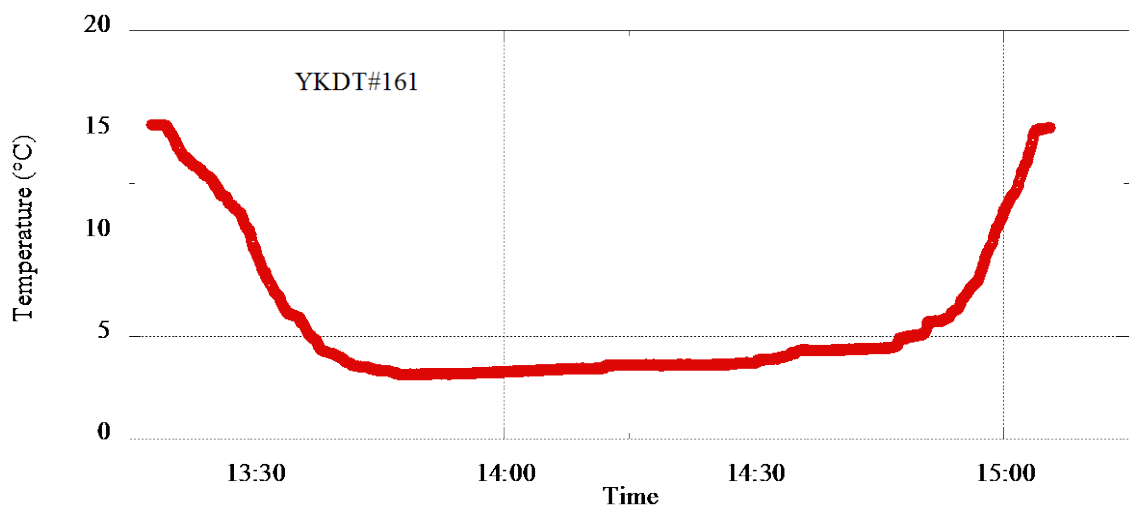
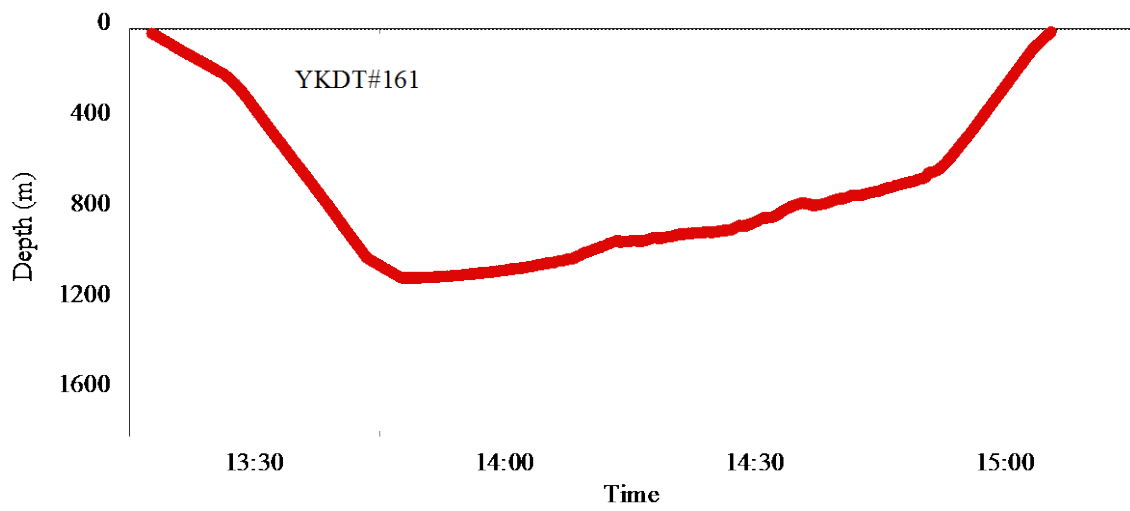
3.3. CTD observation

For the purpose of the investigation of the ocean structure, we observed the spatial distributions of temperature and salinity using the conductivity, temperature, and depth profiler (CTD) (SBE49, Sea-Bird Electronics) attached on YKDT.

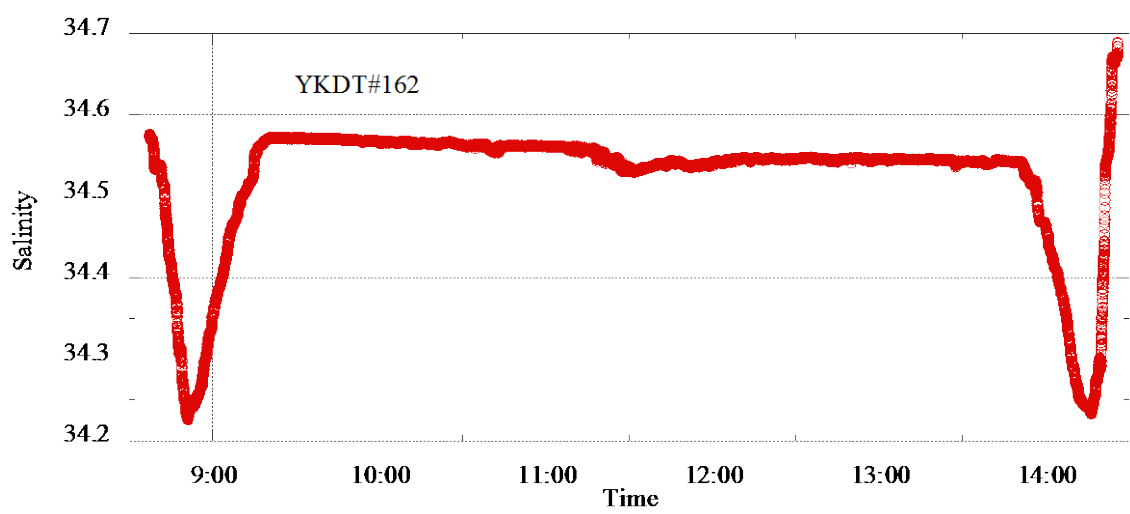
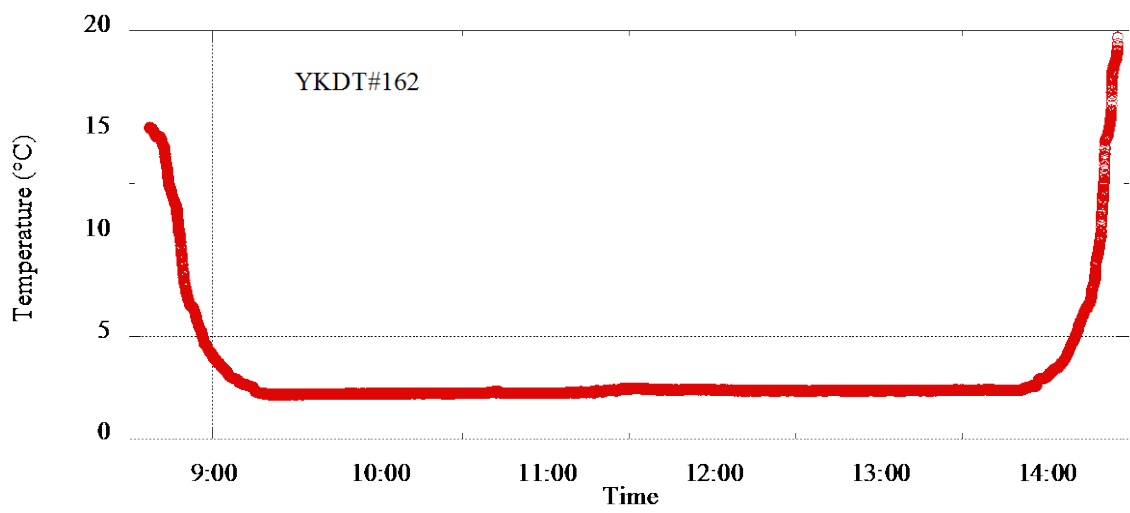
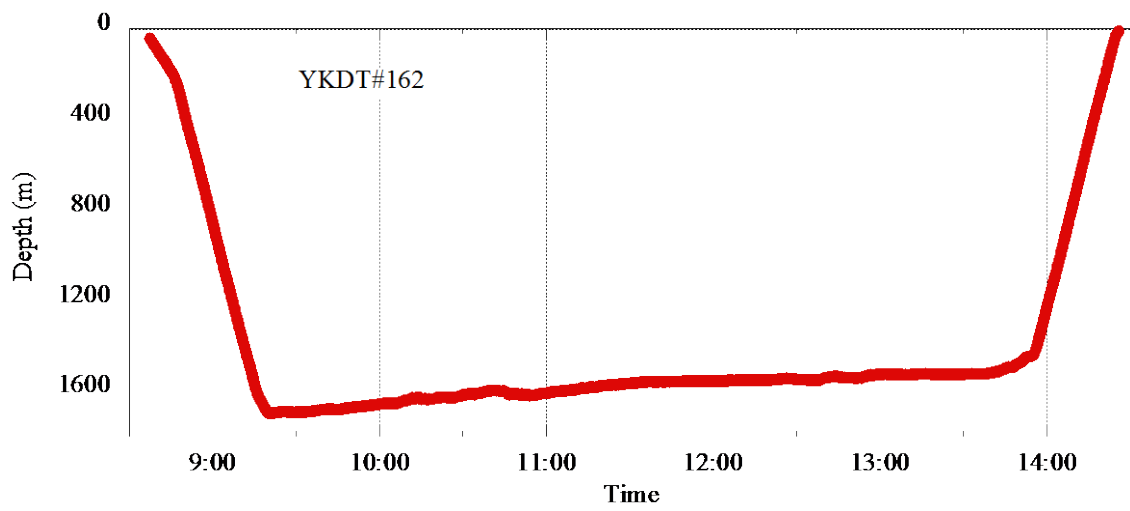
Preliminary results are shown in following figures.



Temporal profiles of depth, temperature, and salinity at YKDT#160



Temporal profiles of depth, temperature, and salinity at YKDT#161



Temporal profiles of depth, temperature, and salinity at YKDT#162

3.4. Geological observation

Kantaro Fujioka [under contract with JAMSTEC]

Naoki Takahashi [Natural History Museum and Institute, Chiba]

Mistuharu Oshima [Kanagawa Prefectural Museum of Natural History]

Shin'ichi Mori [Hiratsuka City Museum]

For the better understanding of the geology and the tectonic evolution of Sagami Bay in the light of the present plate tectonic framework we chose two selected geo-traverses crossing the Sagami knoll and Iro Canyon during NT14-22 cruise, respectively.

The YKDT #160 dive started from the southern foot of the Sagami Knoll at water depth of 1,100m climbing up the knoll along N-S crossing route until the summit of the knoll. Many small slump scars and slope failure forming cliff and foot fan were observed during the dive. Several conglomerate formation mostly consisting of the volcanic pebbles and cobbles are encountered.

The YKDT #161 dive was conducted from the middle slope of the knoll at water depth of 907m to 650m with dredger to get rock samples from the slope. At least 4 volcanic conglomerate layers were identified during the dive suggesting the volcanic activities occurred somewhere nearby location. Many mudstone and volcanic rock pebbles were collected to clarify the origin of these volcanic activities.

The YKDT#162 dive was conducted from the Iro Canyon through the deep sea drainage divide to N-S trending unnamed Canyon which connected with Iro Canyon by the canyon capture event. The dive started from the canyon bottom at a water depth of 1700m to the East Canyon west wall at a water depth of 1443m. Various types of ripple marks were observed on the bottom of sandy mud to gravelly mud floors, which suggested the strong currents even under the deep sea condition, changed the direction frequently. Outcrops of basement rocks were volcanic rocks and mudstones which may derive from on-land Yugashima formation and the Shirahama formation, respectively. Rocks obtained using the dredge hauls with deep-tow system were volcanic rocks, mudstones and pumice fragments. These rocks may be derived from on land counterparts and volcanic eruption of the other volcanoes.

During the cruise we realized that the Deep-tow system of JAMSTEC was quite useful for the observation of the deep sea bottom and also towing with dredge hauls and net systems were also useful for the geologic and biologic studies.

3.5 Biological observation

Ryousuke Komi [Tokyo Sea Life Park]

Satoru Matsumura [Tokyo Sea Life Park]

Suguru Nemoto [Enoshima Aquarium]

Saki Tominaga [Enoshima Aquarium]

Naritomo Iwase [Keikyu Aburatsubo Marine Park]

Our main purpose of this cruise is to research deep sea creatures at the Sagami knoll and Iro Canyon by DEEP TOW. During the cruise (deep ocean floor survey system /DEEP TOW, Dives YKDT#160, #161, #162), we observed the deep sea floor in the real time, and collected deep sea creatures on the Dive YKDT#160 by DEEP TOW equipped with the plankton net and, on the Dive YKDT#161 by DEEP TOW equipped with the plankton net and the dredger. Our dive results are below.

On the Dive YKDT#160, we observed Ophiuroidea sp. on the mud floor, and Asteroidea sp., Actiniaria sp., and Euplectellidae sp. clinging the precipice cliff or rocks during the water depth of 500m to 1,100m. Halosauridae sp., Macrouridae sp., Oplophoroidea sp. and, Congridae sp. (deep sea fish) were observed during the dive. The Plankton net captured Copepoda sp., Amphipoda sp., Copepoda sp., and Osteichthyes sp.. Those animals were made for the sample by using 70% Ethanol.

On the Dive YKDT#161, the researching place is the same to the Dive YKDT#160. Observed deep sea creatures is similar to creatures on the the Dive YKDT#160. Halosauridae sp., Macrouridae sp., Oplophoroidea sp. and, Congridae sp. (deep sea fish) were observed during the dive. The Plankton net captured Cumacea sp., and fragment of Polychaeta sp., and Annelida sp.. The dredger collected Bryozoa sp., Gastropoda sp. and Ophiuroidea sp. during the water depth of 650m to 900m. It seems that benthos creatures were collected by the Plankton net because muds and soils were broken and resuspended by the dredger. Those animals were made for the sample by using 70% Ethanol.

On the Dive YKDT#162, the dive started from the Iro canyon bottom at a water depth of 1700m to the East Canyon west wall at a water depth of 1443m. There are no mud floor, but Ophiuroidea sp., and Goniasteridae sp. were observed on bottom of the sandy mud to gravelly mud floors. Halosauridae sp., Macrouridae sp., Oplophoroidea sp. and, Congridae sp. were observed during this Dive YKDT#162. But there were few numbers of creatures compare with the Sagami knoll

4. Notice on Using

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.