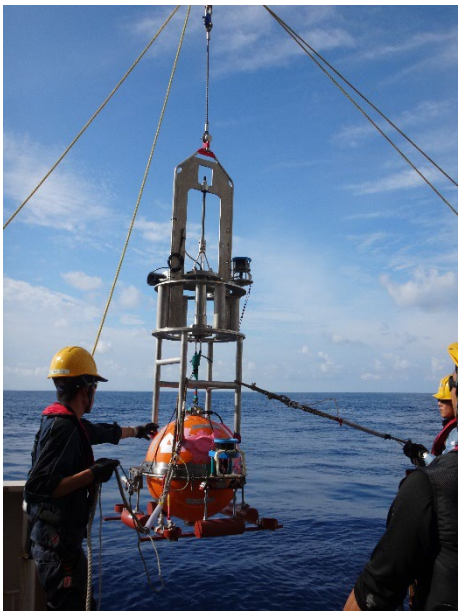
doi:10.17596/0003861

R/V Shinsei-maru Cruise Report
KS-23-J07

Real-time ocean bottom crustal movement observation



Kumanonada Sea, Off Kiisuido Strait, off Cape Muroto
East off Izu Oshima Island and Sagami Bay

Sep. 29th, 2023 – Oct. 15th, 2023

Ocean Floor Observatory Technology Development Group
R&D Center for Earthquake and Tsunami Forecasting
Research Institute for Marine Geodynamics
Japan Agency for Marine-Earth Science and Technology

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1. Cruise Information

Cruise ID:	KS-23-J07
Name of vessel:	Shinsei-maru
Title of cruise:	Real time ocean bottom crustal movement observation

Chief Scientist:	Affiliation	Duration
Shuhei Nishida	JAMSTEC	Sep. 29th – Oct. 15th

Boarding Scientist:	Affiliation	Duration
Takashi YOKOBIKI	JAMSTEC	Sep. 29th – Oct. 5th
Aki ITO	JAMSTEC	Sep. 29th – Oct. 5th
Makiko Sato	Tohoku Univ.	Sep. 29th – Oct. 5th
Hiroyuki MATSUMOTO	JAMSTEC	Oct. 6th – Oct. 15th
Morifumi TAKAESU	NME	Sep. 29th – Oct. 15th
Yousuke KAWAMURA	NME	Sep. 29th – Oct. 15th
Ryo KIMURA	NME	Sep. 29th – Oct. 5th
Masayuki TOIZUMI	NME	Oct. 6th – Oct. 15th

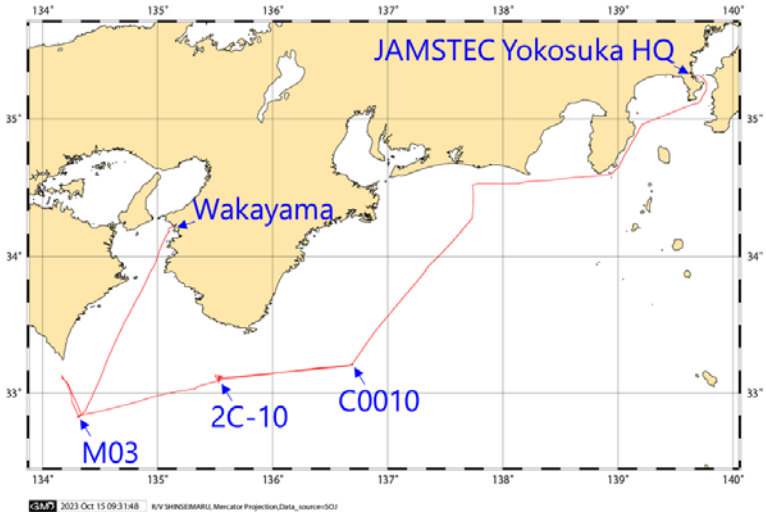
Cruise period:	Leg1 Sep. 29th 2023 – Oct. 5th 202 Leg2 Oct. 6th 2023 – Oct. 15th 2023
Ports of departure/call/arrival:	JAMSTEC Yokosuka HQ / Wakayama / JAMSTEC Yokosuka HQ
Research area:	Kumanonada Sea, Off Kiisuido Strait, off Cape Muroto East off Izu Oshima Island and Sagami Bay

2. Research Proposal and Science Party

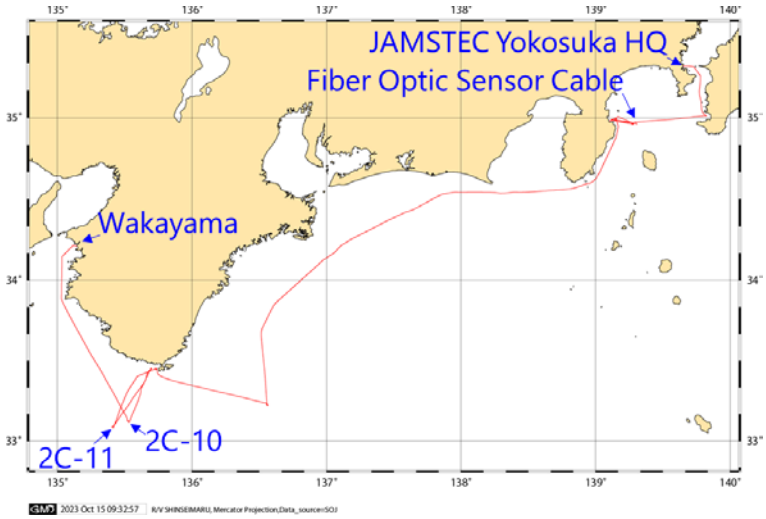
Science Party List:	
Eichiro Araki	JAMSTEC
Takashi Yokobiki	JAMSTEC
Hiroyuki Matsumoto	JAMSTEC
Shuhei Nishida	JAMSTEC
Yuya Machida	JAMSTEC
Shuhei Tsuji	JAMSTEC
Satoru Baba	JAMSTEC
Takane Hori	JAMSTEC
Shuichi Kodaira	JAMSTEC
Aki Ito	JAMSTEC
Ryota Hino	Tohoku University
Yusaku Ohta	Tohoku University
Makiko Sato	Tohoku University

3. Activity and Results

1. A BBOBS (broadband ocean bottom seismometer) was installed 50 m southeast of long-term borehole station C0010.
2. An OBP (ocean bottom pressure recorder) was installed at a location about 1800 m east of DONET observatory 2C-10.
3. Two thermometers were recovered and two new thermometers were installed near the submarine cable at M03 off Cape Muroto.
4. In-Situ Calibration of the ocean bottom pressure sensor at DONET observatory 2C-10 was conducted.
5. Thermometers installed near the optical fiber sensor cable laid off Hatsushima, Sagami Bay was recovered.



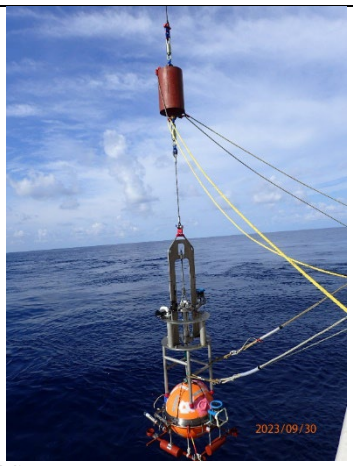
Vessel Track during KS-23-J07 Leg1



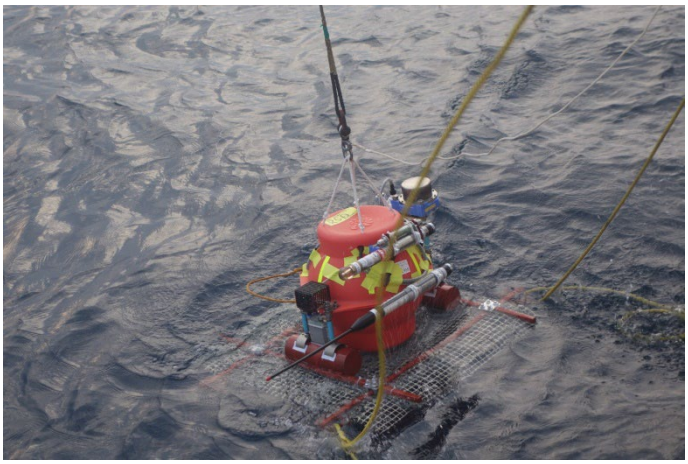
Vessel Track during KS-23-J07 Leg2

4. Dive Log

No.	Date Dive Num.	Arrive Time	Site	Latitude	Longitude	Depth
1	2023/09/30	10:00	C0010 BBOBS	33:12.5088	136:41.2999	2,560
	2023/09/30	17:00	2C-10 OBP	33:06.8857	135:32.2128	1,781
	Work Summary		Using an acoustic releaser, a BBOBS was deployed 200 m southeast of LTBMS C0010. The OBP was installed free-fall at a point about 2 km southeast of DONET station 2C-10. And the acoustic command was sent a few dozen times to recover the OBP deployed at the same point one year ago, while changing the location of the vessel, but no response was obtained. The OBP was scheduled to be recovered in January 2024 by ROV.			

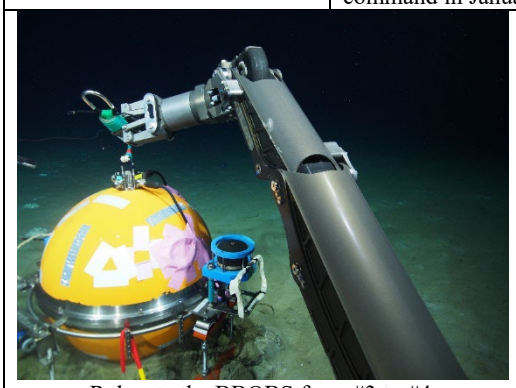


Acoustics Releaser and BBOBS

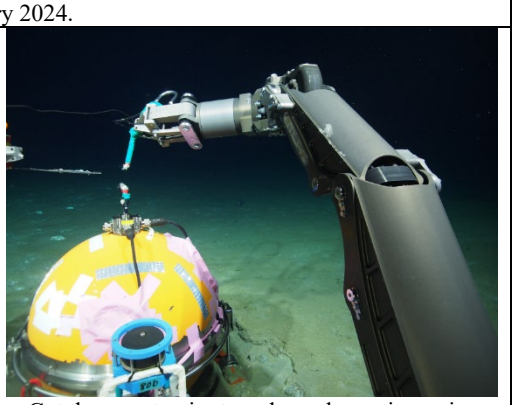


OBP is released at sea level and free-falls.

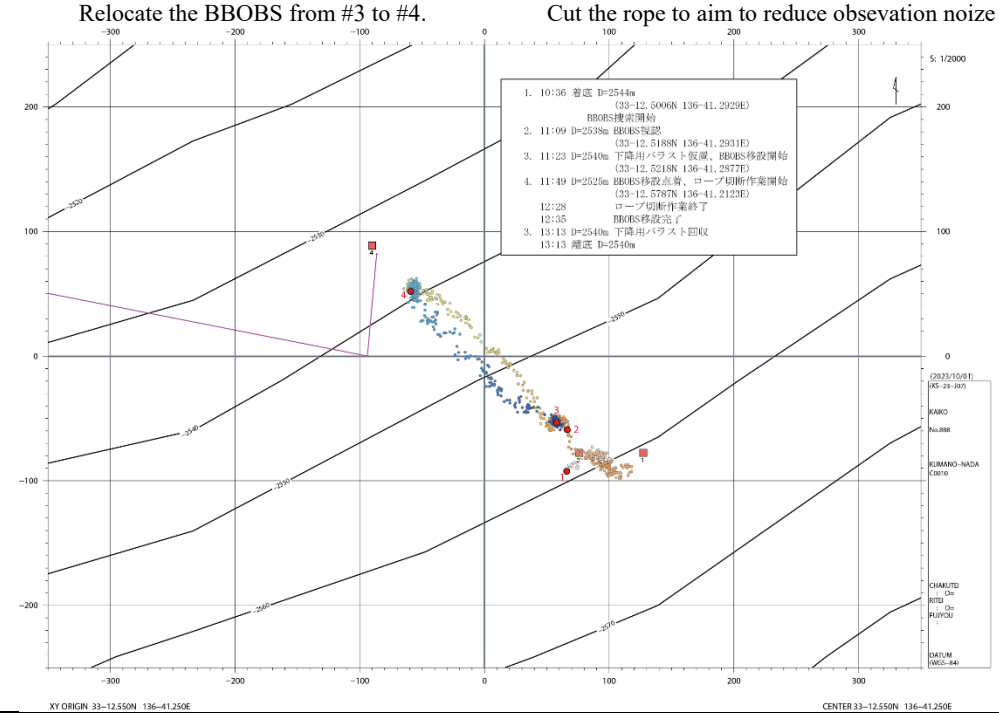
No.	Date Dive Num.	Arrive Time Leave Time	Site	Latitude	Longitude	Depth
2	2023/10/01	10:36	C0010	33-12.5006N	136-41.2929E	2,544m
	KK888	13:13		33-12.5787N	136-41.2123E	2,540m
	Work Summary		The BBOBS installed using the acoustic releaser was relocated to a position 50 m near C0010. After relocation, the ROV handle (rope) was cut and removed because they were a source of noise in the observation. The BBOBS will be recovered by releasing the weight by acoustic command in January 2024.			



Relocate the BBOBS from #3 to #4.

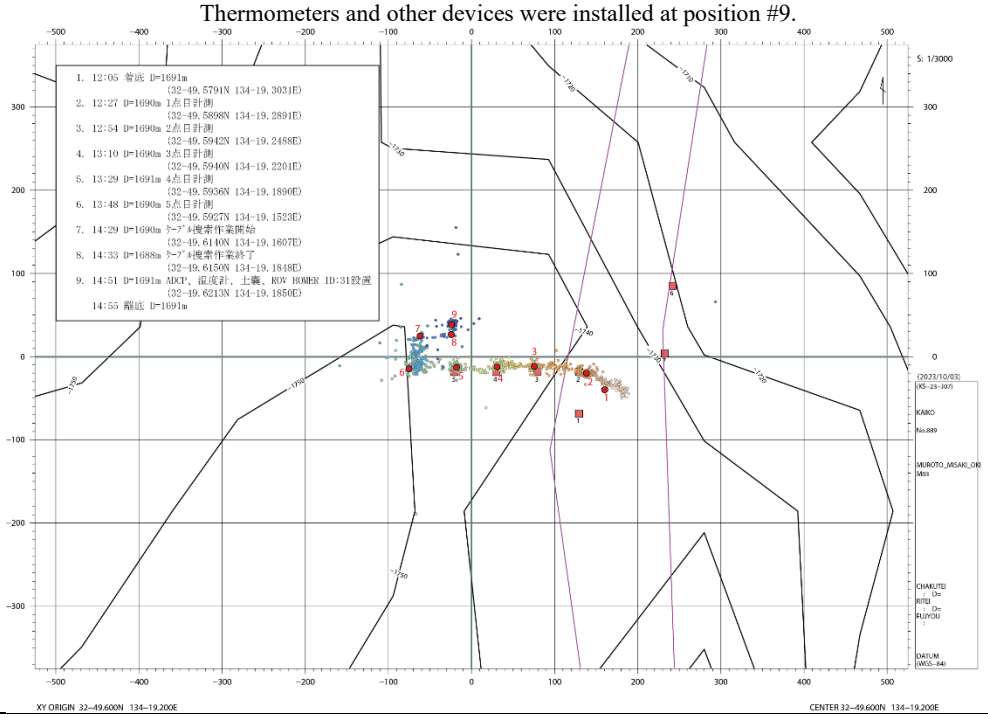


Cut the rope to aim to reduce obsevation noize

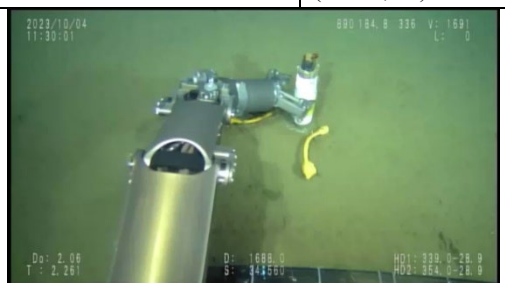


No.	Date Dive Num.	Arrive Time Leave Time	Site	Latitude	Longitude	Depth
4	2023/10/03	12:05	Off Cape Muroto M03	32-49.5791N	134-19.3031E	1,691m
	KK889	14:55		32-49.6213N	134-19.1850E	1,691m
	Work Summary		We searched for submarine cable and installed a doppler current meter, thermometer, and ROV-Homer (ID: 31). This dive did not discover any submarine cables.			

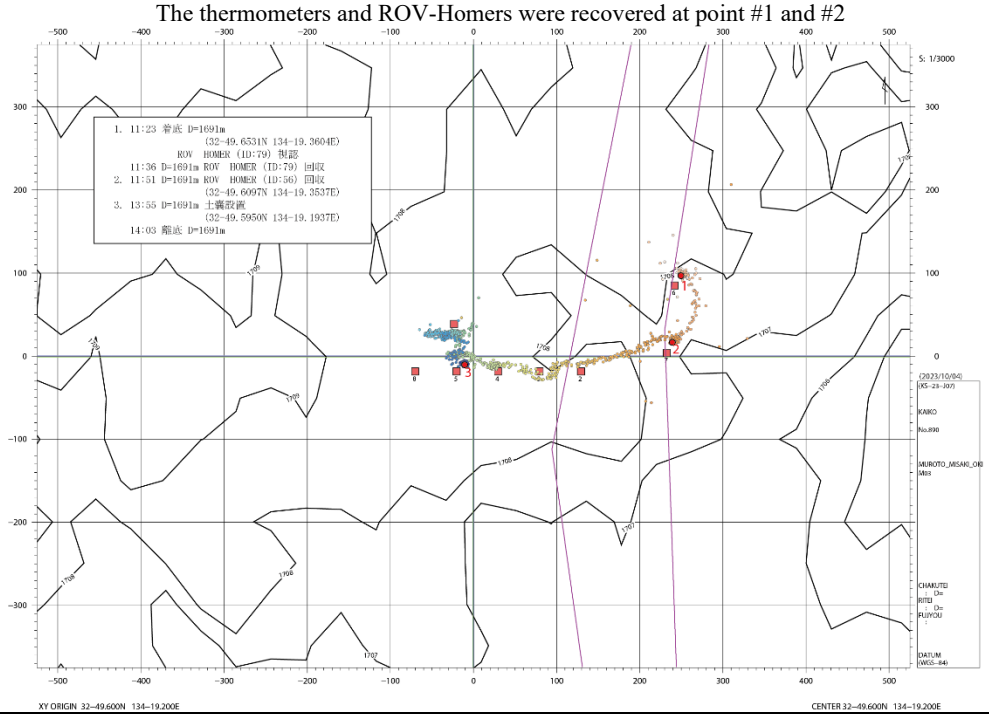
Thermometers and other devices were installed at position #9.



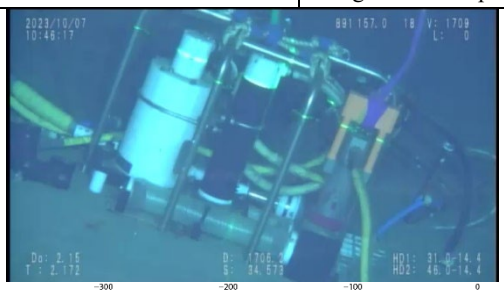
No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
3	2023/10/04	11:23	Off Cape Muroto M03	32-49.6531N	134-19.3604E	1,691m
	KK890	14:03		32-49.5950N	134-19.1937E	1,691m
	Work Summary		The submarine cable was searched and the thermometer and ROV-Homer (ID: 79, 56) installed on the seafloor were recovered.			

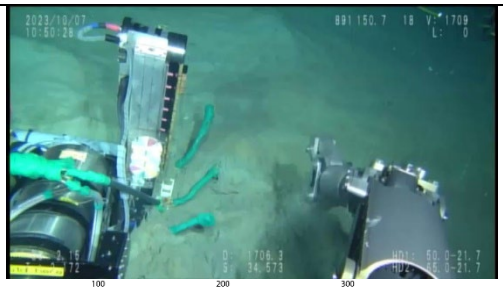


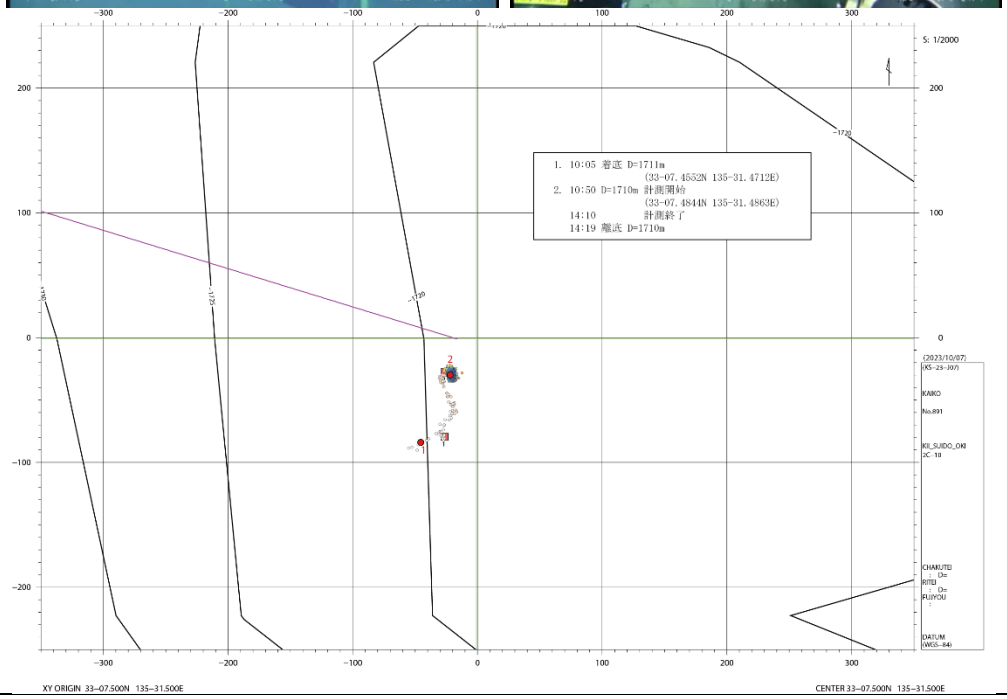
The thermometers and ROV-Homers were recovered at point #1 and #2



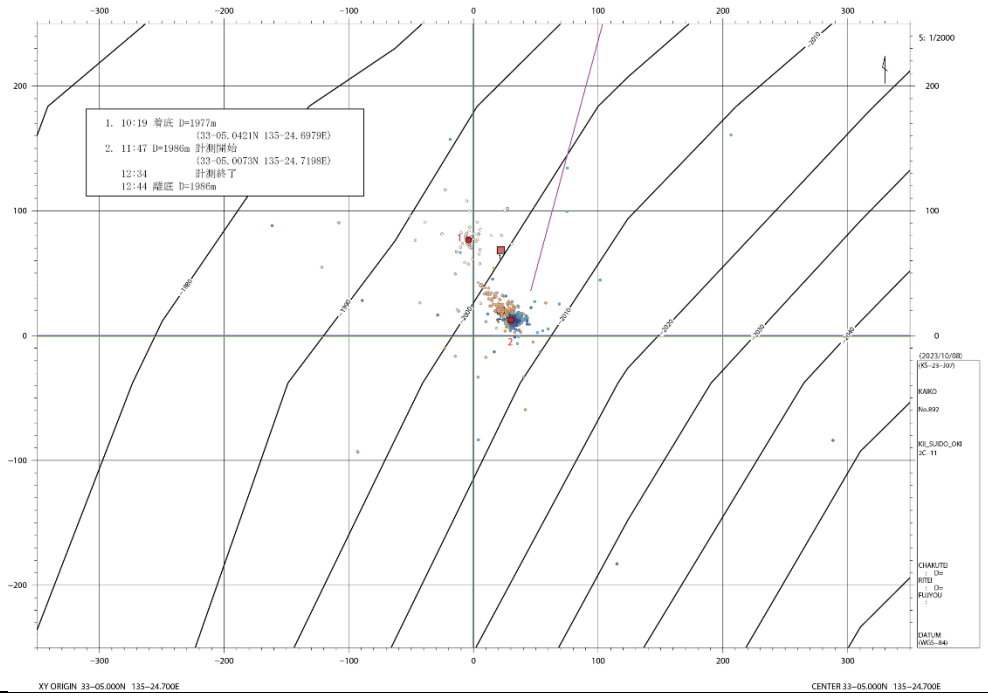
No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
4	2023/10/07	10:05	2C-10	33-07.4552N	135-31.4712E	1,711m
	KK891	14:19		33-07.4844N	135-31.4863E	1,710m
	Work Summary		In-situ pressure calibration was performed at DONET observatory 2C-10 using the mobile pressure calibrator.			



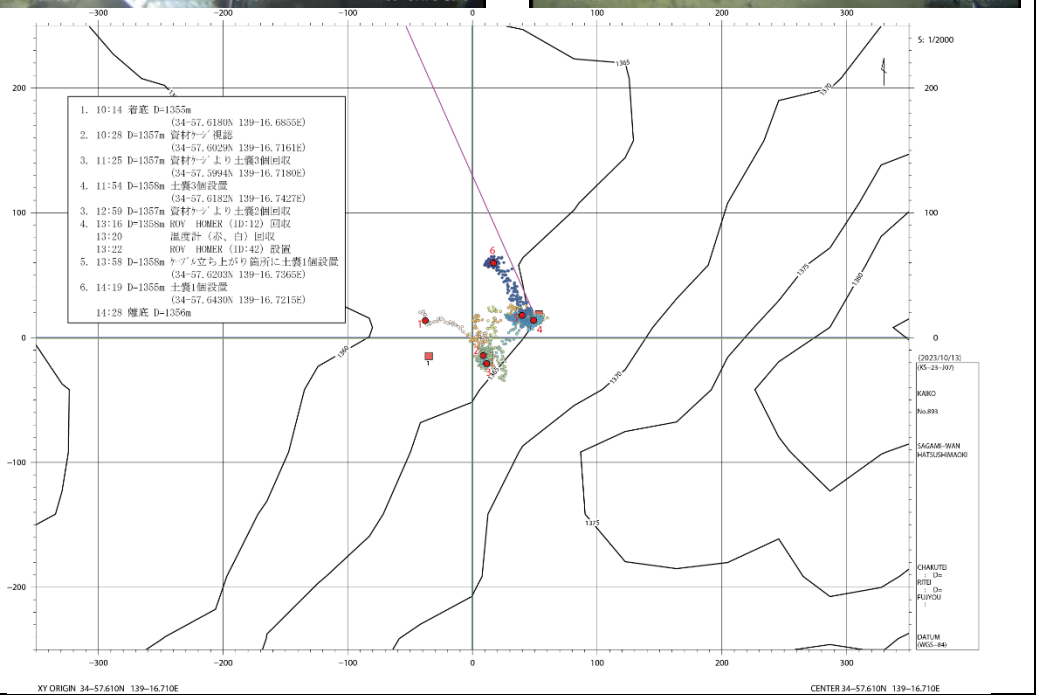




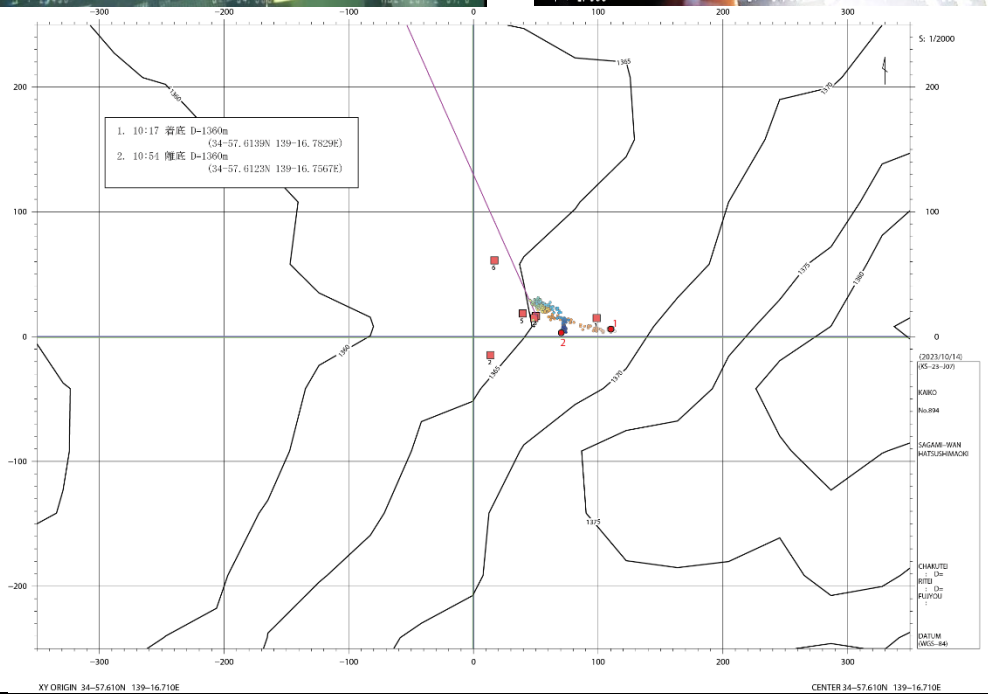
No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
5	2023/10/08	10:19	2C-11	33-05.0421N	135-24.6979E	1,977m
	KK892	12:44		33-05.0073N	135-24.7198E	1,986m
	Work Summary		In-situ pressure calibration was performed at DONET observatory 2C-11 using the mobile pressure calibrator.			



No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
6	2023/10/13	10:14	Sagami Bay Off Hatsushima	34-57.6180N	139-16.6855E	1,355m
	KK893	14:28		34-57.6430N	139-16.7215E	1,356m
	Work Summary		Sandbags that were deployed on the seafloor in advance were relocated to the close to the optical fiber cable for DAS observation. And the thermometer was recovered and the ROV-Homer was replaced (ID: 12 > ID: 42). After that, we observed the laying condition of the optical fiber sensor cable, and put sandbags on the exposed the cable from sediment.			



No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
7	2023/10/14	10:17	Sagami Bay Off Hatsushima	34-57.6139N	139-16.7829E	1,360m
	KK894	10:54		34-57.6123N	139-16.7567E	1,360m
	Work Summary		ROV buried plastic trash twisted around fiber-optic sensor cables on the seafloor. During this operation, plastic trash became entangled in the left front horizontal thruster of the ROV, so the operation was suspended and the ROV left the seafloor.			



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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