



## R/V Shinsei-maru KS-25-J02 Cruise Report

### Real-time ocean bottom crustal movement observation



Sagami Bay, Kumanonada Sea, Off Kiisuido Strait  
and off Cape Muroto

Feb. 21st, 2023 – Mar. 9th, 2025

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-25-J02	
Name of vessel:	Shinsei-maru	
Title of cruise:	Real time ocean bottom crustal movement observation	
Chief Scientist:	Affiliation	Duration
Shuhei Nishida	JAMSTEC	Feb. 21 <sup>st</sup> – Mar. 9 <sup>th</sup>
Boarding Scientist:	Affiliation	Duration
Takashi YOKOBIKI	JAMSTEC	Feb. 21 <sup>st</sup> – Mar. 1 <sup>st</sup>
Hajime SHIOBARA	University of Tokyo	Feb. 21 <sup>st</sup> – Mar. 1 <sup>st</sup>
Yuya MACHIDA	JAMSTEC	Mar. 3 <sup>rd</sup> – Mar. 9 <sup>th</sup>
Fumito SAKURAGI	NME	Feb. 21 <sup>st</sup> – Mar. 9 <sup>th</sup>
Masayuki TOIZUMI	NME	Feb. 21 <sup>st</sup> – Mar. 9 <sup>th</sup>
Sho SUZUKI	NME	Feb. 21 <sup>st</sup> – Mar. 9 <sup>th</sup>
Cruise period:	Feb. 21 <sup>st</sup> – Mar. 9 <sup>th</sup>	
Ports of departure/call/arrival:	JAMSTEC Yokosuka HQ / Wakayama / Kobe	
Research area:	Sagami Bay, Kumanonada Sea, Off Kiisuido Strait and off Cape Muroto	

## 2. Research Proposal and Science Party

Science Party List:		
	Eiichiro 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
	Hajime Shiobara	University of Tokyo

### 3. Activity and Results (Hyper-Dolphin Dive Information)

HPD2254 : A visual survey was conducted by ROV near the predicted failure point based on observation data that the cable for fiber optic sensing connected to the observation station off Hatsushima Island in Sagami Bay appeared to have broken or snapped. Several pieces of drifting debris were found entangled and clumped in the cable near the predicted failure point. The floating debris caught in the cable was believed to have increased the twisting effect of the cable, leading to the failure of the fiber optic cable. In the future, to utilize these submarine optical cables for DAS observations, we plan to re-extend the submarine cable on the station side from these failure points, because it is difficult to remove these debris.

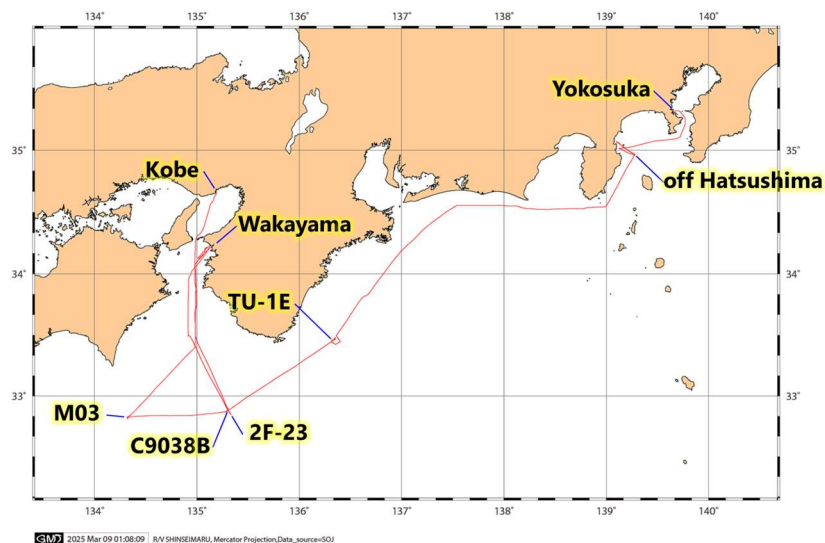
HPD2255 : A stand-alone test of the cable laying unit was conducted on the seafloor with the aim of re-extension of the laid submarine cable. The sleigh-like cable-laying device was designed to advance over the sediment by reeling in the rope. However, in this experiment, when it moved forward, it became buried in the sediment and finally could not move forward.

HPD2256 : The replacement work for Terminal Unit 1E, which had been out of operation since 2016 due to a malfunction, was carried out in December 2024. In this area, the connection cables for five observation devices that were previously connected remain in place. The relative positional relationship between these connection cables and the newly installed terminal unit was investigated. The terminal unit was installed 80 meters away in the 200° direction from the position of the previous terminal unit.

HPD2257 : On September 27, 2024, during KM24-11, one improved BBOBS installed near the borehole observation system C9038B was recovered by acoustic release and self-surfacing. The other two units were observed on the seafloor using a ROV.

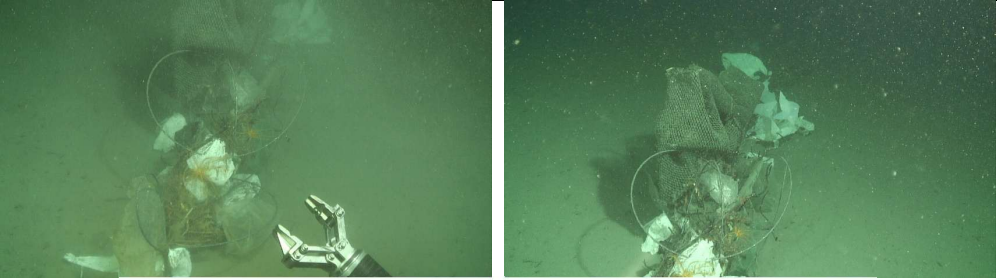
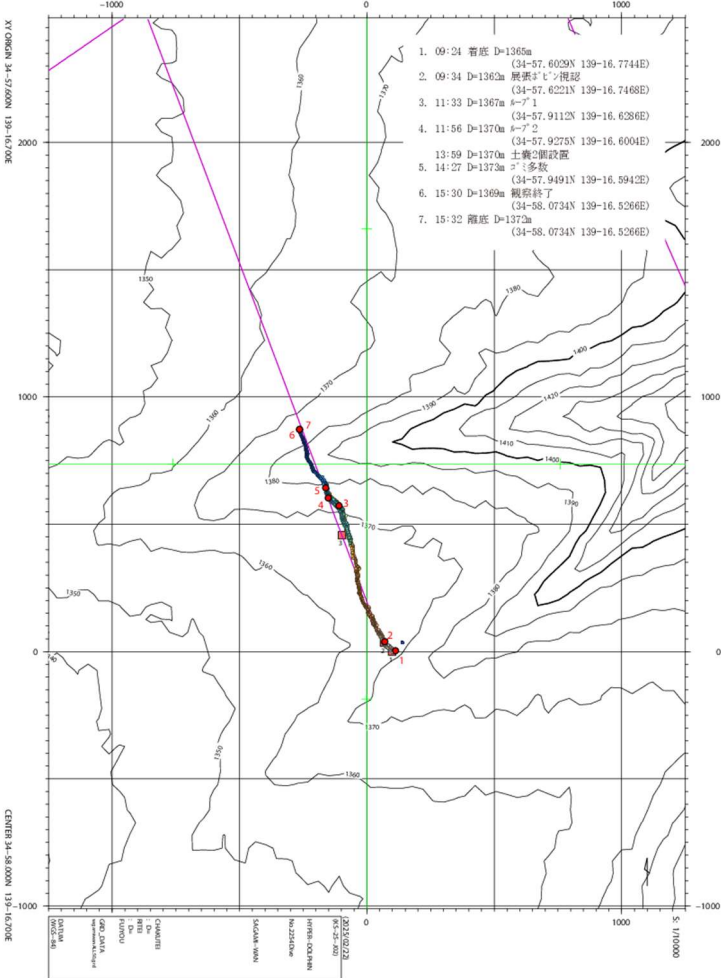
HPD2258 : At point M03-4, near the off Muroto Cape submarine cable, starting from a visually confirmed installation point, three small memory thermometers were placed along the seabed cable's installation route (bearing 171°) at approximately 1 km intervals.

HPD2259 : A calibration of the bottom pressure gauge at DONET observatory 2F-23 was conducted using the mobile pressure calibrator.

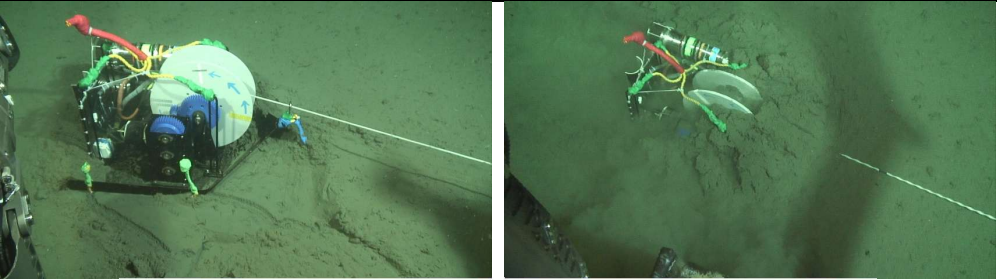
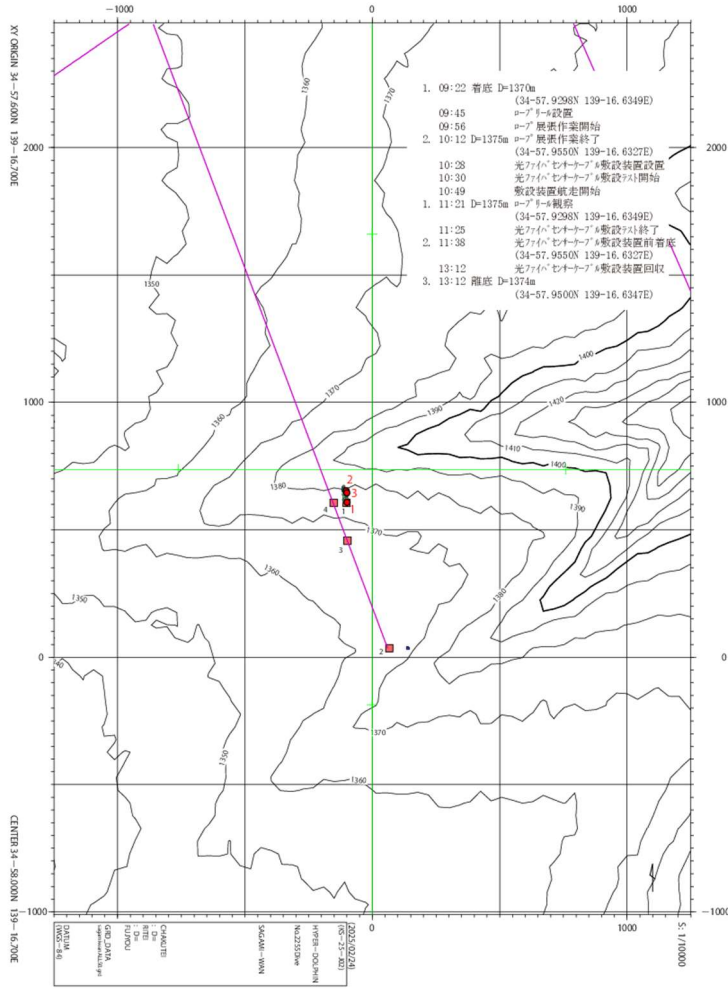



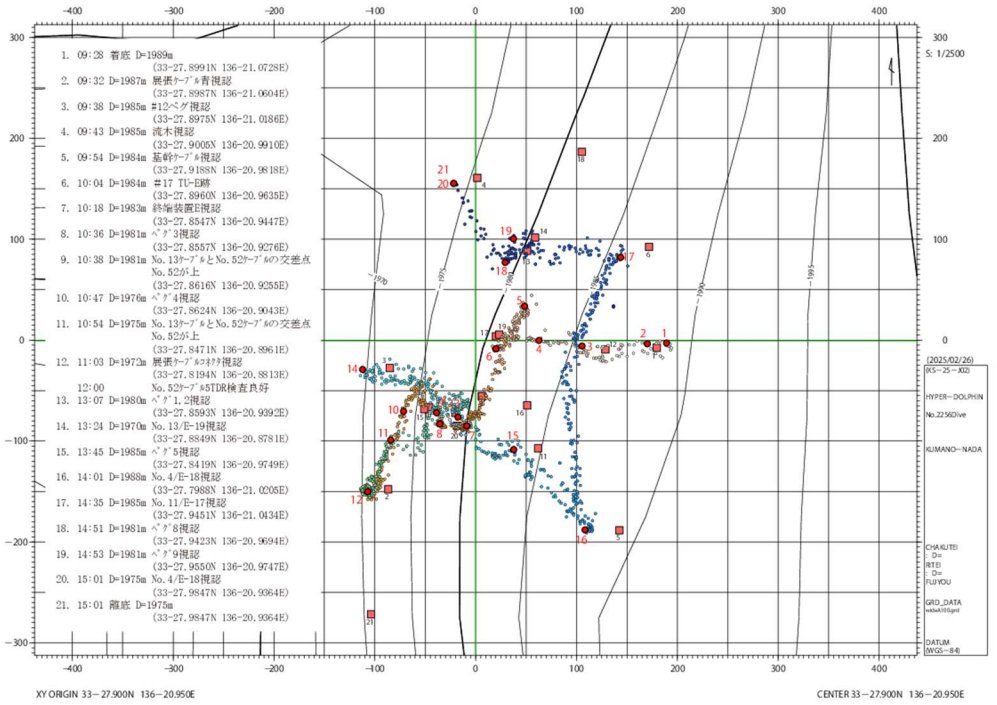
Vessel Track during KS-25-J02

#### 4. Dive Log

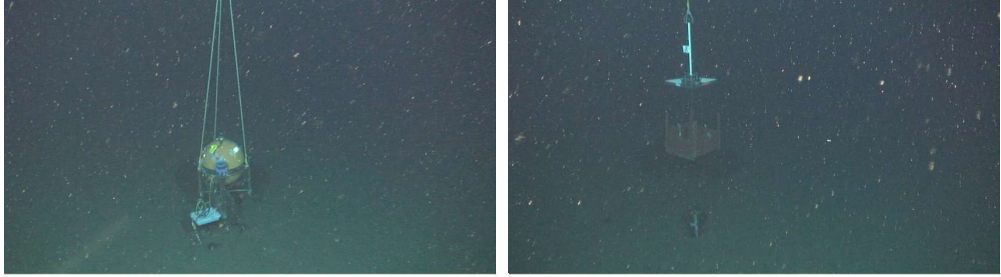
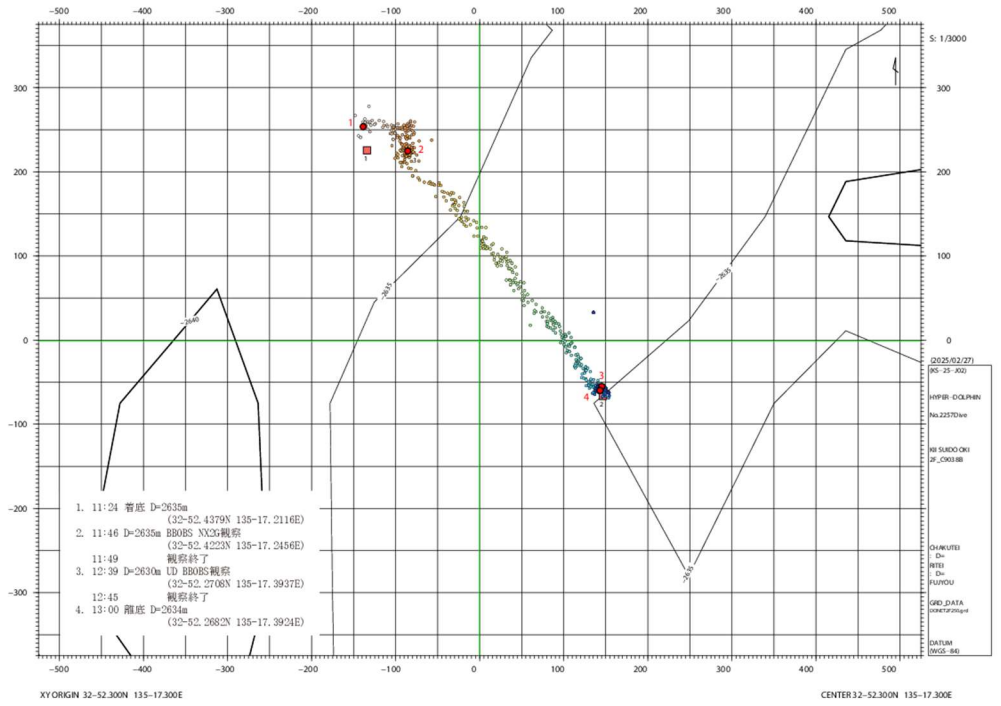
No.	Dive Num. Date	Site	Arrive Time	North Latitude	East Longitude	Depth [m]
			Leave Time			
	HPD2254 2025/02/22	Off Hatsushima P3	9:24	34-57.6029	139-16.7744	1365
			15:32	34-58.0734	139-16.5266	1372
Work Summary			It was observed that a fiber optic sensor cable was laid in the ROV. Drifting debris was trapped in the cable at several locations near the predicted cable failure point. We assume that the drifting debris caught in the cable twisted the cable and caused the failure.			
						
						

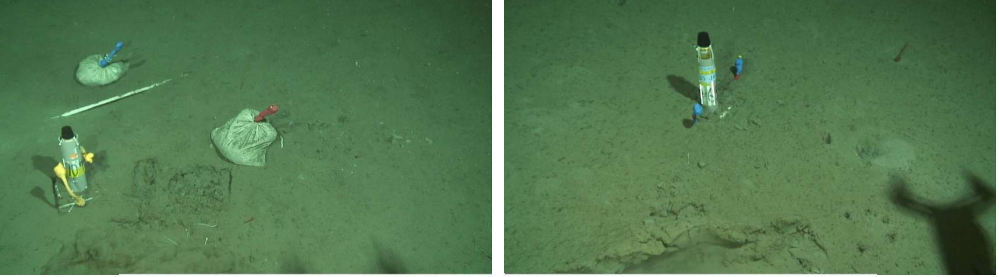
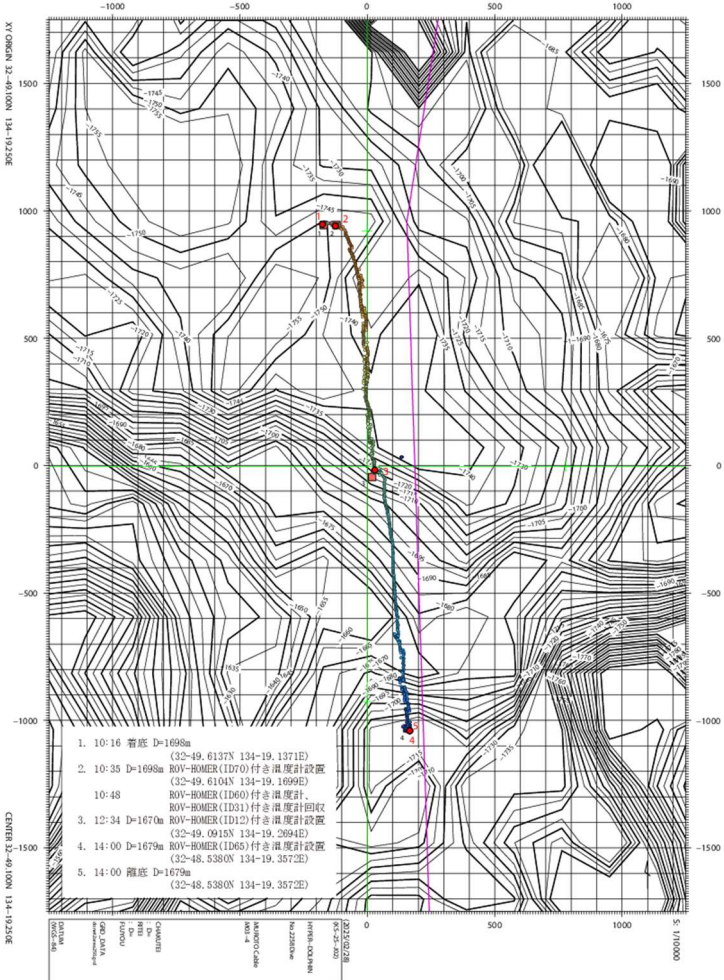
1

No.	Dive Num. Date	Site	Arrive Time	North Latitude	East Longitude	Depth [m]	
			Leave Time				
	HPD2255 2025/02/24	Off Hatsushima P3	9:22	34-57.9298	139-16.6349	1370	
			13:12	34-57.9500	139-16.6347	1374	
		Work Summary	<p>A stand-alone test of the cable laying unit was conducted on the seafloor with the aim of re-extension of the laid submarine cable.</p> <p>The sleigh-like cable-laying device was designed to advance over the sediment by reeling in the rope. However, in this experiment, when it moved forward, it became buried in the sediment and finally could not move forward.</p>				
							
							

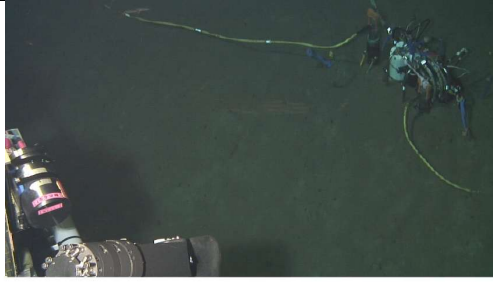

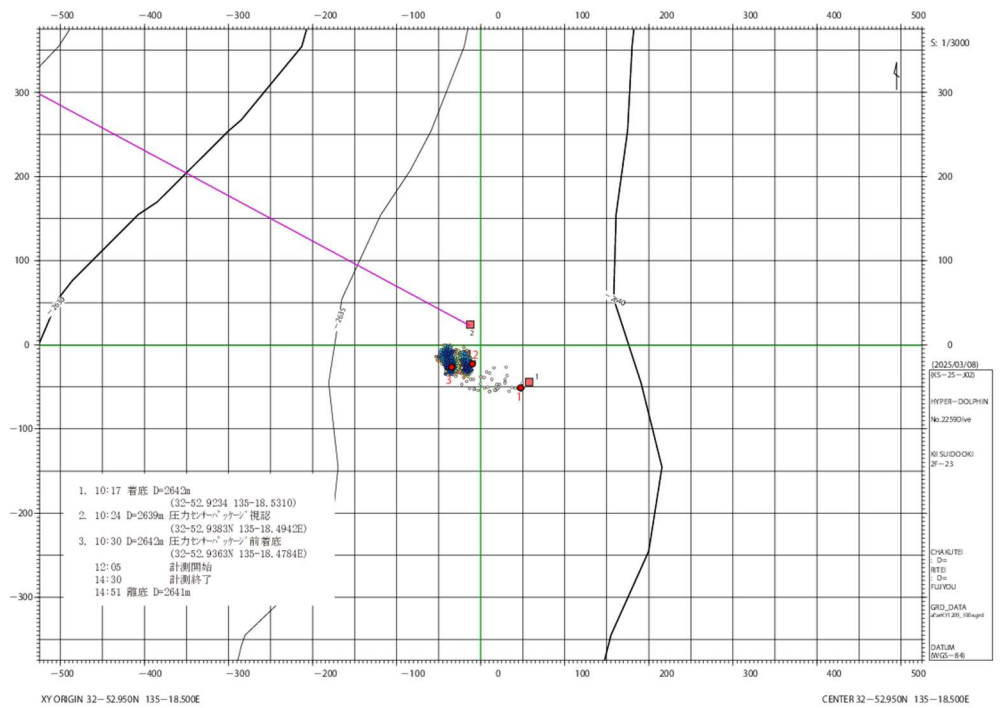
No.	Dive Num. Date	Site	Arrive Time	North Latitude	East Longitude	Depth [m]
			Leave Time			
	HPD2256 2025/02/26	DONET Area E	9:28	33-27.8991	136-21.0728	1989
			15:01	33-27.9847	136-20.9364	1975
Work Summary			<p>An investigation was conducted to verify the location between the connecting cables of the five remained DONET observatories and the newly installed terminal unit in December 2024.</p> <p>This terminal unit was installed 80 meters away in a 200 [degree] direction from the previous terminal unit location. また、5 台の観測装置との接続ケーブルの状態と終端装置との位置関係を確認した。</p>			
						

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No.	Dive Num. Date	Site	Arrive Time	North Latitude	East Longitude	Depth [m]	
			Leave Time				
	HPD2257 2025/02/28	C9038B	11:24	32-52.4379	135-17.2116	2635	
			13:00	32-52.2682	135-17.3924	2634	
		Work Summary	On September 27, 2024, during KM24-11, one improved BBOBS installed near the borehole observation system C9038B was recovered by acoustic release and self-surfacing. The other two units were observed on the seafloor using a ROV.				
							
4	 <p>1. 11:24 音底 D=2635m (32-52.4379N 135-17.2116E)</p> <p>2. 11:46 D=2635m BBOBS NOCG観察 (32-52.4223N 135-17.2456E)</p> <p>11:49 観察終了</p> <p>3. 12:39 D=2630m LD BBOBS観察 (32-52.2708N 135-17.3937E)</p> <p>12:45 観察終了</p> <p>4. 13:00 音底 D=2634m (32-52.2682N 135-17.3924E)</p> <p>XY ORIGIN 32-52.300N 135-17.300E</p> <p>CENTER 32-52.300N 135-17.300E</p> <p>DATE: 2025/02/27 RS: 25-XXZ HPD: CCLPHN No.2257Dive RS: SUDO/CKI JF_C9038B OWNER: RITS Dir: FUJOU GEO_DATA: jact2025g4 DATUM: WGS-84</p>						

No.	Dive Num. Date	Site	Arrive Time	North Latitude	East Longitude	Depth [m]	
			Leave Time				
	HPD2258 2025/02/28	M03-4	10:16	32-49.6137	134-19.1371	1698	
			14:00	32-48.5380	134-19.3572	1679	
		Work Summary	At point M03-4, near the off Muroto Cape submarine cable, starting from a visually confirmed installation point, three small memory thermometers were placed along the seabed cable's installation route (bearing 171°) at approximately 1 km intervals.				
							
							

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No.	Dive Num. Date	Site	Arrive Time	North Latitude	East Longitude	Depth [m]
			Leave Time			
	HPD2259 2025/03/08	2F-23	10:17	32-52.9234	135-18.5310	2642
			14:51	32-52.9363	135-18.4784	2641
		Work Summary	A calibration of the bottom pressure gauge at DONET observatory 2F-23 was conducted using the mobile pressure calibrator.			
						
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## 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 JAMSTEC.

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E-mail: [submit-rv-cruise@jamstec.go.jp](mailto:submit-rv-cruise@jamstec.go.jp)