



Yokosuka+ “Cruise Report”

YK16-03

Survey Cruise for SIP Cable Observatory

off Izu Oshima

May. 27th - May. 30th, 2016

Japan Agency for Marine-Earth Science and Technology

(JAMSTEC)

1. Cruise Information

- Cruise ID: YK16-03
- Name of vessel: Yokosuka
- Title of the cruise: Survey Cruise for SIP Cable Observatory
- Title of proposal: Preliminary Survey Cruise for SIP Cable Observatory
- Cruise period: May. 27th - May. 30th, 2016
- Ports of departure / arrival: Yokosuka Shinko ~ JAMSTEC Yokosuka
- Research area: off Izu Oshima
- Research Map:

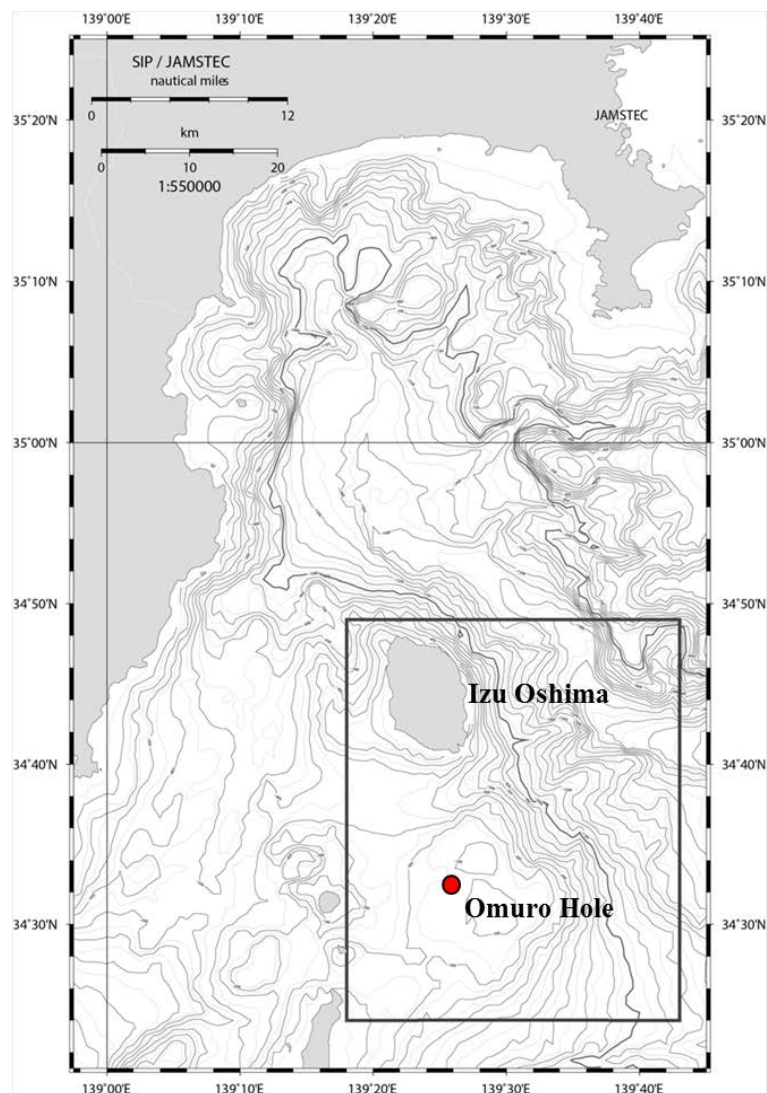
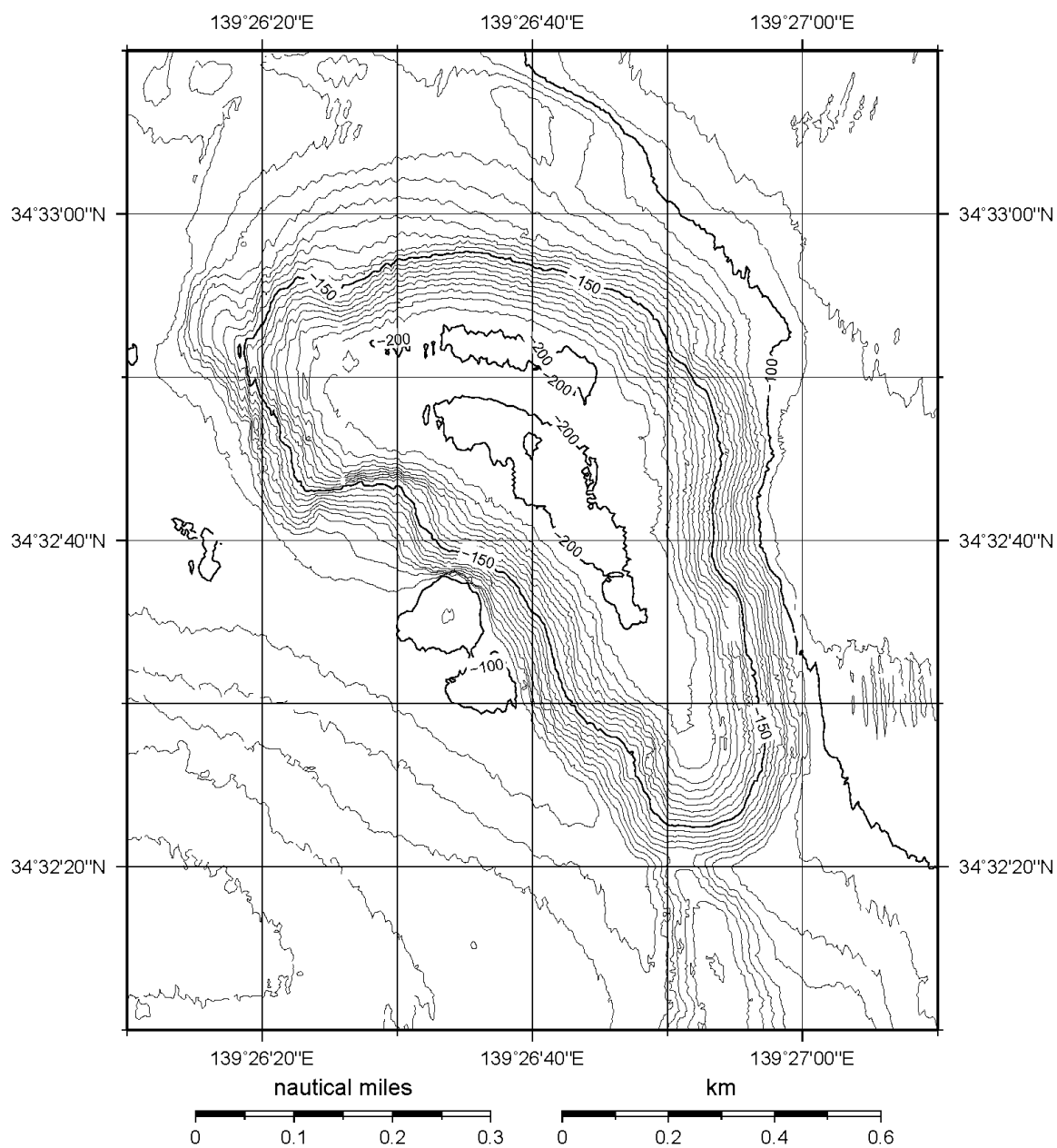


Fig.1 The sea around Izu Oshima (Depth 100m~2,200m)
the rectangle area within 34°24.0'N, 34°49.0'N, 139°18.0'E, 139°43.0'E
(note: exclude land and bay area)



GM 2015 Nov 04 00:42:27 NT14-E02 aquisition data, (SIP/JAMSTEC), NT14-E02_5m.grid, Contour interval 5m, WGS-84, Mercator Project

Fig.2 Bathymetric map at Omuro hole

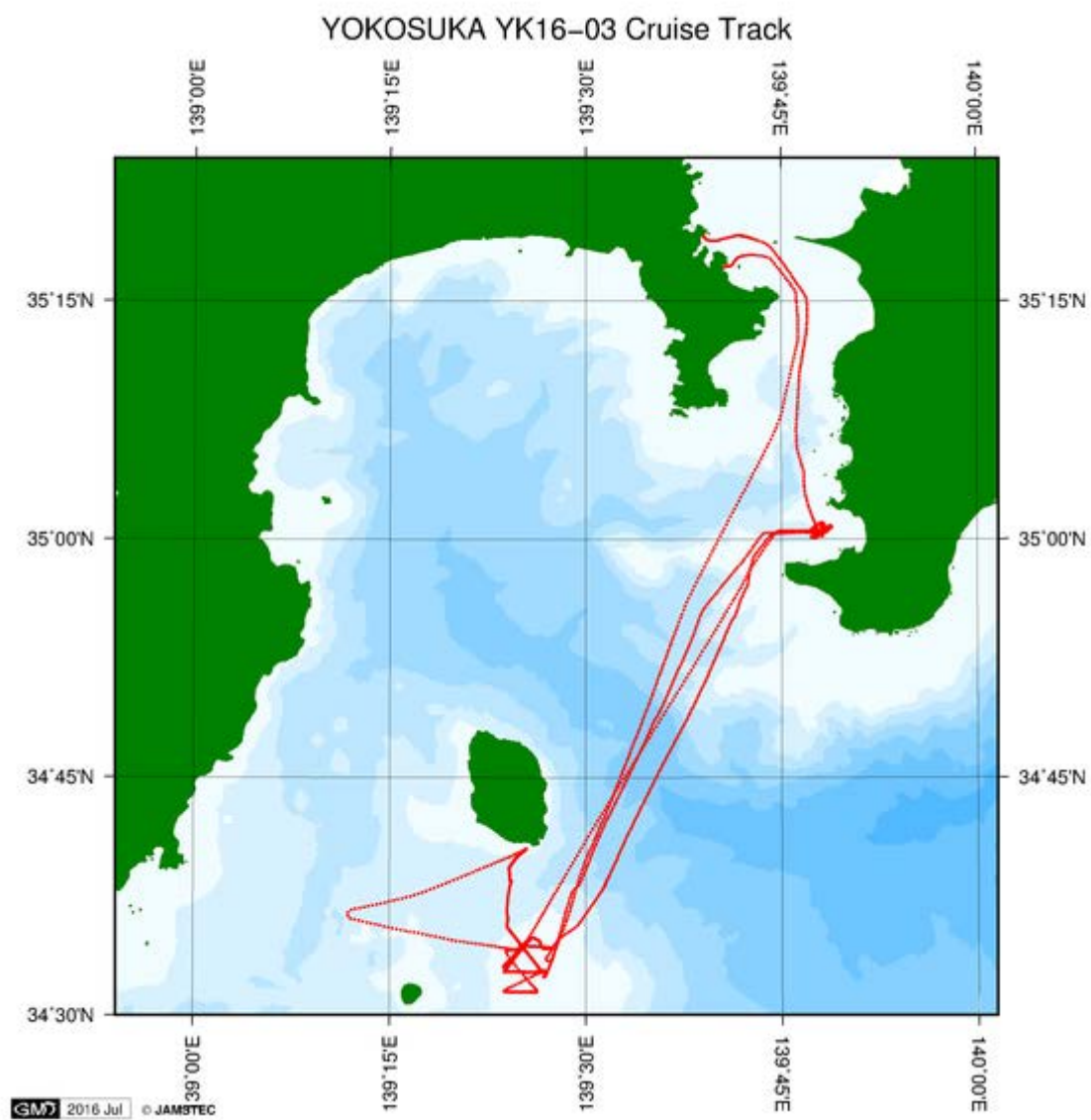


Fig.3 YK16-03 Cruise Track

2. Researchers

- Chief scientist: Shuhei Nishida [JAMSTEC]
- Representative of the science party: Katsuyoshi Kawaguchi [JAMSTEC]
- Science party:

(Onboard scientists)

Shuhei Nishida [JAMSTEC]

Takeshi Ohki [JAMSTEC]

(Onshore scientists)

Katsuyoshi Kawaguchi [JAMSTEC]

Eiichiro Araki [JAMSTEC]

Takashi Yokobiki [JAMSTEC]

Hiroyuki Matsumoto [JAMSTEC]

Choi Jinkyu [JAMSTEC]

Toshinori Kimura [JAMSTEC]

Yuya Machida [JAMSTEC]

Hiroyuki Yamamoto [JAMSTEC]

Takafumi Kasaya [JAMSTEC]

Hiroshi Yoshida [JAMSTEC]

Blair Thornton [Univ. of Tokyo]

3. Observation

OBJECTIVES

For stable operation of cabled observation systems, detailed bathymetric survey, bottom material survey and detailed topography surveys are important to plan the installation of instruments and submarine cable. The development of the new cabled observation system is carried out in Cross-ministerial Strategic Innovation Promotion Program (SIP) and is started in 2014. Various developments, such as the development for the observation of crustal changes, the development of In Situ Multi-element Analysis of solids and liquids for long-term real time observation, and the development of Repeating observation using AUV are performed in the present program.

In this cruise, the cable route survey was carried out in order to evaluate its safety as route and observation site for the next cabled observation system off Izu Oshima.

3.2 Research Information

From May 27, 2016 until May 30, the cable route survey for the SIP submarine cabled observatory was carried out by "Yokosuka Deep-Tow" in south sea off Izu Oshima. Table 1 shows the actual achievement in this expedition. Five dives of "Deep Tow" have been done on 28 and 29 May, 2016. For each of the

research outlined.

Table 1. Actual operation of YK16-03 cruise

YK16-03	Survey ID	Summary of Operation
2016.05.27	Departure	
2016.05.28	DT176 DT177	Bathymetric survey of the backbone cable laying planned route
2016.05.29	DT178 DT179	Investigation of the area the possibility of hydrothermal activity near backbone cable laying planed route is suspected from the back scatter image in the NT14-E02 Bathymetric survey
	DT180	Verification of lineation theory of hydrothermal activity in Omuro Hole and sediment observation west of flat-top of Omuro-dash
2016.05.30	Arrival	

3.2 Dive Summary

① DT00176 From Omuro hole until existing cables neighborhood

- Idle cable laying planned route
 - There were no hydrothermal activities in northeast of Omuro hole.
- Backbone cable route (slope of Omuro hole)
 - Boulder was existed in some sections.
- Backbone cable route (surroundings of Omuro hole)
 - There was a small hole of depth 20m at north-west of Omuro hole
 - Northwest near Omuro hole are covered in gravel but few outcrop has been existed.
- Backbone cable route (near existing cables)
 - Southern part is almost covered in gravel
 - Northern part is outcrop area
- Backbone cable route (existing cable neighborhood and northwest slope of Omuro dashi)
 - The survey line was almost covered in sand, and there was outcrop in few sections.

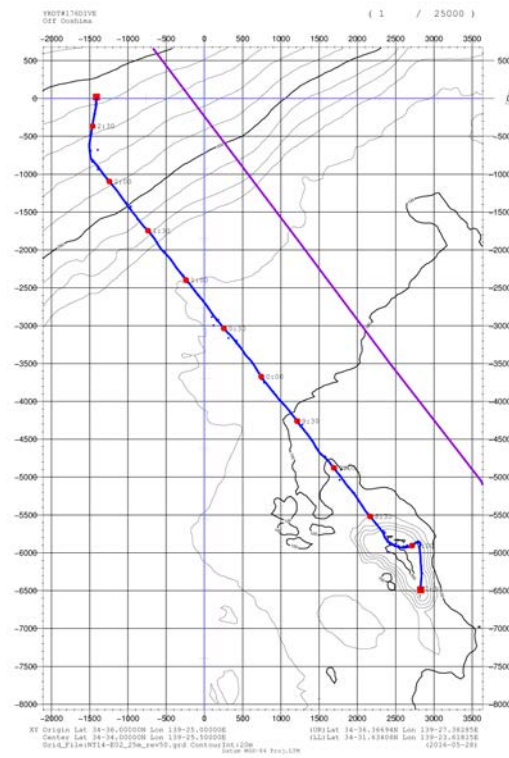


Fig.4 Dive Truck of DT00176

② DT00177 From neighborhood of existing cables until neighborhood of tentative landing station (the water depth 100m).

- Backbone cable route near existing cable
 - Terrain was a flat, and covered in gravel
- Backbone cable route (neighborhood of tentative landing station)
 - This area was followed by outcrops.

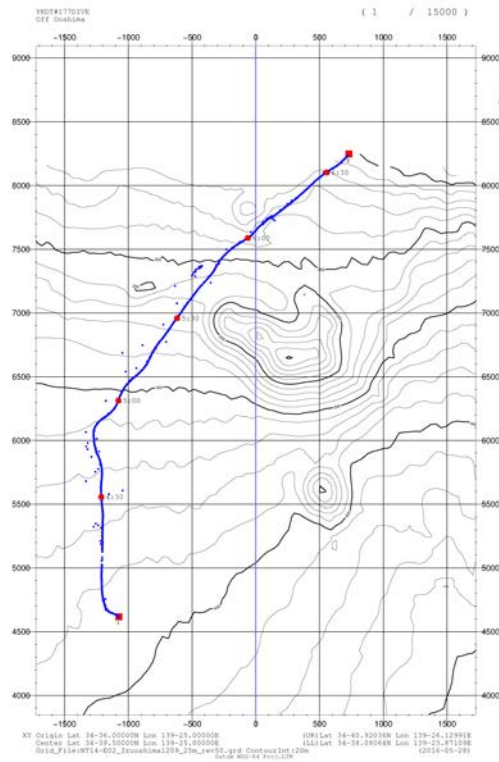


Fig.5 Dive Truck of DT00177

③ DT00178 Investigation of the area the possibility of hydrothermal activity near backbone cable laying planed route is suspected from the back scatter image in the NT14-E02 Bathymetric survey

- Terrain was flat and outcrop which was covered in thin sand layer.
- Few outcrops stand in this area. Therefore, there is a possibility that the outcrops was detected in the back scatter image.

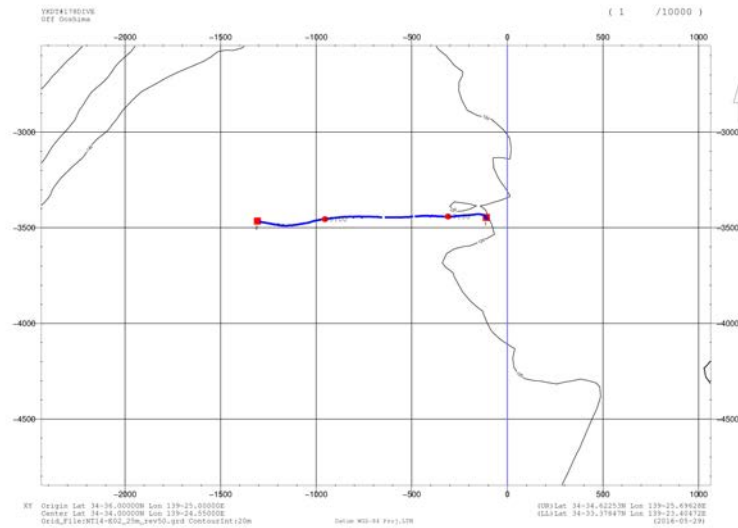


Fig.6 Dive Truck of DT00178

④ DT00179 Investigation of the area the possibility of hydrothermal activity near backbone cable laying planed route is suspected from the back scatter image in the NT14-E02 Bathymetric survey

- Outcrops stand in this area.
- There is a possibility that the outcrops was detected in the back scatter image.

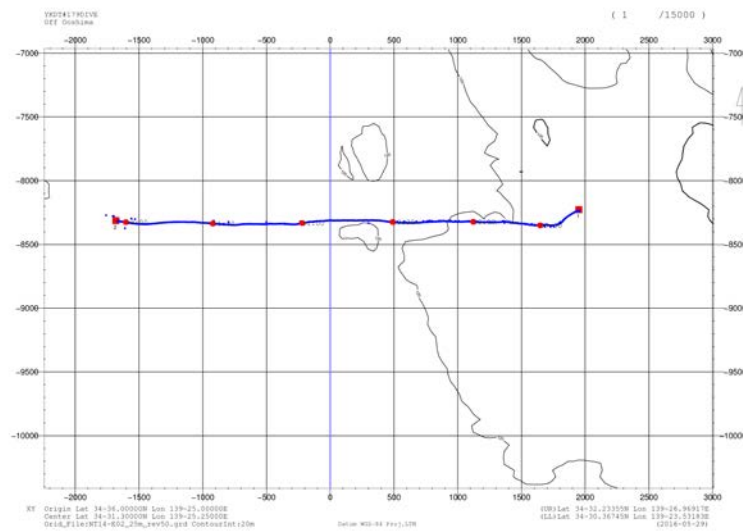


Fig.7 Dive Track of DT00179

⑤ DT00180 verification of lineation hypothesis of hydrothermal activity in Omuro hole and sediment observation at west of Omuro dashi

- In Omuro hole
 - It was visually confirmed the spout site.
 - Slope was cliff and was covered with boulders
 - The bacterial mats was on the surface of sediment, existing of hydrothermal activity is suggested
- Omuro hole outer edge (until 3km from Omuro hole)
 - Terrain was covered in gravel layer and white discoloration area were distributed in this area.
- West of flat-top of Omuro dashi
 - Eastern part is covered in steep boulder terrain, and then color boundary in the sand layer of the seabed was seen clearly, and then the terrain have a ripple marks.

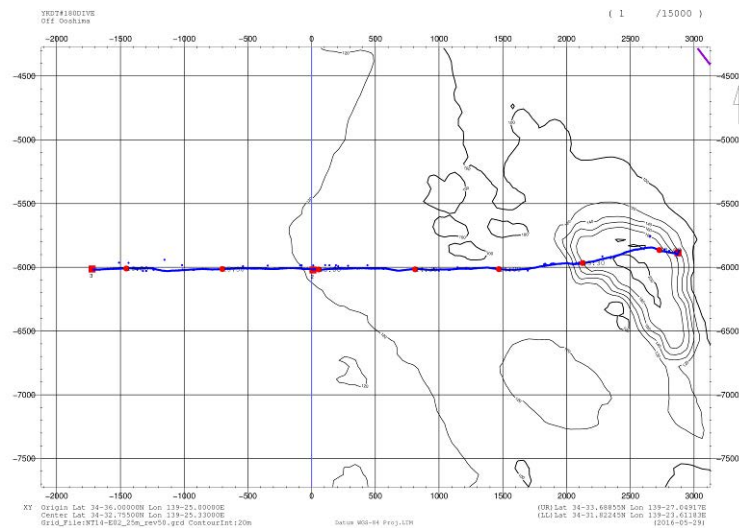


Fig.8 Dive Truck of DT00180

3.3 Dive Log (in Japanese)

Log										YK16-03 (DT01c)	2016/05/28
Dive Log of YKDT Dive176											
Time (JST)	ROV Dsp. (m)	Pos. Lat	Pos. Lon	Alt (m)	Head (Deg)	Bottom Material	hydrothermal	Description		Remarks	
07:25:53	188.3	34 - 32.4006	N 139 - 26.8499	E 5.0	107.0	軟砂(砂25mm以上)		海底地形 深度188m			
07:26:51	189.6	34 - 32.4004	N 139 - 26.8484	E 4.6	146.0	軟砂(砂25mm以上)		調査開始 深度190m			
07:35:14	194.5	34 - 32.5652	N 139 - 26.8553	E		軟砂(砂25mm以上)		イノゴシヤ、岩、海綿がところどころに			
07:36:01	191.7	34 - 32.5763	N 139 - 26.8577	E 2.9	20.0	巨礫(粒径250mm以上)					
07:36:50	192.3	34 - 32.5879	N 139 - 26.8589	E 2.7	24.0	巨礫(粒径250mm以上)		かなり深いおおいに堆積			
07:38:29					1.0	粘土		粘土層が			
07:39:31	182.9	34 - 32.6211	N 139 - 26.8569	E 3.7	26.0	軟砂(砂25mm以上)		海綿のつらたあたり、粘土のまじり			
07:42:01	177.8	34 - 32.6579	N 139 - 26.8566	E 3.5	0.0	粘土		粘土のまじり、粘土のまじり			
07:45:01	176.2	34 - 32.6992	N 139 - 26.8506	E 3.9	14.0	軟砂(砂25mm以上)		粘土のまじり、粘土のまじり			
07:46:18	176.8	34 - 32.7163	N 139 - 26.8504	E 4.1	7.0	軟砂(砂25mm以上)		巨礫、粘土が交互に現れる、砂粒は比較的大きい			
07:47:20	170.5	34 - 32.7297	N 139 - 26.8490	E 3.8	0.0	軟砂(砂25mm以上)		粘土のまじり、粘土のまじり			
07:49:12	178.9	34 - 32.7558	N 139 - 26.8461	E 3.4	6.0	軟砂(砂25mm以上)		底質の色が赤みを帯びてきた			
07:51:18	180.9	34 - 32.7841	N 139 - 26.8425	E 3.0	14.0	軟砂(砂25mm以上)		巨礫、粘土、海綿と粘土のまじり			
07:53:16	170.2	34 - 32.8070	N 139 - 26.8453	E 3.2	44.0	軟砂(砂25mm以上)		粘土のまじり、粘土のまじり、DIF有る部分にみえる			
07:56:20	188.4	34 - 32.8128	N 139 - 26.7824	E 3.7	247.0	軟砂(砂25mm以上)		底質変化した、時々イノゴシヤ			
08:00:39	211.2	34 - 32.8102	N 139 - 26.7351	E 3.2	271.0	軟砂(砂25mm以上)		イノゴシヤ多数			
08:02:08	197.7	34 - 32.8097	N 139 - 26.7361	E 3.0	270.0	軟砂(砂25mm未満)		底質、砂質、粘土、赤色変色有り			
08:03:16	195.3	34 - 32.7951	N 139 - 26.7200	E 3.0	281.0	軟砂(砂25mm未満)		赤い、赤い、粘土、粘土			
08:05:36	195.1	34 - 32.7946	N 139 - 26.6820	E 3.0	306.0	軟砂(砂25mm未満)		底質、砂質、粘土、粘土			
08:07:07	194.3	34 - 32.7992	N 139 - 26.6571	E 4.0	300.0	軟砂(砂25mm未満)		底質、砂質、粘土、粘土			
08:08:49	197.1	34 - 32.8261	N 139 - 26.6424	E 3.0	311.0	軟砂(砂25mm未満)		変色、粘土、粘土、粘土			
08:09:57	195.8	34 - 32.8157	N 139 - 26.6162	E 1.0	315.0	軟砂(砂25mm未満)		変色、粘土、粘土、粘土			
08:11:38	193.6	34 - 32.8286	N 139 - 26.5953	E 2.0	318.0	軟砂(砂25mm未満)		変色、粘土、粘土、粘土			
08:13:27	191.6	34 - 32.8356	N 139 - 26.5713	E 4.0	325.0	軟砂(砂25mm未満)		粘土、粘土、粘土、粘土			
08:13:57	201	34 - 32.8544	N 139 - 26.5686	E 3.0	333.0	軟砂(砂25mm未満)		粘土、粘土、粘土、粘土			
08:15:39	195.3	34 - 32.8600	N 139 - 26.5506	E 3.5	337.0	軟砂(砂25mm未満)		粘土、粘土、粘土、粘土			
08:16:30	0	0 - 0.0000	N 0 - 0.0000	E 4.0	348.0	軟砂(砂25mm未満)		粘土、粘土、粘土、粘土			
08:18:21	0	0 - 0.0000	N 0 - 0.0000	E 1.3	7.0	軟砂(砂25mm以上)		粘土、粘土、粘土、粘土			
08:19:52	0	0 - 0.0000	N 0 - 0.0000	E 1.3	2.0	軟砂(砂25mm以上)		粘土、粘土、粘土、粘土			
08:21:22	0	0 - 0.0000	N 0 - 0.0000	E 2.0	0.0	巨礫(粒径250mm以上)		巨礫(粒径250mm以上)			
08:23:04	158.3	34 - 32.9417	N 139 - 26.4928	E 2.0	0.0	粘土		粘土、粘土、粘土			
08:24:59	132.1	34 - 32.9622	N 139 - 26.4712	E 3.0	343.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
08:26:11	130.1	34 - 32.9709	N 139 - 26.4589	E 2.0	345.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
08:27:08	0	0 - 0.0000	N 0 - 0.0000	E 3.0	346.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
08:30:14	116.2	34 - 33.0206	N 139 - 26.4169	E 2.4	345.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
08:31:48	112	34 - 33.0339	N 139 - 26.3981	E 2.4	342.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
08:35:40	98.7	34 - 33.0796	N 139 - 26.3627	E 4.0	340.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
08:38:13	102	34 - 33.1105	N 139 - 26.3364	E 2.6	351.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
08:38:46	0	0 - 0.0000	N 0 - 0.0000	E 4.0	347.0	粘土		粘土、粘土、粘土			
08:40:18	100.3	34 - 33.1354	N 139 - 26.3158	E 4.8	347.0	粘土		粘土、粘土、粘土			
08:41:05	105.1	34 - 33.1424	N 139 - 26.3079	E 3.5	346.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
08:42:51	104.7	34 - 33.1674	N 139 - 26.2910	E 3.0	352.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
08:43:51	103	34 - 33.1788	N 139 - 26.2824	E 3.5	334.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
08:45:17	104.8	34 - 33.1964	N 139 - 26.2654	E 2.0	339.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
08:47:36	100.7	34 - 33.2209	N 139 - 26.2401	E 3.5	336.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
08:53:57	103.8	34 - 33.2209	N 139 - 26.1744	E 2.0	355.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
08:55:46	97.7	34 - 33.3160	N 139 - 26.1538	E 2.5	340.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
08:58:20	113.6	34 - 33.3407	N 139 - 26.1245	E 3.2	348.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
09:00:04	117.3	34 - 33.3681	N 139 - 26.1045	E 1.5	340.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
09:01:40	115.2	34 - 33.3877	N 139 - 26.0854	E 0.9	338.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
09:02:59	106.3	34 - 33.4014	N 139 - 26.0724	E 3.0	347.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
09:03:51	98.5	34 - 33.4139	N 139 - 26.0625	E 3.0	347.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
09:06:25	98.9	34 - 33.4423	N 139 - 26.0551	E 2.7	332.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
09:08:07	95.2	34 - 33.4564	N 139 - 26.0075	E 1.7	326.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
09:09:11	91	34 - 33.4663	N 139 - 25.9939	E 3.0	330.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
09:12:19	95.5	34 - 33.5025	N 139 - 25.9642	E 2.6	339.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
09:17:22	92.8	34 - 33.5603	N 139 - 25.9204	E 3.7	340.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
09:22:33	92.8	34 - 33.6223	N 139 - 25.8648	E 4.5	322.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
09:30:43	92.4	34 - 33.7085	N 139 - 25.7855	E 3.8	319.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
09:32:15	91.6	34 - 33.7254	N 139 - 25.7704	E 4.7	317.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
09:39:03	95.4	34 - 33.7818	N 139 - 25.7189	E 4.0	319.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
09:44:10	102.9	34 - 33.8596	N 139 - 25.6344	E 3.8	315.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
09:53:09	112.4	34 - 33.9486	N 139 - 25.5495	E 2.6	323.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
10:09:38	109	34 - 34.1280	N 139 - 25.4004	E 3.9	320.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
10:11:24	108.6	34 - 34.1483	N 139 - 25.3790	E 3.5	324.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
10:20:17	112	34 - 34.2559	N 139 - 25.2821	E 4.5	325.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
10:23:57	109.9	34 - 34.2019	N 139 - 25.2455	E 4.0	325.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
10:25:46	110.9	34 - 34.3149	N 139 - 25.2213	E 4.0	324.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
10:27:15	109.7	34 - 34.3309	N 139 - 25.2011	E 3.2	324.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
10:40:24	109.4	34 - 34.4786	N 139 - 25.0622	E 2.0	324.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
10:42:28	109	34 - 34.5003	N 139 - 25.0402	E 3.0	328.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
10:43:26	109.6	34 - 34.5121	N 139 - 25.0302	E 3.0	328.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
10:49:16	110.5	34 - 34.5807	N 139 - 24.9675	E 1.7	317.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
10:49:42	109.8	34 - 34.5857	N 139 - 24.9622	E 2.9	327.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
10:52:11	106.6	34 - 34.6155	N 139 - 24.9355	E 4.0	315.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
10:53:06	107	34 - 34.6208	N 139 - 24.9236	E 4.2	316.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
10:54:48	111.9	34 - 34.6466	N 139 - 24.9040	E 4.2	317.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
10:55:46	111.2	34 - 34.6605	N 139 - 24.8924	E 3.7	312.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
11:02:34	115	34 - 34.7414	N 139 - 24.8147	E 3.5	311.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
11:06:40	119.9	34 - 34.8110	N 139 - 24.7485	E 4.0	326.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
11:13:13	122.5	34 - 34.8681	N 139 - 24.6977	E 3.8	319.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
11:16:04	127.2	34 - 34.8985	N 139 - 24.6649	E 4.3	328.0	軟砂(砂25mm未満)		粘土、粘土、粘土			
11:19:17	128.4	34 - 34.9333	N 139 - 24.6277	E 4.2	329.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
11:25:02	130.8	34 - 34.9891	N 139 - 24.5997	E 4.5	329.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
11:25:43	146.1	34 - 35.0345	N 139 - 24.5633	E 4.5	327.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
11:43:59	192	34 - 35.2207	N 139 - 24.3624	E 4.0	337.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
11:49:50	202.3	34 - 35.2919	N 139 - 24.2978	E 3.2	332.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
11:58:49	216.4	34 - 35.4005	N 139 - 24.1981	E 5.1	321.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
12:05:40	221.1	34 - 35.4324	N 139 - 24.1675	E 4.4	323.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
12:15:19	237.9	34 - 35.5581	N 139 - 24.0554	E 4.2	308.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
12:15:19	237.9	34 - 35.5652	N 139 - 24.0407	E 1.0	284.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
12:15:20	239.1	34 - 35.5904	N 139 - 24.0233	E 5.2	321.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
12:27:04	280.7	34 - 35.7661	N 139 - 24.0023	E 3.7	346.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
12:28:49	271.7	34 - 35.0887	N 139 - 24.0701	E 3.8	347.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
12:44:05	275.6	34 - 36.0063	N 139 - 24.0755	E 3.4	358.0	軟砂(砂25mm以上)		粘土、粘土、粘土			
12:44:47	276.3	34 - 36.0160	N 139 - 24.0757	E 11.0	350.0	軟砂(砂25mm以上)		粘土、粘土、粘土			

YK16-03 (DT01c)										2016/05/28
Dive Log of YKDT Dive177										
Log Time (JST)	ROV Dep. (m)	Pos. Lat	Pos. Lon	Alt. (m)	Head (Deg)	Bottom Material	hydrothermal	Description	Remarks	
13:37:54	51	34 - 38 4814	N 139 - 24 3256	E				潜航開始		
13:40:32	380.9	34 - 38 4966	N 139 - 24 2988	E	2.9	33.0		砂(砂径2mm未満)	海底	
13:48:58	384.3	34 - 38 4977	N 139 - 24 2930	E	3.0	34.0		砂(砂径2mm未満)	白い、粗い	
13:51:12	381.1	34 - 38 5045	N 139 - 24 2869	E	1.0	32.0		砂(砂径2mm未満)	砂粒の細かい、リッツルマーク	
13:55:02	377.4	34 - 38 5176	N 139 - 24 2500	E	3.6	330.0		砂(砂径2mm未満)	白い貝殻	
13:57:31	376.5	34 - 38 5387	N 139 - 24 2270	E	3.2	350.0		砂(砂径2mm未満)	ACI連中、白い貝殻	
14:03:48	373.6	34 - 38 6206	N 139 - 24 2095	E	3.3	5.0		砂(砂径2mm未満)	二枚貝	
14:10:59	0	0 - 0.0000	N 0 - 0.0000	E	3.8	10.0		砂(砂径2mm未満)	目もなくなった	
14:14:46	362.4	34 - 38 7821	N 139 - 24 2113	E	3.7	15.0		砂(砂径2mm未満)	目多数(局所的)	
14:17:19	361.3	34 - 38 8196	N 139 - 24 2125	E	2.3	15.0		砂(砂径2mm未満)		
14:20:23	357.1	34 - 38 8659	N 139 - 24 2123	E	3.9	17.0		砂(砂径2mm未満)		
14:21:17	355.1	34 - 38 8785	N 139 - 24 2144	E	2.0	10.0		砂(砂径2mm未満)	リッツルマーク	
14:23:21	351.9	34 - 38 9120	N 139 - 24 2139	E	1.5	13.0		砂(砂径2mm未満)	目多数	
14:26:07	350	34 - 38 9492	N 139 - 24 2126	E	2.2	12.0		砂(砂径2mm未満)	リッツルマーク	
14:32:01	344.3	34 - 39 0412	N 139 - 24 2049	E	4.1	18.0		砂(砂径2mm未満)	目多数	
14:33:04	341.6	34 - 39 0564	N 139 - 24 2060	E	2.5	24.0		砂(砂径2mm未満)	目が少なくなった	
14:37:00	332.9	34 - 39 1179	N 139 - 24 2099	E	2.3	13.0		砂(砂径2mm未満)	目多数	
14:39:52	330.2	34 - 39 1556	N 139 - 24 2013	E	3.0	7.0		砂(砂径2mm未満)	灰色の砂	
14:45:40	322.9	34 - 39 2400	N 139 - 24 1695	E	3.4	5.0		砂(砂径2mm未満)	本拠、右舷側開始	
14:47:14	318.4	34 - 39 2648	N 139 - 24 1675	E	2.9	15.0		砂(砂径2mm未満)	目の群れ	
15:05:36	289.6	34 - 39 4869	N 139 - 24 3421	E	3.3	49.0		砂(砂径2mm未満)	砂より細かい、灰～黒色、火山灰のやつぶつき	
15:10:39	282.3	34 - 39 5395	N 139 - 24 4094	E	2.8	44.0		砂(砂径2mm未満)	海底は荒らぐた、いしるべ、なる礁岩?	
15:17:12	274.9	34 - 39 6142	N 139 - 24 4670	E	2.5	32.0		砂(砂径2mm未満)	灰～黒色の海底、砂	
15:20:29	269.8	34 - 39 6544	N 139 - 24 4965	E	2.4	34.0		砂(砂径2mm未満)	粒のこ	
15:25:52	255.9	34 - 39 7160	N 139 - 24 5536	E	2.9	35.0		砂(砂径2mm未満)	灰に粒	
15:29:12	249.3	34 - 39 7568	N 139 - 24 5869	E	2.9	65.0		砂(砂径2mm未満)	砂の結晶	
15:33:17	243.6	34 - 39 8066	N 139 - 24 6301	E	3.3	55.0		砂(砂径2mm未満)	砂の結晶	
15:36:28	242.2	34 - 39 8455	N 139 - 24 6647	E	2.5	28.0		砂(砂径2mm未満)	粒の、砂の結晶した結晶になってきた	
15:39:57	232.2	34 - 39 8908	N 139 - 24 7088	E	3.3	41.0		砂(砂径2mm未満)	砂面に変わった、能くガラス→能く黒炭状になっていふのか?	
15:42:03	226.8	34 - 39 9163	N 139 - 24 7139	E	2.2	46.0		砂(砂径2mm未満)	リッツルマーク	
15:45:24	216.8	34 - 39 9553	N 139 - 24 7747	E	1.6	45.0		砂(砂径2mm未満)	灰～黒色の海底、砂	
15:49:14	186.5	34 - 40 0047	N 139 - 24 8122	E	2.9	49.0		砂(砂径2mm未満)	リッツルマーク	
15:53:43	186.9	34 - 40 0528	N 139 - 24 8659	E	3.4	81.0		砂(砂径2mm未満)	砂に目立つ白い粒のようなくまの粒がバラバラ	
15:58:08	176.6	34 - 40 0934	N 139 - 24 9363	E	2.3	98.0		砂(砂径2mm未満)	リッツルマークが隠れている	
16:01:23	169.2	34 - 40 1160	N 139 - 24 9763	E	2.1	48.0		砂(砂径2mm未満)	海底	
16:02:45	149.5	34 - 40 1593	N 139 - 24 9908	E	6.0	46.0		砂(砂径2mm未満)	海底	
16:04:27	160.1	34 - 40 1501	N 139 - 25 0130	E	3.0	45.0		砂(砂径2mm未満)	海底	
16:05:35	162	34 - 40 1614	N 139 - 25 0274	E	4.7	61.0		砂(砂径2mm未満)	海底	
16:08:03	174.2	34 - 40 1841	N 139 - 25 0543	E	4.8	68.0		砂(砂径2mm未満)	海底	
16:10:01	161.1	34 - 40 1989	N 139 - 25 0913	E	4.4	53.0		砂(砂径2mm未満)	海底	
16:11:08	167.7	34 - 40 2079	N 139 - 25 1072	E	2.8	63.0		砂(砂径2mm未満)	海底から砂に変わった	
16:20:54	145.2	34 - 40 2043	N 139 - 25 2369	E	3.3	56.0		砂(砂径2mm未満)		
16:25:53	150.2	34 - 40 3471	N 139 - 25 3049	E	2.2	62.0		砂(砂径2mm未満)	白い部分が多い	
16:26:56	152.2	34 - 40 3560	N 139 - 25 3179	E	2.2	26.0		砂(砂径2mm未満)	砂から砂岩が露出して見える、増殖している砂の層が薄い?	
16:29:24	144.6	34 - 40 3798	N 139 - 25 3371	E	2.5	67.0		砂(砂径2mm未満)	砂岩	
16:30:32	138.4	34 - 40 3869	N 139 - 25 3729	E	4.0	68.0		砂(砂径2mm未満)	ベースの砂岩が露出して見える	
16:32:04	131.2	34 - 40 4034	N 139 - 25 3992	E	3.9	77.0		砂(砂径2mm未満)	砂岩	
16:37:21	101	34 - 40 4582	N 139 - 25 4755	E	1.6	46.0		砂(砂径2mm未満)	潜航終了	

Log		YK16-03 (D102a)										2016/05/29
Dive Log of YKDT Dive178												
Time (JST)	ROV Dep. (m)	Pos. Lat	Pos. Lon	Alt. (m)	Head (Deg)	Bottom Material	hydrothermal	Description	Remarks			
07:05:28	8.9	34 - 34.1366 N	139 - 24.9466 E					潜水				
07:18:17	129.5	34 - 34.1393 N	139 - 24.9260 E					ケーブル巻き出し。ケーブル長100m				
07:18:52	107.6	34 - 34.1357 N	139 - 24.9294 E	3.0	302.0	砂(粒径2mm未満)		海底面が木屑115m, うっすら砂が確認。その下は粗砂。露岩部 確認				
07:28:50	114.6	34 - 34.1401 N	139 - 24.8132 E	4.0	277.0	砂(粒径2mm未満)		10秒ほど見え、白っぽい洞があった。				
07:30:50	117.8	34 - 34.1399 N	139 - 24.7823 E	4.0	284.0	露岩		壁面がさらに黒っぽくなってきた。				
07:30:50	116.9	34 - 34.1417 N	139 - 24.7349 E	4.0	278.0	露岩		岩が剥えたような数個にサンゴが載っている				
07:30:50	120	34 - 34.1408 N	139 - 24.6948 E	3.0	271.0	露岩		黒いぽつぽつした露岩が確認。とても黒い。				
07:30:50	120.4	34 - 34.1381 N	139 - 24.6342 E	2.3	277.0	露岩		ずっと黒いぽつぽつした露岩が確認。とても黒い。				
07:30:50	121.4	34 - 34.1382 N	139 - 24.6166 E	3.0	274.0	露岩		内側の白い壁の中に、黒い岩？				
07:30:50	121.1	34 - 34.1381 N	139 - 24.6107 E	3.0	274.0	露岩		壁が黒らかった。				
07:30:50	0	0 - 0.0000 N	0 - 0.0000 E	3.0	284.0	露岩		露岩				
07:30:50	0	0 - 0.0000 N	0 - 0.0000 E	3.5	287.0	露岩		露岩は 砂岩点を通過。とくに何もない。				
07:30:50	120.7	34 - 34.1398 N	139 - 24.5123 E	3.3	282.0	露岩		白っぽい内側の壁を確認。砂が内側に溜まったものか？				
07:30:50	120.8	34 - 34.1393 N	139 - 24.4474 E	3.7	283.0	露岩						
07:30:50	120.7	34 - 34.1368 N	139 - 24.4121 E	3.2	275.0	露岩						
07:30:50	121	34 - 34.1321 N	139 - 24.3659 E	3.9	264.0	露岩		変な模様				
07:30:50	121.1	34 - 34.1290 N	139 - 24.3208 E	3.5	250.0	露岩						
07:30:50	121.9	34 - 34.1153 N	139 - 24.2539 E	3.3	244.0	露岩						
07:30:50	123	34 - 34.1151 N	139 - 24.2238 E	3.7	273.0	露岩		角材半片				
07:30:50	122.5	34 - 34.1211 N	139 - 24.1817 E	3.3	278.0	砂(粒径2mm未満)		確認。いろいろ砂が増えた？				
07:30:50	123.8	34 - 34.1257 N	139 - 24.1478 E	3.3	274.0	砂(粒径2mm未満)		確認終了				

Dive Log of YKDT Dive179							YK16-03 (DT02b)	2016/05/29		
Time (JST)	ROV Dep. (m)	Pos. Lat	Pos. Lon	Alt. (m)	Head (Deg)	Bottom Material	hydrothermal	Description	Remarks	
08:55:36	0	0	-0.0000	N 0	-0.0000	E		ウインチ巻き取り		
08:57:54	0	0	-0.0000	N 0	-0.0000	E		潜水		
09:06:36	43.7	34	-31.5297	N 139	-26.3104	E		延滞開始		
09:08:23	43.9	34	-31.5327	N 139	-26.3093	E		給電のスタートON		
09:11:01	43.7	34	-31.5375	N 139	-26.3040	E		給電のオフON		
09:13:23	42.8	34	-31.5423	N 139	-26.2949	E		海さだし開始、潜航開始		
09:16:00	95.4	34	-31.5484	N 139	-26.2833	E	2.3	234.0	砂(粒径2mm未満)	
09:16:56	102	34	-31.5483	N 139	-26.2770	E	2.3	235.0	砂(粒径2mm未満)	
09:21:10	102.3	34	-31.5089	N 139	-26.1864	E	2.5	227.0	砂(粒径2mm未満)	
09:29:31	107.3	34	-31.4861	N 139	-26.1428	E	3.2	260.0	砂(粒径2mm未満)	
09:30:26	107.3	34	-31.4836	N 139	-26.1303	E	2.9	289.0	底質	
09:31:29	107.4	34	-31.4877	N 139	-26.1149	E	5.5	282.0	底質	砂岩シートが見えてきた
09:32:27	112.5	34	-31.4883	N 139	-26.1020	E	3.9	268.0	底質	古い砂岩?
09:34:26	113.6	34	-31.4867	N 139	-26.0753	E	2.1	266.0	砂(粒径2mm未満)	砂岩に変わった
09:37:37	102.3	34	-31.4936	N 139	-25.9805	E	3.6	298.0	砂(粒径2mm未満)	砂底、リッジがめくく見える
09:41:38	113.4	34	-31.4933	N 139	-25.9864	E	2.6	311.0	砂(粒径2mm未満)	
09:42:32	113.3	34	-31.4939	N 139	-25.9763	E	2.9	317.0	底質	上へぼい黒い石々が存在
09:44:10	99.6	34	-31.4965	N 139	-25.8946	E	3.6	306.0	砂岩	上へ黒い石に砂、古い砂岩?
09:46:21	117.3	34	-31.4994	N 139	-25.9238	E	3.0	306.0	巨礫(粒径25mm以上)	底質地帯ふたたび
09:47:22	111	34	-31.5001	N 139	-25.9115	E	3.0	293.0	巨礫(粒径25mm以上)	底質に集積
09:48:12	108.3	34	-31.5007	N 139	-25.9016	E	6.0	299.0	底質	古い崖?
09:48:46	109.4	34	-31.5038	N 139	-25.8840	E	5.3	270.0	底質	底質が傾斜にのびるもの多数
09:50:57	105.5	34	-31.4994	N 139	-25.8593	E	4.3	279.0	底質	巨礫(古い)砂岩?へ砂底の巨礫
09:54:38	114.2	34	-31.5000	N 139	-25.8098	E	3.1	275.0	底質	巨礫にクラック、スジ、南北西走向
09:55:18	116.2	34	-31.4993	N 139	-25.8000	E	4.0	278.0	砂(粒径2mm未満)	底質地帯のけたき
10:04:30	113.8	34	-31.5054	N 139	-25.6164	E	3.9	283.0	底質	黒く砂が堆積
10:06:31	105.5	34	-31.5058	N 139	-25.5828	E	3.6	300.0	底質	白色部、黄褐色部
10:10:52	115.8	34	-31.5036	N 139	-25.5844	E	3.5	288.0	底質	
10:17:06	116	34	-31.5002	N 139	-25.5039	E	3.9	283.0	底質	
10:21:08	117.1	34	-31.4997	N 139	-25.4512	E	2.3	286.0	底質	
10:26:07	116.8	34	-31.4966	N 139	-25.3795	E	3.4	299.0	底質	白い砂、白い砂
10:30:24	117.8	34	-31.5002	N 139	-25.3133	E	3.1	303.0	砂(粒径2mm未満)	砂が増えた
10:32:27	117.4	34	-31.5038	N 139	-25.2811	E	3.7	305.0	砂岩	石が増えた
10:33:03	117.8	34	-31.5045	N 139	-25.2730	E	3.3	308.0	底質	底質が見えてきた、底質が多い
10:35:26	118.1	34	-31.5070	N 139	-25.2373	E	3.3	302.0	砂(粒径2mm以上)	コアが前面左右
10:37:02	117.3	34	-31.5078	N 139	-25.2140	E	3.8	296.0	底質	底質変化
10:37:40	117.6	34	-31.5075	N 139	-25.2043	E	3.0	301.0	底質	海床多数岩に付着
10:39:00	116.9	34	-31.5076	N 139	-25.1846	E	4.0	297.0	砂(粒径2mm未満)	底質に開けた
10:39:50	118.5	34	-31.5075	N 139	-25.1719	E	3.2	298.0	砂(粒径2mm以上)	底質変化
10:40:54	118.9	34	-31.5071	N 139	-25.1558	E	3.1	294.0	底質	
10:41:49	117.8	34	-31.5068	N 139	-25.1414	E	3.3	297.0	砂(粒径2mm以上)	底質変化
10:42:27	118.6	34	-31.5068	N 139	-25.1307	E	3.3	303.0	底質	底質変化
10:43:31	118.8	34	-31.5070	N 139	-25.1139	E	3.2	302.0	砂(粒径2mm以上)	底質変化
10:44:21	117.9	34	-31.5070	N 139	-25.1009	E	2.9	302.0	底質	底質変化
10:44:58	118.9	34	-31.5069	N 139	-25.0903	E	3.6	303.0	砂(粒径2mm以上)	底質変化
10:45:49	118.1	34	-31.5069	N 139	-25.0775	E	3.6	296.0	底質	底質変化
10:46:06	119.1	34	-31.5069	N 139	-25.0731	E	3.7	297.0	砂(粒径2mm以上)	底質変化
10:51:04	120.3	34	-31.5070	N 139	-24.9664	E	3.7	298.0	砂(粒径2mm以上)	砂が増えた
10:51:53	120.6	34	-31.5062	N 139	-24.9823	E	2.4	293.0	砂(粒径2mm以上)	黄褐色
10:54:04	121.5	34	-31.5043	N 139	-24.9505	E	2.9	300.0	砂(粒径2mm未満)	砂が増えた
10:59:37	120	34	-31.4958	N 139	-24.8697	E	3.5	277.0	底質	砂層がくさくさ
11:03:10	121.8	34	-31.4919	N 139	-24.7772	E	2.9	306.0	底質	直線に砂が堆積している
11:12:55	123.8	34	-31.4909	N 139	-24.6997	E	2.5	293.0	砂(粒径2mm未満)	
11:18:37	123.1	34	-31.4916	N 139	-24.5668	E	3.4	283.0	砂(粒径2mm以上)	小石増えた
11:25:30	123.6	34	-31.4896	N 139	-24.4635	E	4.2	301.0	砂(粒径2mm未満)	砂の層厚さ
11:37:29	125.1	34	-31.4999	N 139	-24.2844	E	3.8	294.0	砂(粒径2mm未満)	断面右側、白色部
11:43:06	125.5	34	-31.4991	N 139	-24.1678	E	3.7	286.0	砂(粒径2mm未満)	断面右側
11:51:03	125.5	34	-31.4924	N 139	-24.0815	E	4.1	282.0	砂(粒径2mm未満)	断面中央、底質
11:55:46	126.9	34	-31.4921	N 139	-24.0106	E	4.3	284.0	砂(粒径2mm未満)	断面中央、底質の上に砂が覆う
12:01:02	127.4	34	-31.5012	N 139	-23.9344	E	3.4	284.0	砂(粒径2mm未満)	断面の底質、断面右
12:03:38	126.5	34	-31.5051	N 139	-23.8964	E	3.2	286.0	砂(粒径2mm未満)	断面終了
12:04:09	128.1	34	-31.5052	N 139	-23.8977	E	5.2	290.0	砂(粒径2mm未満)	砂層停止、巻き上げ開始
12:06:22	54.1	34	-31.5047	N 139	-23.8587	E			底質粘着停止	

YK16-03 (DT02b)										2016/05/29
Dive Log of YKDT Dive180										
Time (JST)	ROV Dep. (m)	Pos. Lat	Pos. Lon	Alt. (m)	Head (Deg)	Bottom Material	hydrothermal	Description	Remarks	
12:18:00	0	0	-0.0000	N	0	-0.0000	E		潜水	
12:46:10	0	0	-0.0000	N	0	-0.0000	E		船艀開始	
12:50:18	0	0	-0.0000	N	0	-0.0000	E		望遠鏡、探照灯、録音機開始	
12:51:45	149	34	-32.8172	N	139	-26.8829	E	3.0	緑(粒径2mm以上)	
12:52:07	143	34	-32.8158	N	139	-26.8801	E	3.0	緑(粒径2mm以上)	
12:56:50	168	7	-32.8205	N	139	-26.8335	E	3.0	粘土	
12:57:55	177.8	34	-32.8234	N	139	-26.8174	E	2.3	307.0	
12:59:18	183.3	34	-32.8275	N	139	-26.7969	E	2.9	308.0	
13:02:37	194	34	-32.8402	N	139	-26.7516	E	5.4	300.0	
13:05:56	197.7	34	-32.8381	N	139	-26.7130	E	3.0	287.0	
13:08:32	196.3	34	-32.8331	N	139	-26.6803	E	2.5	316.0	
13:09:46	194.8	34	-32.8318	N	139	-26.6622	E	2.5	302.0	
13:11:55	195.1	34	-32.8246	N	139	-26.6325	E	2.5	305.0	
13:13:28	194.8	34	-32.8204	N	139	-26.6132	E	2.7	283.0	
13:14:29	195.1	34	-32.8153	N	139	-26.5998	E	3.4	277.0	
13:15:25	197.8	34	-32.8114	N	139	-26.5883	E	2.5	280.0	
13:16:22	197.4	34	-32.8084	N	139	-26.5774	E	3.5	288.0	
13:19:50	191.5	34	-32.7987	N	139	-26.5554	E	2.8	278.0	
13:20:49	195.1	34	-32.7963	N	139	-26.5190	E	2.3	282.0	
13:22:23	195	34	-32.7932	N	139	-26.4979	E	1.1	277.0	
13:24:31	192.6	34	-32.7873	N	139	-26.4672	E	2.2	279.0	
13:25:42	190.6	34	-32.7825	N	139	-26.4524	E	3.5	277.0	
13:26:51	190.5	34	-32.7798	N	139	-26.4347	E	2.3	283.0	
13:27:41	190.5	34	-32.7786	N	139	-26.4234	E	2.7	273.0	
13:28:30	187	34	-32.7769	N	139	-26.4115	E	1.5	281.0	
13:29:47	174.9	34	-32.7743	N	139	-26.3933	E	3.0	282.0	
13:31:32	142.3	34	-32.7766	N	139	-26.3345	E	4.7	303.0	
13:34:17	119.2	34	-32.7731	N	139	-26.3221	E	4.7	311.0	
13:36:05	100.8	34	-32.7728	N	139	-26.2985	E	4.0	292.0	
13:37:10	98.1	34	-32.7717	N	139	-26.2824	E	4.0	291.0	
13:39:27	96	34	-32.7687	N	139	-26.2475	E	4.1	291.0	
13:42:02	95.9	34	-32.7643	N	139	-26.2070	E	3.5	283.0	
13:44:11	96	34	-32.7601	N	139	-26.1760	E	3.5	283.0	
13:49:37	92.6	34	-32.7495	N	139	-26.1032	E	3.6	297.0	
13:51:13	96.3	34	-32.7465	N	139	-26.0249	E	3.3	290.0	
13:59:31	96.1	34	-32.7482	N	139	-25.9692	E	3.9	306.0	
14:03:09	96.2	34	-32.7334	N	139	-25.9178	E	3.4	313.0	
14:04:02	95.6	34	-32.7322	N	139	-25.9051	E	3.4	308.0	
14:09:03	93.6	34	-32.7371	N	139	-25.8469	E	3.9	294.0	
14:11:54	94.6	34	-32.7306	N	139	-25.7971	E	4.5	308.0	
14:16:00	93.9	34	-32.7492	N	139	-25.7413	E	3.5	303.0	
14:21:47	94.9	34	-32.7462	N	139	-25.6433	E	3.6	299.0	
14:31:30	99.1	34	-32.7442	N	139	-25.4731	E	4.0	295.0	
14:36:27	100.5	34	-32.7438	N	139	-25.4804	E	3.1	311.0	
14:44:23	106.5	34	-32.7544	N	139	-25.2993	E	3.6	311.0	
14:50:03	109.2	34	-32.7516	N	139	-25.2052	E	3.0	310.0	
14:53:05	106.4	34	-32.7503	N	139	-25.1788	E	2.4	310.0	
14:57:23	109.4	34	-32.7486	N	139	-25.0789	E	3.3	305.0	
15:00:23	112.2	34	-32.7420	N	139	-25.0300	E	3.2	308.0	
15:02:12	116.1	34	-32.7482	N	139	-24.9978	E	2.2	308.0	
15:04:04	118.4	34	-32.7508	N	139	-24.9788	E	3.1	308.0	
15:04:55	116	34	-32.7511	N	139	-24.9488	E	3.2	308.0	
15:09:08	118.9	34	-32.7536	N	139	-24.8795	E	2.9	309.0	
15:12:13	119.5	34	-32.7503	N	139	-24.8295	E	1.8	309.0	
15:16:13	119.5	34	-32.7488	N	139	-24.7642	E			
15:16:48	119.2	34	-32.7505	N	139	-24.7560	E			
15:17:04	119.7	34	-32.7507	N	139	-24.7507	E		317.0	
15:18:05	120.2	34	-32.7517	N	139	-24.7331	E			
15:18:31	119	34	-32.7514	N	139	-24.7268	E	3.1	315.0	
15:19:00	119.9	34	-32.7511	N	139	-24.7182	E	3.2	312.0	
15:20:18	119.4	34	-32.7514	N	139	-24.6974	E	4.0	317.0	
15:20:45	120.3	34	-32.7510	N	139	-24.6899	E	3.2	315.0	
15:21:24	118.9	34	-32.7521	N	139	-24.6815	E			
15:21:38	119.1	34	-32.7509	N	139	-24.6483	E	3.4		
15:23:38	119.6	34	-32.7520	N	139	-24.6617	E			
15:24:43	119.2	34	-32.7520	N	139	-24.6593	E	3.8		
##### 120.2 34 -32.7518 N 139 -24.6547 E 3.9 318										
15:25:38	120.3	34	-32.7521	N	139	-24.6446	E	3.9	318	
15:24:03	119.9	34	-32.7519	N	139	-24.6378	E	2.2	318	
15:24:26	120.3	34	-32.7518	N	139	-24.6314	E	2.2	317.0	
15:24:42	119.8	34	-32.7518	N	139	-24.6274	E	2.4	317.0	
15:25:19	118.9	34	-32.7514	N	139	-24.6193	E	2.7	318.0	
15:25:34	119.9	34	-32.7513	N	139	-24.6144	E	2.7	315.0	
15:26:38	120.8	34	-32.7508	N	139	-24.5963	E	2.3	313.0	
15:27:30	120.7	34	-32.7503	N	139	-24.5886	E	2.3	316.0	
15:27:41	120.7	34	-32.7500	N	139	-24.5781	E	2.5	315.0	
15:28:05	120.6	34	-32.7508	N	139	-24.5712	E	2.5	316.0	
15:28:51	120.7	34	-32.7499	N	139	-24.5577	E	2.5	315.0	
15:29:16	121	34	-32.7494	N	139	-24.5516	E	2.4	318.0	
15:29:40	120.4	34	-32.7490	N	139	-24.5454	E	2.7	316.0	
15:30:06	121.1	34	-32.7491	N	139	-24.5386	E	2.6	317.0	
15:30:28	120	34	-32.7484	N	139	-24.5324	E	2.6	314.0	
15:30:58	120.3	34	-32.7482	N	139	-24.5237	E	3.0	315.0	
15:31:30	121.4	34	-32.7481	N	139	-24.5153	E	2.4	317.0	
15:31:52	121.4	34	-32.7482	N	139	-24.5111	E	2.3	315.0	
15:32:17	121.9	34	-32.7481	N	139	-24.5026	E	2.7	315.0	
15:32:50	121	34	-32.7475	N	139	-24.4946	E	2.4	317.0	
15:33:22	121.5	34	-32.7476	N	139	-24.4855	E	2.5	317.0	
15:33:55	121.2	34	-32.7480	N	139	-24.4768	E	2.9	319.0	
15:34:22	121.3	34	-32.7484	N	139	-24.4706	E	2.7	319.0	
15:34:38	121.7	34	-32.7482	N	139	-24.4667	E	2.8	319.0	
15:35:00	121.1	34	-32.7487	N	139	-24.4602	E	2.3	317.0	
15:35:55	122.1	34	-32.7493	N	139	-24.4451	E	2.5	317.0	
15:36:19	121.9	34	-32.7492	N	139	-24.4385	E	2.5	313.0	
15:37:02	121.7	34	-32.7491	N	139	-24.4277	E	2.3	311.0	
15:37:12	121.7	34	-32.7495	N	139	-24.4256	E	2.7	312.0	
15:37:43	122.3	34	-32.7487	N	139	-24.4160	E	2.3	305.0	

Log										
YK16-03 (DT02b)										
2016/05/29										
Dive Log of YKDT Dive180										
Time (JST)	RV Dep (m)	Pos. Lat	Pos. Lon	Alt (m)	Head (Deg)	Bottom Material	hydrothermal	Description	Remarks	
15:38:25	120.4	34 - 32.7655	N 139 - 24.3354	B 3.3	308.0	砂(粒径2mm未満)		熱変化境界はっきり		
15:39:13	122.7	34 - 32.7471	N 139 - 24.3875	B 2.7	312.0	砂(粒径2mm未満)		境界見えた		
15:39:32	122.2	34 - 32.7472	N 139 - 24.3826	B 2.4	308.0	砂(粒径2mm未満)		造層の生跡		
15:39:50	121.2	34 - 32.7469	N 139 - 24.3783	B 2.5	308.0	砂(粒径2mm未満)		熱変化境界はっきり		
15:40:14	122.3	34 - 32.7465	N 139 - 24.3701	B 2.3	310.0	砂(粒径2mm未満)		熱変化境界はっきり		
15:41:19	121.6	34 - 32.7454	N 139 - 24.3523	B 2.5	310.0	砂(粒径2mm未満)		境界みえた		
15:41:38	122.8	34 - 32.7445	N 139 - 24.3466	B 3.1	312.0	砂(粒径2mm未満)		境界が見えた		
15:42:06	125.9	34 - 32.7448	N 139 - 24.3176	B 2.5	314.0	砂(粒径2mm未満)		熱変化境界はっきり		
15:42:37	122.6	34 - 32.7437	N 139 - 24.3281	B 2.2	301.0	砂(粒径2mm未満)		境界が見えた		
15:43:02	123.1	34 - 32.7438	N 139 - 24.3223	B 2.2	313.0	砂(粒径2mm未満)		小山になっている?		
15:44:07	122.6	34 - 32.7426	N 139 - 24.3045	B 2.6	316.0	砂(粒径2mm未満)		境界はっきり		
15:44:29	122.7	34 - 32.7426	N 139 - 24.2973	B 2.8	314.0	砂(粒径2mm未満)		境界はっきり		
15:45:48	121.3	34 - 32.7412	N 139 - 24.2760	B 2.3	307.0	砂(粒径2mm未満)		境界はっきり		
15:46:05	122.6	34 - 32.7413	N 139 - 24.2714	B 2.7	306.0	砂(粒径2mm未満)		境界はっきり		
15:46:21	123.7	34 - 32.7409	N 139 - 24.2670	B 3.2	307.0	砂(粒径2mm未満)		境界はっきり		
15:46:47	121	34 - 32.7401	N 139 - 24.2607	B 2.8	311.0	砂(粒径2mm未満)		境界はっきり		
15:47:30	122.2	34 - 32.7415	N 139 - 24.2474	B 2.8	315.0	砂(粒径2mm未満)		境界はっきり角度深い		
15:48:02	123.5	34 - 32.7420	N 139 - 24.2388	B 2.2	318.0	砂(粒径2mm未満)		境界はっきり角度深い		
15:48:39	0	0	0.0000	N 0	0.0000	B 2.8	319.0	境界はっきり		
15:49:42	123.7	34 - 32.7457	N 139 - 24.2135	B 2.2	319.0	砂(粒径2mm未満)		境界平行		
15:50:06	123.3	34 - 32.7467	N 139 - 24.2054	B 2.4	326.0	砂(粒径2mm未満)		境界		
15:50:28	128.1	34 - 32.7482	N 139 - 24.1998	B 2.4	326.0	砂(粒径2mm未満)		境界		
15:50:48	123.5	34 - 32.7493	N 139 - 24.1956	B 3.0	324.0	砂(粒径2mm未満)		境界		
15:51:13	106.8	34 - 32.7492	N 139 - 24.1973	B 2.2	321.0	砂(粒径2mm未満)		境界		
15:51:53	124.1	34 - 32.7523	N 139 - 24.1762	B 2.6	326.0	砂(粒径2mm未満)		境界		
15:52:22	124	34 - 32.7526	N 139 - 24.1703	B 2.7	318.0	砂(粒径2mm未満)		境界		
15:53:20	123.9	34 - 32.7529	N 139 - 24.1564	B 2.4	319.0	砂(粒径2mm未満)		境界 リンブルない		
15:53:43	123.6	34 - 32.7524	N 139 - 24.1495	B 2.7	319.0	砂(粒径2mm未満)		境界		
15:54:05	123.6	34 - 32.7523	N 139 - 24.1440	B 2.5	313.0	砂(粒径2mm未満)		境界		
15:54:42	123	34 - 32.7519	N 139 - 24.1335	B 2.6	318.0	砂(粒径2mm未満)		境界		
15:55:11	123.5	34 - 32.7516	N 139 - 24.1267	B 3.2	348.0	砂(粒径2mm未満)		麓下マ手跡		
15:55:19	125.7	34 - 32.7517	N 139 - 24.1238	B 2.6	314.0	砂(粒径2mm未満)		境界 傾斜がなくなった		
15:59:52	128.5	34 - 32.7517	N 139 - 24.0650	B 2.6	311.0	砂(粒径2mm未満)		砂		
16:10:06	127.8	34 - 32.7472	N 139 - 23.8767	B 2.3	324.0	砂(粒径2mm未満)		新腹終了		