



YOKOSUKA Cruise Report

YK12-07

The Preliminary survey for construction of DONET2

Off Kii-Suido

May.15.2012 – May.29.2012

Japan Agency for Marine-Earth Science and Technology

(JAMSTEC)

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1. Cruise Information

● Cruise ID	YK12-07
● Name of vessel	Yokosuka
● Title of the cruise	Preliminary survey for construction of DONET2
● Chief scientist [Affiliation]	Takashi Yokobiki [JAMSTEC]
● Representative of the Science Party [Affiliation]	Yoshiyuki Kaneda [JAMSTEC]
● Cruise period	15/May/2012 - 29/May/2012
● Ports of call	JAMSTEC Yokohama - JAMSTEC Yokosuka
● Research area	Off Kii-Suido

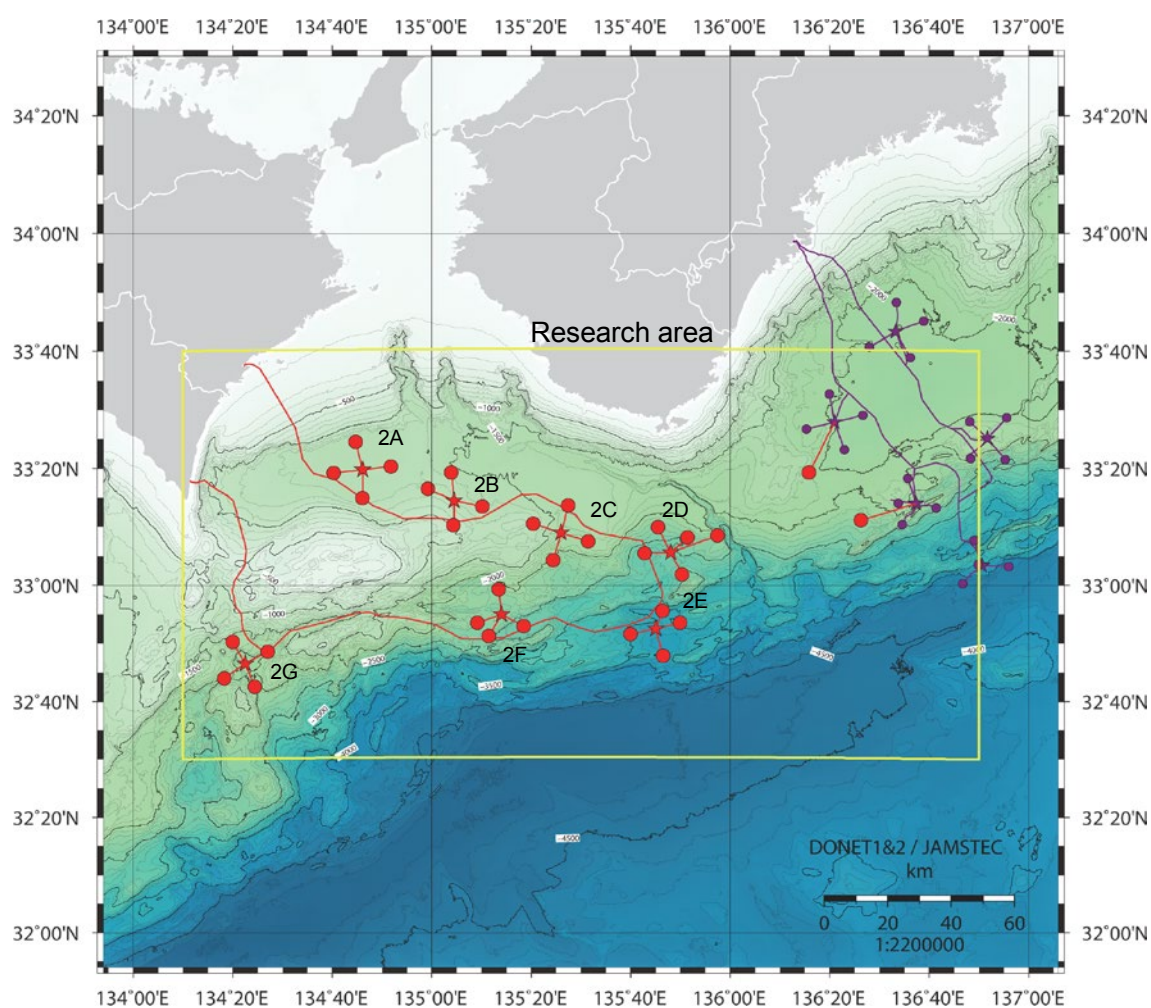


Fig 1.1 Research area

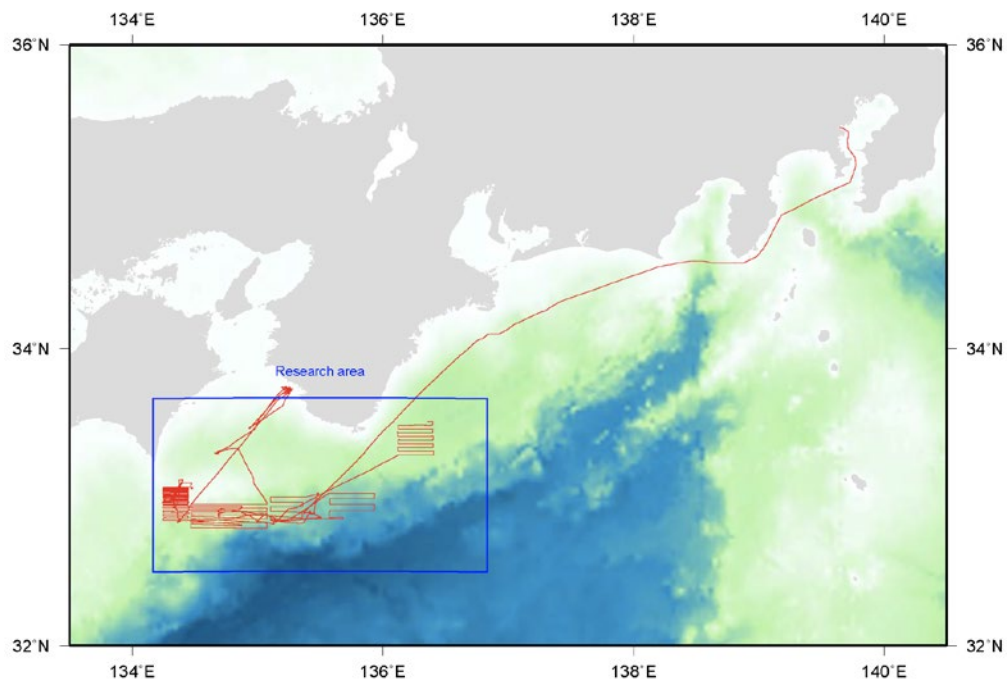


Fig 1.2 Ship Truck during YK12-07

2. Researchers

- On Board Chief scientist [Affiliation] Takashi Yokobiki [JAMSTEC]
- Representative of the science party [Affiliation] Yoshiyuki Kaneda [JMSTEC]
- Science party (List) [Affiliation]

Takashi Yokobiki	[JAMSTEC]
Jin-Kyu Choi	[JAMSTEC]
Tohru Kodera	[Nippon Marine Enterprises, LTD.]
Masashi Ito	[Nippon Marine Enterprises, LTD.]

3. Daily operation list

Date	AREA	OPERATION	Remarks
15 May	Departure		Yokohama Port at 09:00
16	2E-2F	YKDT #127	Dive start at 10:00
	2F	Sea Beam	
17	2E-2F	YKDT#128	Dive start at 10:00 due to trouble
	2G-Landing	Sea Beam	
18	2G-Landing	YKDT#129	
	2G-Landing	Sea Beam	
19	2G-Landing	YKDT#130,#131	Hoist a rope at YKDT #130
	2G-Landing	Sea Beam	
20	2G-Landing	YKDT#132,#133	Unusual heading at YKDT#132
	2G-Landing	Sea Beam	
21	Off Tanabe city	Harborage	
22	Off Tanabe city	Harborage	
23	2A DC cable route	YKDT#134	
	2F-2G	Sea Beam	
24	2F-2G	YKDT#135	
	2F-2G	Sea Beam	
25	2F-2G	YKDT#136	
	2F-2G	Sea Beam	
26	2F	YKDT#137	
	2E	Sea Beam	
27	2F	YKDT#138	
	E (DONET)	Sea Beam	
28		Shift	
29	JAMSTEC Yokosuka		Return to port at 8:00

4. “Deep Tow” Survey

(1) YKDT #127 survey (May 16, 2012)

The purpose of this dive is to survey the route between nodes 2E and 2F. This dive was planned to start from 8:30AM, however has been delayed for one and half hours because the wind speed exceeded 10m/s. The start point of the survey is (32° 54.1730'N, 135° 23.3181'E, 2681m depth) and the end point is (32° 53.8421'N, 135° 26.2405'E, 2880m depth). It has been confirmed from this dive that the surveyed route is free from obstacles and thus is considered to be appropriate for laying the backbone cable. Fig. 4.1.1 shows the position histories of YKDT and Fig. 4.1.2 shows obtained photos of the sea-floor.

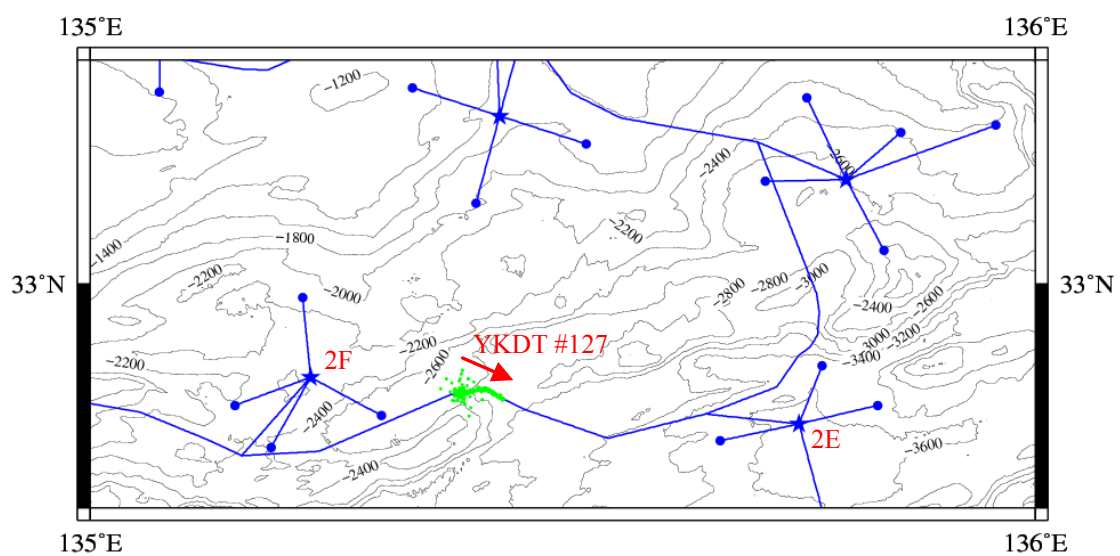


Fig. 4.1.1 Position history of YKDT #127



Fig.4.1.2 Photos of the sea-floor (right: plastic bag)

(2) YKDT #128 survey (May 17, 2012)

Following YKDT #127, this dive has been carried out to survey the remained route between nodes 2E and 2F. The start point of the survey is ($32^{\circ}53.9120'N$, $135^{\circ}26.2575'E$, 2893m depth) and the end point is ($32^{\circ}52.6813'N$, $135^{\circ}29.6081'E$, 3115m depth) as shown in Fig. 4.2.1. Since there was a trouble with the power unit of YKDT, the dive has been delayed for two and half hours. The surveyed route was confirmed to be appropriate as a backbone cable route. The planned route survey from node 2E to node 2F has been completed by this dive. Fig. 4.2.2 shows the obtained photos of the sea-floor.

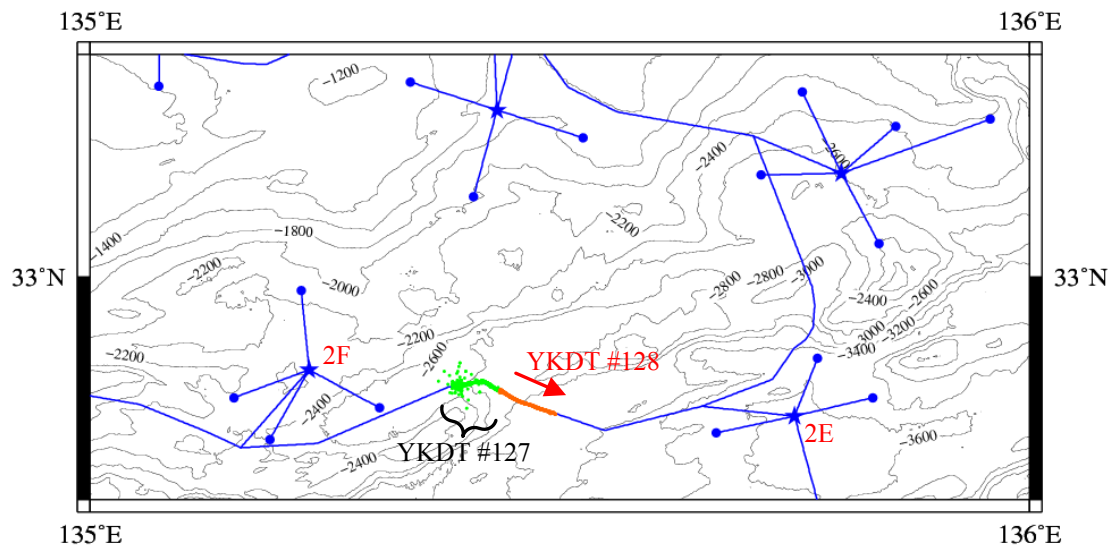


Fig. 4.2.1 Position history of YKDT #128

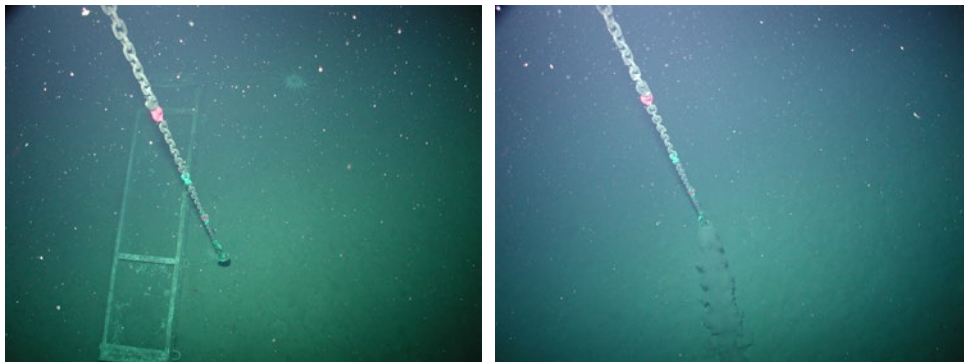


Fig. 4.2.2 Photos of the sea-floor (left: iron stepladder?)

(3) YKDT #129 survey (May 18, 2012)

In this dive, the route at offshore Muroto has been surveyed as shown in Fig. 4.3.1. The start point of the survey is (32° 50.6213'N, 134° 23.0252'E, 1648m depth) and the end point is (32° 56.4004'N, 134° 20.8057'E, 969m depth). The surveyed route has not any obstacle which prevents the laying of a backbone cable. Fig. 4.3.2 shows the obtained photos of the sea-floor.

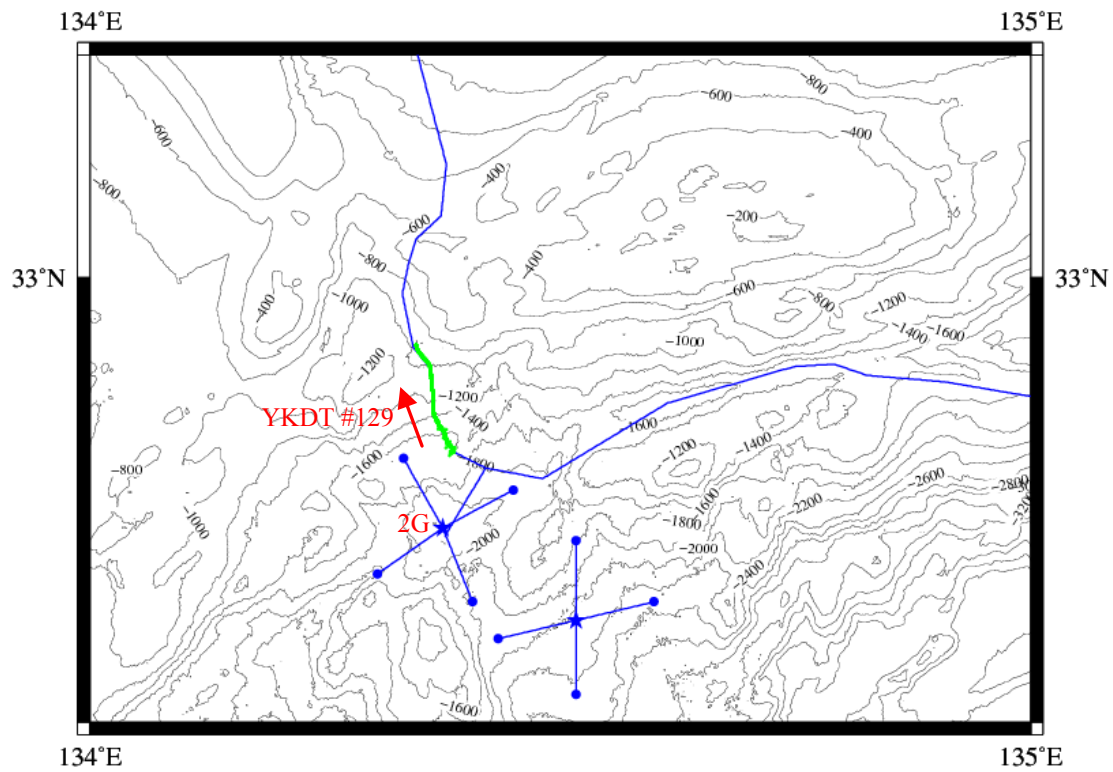


Fig. 4.3.1 Position history of YKDT #129

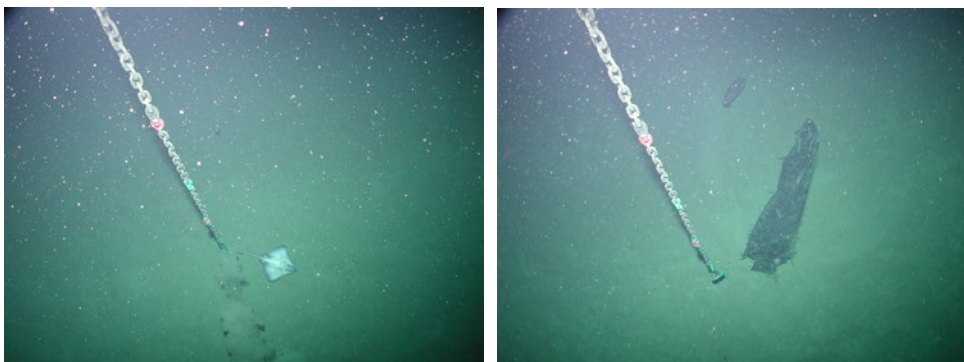


Fig. 4.3.2 Photos of the sea-floor (left: ray, right: wood)

(4) YKDT #130 and #131 (May 19, 2012)

1) YKDT #130

Following YKDT #129, the route at offshore Muroto has been surveyed as shown in Fig. 4.4.1. The start point is (32° 56.4150'N, 134° 20.9399'E, 938m depth) and the end point is (32° 59.8764'N, 134° 20.0969'E, 806m depth). The surveyed route in this dive is considered to be appropriate for laying a backbone cable. Because a rope lump on seafloor was tangled with the chain connected with YKDT, the YKDT has come to the surface to remove it. Fig. 4.4.2 shows the photos just before the chain gets tangle with the rope and the removed rope on the R/V Yokosuka.

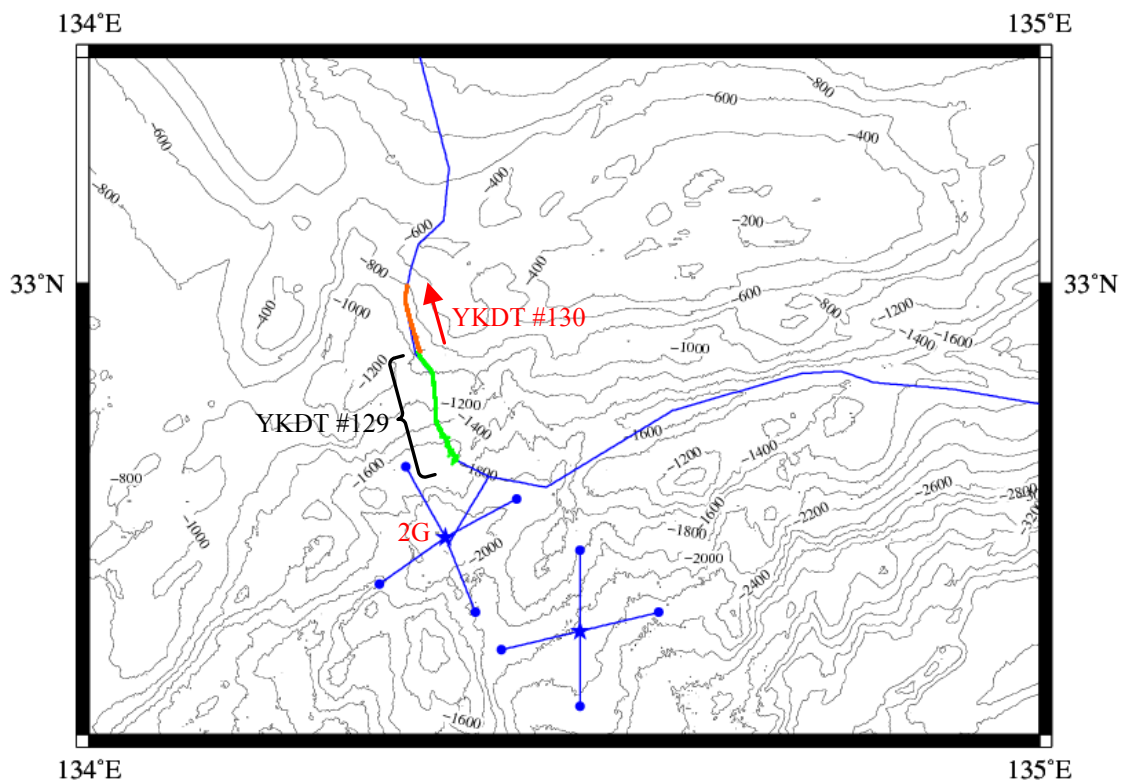


Fig. 4.4.1 Position history of YKDT #130

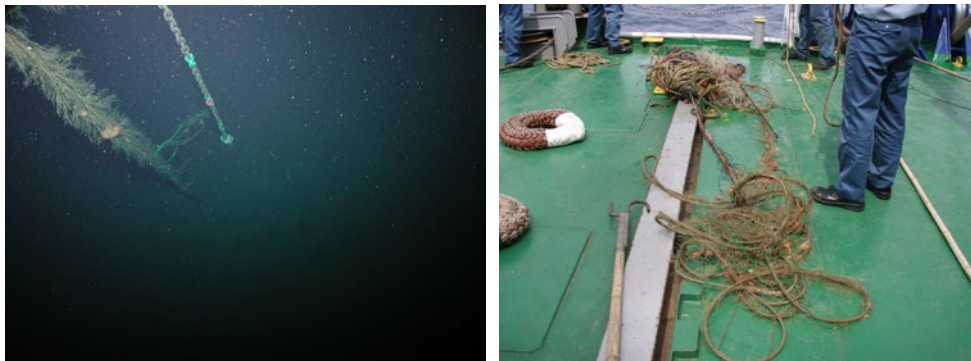


Fig. 4.4.2 Just before the chain connected with YKDT gets tangle with the rope on the sea-floor (left). The removed rope lump (right).

2) YKDT #131

After removing the rope lump on the R/V Yokosuka, YKDT #131 has been carried out at offshore Muroto as shown in Fig. 4.4.3. The start point of the survey is ($32^{\circ} 59.9585'N$, $134^{\circ} 20.1329'E$, 783m depth) and the end point is ($33^{\circ} 01.4253'N$, $134^{\circ} 20.5857'E$, 526m depth). There were no obstacles on the majority of the route; however, scattered big/small rocks were found around a depth of 500m (Fig. 4.4.4). Thus, it is needed to discuss the route where rocks were found whether it is appropriate as a backbone cable route or not.

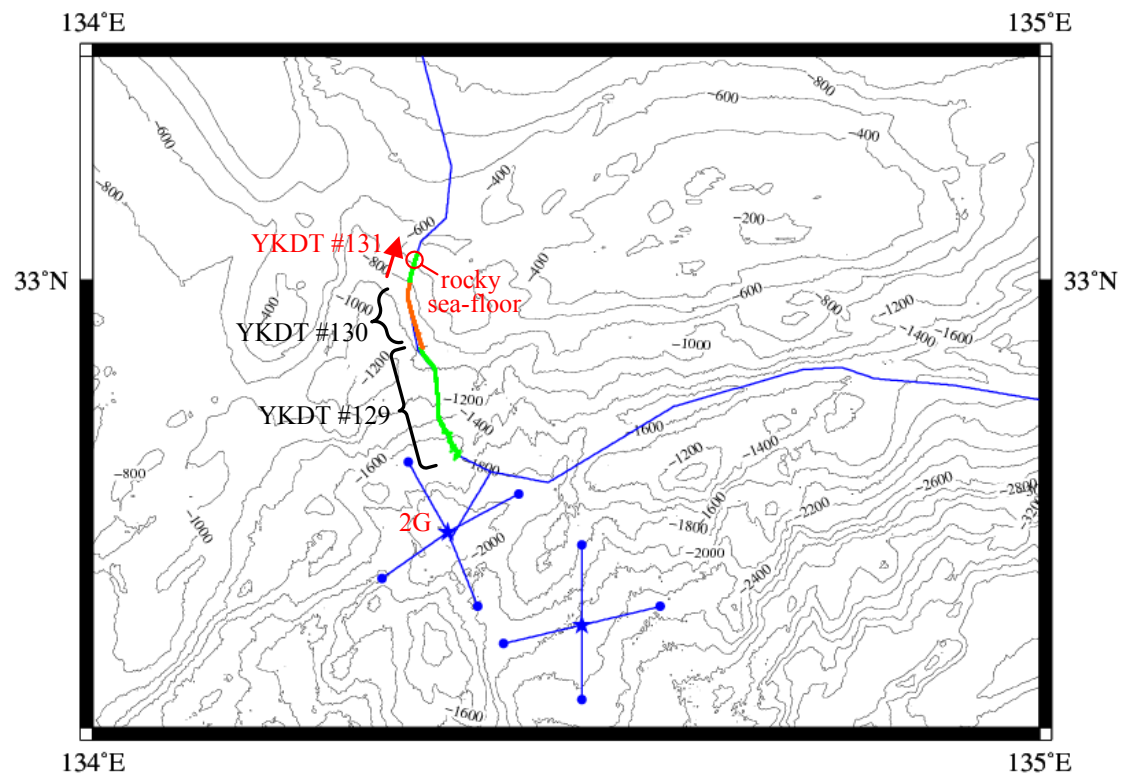


Fig. 4.4.3 Position history of YKDT #131

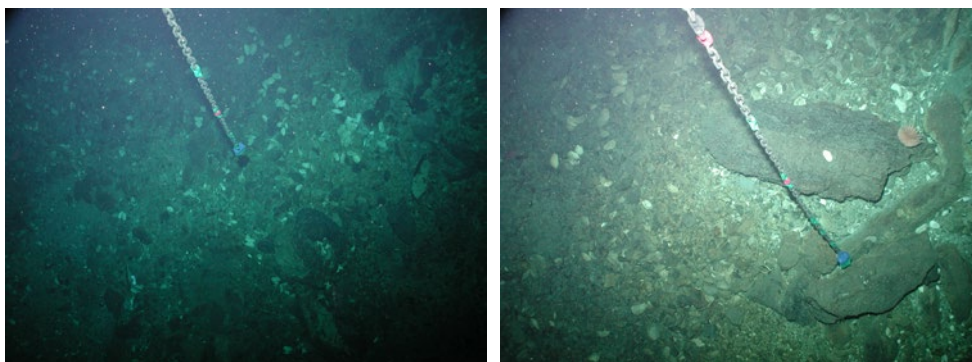


Fig. 4.4.4 Rocky sea-floor

(5) YKDT #132 and #133 (May 20, 2012)

1) YKDT #132

Following YKDT #131, YKDT #132 has been carried out to survey the route shown in Fig. 4.5.1. The start point of the survey is ($33^{\circ} 01.4134'N$, $134^{\circ} 20.7056'E$, 516m depth) and the end point is ($33^{\circ} 04.9009'N$, $134^{\circ} 22.6163'E$, 527m depth). There were scattered big/small rocks and cliffs at most parts of the surveyed route. Fig. 4.5.2 shows the obtained photos of the sea-floor. The YKDT has come to the surface to be inspected whether it is tangled with an obstacle because its direction is largely different to the towing direction.

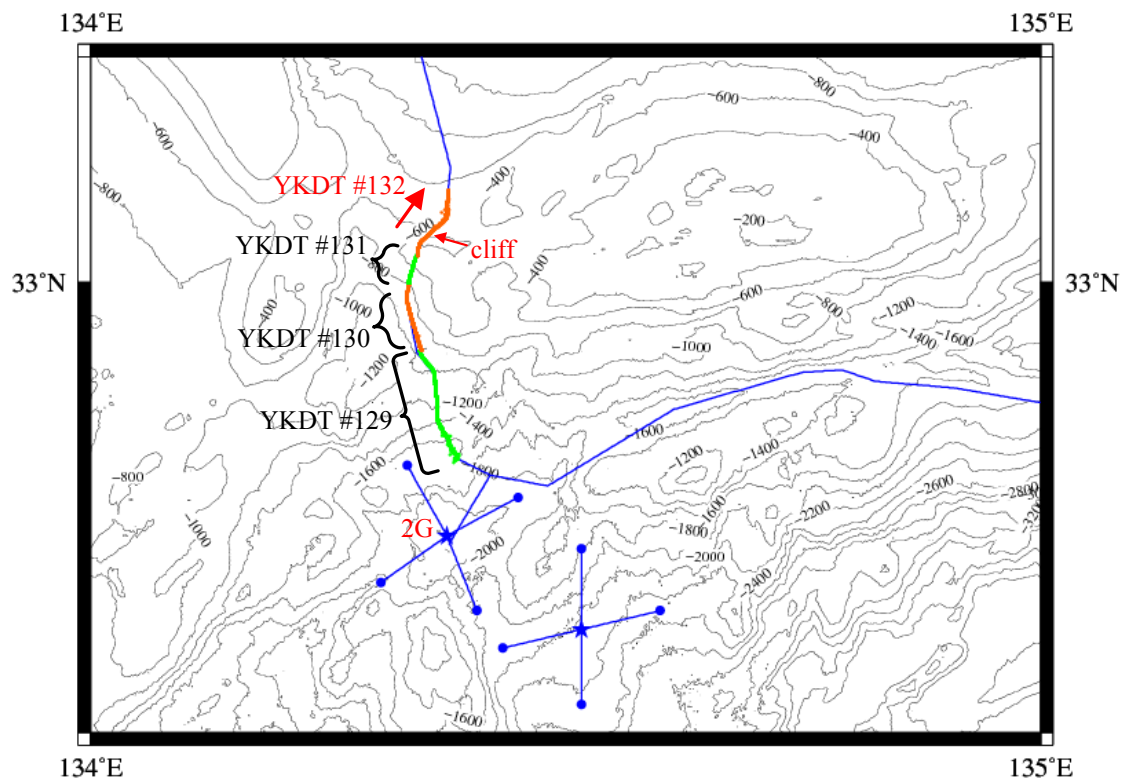


Fig. 4.5.1 Position history of YKDT #132

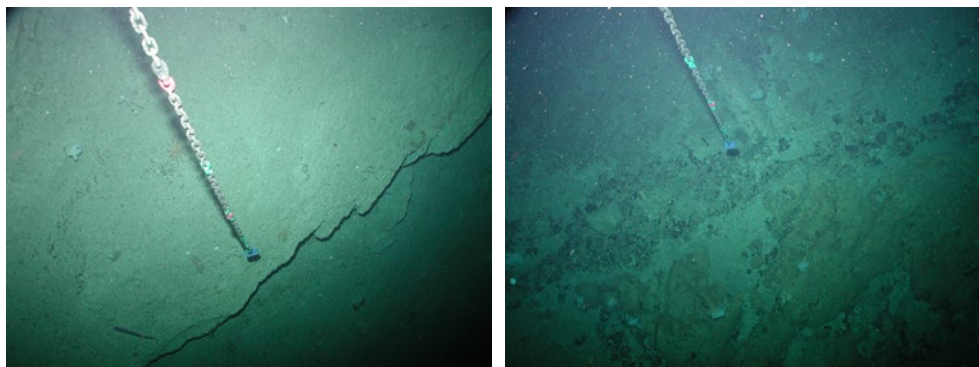


Fig. 4.5.2 Photos of sea-floor (left: cliff, right: rocky sea-floor)

2) YKDT #133

After confirming that the YKDT has no problem, the dive of YKDT #133 has started. As shown in Fig. 4.5.3, the start point of the survey is ($33^{\circ} 05.0566'N$, $134^{\circ} 22.5946'E$, 548m depth) and the end point is ($33^{\circ} 07.1663'N$, $134^{\circ} 22.4064'E$, 728m depth). Rocky sea-floor was found at near the start point as shown in Fig. 4.5.4. Together with YKDT #132, it is considered that the route where rocky sea-floor was found needs to be discussed whether it is appropriate as a backbone cable route or not.

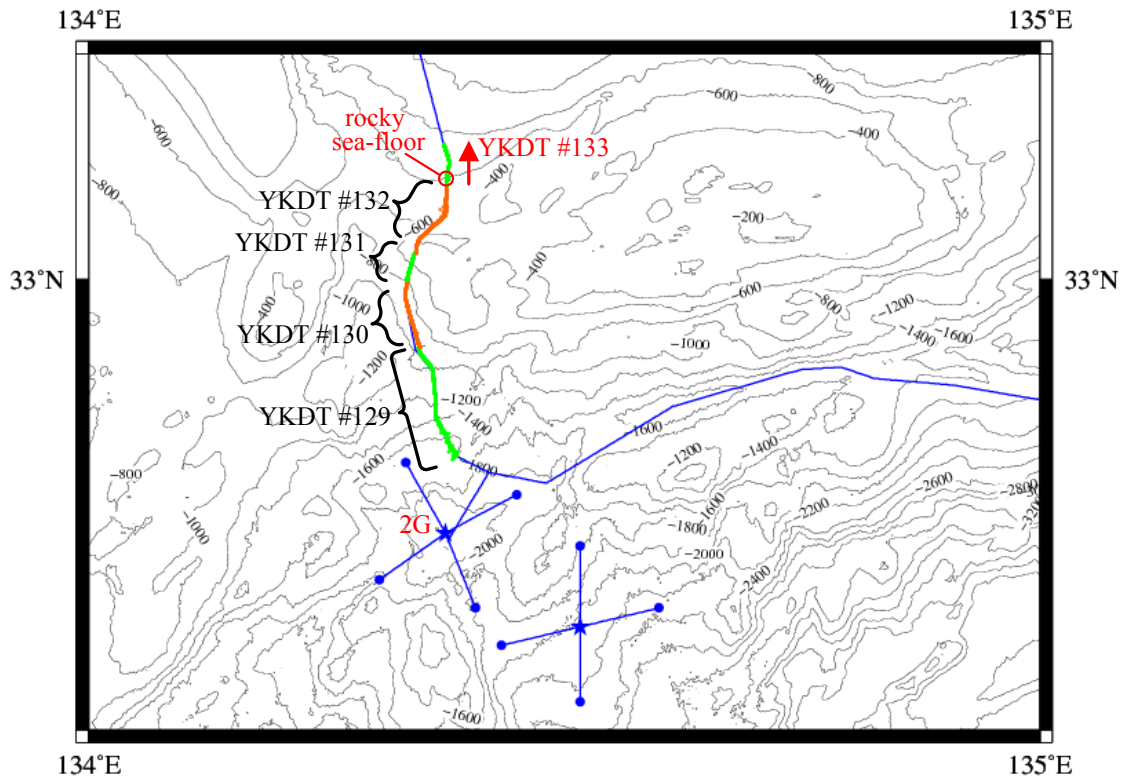


Fig. 4.5.3 Position history of YKDT #133

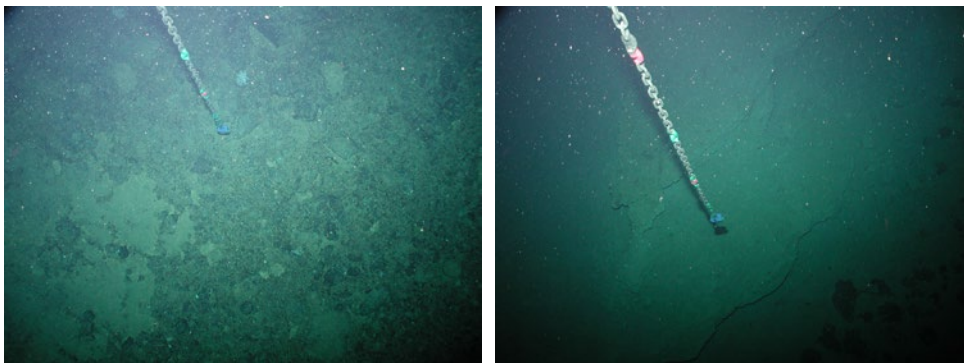


Fig. 4.5.4 Rocky sea-floor

(6) YKDT #134 (May 23, 2012)

In this dive, the route from the backbone cable to the node 2A shown in Fig. 4.6.1 has been surveyed. The start point of the survey is (33° 18.2606'N, 134° 40.1857'E, 1357m depth) and the end point is (33° 20.0529'N, 134° 48.6505'E, 1352m depth). There were no obstacles on the surveyed route and it is considered that the route is fitted to be a cable route. Fig. 4.6.2 shows the obtained photos of the sea-floor.

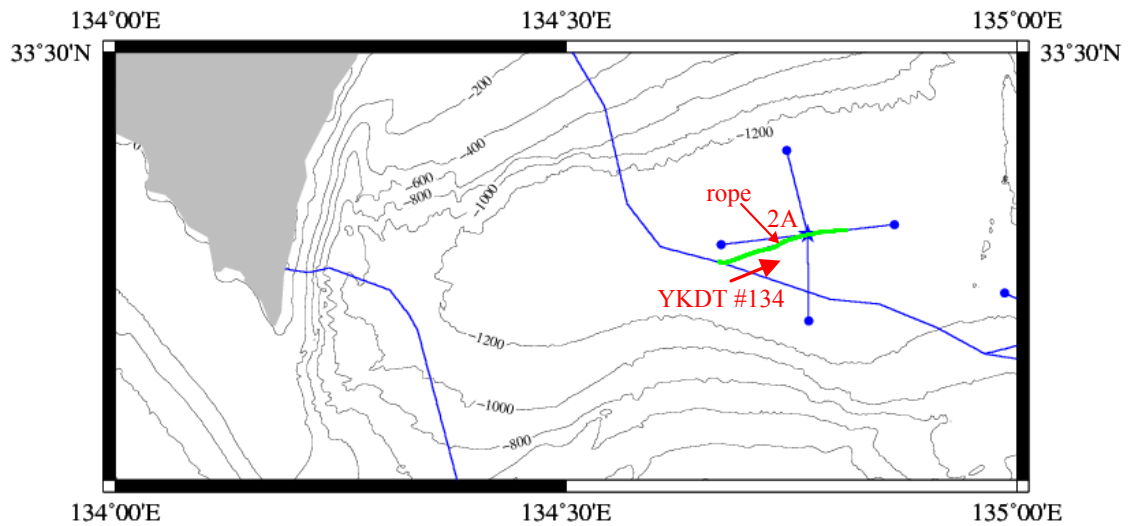


Fig. 4.6.1 Position history of YKDT #134

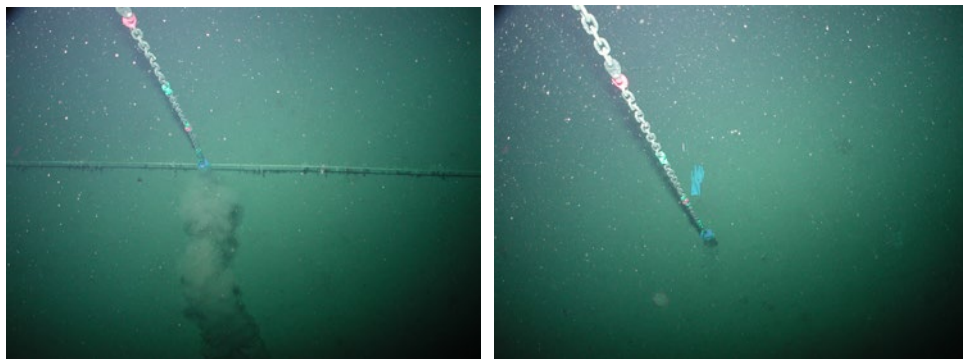


Fig. 4.6.2 Rocky sea-floor (left: rope, right: glove)

(7) YKDT #135 (May 24, 2012)

The route between nodes 2F and 2G has been surveyed as shown in Fig. 4.7.1. The start point of this survey is (32° 55.2152'N, 134° 45.0019'E, 1505m depth) and the end point is (32° 54.4090'N, 134° 53.8485'E, 1707m depth). It has been confirmed that the surveyed route is appropriate for laying a backbone cable. Fig. 4.7.2 shows the obtained photos of the sea-floor.

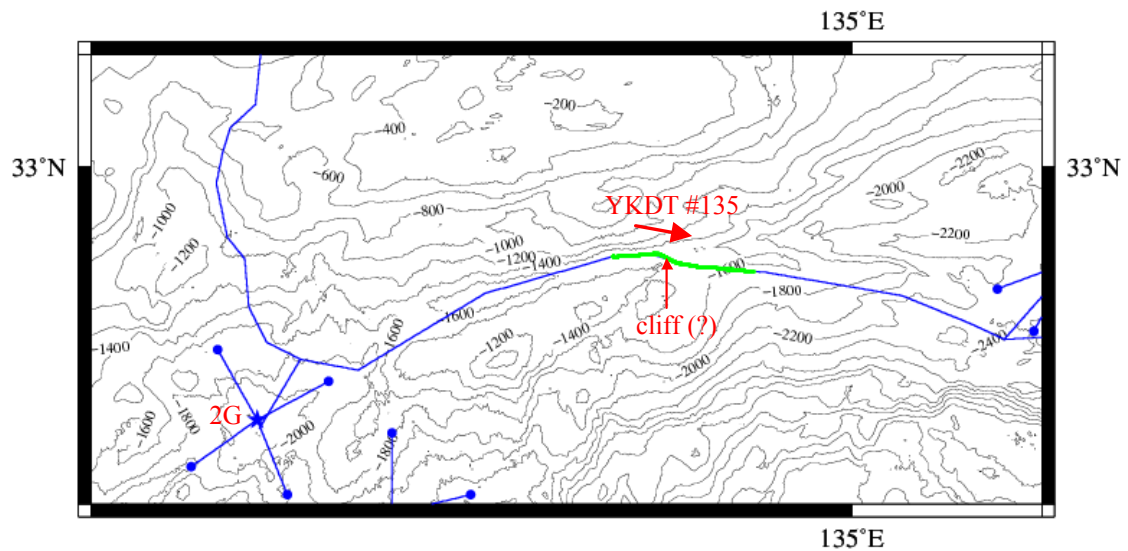


Fig. 4.7.1 Position history of YKDT #135

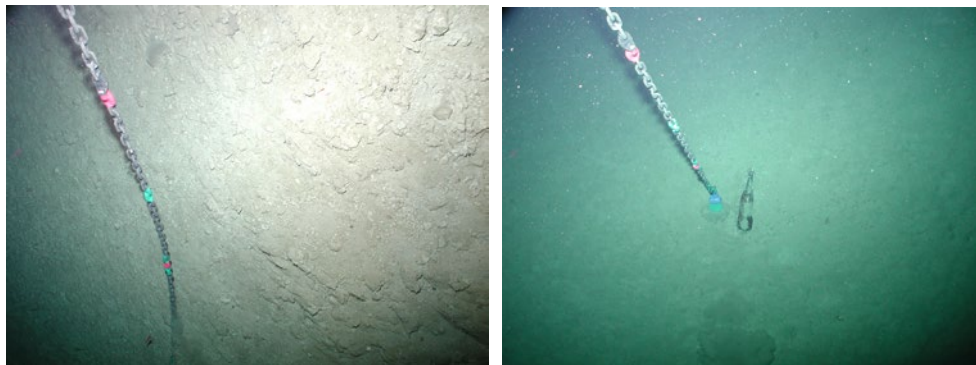


Fig. 4.7.2 Rocky sea-floor (left: cliff (?), right: bottle)

(8) YKDT #136 (May 25, 2012)

Connecting to YKDT #135, the route between nodes 2F and 2G has been surveyed as shown in Fig. 4.8.1. The start point of this survey is ($32^{\circ} 54.4219'N$, $134^{\circ} 53.5138'E$, 1714m depth) and the end point is ($32^{\circ} 53.0797'N$, $135^{\circ} 03.1942'E$, 2139m depth). Many places of the surveyed route were covered with small/large rocks as shown in Figs. 4.8.2. This result suggests that it is needed to discuss whether the road is fitted to a backbone cable route.

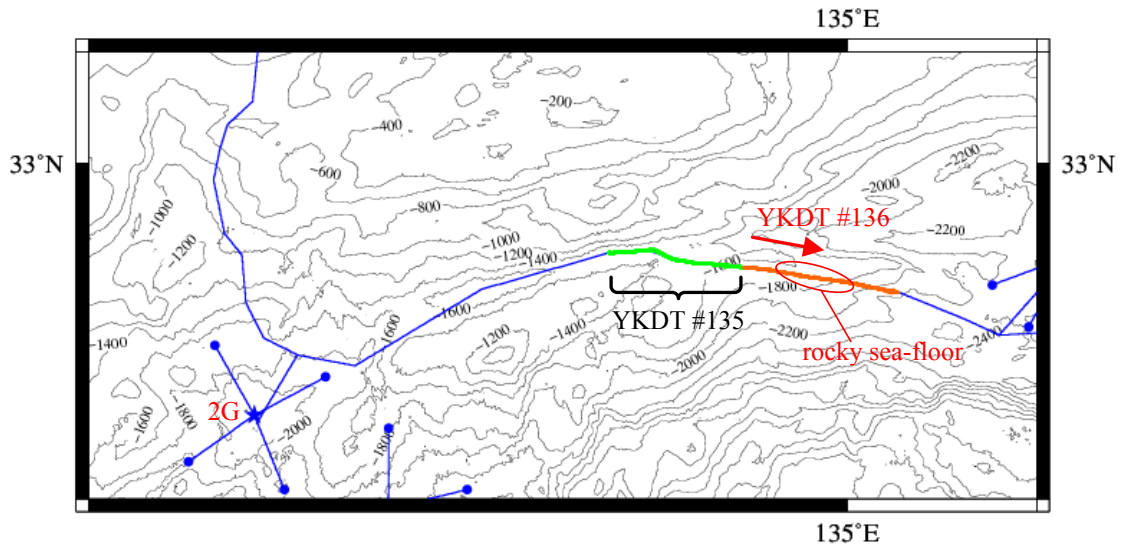


Fig. 4.8.1 Position history of YKDT #136

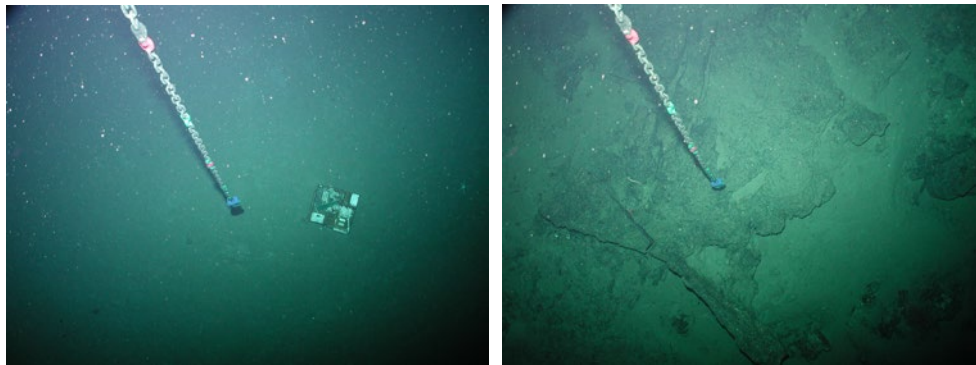


Fig. 4.8.2 Photos of the sea-floor (left: personal computer, right: rocky sea-floor)

(9) YKDT #137 (May 26, 2012)

The route around the node 2F has been surveyed as shown in Fig. 4.9.1. The start point of this survey is (32° 51.6155'N, 135° 07.6265'E, 2354m depth) and the end point is (32° 50.9853'N, 135° 13.8296'E, 2520m depth). There were no obstacles that stop laying a backbone cable. Some sampled photos are shown in Fig. 4.9.2.

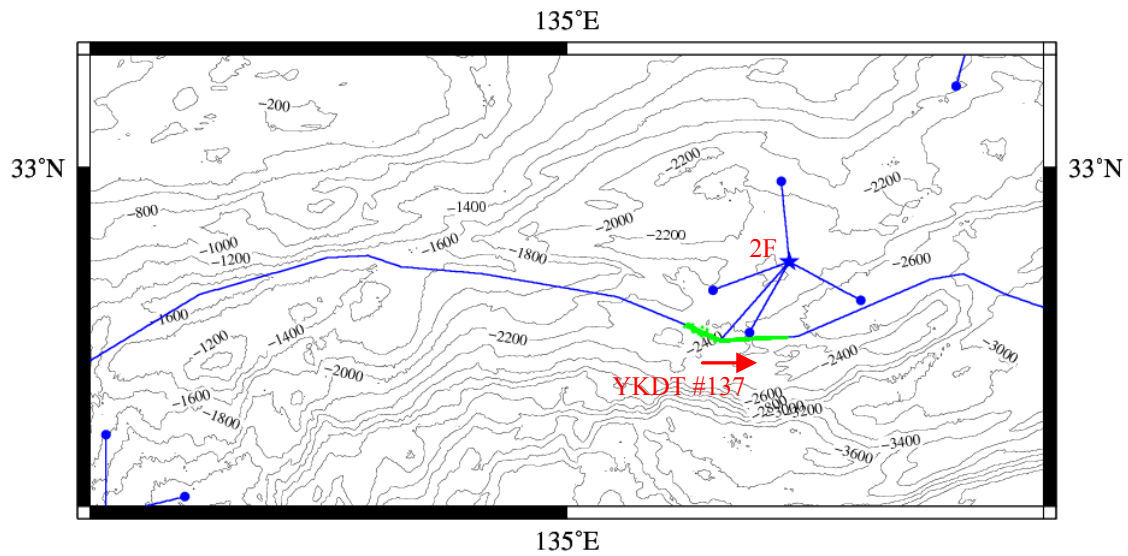


Fig. 4.9.1 Position history of YKDT #137

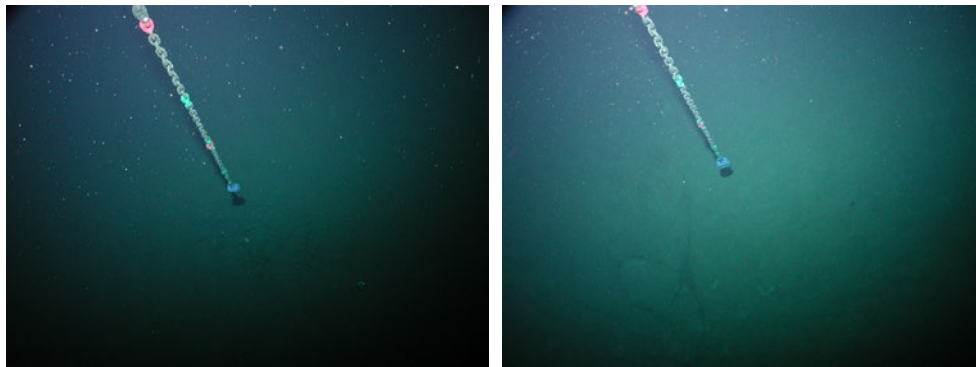


Fig. 4.9.2 Rope on the sea-floor

(10) YKDT #138 (May 27, 2012)

The route from the backbone to the node 2F has been surveyed as shown in Fig. 4.10.1. The start point of this survey is ($32^{\circ} 50.5431'N$, $135^{\circ} 9.2812'E$, 1505m depth) and the end point is ($32^{\circ} 54.9844'N$, $135^{\circ} 14.1656'E$, 1707m depth). It was confirmed that there is no problem on the route for laying a cable. Fig. 4.10.2 shows the photos of the sea-floor.

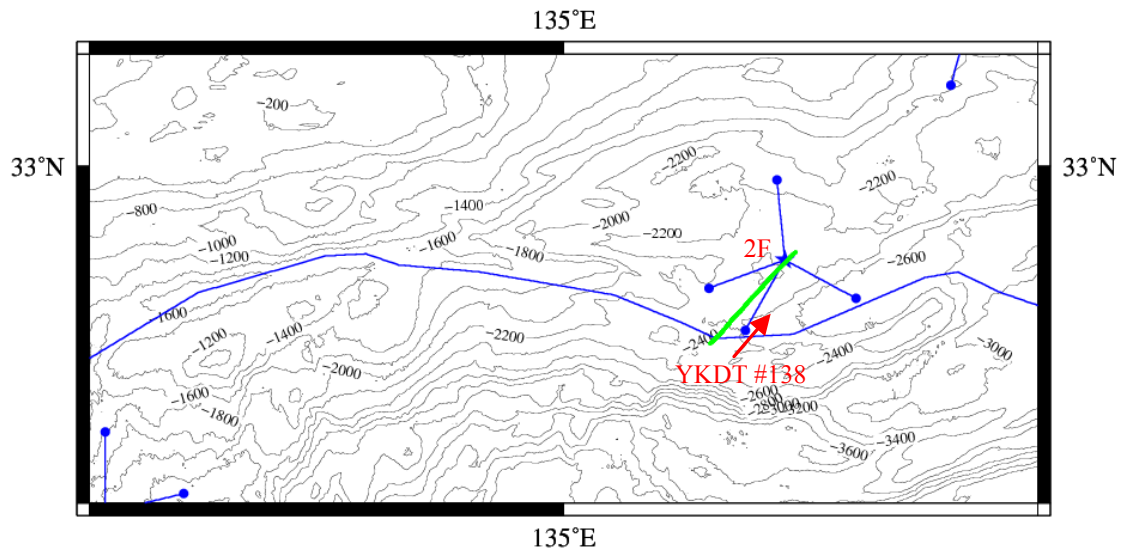


Fig. 4.10.1 Position history of YKDT #138

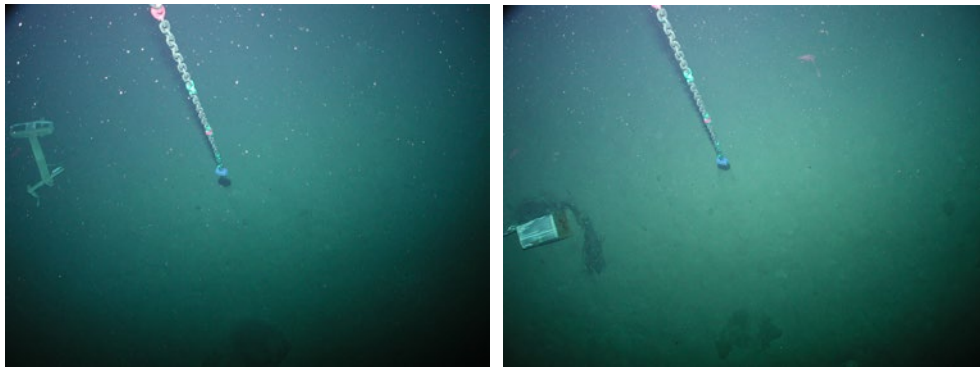


Fig. 4.10.2 Photos of the sea-floor

5. Conclusion

Route surveys on the planned cable route of DONET-2 were carried out to check the sea floor, and bathymetric surveys were also conducted in this area. The cable route will be adjusted using these survey results.

6. Notice on Using

Notice on using: Insert the following notice to users regarding the data and samples obtained.

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.