

KR17-08C Cruise Summary

1. Cruise Information

- Cruise ID: KR17-08C
- Name of vessel: *KAIREI*
- Title of the cruise: KR17-08C KAIREI / UROV11K
- Chief scientist: Takashi Murashima [JAMSTEC]
- Representative of the Science Party: Takashi Murashima [JAMSTEC]
- Title of proposal: Sea trial of a full depth ROV “UROV11K” system in Mariana Trench
- Cruise period: 2017/05/05 – 2017/05/25
- Ports of departure / call / arrival
 - Embarkation: Yokosuka, Japan (2017/05/05)
 - Disembarkation: Imabari, Japan (2017/05/25)
- Research area: Sagami Bay and the Mariana Trench
- Research map
 - Sagami Bay (Fig.1)
 - 35° 02' N 139° 15' E, Research area is indicated by the circle.

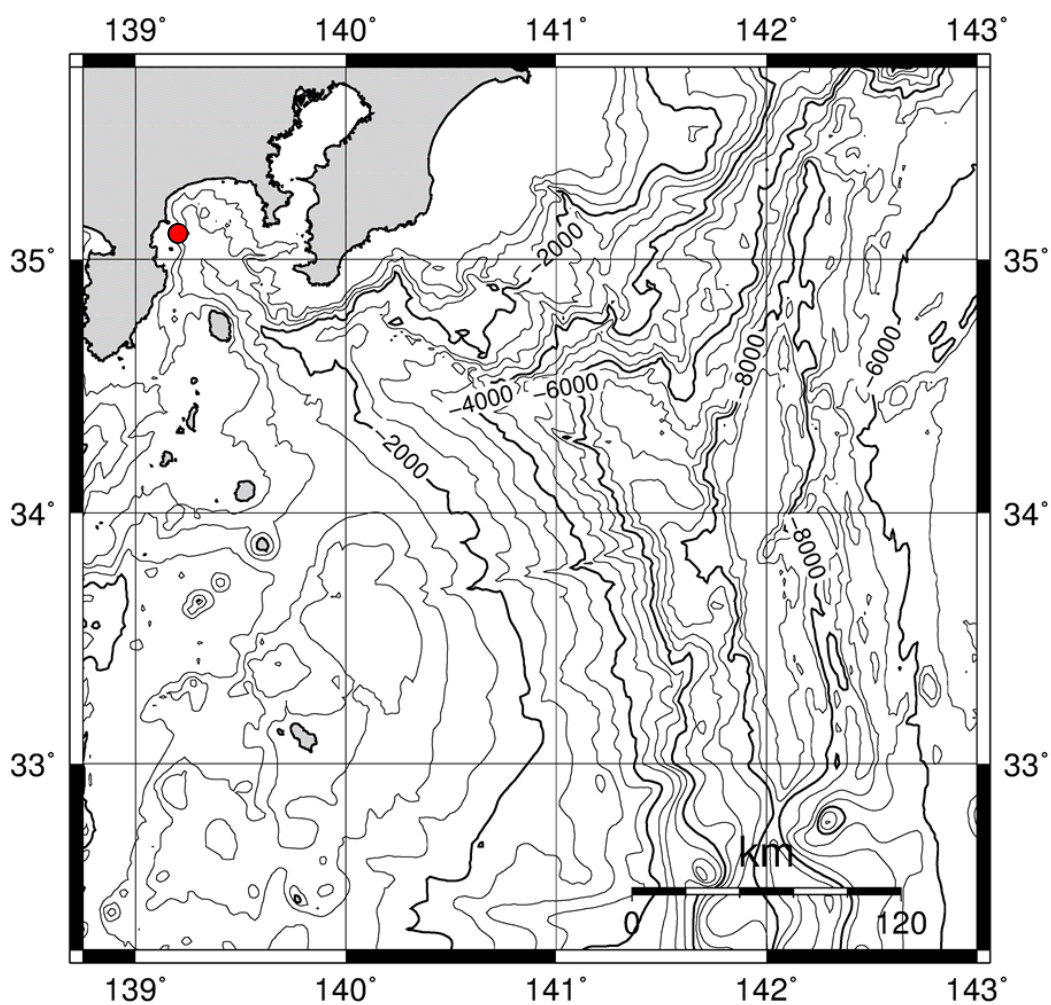


Fig1 Research area in Sagami Bay

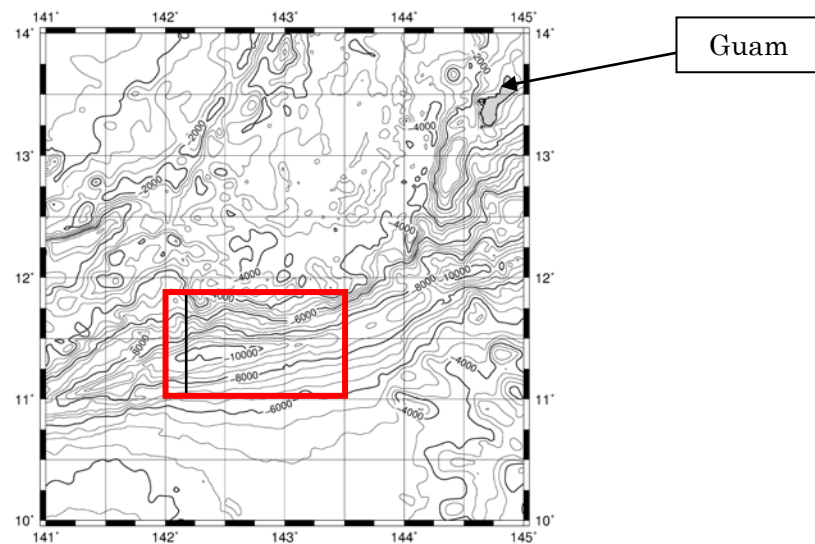
-Mariana Trench (Fig.2)

11°00'N 142°00'E, 11°50'N 142°00'E

11°50'N 143°30'E, 11°00'N 143°30'E

Research area is indicated by the box.

海域全体図



【拡大図】

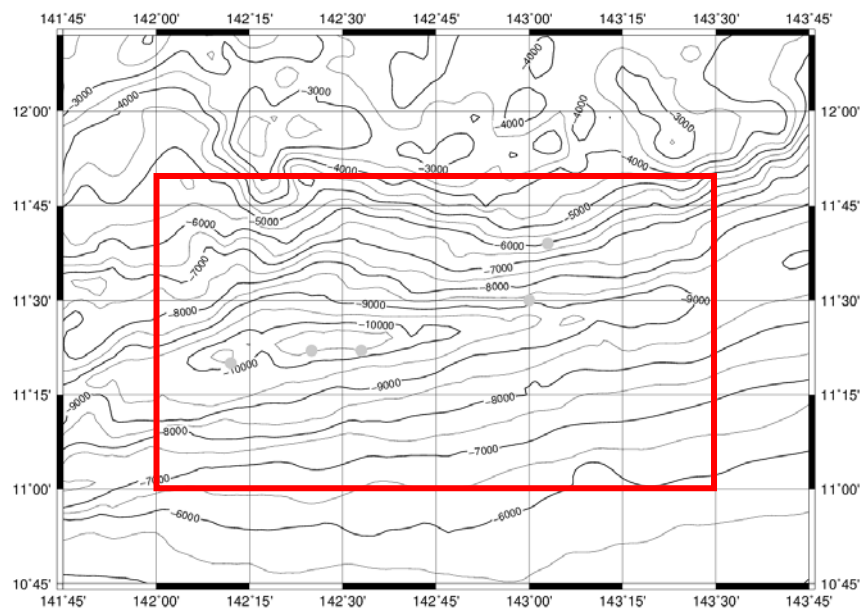


Fig2 Research area in Mariana Trench

2. Overview of the Observation

- Overview of the observation

Table1 is the cruise log of KR17-08C.

(1) Test results of the UROV11K (Fig. 3)

The UROV11K reached to 10,899m depth on May 14 2017 during the cruise. The 4K and HD image of the UROV11K was confirmed successfully on the ship in real time. During the bottom survey by 4K and HD cameras, we found lots of holothurians sitting on the bottom directed same way, and several swimming amphipods.

After finishing the operation test in the EEZ of the Federated States of Micronesia, the vehicle started rising toward the surface. It gradually slowed down and stopped rising at 5,320 meters depth. Although we made every effort to recover the vehicle, we were unable to recover it.

(2) Results of the Compact hadal lander (Fig. 4)

The lander was deployed three times in Mariana Trench. At 7,498m and 8,178m sites in the Mariana Trench, the 4K camera recorded deep-sea fish, possibly to be *Pseudoliparis* sp. At the former site, the several individuals of the fish appeared during the recording.

Table1. Cruise log

	Date	works	location
1	2017/05/05 (Fri.)	Departure from Yokosuka Cruise for Sagami Bay	Yokosuka (JAMSTEC)
2	05/06 (Sat.)	Operation test of <i>UOVIIK</i> (35°04.3'N, 139°13.3'E) Installation of the lander (35°04.3'N, 139°13.3'E)	Sagami Bay (1,000m)
3	05/07 (Sun.)	Recovery of the lander Cruise for the Mariana Trench	Sagami Bay (1,000m)
4	05/08 (Mon.)	Cruise for the Mariana Trench	-
5	05/09 (Tue.)	Cruise for the Mariana Trench	-
6	05/10 (Wed.)	Cruise for the Mariana Trench	-
7	05/11 (Thu.)	Cruise for the Mariana Trench	
8	05/12 (Fri.)	Sea trial of <i>UROVIIK</i> (11°22.3'N, 142°26.0'E)	Mariana Trench (FSM, 11,000m)
		Installation of the lander (11°31.1'N, 143°10.1'E)	Mariana Trench (USA, 8,000m)
9	05/13 (Sat.)	Recovery of the lander Installation of the lander (11°34.3'N, 143°09.1'E)	Mariana Trench (USA, 8,000m)
10	05/14 (Sun.)	Sea trial of <i>UROVIIK</i> (11°22.3'N, 142°35.5'E) The vehicle stopped rising at 5,320m depth.	Mariana Trench (FSM, 11,000m)
11	05/15 (Mon.)	Recovery of the lander	Mariana Trench (USA, 8,000m)
12	05/16 (Tue.)	Search for the vehicle with the launcher.	Mariana Trench (FSM, 11,000m)
13	05/17 (Wed.)	Installation of the lander (11°31.0'N, 143°08.2'E)	Mariana Trench (USA, 8,000m)
14	05/18 (Thu.)	Search for the vehicle with the equipment of the ship.	Mariana Trench (FSM, 11,000m)
15	05/19 (Fri.)	Recovery of the lander Cruise for Imabari, Japan	Mariana Trench (USA, 8,000m)
16	05/20 (Sat.)	Cruise for Imabari, Japan	
17	05/21 (Sun.)	Cruise for Imabari, Japan	
18	05/22 (Mon.)	Cruise for Imabari, Japan	
19	05/23 (Tue.)	Cruise for Imabari, Japan	
20	05/24 (Wed.)	Cruise for Imabari, Japan	
21	05/25 (Thu.)	Disembarkation	Imabari, Japan



	Vehicle	Launcher
Length	2.0 m	3.3 m
Width	1.2 m	2.0 m
Height	1.5 m	1.8 m
Weight in air	1,300 kg	2,000 kg
Max. Operating Depth	11,000m	
Power	100V DC (battery)	3,200V AC
Thrusters	forward/reverse: 2, vertical: 2	vertical: 2
Payload	- CTD -4K TV camera, HD (High Definition) TV cameras - LED lights	- CTD -2 × wide angle color TV cameras - halogen lights
Navigation	altimeter, depth sensor, flasher, obstacle avoidance sonar, compass, ARGOS beacon, iridium beacon, transponder	Compass, transponder
Cables	Optical/power composite cable: primary cable: 45 mm (diameter) × 12,000 m optical fiber cable: 1.0 mm (diameter) × 10,000 m 2set	

Fig3 The specification of *UROV11K* system



	Lander
Length	1.0 m
Width	1.0 m
Height	2.0 m
Weight in air	100 kg
Max. Operating Depth	8,500m
Payload	- CTD - 4K TV cameras - LED lights
Navigation	ARGOS beacon, transponder

Fig.4 The specification of the Lander