



R/V *Shinseimaru* Cruise Report
KS-20-J07
Leg.1

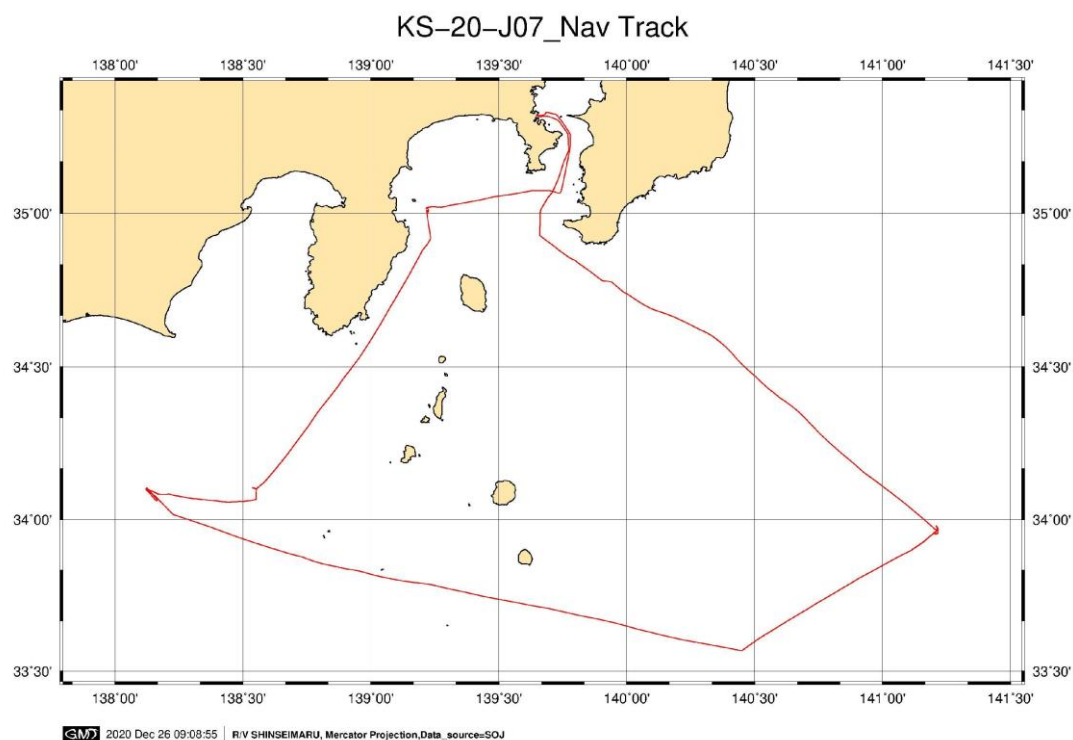
Sea Trial of ROV *Hyper Dolphin*

Research area:
Izu-Ogasawara, Kumano-nada, Northern Nankai Trough
Dec.20, 2020-Dec.24, 2020

Japan Agency for Marine-Earth Science and Technology
(JAMSTEC)

1. Cruise Information

- Cruise ID: KS-20-J07
- Name of vessel: R/V *Shinseimaru*
- Title of cruise:
 - Sea trial of ROV *Hyper-Dolphin* (Leg.1)
- Chief Scientist: Yoshinobu Nambu
- Cruise period:
 - December 20,2020 to December 24,2020 (Leg.1)
 - December 25,2020 to December 26,2020 (Leg.2)
- Ports of departure/arrival: JAMSTEC Headquarter, Yokosuka
- Research area:
 - Izu-Ogasawara, Water depth 2,900m-5,000m (Leg.1)
33° 40.00'N-34° 00.0'N, 141° 00.0'E-141° 25.0' E
 - Suruga-Bay and Northern Nankai Trough, Water Depth 300m-3,600m (Leg.1)
[34° 00.0'N, 138° 18.0'E],[34° 50.0'N,138° 35.0'E]
[34° 50.0'N, 138° 40.0'E],[34° 00.0'N,138° 40.0'E]
- Research map



2. Research Proposal and Science Party

- Title of proposal
 - Sea trial of ROV *Hyper-Dolphin* (Leg.1)
- Representative of the science party [Affiliation]
NAMBU YOSHINOBU [JAMSTEC]
- Science party (*on shore)
 - Leg.1
NAMBU YOSHINOBU [JAMSTEC]
YAMAZAKI YASUYUKI [JAMSTEC]
NUNOURA TAKURO* [JAMSTEC]
SUMIDA TOMOMI [JAMSTEC]
MIYAZAKI MASAYUKI* [JAMSTEC]

KANAMATSU TOSHIYA	[JAMSTEC]
Kan-Hsi Hsiun	[JAMSTEC]
FUJIWARA TOSHIYA*	[JAMSTEC]

● SHINSEIMARU Crew

Captain	AKIHISA TSUJI
Chief Officer	FURUKAWA YUKI
2nd Officer	YUKAWA TOMOHIRO
3rd Officer	KUSUMI KEISUKE
Chief Engineer	IKUTA SHINICHI
1st Engineer	TADOOKA NAOHITO
2nd Engineer	INOMOTO TAKAATSU
3rd Engineer	TOMIYAMA YUSUKE
Chief Electronics Op.	TAKAHASHI MASAMOTO
2nd Electronics Op.	SUGIMOTO YOHEI
Boat Swain	HIROSAKI KANAME
Able Seaman	NAKAE KENJI
Able Seaman	KAWAMURA KOSEI
Able Seaman	NAKANISHI TORU
Able Seaman	SAGA TOSHIYA
Sailor	ITO SHIN
Sailor	MATSUDA TASEI
No.1 Oiler	YOSHIDA KATSUYUKI
Oiler	HIGASHIGAWA YUJI
Oiler	MISAGO SOTA
Assistant Oiler	MANNA SHOTA
Chief Steward	HIRAYAMA KAZUHIRO
Steward	SHIRAISHI TATSUYA
Steward	TAKAMA TOSHIYUKI

● Hyper-Dolphin Operation Team

Operation Manager	TEPPEI KIDO
2nd ROV Operator	TAKENOUCHI ATSUSHI
2nd ROV Operator	SAKAKIBARA YUDAI
2nd ROV Operator	TAYAMA YUDAI
3rd ROV Operator	YAMAGUCHI TAIKEN
3rd ROV Operator	ASANO WATARU

3. Research/Development Activities

- ROV *Hyper-Dolphin* Cable free fall

Perform a free fall on the umbilical cable (# 6), to be press-fit the rust preventive and measure the rotation characteristics.

A free fall was performed on the umbilical cable # 6 for 2 days, and it was confirmed that there was no abnormality in the appearance of the cable and the electrical and optical characteristics. The rotation characteristics at a cable length of 4500m were also obtained.

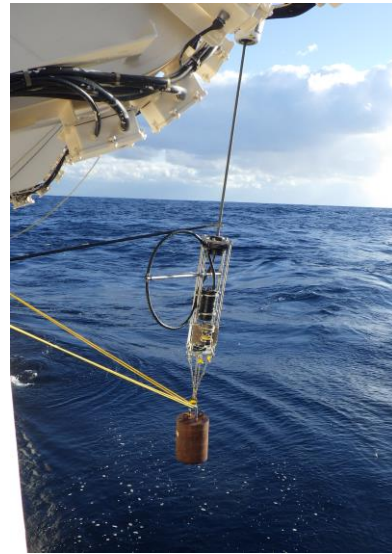


Fig.3.1. Cable free fall

- Sea trial of ROV *Hyper-Dolphin*

Annual sea trial of *Hyper-Dolphin* was conducted at water depths up to 3600m to confirm the integrity of the equipment and system after land maintenance. Operation training using maneuvers and manipulators was also conducted.

Note that sea trial in operating depth 4,500m could not be performed due to laugh weather.



Fig.3.2. ROV *Hyper-Dolphin* (Dive#2119)

Dive #2118, Sea trial was conducted at the northern edge of the Nankai Trough in WD 2,410m. During the pre-dive checks, the new SGK transponder did not work and it was replaced to the spare. Further investigation is necessary. operation tests of each device were performed at a depth of 2000m without landing due to un-enough time.

Dive #2119, Sea trial and additional work 1 was performed at the Suruga-Bay in WD 3,600m and there was no abnormality. During dive#2118 and 119, Manipulator operation, camera photography, vehicle operation training and acoustic positioning system test were conducted with monitoring acoustic data.

- additional work 1: Sediment sampling for Open Innovation Platform (OIP)

OIP provides microbiological and environmental genetic resources such as microbial strains, deep-sea sediments for isolation of microbes and for environmental DNA, and environmental DNA sequences, to industry and academy for industrial purposes. During this cruise, OIP takes deep-sea sediment samples for the resources and samples for environmental parameters associated with them such as pore-water geochemistry, sediment organic geochemistry and microbial diversity.

●additional work 2: Sediment survey at Nankai Trough

The subbottom imaging of sedimentary layer on Hole C9035B, CHIKYU Score drilling site in FY2019, was conducted with SBP. The obtained image of under seafloor is characterized by strong and very thin reflectors. This probably represents the lithology, which is a high frequent sand layer intercalation.

4. Cruise Log

Date	Local Time	Description
-Sun.20.Dec	08:00	Scientists party onboard a vessel
	08:40	Kick-off meeting
	09:00	Departed from JAMSTEC Headquarter, Yokosuka Transited to Izu-Ogasawara
	10:00	Onboard lecture
Mon.21.Dec	02:00	Arrived at o Izu-Ogasawara
	08:24	Started to pay out the cable of #6 winch for free fall #1
	12:00	Hold with a cable length of 4,500m for 20 min.
	12:20	Started to wind up the cable
	14:42	Recovered cable
	18:00	Scientist Meeting
Tue.22.Dec	08:13	Started to pay out the cable for free fall
	10:40	Hold with a cable length of 4,500m for 20 min.
	11:00	Started to roll up the cable
	13:00	Recovered cable.
		Transited to Northern Nankai Trough
	17:40	Scientist meeting
Wed.23.Dec	11:00	Arrived at Northern Nankai Trough
	11:04	Deployed XBT
	11:48	Conducted SBP
	12:11	Completed SBP
	14:06	Launched HPD, Dive #2118
	15:00	Conducted function test at WD 2000m without landing on sea bottom
	16:42	Recovered HPD
Thu.24.Dec	08:31	Launched HPD, Dive #2119
	10:36	Landed sea bottom WD 3,593m Working on the seafloor
	13:55	Left sea bottom, WD 3556m
	14:56	Recovered HPD
	14:52	Transited to Off Hatsusima
	16:49	Preparation work for Leg.2
	18:00	Scientist meeting
	21:30	Arrived at Off Hatsusima.
Fri.25.Dec	7:40	Deployed XBT.
	8:20	Launched HPD, Dive #2120
	9:14	Landed sea bottom WD 849m Conducted Trial of Deep-sea Freezer (Leg.2)
	16:00	Left sea bottom
	17:00	Recovered HPD
	18:00	Scientist Meeting
	18:30	Transited to JAMSTEC Headquarter, Yokosuka
Fri.26.Dec	09:20	Arrived at JAMSTEC Headquarter, Yokosuka

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.

<http://www.godac.jamstec.go.jp/darwin/explain/1/c#report>

E-mail: submit-rv-cruise@jamstec.go.jp