



R/V Kaimei Cruise Report KM22-10

3D seismic survey to image plate boundary faults in the
subduction zone



Nankai Trough

Aug. 10, 2022- Sep. 8 2022

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

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1. Cruise Information

- Cruise ID: KM22-10
- Name of vessel: R/V Kaimei
- Title of cruise: 3D seismic survey to image plate boundary faults in the subduction zone
- Chief Scientist [Affiliation]: Ryuta Arai [JAMSTEC]
- Cruise period: Aug. 10, 2022-Sep. 8, 2022
- Ports of departure / call / arrival: Yokosuka (JAMSTEC HQ) -Yokosuka (JAMSTEC HQ)
- Research area: Nankai Trough
- Research map

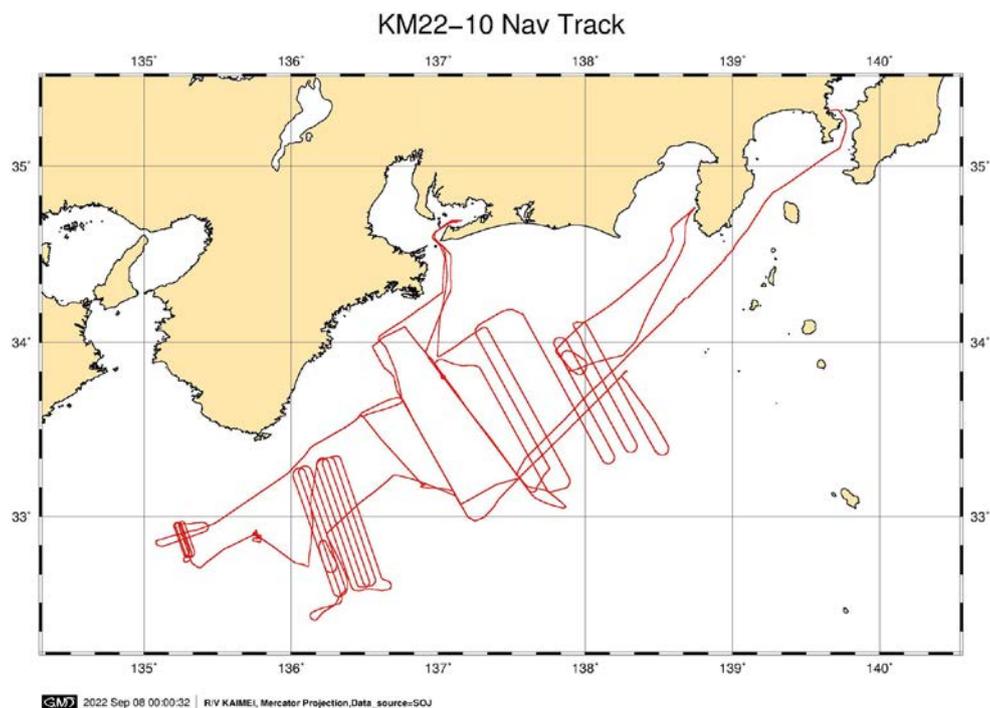


Figure 1. Ship track of the KM22-10 cruise.

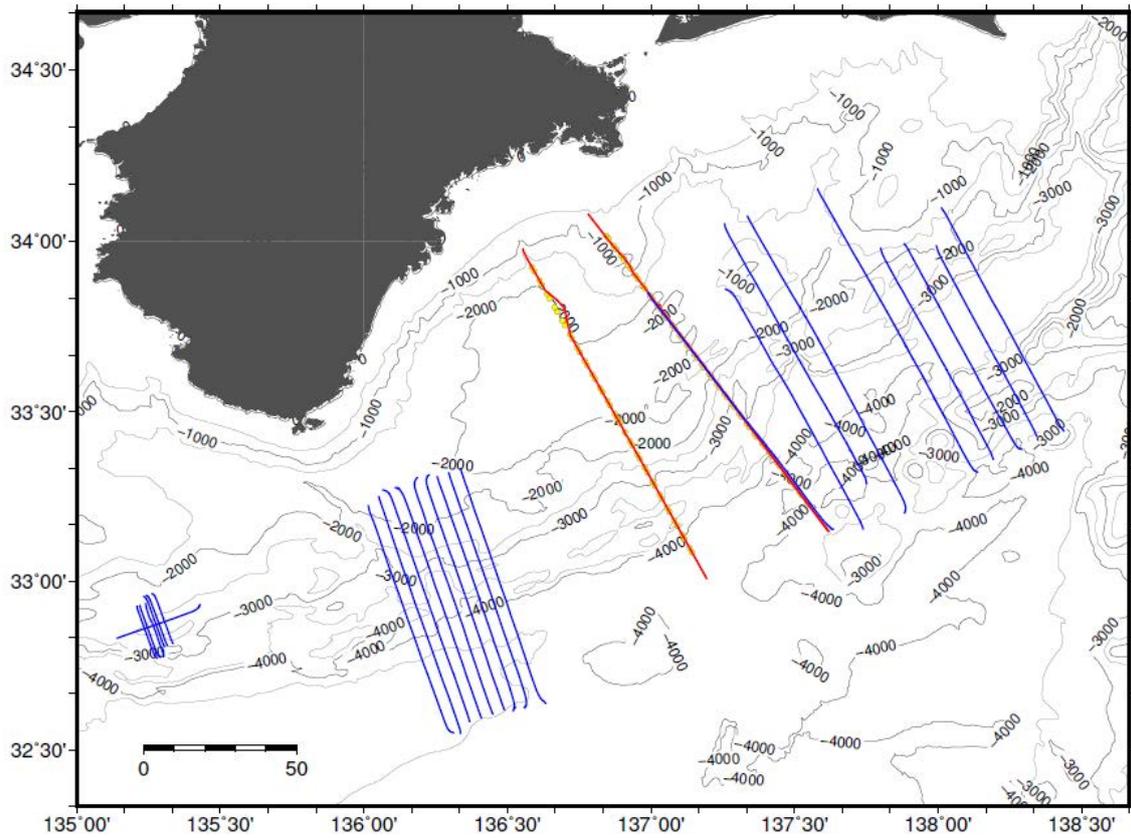


Figure 2. Airgun shooting for OBS refraction survey (red lines) and MCS reflection surveys (blue lines) conducted during the KM22-10 cruise. Yellow circles are OBS locations deployed during YK22-14 cruise.

2. Research Proposal and Science Party

● Title of proposal: High-resolution research of marine seismogenic faults in wide area:
Seismic survey and earthquake observation

● Representative of Science Party [Affiliation]: Seiichi MIURA [JAMSTEC]

● Science Party (List) [Affiliation, assignment etc.]

Seiichi MIURA	[JAMSTEC]
Yasushi ISHIHARA	[JAMSTEC]
Gou FUJIE	[JAMSTEC]
Yasuyuki NAKAMURA	[JAMSTEC]
Yuka KAIHO	[JAMSTEC]
Ayako NAKANISHI	[JAMSTEC]
Ryuta ARAI	[JAMSTEC]
Kazuya SHIRAISHI	[JAMSTEC]
Tetsuo NO	[JAMSTEC]
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Ryo MIURA	[JAMSTEC]
Yanfang QIN	[JAMSTEC]
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Tsutomu TAKAHASHI	[JAMSTEC]
Takashi TONEGAWA	[JAMSTEC]
Takane HORI	[JAMSTEC]
Takeshi IINUMA	[JAMSTEC]
Yojiro YAMAMOTO	[JAMSTEC]
Fumiaki TOMITA	[JAMSTEC]
Ryota HINO	[Tohoku Univ.]
Motoyuki KIDO	[Tohoku Univ.]
Yusaku OHTA	[Tohoku Univ.]
Masanao SHINOHARA	[The University of Tokyo]
Kimihiro MOCHIZUKI	[The University of Tokyo]
Shuichi KODAIRA	[JAMSTEC]
Mehmet Ali UGE	[JAMSTEC]

Onboard Technician

Yuki OHWATARI	[NME]
Keita SUZUKI	[NME]
Yoshiki HORIUCHI	[NME]
Kenya YAMANAKA	[NME]
Haruki DOI	[NME]
Kimiko SERIZAWA	[NME]
Misaki HORIUCHI	[NME]
Taiki KAWANO	[NME]
Naoto NOGUCHI	[NME]

Yousuke KAWAMURA	[NME]
Toshimasa NASU	[NME]
Takehiro HIGASHI	[NME]
Shoya ONISHI	[NME]
Nahoko ADACHI	[NME]

● Crew

Captain	Naoto KIMURA	[NME]
Chief Officer	Takeshi MURAMATSU	[NME]
2nd Officer	Ryo YAMAGUCHI	[NME]
Jr.2nd Officer	Saito TAKATA	[NME]
3rd Officer	Kanta OZAWA	[NME]
Jr.3rd Officer	Shun ITO	[NME]
Jr.3rd Officer	Miyu INOUE	[NME]
Chief Engineer	Kazuhiko KANEDA	[NME]
1st Engineer	Kenichi SHIRAKATA	[NME]
2nd Engineer	Katsuto YAMAGUCHI	[NME]
3rd Engineer	Naoyuki HAMAKAWA	[NME]
Jr.3rd Engineer	Tomoya KOGA	[NME]
Chief Electronics Operator	Yosuke KOMAKI	[NME]
2nd Electronics Operator	Shunsuke FUKAGAWA	[NME]
3rd Electronics Operator	Kohei IKEDA	[NME]
Boat Swain	Kaname HIROSAKI	[NME]
Able Seaman	Satoshi SHIMPO	[NME]
Able Seaman	Saikan HIRAI	[NME]
Able Seaman	Takuya MIYASHITA	[NME]
Able Seaman	Yuta OHJIRI	[NME]
Sailor	Shinnosuke INOUE	[NME]
Sailor	Keito SEGUCHI	[NME]
No.1 Oiler	Hiroyuki OISHI	[NME]
Oiler	Yuji HIGASHIGAWA	[NME]
Oiler	Toru HIDAKA	[NME]
Assistant Oiler	Kyotaro MARUYAMA	[NME]
Assistant Oiler	Marina SHIMIZU	[NME]
Assistant Oiler	Koitaro SARAMOTO	[NME]
Chief Steward	Tatsunari ONOUE	[NME]
Steward	Masanao KUNITA	[NME]
Steward	Keito SATO	[NME]
Steward	Yuma FUJIMOTO	[NME]

3. Research/Development Activities

- Purpose and background:

The cruise KM22-10 aims at revealing three-dimensional geometry and physical properties of faults in the Nankai Trough region as described in the mid-term to long-term research plan of JAMSTEC. In the survey area including off Shionomisaki, Kumano-nada and Enshu-nada in the central and eastern part of the Nankai Trough, a large megathrust earthquake of magnitude of 8 occurred in 1944. The updip area of the seismogenic zone hosts a variety of slow earthquakes including slow slip events and very low frequency earthquakes. To reveal structural controls on the diversity of slip behaviors along the subduction faults, we carry out a series of cruises for seismic refraction and reflection surveys. During this cruise, we conducted air-gun shooting for OBS refraction recording and performed MCS reflection surveys. We also collected MCS reflection data around the DONET 2F site. The site survey data will be used for drill site planning.

- List of observations

(1) Airgun shooting for OBS refraction survey

To obtain OBS refraction data, we shot at a spacing of 200 m on two OBS profile (NT06 and KI04). As a seismic source, the tuned airgun array with a total volume of 10,600 cubic inches was used. The standard air pressure was 2,000 psi (about 14 MPa). During the experiment, the air gun array depth was kept at 10 m below the sea surface.



Figure 3. The airgun array onboard R/V Kaimei.

(2) MCS reflection survey

MCS reflection data were acquired along 25 profiles with a total length of approximately 1,684 km. For the data acquisition, we shot at 50 meter interval with a hydrophone streamer cable towed at 25 m depth below the sea surface. As a seismic source, the tuned airgun array with a maximum total volume of 10,600 cubic inches was used. The length of streamer cable varied depending on the profiles and was 3,000 meters (240 channels) for the DONET 2F site profiles (NTN4035, NTN4035b, NTN4036b, NTN4037 NTN4037b, NTN4038b, KIE4048), 5,550 meters (444 channels) for off Shionomisaki profiles (KIN4076, KIN4078, KIN4080, KIN4082, KIN4084, KIN4086, KIN4088, KIN4090, KIN4092) and 5,250 meters (420 channels) for eastern profiles (NT06, NTN4090, NTN4094, NTN4098, NTN4110, NTN4114, NTN4118, NTN4122, NTN4126).

Raw MCS reflection data were processed on board for the purpose of quality control in the study areas. Onboard data processing was conducted in the conventional processing sequence, which includes trace header edit, trace edit, common midpoint (CMP) binning with an interval of 6.25 m, a bandpass filter, datum correction, amplitude compensation, velocity analysis, normal moveout correction, CMP stack, F-K migration, and a bandpass filter.



Figure 4. The multi-channel streamer cable onboard R/V Kaimei.

(3) XCTD (eXpendable Conductivity, Temperature and Depth)

Three XBT casts were conducted during the cruise to obtain seawater conductivity and temperature.

(4) Bathymetry and magnetic data

Bathymetry and magnetic data were acquired during the cruise. Bathymetry data was recorded by EM122 Multibeam Echosounder of Kongsberg. Magnetic data was acquired by SFG-2015 three component magnetometer of TERATECHNICA Inc.

● 4. Cruise Log

Date		Remarks
2022/8/10	Wed	Departure from Yokosuka port (JAMSTEC wharf). Transit to the survey area.
2022/8/11	Thu	Transit to the waiting area. Wait on weather in Mikawa Bay.
2022/8/12	Fri	Wait on weather in Mikawa Bay.
2022/8/13	Sat	Wait on weather in Mikawa Bay. Transit to the survey area.
2022/8/14	Sun	Airgun system deployment. Airgun shooting (OBSNT06 [S to N], 200 m shot interval).
2022/8/15	Mon	Airgun shooting (OBSNT06 [S to N], OBSKI04 [N to S], 200 m shot interval).
2022/8/16	Tue	Airgun shooting (OBSKI04 [N to S], 200 m shot interval). Streamer cable deployment for MCS survey.
2022/8/17	Wed	MCS survey (KIN4076 [S to N], 50 m shot interval).
2022/8/18	Thu	MCS survey (KIN4080 [N to S] and KIN4078 [S to N], 50 m shot interval).
2022/8/19	Fri	MCS survey (KIN4078 [S to N], KIN4082 [N to S], and KIN4092 [S to N], 50 m shot interval).
2022/8/20	Sat	MCS survey (KIN4092 [S to N], KIN4086 [N to S], and KIN4090 [S to N], 50 m shot interval).
2022/8/21	Sun	MCS survey (KIN4090 [S to N], KIN4084 [N to S], and KIN4088 [S to N], 50 m shot interval).
2022/8/22	Mon	MCS survey (KIN4088 [S to N], 50 m shot interval). MCS system retrieval.
2022/8/23	Tue	MCS system deployment (streamer cable shortened to 3000 m). MCS survey (KIN4036b [S to N], KIN4038b [N to S],

		KIN4035b [S to N], and KIN4037b [N to S], 50 m shot interval).
2022/8/24	Wed	MCS survey (KIN4037b [N to S], KIN4035 [S to N], KIN4037 [N to S], KIN4036b [S to N], and KIE4048 [E to W], 50 m shot interval). MCS system retrieval.
2022/8/25	Thu	Check and removal of damaged streamer active sections. Airgun system deployment. Airgun shooting (OBSKI04 [N to S]).
2022/8/26	Fri	Airgun system retrieval. Transit to the survey area. Damaged streamer cable replacement. MCS system deployment (streamer cable extended to 5250 m).
2022/8/27	Sat	MCS survey (NTN4126 [SW to NE] and NTN4122 [NE to SW], 50 m shot interval).
2022/8/28	Sun	MCS survey (NTN4118 [SW to NE] and NTN4114 [NE to SW], 50 m shot interval). MCS system retrieval. Transit to the waiting area.
2022/8/29	Mon	Wait on weather in Suruga Bay.
2022/8/30	Tue	Wait on weather in Suruga Bay. Transit to the survey area.
2022/8/31	Wed	MCS system deployment. MCS survey (NTN4114 [NE to SW], 50 m shot interval).
2022/9/1	Thu	MCS survey (NTN4110 [SW to NE] and NTN4094 [NE to SW], 50 m shot interval).
2022/9/2	Fri	MCS survey (NTN4094 [NE to SW], 50 m shot interval). Airgun system retrieval, repairment, and deployment due to the air leakage. MCS survey (OBSNT06 [SW to NE], 50 m shot interval).
2022/9/3	Sat	MCS survey (OBSNT06 [SW to NE], NTN4090 [NE to SW], and NTN4098 [SW to NE], 50 m shot interval).
2022/9/4	Sun	MCS survey (NTN4098 [SW to NE], 50 m shot interval). MCS system retrieval. Transit to the waiting area.
2022/9/5	Mon	Wait on weather in Mikawa Bay.
2022/9/6	Tue	Wait on weather in Mikawa Bay.
2022/9/7	Wed	Transit to Yokosuka port.
2022/9/8	Thu	Arrival at Yokosuka port (JAMSTEC wharf). End of KM22-10 cruise.

●Airgun shooting for OBS refraction survey

LINE NAME	DATE (UTC)	TIME (UTC)	F.S.P.	VESSEL POSITION		Depth (m)	LENGT H FGSP - LGSP (km)	Shooting Mode
			F.G.S.P.					
			L.G.S.P.	Lat.	Lon.			
			L.S.P.					
OBSNT06-1001	2022/08/14	05:39:00	1001	33_08.79846'N	137_37.11234'E	3530	91.4	Distance (200m)
	2022/08/14	05:39:00	1001	33_08.79846'N	137_37.11234'E	3530		
	2022/08/14	16:49:19	2829	33_48.37788'N	137_01.74954'E	1990		
	2022/08/14	16:49:19	2829	33_48.37788'N	137_01.74954'E	1990		
OBSNT06-2002	2022/08/14	17:56:15	2833	33_48.65796'N	137_01.97946'E	1994	38.0	Distance (200m)
	2022/08/14	17:56:15	2833	33_48.65796'N	137_01.97946'E	1994		
	2022/08/14	22:36:02	3593	34_04.90518'N	136_46.86804'E	560		
	2022/08/14	22:36:02	3593	34_04.90518'N	136_46.86804'E	560		
OBSKI04-1003	2022/08/15	02:13:30	3465	33_58.64988'N	136_33.31014'E	1333	39.4	Distance (200m)
	2022/08/15	02:13:30	3465	33_58.64988'N	136_33.31014'E	1333		
	2022/08/15	07:46:01	2677	33_39.92490'N	136_45.50748'E	2050		
	2022/08/15	07:46:01	2677	33_39.92490'N	136_45.50748'E	2050		
OBSKI04-2004	2022/08/15	16:21:57	2693	33_40.29726'N	136_45.24522'E	2049	69.2	Distance (200m)
	2022/08/15	16:21:57	2693	33_40.29726'N	136_45.24522'E	2049		
	2022/08/16	05:14:54	1309	33_07.58364'N	137_06.94236'E	4310		
	2022/08/16	05:14:54	1309	33_07.58364'N	137_06.94236'E	4310		
OBSKI04-3023	2022/08/25	12:34:41	1329	33_08.07582'N	137_06.67182'E	4060	16.4	Distance (200m)
	2022/08/25	12:34:41	1329	33_08.07582'N	137_06.67182'E	4060		
	2022/08/25	14:51:14	1001	33_00.30342'N	137_11.75388'E	4243		
	2022/08/25	14:51:14	1001	33_00.30342'N	137_11.75388'E	4243		

●MCS reflection survey

LINE NAME	DATE (UTC)	TIME (UTC)	F.S.P.	VESSEL POSITION		Depth (m)	LENGT H FGSP - LGSP (km)	Shooting Mode
			F.G.S.P.					
			L.G.S.P.	Lat.	Lon.			
			L.S.P.					
KIE4048-1022	2022/08/24	05:50:53	1591	32_55.44282'N	135_25.88868'E	2921	29.5	Distance (50m)
	2022/08/24	05:50:53	1591	32_55.44282'N	135_25.88868'E	2921		
	2022/08/24	08:48:06	1001	32_49.80648'N	135_08.18118'E	2422		
	2022/08/24	08:48:06	1001	32_49.80648'N	135_08.18118'E	2422		
KIN4076-1005	2022/08/16	22:54:14	1001	32_33.57486'N	136_17.31108'E	4574	22.95	Distance (50m)
	2022/08/16	22:54:14	1001	32_33.57486'N	136_17.31108'E	4574		
	2022/08/17	01:31:01	1460	32_45.32064'N	136_12.54138'E	4608		
	2022/08/17	01:31:01	1460	32_45.32064'N	136_12.54138'E	4608		
KIN4076-2006	2022/08/17	07:56:45	1340	32_42.25008'N	136_13.78980'E	4628	61.45	Distance (50m)
	2022/08/17	07:56:45	1340	32_42.25008'N	136_13.78980'E	4628		
	2022/08/17	14:41:40	2569	33_13.68012'N	136_00.90570'E	1884		
	2022/08/17	14:41:40	2569	33_13.68012'N	136_00.90570'E	1884		
KIN4078-1008	2022/08/18	11:29:33	1001	32_34.27068'N	136_19.71630'E	4572	80.0	Distance
	2022/08/18	11:29:33	1001	32_34.27068'N	136_19.71630'E	4572		

	2022/08/18	20:07:56	2601	33_15.22302'N	136_03.07272'E	1795		(50m)
	2022/08/18	20:07:56	2601	33_15.22302'N	136_03.07272'E	1795		
KIN4080 -1007	2022/08/17	16:34:20	2600	33_15.75300'N	136_05.58426'E	1620	80.0	Distance (50m)
	2022/08/17	16:34:20	2600	33_15.75300'N	136_05.58426'E	1620		
	2022/08/18	01:52:20	1001	32_34.81986'N	136_22.19418'E	4553		
	2022/08/18	01:52:20	1001	32_34.81986'N	136_22.19418'E	4553		
KIN4082 -1009	2022/08/18	21:39:17	2601	33_16.42854'N	136_07.92306'E	1631	80.0	Distance (50m)
	2022/08/18	21:39:17	2601	33_16.42854'N	136_07.92306'E	1631		
	2022/08/19	06:34:02	1001	32_35.49282'N	136_24.62418'E	4506		
	2022/08/19	06:34:02	1001	32_35.49282'N	136_24.62418'E	4506		
KIN4084 -1013	2022/08/20	19:24:36	2601	33_17.16030'N	136_10.46100'E	1591	80.0	Distance (50m)
	2022/08/20	19:24:36	2601	33_17.16030'N	136_10.46100'E	1591		
	2022/08/21	05:53:23	1001	32_36.19158'N	136_27.04776'E	4527		
	2022/08/21	05:53:23	1001	32_36.19158'N	136_27.04776'E	4527		
KIN4086 -1011	2022/08/19	22:18:52	2601	33_17.84556'N	136_12.84060'E	1719	80.0	Distance (50m)
	2022/08/19	22:18:52	2601	33_17.84556'N	136_12.84060'E	1719		
	2022/08/20	07:40:19	1001	32_36.88830'N	136_29.46774'E	4493		
	2022/08/20	07:40:19	1001	32_36.88830'N	136_29.46774'E	4493		
KIN4088 -1014	2022/08/21	07:23:34	1001	32_37.76226'N	136_31.82808'E	4523	80.0	Distance (50m)
	2022/08/21	07:23:34	1001	32_37.76226'N	136_31.82808'E	4523		
	2022/08/21	16:09:53	2601	33_18.73416'N	136_15.25170'E	1828		
	2022/08/21	16:09:53	2601	33_18.73416'N	136_15.25170'E	1828		
KIN4090 -1012	2022/08/20	09:11:59	1001	32_38.46174'N	136_34.26216'E	4507	80.0	Distance (50m)
	2022/08/20	09:11:59	1001	32_38.46174'N	136_34.26216'E	4507		
	2022/08/20	17:42:14	2601	33_19.43340'N	136_17.68518'E	1984		
	2022/08/20	17:42:14	2601	33_19.43340'N	136_17.68518'E	1984		
KIN4092 -1010	2022/08/19	11:52:40	1001	32_39.14148'N	136_36.63546'E	4476	80.0	Distance (50m)
	2022/08/19	11:52:40	1001	32_39.14148'N	136_36.63546'E	4476		
	2022/08/19	20:34:19	2601	33_20.12700'N	136_20.10660'E	2011		
	2022/08/19	20:34:19	2601	33_20.12700'N	136_20.10660'E	2011		
KIN435 -1019	2022/08/23	17:16:22	2091	32_46.86996'N	135_16.28718'E	3261	17.5	Distance (50m)
	2022/08/23	17:16:22	2091	32_46.86996'N	135_16.28718'E	3261		
	2022/08/23	19:21:57	2440	32_55.77624'N	135_12.56364'E	2340		
	2022/08/23	19:21:57	2440	32_55.77624'N	135_12.56364'E	2340		
KIN435b -1017	2022/08/23	11:08:38	2091	32_47.05308'N	135_16.89780'E	3175	17.5	Distance (50m)
	2022/08/23	11:08:38	2091	32_47.05308'N	135_16.89780'E	3175		
	2022/08/23	13:04:22	2440	32_55.95834'N	135_13.17150'E	2347		
	2022/08/23	13:04:22	2440	32_55.95834'N	135_13.17150'E	2347		
KIN436b -1015	2022/08/23	05:52:56	2302	32_52.79574'N	135_15.85350'E	2615	7.0	Distance (50m)
	2022/08/23	05:52:56	2302	32_52.79574'N	135_15.85350'E	2615		
	2022/08/23	06:45:05	2441	32_56.34276'N	135_14.36892'E	2340		
	2022/08/23	06:45:05	2441	32_56.34276'N	135_14.36892'E	2340		
KIN436b -2021	2022/08/24	00:29:11	2091	32_47.41140'N	135_18.10500'E	3082	17.5	Distance (50m)
	2022/08/24	00:29:11	2091	32_47.41140'N	135_18.10500'E	3082		
	2022/08/24	02:31:46	2440	32_56.31882'N	135_14.38512'E	2340		
	2022/08/24	02:31:46	2440	32_56.31882'N	135_14.38512'E	2340		
KIN437 -1020	2022/08/23	20:25:08	2470	32_57.08748'N	135_14.73288'E	2264	17.5	Distance
	2022/08/23	20:25:08	2470	32_57.08748'N	135_14.73288'E	2264		

	2022/08/23	22:28:41	2121	32_48.18876'N	135_18.48192'E	3075		(50m)
	2022/08/23	22:28:41	2121	32_48.18876'N	135_18.48192'E	3075		
KIN437b -1018	2022/08/23	14:06:16	2470	32_57.29382'N	135_15.33228'E	2250	17.5	Distance (50m)
	2022/08/23	14:06:16	2470	32_57.29382'N	135_15.33228'E	2250		
	2022/08/23	16:02:36	2121	32_48.38682'N	135_19.05426'E	3053		
	2022/08/23	16:02:36	2121	32_48.38682'N	135_19.05426'E	3053		
KIN438b -1016	2022/08/23	07:50:16	2470	32_57.65442'N	135_16.54518'E	2237	17.5	Distance (50m)
	2022/08/23	07:50:16	2470	32_57.65442'N	135_16.54518'E	2237		
	2022/08/23	09:49:41	2121	32_48.74640'N	135_20.26296'E	3011		
	2022/08/23	09:49:41	2121	32_48.74640'N	135_20.26296'E	3011		
NTN4090 -1032	2022/09/02	22:36:44	2770	33_51.01578'N	137_17.06748'E	1363	88.5	Distance (50m)
	2022/09/02	22:36:44	2770	33_51.01578'N	137_17.06748'E	1363		
	2022/09/03	11:24:33	1001	33_09.04494'N	137_44.45934'E	3248		
	2022/09/03	11:24:33	1001	33_09.04494'N	137_44.45934'E	3248		
NTN4094 -1030	2022/09/01	09:56:29	3135	34_01.75020'N	137_15.99180'E	1719	94.2	Distance (50m)
	2022/09/01	09:56:29	3135	34_01.75020'N	137_15.99180'E	1719		
	2022/09/01	23:39:28	1252	33_17.04990'N	137_45.14604'E	3977		
	2022/09/01	23:45:14	1242	33_16.81638'N	137_45.30792'E	3973		
NTN4098 -1033	2022/09/03	13:34:56	1001	33_13.30434'N	137_53.40900'E	3780	108.1	Distance (50m)
	2022/09/03	13:34:56	1001	33_13.30434'N	137_53.40900'E	3780		
	2022/09/04	00:51:16	3162	34_04.63182'N	137_20.02302'E	1400		
	2022/09/04	00:51:16	3162	34_04.63182'N	137_20.02302'E	1400		
NTN4110 -1029	2022/08/31	16:44:39	1001	33_19.46802'N	138_07.00680'E	3812	105.0	Distance (50m)
	2022/08/31	16:44:39	1001	33_19.46802'N	138_07.00680'E	3812		
	2022/09/01	04:00:27	3100	34_09.37716'N	137_34.68606'E	1719		
	2022/09/01	04:00:27	3100	34_09.37716'N	137_34.68606'E	1719		
NTN4114 -1027	2022/08/28	04:21:47	2515	33_57.40188'N	137_48.41130'E	1770	13.2	Distance (50m)
	2022/08/28	04:21:47	2515	33_57.40188'N	137_48.41130'E	1770		
	2022/08/28	06:02:12	2252	33_51.14724'N	137_52.46598'E	1937		
	2022/08/28	06:02:12	2252	33_51.14724'N	137_52.46598'E	1937		
NTN4114 -2028	2022/08/31	05:21:53	2372	33_54.02064'N	137_50.65974'E	2456	68.6	Distance (50m)
	2022/08/31	05:21:53	2372	33_54.02064'N	137_50.65974'E	2456		
	2022/08/31	14:50:05	1001	33_21.37638'N	138_11.63556'E	3749		
	2022/08/31	14:50:05	1001	33_21.37638'N	138_11.63556'E	3749		
NTN4118 -1026	2022/08/27	16:33:53	1001	33_23.56236'N	138_16.09002'E	4006	76.0	Distance (50m)
	2022/08/27	16:33:53	1001	33_23.56236'N	138_16.09002'E	4006		
	2022/08/28	02:07:30	2521	33_59.74134'N	137_52.79250'E	1435		
	2022/08/28	02:07:30	2521	33_59.74134'N	137_52.79250'E	1435		
NTN4122 -1025	2022/08/27	06:13:20	2360	33_57.80100'N	137_59.94636'E	2011	68.0	Distance (50m)
	2022/08/27	06:13:20	2360	33_57.80100'N	137_59.94636'E	2011		
	2022/08/27	14:42:48	1001	33_25.44432'N	138_20.74794'E	3117		
	2022/08/27	14:42:48	1001	33_25.44432'N	138_20.74794'E	3117		
NTN4126 -1024	2022/08/26	15:30:54	1001	33_27.64248'N	138_25.18188'E	3444	80.6	Distance (50m)
	2022/08/26	15:30:54	1001	33_27.64248'N	138_25.18188'E	3444		
	2022/08/27	02:20:06	2613	34_06.03804'N	138_00.52062'E	1288		
	2022/08/27	02:20:06	2613	34_06.03804'N	138_00.52062'E	1288		
OBSNT06 -3031	2022/09/02	07:04:38	1001	33_08.84262'N	137_37.18242'E	3540	97.8	Distance (50m)
	2022/09/02	07:04:38	1001	33_08.84262'N	137_37.18242'E	3540		
	2022/09/02	17:29:17	2956	33_51.11598'N	136_59.26434'E	1798		

	2022/09/02	17:29:17	2956	33_51.11598'N	136_59.26434'E	1798	
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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.

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

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

Acknowledgements

We thank the captain, Mr. Naoto Kimura, the crew members of the R/V Kaimei and NME technicians for their efforts for airgun shooting and MCS reflection surveys. Without their dedicated work during the cruise, the onboard operation could never have been successful. We are also grateful to members of IMG (Research Institute for Marine Geodynamics) and MarE3 (Institute for Marine-Earth Exploration and Engineering) of JAMSTEC for their great support on this cruise.