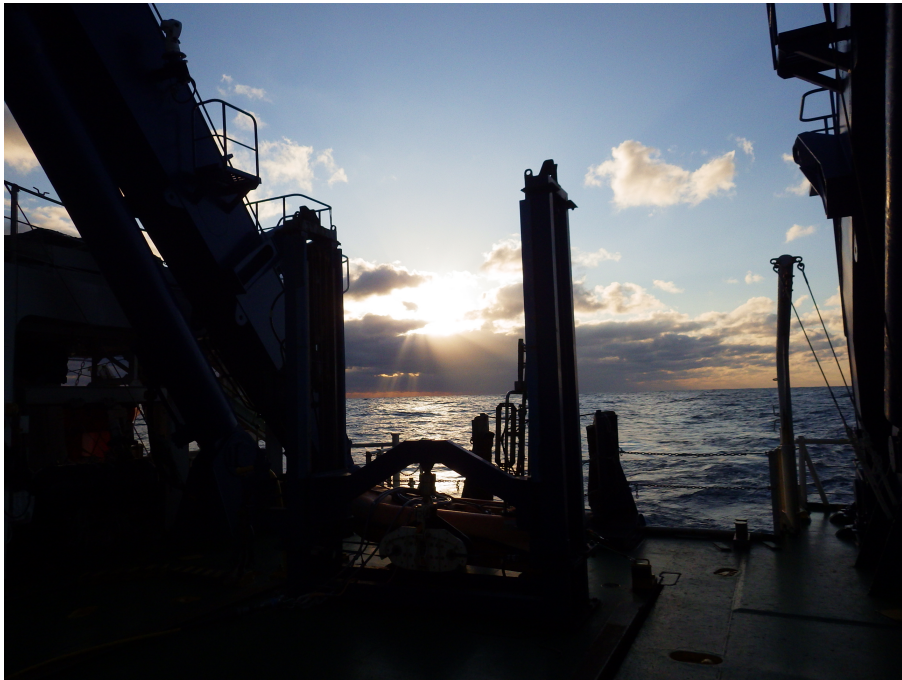




R/V *Kairei* Cruise Report KR19-E03_leg1-2



Sunrise on New Year's Day 2020

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

Nankai Trough

Dec. 15, 2019 - Jan. 24, 2020

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

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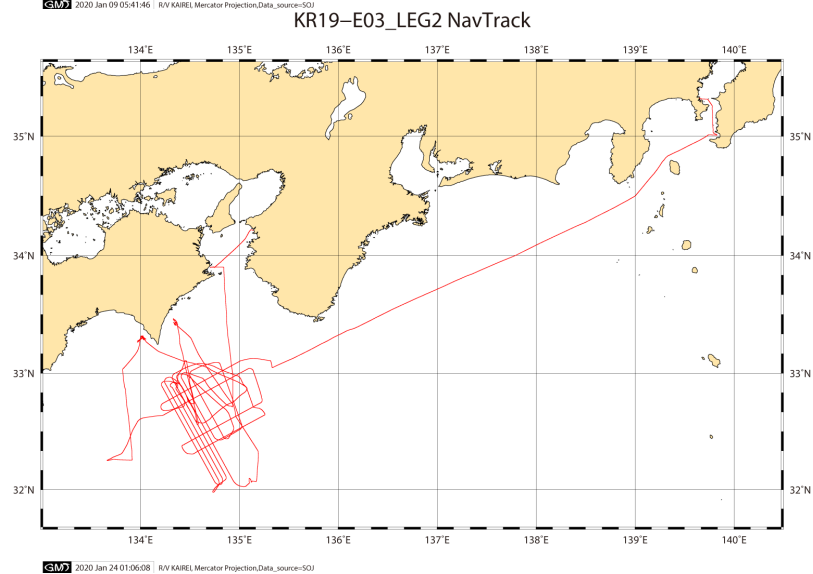
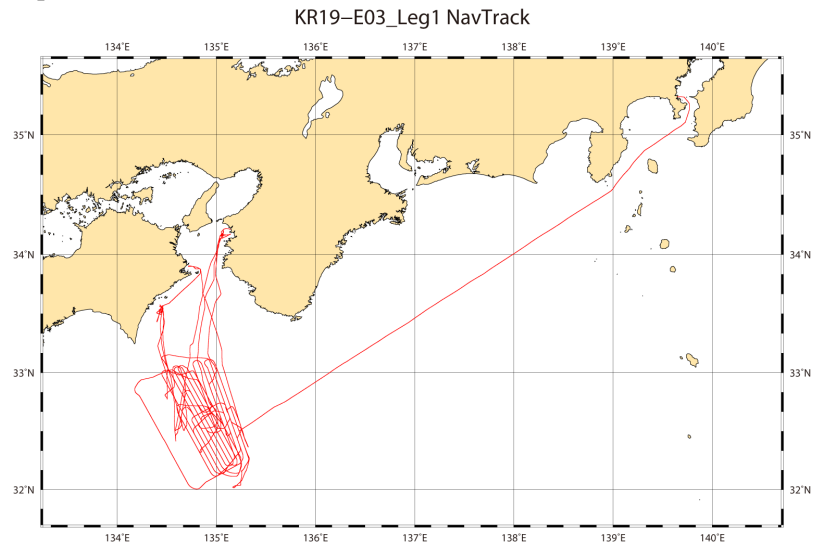
4. Cruise Log

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Acknowledgement

1. Cruise Information

- Cruise ID: KR19-E03_leg1-2
- Name of vessel: R/V *Kairei*
- Title of project: Observation and monitoring of large scale seafloor deformation for national land resilience
- Title of cruise: 3D seismic survey to image plate boundary faults in the subduction zone
- Chief Scientist [Affiliation]: Yasuyuki Nakamura [JAMSTEC]
- Cruise period:
 - Leg 1: 15 Dec. 2019 – 6 Jan. 2020
 - Leg 2: 7 Jan. 2020 – 24 Jan. 2020
- Ports of departure / call / arrival: Yokosuka (JAMSTEC) – Wakayama-Shimotsu (Nakafutou) – Yokosuka (JAMSTEC)
- Research area: Nankai Trough
- Research map



2. Research Proposal and Science Party

- Title of proposal: Seismic surveys and earthquake observations for the project “Observation and monitoring of large scale seafloor deformation for national land resilience”

- Representative of Science Party [Affiliation]: Shuichi Kodaira [JAMSTEC]

- Science Party (Proponents) [Affiliation]

Shuichi KODAIRA [JAMSTEC]
Seiichi MIURA [JAMSTEC]
Yasuyuki NAKAMURA [JAMSTEC]
Gou FUJIE [JAMSTEC]
Yuka KAIHO [JAMSTEC]
Tetsuo NO [JAMSTEC]
Mikiya YAMASHITA [JAMSTEC]
Toshinori SAIJO [JAMSTEC]
Ryuta ARAI [JAMSTEC]
Ayako NAKANISHI [JAMSTEC]
Yasushi ISHIHARA [JAMSTEC]
Koichiro OBANA [JAMSTEC]
Tsutomu TAKAHASHI [JAMSTEC]
Yojiro YAMAMOTO [JAMSTEC]
Eiichiro ARAKI [JAMSTEC]
Toshinori KIMURA [JAMSTEC]
Takeshi IINUMA [JAMSTEC]
Yusaku OHTA [Tohoku Univ.]
Ryota HINO [Tohoku Univ.]
Motoyuki KIDO [Tohoku Univ.]
Ryusuke AZUMA [Tohoku Univ.]
Yoshihiro ITO [Kyoto Univ.]
Masanao SHINOHARA [Univ. Tokyo]
Yuichiro TANIOKA [Hokkaido Univ.]
Hiroaki TAKAHASHI [Hokkaido Univ.]
Yoshio MURAI [Hokkaido Univ.]
Masako OZONO [Hokkaido Univ.]

- Onboard Science Party [Affiliation, assignment etc.]

Leg 1

Yasuyuki Nakamura [JAMSTEC]: Chief Scientist
Tetsuo No [JAMSTEC]: Associate Chief Scientist
Yuuki Owatari [NME] Chief Marine Technician
Hikaru Iwamaru [NME]: Marine Technician, Chief Observer, Navigator
Waka Komatsu [NME]: Marine Technician, Chief Navigator
Kimiko Serizawa [NME]: Marine Technician, Chief QC/Processor
Akie Suzuki [NME]: Marine Technician, Chief Gunner
Naoto Noguchi [NME]: Marine Technician, Observer
Masayuki Toizumi [NME]: Marine Technician, Observer

Ryo Kimura [NME]: Marine Technician, Observer
Akinori Murata [NME]: Marine Technician, Navigator
Misaki Horiuchi [NME]: Marine Technician, QC/Processor
Yoshiki Horiuchi [NME]: Marine Technician, Gunner
Hiroyoshi Shimizu [NME]: Marine Technician, Gunner

Leg 2

Yasuyuki Nakamura [JAMSTEC]: Chief Scientist
Yuka Kaiho [JAMSTEC]: Associate Chief Scientist
Yuuki Owatari [NME]: Chief Marine Technician
Hikaru Iwamaru [NME]: Marine Technician, Chief Observer
Waka Komatsu [NME]: Marine Technician, Chief Navigator
Kimiko Serizawa [NME]: Marine Technician, Chief QC/Processor
Yoshiki Horiuchi [NME]: Marine Technician, Chief Gunner
Hisanori Iwamoto [NME]: Marine Technician, Observer
Misaki Horiuchi [NME]: Marine Technician, Observer
Keita Suzuki [NME]: Marine Technician, Navigator
Akinori Murata [NME]: Marine Technician, Navigator
Naoto Noguchi [NME]: Marine Technician, QC/Processor
Masayuki Toizumi [NME]: Marine Technician, Gunner
Hiroyoshi Shimizu [NME]: Marine Technician, Gunner

3. Research/Development Activities

3.1 Background and objectives

This research cruise was planned to conduct the “Large-scale and high-resolution mapping of the submarine fault system around the rupture segment boundary in the Nankai Trough”, as a part of the Project “Observation and monitoring of large scale seafloor deformation for national land resilience”. In this cruise we carried out reflection seismic survey along dense gridded survey lines to obtain three-dimensional overview of the fault distribution and deformation of the sediment in the Nankai trough off Kii Channel to Cape Muroto.

3.2 List of observations

(1) 2D grid reflection seismic survey

R/V *Kairei* towed a streamer cable (5.5 km long) at 25 m depth, and the air gun arrays (7800 inch³ in total) at 10 m depth along the dense gridded survey lines. Air guns were fired at every 50 m except for Line SIKMEW080 along which the air guns were fired every 100 m.

(2) XCTD

Three XTD casts were conducted during the cruise to obtain accurate velocity profile in the water column.

(3) Bathymetry and magnetic measurements

Bathymetry and magnetometer data were recorded during the cruise.

3.3 List of observation equipments

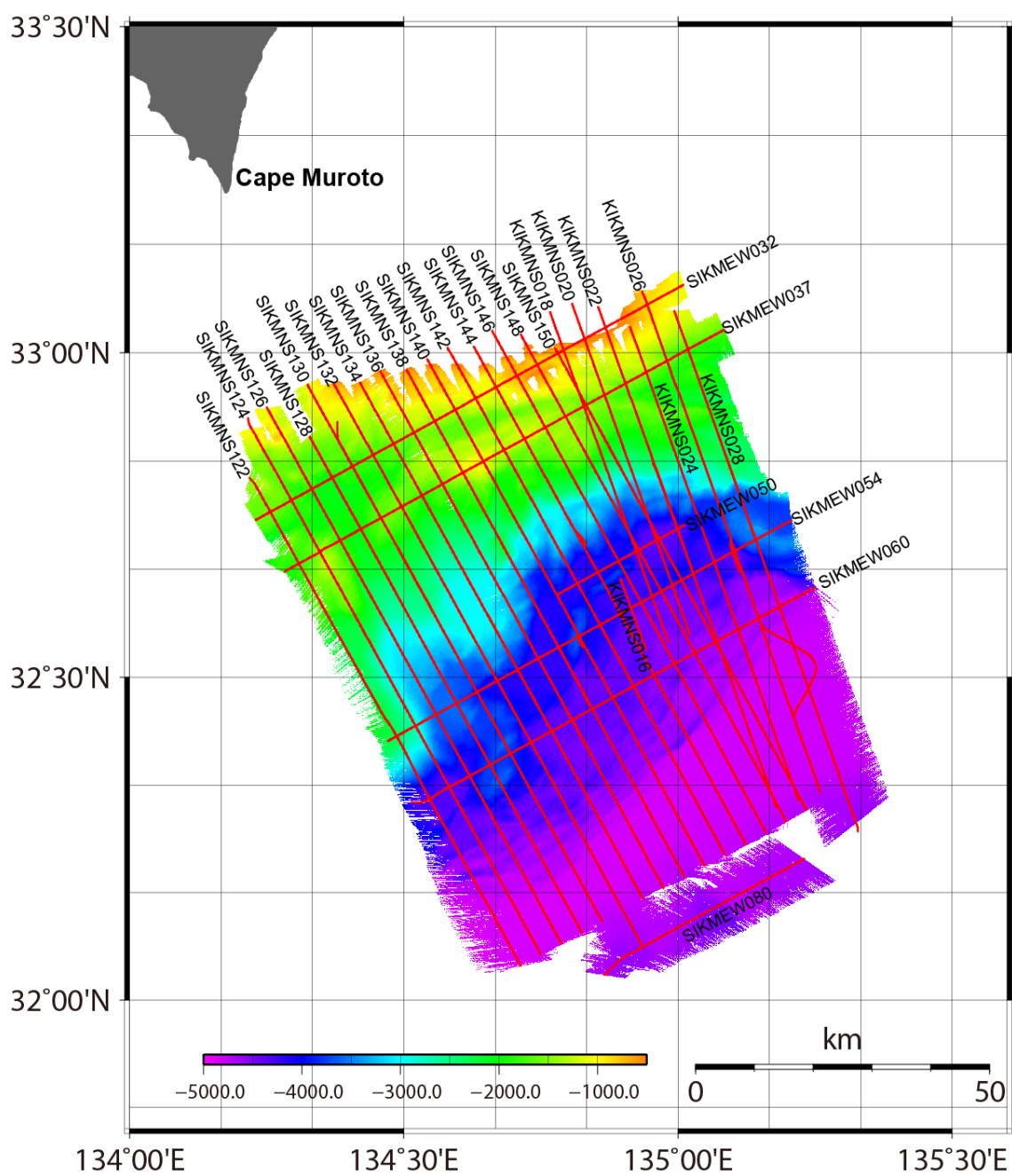
Kairei 2D MCS system

XCTD-4

Multibeam echo sounder SeaBeam3012

Three component magnetometer SFG-1214

3.4 Line Map with bathymetry data



3.5 Line list

NO.	LINE NAME	DATE (UTC)	TIME (UTC)	F.S.P.	VESSEL POSITION		NUMBER OF SHOT FGSP - LGSP (SP# Increment)	LENGTH FGSP - LGSP (km)	DIREC- TION (°)	Mode (m)
				F.G.S.P.						
				L.G.S.P.	Lat.	Lon.				
				L.S.P.						
1	KIKMNS028_0	2019/12/16	15:40:19	971	32_15.71567'N	135_19.62883'E	1890 + 1	94.5	340.4	Distance (50m)
		2019/12/16	15:41:19	973	32_15.77867'N	135_19.64000'E				
		2019/12/17	05:12:00	2862	33_03.98667'N	134_59.56283'E				
		2019/12/17	05:12:00	2862	33_03.98667'N	134_59.56283'E				
2	KIN01610 (KIKMNS016)	2020/01/10	21:40:12	1801	32_32.59050'N	134_56.47200'E	240 + 1	12.0	340.4	Distance (50m)
		2020/01/10	21:50:31	1825	32_33.20317'N	134_56.21617'E				
		2020/01/10	23:30:04	2064	32_39.29300'N	134_53.65150'E				
		2020/01/10	23:30:04	2064	32_39.29300'N	134_53.65150'E				
3	KIN01810 (KIKMNS018)	2020/01/02	03:33:06	3002	33_03.74983'N	134_46.04100'E	1161 - 1	58.0	160.4	Distance (50m)
		2020/01/02	03:49:33	2961	33_02.69950'N	134_46.46683'E				
		2020/01/02	10:26:49	1801	32_33.14833'N	134_58.96283'E				
		2020/01/02	10:26:49	1801	32_33.14833'N	134_58.96283'E				
4	KIN02010 (KIKMNS020)	2020/01/10	01:13:03	1801	32_34.04400'N	135_01.29717'E	1159 + 1	57.9	340.4	Distance (50m)
		2020/01/10	01:30:57	1844	32_35.13733'N	135_00.82233'E				
		2020/01/10	08:35:59	3002	33_04.64433'N	134_48.36467'E				
		2020/01/10	08:35:59	3002	33_04.64433'N	134_48.36467'E				
5	KIN02210 (KIKMNS022)	2019/12/20	19:10:11	1141	32_17.93700'N	135_10.72517'E	1274 + 1	63.7	340.4	Distance (50m)
		2019/12/20	19:11:30	1144	32_18.01517'N	135_10.69800'E				
		2019/12/21	03:00:03	2417	32_50.47133'N	134_57.10150'E				
		2019/12/21	03:00:03	2417	32_50.47133'N	134_57.10150'E				
6	KIN02211 (KIKMNS022)	2020/01/01	20:05:34	2001	32_39.86333'N	135_01.54817'E	960	48.0	340.4	Distance (50m)
		2020/01/01	20:06:25	2003	32_39.91383'N	135_01.52433'E				
		2020/01/02	02:10:07	2962	33_04.35567'N	134_51.22250'E				

		2020/01/02	02:10:07	2962	33_04.35567'N	134_51.22250'E	+ 1			
7	KIN02410 (KIKMNS024)	2019/12/17	07:40:34	2862	33_02.36317'N	134_54.79600'E	1240	62.0	160.4	Distance (50m)
		2019/12/17	07:41:19	2860	33_02.31133'N	134_54.81767'E				
		2019/12/17	15:14:33	1621	32_30.73117'N	135_08.10750'E				
		2019/12/17	15:14:33	1621	32_30.73117'N	135_08.10750'E	- 1			
8	KIN02411 (KIKMNS024)	2019/12/20	01:38:12	1141	32_18.65950'N	135_13.13567'E	720	36.0	340.4	Distance (50m)
		2019/12/20	01:39:28	1143	32_18.71250'N	135_13.11717'E				
		2019/12/20	06:30:12	1862	32_37.05050'N	135_05.46917'E				
		2019/12/20	06:30:12	1862	32_37.05050'N	135_05.46917'E	+ 1			
9	KIN02610 (KIKMNS026)	2019/12/19	04:06:51	1141	32_19.38317'N	135_15.54700'E	927	46.3	340.4	Distance (50m)
		2019/12/19	04:08:06	1144	32_19.45950'N	135_15.51317'E				
		2019/12/19	10:20:17	2070	32_43.07617'N	135_05.65367'E				
		2019/12/19	10:20:17	2070	32_43.07617'N	135_05.65367'E	+ 1			
10	KIN02611 (KIKMNS026)	2019/12/25	02:31:51	1301	32_23.46250'N	135_13.84200'E	588	29.4	340.4	Distance (50m)
		2019/12/25	02:32:46	1303	32_23.51433'N	135_13.82200'E				
		2019/12/25	06:34:54	1890	32_38.48650'N	135_07.57650'E				
		2019/12/25	06:34:54	1890	32_38.48650'N	135_07.57650'E	+ 1			
11	KIN02612 (KIKMNS026)	2020/01/02	13:38:34	1890	32_38.48550'N	135_07.57383'E	1057	52.8	340.4	Distance (50m)
		2020/01/02	13:46:25	1906	32_38.89383'N	135_07.40367'E				
		2020/01/02	21:24:03	2962	33_05.80617'N	134_56.05367'E				
		2020/01/02	21:24:03	2962	33_05.80617'N	134_56.05367'E	+ 1			
12	KIN02811 (KIKMNS028)	2020/01/21	00:50:31	2041	32_43.03800'N	135_08.32533'E	339	16.9	340.4	Distance (50m)
		2020/01/21	01:10:08	2082	32_44.10067'N	135_07.92600'E				
		2020/01/21	03:39:30	2420	32_52.72167'N	135_04.31717'E				
		2020/01/21	03:39:30	2420	32_52.72167'N	135_04.31717'E	+ 1			
13	SIE03210 (SIKMEW032)	2020/01/21	20:28:57	941	32_44.58900'N	134_13.82650'E	1584	79.2	61.4	Distance
		2020/01/21	20:59:29	1027	32_45.70750'N	134_16.24133'E				

		2020/01/22	05:56:20	2610	33_06.31333'N	135_00.75483'E				(50m)
		2020/01/22	05:56:20	2610	33_06.31333'N	135_00.75483'E	+ 1			
14	SIE03710 (SIKMEW037)	2020/01/19	06:26:43	941	32_39.85167'N	134_16.92617'E	1697	84.8	61.4	Distance (50m)
		2020/01/19	06:32:36	963	32_40.13933'N	134_17.54250'E				
		2020/01/19	15:39:29	2659	33_02.18833'N	135_05.20833'E	+ 1			
		2020/01/19	15:39:29	2659	33_02.18833'N	135_05.20833'E				
15	SIE05010 (SIKMEW050)	2019/12/19	11:27:08	2222	32_44.08883'N	135_00.67700'E	499	24.9	241.4	Distance (50m)
		2019/12/19	11:28:33	2218	32_44.03783'N	135_00.56367'E				
		2019/12/19	14:24:24	1720	32_37.58600'N	134_46.57983'E	- 1			
		2019/12/19	14:24:24	1720	32_37.58600'N	134_46.57983'E				
16	SIE05410 (SIKMEW054)	2020/01/19	20:31:14	2551	32_44.52567'N	135_12.37783'E	1525	76.2	241.4	Distance (50m)
		2020/01/19	20:50:29	2495	32_43.81000'N	135_10.79767'E				
		2020/01/20	11:00:07	971	32_24.03367'N	134_28.07883'E	- 1			
		2020/01/20	11:00:07	971	32_24.03367'N	134_28.07883'E				
17	SIE06010 (SIKMEW060)	2020/01/20	14:10:39	941	32_18.41517'N	134_30.85783'E	1456	72.8	61.4	Distance (50m)
		2020/01/20	14:43:01	1058	32_19.59700'N	134_34.36700'E				
		2020/01/20	22:12:44	2513	32_38.41400'N	135_15.15550'E	+ 1			
		2020/01/20	22:12:44	2513	32_38.41400'N	135_15.15550'E				
18	SIE08010 (SIKMEW080)	2019/12/18	22:39:14	1235	32_02.35950'N	134_51.88183'E	359	35.8	61.4	Distance (100m)
		2019/12/18	23:10:46	1321	32_04.00333'N	134_53.94500'E				
		2019/12/19	02:24:49	2037	32_13.24800'N	135_13.95267'E	+ 2			
		2019/12/19	02:24:49	2037	32_13.24800'N	135_13.95267'E				
19	SIN12210 (SIKMNS122)	2019/12/18	10:58:26	3060	32_48.45100'N	134_13.15600'E	1918	95.9	151.4	Distance (50m)
		2019/12/18	10:59:21	3058	32_48.40983'N	134_13.20450'E				
		2019/12/18	20:57:26	1141	32_03.04750'N	134_42.85017'E	- 1			
		2019/12/18	20:57:26	1141	32_03.04750'N	134_42.85017'E				
20	SIN12410	2020/01/15	12:44:24	3242	32_53.98100'N	134_12.93250'E	1961	98.0	151.4	

	(SIKMNS124)	2020/01/15	13:28:08	3101	32_50.54033'N	134_14.92700'E	- 1			Distance (50m)
		2020/01/15	22:49:19	1141	32_04.08950'N	134_45.08500'E				
		2020/01/15	22:49:19	1141	32_04.08950'N	134_45.08500'E				
21	SIN12610 (SIKMNS126)	2020/01/13	11:42:16	3242	32_54.92750'N	134_14.98483'E	2022	101.1	151.4	Distance (50m)
		2020/01/13	12:09:10	3162	32_53.03133'N	134_16.22183'E				
		2020/01/13	22:10:37	1141	32_05.12400'N	134_47.30550'E	- 1			
		2020/01/13	22:10:37	1141	32_05.12400'N	134_47.30550'E				
22	SIN12810 (SIKMNS128)	2020/01/16	00:37:25	1141	32_06.32417'N	134_49.43450'E	1940	97.0	331.4	Distance (50m)
		2020/01/16	00:38:26	1143	32_06.37150'N	134_49.40367'E				
		2020/01/16	13:26:03	3082	32_52.34700'N	134_19.60650'E	+ 1			
		2020/01/16	13:26:03	3082	32_52.34700'N	134_19.60650'E				
23	SIN13010 (SIKMNS130)	2020/01/14	04:31:12	1141	32_07.35983'N	134_51.66400'E	1448	72.4	331.4	Distance (50m)
		2020/01/14	04:32:20	1143	32_07.40850'N	134_51.63517'E				
		2020/01/14	18:00:12	2590	32_41.73883'N	134_29.46217'E	+ 1			
		2020/01/14	18:00:12	2590	32_41.73883'N	134_29.46217'E				
24	SIN13011 (SIKMNS130)	2020/01/16	15:06:00	3082	32_53.57183'N	134_22.67267'E	572	28.6	151.4	Distance (50m)
		2020/01/16	16:04:18	2921	32_49.41650'N	134_24.44417'E				
		2020/01/16	18:59:49	2350	32_35.88950'N	134_33.26517'E	- 1			
		2020/01/16	18:59:49	2350	32_35.88950'N	134_33.26517'E				
25	SIN13012 (SIKMNS130)	2020/01/21	13:22:09	3242	32_57.03817'N	134_19.50633'E	366	18.3	151.4	Distance (50m)
		2020/01/21	13:47:03	3165	32_55.19600'N	134_20.66667'E				
		2020/01/21	15:47:04	2800	32_46.55267'N	134_26.32067'E	- 1			
		2020/01/21	15:47:04	2800	32_46.55267'N	134_26.32067'E				
26	SIN13210 (SIKMNS132)	2020/01/11	08:21:42	3202	32_57.12117'N	134_22.34400'E	2123	106.1	151.4	Distance (50m)
		2020/01/11	08:48:04	3123	32_55.25183'N	134_23.57333'E				
		2020/01/11	18:30:29	1001	32_04.91600'N	134_56.14117'E	- 1			
		2020/01/11	18:30:29	1001	32_04.91600'N	134_56.14117'E				

27	SIN13410 (SIKMNS134)	2019/12/24	14:50:25	2262	32_35.88100'N	134_39.08983'E	1120	56.0	151.4	Distance (50m)
		2019/12/24	14:51:03	2260	32_35.83367'N	134_39.12217'E				
		2019/12/24	19:52:39	1141	32_09.27867'N	134_56.24867'E				
		2019/12/24	19:52:39	1141	32_09.27867'N	134_56.24867'E				
28	SIN13411 (SIKMNS134)	2020/01/09	14:14:42	3162	32_57.22400'N	134_25.22317'E	1189	59.4	151.4	Distance (50m)
		2020/01/09	14:39:14	3088	32_55.46867'N	134_26.36617'E				
		2020/01/09	21:03:11	1900	32_27.29933'N	134_44.65950'E				
		2020/01/09	21:03:11	1900	32_27.29933'N	134_44.65950'E				
29	SIN13611 (SIKMNS136)	2019/12/20	12:01:42	1868	32_27.57667'N	134_47.38167'E	725	36.2	151.4	Distance (50m)
		2019/12/20	12:02:43	1865	32_27.50550'N	134_47.42867'E				
		2019/12/20	15:19:47	1141	32_10.31267'N	134_58.47833'E				
		2019/12/20	15:19:47	1141	32_10.31267'N	134_58.47833'E				
30	SIN13612 (SIKMNS136)	2020/01/04	12:50:49	3162	32_58.25933'N	134_27.45083'E	1442	72.1	151.4	Distance (50m)
		2020/01/04	13:03:44	3128	32_57.45933'N	134_27.98967'E				
		2020/01/04	20:40:56	1687	32_23.28033'N	134_50.15217'E				
		2020/01/04	20:43:36	1677	32_23.04433'N	134_50.30817'E				
31	SIN13810 (SIKMNS138)	2019/12/19	15:34:01	2062	32_33.22283'N	134_46.65767'E	920	46.0	151.4	Distance (50m)
		2019/12/19	15:34:42	2060	32_33.17450'N	134_46.68833'E				
		2019/12/19	20:13:30	1141	32_11.35050'N	135_00.72067'E				
		2019/12/19	20:13:30	1141	32_11.35050'N	135_00.72067'E				
32	SIN13811 (SIKMNS138)	2020/01/10	12:42:16	3122	32_58.36183'N	134_30.33333'E	1216	60.8	151.4	Distance (50m)
		2020/01/10	13:10:00	3035	32_56.29667'N	134_31.67350'E				
		2020/01/10	19:11:57	1820	32_27.43833'N	134_50.27883'E				
		2020/01/10	19:11:57	1820	32_27.43833'N	134_50.27883'E				
33	SIN14010 (SIKMNS140)	2019/12/23	14:28:18	2120	32_35.63833'N	134_48.01300'E	978	48.9	151.4	Distance (50m)
		2019/12/23	14:29:06	2118	32_35.59133'N	134_48.04333'E				
		2019/12/23	19:12:23	1141	32_12.38283'N	135_02.95233'E				

		2019/12/23	19:12:23	1141	32_12.38283'N	135_02.95233'E	- 1			
34	SIN14011 (SIKMNS140)	2020/01/03	05:48:46	3122	32_59.40367'N	134_32.58117'E	1123	56.1	151.4	Distance (50m)
		2020/01/03	05:49:29	3120	32_59.35550'N	134_32.61133'E				
		2020/01/03	11:58:14	1998	32_32.62350'N	134_49.62650'E				
		2020/01/03	11:58:14	1998	32_32.62350'N	134_49.62650'E				
35	SIN14210 (SIKMNS142)	2019/12/29	01:10:58	2062	32_35.29550'N	134_51.13800'E	862	43.1	151.4	Distance (50m)
		2019/12/29	01:31:06	2002	32_33.87467'N	134_52.06500'E				
		2019/12/29	05:25:35	1141	32_13.41850'N	135_05.19400'E				
		2019/12/29	05:25:35	1141	32_13.41850'N	135_05.19400'E				
36	SIN14211 (SIKMNS142)	2020/01/01	09:09:12	3122	33_00.42800'N	134_34.79317'E	1173	58.6	151.4	Distance (50m)
		2020/01/01	09:33:31	3054	32_58.83567'N	134_35.88800'E				
		2020/01/01	16:17:26	1882	32_31.02300'N	134_53.89700'E				
		2020/01/01	16:17:26	1882	32_31.02300'N	134_53.89700'E				
37	SIN14410 (SIKMNS144)	2019/12/28	06:20:58	2420	32_44.83400'N	134_47.89833'E	1279	63.9	151.4	Distance (50m)
		2019/12/28	06:21:25	2419	32_44.81033'N	134_47.91467'E				
		2019/12/28	13:44:22	1141	32_14.45083'N	135_07.43183'E				
		2019/12/28	13:44:22	1141	32_14.45083'N	135_07.43183'E				
38	SIN14411 (SIKMNS144)	2020/01/03	22:05:26	3082	33_00.54100'N	134_37.70517'E	737	36.8	151.4	Distance (50m)
		2020/01/03	22:08:00	3076	33_00.39617'N	134_37.79350'E				
		2020/01/04	02:38:16	2340	32_43.04383'N	134_49.35983'E				
		2020/01/04	02:53:09	2299	32_42.09333'N	134_50.04100'E				
39	SIN14610 (SIKMNS146)	2019/12/29	07:16:56	1141	32_15.64417'N	135_09.56767'E	1957	97.8	331.4	Distance (50m)
		2019/12/29	07:18:08	1143	32_15.69233'N	135_09.53833'E				
		2019/12/29	23:20:20	3099	33_02.14183'N	134_39.58183'E				
		2019/12/29	23:20:20	3099	33_02.14183'N	134_39.58183'E				
40	SIN14810 (SIKMNS148)	2019/12/28	15:59:28	1141	32_16.67433'N	135_11.80517'E	918	45.9	331.4	Distance
		2019/12/28	16:01:24	1145	32_16.77117'N	135_11.74733'E				

		2019/12/28	22:50:49	2062	32_38.56883'N	134_57.77783'E				(50m)
		2019/12/28	22:50:49	2062	32_38.56883'N	134_57.77783'E	+ 1			
41	SIN14811 (SIKMNS148)	2020/01/03	14:13:19	1942	32_35.71483'N	134_59.60633'E	1099	54.9	331.4	Distance (50m)
		2020/01/03	14:14:04	1944	32_35.76317'N	134_59.57683'E				
		2020/01/03	20:18:09	3042	33_01.83467'N	134_42.72533'E	+ 1			
		2020/01/03	20:18:09	3042	33_01.83467'N	134_42.72533'E				
42	SIN15010 (SIKMNS150)	2019/12/17	17:21:54	1701	32_31.02383'N	135_05.53483'E	814	40.7	331.4	Distance (50m)
		2019/12/17	17:23:20	1704	32_31.09517'N	135_05.48850'E				
		2019/12/17	22:42:12	2517	32_50.40900'N	134_53.04817'E	+ 1			
		2019/12/17	23:30:44	2641	32_53.35267'N	134_51.14317'E				
43	SIN15011 (SIKMNS150)	2019/12/24	00:07:09	1141	32_17.70417'N	135_14.04633'E	659	32.9	331.4	Distance (50m)
		2019/12/24	00:08:09	1143	32_17.75100'N	135_14.01483'E				
		2019/12/24	05:29:05	1801	32_33.39950'N	135_04.00617'E	+ 1			
		2019/12/24	05:29:05	1801	32_33.39950'N	135_04.00617'E				
44	SIN15012 (SIKMNS150)	2020/01/04	05:37:25	2337	32_46.13433'N	134_55.81033'E	605	30.2	331.4	Distance (50m)
		2020/01/04	05:38:21	2340	32_46.20583'N	134_55.76333'E				
		2020/01/04	09:01:38	2944	33_00.54917'N	134_46.49017'E	+ 1			
		2020/01/04	09:01:38	2944	33_00.54917'N	134_46.49017'E				
Total						49841	2507.8			

*F.S.P.: First Shot Point, F.G.S.P: First Good Shot Point
L.G.S.P.: Last Good Shot Point, L.S.P.: Last Shot Point

4. Cruise Log

Date	Log	
12/15/2019	Departure from Yokosuka, transit to survey area	Leg 1
12/16/2019	Arrival at survey area, XCTD, deployment of streamer cable and air gun, trouble shooting	
12/17/2019	Lines KIKMNS028, KIKMNS024	
12/18/2019	Line SIKMNS150, air gun trouble shooting, Line SIKMNS122	
12/19/2019	Lines SIKMNS122, SIKMEW080, KIKMNS026, SIKMEW050	
12/20/2019	Lines SIKMNS138, KIKMNS024, air gun trouble shooting, Line SIKMNS136	
12/21/2019	Line KIKMNS022, recovery of air gun and streamer cable, transit to Wakaura	
12/22/2019	Wait on weather at Wakaura	
12/23/2019	Wait on weather at Wakaura, transit to survey area, XBT, deployment of streamer cable and air gun	
12/24/2019	Lines SIKMNS140, SIKMNS150, air gun trouble shooting	
12/25/2019	Lines SIKMNS134, SIKMNS026, recovery of air gun and streamer cable	
12/26/2019	Transit to off Tachibana port, wait on weather off Tachibana port	
12/27/2019	Wait on weather off Tachibana port, transit to survey area	
12/28/2019	Transit to survey area, XBT, deployment of streamer cable and air gun, Line SIKMNS144	
12/29/2019	Lines SIKMNS148, SIKMNS142, SIKMNS146	
12/30/2019	Line SIKMNS146, recovery of air gun and streamer cable, Transit to east off Cape Muroto	
12/31/2019	Wait on weather east off Cape Muroto	
01/01/2020	Transit to survey area, XCTD, deployment of streamer cable and air gun, Line SIKMNS142	
01/02/2020	Lines KIKMNS022, KIKMNS018	
01/03/2020	Lines KIKMNS026, air gun trouble shooting, Line SIKMNS140	
01/04/2020	Lines SIKMNS148, SIKMNS144, SIKMNS150	
01/05/2020	Line SIKMNS136, recovery of air gun and streamer cable, transit to Wakayama	Leg 2
01/06/2020	Arrival at Wakayama	
01/07/2020	Departure from Wakayama, transit to off Tachibana port	
01/08/2020	Wait on weather off Tachibana port	
01/09/2020	Wait on weather off Tachibana port, transit to survey area, XCTD, deployment of streamer cable and air gun	
01/10/2020	Lines SIKMNS134, KIKMNS020, SIKMNS138	

01/11/2020	Lines SIKMNS138, KIKMNS016, air gun trouble shooting, Line SIKMNS132
01/12/2020	Line SIKMNS132, recovery of air gun and streamer cable, transit to off Cape Muroto, wait on weather east off Cape Muroto
01/13/2020	Wait on weather east off Cape Muroto, transit to survey area, deployment of streamer cable and air gun, Line SIKMNS126
01/14/2020	Line SIKMNS126, air gun trouble shooting, Line SIKMNS130
01/15/2020	Line SIKMNS130, recovery of streamer cable, wait on weather south off Cape Muroto, deployment of streamer cable, Line SIKMNS124
01/16/2020	Lines SIKMNS124, SIKMNS128
01/17/2020	Line SIKMNS130, recovery of air gun and streamer cable, transit to off Cape Muroto, wait on weather west off Cape Muroto
01/18/2020	Wait on weather west off Cape Muroto
01/19/2020	Transit to survey area, deployment of air gun and streamer cable, Line SIKMEW037
01/20/2020	Line SIKMEW054
01/21/2020	Line SIKMEW060, KIKMNS028, air gun trouble shooting, Line SIKMNS130
01/22/2020	Line SIKMEW032, recovery of air gun and streamer cable, transit to Yokosuka
01/23/2020	transit to Yokosuka
01/24/2020	Arrival at 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/e#report>

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

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