



R/V Kairei Cruise Report

KR13-18

Seismic study in Nansei-Shoto Region

November 17, 2013 – December 14, 2013

Japan Agency for Marine-Earth Science and Technology

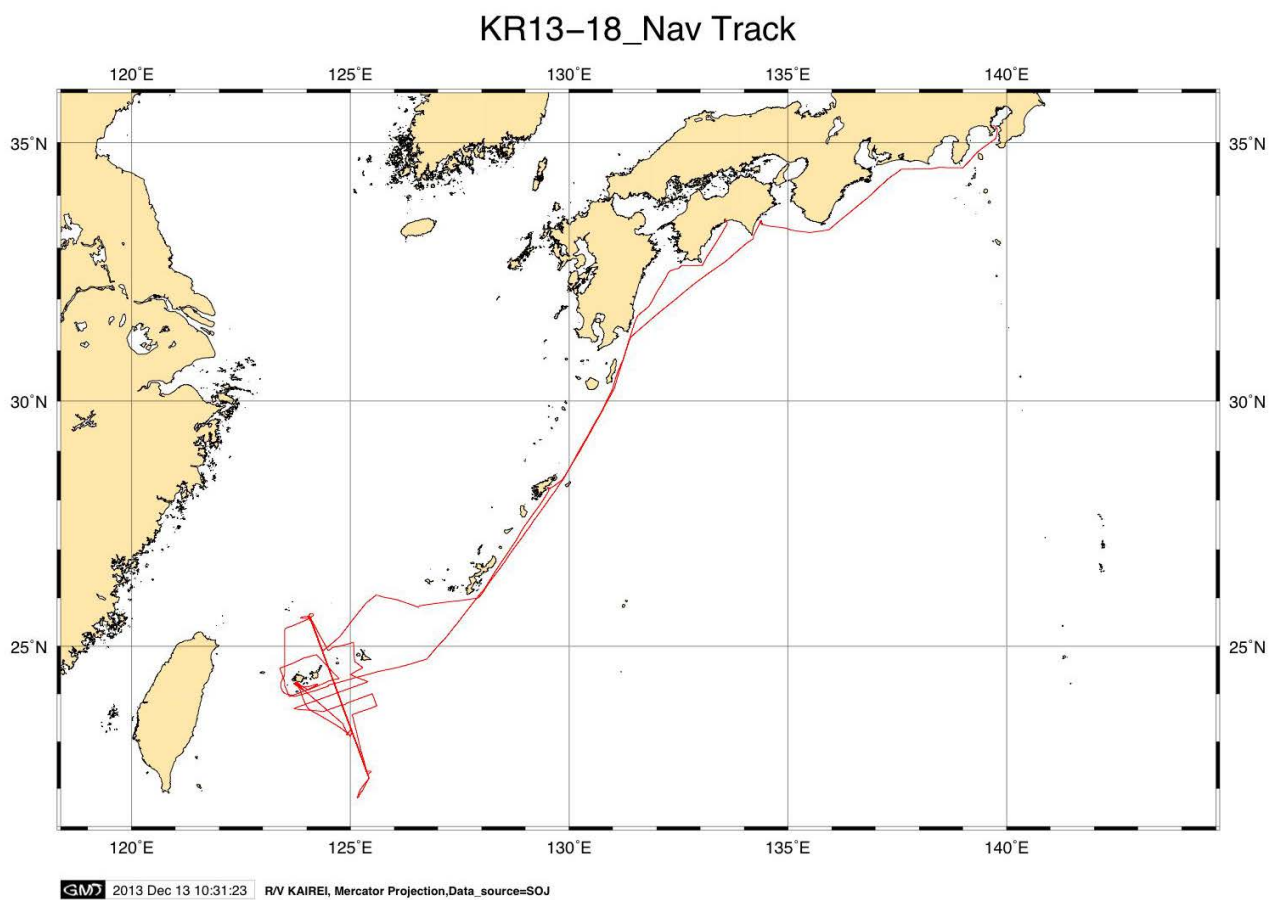
(JAMSTEC)

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1. Cruise Information :

- (1) Cruise number, Ship name: KR13-18, R/V Kairei
- (2) Title of the cruise: 2013FY “Seismic study in Nansei-Shoto Region”
- (3) Title of proposal: Seismic Observation about Earthquake and Tunami in the Nankai Trough, Nansei-Shoto and Off Kanto
- (4) Cruise period, Port call:
2013/11/17-12/14, Kochi to Yokosuka
- (5) Research Area: Nansei-Shoto Region
- (6) Research Map:



2. Researchers

(1) Chief Scientist [Affiliation]: Yuka KAIHO [JAMSTEC]

(2) Representative of Science Party [Affiliation]:

Yoshiyuki KANEDA [JAMSTEC]

(3) Science party list:

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3. Overview of Observation :

(1) Objectives :

The objectives of this cruise are to reveal the crustal structure and earthquake observation in Nansei-Shoto Region as a part of the study of “Project for wide-area earthquake research of the Nankai Trough” funded by the Ministry of Education, Culture, Sports, Science, and Technology of Japan.

In the Nansei-Shoto trench subduction zone, a number of tracks about large earthquakes and Tunamis are indicated. Because of the lack of historical documentation, to clarify the earthquakes repetition, scale and locations are required subjects. The elucidation of earthquake structure and seismic activity is an important key which catches the nature of earthquake and Tunamis in the Nansei-Shoto subduction zone.

(2) List of observations :

1) Deployment and retrieve of ocean bottom seismometers (OBSs)

60 OBSs (55 normal-type OBSs and 5 Deep sea OBSs) were deployed along YA05 line. All OBS were recovered after controlled source survey.

30 long term OBSs were deployed for earthquake observation.

2) Airgun shooting

Along YA05, refraction survey using a tuned air-gun array of 7,800 cubic inch was conducted. Shot spacing is 200m for the OBS survey.

3) MCS survey

Along 2 lines (YA05 and YA01), the MCS reflection survey using a tuned air-gun array of 7,800 cubic inch and a 444 channel hydrophone streamer with a 12.5 m group interval was conducted. Shot spacing is 50m for the MCS survey.

(3) Cruise log:

Date		Remarks
2013/11/17-11/19	Sun.-Tue.	Departure from KOCHI(Kochi) Transit to survey area
2013/11/20-11/23	Wed.- Sat.	Deployment of OBSs
2013/11/24-11/25	Sun.-Mon.	Airgun shooting along YA05
2013/11/26	Tue.	Standby due to weather condition
2013/11/27	Wed.	Deployment of OBSs/ Transit due to weather condition
2013/11/28-11/29	Thu.- Fri.	Standby due to weather condition
2013/11/30-12/1	Sat.- Sun.	Transit/ Airgun shooting along YA05/OBS recovery
2013/12/2-12/4	Mon.-Wed.	OBS recovery along YA05
2013/12/5-12/8	Thu.- Sun.	MCS survey along YA05 and YA01
2013/12/9	Mon.	Transit
2013/12/10	Tue.	Standby due to weather condition
2013/12/11	Wed.	Transit
2013/12/12	Thu.	Transit/Standby due to weather condition
2013/12/13	Fri.	Transit
2013/12/14	Sat.	Arrival at YUKOSUKA (Kanagawa)

(4) Seismic lines

1) Seismic survey

(i) Airgun shooting

Line name	Position					Remarks
	Latitude(N)		Longitude(E)			
YA05obs_0	25	36.35682	124	4.20976	2013.11.23 21:49	200m
	23	13.98385	125	2.51692	2013.11.25 7:00	N => S
YA05obs_1	23	12.54396	125	1.71187	2013.11.30 15:56	200m
	22	18.10475	125	23.6776	2013.12.1 6:00	N => S

(ii) Multi-channel seismic (MCS) reflection survey

Line name	Position						Remarks
	Latitude(N)		Longitude(E)				
YA05mcs_0	22	17.25907	125	24.00569	2013.12.5	14:05	50m
	25	37.79896	124	3.61874	2013.12.7	8:56	S => N
YA01_0	25	17.45775	123	30.00485	2013.12.7	21:38	50m
	24	1.18921	123	29.69086	2013.12.8	6:00	N => S

2) Locations of OBS

(i) OBS list

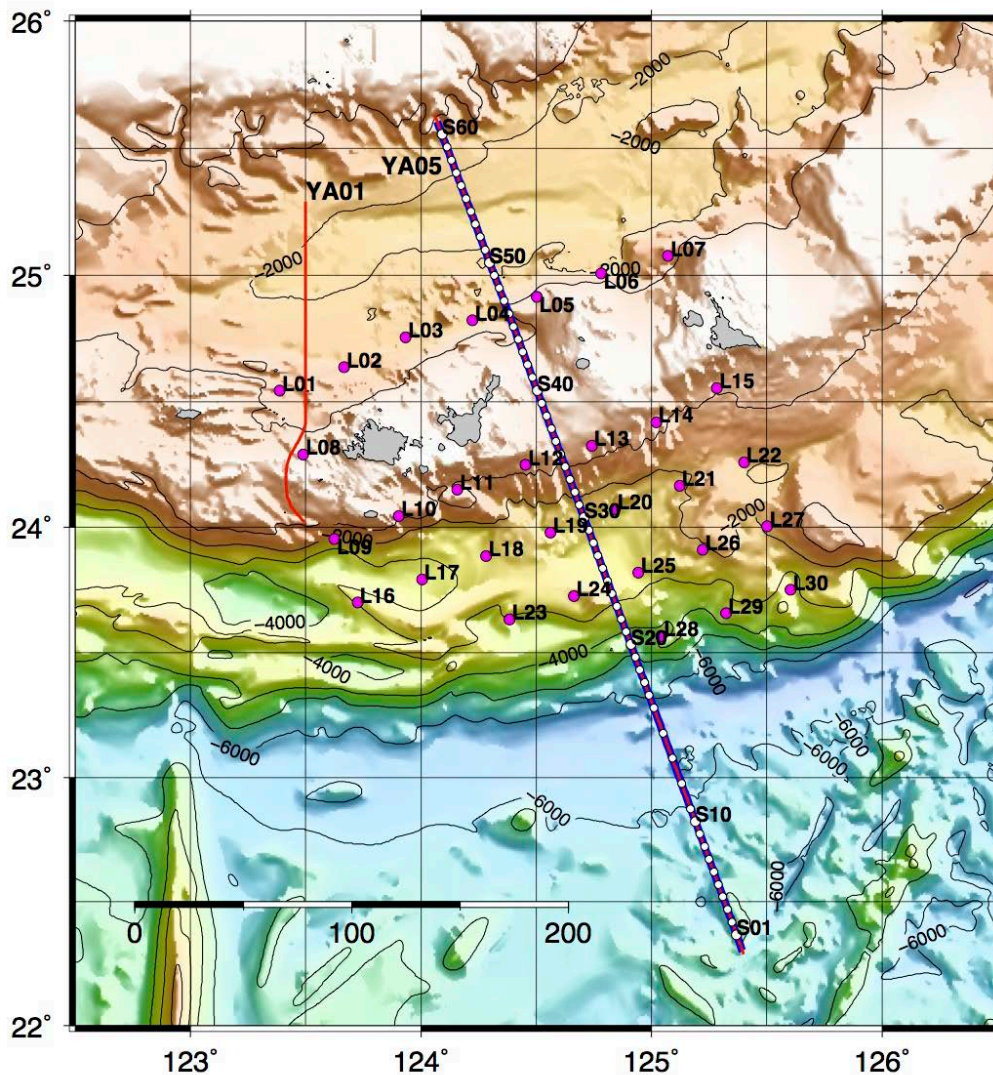
Site	OBS Calibration position					Remarks
	Latitude(N)		Longitude(E)		Depth(m)	
S1	22	22.03	125	22.14	5089	recovered
S2	22	25.07	125	20.94	5125	recovered
S3	22	28.12	125	19.74	4906	recovered
S4	22	31.16	125	18.54	5011	recovered
S5	22	34.20	125	17.34	5438	recovered
S6	22	37.24	125	16.20	5738	recovered
S7	22	40.28	125	15.00	5608	recovered
S8	22	43.32	125	13.80	5600	recovered
S9	22	46.36	125	12.60	5697	recovered
S10	22	49.40	125	11.40	5814	recovered
SD11	22	55.48	125	09.00	6014	recovered
SD12	23	01.57	125	06.60	6303	recovered
SD13	23	06.88	125	04.50	6550	recovered
SD14	23	14.48	125	01.50	6628	recovered
SD15	23	16.76	125	00.60	6621	recovered
S16	23	19.80	124	59.40	5791	recovered
S17	23	22.84	124	58.20	5764	recovered
S18	23	25.88	124	57.00	5924	recovered
S19	23	28.91	124	55.80	4622	recovered
S20	23	31.96	124	54.60	4377	recovered
S21	23	34.99	124	53.34	4143	recovered
S22	23	38.03	124	52.14	3002	recovered
S23	23	41.07	124	50.94	2915	recovered
S24	23	44.11	124	49.74	2869	recovered

S25	23	47.14	124	48.54	2595	recovered
S26	23	50.18	124	47.28	2436	recovered
S27	23	53.22	124	46.08	2698	recovered
S28	23	56.26	124	44.88	2759	recovered
S29	23	59.29	124	43.68	2655	recovered
S30	24	02.33	124	42.42	2399	recovered
S31	24	05.36	124	41.22	2210	recovered
S32	24	08.40	124	40.02	1855	recovered
S33	24	11.44	124	38.82	1379	recovered
S34	24	14.47	124	37.56	933	recovered
S35	24	17.51	124	36.36	783	recovered
S36	24	20.54	124	35.10	535	recovered
S37	24	23.58	124	33.90	500	recovered
S38	24	26.62	124	32.64	432	recovered
S39	24	29.65	124	31.44	404	recovered
S40	24	32.69	124	30.24	353	recovered
S41	24	35.72	124	28.98	377	recovered
S42	24	38.76	124	27.78	453	recovered
S43	24	41.79	124	26.52	685	recovered
S44	24	44.83	124	25.32	1063	recovered
S45	24	47.86	124	24.06	1445	recovered
S46	24	50.90	124	22.86	1167	recovered
S47	24	53.93	124	21.60	1275	recovered
S48	24	56.96	124	20.40	1961	recovered
S49	24	59.99	124	19.14	1984	recovered
S50	25	03.03	124	17.88	2011	recovered
S51	25	06.07	124	16.68	1995	recovered
S52	25	09.10	124	15.42	2106	recovered
S53	25	12.13	124	14.16	2235	recovered
S54	25	15.16	124	12.96	2204	recovered
S55	25	18.20	124	11.70	2094	recovered
S56	25	21.23	124	10.44	2052	recovered
S57	25	24.26	124	09.18	2014	recovered
S58	25	27.29	124	07.98	1970	recovered
S59	25	30.32	124	06.72	1912	recovered
S60	25	33.35	124	05.46	1925	recovered

(ii) List of long term OBSs

Site	OBS position					Remarks
	Latitude(N)		Longitude(E)		Depth(m)	
L01	24	32.63	123	23.22	1182	deployed
L02	24	38.20	123	39.96	1796	deployed
L03	24	45.29	123	56.04	1868	deployed
L04	24	49.36	124	13.44	1936	deployed
L05	24	54.94	124	30.18	688	deployed
L06	25	00.52	124	46.92	1986	deployed
L07	25	04.58	125	04.32	1182	deployed
L08	24	17.44	123	29.34	446	deployed
L09	23	57.19	123	37.44	2388	deployed
L10	24	02.77	123	54.18	688	deployed
L11	24	08.99	124	09.42	888	deployed
L12	24	14.94	124	27.24	834	deployed
L13	24	19.51	124	44.46	659	deployed
L14	24	25.09	125	01.20	749	deployed
L15	24	33.20	125	16.98	946	deployed
L16	23	42.00	123	43.50	3478	deployed
L17	23	47.57	124	00.24	3207	deployed
L18	23	53.15	124	16.98	2762	deployed
L19	23	58.73	124	33.72	2473	deployed
L20	24	04.32	124	50.52	2411	deployed
L21	24	09.90	125	07.32	2154	deployed
L22	24	15.49	125	24.06	1909	deployed
L23	23	37.96	124	23.04	3460	deployed
L24	23	43.54	124	39.78	2751	deployed
L25	23	49.12	124	56.58	3086	deployed
L26	23	54.71	125	13.32	2233	deployed
L27	24	00.29	125	30.12	1883	deployed
L28	23	33.92	125	02.58	4272	deployed
L29	23	39.51	125	19.38	3369	deployed
L30	23	45.10	125	36.18	3276	deployed

(iii) Location map of survey lines and OBSs



White circles show the OBS positions and magenta circles are LOBS sites. Blue thick line shows a refraction survey. Magenta thin lines are MCS survey lines.

4. Notice on using:

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.