



R/V Kairei Cruise Report  
KR09-06

Seismic survey and observation in NW Pacific

Jun. 19, 2009 – Jul. 05, 2009

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

## Table of Contents

1. Cruise Information
2. Reseachers
3. Overview of observation
4. List of observation instruments
5. Cruise log
6. OBS position
7. Airgun lines
8. Noice on using

1. Cruise Information

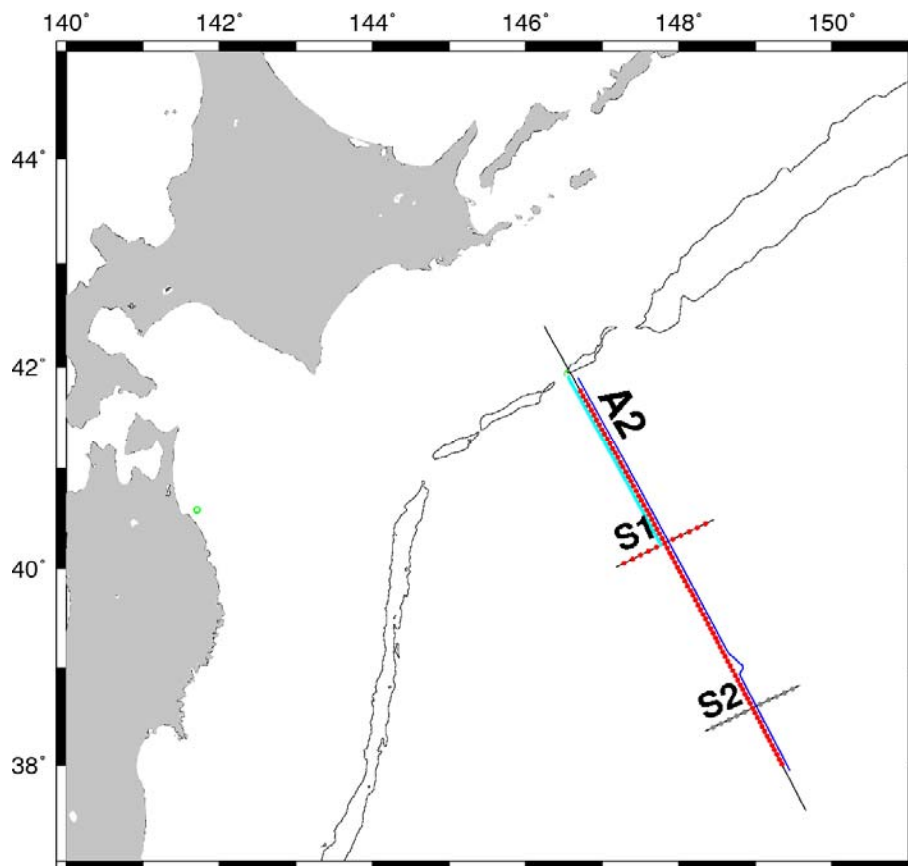
(1) Cruise Number, Ship name : KR09-06, R/V Kairei

(2) Title of the Cruise  
Seismic survey and observation in NW Pacific

(3) Cruise period, Port call  
2009/06/19 – 2009/07/05, Yokosuka-Yokosuka

(4) Research Area  
NW Pacific

(5) Research Map  
White circles represent OBSs.



## 2. Researchers

- (1) Chief Scientist [Affiliation] : FUJIE Gou [JAMSTEC]
- (2) Representative of Science Party [Affiliation] : Yoshiyuki TATSUMI [JAMSTEC]
- (3) Science party list
  - 1) Yoshio FUKAO [JAMSTEC],
  - 2) Shuichi KODAIRA [JAMSTEC],
  - 3) Narumi TAKAHASHI [JAMSTEC],
  - 4) Jin-Oh PARK [JAMSTEC],
  - 5) Ayako NAKANISHI [JAMSTEC],
  - 6) Koichiro OBANA [JAMSTEC],
  - 7) Yuka KAIHO [JAMSTEC],
  - 8) FUJIE Gou [JAMSTEC],
  - 9) Seiichi MIURA [JAMSTEC],
  - 10) Takeshi SATO [JAMSTEC]
  - 11) Mikiya YAMASHITA [JAMSTEC]
  - 12) Tsutomu TAKAHASHI [JAMSTEC]
  - 13) Tetsuo NO [JAMSTEC]
  - 14) Natsue ABE [JAMSTEC]
  - 15) Toshiya FUJIWARA [JAMSTEC]
  - 16) Ryota HINO [Tohoku Univ]
  - 17) Masao NAKANISHI [Chiba Univ.]

## 3. Overview of Observation

### (1) Objectives

In the northwestern Pacific region, the old oceanic plate (Pacific plate) formed in the eastern Pacific ridge is subducting from the Japan and Kuril trenches. The subduction of the oceanic plate causes earthquakes and volcanoes in the island arc, and it is important to clarify the detailed structure of the oceanic plate.

The objectives of this cruise are, (1) to reveal the detailed crustal and mantle structure within the typical, old oceanic plate, and (2) to reveal the structural changes during the subduction process.

(2) Observation, activities

1) OBS deployment

Ninety OBSs were successfully deployed along the profiles A2 and S1.

2) Airgun shooting

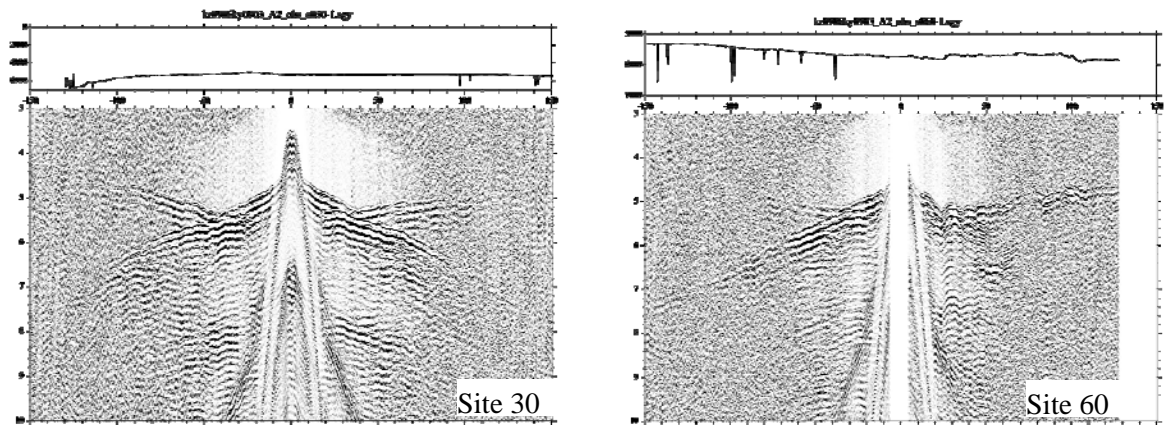
We shot the airgun array for OBSs along the profile A2 at a 200m and a 50 m interval.

A 444-ch hydrophone streamer was towed during the shooting.

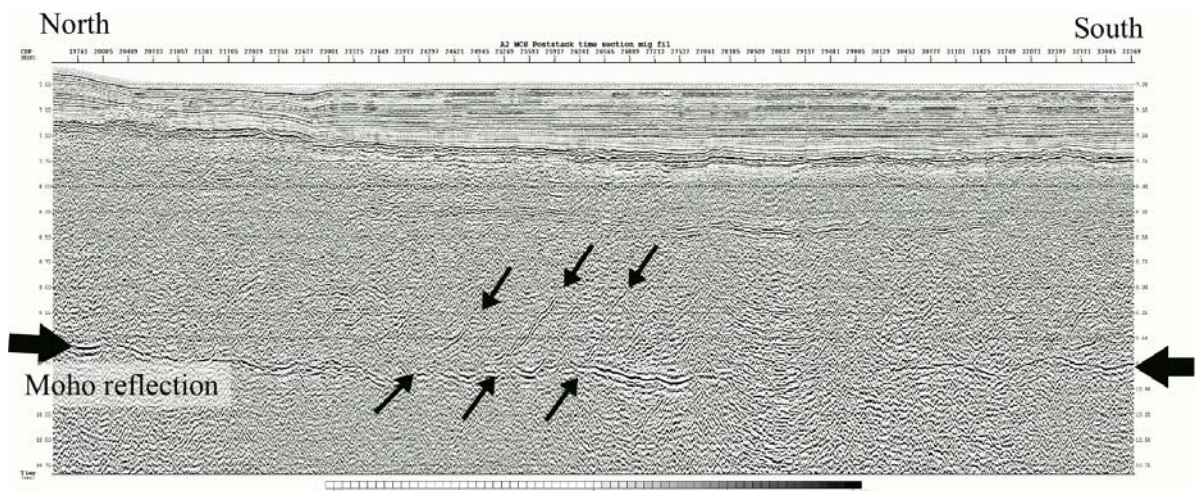
3) Bathymetry, magnetics and gravity observation

During the cruise, bathymetry, magnetics and gravity data have been recorded continuously by SEABEAM2112.004, three component magnetometer and gravity meter, respectively.

(3) Research results



Examples of OBS data (8km/sec reduction)



A MCS record obtained by the 444-ch hydrophone streamer.

4. List of observation instruments
  - (1) Ocean bottom seismometer (OBS)
  - (2) 444-ch hydrophone streamer
  - (3) SEABEAM2112.004
  - (4) three component magnetometer
  - (5) gravity meter.

5. Cruise log:

Date	Remarks
2009/06/19	Departure from Yokosuka
2009/06/20	Transit to survey area
2009/06/21	OBS deployment
2009/06/22	OBS deployment
2009/06/23	Abort due to bad weather
2009/06/24	OBS deployment
2009/06/25	OBS deployment
2009/06/26	OBS deployment
2009/06/27	OBS deployment
2009/06/28	Airgun shot
2009/06/29	Airgun shot
2009/06/30	Airgun shot
2009/07/01	Airgun shot
2009/07/02	Airgun shot
2009/07/03	Airgun shot
2009/07/04	Transit to Yokosuka
2009/07/05	Arrival at Yokosuka (JAMSTEC)

6. OBS position (deploy position)

Site	Position		
	Lat(N)	Lon(E)	Depth
1	41_46.0138	146_43.0683	6205.0
2	41_43.1558	146_45.1356	6035.0
3	41_40.3357	146_47.2218	5734.0
4	41_37.5009	146_49.3231	5637.0
5	41_34.6535	146_51.4216	5526.0
6	41_31.8437	146_53.5131	5453.0
7	41_29.0015	146_55.5949	5394.0
8	41_26.1779	146_57.6931	5352.0
9	41_23.3412	146_59.7729	5337.0
10	41_20.5061	147_01.8598	5290.0
11	41_17.6643	147_03.9473	5282.0
12	41_14.8359	147_06.0155	5257.0
13	41_12.0009	147_08.0880	5226.0
14	41_09.1632	147_10.1609	5181.0
15	41_06.3210	147_12.2282	5116.0
16	41_03.4868	147_14.3010	5064.0
17	41_00.6478	147_16.3668	5105.0
18	40_57.7951	147_18.4108	5185.0
19	40_54.9682	147_20.4721	5286.0
20	40_52.1235	147_22.5212	5301.0
21	40_49.2721	147_24.5824	5329.0
22	40_46.4352	147_26.6206	5304.0
23	40_43.5961	147_28.6753	5302.0
24	40_40.7502	147_30.7103	5293.0
25	40_37.9111	147_32.7502	5296.0
26	40_35.0592	147_34.7845	5298.0
27	40_32.2328	147_36.8133	5294.0
28	40_29.3856	147_38.8395	5297.0
29	40_26.5283	147_40.8568	5295.0
30	40_23.6734	147_42.8941	5297.0
31	40_20.8243	147_44.9227	5293.0
32	40_17.9838	147_46.9451	5305.0
33	40_15.1405	147_48.9475	5306.0
34	40_12.2887	147_50.9709	5305.0
35	40_09.4349	147_52.9713	5307.0
36	40_06.5952	147_54.9896	5311.0
37	40_03.7298	147_56.9830	5316.0
38	40_00.8781	147_58.9804	5314.0
39	39_58.0158	148_00.9848	5309.0
40	39_55.1544	148_02.9799	5329.0
41	39_52.2926	148_04.9680	5342.0
42	39_49.4410	148_06.9653	5368.0
43	39_46.6068	148_08.9549	5397.0
44	39_43.7439	148_10.9497	5429.0
45	39_40.8966	148_12.9216	5463.0

Site	Position		
	Lat(N)	Lon(E)	Depth
46	39_38.0409	148_14.9047	5498.0
47	39_35.1814	148_16.8700	5503.0
48	39_32.3309	148_18.8564	5510.0
49	39_29.4721	148_20.8239	5527.0
50	39_26.6029	148_22.7830	5551.0
51	39_23.7587	148_24.7552	5589.0
52	39_20.9031	148_26.7099	5613.0
53	39_18.0475	148_28.6682	5664.0
54	39_15.1689	148_30.6216	5668.0
55	39_12.3167	148_32.5867	5679.0
56	39_09.4417	148_34.5469	5671.0
57	39_06.5709	148_36.4945	5660.0
58	39_03.7228	148_38.4417	5675.0
59	39_00.8554	148_40.3973	5735.0
60	38_57.9919	148_42.3248	5727.0
61	38_55.1342	148_44.2770	5713.0
62	38_52.2692	148_46.2078	5777.0
63	38_49.4006	148_48.1413	5790.0
64	38_46.5457	148_50.0754	5814.0
65	38_43.6740	148_51.9917	5647.0
66	38_40.8111	148_53.9361	5712.0
67	38_37.9407	148_55.8546	5711.0
68	38_35.0550	148_57.7768	5680.0
69	38_32.1954	148_59.6963	5685.0
70	38_29.3233	149_01.6094	5695.0
71	38_26.4517	149_03.5234	5671.0
72	38_23.5802	149_05.4381	5602.0
73	38_20.7099	149_07.3462	5651.0
74	38_17.7802	149_09.2967	5666.0
75	38_14.9552	149_11.1689	5637.0
76	38_12.0874	149_13.0493	5703.0
77	38_09.2095	149_14.9619	5799.0
78	38_06.3455	149_16.8838	5858.0
79	38_03.4744	149_18.7611	5830.0
80	38_00.6010	149_20.6516	5834.0
101	40_03.2458	147_17.2803	5318.0
102	40_05.6204	147_23.6135	5313.0
103	40_08.0090	147_29.9364	5290.0
104	40_10.3854	147_36.2653	5283.0
105	40_12.7649	147_42.6253	5304.0
107	40_17.4911	147_55.3180	5322.0
108	40_19.8459	148_01.6770	5345.0
109	40_22.2050	148_08.0523	5372.0
110	40_24.5487	148_14.4187	5409.0
111	40_26.8811	148_20.8053	5432.0

7. Airgun lines (end points)

Line name	Lat	Lon	Lat	Lon
A2 (200m)	37_57.04341'N	149_22.97287'E	41_53.62601'N	146_37.30256'E
A2 (50m)	41_54.21207'N	146_36.91250'E	40_13.52998'N	147_50.08450'E

8. Notice on using

This cruise report is a preliminary documentation as of the end of the cruise. It may not be corrected even if changes on content (i.e. taxonomic classifications) are found after publication. It may also be changed without notice. Data on the cruise report may be raw or not processed. Please ask the PI(s) for the latest information before using. Users of data or results of this cruise are requested to submit their results to Data Integration and Analysis Group (DIAG), JAMSTEC.