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R/V Kaiyo Cruise Report

KY10-10

Seismic study in the northwestern Pacific region

Jul. 16, 2010 – Jul. 30, 2010

Japan Agency for Marine-Earth Science and Technology

(JAMSTEC)

Contents:

1．Cruise Information：

（1）Cruise number, Ship name: KY10-10, R/V Kaiyo

（2）Title of the cruise: 2010FY “Seismic study in the northwestern Pacific region”

（3）Title of proposal:

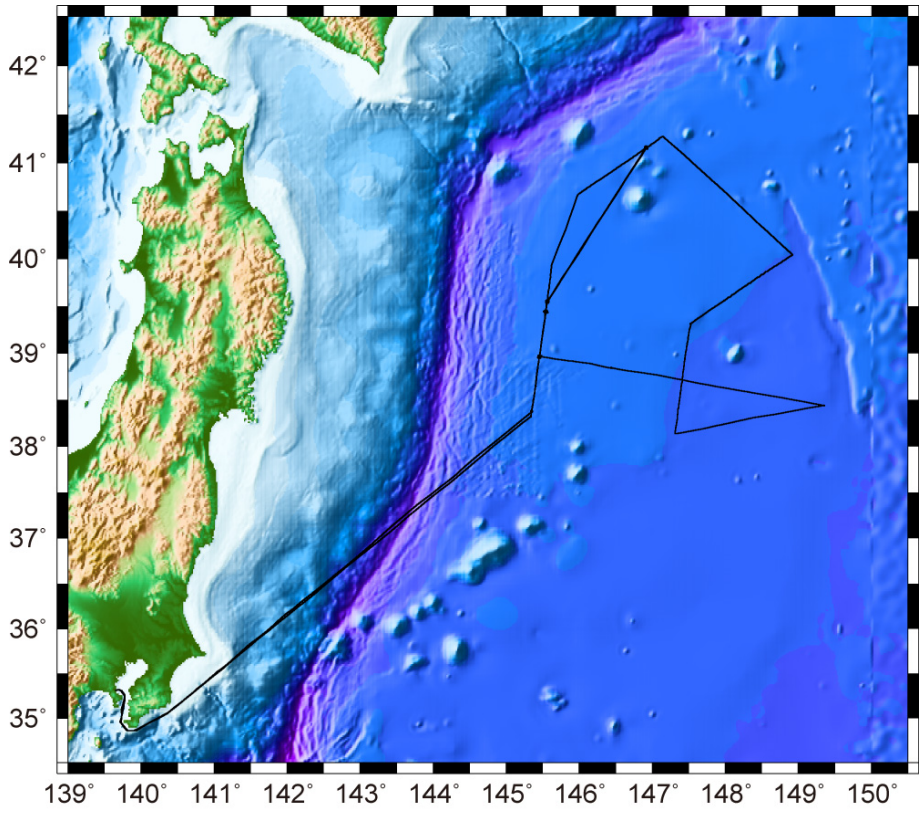
High-resolution structure study in the northwestern Pacific region

（4）Cruise period, Port call:

2010/07/16-07/30, JAMSTEC (Yokosuka) to JAMSTEC (Yokosuka)

（5）Research Area: Northwestern Pacific

（6）Research Map:



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3．Overview of Observation：

（1）Objectives：

In the northwestern Pacific region, the old oceanic plate (Pacific plate) formed in the eastern Pacific ridge has been subducting in the Japan and Kuril trenches. To advance the “Mohole project” being one of an IODP proposal and to understand the structural character of the old oceanic plate, it is important to clarify the crust and mantle structure in the old oceanic plate and the transitional process of the structure in the plate. The objectives of this cruise are to reveal the detailed crust and mantle structure of the old oceanic plate (Pacific plate), around the outer rise, and around volcanoes called as the “Petit Spot” in the northwestern Pacific region.

（2）List of observation instruments：

1）Recovery of ocean bottom seismometers（OBSs）

OBSs deployed by KR10-09 cruise were recovered.

2）Deployment of broad-band ocean bottom seismometers（BBOBSs）

4 BBOBSs were deployed in the northwestern Pacific region.

3）Bathymetry observation

During this cruise, bathymetry data have been recorded by SEABEAM2112.

4）Expendable-Bathy Thermograph (XBT) observation

Expendable-Bathy Thermograph (XBT) observation has been conducted to correct the sonic speed for the bathymetry survey at 3 points.

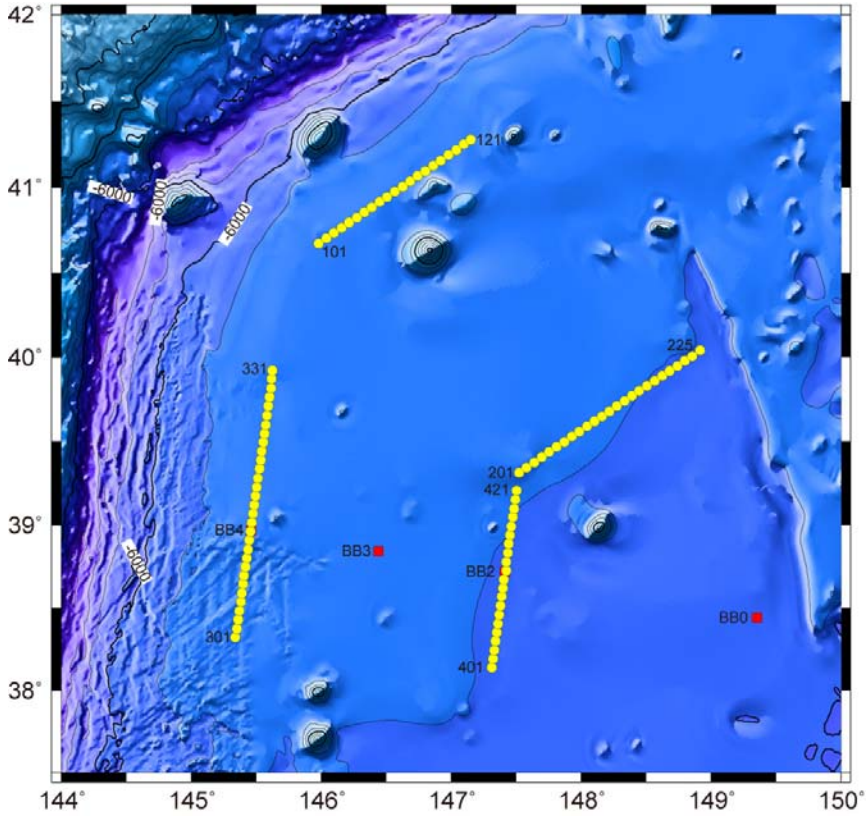
（3）Cruise log:

Date		Remarks
2010/07/16	Fri	Departure from JAMSTEC (Yokosuka), and transit to survey area
2010/07/17	Sat	Transit to survey area, recovery of OBSs (R2 line), and XBT observation
2010/07/18	Sun	Recovery of OBSs (R2 line), and deployment BBOBS (BB4)
2010/07/19	Mon	Recovery of OBSs (R2 and R1 lines), and XBT observation
2010/07/20	Tue	Recovery of OBSs (R1 line)
2010/07/21	Wed	Recovery of OBSs (P1 line), and XBT observation
2010/07/22	Thu	Recovery of OBSs (P1 and P2 lines)
2010/07/23	Fri	Recovery of OBSs (P2 line), and deployment BBOBS (BB2)
2010/07/24	Sat	Deployment BBOBSs (BB0 and BB3)
2010/07/25	Sun	Re-try to recovery of OBSs
2010/07/26	Mon	Re-try to recovery of OBSs
2010/07/27	Tue	Re-try to recovery of OBSs
2010/07/28	Wed	Re-try to recovery of OBSs

2010/07/29	Thu	Transit to JAMSTEC (Yokosuka)
2010/07/30	Fri	Transit to and arrive at JAMSTEC (Yokosuka)

（4） Seismic survey

1） OBSs and BBOBSs locations



Yellow circles and red squares show OBSs and BBOBSs locations, respectively.

（1） OBS list

Site	OBS Calibration position					Remarks
	Latitude(N)	Longitude(E)	Depth(m)	x	y	
(R1)						
101	40-40.2903	145-58.6334	5176.8	224.7	-78.0	
102	40-42.1034	146-02.2112	5264.1	3580/0	4963.3	
103	40-44.0001	146-05.7474	5050.8	3670.0	5013.3	
104	40-45.8147	146-09.2588	5068.6	3633.3	4980.0	
105	40-47.6482	146-12.7962	5058.7	3650.0	5103.3	
106	40-49.4481	146-16.3195	5116.1	3553.3	5060.0	
107	40-51.2443	146-19.8297	5096.3	3520.1	5041.8	
108	40-53.0461	146-23.3285	5167.3	3476.7	5023.3	
109	40-54.8770	146-26.9004	5039.5	3506.7	5036.7	
110	40-56.6950	146-30.3445	5175.8	3493.3	4943.3	

111	40-58.5169	146-33.9442	5110.1	3473.3	5060.0	
112	41-00.2971	146-37.5253	5245.2	3466.7	5056.7	
113	41-02.1447	146-41.0082	5000.8	3556.7	4920.0	
114	41-03.9363	146-44.4769	5199.9	3530.0	4903.3	
115	41-05.7827	146-48.0894	5186.9	3556.7	4990.0	
116	41-07.6550	146-51.6647	5328.1	3670.0	5010.0	
117	(41-09.3605)	(146-55.1463)	(5355.0)	-	-	2
118	41-11.3153	146-58.6803	5215.3	226.7	3.3	
119	41-13.0263	147-02.3495	5200.9	3393.3	5133.3	
120	41-15.0213	147-05.7047	5245.8	3653.3	4953.3	
121	41-16.6983	147-08.8866	5076.3	3406.7	4333.3	
(P1)						
201	39-18.8535	147-31.2857	5203.0	-3643.3	-5040.0	
202	39-20.7170	147-34.7630	5225.4	-3540.0	-5080.0	
203	39-22.5562	147-38.2442	5134.9	-3550.0	-5026.7	
204	39-24.3941	147-41.7559	5218.0	-3660.0	-4996.7	
205	39-26.3018	147-45.2005	5344.5	-3433.3	-4976.7	
206	39-28.0763	147-48.6290	5221.6	-3483.3	-5150.0	
207	39-29.9151	147-52.1967	5284.6	-3446.7	-4890.0	
208	39-31.7805	147-55.6948	5463.8	-3413.3	-4830.0	
209	39-33.5990	147-59.1000	5382.4	-3516.7	-4926.7	
210	39-35.4617	148-02.6486	5417.1	-3356.7	-4943.3	
211	39-37.2179	148-06.1967	5503.1	-3550.0	-4896.7	
212	39-39.0772	148-09.6170	5410.5	-3430.0	-4870.0	
213	39-40.8591	148-13.0085	5398.7	-3453.3	-5013.3	
214	39-42.6718	148-16.4737	5335.1	-3393.3	-4976.7	
215	39-44.4772	148-19.9569	5548.0	-3473.3	-4956.7	
216	39-46.3371	148-23.4889	5382.1	-3376.7	-4863.3	
217	39-48.2194	148-26.7479	5313.4	-3270.0	-5210.0	
218	39-49.9432	148-30.3539	5386.2	-3436.7	-5046.7	
219	39-51.7055	148-33.8443	5382.3	-3436.7	-5096.7	
220	39-53.4997	148-37.3807	5373.9	-3483.3	-5016.7	
221	39-55.2693	148-40.8438	5341.7	-3443.3	-5113.3	
222	39-57.0016	148-44.4125	5348.4	-3490.0	-5000.0	
223	39-58.8605	148-47.9038	5429.0	-	-	1
224	40-00.5564	148-51.3164	5292.4	-3646.7	-5296.7	
225	40-02.4696	148-54.9868	5471.8	-106.7	-76.7	

(R2)						
301	38-19.3333	145-20.2570	5338.8	65.3	-153.3	
302	(38-22.5033)	(145-20.9855)	(5307.0)	-	-	2
303	38-25.7867	145-21.5032	5322.9	33.3	3.3	
304	38-28.9347	145-22.1423	5340.5	5856.7	933.3	
305	38-32.2039	145-22.8342	5712.3	5990.0	1030.0	
306	38-35.4283	145-23.2513	5076.7	6000.0	656.7	
307	38-38.8444	145-23.7324	5962.7	6566.7	540.0	
308	38-41.7480	145-24.2772	5263.8	5996.7	583.3	
309	38-44.9608	145-24.8895	5225.2	6060.0	693.3	
310	38-48.0152	145-25.5059	5412.4	5760.0	750.0	
311	38-51.2053	145-26.0919	5361.1	5813.3	810.0	
312	38-54.5558	145-26.6351	5123.5	6046.7	723.3	
313	(38-57.7750)	(145-27.3022)	(5242.0)	-	-	2
314	39-00.8386	145-27.8324	5316.5	-100.0	-100.0	
315	39-04.0818	145-28.3821	5166.2	5900.0	693.0	
316	39-07.2329	145-28.9836	5275.0	5830.0	753.3	
317	39-10.4869	145-29.5344	4963.8	5933.3	680.0	
318	39-13.6793	145-30.1325	5187.7	5886.7	710.0	
319	39-16.9272	145-30.7107	5058.7	5986.7	703.3	
320	(39-20.2346)	(145-31.3797)	(5315.0)	-	-	2
321	39-23.3478	145-31.9321	5199.1	100.0	-120.0	
322-1	(39-26.6228)	(145-32.5549)	(5311.0)	-	-	2
322-2	39-26.5486	145-32.4784	5177.7	186.7	10.0	
323	39-29.7876	145-33.1519	5144.6	-	-	
324-1	(39-33.0468)	(145-33.7314)	(5290.0)	-	-	2
324-2	39-32.8809	145-33.6559	5032.4	5900.0	660.0	
325	39-35.9675	145-34.2144	5149.9	5813.3	686.7	
326	39-39.3975	145-34.8235	5148.2	6143.3	736.7	
327	39-42.6807	145-35.4155	4895.5	6193.3	740.0	
328	39-45.9445	145-36.0062	4999.8	6270.0	733.3	
329	39-49.0686	145-36.6848	5270.0	-	-	1
330	39-52.3957	145-36.9881	5080.2	6233.3	436.7	
331	39-55.3418	145-37.3181	5052.3	5750.0	53.3	
(P2)						
401	38-08.3284	147-18.6058	5594.4	-103.3	-163.3	
402	38-11.4992	147-19.2039	5458.4	-6060.0	-916.7	

403	38-14.6596	147-19.8051	5757.0	-6113.3	-773.3	
404	38-17.9536	147-20.4736	5561.4	-6053.3	780.0	
405	38-21.1423	147-21.0140	5426.2	-6080.0	-816.7	
406	38-24.3522	147-21.5594	5632.6	-6103.3	-773.3	
407	38-27.6293	147-22.1743	5762.9	-5993.3	-700.0	
408	38-30.8221	147-22.7218	5564.5	-6020.0	-760.0	
409	38-34.1237	147-23.1697	5570.0	-	-	1
410	38-37.2332	147-23.7991	5488.5	-5793.3	-710.0	
411	38-40.3432	147-24.2887	5500.8	-40.0	0.0	
412	38-43.5432	147-25.4122	5536.3	-6093.3	-796.7	
413	38-46.6859	147-25.4339	5503.5	-6296.7	-853.3	
414	38-49.9518	147-26.0277	5294.7	-6223.3	-803.3	
415	38-53.2462	147-26.5918	5462.1	-6076.7	-796.7	
416	38-56.4029	147-27.1409	5441.3	-236.7	-3.3	
417	38-59.5797	147-27.6846	5242.3	-6223.3	-1080.0	
418	39-02.9099	147-28.4145	5417.2	-5910.0	-760.0	
419	39-05.9528	147-28.8951	5279.7	-6163.3	-816.7	
420	39-09.1958	147-29.5102	5350.9	-6133.3	-816.7	
421	39-12.4485	147-30.0857	5168.9	-6110.0	-840.0	

Site	BBOBS Calibration position					Remarks
	Latitude(N)	Longitude(E)	Depth(m)	x	y	
BB0	38-26.522	149-21.163	5656	-	-	-
BB2	38-43.114	147-24.738	5554	-	-	3
BB3	38-50.617	146-26.206	5289	-	-	-
BB4	38-57.830	145-27.330	5238	-	-	3

Remarks:

1: OBS deployment location because of no OBS calibration.

2: OBS could not be recovered in this cruise.

3: BBOBS is also equipped with a differential pressure gauge.

4. 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.