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R/V Kaiyo Cruise Report

KY12-01 Leg1

Seismic study around off Kii Peninsula

Jan. 4, 2012 – Jan. 19, 2012

Japan Agency for Marine-Earth Science and Technology

(JAMSTEC)

Contents:

1．Cruise Information：

（1）Cruise number, Ship name: KY12-01Leg1, R/V Kaiyo

（2）Title of the cruise: 2011FY “Seismic study and earthquake observation off Kii peninsula”

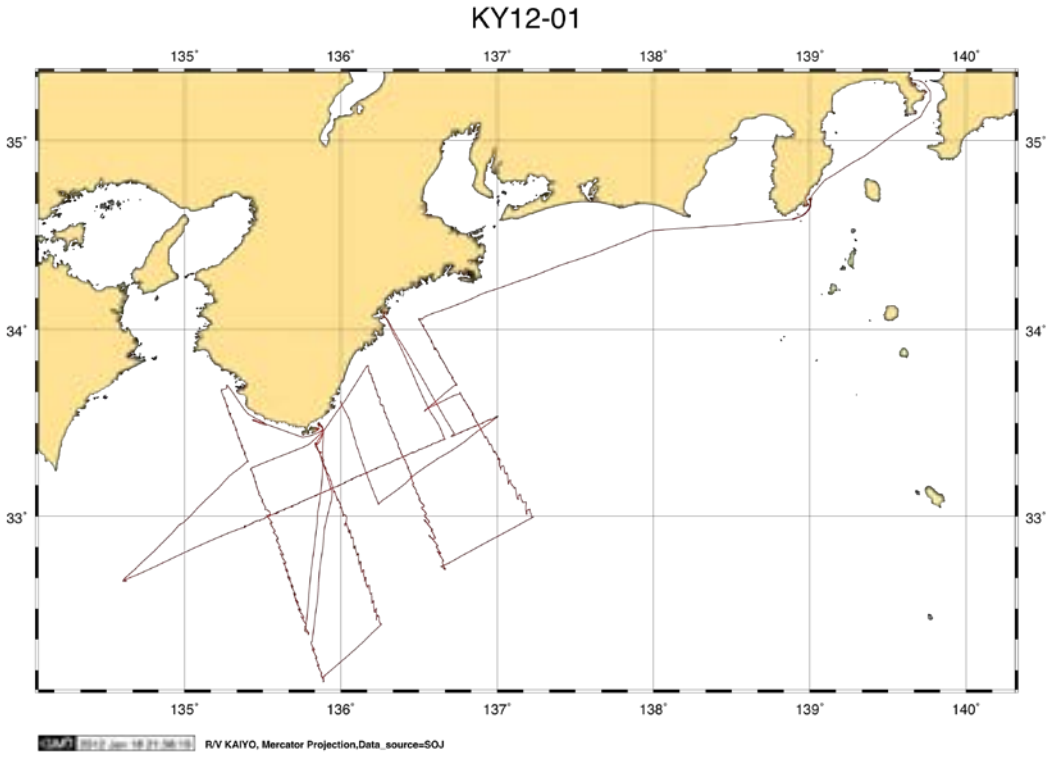
（3）Title of proposal: Seismic study and observation of evaluation for large earthquake synchronization in the Nankai Trough

（4）Cruise period, Port call:

2012/01/04-01/19, JAMSTEC (Yokosuka) to Shingu (Wakayama)

（5）Research Area: off Kii Peninsula

（6）Research Map:



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３．Overview of Observation：

（１）Objectives：

The objectives of this cruise are to reveal the crustal structure and earthquake observation around the off Kii Peninsula as a part of the study of “Research program concerning interaction between the Tokai, Tonankai, and Nankai Earthquakes” funded by the Ministry of Education, Culture, Sports, Science, and Technology of Japan.

In the Nankai trough subduction zone which have a number of major earthquakes in the last ca. 1300 years, historical seismicity reveals that the segmented pattern which were coupled occasionally. Off Kii peninsula is the one of large earthquake trigger point between two segments, Tonankai area and Nantai area. To understand the structure factors controlling the segmentation and coupling, it is necessary to reveal the detailed structure variations and seismic activities in this subduction zone. The objectives of this cruise are to reveal seismic structure and seismic activity around off Kii Peninsula.

（２） List of observations：

１） Retrieve of ocean bottom seismometers (OBSs)

147 OBSs (deployed in KR11-09) were recovered.　3 OBSs were not recovered.

1 long term OBSs (NT14) which was deployed by Kairei KR10-11 had no reply, no recovery.

２） Deployed long term ocean bottom seismometers

1 long term OBS(L13) was deployed.

３） Calling communication with long term ocean bottom seismometers

Calling communication were carried out against 13 long term OBSs(L01-12,14) which were deployed by Kairei KR11-09 cruise.

（３） Cruise log:

Date		Remarks
2012/01/04	Wed.	Departure from JAMSTEC (Yokosuka), and transit to survey area
2012/01/05	Thu.	Standby due to weather condition
2012/01/06	Fri.	Transit to survey area and recovery, deployment and calling of OBSs
2012/01/07	Sat.	Recovery and calling of OBSs
~		Recovery and calling of OBSs
2012/01/10	Tue.	Recovery and calling of OBSs
2012/01/11	Wed.	Recovery and calling of OBSs, transit to off Kushimoto due to weather condition
2012/01/12	Thu.	Transit to survey area and recovery and calling of OBSs
2012/01/13	Fri.	Recovery and calling of OBSs, transit to off Kushimoto due to weather condition
2012/01/14	Sat.	Transit to survey area and recovery and calling of OBSs
2012/01/15	Sun.	Recovery and calling of OBSs
2012/01/16	Mon.	Recovery and calling of OBSs, transit to off Owase due to weather condition
2012/01/17	Tue.	Standby due to weather condition
2012/01/18	Wed.	Transit to survey area and recovery and calling of OBSs
2012/01/19	Thu.	Arrival at SHINGU (Wakayama)

（4） Seismic lines

1） Locations of recovered OBS

(i) OBS list

Site	OBS Calibration position					Remarks
	Latitude(N)		Longitude(E)		Depth(m)	
S1	32	6.3630	135	53.2803	4231	recovered
S2	32	8.9752	135	52.1882	4280	recovered
S3	32	11.4529	135	51.1649	4319	recovered
S4	32	14.0108	135	50.1332	4400	recovered
S5	32	16.5490	135	49.0838	4456	recovered
S6	32	19.0970	135	48.0335	4519	recovered
S7	32	21.6718	135	46.9372	4563	recovered
S8	32	24.2179	135	45.9329	4624	recovered
S9	32	26.7778	135	44.8803	–	recovered
S10	32	29.3145	135	43.7989	4722	recovered
S11	32	31.8650	135	42.7891	4722	recovered
S12	32	34.4253	135	41.7635	4782	recovered
S13	32	37.0045	135	40.7459	4727	recovered
S14	32	39.5158	135	39.6662	4738	recovered
S15	32	42.0761	135	38.6263	4221	recovered
S16	32	44.6167	135	37.5712	4054	recovered
S17	32	47.1540	135	36.5089	3458	recovered
S18	32	49.7132	135	35.4360	3317	recovered
S19	32	52.2628	135	34.3968	3194	recovered
S20	32	54.7968	135	33.3867	3108	recovered
S21	32	57.3403	135	32.2582	2903	recovered
S22	32	59.8869	135	31.1741	2447	recovered
S23	33	2.4339	135	30.1716	2256	recovered
S24	33	4.9990	135	29.0781	2109	recovered
S25	33	7.5329	135	28.0116	1880	recovered
S26	33	10.0940	135	26.9916	1696	recovered
S27	33	12.6572	135	25.9292	1605	recovered
S28	33	15.2037	135	24.8900	1548	recovered
S29	33	17.7346	135	23.7984	1552	recovered
S30	33	20.3123	135	22.7689	1570	recovered
S31	33	22.8227	135	21.6757	1604	recovered
S32	33	25.3851	135	20.6131	1549	recovered

S33	33	27.8963	135	19.5649	1449	recovered
S34	33	30.4788	135	18.4744	1411	recovered
S35	33	33.0324	135	17.3976	659	no reply
S36	33	35.5530	135	16.3532	738	recovered
S37	33	38.1027	135	15.2859	164	recovered
S38	33	40.6677	135	14.2228	110	no reply
S39	32	24.8641	136	14.8757	4383	recovered
S40	32	27.3598	136	13.8438	4444	recovered
S41	32	29.9109	136	12.7793	4525	recovered
S42	32	32.4742	136	11.7123	4593	recovered
S43	32	35.0201	136	10.6498	4612	recovered
S44	32	37.5717	136	9.5836	4616	recovered
S45	32	40.1156	136	8.5298	4638	recovered
S46	32	42.6371	136	7.4163	4589	recovered
S47	32	45.1992	136	6.3629	4551	recovered
S48	32	47.7489	136	5.3153	4168	recovered
S49	32	50.2971	136	4.2498	4235	recovered
S50	32	53.1152	136	3.0779	3841	recovered
S51	32	55.3722	136	2.1133	3611	recovered
S52	32	57.9220	136	1.0544	3338	recovered
S53	33	0.4668	135	59.9805	3286	recovered
S54	33	3.0212	135	58.8905	2792	recovered
S55	33	5.5719	135	57.8310	2346	recovered
S56	33	8.0951	135	56.7608	2262	recovered
S57	33	10.6481	135	55.6839	2395	recovered
S58	33	13.1551	135	54.6218	1940	recovered
S59	33	15.5889	135	53.5571	1918	recovered
S60	33	18.2194	135	52.4608	1722	recovered
S61	33	20.7923	135	51.3502	1172	recovered
S62	33	23.3353	135	50.2848	553	no reply
S63	32	42.5910	136	38.8875	–	recovered
S64	32	45.1235	136	37.9058	4411	recovered
S65	32	47.6604	136	36.8197	4273	recovered
S66	32	50.1903	136	35.6959	4485	recovered
S67	32	52.7384	136	34.5788	4451	recovered
S68	32	55.2907	136	33.4780	4457	recovered
S69	32	57.8313	136	32.3985	3681	recovered

S70	33	0.3469	136	31.2917	3548	recovered
S71	33	2.8890	136	30.2144	3301	recovered
S72	33	5.4107	136	29.0749	2928	recovered
S73	33	7.9773	136	27.9580	2098	recovered
S74	33	10.4649	136	26.8245	2191	recovered
S75	33	13.0673	136	25.7272	2093	recovered
S76	33	15.6022	136	24.5920	2019	recovered
S77	33	18.1364	136	23.4550	1987	recovered
S78	33	20.6769	136	22.3615	2032	recovered
S79	33	23.1903	136	21.3655	2060	recovered
S80	33	25.6933	136	20.2761	1998	recovered
S81	33	28.2152	136	19.1462	1931	recovered
S82	33	30.7547	136	18.0603	1985	recovered
S83	33	33.2978	136	16.9198	1950	recovered
S84	33	35.8315	136	15.8413	1903	recovered
S85	33	38.3586	136	14.7173	1867	recovered
S86	33	40.8930	136	13.5704	1812	recovered
S87	33	43.4049	136	12.4607	1407	recovered
S88	33	45.9335	136	11.3518	873	recovered
S89	33	48.5550	136	10.1996	251	recovered
S90	32	59.6090	137	12.2513	4231	recovered
S91	33	1.9729	137	10.7066	4224	recovered
S92	33	4.3038	137	9.1235	4243	recovered
S93	33	6.6848	137	7.5532	4337	recovered
S94	33	9.0488	137	6.0218	3826	recovered
S95	33	11.6128	137	4.2917	3040	recovered
S96	33	13.7661	137	2.8879	3575	recovered
S97	33	16.1338	137	1.3371	3289	recovered
S98	33	18.4739	136	59.7595	2799	recovered
S99	33	20.9045	136	58.2373	2398	recovered
S100	33	23.2345	136	56.6405	2322	recovered
S101	33	25.6136	136	55.0962	1834	recovered
S102	33	27.9731	136	53.5338	1920	recovered
S103	33	30.3324	136	51.9909	2034	recovered
S104	33	32.6768	136	50.4072	2059	recovered
S105	33	34.9534	136	48.8525	2062	recovered
S106	33	37.3771	136	47.2536	2060	recovered

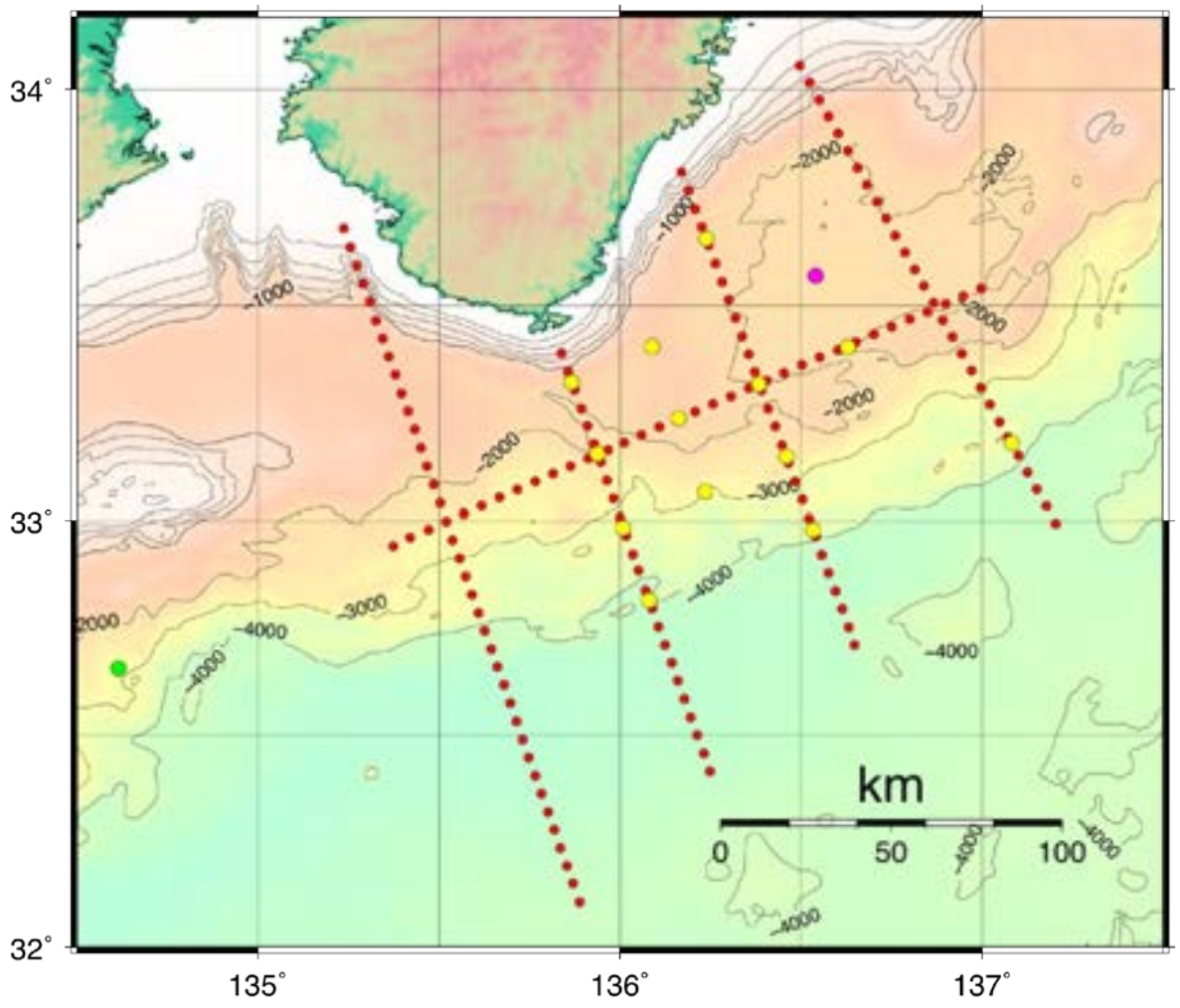
S107	33	39.7374	136	45.6263	2057	recovered
S108	33	42.0860	136	44.0748	2015	recovered
S109	33	44.4445	136	42.5703	2007	recovered
S110	33	46.7967	136	40.9350	2011	recovered
S111	33	49.1482	136	39.3577	2016	recovered
S112	33	51.5043	136	37.7446	1993	recovered
S113	33	53.9035	136	36.1861	1963	recovered
S114	33	56.2204	136	34.5716	1839	recovered
S115	33	58.6091	136	33.0197	1499	recovered
S116	34	0.9511	136	31.3929	731	recovered
S117	34	3.3131	136	29.8167	422	recovered
S118	32	56.4627	135	22.4006	2570	recovered
S119	32	57.6972	135	25.2155	2592	recovered
S120	32	58.7703	135	28.2339	2459	recovered
S121	33	0.9808	135	34.1151	2500	recovered
S122	33	2.0735	135	37.0708	2371	recovered
S123	33	3.1699	135	40.0352	2587	recovered
S124	33	4.2782	135	42.9646	2713	recovered
S125	33	5.3659	135	45.9115	2625	recovered
S126	33	6.4702	135	48.8708	2507	recovered
S127	33	7.5452	135	51.8060	2414	recovered
S128	33	8.6366	135	54.7741	2117	recovered
S129	33	9.8411	135	58.0716	2486	recovered
S130	33	10.8146	136	0.6396	2093	recovered
S131	33	11.9141	136	3.5977	1928	recovered
S132	33	13.0055	136	6.5486	1858	recovered
S133	33	14.0732	136	9.4968	1793	recovered
S134	33	15.1611	136	12.4425	1805	recovered
S135	33	16.2394	136	15.4091	1859	recovered
S136	33	17.3219	136	18.3685	1942	recovered
S137	33	18.4083	136	21.3322	1970	recovered
S138	33	19.4948	136	24.2817	2004	recovered
S139	33	20.5863	136	27.1990	2016	recovered
S140	33	21.6684	136	30.1777	2016	recovered
S141	33	22.7271	136	33.1473	2004	recovered
S142	33	23.7881	136	36.1206	2007	recovered
S143	33	24.8658	136	39.0890	2000	recovered

S144	33	25.9262	136	42.0562	1992	recovered
S145	33	27.0019	136	45.0367	1971	recovered
S146	33	28.0709	136	47.9951	1945	recovered
S147	33	29.1071	136	50.9835	1992	recovered
S148	33	30.1857	136	53.9768	2037	recovered
S149	33	31.2603	136	56.9165	2048	recovered
S150	33	32.3112	136	59.8946	2037	recovered

(ii) List of long term OBSs

Site	OBS position					Remarks
	Latitude(N)		Longitude(E)		Depth(m)	
L1	32	48.879	136	4.8293	3896	called
L2	32	59.0539	136	0.5383	3335	called
L3	33	9.2387	135	56.2819	2040	called
L4	33	19.2681	135	51.9957	1636	called
L5	33	3.9544	136	14.1392	3074	called
L6	33	14.2214	136	9.7486	1776	called
L7	33	24.2691	136	5.321	1637	called
L8	32	58.7512	136	31.9916	3378	called
L9	33	8.8824	136	27.584	2368	called
L10	33	19.029	136	23.0154	1987	called
L11	33	39.2884	136	14.3009	1836	called
L12	33	24.1996	136	37.8034	1999	called
L13	33	19.0970	135	48.0335	2091	deployed
L14	33	10.7078	137	4.9135	3646	called
NT14	32	39.3137	134	36.8881	2888	no reply not recovered

(iii)Location map of OBSs



Red circles show the recovered OBS positions. Yellow and yellowish green circles are call communicated LOBS sites. Magenda circle is deployed LOBS.

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.