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S/V *Yokosuka* Cruise Report
YK18-14

OBS deployment for seismic survey in the Nankai subduction zone

Nankai Trough

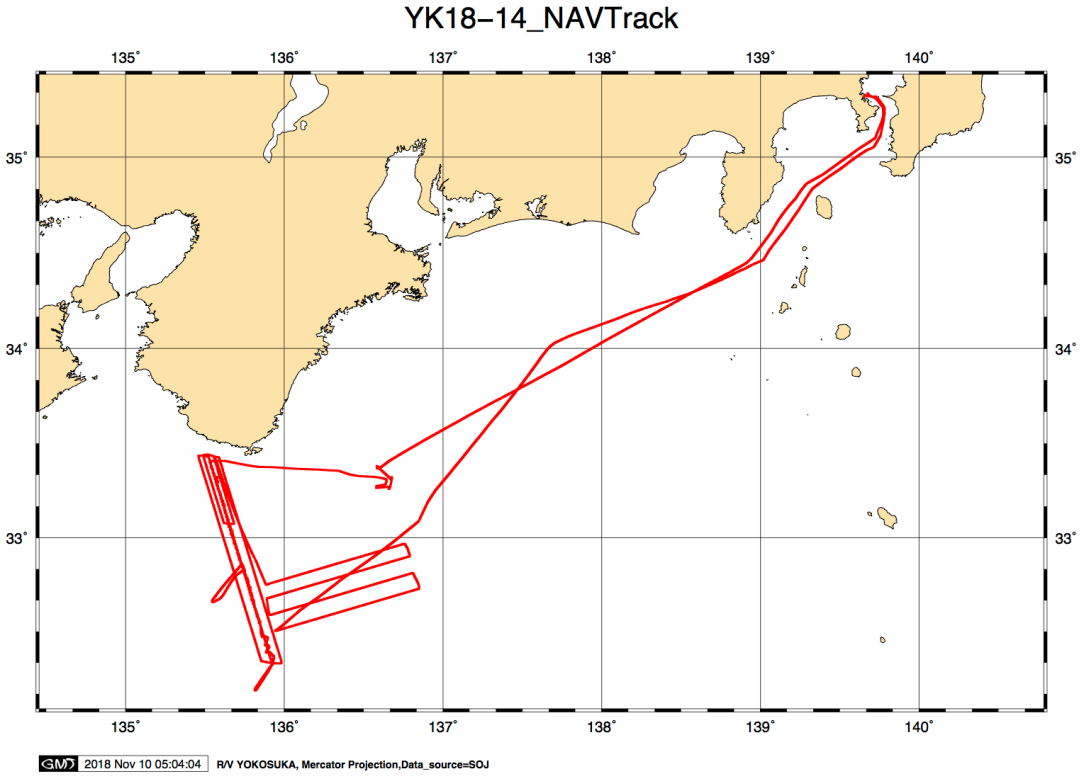
Nov.1, 2018-Nov.10, 2018

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

Contents

1. Cruise Information

- Cruise ID: YK18-14
- Name of vessel: S/V *Yokosuka*
- Title of project: Observation and monitoring of large scale seafloor deformation for national land resilience
- Title of cruise: OBS deployment for seismic survey in the Nankai subduction zone
- Chief Scientist [Affiliation]: Yuka Kaiho [JAMSTEC]
- Cruise period: 1 Nov. 2018 – 10 Nov. 2018
- Ports of departure / call / arrival: Yokosuka (JAMSTEC) – Yokosuka
- 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
- Science Party (Proponents) [Affiliation]

Shuichi KODAIRA [JAMSTEC]
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● Onboard Science Party [Affiliation, assignment etc.]
Yuka KAIHO [JAMSTEC]: Chief Scientist
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Masanori MURAKAMI [NME]: Marine Technician
Kimiko SERIZAWA[NME]: Marine Technician

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 cruse we deployed 99 Ocean Bottom Seismometers (OBSs) along TKKM01 survey line to obtain a high-resolution velocity structure in the Nankai trough off Kii peninsula. We also deployed 6 OBSs around the DONET site C0002 to investigate the velocity anisotropy and spatial stress distribution in this area.

3.2 List of observations

(1) OBS Deployment along the Line TKKM01

We deployed 99 OBSs along the Line TKKM01. TKKM01 is located the rupture segment boundary ares in the Nankai Trough.

Air gun shooting will be conducted in KM18-10 cruise. OBS recovery will be conducted in KR19-01 cruise.

(2) OBS Deployment around the drill site C0002

6 OBSs were deployed around the DONET drill site C0002 to investigate the velocity anisotropy and spatial stress distribution in this area.

(3) Bathymetry, magnetic and gravity Air gun shooting

R Bathymetry, magnetometer and gravity data were recorded during the cruise. Bathymetry mapping were carried out seismic survey area and along the Nankai trough axis.

3.3 List of observation equipments

- Ocean Bottom Seismometer
- Multibeam echo sounder
- Three component magnetometer
- Gravimeter

3.4 OBS position list

(1)OBS Deployment along the Line TKKM01

Site	Latitude	Longitude	Depth	Note
Site01	33-24.3064 N	135-31.8443 E	1089	
Site02	33-23.7678 N	135-32.0263 E	1191	
Site03	33-23.2582 N	135-32.2345 E	1381	
Site04	33-22.6932 N	135-32.4446 E	1515	
Site05	33-22.2104 N	135-32.6807 E	1557	
Site06	33-21.6912 N	135-32.8973 E	1588	
Site07	33-21.1746 N	135-33.0641 E	1719	
Site08	33-20.6623 N	135-33.2469 E	1734	
Site09	33-20.1468 N	135-33.4253 E	1727	
Site10	33-19.5958 N	135-33.6519 E	1690	
Site11	33-19.0868 N	135-33.8037 E	1609	
Site12	33-18.6025 N	135-34.0153 E	1585	
Site13	33-18.0742 N	135-34.1857 E	1587	
Site14	33-17.5369 N	135-34.3881 E	1576	
Site15	33-17.0431 N	135-34.5485 E	1569	
Site16	33-16.5081 N	135-34.7461 E	1575	
Site17	33-16.0128 N	135-34.9086 E	1575	
Site18	33-15.4687 N	135-35.1241 E	1588	
Site19	33-14.9709 N	135-35.3119 E	1587	
Site20	33-14.4651 N	135-35.5311 E	1575	
Site21	33-13.9811 N	135-35.6717 E	1563	
Site22	33-13.4239 N	135-35.8884 E	1570	
Site23	33-12.9181 N	135-36.1028 E	1558	
Site24	33-12.3977 N	135-36.3008 E	1583	
Site25	33-11.9230 N	135-36.4843 E	1600	
Site26	33-11.3755 N	135-36.7006 E	1626	
Site27	33-10.8512 N	135-36.8852 E	1680	
Site28	33-10.3549 N	135-37.0619 E	1710	
Site29	33-09.8466 N	135-37.2480 E	1758	
Site30	33-09.2980 N	135-37.4518 E	1807	
Site31	33-08.7937 N	135-37.5933 E	1837	
Site32	33-08.3264 N	135-37.7935 E	1863	
Site33	33-07.8543 N	135-37.9518 E	1953	
Site34	33-07.0082 N	135-38.1954 E	2083	
Site35	33-06.6234 N	135-38.3764 E	2239	
Site36	33-06.2029 N	135-38.5338 E	2289	
Site37	33-05.6936 N	135-38.6969 E	2401	

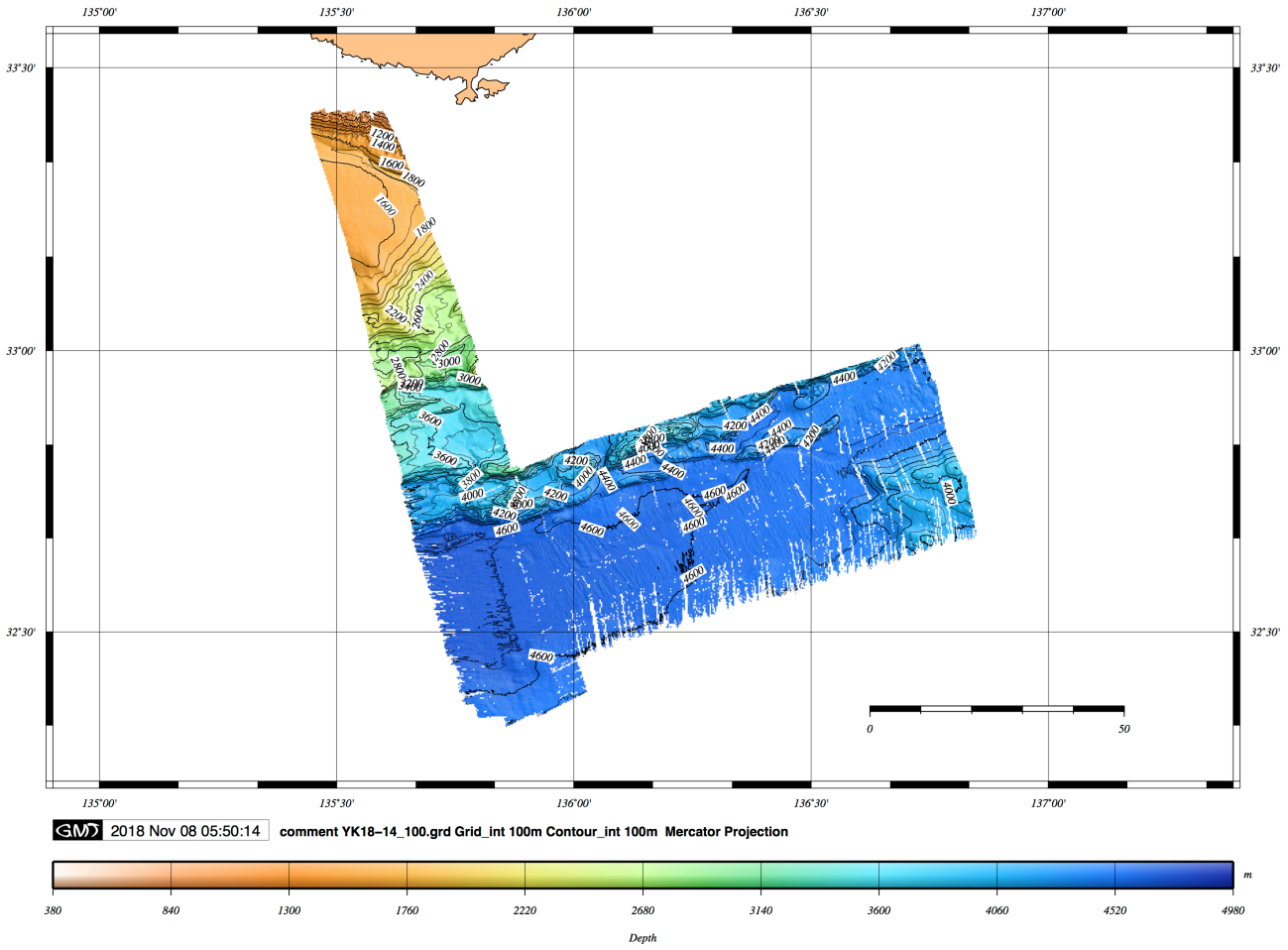
Site38	33-05.1739 N	135-38.8995 E	2400	
Site39	33-04.6412 N	135-39.0704 E	2422	
Site40	33-04.1234 N	135-39.2421 E	2481	
Site41	33-03.6269 N	135-39.4361 E	2505	
Site42	33-03.1004 N	135-39.6241 E	2510	
Site43	33-02.5937 N	135-39.8258 E	2514	
Site44	33-02.0750 N	135-40.0063 E	2523	
Site45	33-01.5605 N	135-40.2216 E	2629	
Site46	33-01.0562 N	135-40.4063 E	2707	
Site47	33-00.5408 N	135-40.5902 E	2756	
Site48	33-00.0018 N	135-40.8171 E	2795	
Site49	32-59.5086 N	135-40.9933 E	2842	
Site50	32-58.9654 N	135-41.1446 E	2867	
Site51	32-58.4752 N	135-41.3663 E	2925	
Site52	32-57.9498 N	135-41.5108 E	2836	
Site53	32-57.4650 N	135-41.6988 E	2864	
Site54	32-56.9202 N	135-41.9034 E	3099	
Site55	32-56.4261 N	135-42.0909 E	3289	
Site56	32-55.8701 N	135-42.2474 E	3514	
Site57	32-55.3459 N	135-42.4946 E	3561	
Site58	32-54.7620 N	135-42.7051 E	3403	
Site60	32-53.8853 N	135-43.0390 E	3485	
Site61	32-53.3665 N	135-43.2469 E	3560	
Site62	32-52.8645 N	135-43.4620 E	3640	
Site64	32-51.7992 N	135-43.8857 E	3669	
Site65	32-51.2833 N	135-44.0687 E	3691	
Site66	32-50.7399 N	135-44.2256 E	3729	
Site67	32-50.2373 N	135-44.3340 E	3745	
Site68	32-49.6966 N	135-44.6121 E	3741	
Site69	32-49.1994 N	135-44.7599 E	3738	
Site70	32-48.6701 N	135-44.9517 E	3653	
Site71	32-48.1679 N	135-45.1324 E	3577	
Site72	32-47.6468 N	135-45.2775 E	3564	
Site73	32-47.1468 N	135-45.4489 E	3653	
Site74	32-46.6033 N	135-45.6491 E	3838	
Site75	32-46.0890 N	135-45.8294 E	3839	
Site76	32-45.6084 N	135-45.9769 E	3889	
Site77	32-45.0628 N	135-46.2224 E	4020	
Site78	32-44.5796 N	135-46.4171 E	4018	
Site79	32-44.0104 N	135-46.5805 E	4031	
Site80	32-43.5010 N	135-46.7823 E	4002	
Site81	32-42.9574 N	135-46.9780 E	4238	

Site82	32-42.4174 N	135-47.1147 E	4358	
Site83	32-41.9568 N	135-47.2917 E	4510	
Site84	32-41.4320 N	135-47.4463 E	4677	
Site85	32-40.9310 N	135-47.6036 E	4696	
Site86	32-40.4215 N	135-47.8019 E	4716	
Site87	32-39.8267 N	135-48.0472 E	4708	
Site88	32-39.3828 N	135-48.2430 E	4732	
Site89	32-38.8398 N	135-48.5075 E	4713	
Site90	32-38.3791 N	135-48.6596 E	4739	
Site91	32-37.8950 N	135-48.8114 E	4714	
Site92	32-37.3618 N	135-49.1499 E	4714	
Site93	32-36.8394 N	135-49.3175 E	4713	
Site94	32-36.3462 N	135-49.5309 E	4714	
Site95	32-35.8485 N	135-49.6518 E	4709	
Site96	32-35.3041 N	135-49.8272 E	4679	
Site100	32-33.2384 N	135-50.5697 E	4744	
Site104	32-31.0971 N	135-51.2689 E	4708	
Site105	32-28.4347 N	135-52.2724 E	4727	
Site106	32-25.8911 N	135-53.3021 E	4674	
Site107	32-23.3464 N	135-54.3023 E	4601	

(2)OBS Deployment around the drill site C0002

Site	Latitude	Longitude	Depth	Note
OBS5	33-18.2368 N	136-38.6296 E	1974	
OBS6	33-17.6864 N	136-38.3940 E	1958	
OBS7	33-22.6698 N	136-34.8666 E	1993	
OBS8	33-19.0532 N	136-40.3004 E	2050	
OBS9	33-16.0986 N	136-39.4047 E	2041	
OBS10	33-16.3492 N	136-34.7848 E	1824	

3.5 Bathymetric map



4. Cruise Log

Date	Log
11/1/2018	Departure from Yokosuka, transit to survey area
11/2/2018	Arrival at C0002, deployment of OBS, transit Arrival at north end of TKKM01, deployment of OBS (Site 1~8)
11/3/2018	Deployment of OBS (Site 19~52)
11/4/2018	Deployment of OBS (Site 53~83)
11/5/2018	Deployment of OBS (Site 84~96, 100, 104~107)
11/6/2018	Bathymetric mapping along TKKM01
11/7/2018	Bathymetric mapping along TKKM01, trough axis
11/8/2018	Bathymetric mapping along trough axis, waiting of bad weather, transit
11/9/2018	Transit
11/10/2018	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.

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Acknowledgement

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