

Cruise Summary

1. Cruise ID/Ship :MR13-02B/"MIRAI"
2. Cruise title :2013"MIRAI" Engineering Cruise
3. Person in charge :Mari Inada (MARITEC/JAMSTEC)
4. Embarkation :See attachment 1
5. Area :Off-Shikoku, Off-Kii Peninsula, South of Suruga Bay, Off-Hachijyo, Sagami Bay, Off Izu-Ogasawara trench, The Pacific coastal area in east Japan
6. Cruise period :Leg 1 10th May 2013 – 17th May 2013 (MHI Shimonoseki Shipyard – Yokohama)
Leg 2 17th May 2013 – 23rd May 2013 (Yokohama - Sekinehama)

<Purpose>

The operation check of observation equipments, analysis equipments is carried out after completed annual inspection in 2013.

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- (1) Engine Trial
- (2) Observation equipment with a hull

The operation check test was carried out about the observation equipment shown in Table 1.

Moreover, the free-fall of the cable was carried out about the piston core winch, the Dynacon winch, and the CTD winch.

Table 1 : List of observation equipment type test carried out the operation confirmation

1	ADCP
2	MBES／SBP
3	Cesium Magnetometer
4	Three Component Magnetometer
5	XCTD／XBT
6	Radiosonde
7	General Maritime Meteorological Observation System
8	Wave Height Meter
9	Ceiriometer
10	Satellite Data Receiving System
11	Radio Navigation System／Network Management System

12	Gravimeter
13	Doppler Rader

(3) Analytical instrument

For analytical equipment, maintenance and performance was confirmed.

Table 2 : List of equipment maintenance and adjustment analytical instrument

1	Water sampling system with CTD
2	Autosal
3	Titration apparatus for dissolved oxygen
4	Nutrients auto analyzer (4ch)
5	Total CO ₂ analyzing system for surface seawater
6	pH meter
7	Gas Chromatograph
8	High-Performance Liquid Chromatographic (HPLC) analyzing system
9	Spectrofluorophotometer
10	Spectrophotometer
11	Integrated monitoring system of surface seawater
12	pCO ₂ analyzing system
13	Ultrapure water purification system
14	Deep freezer
15	Dryer • Electric Muffle Furnace
16	Draft Chamber
17	Clean Room
18	Air Suction Compressor Pump
19	Seawater Sampling Pump(for surface later)
20	Piston Core Sampling System
21	Multiple Corer
22	Core photograph unit
23	Soft X-ray camera
24	X-ray photo developing system
25	Polarizing microscope
26	Spectrophotometer
27	Multi Censer Core Logger

(4) Others

- No.12 winch free fall

< Overview of Observations >

We carried out test of all the equipments, and obtained good results.

Cruise Member of Leg 1	
Mari Inada	MARITEC / JAMSTEC
Shoichi Suzuki	MARITEC / JAMSTEC
Hiroyasu Mori	MARITEC / JAMSTEC
Hideo Ishigaki	Atmosphere and Ocean Research Institute, The University of Tokyo
Katsufumi Akazawa	Global Ocean Development Inc. Ship Management Department
Shigeru Fujita	Global Ocean Development Inc. Ship Management Department
Keisuke Nakamura	Global Ocean Development Inc. Ship Management Department
Nariharu Shibata	TOYO Corporation
Marine Technician	
Global Ocean Development Inc. Observation & Research Department Kazuho Yoshida Shinya Okumura Wataru Tokunaga Masanori Murakami Koichi Inagaki Katsuhisa Maeno Miki Morioka Toshio Furuta	Marine Works Japan LTD. Department of Marine Science Masayuki Fujisaki Tatsuya Tanaka Shinsuke Toyoda Makoto Takada Tomonori Watai Yasuhiro Arii Elena Hayashi Emi Deguchi Atsushi Ono Keitaro Matsumoto Kanao Yoshida Shinichiro Yokogawa Yusuke Sato Ei Hatakeyama Yasumi Yamada Hironori Sato Tomohide Noguchi Rei Ito Hideki Yamamoto Misato Kuwahara

Cruise Member of Leg 2	
Mari Inada	MARITEC / JAMSTEC
Shoichi Suzuki	MARITEC / JAMSTEC
Tatsuo Ono	MARITEC / JAMSTEC
Harumi Ota	MARITEC / JAMSTEC
Hitoshi Nakai	MARITEC / JAMSTEC
Katsufumi Akazawa	Global Ocean Development Inc. Ship Management Department
Shigeru Fujita	Global Ocean Development Inc. Ship Management Department
Keisuke Nakamura	Global Ocean Development Inc. Ship Management Department
Yasuyuki Yoshihara	EMS Co., Ltd.
Junichi Horikomi	Toshiba Corporation
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Schedule

Date		Activities
5/10	(Fri)	MHI Shimonoseki Dep. Engine Trial
5/11	(Sat)	Piston core winch Test and Free Fall MBES Roll Bias Test (4000m) Cesium Magnetometer Test
5/12	(Sun)	Dynacon winch Test and Free fall CTD winch Free Fall
5/13	(Mon)	CTD/Water Sampling (2000m) MBES Pitch Bias Test, Heading Bias Test MBES Precision Test (5000m)
5/14	(Tue)	MBES Precision Test (2000m) Magnetic force and gravity test at the cross point
5/15	(Wed)	Cesium Magnetometer ADCP/MBES Flow Noise Test
5/16	(Thu)	Multiple Corer Acoustic Navigation System
5/17	(Fri)	Yokohama Arr. And Dep.
5/18	(Sat)	ADCP bottom tracking Test MBES Precision Test (500m)
5/19	(Sun)	Doppler Rader CTD winch Free Fall (7000m)
5/20	(Mon)	No.12 winch Free Fall (6000m) CTD/Water Sampling (5000m)
5/21	(Tue)	Piston Core Sampling System Multiple Corer
5/22	(Wed)	
5/23	(Thu)	Yokohama Arr.