



MIRAI “Cruise Report”
MR23-02

Performance confirmation test

Kumano-nada, Ensyu-nada, Izu-Ogasawara Trench,
Suruga Bay

Apr,26,2023-May,2,2023

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

1. Cruise Information

- Cruise ID: MR23-02
- Name of vessel: MIRAI
- Title of cruise: Performance confirmation test.
- Chief Scientist [Affiliation]: Junya ISHIWATA[JAMSTEC]
- Cruise period: Apr 26, 2023 – May 2,2023
- Ports of departure / call / arrival: Shimizu/ Shimizu
- Research area: Kumano-nada, Ensyu-nada, Izu-Ogasawara Trench and Suruga Bay
- Research map

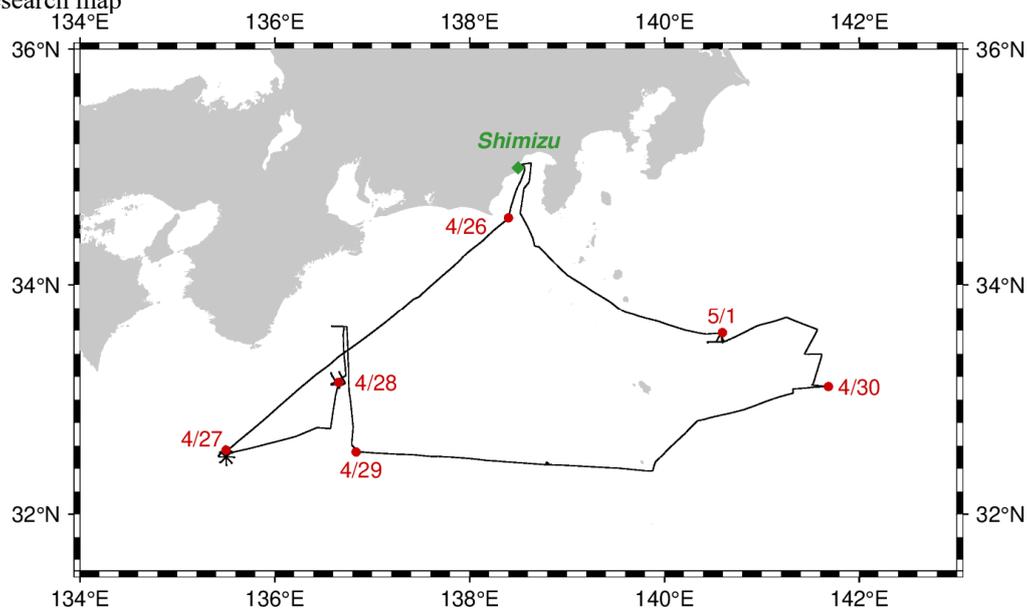


Fig.1 Total ship track during MR23-02.

2. Research Proposal and Science Party

- Title of proposal
 1. Performance confirmation test of “MIRAI”.
 2. Tests for procurement of an autoanalyzer.
- Representative of Science Party [Affiliation]
 1. Performance confirmation test of “MIRAI”.
Junya ISHIWATA[JAMSTEC]
 2. Tests for procurement of an autoanalyzer
Katsuro KATSUMATA [JAMSTEC]
- Science Party (List) [Affiliation, assignment etc.]
 - Junya ISHIWATA [JAMSTEC]
 - Lena MAEDA [JAMSTEC]
 - Katsuro KATSUMATA [JAMSTEC]
 - Ryohei YAMAGUCHI [JAMSTEC]
 - Takushi YOSHIDA [Nippon Marine Engineering]
 - Akihiko MURATA [JAMSTEC] (non-embarkation)
 - Mariko HATTA [JAMSTEC] (non-embarkation)

3. Research/Development Activities

The following performance confirmation test an additional assignment test are conducted.
ADCP, XBT/XCTD, MBES, SBP, ANS, Gravity meter, Cesium magnetometer, Shipboard three components magnetometer, Doppler RADAR, Radiosonde, Meteorological oceanographic observational equipment, SOAR, Ceilometer, Satellite data receiving system, Radio navigation system, Shipboard data management system, CTD winch, Towing winch,

Piston Corerer winch.

CTD water sampling system (36-hanger), total carbonic acid measuring device and total carbonic acid continuous measuring device for surface seawater, alkalinity measuring device, salinity measuring device, dissolved oxygen measuring device, nutrient analysis device, fluorescence photometer, spectrophotometer, System Biological Microscope freezer, continuous measuring device for surface seawater, continuous measuring device for CO₂ in air seawater, Core Camera, Soft X-ray Camera, Multi Sensor Core Logger, refrigerator, freezer, low-temperature freezers, ultra-low-temperature freezers, dryers, electric muffle furnaces, clean drafts, clean benches, draft chambers, clean rooms.

In addition to the above test, an additional assignment (TC23-MR-01) was carried out for a confirmation of an operation for an acceptance inspection.

○ 4. Cruise Log

Date and time are represented in JST.

Apr 26,2023

09:00 Departed at Shimizu port. Start sailing to area A.
13:30 Evacuation drill.
15:00 Meeting with crew.

Apr 27,2023

06:00-10:30 CTD winch Free Fall (4,700m).
10:30-14:30 CTD cast and water sampling between 4,700m depth and surface.
14:30-06:00 Deploy cesium magnetometer and start towing.
"figure-8 and Cross letter turns" for measuring ship's magnetization. And cross line run for Cesium magnetometer, Roll bias measurement of MBES.

Apr 28,2023

06:00 Recover cesium magnetometer. Sailing to area B.
09:00-12:30 CTD cast and water sampling (500m) 2 times.
12:30-20:30 Pitch and heading bias measurement of MBES.
23:00-01:00 Run along the common observation line.

Apr 29,2023

06:30-08:30 Depth sounding precision test of MBES.
08:30-12:30 Towing winch Free fall (1,000m).
Piston corerer winch Free fall (3,000m). ANS test (Deployment of a transponder with terminal of Piston corerer). Start sailing to area D.
18:00 Start the Doppler RADAR test.
20:00 Launch radiosonde.

Apr 30,2023

01:30-02:00 MBES WCI test. Start sailing to area E.
08:00 Launch radiosonde.
10:00-13:00 CTD winch free fall (6,100m).
14:30-16:30 Noise measurement of MBES and ADCP.
15:00 Stop Doppler radar.
17:30-20:30 Additional assignment (TC23-MR-01). Start sailing to area F.
23:30-01:00 Confirmation of maximum depth of ADCP,

May 1,2023

06:00-07:00 CTD bottom cast 1,300m.
08:00-13:00 CTD winch test. Sailing to Suruga Bay.

May 2,2023

09:00 Arrived at Shimizu port.

- **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.

<http://www.godac.jamstec.go.jp/darwin/explain/1/e#report>
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