

## MIRAI MR15-03 Leg2 Total Magnetic Intensity (TMI)

Last Modified: 2019-06-26

[ReadMe](#) [Observation Data](#) [Data Format](#)

Cruise ID: [MR15-03 Leg2](#)

Total Magnetic Intensity (TMI): Processed (DMO)-Corrected

Data Policy: [JAMSTEC](#)

Observation Items: Total magnetic field intensity

Science Keywords:

OCEANS > MARINE GEOPHYSICS > MARINE  
MAGNETICS  
SOLID EARTH > GEOMAGNETISM

Cruise Report

[http://www.godac.jamstec.go.jp/catalog/data/doc\\_catalog/media/MR15-03\\_leg2\\_all.pdf](http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR15-03_leg2_all.pdf)

### For Using Data

Principal Investigator

Use Constraints

See [Terms and Conditions](#) about constrain of use.

Data Citation

See [Terms and Conditions](#) about data citation.

Period (UTC)

2015-10-15 00:23 – 2015-10-16 22:19

Instrument

Instrument:

Cesium magnetometer



Overview

The cesium vapor magnetometer measures the total magnetic by using electron paramagnetic resonance. In order to avoid the ship's magnetization, the instrument is towed by the vessel about 400 - 500m. As a quality control, data of low reliability was removed (see section 5. for quality control criteria). Synthetic geomagnetic field values were calculated from IGRF models.

Measurement System

Manufacturer : Geometrics, inc.  
Type : G-882  
Measurement range : 20,000 - 100,000 nT  
Resolution : 0.002 nT  
Accuracy : less than 2 nT  
Location : Dry Laboratory

Data processing

The following corrections and calculations were performed.

(1) International Geomagnetic Reference Field (IGRF)

Synthetic geomagnetic field values are calculated from IGRF 12th generation models by using navigation data ; latitude, longitude and date.

Reference: IAGA Division V-MOD Geomagnetic Field Modeling[<http://www.ngdc.noaa.gov/IAGA/vmod/igrf.html>]

(2) Calculation of the geomagnetic field anomaly

$An = F - Figrf$

An: Total geomagnetic field intensity anomaly

F: Observed total geomagnetic field intensity

Figrf: Synthetic total geomagnetic field intensity from IGRF

(3) Output of the data

Time (UTC)

Latitude (degree)

Longitude (degree)

Observed total magnetic field intensity (nT)

Total geomagnetic field intensity anomaly (nT)

Quality control of data

Following criteria were used for removal of data of low reliability:

- Time error (inversion of time, continuation of same timestamps)
- Ground speed of the ship below 1knot or exceeding 20knot
- Total geomagnetic field intensity anomaly exceeding  $\pm 4000$ nT
- Spatial gradient of the total geomagnetic field intensity anomaly exceeding  $\pm 300$ nT/km

Note

- (1) File naming rule: Cruise ID\_corr.tmag
- (2) Sampling rate: 1 second(It depends on geomagnetic field intensity and inclination )
- (3) Geodetic system: WGS84
- (4) If you would like the raw data set, please contact us from "Contact Us" above.

Related Information



Ship Name: MIRAI  
Period: 2015-10-09 - 2015-10-21  
Chief Scientist: Shigeto Nishino (JAMSTEC)  
Project Name: [Arctic Ocean Climate System Research]  
Topic: ▶ Observational studies on the Arctic Ocean climate and ecosystem variability  
Title:

### Update History

2019-06-26	An observation data was registered.
2018-05-29	An observation data was registered.

- [Site Policy](#)
- [Privacy Policy](#)
- [Application for Data and Samples](#)
- [Data Policy](#)
- What's New**
- [Update History](#)
- [Feeds](#)

	Publication List	Amount of Public Info.
1	1980-1981	1980-1981
2	1982-1983	1982-1983
3	1984-1985	1984-1985
4	1986-1987	1986-1987
5	1988-1989	1988-1989
6	1990-1991	1990-1991
7	1992-1993	1992-1993
8	1994-1995	1994-1995
9	1996-1997	1996-1997
10	1998-1999	1998-1999
11	2000-2001	2000-2001
12	2002-2003	2002-2003
13	2004-2005	2004-2005
14	2006-2007	2006-2007
15	2008-2009	2008-2009
16	2010-2011	2010-2011
17	2012-2013	2012-2013
18	2014-2015	2014-2015
19	2016-2017	2016-2017
20	2018-2019	2018-2019
21	2020-2021	2020-2021
22	2022-2023	2022-2023
23	2024-2025	2024-2025
24	2026-2027	2026-2027
25	2028-2029	2028-2029
26	2030-2031	2030-2031
27	2032-2033	2032-2033
28	2034-2035	2034-2035
29	2036-2037	2036-2037
30	2038-2039	2038-2039
31	2040-2041	2040-2041
32	2042-2043	2042-2043
33	2044-2045	2044-2045
34	2046-2047	2046-2047
35	2048-2049	2048-2049
36	2050-2051	2050-2051
37	2052-2053	2052-2053
38	2054-2055	2054-2055
39	2056-2057	2056-2057
40	2058-2059	2058-2059
41	2060-2061	2060-2061
42	2062-2063	2062-2063
43	2064-2065	2064-2065
44	2066-2067	2066-2067
45	2068-2069	2068-2069
46	2070-2071	2070-2071
47	2072-2073	2072-2073
48	2074-2075	2074-2075
49	2076-2077	2076-2077
50	2078-2079	2078-2079
51	2080-2081	2080-2081
52	2082-2083	2082-2083
53	2084-2085	2084-2085
54	2086-2087	2086-2087
55	2088-2089	2088-2089
56	2090-2091	2090-2091
57	2092-2093	2092-2093
58	2094-2095	2094-2095
59	2096-2097	2096-2097
60	2098-2099	2098-2099
61	2100-2101	2100-2101
62	2102-2103	2102-2103
63	2104-2105	2104-2105
64	2106-2107	2106-2107
65	2108-2109	2108-2109
66	2110-2111	2110-2111
67	2112-2113	2112-2113
68	2114-2115	2114-2115
69	2116-2117	2116-2117
70	2118-2119	2118-2119
71	2120-2121	2120-2121
72	2122-2123	2122-2123
73	2124-2125	2124-2125
74	2126-2127	2126-2127
75	2128-2129	2128-2129
76	2130-2131	2130-2131
77	2132-2133	2132-2133
78	2134-2135	2134-2135
79	2136-2137	2136-2137
80	2138-2139	2138-2139
81	2140-2141	2140-2141
82	2142-2143	2142-2143
83	2144-2145	2144-2145
84	2146-2147	2146-2147
85	2148-2149	2148-2149
86	2150-2151	2150-2151
87	2152-2153	2152-2153
88	2154-2155	2154-2155
89	2156-2157	2156-2157
90	2158-2159	2158-2159
91	2160-2161	2160-2161
92	2162-2163	2162-2163
93	2164-2165	2164-2165
94	2166-2167	2166-2167
95	2168-2169	2168-2169
96	2170-2171	2170-2171
97	2172-2173	2172-2173
98	2174-2175	2174-2175
99	2176-2177	2176-2177

- Map Search
- Data Tree
- Detailed Search

NATSUSHIMA  
KAIYO  
YOKOSUKA  
MIRAI  
KAIREI  
CHIKYU  
KAIMEI  
SHINSEI MARU  
HAKUHO MARU

KAIKO  
SHINKAI 2000  
SHINKAI 6500  
DEEP TOW  
HYPER-DOLPHIN  
URASHIMA  
YOKOSUKA DEEP TOW  
6K Camera DEEP TOW  
6K Sonar DEEP TOW  
KM-ROV  
POWER GRAB  
SAMPLER (SHELL)  
POWER GRAB  
SAMPLER (CLOW)  
BMS

Cruise ID:

Dive ID:

Copyright 2011 Japan Agency for Marine-Earth Science and Technology



**JAMSTEC**

国立研究開発法人  
海洋研究開発機構

## MIRAI MR15-03 Leg2 Total Magnetic Intensity (TMI)

Last Modified: 2019-06-26

[ReadMe](#) [Observation Data](#) [Data Format](#)

Cruise ID: [MR15-03 Leg2](#)

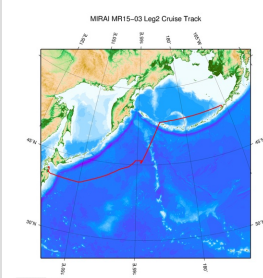
Total Magnetic Intensity (TMI): Processed (DMO)-Corrected

Data Policy: [JAMSTEC](#)

### TMI Corrected

No.	Column	Content	Format	Unit	Remarks
1	1 - 8	Date	i4,i2,i2		YYYYMMDD (UTC)
2	10 -15	Time	i2,i2,i2		hhmmss (UTC)
3	17 -25	Latitude	f9.5	degree	No sign for the northern hemisphere. Negative for the southern hemisphere.
4	27 -36	Longitude	f10.5	degree	No sign for eastern hemisphere. Negative for the western hemisphere.
5	38 -45	Observed total geomagnetic field intensity	f8.1	nT	
6	46 -53	Total geomagnetic field intensity anomaly	f7.1	nT	

### Related Information



[Enlarge Image](#)

#### MR15-03 Leg2

Ship Name: MIRAI

Period: 2015-10-09 - 2015-10-21

Chief Scientist: Shigeto Nishino (JAMSTEC)

Project Name: [Arctic Ocean Climate System Research]

Proposal ▶ Observational studies on the Arctic Ocean climate and ecosystem variability

Title:

### Update History

2019-06-26	An observation data was registered.
2018-05-29	An observation data was registered.

**JAMSTEC**  
[Site Policy](#)  
[Privacy Policy](#)  
[Application for Data and Samples](#)  
[Data Policy](#)  
**What's New**  
[Update History](#)  
[Feeds](#)

**Lists**  
[Publication List](#)  
[Amount of Public Info.](#)  
**Data**  
[Map Search](#)  
[Data Tree](#)  
[Detailed Search](#)

**Information of the Ships**  
[NATSUSHIMA](#)  
[KAIYO](#)  
[YOKOSUKA](#)  
[MIRAI](#)  
[KAIREI](#)  
[CHIKYU](#)  
[KAIMEI](#)  
[SHINSEI MARU](#)  
[HAKUHO MARU](#)

**Information of the Submersibles**  
[KAIKO](#)  
[SHINKAI 2000](#)  
[SHINKAI 6500](#)  
[DEEP TOW](#)  
[HYPER-DOLPHIN](#)  
[URASHIMA](#)  
[YOKOSUKA DEEP TOW](#)  
[6K Camera DEEP TOW](#)  
[6K Sonar DEEP TOW](#)  
[KM-ROV](#)  
[POWER GRAB](#)  
[SAMPLER \(SHELL\)](#)  
[POWER GRAB](#)  
[SAMPLER \(CLOW\)](#)  
[BMS](#)

#### Go to a Cruise Information

Cruise ID:

#### Go to a Dive Information

Dive ID:

## MIRAI MR15-03 Leg2 Total Magnetic Intensity (TMI)

Last Modified: 2019-06-26

[ReadMe](#) [Observation Data](#) [Data Format](#)

Cruise ID: [MR15-03 Leg2](#)

Total Magnetic Intensity (TMI): Processed (DMO)-Corrected

Data Policy: [JAMSTEC](#)

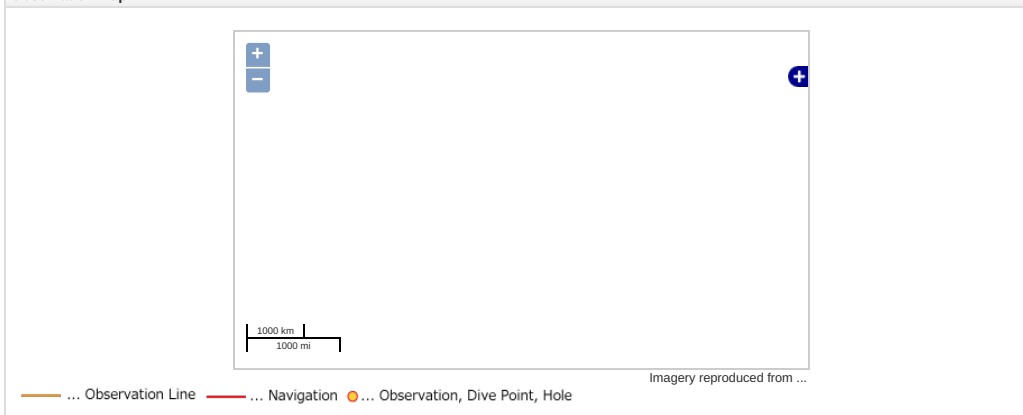
Observation Items: Total magnetic field intensity

Science Keywords:

OCEANS > MARINE GEOPHYSICS > MARINE MAGNETICS

SOLID EARTH > GEOMAGNETISM

### Observation Map

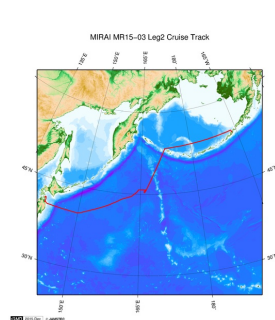


### Data List

File names

☐ MR15-03\_leg2\_corr.tmag

### Related Information



[Enlarge Image](#)

#### MR15-03 Leg2

Ship Name: MIRAI

Period: 2015-10-09 - 2015-10-21

Chief Scientist: Shigeto Nishino (JAMSTEC)

Project Name: [Arctic Ocean Climate System Research]

Proposal ▶ Observational studies on the Arctic Ocean climate and ecosystem variability

Title:

### Update History

2019-06-26	An observation data was registered.
2018-05-29	An observation data was registered.

#### JAMSTEC

[Site Policy](#)  
[Privacy Policy](#)  
[Application for Data and Samples](#)  
[Data Policy](#)

[What's New](#)  
[Update History](#)  
[Feeds](#)

#### Lists

[Publication List](#)  
[Amount of Public Info.](#)

#### Data

[Map Search](#)  
[Data Tree](#)  
[Detailed Search](#)

#### Information of the Ships

NATSUSHIMA  
KAIYO  
YOKOSUKA  
MIRAI  
KAIREI  
CHIKYU  
KAIMEI  
SHINSEI MARU  
HAKUHO MARU

#### Information of the Submersibles

KAIKO  
SHINKAI 2000  
SHINKAI 6500  
DEEP TOW  
HYPER-DOLPHIN  
URASHIMA  
YOKOSUKA DEEP TOW  
6K Camera DEEP TOW  
6K Sonar DEEP TOW  
KM-ROV  
POWER GRAB SAMPLER (SHELL)  
POWER GRAB SAMPLER (CLOW)  
BMS

#### Go to a Cruise Information

Cruise ID:

#### Go to a Dive Information

Dive ID: