

KAIREI KR09-16 Total Magnetic Intensity (TMI)

Last Modified: 2019-06-25

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

Cruise ID: **KR09-16**

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/KR09-16_all.pdf

For Using Data

Principal Investigator

Data Management Office

Use Constraints

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

Data Citation

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

Period (UTC)

2009-11-05 07:44 ~ 2009-11-08 21:13

Instrument

Instrument:

Proton magnetometer



Overview

The proton precession magnetometer measures the total magnetic field intensity as the frequency of electric current which is generated by the proton precession. In order to avoid the ship's magnetization, the instrument is towed by the vessel about 200 - 300m. 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 : Kawasaki Geological Engineering Co. Ltd. and Tierra Technica Ltd.

Type : PM-217

Measurement range : 30,000 -70,000 nT

Resolution : 0.01 nT

Accuracy : less than 0.1 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 11th 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

$An = F - Figfr$

An: Total geomagnetic field intensity anomaly

F: Observed total geomagnetic field intensity

Figfr: 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 ± 4000 nT
- Spatial gradient of the total geomagnetic field intensity anomaly exceeding ± 300 nT/km

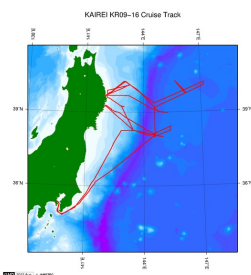
Note

- (1) File naming rule: Cruise ID_corr.tmag
- (2) Sampling rate: 30 seconds(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

[Cruise Data](#)

[Dive Data](#)



[Enlarge Image](#)

KR09-16

Ship Name: KAIKEI

Period: 2009-10-30 - 2009-11-12

Chief Scientist: Makoto Yamano (The University of Tokyo)

Proposal Title: Studies on the thermal structure and the water distribution in the upper part of the Pacific plate subducting along the Japan Trench

Update History

2019-06-25	An observation data was registered.
2019-03-29	An observation data was registered.
2018-05-09	An observation data was registered.
2012-09-28	An observation data was registered.

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NATSUSHIMA
KAIYO
YOKOSUKA
MIRAI
KAIKEI
CHIKYU
KAIKEI
SHINSEI MARU
HAKUHO MARU

Information of the Submersibles

KAICO
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

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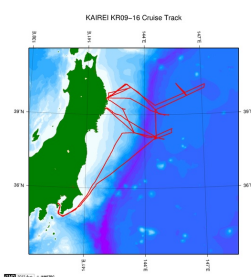
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TMI Corrected

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

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[Enlarge Image](#)

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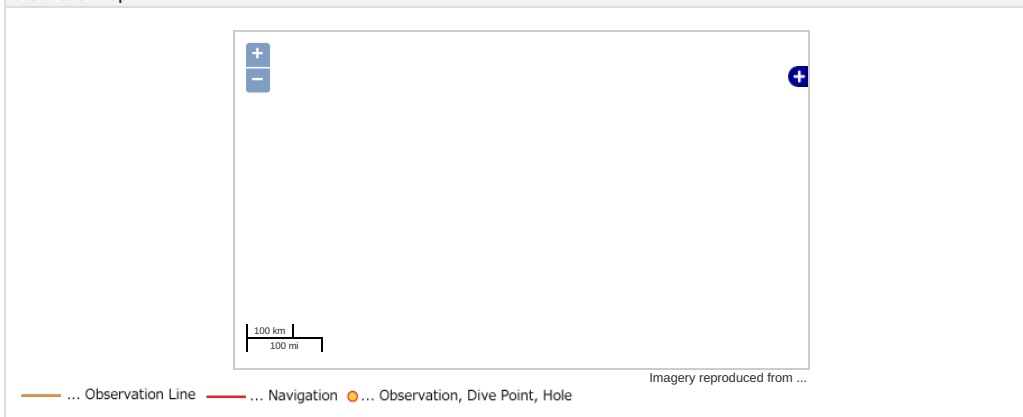
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Observation Map



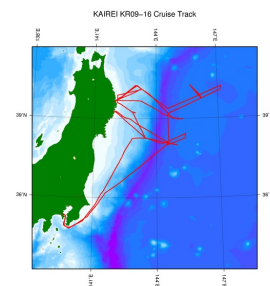
Data List

File names

☐ KR09-16_tmag.zip

Related Information

☒ Cruise Data ☐ Dive Data



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Title: plate subducting along the Japan Trench

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