

## MIRAI MR16-06 Total CO<sub>2</sub> (TCO<sub>2</sub>)

Last Modified: 2019-06-28

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

Cruise ID: [MR16-06](#)

Total CO<sub>2</sub> (TCO<sub>2</sub>): Processed (DMO)-QCed

Data Policy: [JAMSTEC](#)

Observation Items: Total Dissolved inorganic carbon, Sea surface temperature, Sea surface salinity

Science Keywords:

OCEANS > OCEAN CHEMISTRY > INORGANIC CARBON  
OCEANS > SALINITY/DENSITY > SALINITY  
OCEANS > OCEAN TEMPERATURE > SEA SURFACE TEMPERATURE

Cruise Report

[http://www.godac.jamstec.go.jp/catalog/data/doc\\_catalog/media/MR16-06\\_all.pdf](http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR16-06_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.

### Instrument

Instrument:

TCO<sub>2</sub> measurement system (MR09-04

- )



### Information on Underway TCO<sub>2</sub> data observed on R/V MIRAI

Instrument : Underway TCO<sub>2</sub> measuring system ; Nippon ANS Ltd.

Method : Coulometric

Precision : -

Reference Material/Calibration : Certified Reference Material for TCO<sub>2</sub> analysis provided by Dr A. G. Dickson (batch 156)

TCO<sub>2</sub> samples are analyzed using coulometric technique (Ishii, et al., 1998). Batches of Certified Reference Material for TCO<sub>2</sub> analysis provided by Dr A. G. Dickson have been used for quality control. Significant offset, if any, has been corrected.

Also, please refer to [cruise report](#) for details of the analytical method.

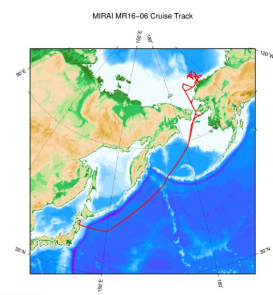
Reference

Masao Ishii, Hisayuki Y. Inoue, Hidekazu Matsueda and Eiichiro Tanoue (1998) Close coupling between seasonal biological production and dynamics of dissolved inorganic carbon in the Indian Ocean sector and the western Pacific Ocean sector of the Antarctic Ocean. *Deep Sea Research Part I: Oceanographic Research Papers*, Volume 45, 7, 1187-1209.

### Note

- 1) Total alkalinity data was not calculated and its data column was filled with missing data value (-999).
- 2) For detailed information about this data, please make contact with Data Management Group (DMG) via "[Contact Us](#)" page.

### Related Information



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#### MR16-06

Ship Name: MIRAI

Period: 2016-08-22 - 2016-10-05

Chief Scientist: Shigeto Nishino (JAMSTEC)

Project Name: [Arctic Ocean Climate System Research]

Proposal ▶ Predictability study on weather and sea-ice forecasts linked with user engagement

Title:

### Update History

2019-06-28	An observation data was registered.
2018-10-23	An observation data was registered.

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HAKUHO MARU

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6K Sonar DEEP TOW  
KM-ROV  
POWER GRAB SAMPLER (SHELL)  
POWER GRAB SAMPLER (CLOW)  
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**JAMSTEC**

国立研究開発法人  
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## MIRAI MR16-06 Total CO<sub>2</sub> (TCO<sub>2</sub>)

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

Cruise ID: [MR16-06](#)

Total CO<sub>2</sub> (TCO<sub>2</sub>): Processed (DMO)-QCed

Data Policy: [JAMSTEC](#)

### TCO<sub>2</sub> MRI

#### Data Format

The file is in variable length, comma separated text file (csv) format.

The line starts with "#" is a comment line which contains version information and so on.

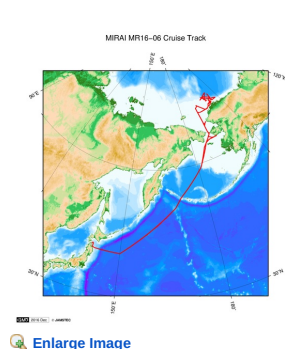
Column NO.	Column Heading	Comments
1	Ship	Ship name
2	Cruise	Cruise ID
3	Serial No.	Serial No.
4	Date	year (YYYY) in UTC
5		month (MM) in UTC
6		day (DD) in UTC
7	Time	hour (HH) in UTC
8		minute (MM) in UTC
9	Latitude	Latitude (degree) ; Positive in north
10	Longitude	Longitude (degree) ; degree in eastward (0 - 360)
11	TCO <sub>2</sub>	Total Dissolved inorganic carbon (umol/kg)
12	F	Quality flag for TCO <sub>2</sub>
13	TA_calcd	Total alkalinity (umol/kg) *
14	F	Quality flag for TA_calcd
15	SST	Sea surface temperature (degree-C)
16	F	Quality flag for SST
17	SSS	Sea surface salinity
18	F	Quality flag for SSS

\* : calculated from TCO<sub>2</sub>, SST, SSS and pCO<sub>2</sub> (Roy et al., 1993)

#### Definition of Quality Control Flags

- 2 - Good
- 3 - Questionable
- 4 - Bad
- 5 - Not reported
- 9 - No data

### Related Information



#### MR16-06

Ship Name: MIRAI

Period: 2016-08-22 - 2016-10-05

Chief Scientist: Shigeto Nishino (JAMSTEC)

Project Name: [Arctic Ocean Climate System Reaserch]

Proposal ▶ Predictability study on weather and sea-ice forecasts linked with user engagement

Title:

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POWER GRAB SAMPLER (SHELL)  
POWER GRAB SAMPLER (CLOW)  
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## MIRAI MR16-06 Total CO2 (TCO2)

Last Modified: 2019-06-28

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Cruise ID: [MR16-06](#)

Total CO2 (TCO2): Processed (DMO)-QCed

Data Policy: [JAMSTEC](#)

Observation Items: Total Dissolved inorganic carbon, Sea surface temperature, Sea surface salinity

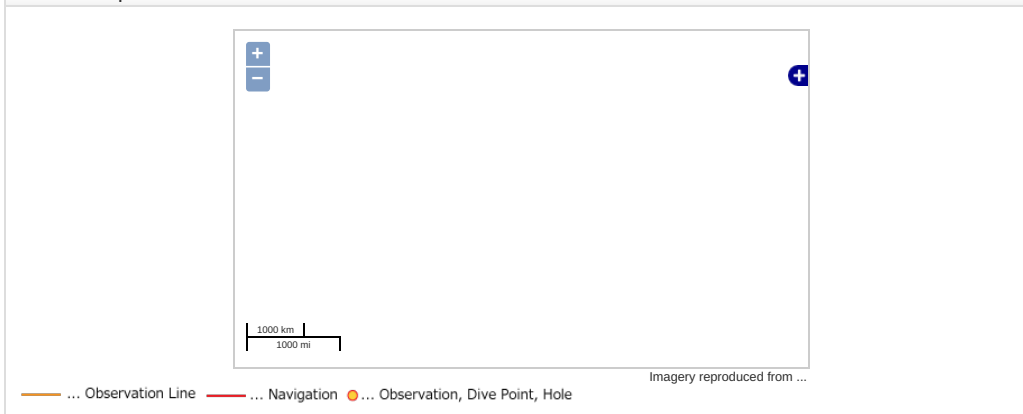
Science Keywords:

OCEANS > OCEAN CHEMISTRY > INORGANIC CARBON

OCEANS > SALINITY/DENSITY > SALINITY

OCEANS > OCEAN TEMPERATURE > SEA SURFACE TEMPERATURE

### Observation Map

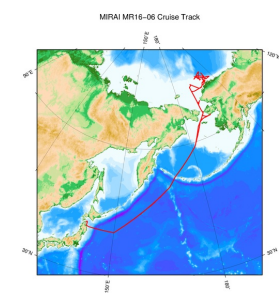


### Data List

File names

☐ MR16-06\_tco2.csv

### Related Information



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Ship Name: MIRAI

Period: 2016-08-22 - 2016-10-05

Chief Scientist: Shigeto Nishino (JAMSTEC)

Project Name: [Arctic Ocean Climate System Research]

Proposal ▶ Predictability study on weather and sea-ice forecasts linked with user engagement

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