

MIRAI MR02-K06 Leg1 Total CO₂ (TCO₂)

Last Modified: 2012-12-25

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

Cruise ID: [MR02-K06 Leg1](#)

Total CO₂ (TCO₂): Processed (PI)

Data Policy: [JAMSTEC](#)

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

Science Keywords:

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

Cruise Report

http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR02-K06_leg1_all.pdf

[For Using Data](#)

Principal Investigator

Masao Ishii (Meteorological Research Institute)

Use Constraints

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

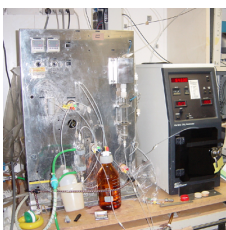
Data Citation

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

Instrument

Instrument:

TCO₂ measurement system (- MR09-03 Leg3)



Information on Underway TCO₂ data observed on R/V MIRAI

Instrument : Underway TCO₂ measuring system ; Nippon ANS Ltd.

Method : Coulometric

Precision : -

Reference Material/Calibration : Certified Reference Material for TCO₂ analysis provided by Dr A. G. Dickson

- Measured by Meteorological Research Institute using coulometric technique (Ishii, et al., 1998).

- Total alkalinity (TA) has been calculated from TCO₂, SST, salinity and pCO₂ that have been concurrently measured using carbonic acid dissociation constants given by Roy et al., 1993.

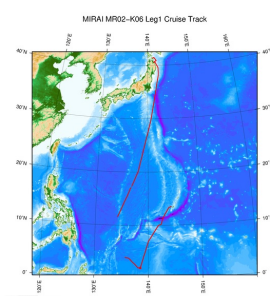
Reference

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

Roy, R.N., L.N. Roy, K.M. Vogel, C.P. Moore, T. Pearson, C.E. Good, F. J. Millero and D.J. Cambell (1993) Determination of the ionization constants of carbonic acid in seawater in salinities 5 to 45 and temperatures 0 to 45 degree-C.

Marine Chemistry, 44, 249-267.

Related Information



[Enlarge Image](#)

MR02-K06 Leg1

Ship Name: MIRAI

Period: 2002-11-13 - 2002-12-16

Chief Scientist: Kunio Yoneyama (JAMSTEC)

Project Name: [MJO Research]

Update History

2012-12-25 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:

Copyright 2011 Japan Agency for Marine-Earth Science and Technology



JAMSTEC
JAPAN AGENCY FOR MARINE-EARTH SCIENCE AND TECHNOLOGY

国立研究開発法人
海洋研究開発機構

MIRAI MR02-K06 Leg1 Total CO₂ (TCO₂)

Last Modified: 2012-12-25

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

Cruise ID: [MR02-K06 Leg1](#)

Total CO₂ (TCO₂): Processed (PI)

Data Policy: [JAMSTEC](#)

TCO₂ 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.

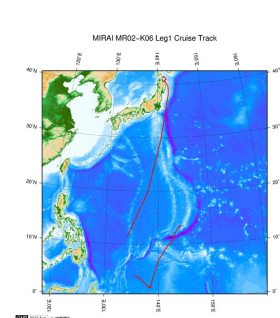
Column NO.	Column Heading	Comments
1	Ship	Ship name
2	Cruise	Cruise ID
3	Serial No.	Serial No.
4	Date	year (YYYY) in UTC
5		month (MM) in UTC
6		day (DD) in UTC
7	Time	hour (HH) in UTC
8		minute (MM) in UTC
9	Latitude	Latitude (degree) ; Positive in north
10	Longitude	Longitude (degree) ; degree in eastward (0 - 360)
11	TCO ₂	Total Dissolved inorganic carbon (umol/kg)
12	F	Quality flag for TCO ₂
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 TCO₂, SST, SSS and pCO₂ (Roy et al., 1993)

Definition of Quality Control Flags

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

Related Information



[Enlarge Image](#)

MR02-K06 Leg1

Ship Name: MIRAI

Period: 2002-11-13 - 2002-12-16

Chief Scientist: Kunio Yoneyama (JAMSTEC)

Project Name: [MJO Research]

Update History

2012-12-25 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 MR02-K06 Leg1 Total CO2 (TCO2)

Last Modified: 2012-12-25

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

Cruise ID: [MR02-K06 Leg1](#)

Total CO2 (TCO2): Processed (PI)

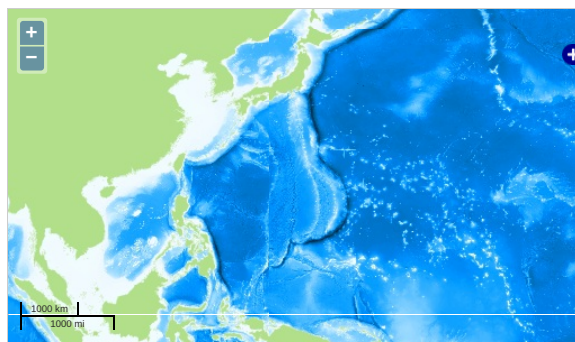
Data Policy: [JAMSTEC](#)

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

Science Keywords:

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

Observation Map



— ... Observation Line — ... Navigation ● ... Observation, Dive Point, Hole

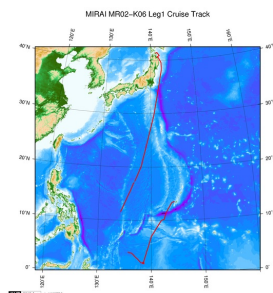
Imagery reproduced from ...

Data List

File names

☐ MR02-K06_leg1_uwDIC.csv

Related Information



[Enlarge Image](#)

MR02-K06 Leg1

Ship Name: MIRAI
Period: 2002-11-13 - 2002-12-16
Chief Scientist: Kunio Yoneyama (JAMSTEC)
Project Name: [MJO Research]

Update History

2012-12-25 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: