

MIRAI MR01-K01 Total CO₂ (TCO₂)

Last Modified: 2012-12-25

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Cruise ID: [MR01-K01](#)

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/MR01-K01_all.pdf

[For Using Data](#)

Principal Investigator

Masao Ishii (Meteorological Research Institute)

Use Constraints

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

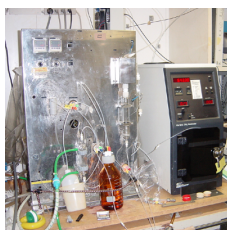
Data Citation

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.

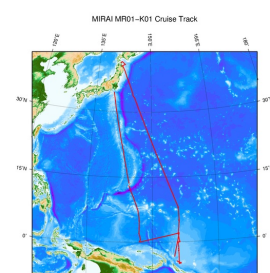
Reference

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



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MR01-K01

Ship Name: MIRAI

Period: 2001-02-14 - 2001-03-22

Chief Scientist: Kentaro Ando (JAMSTEC)

Project Name: [Tropical Ocean Climate Study (TOCS)]

Update History

2012-12-25 An observation data was registered.

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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.

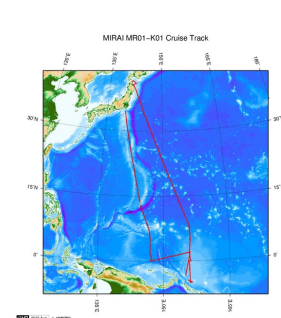
Column NO.	Column Heading	Comments
1	Ship	Ship name
2	Cruise	Cruise ID
3	Serial No.	Serial No.
4	Date	year (YYYY) in UTC
5		month (MM) in UTC
6		day (DD) in UTC
7	Time	hour (HH) in UTC
8		minute (MM) in UTC
9	Latitude	Latitude (degree) ; Positive in north
10	Longitude	Longitude (degree) ; degree in eastward (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



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MR01-K01

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MIRAI MR01-K01 Total CO2 (TCO2)

Last Modified: 2012-12-25

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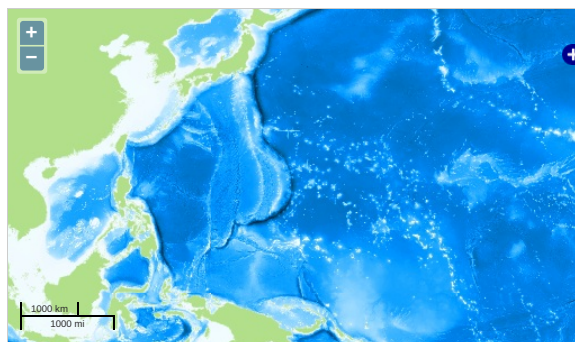
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Observation Map



Imagery reproduced from ...

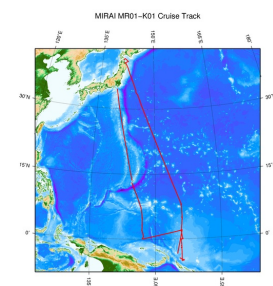
— ... Observation Line — ... Navigation ● ... Observation, Dive Point, Hole

Data List

File names

☐ MR01-K01_uwDIC.csv

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