

MIRAI MR04-05 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-07-27

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

Cruise ID: [MR04-05](#)

Conductivity-Temperature-Depth Profiler (CTD): Processed (PI)

Data Policy: [JAMSTEC](#)

Observation Items: Pressure, Temperature, Salinity, Dissolved oxygen

Science Keywords:

OCEANS > OCEAN CHEMISTRY > OXYGEN
OCEANS > OCEAN TEMPERATURE > WATER TEMPERATURE
OCEANS > SALINITY/DENSITY > SALINITY

Cruise Report

http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR04-05_all.pdf

For Using Data

Principal Investigator

Koji Shimada (JAMSTEC)

Use Constraints

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

Data Citation

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

Instrument

Instrument:

Water sampling system with CTD (30
litters * 24 bottles)



Instrument:

Water sampling system with CTD (12
litters * 36 bottles)



Instrument:

Water sampling system with CTD (12
litters * 12 bottles)



Instrument:

Conductivity temperature depth
measurements (CTD)



Overview

Citation Shimada, K. 2004, R/V Mirai Cruise Report MR04-05, edited by K. Shimada, S. Nishino, and M. Itoh, 110pp., JAMSTEC, Yokosuka, Japan.

Upon consultation in advance with the chief of investigation and the person(s) in charge of research issues who gathered that data, we request that the text of the results material contain a statement to the effect that it was obtained during the R/V Mirai cruise of MR04-05 under the project of JWACS 2004, the Chief Scientist, Koji Shimada (JAMSTEC), and the following Principal Investigators (PI) for gathering the data.

Chief Scientist

Koji Shimada (JAMSTEC)

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Tel: +81-3-5463-0465 Fax: +81-3-5463-0378
E-mail: koji AT kaoyodai.ac.jp

PI for CTD

Koji Shimada (JAMSTEC)

Collaborators:

Motoyo Itoh (JAMSTEC)

Eddy Carmack (Institute of Ocean Sciences)

Data processing

Mirai 2004 CTD/DO Calibration Note

Based on comparison with the SBE35 temperature data, the primary and secondary temperature was corrected using the following formula (see Figure 1):

Corrected Secondary Temperature = Temperature - DeltaT

where $\Delta T = 1.6732 \times 10^{-7} \times \text{Pressure (dbar)} - 0.000088406$

The corrected primary CTD temperatures agree with the SBE35 temperatures to within ± 0.00015108 degree below 600 dbar.

Corrected Primary Temperature = Temperature - DeltaT

where $\Delta T_{CTD} = -5.502 \times 10^{-8} \times \text{Pressure (dbar)} + 0.00057083$

The corrected primary CTD temperatures agree with the SBE35 temperatures to within ± 0.000095622 degree below 600 dbar. We recommend using temperature values of the secondary CTD sensor.

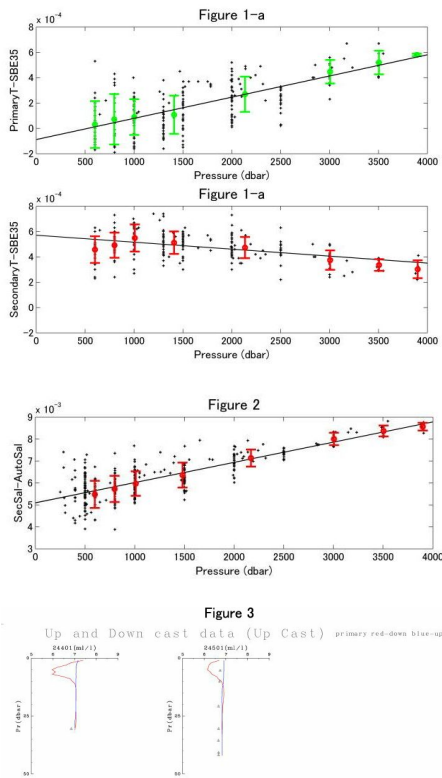
The primary conductivity sensor on the CTD was noisy at st52, st63, st98 and st104. Thus we recommend using conductivity values of the secondary CTD sensor. The corrected salinity value calculated from secondary temperature and secondary conductivity value was corrected using the following formula (see Figure 2):

Corrected Secondary Salinity = Salinity - ΔT_{CTD}

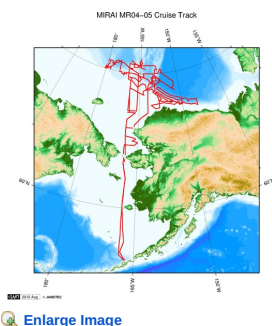
where $\Delta T_{CTD} = 9.224e-7 \times \text{Pressure (dbar)} + 0.0050955 - \Delta$

The secondary conductivity sensor on the CTD has shifted about 0.0007 psu between st126 and st163. So we used $\Delta=0$ before st126 and $\Delta=0.0007$ after st126. The corrected secondary CTD salinity agree with the bottle salinities to within ± 0.00057765 psu below 250m.

Data from the SBE43 (CTD dissolved oxygen probe) is corrected based on comparison with bottle oxygen data (measured by Winkler titration method), after Owens and Millard [1985] as described in a SBE technical report [Application Note 64]. The corrected primary CTD oxygen data agree with the bottle oxygen to within ± 0.049 ml/l and (see Figure 3).



Related Information



MR04-05

Ship Name: MIRAI
Period: 2004-09-01 - 2004-10-13
Chief Scientist: Koji Shimada (JAMSTEC)
Project Name: [Arctic Ocean Climate System Reaserch]

Update History

2017-07-27	An observation data was registerd.
2012-12-15	An observation data was registerd.
2012-11-30	An observation data was registerd.
2012-11-25	An observation data was registerd.

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MIRAI
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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

Go to a Cruise Information

Cruise ID:

Go to a Dive Information

Dive ID:

KM-ROV
POWER GRAB SAMPLER
(SHELL)
POWER GRAB SAMPLER
(CLOW)
BMS

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Data Policy: [JAMSTEC](#)

CTD PI (MR04-05)

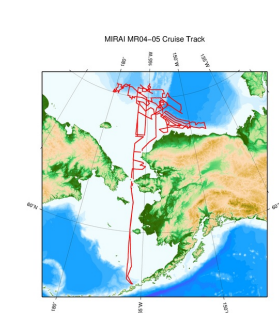
Header part, the first column of each line is filled with * or #.

Line	Content
10	Cruise ID
11	Station No.
12	Date
13	Time
14	Latitude
15	Longitude

Data part, the first column of each line is blank.

No.	Column	Content	Unit	Format
1	1- 11	scan number	-	i11
2	12- 22	pressure	dbar	i11
3	23- 33	temperature (primary)	degC	f11.4
4	34- 44	conductivity (primary)	S/m	f11.6
5	45- 55	temperature (secondary)	degC	f11.4
6	56- 66	conductivity (secondary)	S/m	f11.6
7	67- 77	dissolved oxygen (primary)	ml/l	f11.4
8	78- 88	dissolved oxygen (primary)	umol/kg	f11.1
9	89- 99	dissolved oxygen (secondary)	ml/l	f11.4
10	100-110	dissolved oxygen (secondary)	umol/kg	f11.1
11	111-121	distance to bottom	m	f11.2
12	122-132	fluorescence intensity	-	e11.2
13	133-143	transmittance	-	f11.4
14	144-154	depth	m	f11.3
15	155-165	descent rate	m/s	f11.3
16	166-176	scan number per bin	-	i11
17	177-187	salinity (primary)	PSU	f11.4
18	188-198	potential density (sigma-theta)	kg/m^3	f11.4
19	199-209	potential temperature	degC	f11.4
20	210-220	salinity (secondary)	PSU	f11.4
21	221-231	flag	-	e11.2

Related Information



[Enlarge Image](#)

MR04-05

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6K Sonar DEEP TOW
KM-ROV
POWER GRAB SAMPLER

Go to a Cruise Information

Cruise ID:

Go to a Dive Information

Dive ID:

(SHELL)
POWER GRAB SAMPLER
(CLOW)
BMS

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OCEANS

> OCEAN

> WATER

OCEANS

TEMPERATURE

TEMPERATURE

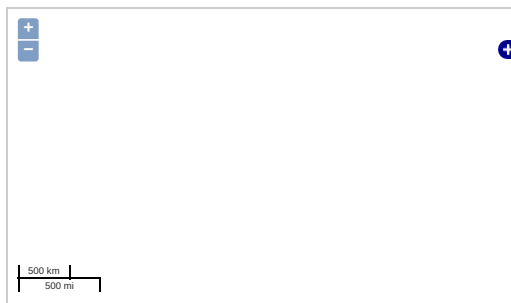
OCEANS

> SALINITY/DENSITY

> SALINITY

Observation Map

1. Clicking the icon displays a balloon with observation information.



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






























































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Data List

[Add to Basket](#)

File names
 u006M01.cnv
 u007M01.cnv
 u008M01.cnv
 u009M01.cnv
 u010M01.cnv
 u011M01.cnv
 u012M01.cnv
 u015M01.cnv
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● Observation List
The list of observation is shown as follows.

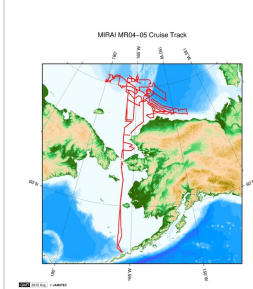
Observation	Time and Date	Lat. [°]	Lon. [°]
u006M01	2004-09-04 11:49	68.0853	-168.8408
u007M01	2004-09-04 19:22	69.8337	-168.8308
u008M01	2004-09-05 01:00	70.6333	-166.2553
u009M01	2004-09-05 02:04	70.6340	-166.7573
u010M01	2004-09-05 03:19	70.6327	-167.2575
u011M01	2004-09-05 05:02	70.6333	-168.2573
u012M01	2004-09-05 06:25	70.6332	-168.8327
u015M01	2004-09-06 16:13	72.6668	-163.7345
u016M01	2004-09-06 18:55	73.0578	-163.7457
u017M01	2004-09-06 22:51	73.3262	-161.9932
u018M01	2004-09-07 01:13	73.4805	-160.9982
u019M01	2004-09-07 03:34	73.6328	-159.9975
u020M01	2004-09-07 07:20	73.7885	-158.9995
u021M01	2004-09-07 12:39	74.0168	-157.5020
u023M01	2004-09-07 17:45	74.4175	-157.3363
u024M01	2004-09-08 02:38	74.4952	-158.0460
u025M01	2004-09-08 20:47	74.3825	-162.1002
u026M01	2004-09-08 23:42	74.5163	-163.3165
u027M01	2004-09-09 02:18	74.6308	-164.4178
u028M01	2004-09-09 05:46	74.8218	-166.2552
u029M01	2004-09-09 07:56	74.9313	-167.3308
u030M01	2004-09-09 09:35	74.9987	-167.9933
u031M01	2004-09-09 11:55	74.9992	-168.9997
u032M01	2004-09-09 13:46	75.0000	-170.0063
u033M01	2004-09-09 15:58	75.0005	-171.0187
u034M01	2004-09-09 17:27	74.8328	-171.0005
u035M01	2004-09-09 21:18	74.9937	-171.9768
u036M01	2004-09-10 00:34	74.6697	-171.9973
u037M01	2004-09-10 02:51	74.7860	-172.0192
u038M01	2004-09-10 04:50	74.8337	-173.0090
u039M01	2004-09-10 06:18	75.0013	-173.0003
u040M01	2004-09-10 08:20	74.9992	-173.9935
u041M01	2004-09-10 10:40	75.2495	-174.0022
u042M01	2004-09-10 13:38	75.4162	-174.0060
u043M01	2004-09-10 17:05	75.5858	-174.0070
u044M01	2004-09-10 20:45	75.8345	-174.0118
u045M01	2004-09-11 01:07	76.2547	-173.9552
u046M01	2004-09-11 05:49	75.9372	-175.5105
u047M01	2004-09-11 10:59	75.7292	-176.5007
u048M01	2004-09-11 14:50	75.5953	-177.1417
u049M01	2004-09-11 20:39	75.4525	-177.8785
u050M01	2004-09-12 01:31	75.3092	-178.5030
u051M01	2004-09-12 06:04	75.0287	179.5007
u052M01	2004-09-12 08:59	75.3677	179.9188
u053M01	2004-09-12 12:09	75.1168	-179.7995
u054M01	2004-09-12 15:52	75.5160	-179.5880
u055M01	2004-09-12 19:46	75.7777	-179.0788
u056M01	2004-09-13 02:53	76.0445	-178.0013
u057M01	2004-09-13 16:10	76.0403	-172.7462
u058M01	2004-09-13 20:19	75.8047	-171.3342
u059M01	2004-09-14 01:45	75.6430	-170.4477
u060M01	2004-09-14 05:24	75.4193	-168.9967
u061M01	2004-09-14 09:00	75.5428	-169.7507

Observation	Time and Date	Lat. (°S)	Lon. (°E)
u062M01	2004-09-14 19:16	74.9987	-165.7447
u063M01	2004-09-14 16:34	74.9987	-165.7447
u064M01	2004-09-14 21:05	74.5005	-165.8335
u065M01	2004-09-15 12:49	70.8330	-165.8382
u066M01	2004-09-15 13:59	70.8345	-166.3392
u067M01	2004-09-15 15:08	70.8358	-166.8387
u068M01	2004-09-15 16:15	70.8328	-167.3308
u069M01	2004-09-15 17:24	70.8335	-167.8370
u070M01	2004-09-15 18:31	70.8313	-168.3363
u071M01	2004-09-15 19:35	70.8308	-168.8325
u072M01	2004-09-15 20:50	71.0025	-168.8272
u073M01	2004-09-15 23:23	71.5012	-168.8252
u074M01	2004-09-16 01:51	72.0013	-168.8523
u075M01	2004-09-16 04:18	72.5032	-168.8325
u076M01	2004-09-16 06:45	73.0017	-168.8388
u077M01	2004-09-16 09:23	73.4987	-168.8368
u078M01	2004-09-16 12:37	74.0015	-168.8302
u079M01	2004-09-16 16:11	74.3312	-169.9927
u080M01	2004-09-17 03:43	75.9973	-166.9927
u081M01	2004-09-17 06:37	75.7480	-165.6585
u082M01	2004-09-17 11:08	75.4978	-163.3397
u083M01	2004-09-17 18:10	76.1838	-165.6018
u084M01	2004-09-17 21:51	76.5807	-164.7580
u085M01	2004-09-17 01:44	76.2797	-164.6093
u086M01	2004-09-18 04:48	75.9992	-164.9913
u087M01	2004-09-18 08:30	75.6660	-166.4957
u088M01	2004-09-18 11:24	75.6667	-167.9945
u089M01	2004-09-18 15:06	76.1502	-167.9108
u090M01	2004-09-18 17:59	76.2505	-168.5130
u091M01	2004-09-18 21:41	76.3668	-169.1762
u092M01	2004-09-19 02:19	76.2063	-168.1822
u093M01	2004-09-19 06:56	75.9192	-166.0010
u094M01	2004-09-19 09:27	75.9177	-164.5027
u095M01	2004-09-19 10:41	75.9167	-164.0818
u096M01	2004-09-19 11:51	75.9157	-163.8298
u097M01	2004-09-19 13:58	75.9188	-162.9968
u098M01	2004-09-19 17:00	75.9167	-161.6620
u099M01	2004-09-19 20:51	75.9143	-160.3388
u100M01	2004-09-19 23:45	75.9157	-159.3808
u101M01	2004-09-20 02:29	75.8130	-158.5167
u102M01	2004-09-20 05:12	75.4175	-158.1592
u103M01	2004-09-20 07:20	75.4655	-159.0080
u104M01	2004-09-20 11:41	75.0393	-159.1545
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u140M01	2004-09-25 05:46	73.7100	-165.0020
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Observation	Time and Date	Lat. [°]	Lon. [°]
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u148M01	2004-09-26 04:54	72.8352	-158.6715
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u244M01	2004-10-09 10:40	67.0000	-168.4120
u245M01	2004-10-09 11:51	67.0013	-168.8258

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Ship Name: MIRAI
Period: 2004-09-01 - 2004-10-13
Chief Scientist: Koji Shimada (JAMSTEC)
Project Name: [Arctic Ocean Climate System Reaserch]

Update History

2017-07-27	An observation data was registerd.
2012-12-15	An observation data was registerd.
2012-11-30	An observation data was registerd.
2012-11-25	An observation data was registerd.

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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

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Go to a Dive Information

Dive ID:

