

MIRAI MR02-K05 Leg1 Expendable Conductivity-Temperature-Depth Profiler (XCTD)

Last Modified: 2012-12-25

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Cruise ID: [MR02-K05 Leg1](#)

Expendable Conductivity-Temperature-Depth Profiler (XCTD): Processed (PI)

Data Policy: [JAMSTEC](#)

Observation Items: Depth, Temperature, Salinity

Science Keywords:

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

Cruise Report

http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR02-K05_leg1_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:

Expendable conductivity temperature
depth measurements (XCTD) (-
MR11-E02)



Overview

Citation

Shimada, K. 2002, R/V Mirai Cruise Report MR02-K05 Leg1, edited by K. Shimada, S. Nishino, and M. Itoh, 226pp., 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 MR02-K05 Leg1 under the project of JWACS 2002, 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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PI for XCTD

Koji Shimada (JAMSTEC)

Collaborators:

Motoyo Itoh (JAMSTEC)

Eddy Carmack (Institute of Ocean Sciences)

Data processing

XCTD Salinity Calibration Note

The accuracy of the salinity data from the XCTD probes is about -0.04 - +0.04 psu as stated in the manufacturer's report of Tsurumi-Seiki (XCTD maker). This is not good enough to detect the variability of Atlantic Water. In the Canada Basin, water properties are relatively uniform below the Atlantic layer, as shown in Figure 1a and 1b. This suggests that it is possible to correct the XCTD salinity data by using the neighboring CTD data. Figure 2a and 2b is same as Figure 1a and 1b, except that both CTD and XCTD data were used. The XCTD data scatters due to the salinity bias of the XCTD probe. We calculate the salinity bias of each XCTD probe by comparing it with the neighboring CTD data and correcting the XCTD salinity. Figure 3a and 3b is same as Figure 2a and 2b, except that corrected salinities were used for the XCTD data. The accuracy of the corrected XCTD salinities is about -0.01 - +0.01 psu. However, we can not correct the XCTD salinity data in shallow water regions using our method. The last column of the XCTD log shows either 0 if the salinity is corrected or 1 if the salinity is not corrected.

Figure 1a T-S distribution of Mirai 2002 CTD data.

Figure 1b Distribution of Salinity where Temperature is 0.3, 0.2, 0.1 and 0.0 °C below the temperature maximum of the Atlantic layer from the Mirai 2002 CTD data.

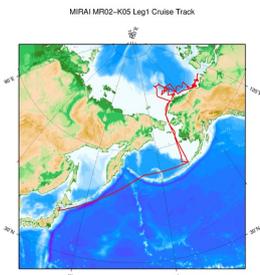
Figure 2a T-S distribution of Mirai 2002 CTD (blue) and XCTD (red) data.

Figure 2b Distribution of Salinity where Temperature is 0.3, 0.2, 0.1 and 0.0 °C below the temperature maximum of the Atlantic layer from the Mirai 2002 CTD and XCTD data.

Figure 3a T-S distribution of Mirai 2002 CTD (blue) and XCTD (red) data with salinities corrected.

Figure 3b Distribution of Salinity where Temperature is 0.3, 0.2, 0.1 and 0.0 °C below the temperature maximum of the Atlantic layer from the Mirai 2002 CTD data and XCTD data with salinities corrected.

Related Information



[Enlarge Image](#)

MR02-K05 Leg1

Ship Name: MIRAI
 Period: 2002-08-24 - 2002-10-10
 Chief Scientist: Akihiko Murata (JAMSTEC)/Koji Shimada (JAMSTEC)
 Project Name: [Arctic Ocean Climate System Research]

Update History

2012-12-25	An observation data was registered.
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XCTD PI (MR02-K05 Leg1)

Each data file contains one line header (meta data) followed by data lines for each cast.

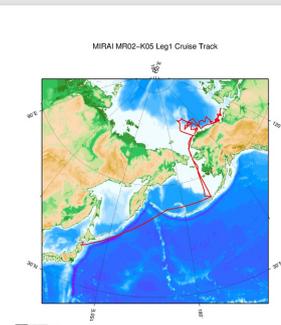
Header part

No.	Column	Content	Format	Remarks
1	1 - 8	Date	i2,a1,i2,a1,i2	YY/MM/DD (UTC)
2	10 - 17	Time	i2,a1,i2,a1,i2	hh:mm:ss (UTC)
3	19 - 26	Longitude	f8.3	DDD.ddd DDD are degrees, and ddd are decimal degrees.
4	29 - 35	Latitude	f7.3	SDD.ddd "S" is sign (blank or missing is positive), DD are degrees, and ddd are decimal degrees. Sign is positive in northern hemisphere, negative in southern hemisphere.

Data part

No.	Column	Content	Unit	Format	Remarks
1	1 - 11	Depth	m	f11.6	
2	13 - 23	Temperature	deg-C	f11.6	ITS-90
3	25 - 35	Conductivity	mS/cm	f11.6	
4	37 - 47	Pressure	dbar	f11.6	
5	49 - 59	Salinity	PSU	f11.6	

Related Information



MR02-K05 Leg1

Ship Name: MIRAI

Period: 2002-08-24 - 2002-10-10

Chief Scientist: Akihiko Murata (JAMSTEC)/Koji Shimada (JAMSTEC)

Project Name: [Arctic Ocean Climate System Research]

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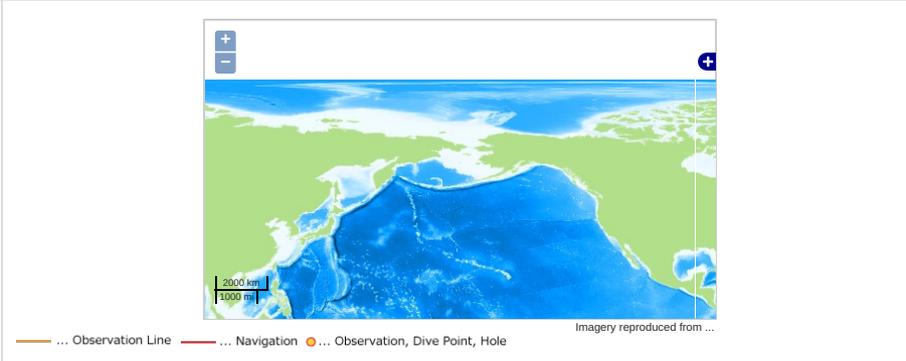
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 TEMPERATURE TEMPERATURE
 OCEANS > SALINITY/DENSITY > SALINITY

Observation Map



Data List

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- File names**
- 097.ctd
 - 098.ctd
 - 099.ctd
 - 100.ctd
 - 101.ctd
 - 102.ctd
 - 103.ctd
 - 104.ctd
 - 105.ctd
 - 106.ctd
 - 107.ctd
 - 108.ctd
 - 109.ctd
 - 110.ctd
 - 111.ctd
 - 112.ctd
 - 113.ctd
 - 114.ctd
 - 115.ctd
 - 116.ctd
 - 117.ctd
 - 118.ctd
 - 119.ctd
 - 120.ctd
 - 121.ctd

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