

MIRAI MR14-05 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2016-10-31

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

Cruise ID: [MR14-05](#)

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

Data Policy: [JAMSTEC](#)

Observation Items: Pressure, Temperature, Salinity, Dissolved oxygen, Fluorescence, PAR

Science Keywords:

OCEANS > OCEAN CHEMISTRY > OXYGEN
OCEANS > OCEAN TEMPERATURE > WATER TEMPERATURE
OCEANS > SALINITY/DENSITY > SALINITY
OCEANS > OCEAN OPTICS > PHOTOSYNTHETICALLY ACTIVE RADIATION
OCEANS > OCEAN OPTICS > FLUORESCENCE

Cruise Report

http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR14-05_all.pdf

For Using Data

Principal Investigator

See Data Citation

Use Constraints

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

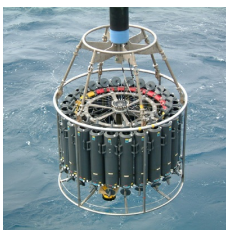
Data Citation

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

Instrument

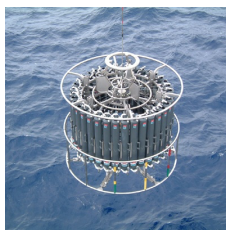
Instrument:

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



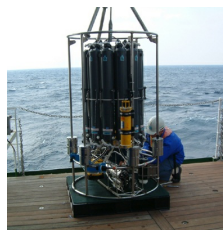
Instrument:

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



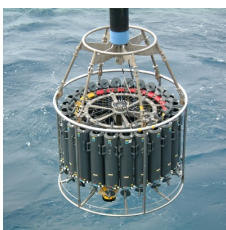
Instrument:

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



Instrument:

Conductivity temperature depth
measurements (CTD)



Data Citation

Inoue, J., 2014, R/V Mirai Cruise Report MR14-05, edited by J. Inoue, 273pp., 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 MR14-05, the Chief Scientist, Jun Inoue (National Institute of Polar Research), and the following Principal Investigators (PIs) for gathering the data.

Chief Scientist

Jun Inoue

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PI for CTD

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E-mail: nishinos@jamstec.go.jp

Overview

Exchange format data (97 CSV files)

Output items are as follows.

- Pressure (SN 1027)
- Temperature (SN 031525)
- Salinity (SN 041203)

- Dissolved oxygen (RINKO III; SN 0024)
- Dissolved oxygen (SBE43; SN 430575)
- Fluorescence (SN 3497)
- Light transmission (SN 1363DR)
- Coefficient of beam attenuation (SN 1363DR)
- PAR (SN 049)

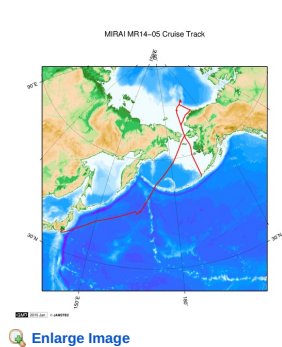
System

- (1) Pressure sensor: SBE9plus, Sea-Bird Electronics, Inc.
- (2) Temperature sensor: SBE3, Sea-Bird Electronics, Inc.
- (3) Salinity sensor: SBE4, Sea-Bird Electronics, Inc.
- (4) DO sensor: RINKO III, JFE Advantech Co., Ltd.
- (5) DO sensor: SBE43, Sea-Bird Electronics, Inc.
- (6) Fluorometer: Seapoint Sensors, Inc.
- (7) Transmissometer: C-Star, WET Labs, Inc.
- (8) PAR sensor: Satlantic, Inc.

Correction method

- Temperature
 - Coefficients of primary temperature correction: correct_tmp_pri_MR1405_p490.txt
 - Coefficients of dependencies for pressure (Pcor) and time (Tcor) and offset were calculated from the data > 490dbar.
 $\text{corrCTDTMP} = \text{CTDTMP} - (\text{Pcor} * \text{CTDPRS} + \text{Tcor} * \text{Sumdate} + \text{offset})$
(Sumdate is assumed to be elapsed days from the sensor calibration date)
- Salinity
 - Coefficients of primary conductivity correction: correct_cnd_pri_MR1405_t.txt
 - Coefficients of dependencies for pressure (Pcor), conductivity (Ccor), conductivity * pressure (CPcor) and time (Tcor) and offset were calculated from the data, the standard deviation of which was < 0.00002.
 $\text{corrCTDCND} = \text{CTDCND} - (\text{Pcor} * \text{CTDPRS} + \text{Ccor} * \text{CTDCND} + \text{CPcor} * \text{CTDCND} * \text{CTDPRS} + \text{Tcor} * \text{Sumdate} + \text{offset})$
(Sumdate is assumed to be elapsed days from the time of the first observation at Sta. 001, Cast 1 (001M001), when the CTD was at the bottom.)
- Dissolved oxygen (RINKO III)
 - Time variables and correction coefficients of primary RINKO III: correct_rnk_pri_MR1405_t.txt
(Sumdate is assumed to be integrated days during the sensor was switched on)
- Dissolved oxygen (SBE43)
 - Coefficients of primary SBE43 correction: correct_o43_pri_MR1405.txt
 - First, we calculated gradients of up cast dissolved oxygen profiles from the bottle data. Then, we weighted the gradients and calculated correction coefficients for the dissolved oxygen based on SBE_application note 64-2. The corrected dissolved oxygen was estimated from the coefficients as follows.
 $\text{corrCTDOXY} = (\text{soc} + \text{cof1}) * (\text{CTDOXV} + \text{voffset} + \text{cof2}) * (1.0 + ((\text{A1} + \text{cof3}) * \text{CTDTEMP}) + ((\text{B1} + \text{cof4}) * \text{CTDTEMP}^2) + ((\text{C1} + \text{cof5}) * \text{CTDTEMP}^3)) * \text{saturation} * \exp((\text{E1} + \text{cof6}) * \text{CTDPRS} / (\text{CTDTEMP} + 273.15))$
- Fluorescence
 - Coefficients of secondary fluorescence correction: correct_fl_sec_MR1405_w.txt
 - We linearly correlated the fluorescence with the bottle data obtained from the Welschmeyer method. The data used for the calculation were sampled from mid night to 5 a.m. (LST). For the calculation, shallow station data, 002M001, 017M001, and 001M002, were excluded.
 $\text{corrCTDFL} = \text{slope} * \text{CTDFL} + \text{offset}$
- Light transmission
 - Time variable of light transmission: correct_xms_MR1405.txt
 - Vdark was an average of CTD pre-casts for all stations.
 - Vref was calculated from a slope and offset of temporal variation using the data within 3σ for all stations.
 - Vref offset was set to be a value not to exceed 100% for the light transmission and fall below 0 for the coefficient of beam attenuation, when they were calculated from the above-mentioned slope.
 $\text{Vdark} = 0.0012$
 $\text{Vref} = -0.000532 (\text{slope}) * \text{sumdate} + 4.6111728 (\text{offset}) + 0.0072011$
(Sumdate is assumed to be elapsed days from the time of the first observation at Sta. 001, Cast 1 (001M001), when the CTD was at the bottom.)
- PAR
 - offset = -0.046
- * Reference files of the correction coefficients
 - Coefficients of primary temperature correction: correct_tmp_pri_MR1405_p490.txt
 - Coefficients of primary conductivity correction: correct_cnd_pri_MR1405_t.txt
 - Time variables and correction coefficients of primary RINKO III: correct_rnk_pri_MR1405_t.txt
 - Coefficients of primary SBE43 correction: correct_o43_pri_MR1405.txt
 - Coefficients of secondary fluorescence correction: correct_fl_sec_MR1405_w.txt
 - Time variable of light transmission: correct_xms_MR1405.txt

Related Information



MR14-05
Ship Name: MIRAI
Period: 2014-08-31 - 2014-10-10
Chief Scientist: Jun Inoue (JAMSTEC)
Project Name: [Arctic Ocean Climate System Reaserch]
Proposal ▶ Predictability study of Arctic cyclones
Title:

Update History	
2016-10-31	An observation data was registerd.

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:

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JAMSTEC 国立研究開発法人
海洋研究開発機構
JAPAN AGENCY FOR MARINE-EARTH SCIENCE AND TECHNOLOGY

MIRAI MR14-05 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2016-10-31

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

Cruise ID: [MR14-05](#)

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

Data Policy: [JAMSTEC](#)

CTD WOCE-type1

Format Description for the Processed (PI) Data

Provided in the Exchange Format of CCHDO (CLIVAR and Carbon Hydrographic Data Office). Please see the following link for details of Exchange Format.

[CCHDO | CLIVAR & Carbon Hydrographic Data Office](#)

Data in following cruise is not expressed with Exchange Format. Please see the site of each cruise for format.

MR02-K05 Leg1

MR04-05

Format Description for the QCed Data

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

The number of data lines are recorded in the header.

Header part

No.	Column	Content	Format	Remarks
1	1	Header ID	a1	fixed as '#'
2	3 - 6	Data ID	a4	CTD
3	8 - 22	Cruise ID	a15	MYYY-(K)XX(_legx)
4	24 - 31	Cast name	a8	
5	33 - 40	Date	i8	YYYYMMDD (UTC)
6	42 - 45	Time	i4	hhmm (UTC)
7	47 - 55	Latitude	i2,a1,f5.2,a1	dd-mm.mmN(S)
8	57 - 66	Longitude	i3,a1,f5.2,a1	ddd-mm.mmE(W)
9	68 - 71	Number of data lines	i4	
10	72 - 73	Terminator	-	CR+LF

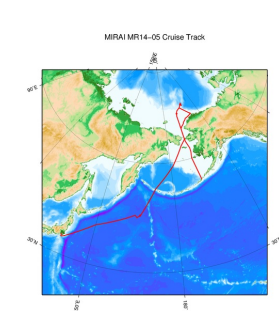
Data part

No.	Column	Content	Unit	Format	Remarks
1	1 - 11	Pressure	dbar	f11.3	
2	12 - 22	Temperature	deg-C	f11.4	ITS-90
3	23 - 33	Salinity	PSU	f11.4	PSS-78
4	34 - 44	Dissolved oxygen	umol/kg	f11.3	
5	45 - 55	Flag	-	i11	1 - 7 : space 8 : flag of pressure 9 : flag of temperature 10 : flag of salinity 11 : flag of dissolved oxygen * reference : Definition of Quality Control Flags
6	56 - 57	Terminator	-	-	CR+LF

Each contents of the data part is stored in 11 bytes.

Missing value is presented by '-5', and error value is presented by '-9'.

Related Information



[Enlarge Image](#)

MR14-05

Ship Name: MIRAI

Period: 2014-08-31 - 2014-10-10

Chief Scientist: Jun Inoue (JAMSTEC)

Project Name: [Arctic Ocean Climate System Reaserch]

Proposal ▶ Predictability study of Arctic cyclones

Title:

Update History

2016-10-31 An observation data was registerd.

Go to a Cruise Information

Cruise ID:

Go to a Dive Information

Dive ID:

HAKUHO MARU

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

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Technology



JAMSTEC

国立研究開発法人
海洋研究開発機構
JAPAN AGENCY FOR MARINE EARTH SCIENCE AND TECHNOLOGY

MIRAI MR14-05 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2016-10-31

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

Cruise ID: **MR14-05**

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

Data Policy: **JAMSTEC**

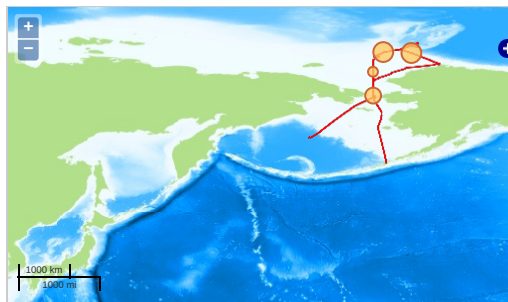
Observation Items: Pressure, Temperature, Salinity, Dissolved oxygen, Fluorescence, PAR

Science Keywords:

OCEANS > OCEAN CHEMISTRY > OXYGEN
OCEANS > OCEAN TEMPERATURE > WATER TEMPERATURE
OCEANS > SALINITY/DENSITY > SALINITY
OCEANS > OCEAN OPTICS > PHOTOSYNTHETICALLY ACTIVE RADIATION
OCEANS > OCEAN OPTICS > FLUORESCENCE

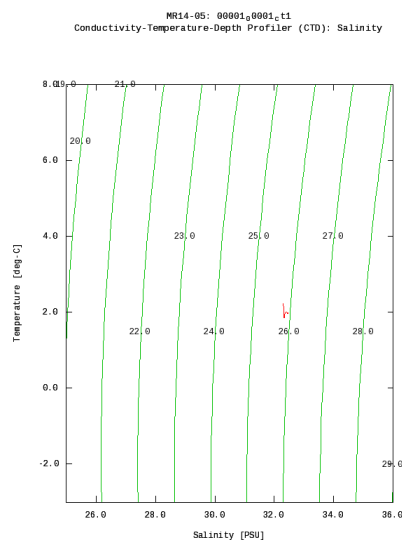
Observation Map

1. Clicking the icon displays a balloon with observation information.
2. Then click the observation name, figures will be displayed.



Figures

00001_00001_ct1



Data List

[Add to Basket](#)

File names
<input type="checkbox"/> 00001_00001_ct1.csv
<input type="checkbox"/> 00001_00002_ct1.csv
<input type="checkbox"/> 00002_00001_ct1.csv
<input type="checkbox"/> 00003_00001_ct1.csv
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File names
00008_00001_ct1.csv
00009_00000_ct1.csv
00009_00001_ct1.csv
00009_00002_ct1.csv
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00013_00003_ct1.csv
00013_00004_ct1.csv

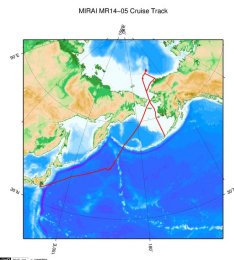
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File names
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00016_00001_ct1.csv
00017_00001_ct1.csv
correct_cnd_pri_MR1405_t.txt
correct_fl_sec_MR1405_w.txt
correct_o43_pri_MR1405.txt
correct_rnk_pri_MR1405_t.txt
correct_tmp_pri_MR1405_p490.bt
correct_xms_MR1405.bt

- Observation List
The list of observation is shown as follows.

Observation	Time and Date	Lat. [°]	Lon. [°]
00001_00001_ct1	2014-09-03 06:04	65.7706	-168.7920
00001_00002_ct1	2014-09-28 12:57	65.7748	-168.7850
00002_00001_ct1	2014-09-03 13:20	66.9994	-168.8330
00003_00001_ct1	2014-09-03 19:54	67.9997	-168.8340
00003_00002_ct1	2014-09-27 23:25	67.9996	-168.8350
00004_00001_ct1	2014-09-05 13:55	73.3297	-161.9990
00005_00001_ct1	2014-09-05 19:57	74.0000	-164.0070
00005_00002_ct1	2014-09-25 08:07	73.9997	-164.0020
00006_00001_ct1	2014-09-05 23:51	74.3770	-162.9960
00006_00002_ct1	2014-09-25 04:27	74.3749	-163.0090
00007_00001_ct1	2014-09-06 06:33	75.1240	-160.9900
00008_00001_ct1	2014-09-06 12:56	74.3744	-160.9970
00009_00000_ct1	2014-09-11 21:02	74.7488	-161.9920
00009_00001_ct1	2014-09-06 18:33	74.7508	-161.9980
00009_00002_ct1	2014-09-07 00:12	74.7539	-161.9990
00009_00003_ct1	2014-09-07 05:49	74.7516	-161.9880
00009_00004_ct1	2014-09-07 11:50	74.7520	-162.0170
00009_00005_ct1	2014-09-07 17:51	74.7556	-161.9860
00009_00006_ct1	2014-09-07 23:56	74.7577	-161.9920
00009_00007_ct1	2014-09-08 05:50	74.7518	-161.9960
00009_00008_ct1	2014-09-08 11:52	74.7492	-161.9990
00009_00009_ct1	2014-09-08 17:50	74.7495	-161.9690
00009_00010_ct1	2014-09-09 00:11	74.7521	-161.9850
00009_00011_ct1	2014-09-09 05:51	74.7523	-161.9960
00009_00012_ct1	2014-09-09 11:53	74.7511	-161.9930
00009_00013_ct1	2014-09-09 17:49	74.7563	-162.0100
00009_00014_ct1	2014-09-09 23:50	74.7604	-162.0200
00009_00015_ct1	2014-09-10 05:52	74.7566	-162.0120
00009_00016_ct1	2014-09-10 11:49	74.7554	-161.9910
00009_00017_ct1	2014-09-10 17:49	74.7534	-161.9950
00009_00018_ct1	2014-09-11 00:04	74.7535	-161.9950
00009_00019_ct1	2014-09-11 05:50	74.7563	-161.9830
00009_00020_ct1	2014-09-11 11:49	74.7540	-162.0010
00009_00021_ct1	2014-09-11 18:13	74.7518	-161.9870
00009_00022_ct1	2014-09-11 23:52	74.7466	-162.0030
00009_00023_ct1	2014-09-12 05:51	74.7508	-161.9930
00009_00024_ct1	2014-09-12 11:54	74.7541	-162.0140
00009_00025_ct1	2014-09-12 17:51	74.7536	-161.9970
00009_00026_ct1	2014-09-13 00:10	74.7501	-162.0180
00009_00027_ct1	2014-09-13 05:49	74.7505	-162.0260
00009_00028_ct1	2014-09-13 11:53	74.7535	-162.0310
00009_00029_ct1	2014-09-13 17:49	74.7437	-162.0120
00009_00030_ct1	2014-09-13 23:49	74.7462	-162.0070
00009_00031_ct1	2014-09-14 05:48	74.7452	-162.0070
00009_00032_ct1	2014-09-14 12:15	74.7524	-162.0110
00009_00033_ct1	2014-09-14 17:59	74.7545	-161.9980
00009_00034_ct1	2014-09-15 00:07	74.7519	-162.0150
00009_00035_ct1	2014-09-15 05:54	74.7514	-161.9960
00009_00036_ct1	2014-09-15 11:49	74.7526	-162.0190
00009_00037_ct1	2014-09-15 17:49	74.7476	-162.0120
00009_00038_ct1	2014-09-15 23:53	74.7498	-161.9900
00009_00039_ct1	2014-09-16 05:49	74.7519	-162.0020
00009_00040_ct1	2014-09-16 11:48	74.7505	-161.9900
00009_00041_ct1	2014-09-16 17:49	74.7500	-161.9990
00009_00042_ct1	2014-09-17 00:08	74.7489	-161.9940
00009_00043_ct1	2014-09-17 05:49	74.7508	-161.9950
00009_00044_ct1	2014-09-17 11:49	74.7468	-162.0040
00009_00045_ct1	2014-09-17 17:49	74.7525	-162.0010
00009_00046_ct1	2014-09-17 23:49	74.7478	-161.9950
00009_00047_ct1	2014-09-18 05:53	74.7494	-162.0120
00009_00048_ct1	2014-09-18 11:57	74.7491	-162.0270
00009_00049_ct1	2014-09-18 18:20	74.7521	-162.0180
00009_00050_ct1	2014-09-19 00:08	74.7488	-162.0120
00009_00051_ct1	2014-09-19 05:57	74.7446	-162.0190
00009_00052_ct1	2014-09-19 11:55	74.7482	-162.0270
00009_00053_ct1	2014-09-19 17:53	74.7501	-162.0040
00009_00054_ct1	2014-09-19 23:53	74.7515	-162.0040
00009_00055_ct1	2014-09-20 05:49	74.7515	-162.0010
00009_00056_ct1	2014-09-20 11:55	74.7515	-162.0020

Observation	Time and Date	Lat. [°]	Lon. [°]
00009_00056_ct1	2014-09-20 11:52	74.7515	-162.0060
00009_00057_ct1	2014-09-20 17:49	74.7506	-161.9940
00009_00059_ct1	2014-09-21 06:44	74.7567	-162.0330
00009_00060_ct1	2014-09-21 11:50	74.7505	-162.0120
00009_00061_ct1	2014-09-21 17:49	74.7487	-161.9970
00009_00062_ct1	2014-09-22 00:11	74.7485	-161.9840
00009_00063_ct1	2014-09-22 05:50	74.7499	-161.9920
00009_00064_ct1	2014-09-22 11:49	74.7535	-162.0090
00009_00065_ct1	2014-09-22 17:49	74.7547	-161.9980
00009_00066_ct1	2014-09-23 00:05	74.7511	-161.9900
00009_00067_ct1	2014-09-23 05:48	74.7464	-161.9840
00009_00068_ct1	2014-09-23 11:50	74.7495	-161.9930
00009_00069_ct1	2014-09-23 17:48	74.7509	-162.0060
00009_00070_ct1	2014-09-23 23:50	74.7479	-161.9980
00009_00071_ct1	2014-09-24 05:48	74.7464	-162.0290
00009_00072_ct1	2014-09-24 11:51	74.7505	-161.9980
00009_00073_ct1	2014-09-24 17:48	74.7554	-162.0230
00009_00074_ct1	2014-09-25 00:11	74.7523	-161.9830
00010_00001_ct1	2014-09-18 15:16	74.7010	-162.1320
00011_00001_ct1	2014-09-20 03:23	74.8194	-161.8370
00012_00001_ct1	2014-09-25 14:19	73.5001	-166.9980
00013_00001_ct1	2014-09-25 19:40	72.7501	-168.2470
00013_00002_ct1	2014-09-26 01:19	72.7495	-168.2460
00013_00003_ct1	2014-09-26 07:09	72.7481	-168.2460
00013_00004_ct1	2014-09-26 13:06	72.7519	-168.2430
00014_00001_ct1	2014-09-26 19:09	72.0834	-168.8330
00015_00001_ct1	2014-09-27 02:32	71.0005	-168.8330
00016_00001_ct1	2014-09-27 08:15	70.0011	-168.8220
00017_00001_ct1	2014-09-27 15:14	69.0020	-168.8320

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Period: 2014-08-31 - 2014-10-10
Chief Scientist: Jun Inoue (JAMSTEC)
Project Name: [Arctic Ocean Climate System Reaserch]
Proposal ▶ Predictability study of Arctic cyclones
Title:

Update History

2016-10-31	An observation data was registerd.
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