

## MIRAI MR13-06 Leg1 Expendable Conductivity-Temperature-Depth Profiler (XCTD)

Last Modified: 2019-08-31

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

Cruise ID: [MR13-06 Leg1](#)

Expendable Conductivity-Temperature-Depth Profiler (XCTD): Processed (DMO)-QCed

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/MR13-06\\_leg1-2\\_all.pdf](http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR13-06_leg1-2_all.pdf)

### For Using Data

#### Principal Investigator

Data Management Office

#### Use Constraints

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

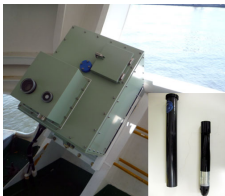
#### Data Citation

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

### Instrument

Instrument:

Expendable conductivity temperature  
depth measurements (XCTD) (MR11-  
04 - )



### Overview

Using XCTD (eXpendable Conductivity Temperature Depth profiler) system, the vertical distribution of water temperature and salinity are observed during free fall of its probe part in the seawater. Observed temperature and conductivity are transmitted to the data processor on board by the digital signal. The digital signal is converted to the temperature, conductivity and depth by data processor as binary data. Binary data is transmitted from data processor to PC. The PC calculates salinity from temperature, conductivity and depth, and those properties are recorded in PC as the ASCII files.

### System

#### (1) Launcher

Hand launcher

Manufacturer : Sippican, Inc.

Operation area : Rear upper deck

Automatic launcher

Manufacturer : Tsurumi Seiki Co., LTD.

Location : Port side of rear upper deck (4m from the sea level). The control panel is installed in the investigation room.

#### (2) Converter

Manufacturer : Tsurumi Seiki Co., LTD.

Location : Investigation room

Sampling rate : 40 msec

#### (3) XCTD probe specifications

Probe Type	TSK XCTD-1	TSK XCTD-2	TSK XCTD-3	TSK XCTD-4
Temperature range [deg-C]	-2 to 35			
Temperature accuracy [deg-C]	+/- 0.02			
Temperature resolution [deg-C]	0.01			
Conductivity range [mS/cm]	0 to 60			
Conductivity accuracy [mS/cm]	+/- 0.03			
Conductivity resolution [mS/cm]	0.015			
Measurement depth [m]	1000	1850	1000	1850
Depth accuracy [m]	5 or +/- 2% of depth; whichever is larger			
Maximum elapsed time [sec]	300	600	200	502
Rated ship speed [knot]	12	3.5	20	6

Since XCTD carries no pressure sensor, we need to estimate depth from the elapsed time. The fall-rate equation is as follows.

$$Z = at + 10E^{-3} * bt^2$$

Where Z(m) is the depth and t(sec) is the elapsed time.

In addition, coefficients of the fall-rate equation are different by probe types

In addition, coefficients of the air rate equation are different by probe type.

Probe Type	TSK XCTD-1	TSK XCTD-2	TSK XCTD-3	TSK XCTD-4
Coefficient-a	3.42543	3.43898	5.07598	3.68081
Coefficient-b	-0.47	-0.31	-0.72	-0.47

\* Coefficients listed above are supplied by Sippican, Inc., in USA.

The list of an XCTD type used in each cast is as follows.

Cast name	Probe Serial No.	Probe Type	Launcher	Converter
201309042001	11011560	XCTD-1	Auto	MK-150N
201309042137	11011562	XCTD-1	Auto	MK-150N
201309050009	11011569	XCTD-1	Auto	MK-150N
201309050157	11011565	XCTD-1	Auto	MK-150N
201309050212	11011558	XCTD-1	Auto	MK-150N
201309050410	11011567	XCTD-1	Auto	MK-150N
201309050445	11011559	XCTD-1	Auto	MK-150N
201309050512	11011564	XCTD-1	Auto	MK-150N
201309050546	11011568	XCTD-1	Auto	MK-150N
201309050616	13041459	XCTD-1	Auto	MK-150N
201309050649	13041467	XCTD-1	Auto	MK-150N
201309050750	13041460	XCTD-1	Auto	MK-150N
201309060400	13041457	XCTD-1	Auto	MK-150N
201309060414	13041458	XCTD-1	Auto	MK-150N
201309060428	13041456	XCTD-1	Auto	MK-150N
201309060441	13041466	XCTD-1	Auto	MK-150N
201309060454	13041465	XCTD-1	Auto	MK-150N
201309060510	13041461	XCTD-1	Auto	MK-150N
201309060539	13072720	XCTD-1	Auto	MK-150N
201309060606	13072715	XCTD-1	Auto	MK-150N
201309060632	13072717	XCTD-1	Auto	MK-150N
201309070707	13072713	XCTD-1	Auto	MK-150N
201309070818	13072718	XCTD-1	Auto	MK-150N
201309070939	13072721	XCTD-1	Auto	MK-150N
201309071050	13041462	XCTD-1	Auto	MK-150N
201309071204	13041463	XCTD-1	Auto	MK-150N
201309071309	13041464	XCTD-1	Auto	MK-150N
201309071414	13072716	XCTD-1	Auto	MK-150N
201309071531	13072719	XCTD-1	Auto	MK-150N
201309071638	13072714	XCTD-1	Auto	MK-150N
201309071753	13072710	XCTD-1	Auto	MK-150N
201309071859	13072711	XCTD-1	Auto	MK-150N
201309072017	13072722	XCTD-1	Auto	MK-150N
201309072200	13072734	XCTD-1	Auto	MK-150N
201309080132	13072724	XCTD-1	Auto	MK-150N
201309080327	13072727	XCTD-1	Auto	MK-150N
201309091109	13072743	XCTD-1	Auto	MK-150N
201309091208	13072748	XCTD-1	Auto	MK-150N
201309091308	13072745	XCTD-1	Auto	MK-150N
201309091406	13072751	XCTD-1	Auto	MK-150N
201309091523	13072754	XCTD-1	Auto	MK-150N
201309091643	11011563	XCTD-1	Auto	MK-150N
201309091805	13072733	XCTD-1	Auto	MK-150N
201309091934	11011566	XCTD-1	Auto	MK-150N
201309100103	13072730	XCTD-1	Auto	MK-150N
201309100307	13072729	XCTD-1	Auto	MK-150N
201309100639	13072732	XCTD-1	Auto	MK-150N
201309101347	13072728	XCTD-1	Auto	MK-150N
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201309120114	13072740	XCTD-1	Auto	MK-150N
201309120722	13072741	XCTD-1	Auto	MK-150N
201309121329	13072742	XCTD-1	Auto	MK-150N
201309121921	13072736	XCTD-1	Auto	MK-150N
201309130123	13072737	XCTD-1	Auto	MK-150N
201309130555	13072738	XCTD-1	Auto	MK-150N
201309131329	13072747	XCTD-1	Auto	MK-150N
201309131803	13072746	XCTD-1	Auto	MK-150N
201309140126	13072744	XCTD-1	Auto	MK-150N
201309140554	13072755	XCTD-1	Auto	MK-150N
201309141333	13072749	XCTD-1	Auto	MK-150N
201309141757	13072750	XCTD-1	Auto	MK-150N
201309150136	13072735	XCTD-1	Auto	MK-150N
201309150552	13072752	XCTD-1	Auto	MK-150N
201309151329	13072753	XCTD-1	Auto	MK-150N
201309151754	13072760	XCTD-1	Auto	MK-150N

Cast name	Probe Serial No.	Probe Type	Launcher	Converter
201309160129	13072756	XCTD-1	Auto	MK-150N
201309160554	13072757	XCTD-1	Auto	MK-150N
201309161328	13072759	XCTD-1	Auto	MK-150N
201309161753	13072646	XCTD-1	Auto	MK-150N
201309170130	13072702	XCTD-1	Auto	MK-150N
201309170557	13072704	XCTD-1	Auto	MK-150N
201309171329	13072706	XCTD-1	Auto	MK-150N
201309171756	13072767	XCTD-1	Auto	MK-150N
201309180128	13072768	XCTD-1	Auto	MK-150N
201309180559	13072772	XCTD-1	Auto	MK-150N
201309181330	13072776	XCTD-1	Auto	MK-150N
201309181756	13072780	XCTD-1	Auto	MK-150N
201309190130	13072784	XCTD-1	Auto	MK-150N
201309190554	13072785	XCTD-1	Auto	MK-150N
201309191323	13072786	XCTD-1	Auto	MK-150N
201309191753	13072787	XCTD-1	Auto	MK-150N
201309200132	13072796	XCTD-1	Auto	MK-150N
201309200551	13072797	XCTD-1	Auto	MK-150N
201309201344	13072805	XCTD-1	Auto	MK-150N
201309201753	13072802	XCTD-1	Auto	MK-150N
201309210136	13072788	XCTD-1	Auto	MK-150N
201309210550	13072789	XCTD-1	Auto	MK-150N
201309211339	13072790	XCTD-1	Auto	MK-150N
201309211756	13072791	XCTD-1	Auto	MK-150N
201309220125	13072792	XCTD-1	Auto	MK-150N
201309220556	13072793	XCTD-1	Auto	MK-150N
201309221333	13072795	XCTD-1	Auto	MK-150N
201309221756	13072804	XCTD-1	Auto	MK-150N
201309230132	13072801	XCTD-1	Auto	MK-150N
201309230554	13072815	XCTD-1	Auto	MK-150N
201309231335	13072818	XCTD-1	Auto	MK-150N
201309231757	13072819	XCTD-1	Auto	MK-150N
201309240131	11011561	XCTD-1	Auto	MK-150N
201309240553	13072723	XCTD-1	Auto	MK-150N
201309241334	13072758	XCTD-1	Auto	MK-150N
201309241754	13072763	XCTD-1	Auto	MK-150N
201309250141	13072762	XCTD-1	Auto	MK-150N
201309250600	13072761	XCTD-1	Auto	MK-150N
201309251417	13072645	XCTD-1	Auto	MK-150N
201309251754	13072644	XCTD-1	Auto	MK-150N
201309270933	13072643	XCTD-1	Auto	MK-150N
201309271028	13072703	XCTD-1	Auto	MK-150N
201309271951	13072705	XCTD-1	Auto	MK-150N
201309272057	13072707	XCTD-1	Auto	MK-150N
201309280026	13072709	XCTD-1	Auto	MK-150N
201309290553	13072766	XCTD-1	Auto	MK-150N
201309290602	13072765	XCTD-1	Auto	MK-150N
201309290612	13072764	XCTD-1	Auto	MK-150N
201309290622	13072769	XCTD-1	Auto	MK-150N
201309290632	13072770	XCTD-1	Auto	MK-150N
201309290642	13072773	XCTD-1	Auto	MK-150N
201309290652	13072771	XCTD-1	Auto	MK-150N
201309290702	13072775	XCTD-1	Auto	MK-150N
201309290712	13072774	XCTD-1	Auto	MK-150N
201309290722	13072777	XCTD-1	Auto	MK-150N
201309290817	13072778	XCTD-1	Auto	MK-150N
201309290827	13072779	XCTD-1	Auto	MK-150N
201309290835	13072781	XCTD-1	Auto	MK-150N
201309290843	13072782	XCTD-1	Auto	MK-150N
201309290851	13072783	XCTD-1	Auto	MK-150N
201309290858	13072806	XCTD-1	Auto	MK-150N
201309290906	13072794	XCTD-1	Auto	MK-150N
201309290914	13072809	XCTD-1	Auto	MK-150N
201309290922	13072808	XCTD-1	Auto	MK-150N
201309290930	13072810	XCTD-1	Auto	MK-150N
201309291017	13072811	XCTD-1	Auto	MK-150N
201309291102	13072798	XCTD-1	Auto	MK-150N
201309291238	13072807	XCTD-1	Auto	MK-150N
201309291351	13072803	XCTD-1	Auto	MK-150N
201309301932	13072813	XCTD-1	Auto	MK-150N
201310010140	13072812	XCTD-1	Auto	MK-150N
201310010553	13072817	XCTD-1	Auto	MK-150N
201310011202	13072816	XCTD-1	Auto	MK-150N
201310032313	13072814	XCTD-1	Auto	MK-150N
201310040123	13072708	XCTD-1	Auto	MK-150N

(1) For sensor's stability, values of less than 1 m for temperature and less than 3 m for salinity are replaced by missing values, respectively, based on manufacturer's recommendation.

(2) Quality control

QCed data were added flag according to the NODC (National Oceanographic Data Center) quality control procedure.

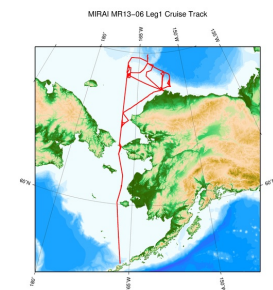
- 1) The gradient check of adjacent depth data
- 2) The density inversion check
- 3) The broad range check set up at given ocean space and depth

Please see the site of NODC of the following link for quality control procedure in detail.

[QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA](#)

In addition, an abnormal value is identified by a visual check, and the data after visual QC is released.

#### Related Information



[Enlarge Image](#)

#### MR13-06 Leg1

Ship Name: MIRAI

Period: 2013-08-28 - 2013-10-07

Chief Scientist: Shigeto Nishino (JAMSTEC)

Project Name: [Arctic Ocean Climate System Research]

Proposal ▶ Study on environmental changes in the sea-ice reduction regions of the Arctic Ocean

Title:

#### Update History

2019-08-31	An observation data was registered.
2017-06-14	An observation data was registered.
2015-10-31	An observation data was registered.

#### JAMSTEC

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#### Lists

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[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 MR13-06 Leg1 Expendable Conductivity-Temperature-Depth Profiler (XCTD)

Last Modified: 2019-08-31

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

Cruise ID: [MR13-06 Leg1](#)

Expendable Conductivity-Temperature-Depth Profiler (XCTD): Processed (DMO)-QCed

Data Policy: [JAMSTEC](#)

### XCTD DMO

#### Format Description for the Corrected 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	XCTD
3	8 - 22	Cruise ID	a15	
4	33 - 40	Date	i8	YYYYMMDD (UTC)
5	42 - 45	Time	i4	hhmm (UTC)
6	47 - 55	Latitude	i2,a1,f5.2,a1	dd-mm.mmN(S)
7	57 - 66	Longitude	i3,a1,f5.2,a1	ddd-mm.mmE(W)
8	68 - 71	Number of data lines	i4	
9	72 - 73	Terminator	-	CR+LF

Data part

No.	Column	Content	Unit	Format	Remarks
1	1 - 11	Depth	m	f11.1	
2	12 - 22	Temperature	deg-C	f11.2	ITS-90
3	23 - 33	Salinity	PSU	f11.3	PSS-78
4	45 - 55	Flag	-	i11	1 - 7 : space 8 : flag of depth 9 : flag of temperature 10 : flag of salinity 11 : space * reference : <a href="#">Definition of Quality Control Flags</a>
5	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'.

#### Definition of Quality Control Flags

##### 1. Depth Flags

- 0 - accepted value
- 1 - error in recorded depth ( same or less than previous depth )
- 2 - density inversion

##### 2. Observed Level Flags

- N - missing value
- 0 - accepted value
- 1 - range outlier ( outside of broad range check )
- 2 - failed inversion check
- 3 - failed gradient check
- 4 - zero anomaly
- 5 - failed combined gradient and inversion checks
- 6 - failed range and inversion checks
- 7 - failed range and gradient checks
- 8 - failed range and zero anomaly checks
- 9 - failed range and combined gradient and inversion checks
- A - failed visual check

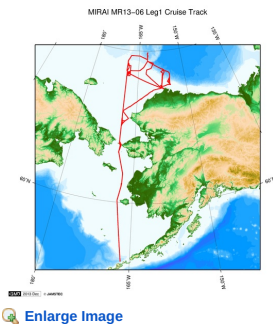
QCed data were added flag according to the NODC (National Oceanographic Data Center) quality control procedure, additionally visually checked. Please see the site of NODC of the following link for quality control procedure.

[QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA](#)

#### Sample Program

[ex\\_read2.f](#)

#### Related Information



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Period: 2013-08-28 - 2013-10-07

Chief Scientist: Shigeto Nishino (JAMSTEC)

Project Name: [Arctic Ocean Climate System Reaserch]

Proposal ▶ Study on environmental changes in the sea-ice reduction regions of the Arctic Ocean

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Map Search

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Detailed Search

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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 MR13-06 Leg1 Expendable Conductivity-Temperature-Depth Profiler (XCTD)

Last Modified: 2019-08-31

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

Cruise ID: [MR13-06 Leg1](#)

Expendable Conductivity-Temperature-Depth Profiler (XCTD): Processed (DMO)-QCed

Data Policy: [JAMSTEC](#)

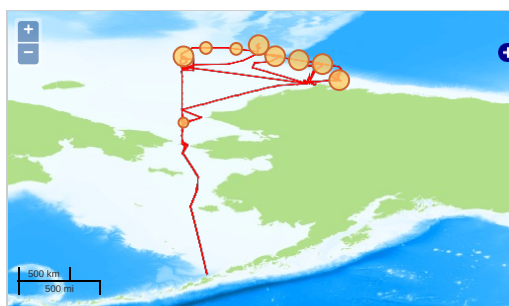
Observation Items: Depth, Temperature, Salinity

Science Keywords:

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

### Observation Map

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



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

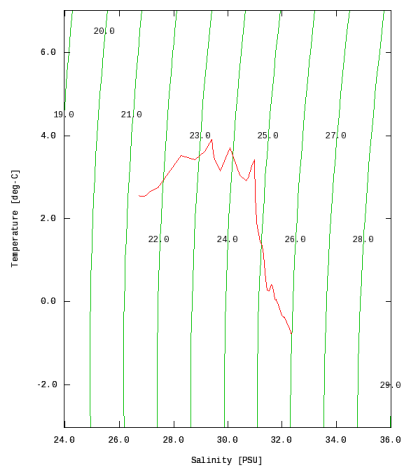
Imagery reproduced from ...

### Figures

201309042001



MR13-06 Leg1: 201309042001  
Expendable Conductivity-Temperature-Depth Profiler (XCTD): Salinity














































































Only values evaluated as "good" : all flags are 0" are plotted in profiles.  
Please see Format Page for the definition of quality flags.

### Data List

[Add to Basket](#)

**File names**

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<input type="checkbox"/>	201309042137.dat
<input type="checkbox"/>	201309050009.dat
<input type="checkbox"/>	201309050157.dat
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201310032313.dat
201310040123.dat
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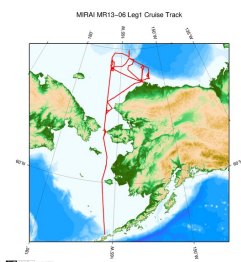
● Observation List  
The list of observation is shown as follows.

Observation	Time and Date	Lat. [°]	Lon. [°]
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201309042137	2013-09-04 21:48	71.6983	-155.0641
201309050009	2013-09-05 00:15	71.7651	-155.2390
201309050157	2013-09-05 02:01	71.8520	-155.4125
201309050212	2013-09-05 02:18	71.8918	-155.5373
201309050410	2013-09-05 04:15	72.0203	-155.4871
201309050445	2013-09-05 04:47	72.1091	-155.3145
201309050512	2013-09-05 05:15	72.1978	-155.1423
201309050546	2013-09-05 05:49	72.2863	-154.9690
201309050616	2013-09-05 06:19	72.3750	-154.8016
201309050649	2013-09-05 06:51	72.5000	-154.8006
201309050750	2013-09-05 07:53	72.6663	-154.8021
201309060400	2013-09-06 04:04	71.6088	-154.8451
201309060414	2013-09-06 04:16	71.6413	-154.9195
201309060428	2013-09-06 04:30	71.6806	-154.9745
201309060441	2013-09-06 04:44	71.6985	-155.0663
201309060454	2013-09-06 04:57	71.7341	-155.1196
201309060510	2013-09-06 05:13	71.7653	-155.2388
201309060539	2013-09-06 05:42	71.8125	-155.2940
201309060606	2013-09-06 06:08	71.8665	-155.4956
201309060632	2013-09-06 06:34	71.9315	-155.6573
201309070707	2013-09-07 07:10	72.8391	-155.0178
201309070818	2013-09-07 08:20	72.9513	-155.6991
201309070939	2013-09-07 09:41	73.0673	-156.4060
201309071050	2013-09-07 10:51	73.1843	-157.1078
201309071204	2013-09-07 12:06	73.3003	-157.7998
201309071309	2013-09-07 13:11	73.4163	-158.4998
201309071414	2013-09-07 14:16	73.5305	-159.1833
201309071531	2013-09-07 15:35	73.6503	-159.9013
201309071638	2013-09-07 16:43	73.7668	-160.6001
201309071753	2013-09-07 17:56	73.8833	-161.2995

Observation	Time and Date	Lat. [°]	Lon. [°]
201309071859	2013-09-07 19:02	73.9993	-161.9998
201309072017	2013-09-07 20:20	74.2491	-162.0004
201309072200	2013-09-07 22:02	74.4968	-161.9891
201309080132	2013-09-08 01:35	74.7500	-162.0618
201309080327	2013-09-08 03:28	74.7985	-161.9915
201309091109	2013-09-09 11:10	74.2511	-162.6910
201309091208	2013-09-09 12:09	74.3335	-163.3701
201309091308	2013-09-09 13:09	74.4165	-164.0600
201309091406	2013-09-09 14:09	74.4998	-164.7503
201309091523	2013-09-09 15:27	74.5000	-165.7501
201309091643	2013-09-09 16:46	74.5000	-166.7495
201309091805	2013-09-09 18:07	74.5001	-167.7496
201309091934	2013-09-09 19:38	74.2501	-168.2495
201309100103	2013-09-10 01:07	73.7500	-168.7398
201309100307	2013-09-10 03:09	73.5000	-168.2923
201309100639	2013-09-10 06:42	73.2498	-168.3510
201309101347	2013-09-10 13:49	72.5005	-168.2504
201309110109	2013-09-11 01:12	72.8250	-168.2488
201309110725	2013-09-11 07:27	72.6750	-168.2498
201309111319	2013-09-11 13:21	72.7500	-167.9985
201309111919	2013-09-11 19:22	72.7501	-168.5001
201309120114	2013-09-12 01:19	72.8250	-168.2503
201309120722	2013-09-12 07:24	72.6750	-168.2515
201309121329	2013-09-12 13:31	72.7498	-167.9980
201309121921	2013-09-12 19:25	72.7501	-168.4998
201309130123	2013-09-13 01:27	72.8250	-168.2485
201309130555	2013-09-13 05:56	72.6751	-168.2501
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201309131803	2013-09-13 18:06	72.7500	-168.4998
201309140126	2013-09-14 01:28	72.8250	-168.2508
201309140554	2013-09-14 05:57	72.6750	-168.2508
201309141333	2013-09-14 13:35	72.7498	-167.9980
201309141757	2013-09-14 18:00	72.7500	-168.5001
201309150136	2013-09-15 01:37	72.8248	-168.2486
201309150552	2013-09-15 05:56	72.6750	-168.2503
201309151329	2013-09-15 13:31	72.7501	-167.9988
201309151754	2013-09-15 17:58	72.7500	-168.4996
201309160129	2013-09-16 01:31	72.8248	-168.2510
201309160554	2013-09-16 05:57	72.6750	-168.2493
201309161328	2013-09-16 13:30	72.7503	-167.9985
201309161753	2013-09-16 17:57	72.7501	-168.5004
201309170130	2013-09-17 01:31	72.8248	-168.2504
201309170557	2013-09-17 06:01	72.6750	-168.2496
201309171329	2013-09-17 13:31	72.7501	-167.9983
201309171756	2013-09-17 18:00	72.7498	-168.4996
201309180128	2013-09-18 01:30	72.8248	-168.2508
201309180559	2013-09-18 06:03	72.6748	-168.2498
201309181330	2013-09-18 13:31	72.7500	-167.9983
201309181756	2013-09-18 17:59	72.7500	-168.4998
201309190130	2013-09-19 01:31	72.8248	-168.2485
201309190554	2013-09-19 05:57	72.6750	-168.2500
201309191323	2013-09-19 13:24	72.7498	-167.9990
201309191753	2013-09-19 17:56	72.7498	-168.5001
201309200132	2013-09-20 01:34	72.8246	-168.2506
201309200551	2013-09-20 05:54	72.6750	-168.2504
201309201344	2013-09-20 13:45	72.7501	-167.9983
201309201753	2013-09-20 17:57	72.7498	-168.5000
201309210136	2013-09-21 01:37	72.8246	-168.2523
201309210550	2013-09-21 05:52	72.6750	-168.2491
201309211339	2013-09-21 13:40	72.7498	-168.0070
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201309220556	2013-09-22 05:59	72.6748	-168.2511
201309221333	2013-09-22 13:35	72.7501	-167.9985
201309221756	2013-09-22 17:58	72.7501	-168.5001
201309230132	2013-09-23 01:33	72.8250	-168.2511
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201309240131	2013-09-24 01:33	72.8250	-168.2500
201309240553	2013-09-24 05:56	72.6750	-168.2500
201309241334	2013-09-24 13:35	72.7500	-168.0004
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201309250600	2013-09-25 06:03	72.6750	-168.2496
201309251417	2013-09-25 14:20	72.7498	-167.9983
201309251754	2013-09-25 17:58	72.7500	-168.5001
201309270933	2013-09-27 09:34	73.9335	-161.3331
201309271028	2013-09-27 10:29	73.8673	-160.6740
201309271951	2013-09-27 19:55	73.6326	-160.2746
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201309290026 Observation	2013-09-29 00:29 Time and Date	73.2216 Lat. [°]	-161.5491 Lon. [°]
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201309290602	2013-09-29 06:05	72.9546	-156.5238
201309290612	2013-09-29 06:15	72.9835	-156.5818
201309290622	2013-09-29 06:25	73.0125	-156.6376
201309290632	2013-09-29 06:35	73.0410	-156.6930
201309290642	2013-09-29 06:45	73.0699	-156.7508
201309290652	2013-09-29 06:55	73.0988	-156.8073
201309290702	2013-09-29 07:05	73.1276	-156.8665
201309290712	2013-09-29 07:15	73.1563	-156.9221
201309290722	2013-09-29 07:25	73.1851	-156.9836
201309290817	2013-09-29 08:21	73.0865	-156.6525
201309290827	2013-09-29 08:29	73.0698	-156.7498
201309290835	2013-09-29 08:37	73.0530	-156.8513
201309290843	2013-09-29 08:45	73.0361	-156.9496
201309290851	2013-09-29 08:53	73.0194	-157.0453
201309290858	2013-09-29 09:01	73.0026	-157.1425
201309290906	2013-09-29 09:08	72.9858	-157.2381
201309290914	2013-09-29 09:16	72.9691	-157.3381
201309290922	2013-09-29 09:24	72.9523	-157.4395
201309290930	2013-09-29 09:32	72.9355	-157.5381
201309291017	2013-09-29 10:18	72.8218	-157.0973
201309291102	2013-09-29 11:04	72.6418	-157.1433
201309291238	2013-09-29 12:40	72.2365	-157.3325
201309291351	2013-09-29 13:52	71.9250	-157.4371
201309301932	2013-09-30 19:34	72.7500	-168.5001
201310010140	2013-10-01 01:41	72.8250	-168.2515
201310010553	2013-10-01 05:56	72.6750	-168.2503
201310011202	2013-10-01 12:03	72.7500	-167.9351
201310032313	2013-10-03 23:16	67.8748	-168.7478
201310040123	2013-10-04 01:26	67.6250	-168.7506

#### Related Information



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#### MR13-06 Leg1

Ship Name: MIRAI  
Period: 2013-08-28 - 2013-10-07  
Chief Scientist: Shigeto Nishino (JAMSTEC)  
Project Name: [Arctic Ocean Climate System Reaserch]  
Proposal   ▶ Study on environmental changes in the sea-ice reduction regions of the Arctic Ocean  
Title:

#### Update History

2019-08-31	An observation data was registerd.
2017-06-14	An observation data was registerd.
2015-10-31	An observation data was registerd.

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Feeds

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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: