

KAIYO KY08-09 Expendable Conductivity-Temperature-Depth Profiler (XCTD)

Last Modified: 2019-09-07

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

Cruise ID: [KY08-09](#)

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/KY08-09_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.

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

(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.

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

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.

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
XCTD-028020080902	07054051	XCTD-1	Hand	-
XCTD-028120080903	07054052	XCTD-1	Hand	-
XCTD-028220080903	07054057	XCTD-1	Hand	-
XCTD-028320080903	07054056	XCTD-1	Hand	-
XCTD-028420080903	07054053	XCTD-1	Hand	-
XCTD-028520080903	07054054	XCTD-1	Hand	-
XCTD-028620080903	07054055	XCTD-1	Hand	-

Cast name	Probe Serial No.	Probe Type	Hand Launcher	Converter
XCTD-028720080903	07054058	XCTD-1	Hand	-
XCTD-028820080903	07054059	XCTD-1	Hand	-
XCTD-028920080903	07054060	XCTD-1	Hand	-
XCTD-029020080903	07054061	XCTD-1	Hand	-
XCTD-029120080903	07054062	XCTD-1	Hand	-
XCTD-029220080906	07054063	XCTD-1	Hand	-
XCTD-029320080906	07054064	XCTD-1	Hand	-
XCTD-029420080906	07054065	XCTD-1	Hand	-
XCTD-029520080906	07054067	XCTD-1	Hand	-
XCTD-029620080906	07054068	XCTD-1	Hand	-
XCTD-029720080906	07054069	XCTD-1	Hand	-
XCTD-029820080906	07054071	XCTD-1	Hand	-
XCTD-029920080906	07054072	XCTD-1	Hand	-
XCTD-030020080906	07054073	XCTD-1	Hand	-
XCTD-030120080906	07054074	XCTD-1	Hand	-
XCTD-030220080906	07054075	XCTD-1	Hand	-
XCTD-030320080907	07054076	XCTD-1	Hand	-
XCTD-030420080907	07054077	XCTD-1	Hand	-
XCTD-030520080907	07054078	XCTD-1	Hand	-
XCTD-030620080907	07054079	XCTD-1	Hand	-
XCTD-030820080907	07054079	XCTD-1	Hand	-
XCTD-030920080907	07054081	XCTD-1	Hand	-
XCTD-031020080907	08069167	XCTD-1	Hand	-
XCTD-031120080907	08069168	XCTD-1	Hand	-
XCTD-031220080907	08069169	XCTD-1	Hand	-
XCTD-031320080907	08069170	XCTD-1	Hand	-
XCTD-031420080907	08069171	XCTD-1	Hand	-
XCTD-031520080907	08069172	XCTD-1	Hand	-
XCTD-031620080907	08069173	XCTD-1	Hand	-
XCTD-031720080907	08069174	XCTD-1	Hand	-
XCTD-031820080908	08069175	XCTD-1	Hand	-
XCTD-031920080913	08069177	XCTD-1	Hand	-
XCTD-032020080913	08069176	XCTD-1	Hand	-
XCTD-032120080913	08069178	XCTD-1	Hand	-
XCTD-032220080913	08069179	XCTD-1	Hand	-
XCTD-032320080913	08069180	XCTD-1	Hand	-
XCTD-032420080913	08069181	XCTD-1	Hand	-
XCTD-032520080913	08069182	XCTD-1	Hand	-
XCTD-032620080913	08069183	XCTD-1	Hand	-
XCTD-032720080913	08069184	XCTD-1	Hand	-
XCTD-032820080913	08069185	XCTD-1	Hand	-
XCTD-032920080915	08069186	XCTD-1	Hand	-
XCTD-033020080915	08069187	XCTD-1	Hand	-
XCTD-033120080915	08069188	XCTD-1	Hand	-
XCTD-033220080915	08069190	XCTD-1	Hand	-
XCTD-033320080915	08069189	XCTD-1	Hand	-
XCTD-033420080915	08069191	XCTD-1	Hand	-
XCTD-033520080915	08069192	XCTD-1	Hand	-
XCTD-033620080916	08069193	XCTD-1	Hand	-
XCTD-033720080916	08069194	XCTD-1	Hand	-
XCTD-033820080916	07054070	XCTD-1	Hand	-

Data processing

(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.

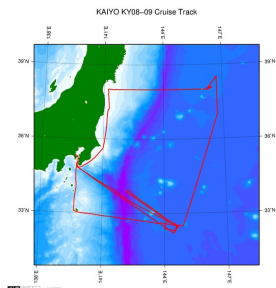
- 1) The gradient check of adjacent depth data
- 2) The density inversion check
- 3) The broad range check set up at given ocean space and depth

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



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KY08-09

Ship Name: KAIYO
 Period: 2008-09-02 - 2008-09-17
 Chief Scientist: Hiroshi Ichikawa (JAMSTEC)
 Project Name: [Station KEO]
 Proposal Kuroshio Transport and Surface Flux Observation Study
 Title:

Update History

2019-09-07	An observation data was registerd.
2017-06-14	An observation data was registerd.
2014-10-02	An observation data was registerd.
2014-02-20	An observation data was registerd.
2012-10-30	An observation data was registerd.

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KAIYO KY08-09 Expendable Conductivity-Temperature-Depth Profiler (XCTD)

Last Modified: 2019-09-07

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 Cruise ID: [KY08-09](#)

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 : Definition of Quality Control Flags
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

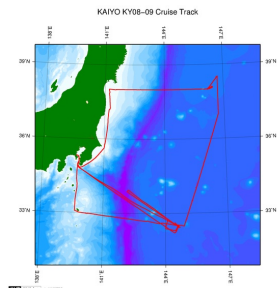
QCed data were added flag according to the NODC (National Oceanographic Data Center) quality control procedure, additionally visually checked. Please see the site of NODC of the following link for quality control procedure.

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Sample Program

[ex_read2.f](#)

Related Information



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 6K Sonar DEEP TOW
 KM-ROV
 POWER GRAB SAMPLER (SHELL)
 POWER GRAB SAMPLER (CLOW)
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Cruise ID:

Go to a Dive Information

Dive ID:

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KAIYO KY08-09 Expendable Conductivity-Temperature-Depth Profiler (XCTD)

Last Modified: 2019-09-07

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Cruise ID: **KY08-09**

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

Data Policy: **JAMSTEC**

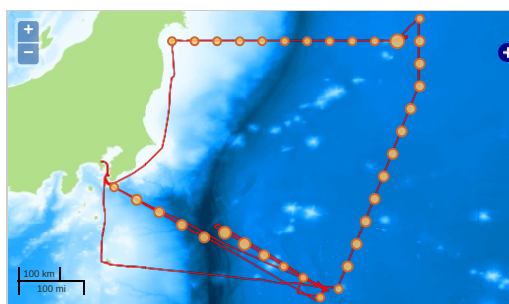
Observation Items: Depth, Temperature, Salinity

Science Keywords:

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

Observation Map

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



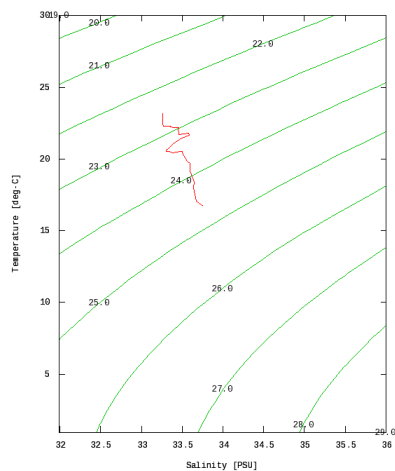
— ... Observation Line — ... Navigation ● ... Observation, Dive Point, Hole

Figures

XCTD-028020080902



KY08-09: XCTD-028020080902
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

☐ XCTD-028020080902.dat
☐ XCTD-028120080903.dat
☐ XCTD-028220080903.dat
☐ XCTD-028320080903.dat
☐ XCTD-028420080903.dat
☐ XCTD-028520080903.dat
☐ XCTD-028620080903.dat
☐ XCTD-028720080903.dat
☐ XCTD-028820080903.dat
☐ XCTD-028920080903.dat
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☐ XCTD-029220080906.dat
☐ XCTD-029320080906.dat

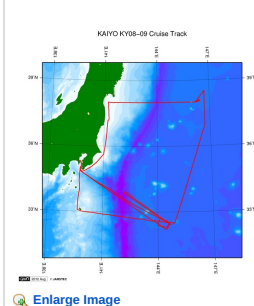
 Rider names 20080906.dat
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 XCTD-033120080915.dat
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 XCTD-033320080915.dat
 XCTD-033420080915.dat
 XCTD-033520080915.dat
 XCTD-033620080916.dat
 XCTD-033720080916.dat
 XCTD-033820080916.dat
 ex_read2.f (Sample Program)

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

Observation	Time and Date	Lat. [°]	Lon. [°]
XCTD-028020080902	2008-09-02 23:19	38.0011	141.1998
XCTD-028120080903	2008-09-03 01:44	38.0000	141.7011
XCTD-028220080903	2008-09-03 03:59	38.0000	142.2011
XCTD-028320080903	2008-09-03 06:37	37.9991	142.7048
XCTD-028420080903	2008-09-03 09:21	38.0000	143.2008
XCTD-028520080903	2008-09-03 11:17	37.9998	143.7006
XCTD-028620080903	2008-09-03 13:17	38.0000	144.2005
XCTD-028720080903	2008-09-03 15:24	37.9998	144.7006
XCTD-028820080903	2008-09-03 17:42	38.0001	145.2006
XCTD-028920080903	2008-09-03 19:58	38.0000	145.7008
XCTD-029020080903	2008-09-03 22:15	38.0000	146.2003
XCTD-029120080903	2008-09-03 23:46	38.0406	146.3143
XCTD-029220080906	2008-09-06 03:01	38.0660	146.3993
XCTD-029320080906	2008-09-06 04:00	37.9996	146.1995
XCTD-029420080906	2008-09-06 08:32	38.5001	146.7003
XCTD-029520080906	2008-09-06 11:50	37.9995	146.7000
XCTD-029620080906	2008-09-06 13:22	37.7495	146.7000
XCTD-029720080906	2008-09-06 15:06	37.4998	146.7001
XCTD-029820080906	2008-09-06 17:04	37.2498	146.6996
XCTD-029920080906	2008-09-06 18:48	36.9996	146.7000
XCTD-030020080906	2008-09-06 20:32	36.7495	146.5996
XCTD-030120080906	2008-09-06 22:17	36.4998	146.5000
XCTD-030220080906	2008-09-06 23:57	36.2495	146.3998
XCTD-030320080907	2008-09-07 01:44	35.9996	146.3000
XCTD-030420080907	2008-09-07 03:24	35.7496	146.1998
XCTD-030520080907	2008-09-07 05:02	35.4996	146.0998
XCTD-030620080907	2008-09-07 06:38	35.2496	146.0000
XCTD-030820080907	2008-09-07 08:33	34.9996	145.8995
XCTD-030920080907	2008-09-07 10:02	34.7496	145.8000
XCTD-031020080907	2008-09-07 11:38	34.4996	145.6995
XCTD-031120080907	2008-09-07 13:06	34.2496	145.5998
XCTD-031220080907	2008-09-07 14:55	33.9993	145.5000
XCTD-031320080907	2008-09-07 16:26	33.7495	145.4001
XCTD-031420080907	2008-09-07 18:13	33.4998	145.2996

Observation	Time and Date	Lat/Lon	Lat/Lon
XCTD-031920080907	2008-09-07 19:52	32.496	144.200
XCTD-031620080907	2008-09-07 21:33	32.9988	145.0996
XCTD-031720080907	2008-09-07 23:14	32.7496	144.9998
XCTD-031820080908	2008-09-08 01:04	32.4988	144.9001
XCTD-031920080913	2008-09-13 04:57	32.3120	144.4931
XCTD-032020080913	2008-09-13 09:37	32.7501	144.1151
XCTD-032120080913	2008-09-13 12:40	33.0005	143.6796
XCTD-032220080913	2008-09-13 15:35	33.2498	143.2446
XCTD-032320080913	2008-09-13 17:02	33.3755	143.0278
XCTD-032420080913	2008-09-13 18:27	33.5003	142.8095
XCTD-032520080913	2008-09-13 20:01	33.6251	142.5931
XCTD-032620080913	2008-09-13 20:10	33.6336	142.5785
XCTD-032720080913	2008-09-13 21:33	33.7501	142.3750
XCTD-032820080913	2008-09-13 23:23	33.8828	142.1639
XCTD-032920080915	2008-09-15 12:23	33.5090	142.1660
XCTD-033020080915	2008-09-15 13:55	33.6471	141.9163
XCTD-033120080915	2008-09-15 15:32	33.7818	141.6665
XCTD-033220080915	2008-09-15 17:08	33.9215	141.4163
XCTD-033320080915	2008-09-15 18:55	34.0633	141.1663
XCTD-033420080915	2008-09-15 20:44	34.2065	140.9161
XCTD-033520080915	2008-09-15 22:30	34.3400	140.6665
XCTD-033620080916	2008-09-16 00:25	34.4805	140.4165
XCTD-033720080916	2008-09-16 02:11	34.6231	140.1665
XCTD-033820080916	2008-09-16 03:56	34.7591	139.9161

Related Information



KY08-09

Ship Name: KAIYO
Period: 2008-09-02 - 2008-09-17
Chief Scientist: Hiroshi Ichikawa (JAMSTEC)
Project Name: [Station KEO]
Proposal: Kuroshio Transport and Surface Flux Observation Study
Title:

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Update History

2019-09-07	An observation data was registered.
2017-06-14	An observation data was registered.
2014-10-02	An observation data was registered.
2014-02-20	An observation data was registered.
2012-10-30	An observation data was registered.

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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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