

6K Camera DEEP TOW 6KCDT 00009 Submersible Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2021-11-30

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Dive No.: **6KCDT 00009**

Submersible Conductivity-Temperature-Depth Profiler (CTD): Processed (DMO)-QCed

Data Policy: **JAMSTEC**

Observation Items: Depth/Pressure, Temperature, Salinity, Dissolved oxygen

Science Keywords:

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

Cruise Report

http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR17-04_leg1-2_all.pdf

For Using Data

Principal Investigator

Data Management Office

Use Constraints

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

Data Citation

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Instrument

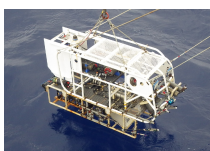
Instrument:

CTD/DO measurement system

equipped on the Deep Ocean Floor

Survey System "6K Camera DEEP

TOW"



Overview

Deep Ocean Floor Survey System *6K Camera DEEP TOW* is supported by R/V *YOKOSUKA*, *KAIMEI*, *MIRAI* and *SHINSEI-MARU* as the research vessel. *6K Camera DEEP TOW* is designed to operate to a maximum depth of 6000 meters.

Each parameter of conductivity, water temperature, pressure, and dissolved oxygen (DO) can be measured in 1Hz and is transmitted to the PC for control and collection onboard. This CTD/DO sensor is installed vertically in the center of *6K Camera DEEP TOW*. This CTD/DO sensor is used for monitoring the depth of *6K Camera DEEP TOW*. The CTD/DO sensor has not been calibrated after the installation on *6K Camera DEEP TOW*.

The internal clock of the CTD/DO sensor is synchronized with the clock of control PC before the dive. The clock of control PC is synchronized with the NTP (Network Time Protocol) server on the research vessel.

Specifications

Sensor	Measurement range	Accuracy	Model
Temperature	-5 ~ +35 °C	±0.001 °C	SBE 9
Conductivity	0 ~ 7 S/m	±0.0003 S/m	
Pressure	0 ~ 15000 psia	±0.015% of full scale range	
Dissolved oxygen	120% of surface saturation	2% of saturation	SBE 43

Submersible vehicle positioning data

The position of the submersible vehicle relative to that of the research vessel is determined by SSBL (Super Short Base Line) method of the acoustic underwater positioning which consists of the transponder mounted on the submersible vehicle and the receiver array mounted on the bottom of the research vessel.

In SSBL method, the position of the submersible vehicle relative to that of the research vessel is determined by the combination of the direction obtained from the phase difference measured from the angle of received acoustic waves at the receiver array and the distance calculated from the time of the acoustic wave propagation. The positioning accuracy relies on the line of sight distance and angle between the research vessel and the submersible vehicle, and rolling and pitching of the research vessel, etc. SSBL method is easy to operate because of no requirement to deploy seafloor baseline transponder(s) although the positioning accuracy of SSBL method is a little lower than that of LBL (Long Base Line) method.

Vertical sound velocity profile is required for the accurate distance to calculate from the time of the acoustic wave propagation. Therefore, the vertical temperature profiles of every sea regions were measured by using XBT etc.

The position of the submersible vehicle is determined by adding the relative distance between the research vessel and the submersible vehicle to GPS position of the research vessel. The conversion of the relative distance between the research vessel and the submersible vehicle to the coordinates of latitude and longitude uses the simplified formula with the area-dependent coefficients of every 30 degrees of latitude and longitude provided by Hydrographic and Oceanographic Department, Japan Coast Guard.

Published data

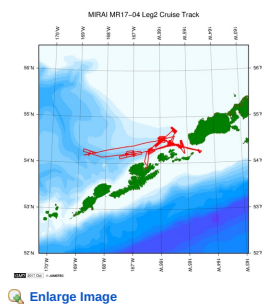
The data available on this web site are CTD/DO data, latitude, longitude and roll-pitch-heading angles obtained by *6K Camera DEEP TOW* every second.

The data of pressure, temperature, salinity and dissolved oxygen (DO) is visually checked to find noises, and the noise is replaced with missing values if it obviously seems abnormal. The positioning data of *6K Camera DEEP TOW* is manually eliminated the noise of the moving at higher speed than 1 knot, which is the maximum operation speed of *6K Camera DEEP TOW*, and is compensated by linear interpolation.

The number of significant digits of data is determined as the following list, by considering the accuracy of the sensors.

Data	Raw	On this web site
Pressure	0.001 [dbar]	0.1 [dbar]
Temperature	0.0001 [°C]	0.01 [°C]
Salinity	0.0001 [PSU]	0.01 [PSU]
Dissolved oxygen	0.00001 [mM/l]	0.1 [mM/l]

[Cruise Data](#) [Dive Data](#)



MR17-04 Leg2

Ship Name: MIRAI

Period: 2017-08-05 - 2017-08-21

Chief Scientist: Yoshihiro Fujiwara (JAMSTEC)

Proposal ▶ Collaborative experiment on Biogeochemical and Ecosystem Studies for sub-Arctic sea

Title:

Update History

2021-11-30

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[SHINKAI 6500](#)

[DEEP TOW](#)

[HYPER-DOLPHIN](#)

[URASHIMA](#)

[YOKOSUKA DEEP TOW](#)

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Submersible CTD Qced

Header part

No.	Column	Item	Format	Remarks
1	1	Header ID	a1	fixed as '#'
2	3 - 37	Submersible vehicle	a35	e.g. YOKOSUKA-DEEP-TOW / KM-ROV
3	39 - 48	Data ID	a10	CTD
4	50 - 70	Cruise ID	a21	e.g. MRYX-XX(_legx)
5	78 - 81	Dive number	a4	

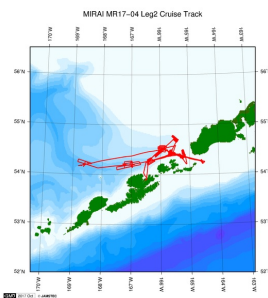
Data part

No.	Column	Item	Unit	Format	Remarks
1	1 - 8	Date	-	i8	YYYYMMDD (LST)
2	10 - 15	Time	-	i6	hhmmss (LST)
3	17 - 26	Latitude	degree	f10.5	No sign for the northern hemisphere. Negative for the southern hemisphere.
4	28 - 37	Longitude	degree	f10.5	No sign for the eastern hemisphere. Negative for the western hemisphere.
5	39 - 48	Pressure	dbar	f10.1	
6	50 - 59	Temperature	deg-C	f10.2	ITS-90
7	61 - 70	Salinity	PSU	f10.2	PSS-78
8	72 - 81	Dissolved oxygen	ml/l	f10.1	
9	83 - 92	Altitude	m	f10.1	
10	94 - 103	Vehicle roll	degree	f10.1	
11	105 - 114	Vehicle pitch	degree	f10.1	
12	116 - 125	Vehicle heading	degree	f10.1	

Missing value is presented by '-999'.

Related Information

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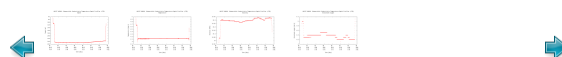
Observation Map



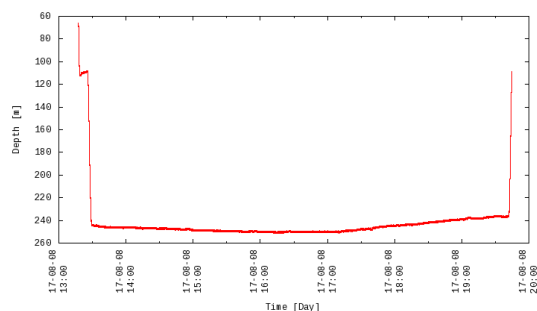
— ... Observation Line — ... Navigation ● ... Observation, Dive Point, Hole

Imagery reproduced from ...

Figures



6KCDT 00009: Submersible Conductivity-Temperature-Depth Profiler (CTD)
Depth



Data List

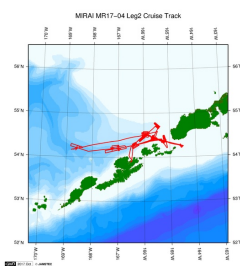
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File names

☐ 6KCDT_00009.txt

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