

URASHIMA URSM 00090 Submersible Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2021-09-04

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

Dive No.: [URSM 00090](#)

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

Data Policy: [JAMSTEC](#)

Observation Items: Depth/Pressure, Temperature, Salinity

Science Keywords:

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

Cruise Report

http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/YK09-08_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:

CTD measurement system equipped on the autonomous underwater vehicle "URASHIMA"



Overview

The CTD system mounted on the deep-sea cruising vehicle "URASHIMA" is consisted of SBE-49 FastCAT CTD Sensor of Sea-Bird Electronics, Inc. The primary detection element is installed vertically on the front center part of the vehicle. Its withstand depth is 7000m and its maximum depth of use is 3500m. Each parameter of conductivity, water temperature, and pressure can be measured in 1Hz and is transmitted to the CTD processing part. In the processing part, ASCII conversion is conducted.

Specifications

SBE-49 FastCAT, Sea-Bird Electronics, Inc.

Sensor	Measurement range	Accuracy	Model
Temperature	-5 to +35 deg-C	0.002 deg-C	SBE 49
Conductivity	0 to 9 S/m	0.0003 S/m	
Pressure	0 to 10000 psia	0.1% of full scale range	

Data collection and situations

The data collection in each dive starts from the moment of operation confirmation on deck and ends immediately after it comes up to the sea surface.

The primary detecting element is installed on about the same height of the pressure gauge.

The seawater intake mouth projects from a crust in a plastic tube to lower influence of the disorder of the seawater with the vehicle.

The internal clock of CTD is synchronized, in each dive, with "URASHIMA" NTP server.

Data available here

The data available on this web site is 1-sec mean CTD data integrated with "URASHIMA" (hereafter, the submersible vehicle) positioning data in latitude and longitude.

The SSBL (Super Short Base Line) method is used to measure the submersible vehicle's position, which requires transponder mounted on the submersible vehicle and an array of transducers equipped on the bottom of the mother ship. The position is measured by both phase lag measured from angles of received sound waves and distance calculated from travelling period of them. Because the baseline length (i.e., a distance between transducers and the transponder) is short, a horizontal error is about 2.5% of slant range (i.e., a distance between the submersible vehicle and the mother ship). The SSBL method has a characteristic that it is a little less accurate but easier to operate than the LBL (Long Base Line) method because it doesn't need to deploy sea-bed mounted transponder(s). Vertical profile of sound velocity is needed to calculate accurate distance from the travelling period. Therefore, the temperature measurement using XBT etc. of each sea area is executed.

The submersible vehicle positioning data was calculated by adding the relative distance to the mother ship's position. The simplified equation with the area-dependent coefficients every 30 degrees in latitude and longitude was applied to the distance (XY) to Lon/Lat conversion, which provided by Japan Coast Guard. Here, the original time interval of position data is more than 10 seconds. The noises remaining in the position data are manually eliminated and linearly interpolated when the speed calculated from adjacent two position data is greater than 4 knot which is the maximum operation speed of the submersible vehicle. Moreover, noises remained in the depth, temperature, and salinity data are visually checked and replaced to missing values only when the data seemed to be obviously abnormal.

The CTD system was installed as one of the navigation equipment to monitor the ambient environmental conditions of the submersible vehicle, of which sensor calibration is normally executed about every two years.

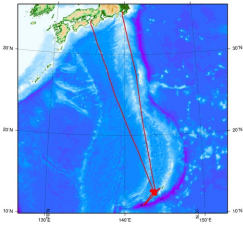
After considering the accuracy of the sensors, the significant digit of data was changed as in the following list.

Data	Raw	On this web site
Pressure	0.001 [dbar]	0.1 [dbar]
Temperature	0.0001 [deg-C]	0.01 [deg-C]
Salinity	0.0001 [PSU]	0.01 [PSU]

Related Information

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

YOKOSUKA YK09-08 Cruise Track



Enlarge Image

YK09-08
Ship Name: YOKOSUKA
Period: 2009-06-29 - 2009-07-17
Chief Scientist: Kyoko Okino (The University of Tokyo)
Proposal ▶ High-resolution, 3-dimensional and multi-sensor mapping of three hydrothermal sites in the southern Mariana Trough
Title:

Update History		
2021-09-04	An observation data was registerd.	
2018-09-30	An observation data was registerd.	

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SHINSEI MARU
HAKUHO MARU

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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

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Submersible CTD Qced (URSM)

Header part

No.	Column	Item	Format	Remarks
1	1	Header ID	a1	fixed as '#'
2	3 - 37	Submersible vehicle	a35	URASHIMA
3	39 - 48	Data ID	a10	CTD
4	50 - 70	Cruise ID	a21	YKYY-XX(_legx)
5	78 - 81	Dive number	a4	

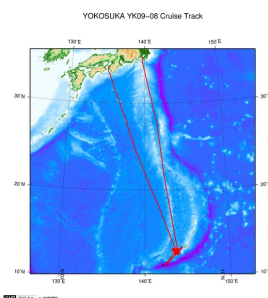
Data part

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	Roll	degree	f10.1	
11	105 - 114	Pitch	degree	f10.1	
12	116 - 125	Vehicle heading	degree	f10.1	

Missing value is presented by '-999'.

Related Information

☒ Cruise Data ☐ Dive Data



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YK09-08

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Chief Scientist: Kyoko Okino (The University of Tokyo)

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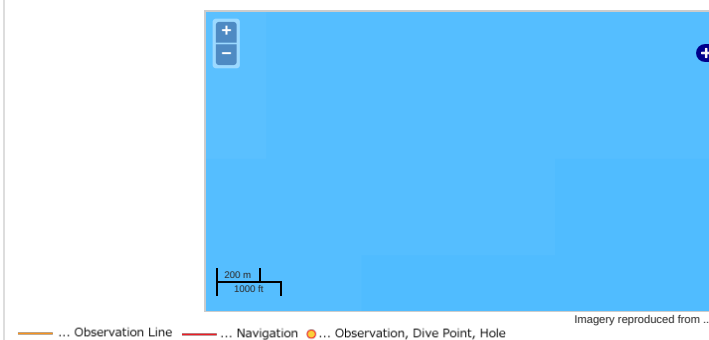
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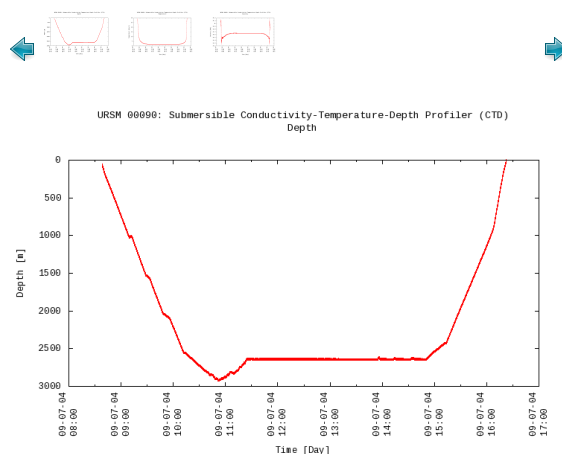
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Observation Map



Figures



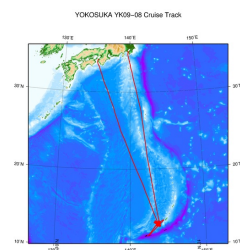
Data List

File names

☐ URSM_00090.txt

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



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