

YOKOSUKA DEEP TOW YKDT 00158 Submersible Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2021-07-31

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Dive No.: **YKDT 00158**

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

Data Policy: [JAMSTEC](#)

Observation Items: Pressure, 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/YK13-11_all.pdf

For Using Data

Principal Investigator

JAMSTEC QUELLE 2013/NIWA

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 Deep Ocean Floor Survey

System "YOKOSUKA DEEP TOW"



Overview

Deep Ocean Floor Survey System *YOKOSUKA DEEP TOW* is supported by *R/V YOKOSUKA* as the mother ship. *YOKOSUKA DEEP TOW* is designed to operate to a maximum depth of 6000 meters.

YOKOSUKA DEEP TOW measures pressure, water temperature and conductivity at 1Hz by an SBE 49 FastCAT CTD sensor manufactured by Sea-Bird Electronics, Inc. SBE 49 FastCAT CTD sensor facing horizontal leftward is installed on the left side of *YOKOSUKA DEEP TOW*, and its seawater intake is positioned approximately 1.2m above the bottom of *YOKOSUKA DEEP TOW*. This CTD sensor is used for monitoring the depth of *YOKOSUKA DEEP TOW*. The CTD sensor has not been calibrated after the installation on *YOKOSUKA DEEP TOW*.

The internal clock of the CTD 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 mother ship.

Specifications

Model	Sensor	Measurement range	Accuracy	Stability per year	Resolution
SBE 49 FastCAT	Temperature	-5 ~ +35 °C	±0.002 °C	±0.0024 °C	0.0001 °C
	Conductivity	0 ~ 9 S/m	±0.0003 S/m	±0.0036 S/m	0.00005 S/m
	Pressure	0 ~ 7000 m	±7 m	±3.5 m	0.14 m

Submersible vehicle positioning data

The position of the submersible vehicle relative to that of the mother ship 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 mother ship.

In SSBL method, the position of the submersible vehicle relative to that of the mother ship 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 mother ship and the submersible vehicle, and rolling and pitching of the mother ship, 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 mother ship and the submersible vehicle to GPS position of the mother ship. The conversion of the relative distance between the mother ship 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 data, latitude, longitude and roll-pitch-heading angles obtained by *YOKOSUKA DEEP TOW* every second.

The data of pressure, temperature, and salinity is visually checked to find noises, and the noise is replaced with missing values if it obviously seems abnormal.

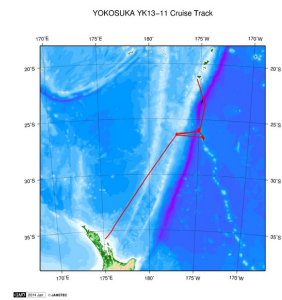
The positioning data of *YOKOSUKA DEEP TOW* is manually eliminated the noise of the moving at higher speed than 1 knot, which is the maximum operation speed of *YOKOSUKA DEEP TOW*, and is compensated by linear interpolation.

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]

Related Information

☒ Cruise Data ☐ Dive Data



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YK13-11

Ship Name: YOKOSUKA

Period: 2013-10-23 - 2013-11-01

Chief Scientist: Shinji Tsuchida (JAMSTEC)

Project Name: ['QUELLE2013']

Proposal ▶ Comparative studies of biology, geology, and geochemistry on subducting seamounts in the Louisville Seamount and active volcanoes in the Kermadec Arc.

Update History

2021-07-31	An observation data was registerd.
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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	

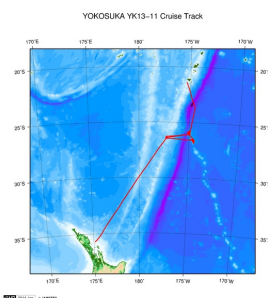
Data part

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

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



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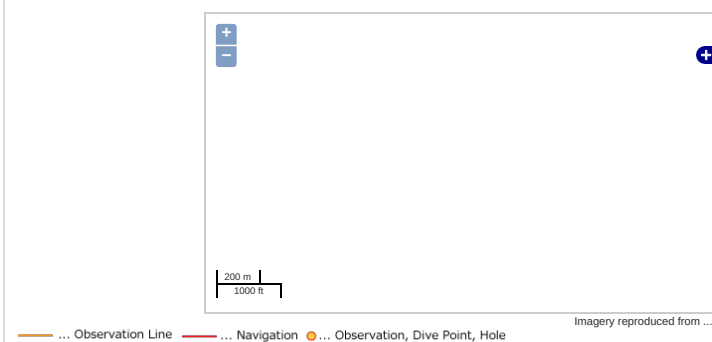
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Observation Items: Pressure, Temperature, Salinity

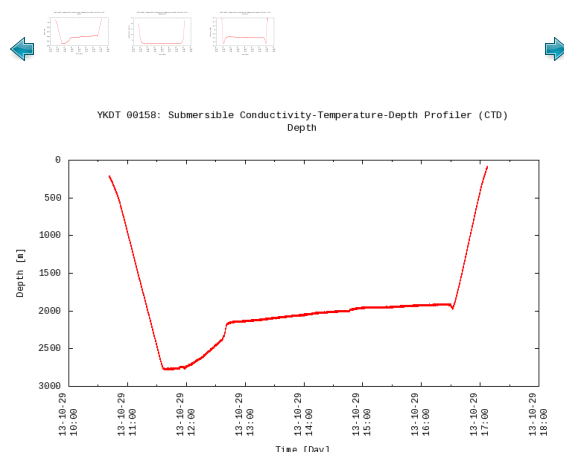
Science Keywords:

OCEANS > OCEAN > WATER
TEMPERATURE
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Observation Map



Figures



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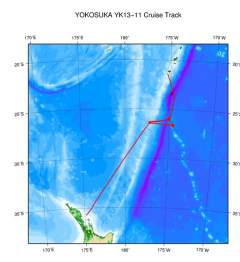
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File names

☐ YKDT_00158.txt

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