NATSUSHIMA NT14-11 Leg1 Expendable Bathythermograph (XBT)

Last Modified: 2019-09-18

ReadMe | Observation Data | Data Format

Cruise ID: NT14-11 Leg1
Expendable Bathythermograph (XBT): Processed (DMO)-QCed
Data Policy: JAMSTEC
Observation Items: Depth, Temperature
Science Keywords:
OCEANS > OCEAN TEMPERATURE > WATER TEMPERATURE

Cruise Report
http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/NT14-11_leg1_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:
XBT

Overview

Using XBT (eXpendable Bathy Thermograph) system, the vertical distribution of water temperature is observed during free fall of its probe part in the seawater. On board, the analogue signal is converted to the temperature by data processor and the data is stored in PC. Depth data is calculated from the elapsed time.

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 : 50 msec

(3) XBT probe specifications

Probe Type	TSK T-5	TSK T-6	TSK T-7	TSK T-10
Temperature range [deg-C]	-2 to 35			
Temperature accuracy [deg-C]	+/- 0.2			
Temperature resolution [deg-C]	0.01			
Measurment depth [m]	1830	460	760	300
Depth accuracy [m]	5 or +/- 2% of depth; whichever is larger			
Maximum elapsed time [sec]	291	73	123	48
Rated ship speed [knot]	6	15	15	10

Since XBT 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.

Probe Type	TSK T-5	TSK T-6	TSK T-7	TSK T-10
Coefficient-a	6.828	6.691	6.691	6.301
Coefficient-b	-1.82	-2.25	-2.25	-2.16

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

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

Cast name	Probe Serial No.	Probe Type	Launcher	Converter
RT 01312014062		T-5	Hand	MK-30N

Cast name	Probe Serial No.	Probe Type	Launcher	Converter
BT-013120140623	-	T-5	Hand	MK-30N
BT-013220140624	-	T-7	Hand	MK-30N
BT-013320140624	-	T-7	Hand	MK-30N
BT-013420140625	-	T-7	Hand	MK-30N
BT-013520140625	-	T-7	Hand	MK-30N
BT-013620140625	-	T-7	Hand	MK-30N
BT-013720140626	-	T-7	Hand	MK-30N
BT-013820140626	-	T-7	Hand	MK-30N
BT-013920140626	-	T-7	Hand	MK-30N
BT-014020140626	-	T-7	Hand	MK-30N
BT-014120140627	-	T-7	Hand	MK-30N
BT-014220140627	-	T-7	Hand	MK-30N
BT-014320140628	-	T-10	Hand	MK-30N
BT-014420140628	-	T-10	Hand	MK-30N
BT-014520140628	-	T-6	Hand	MK-30N
BT-014620140628	-	T-6	Hand	MK-30N
BT-014720140628	-	T-10	Hand	MK-30N
BT-014820140628	-	T-10	Hand	MK-30N
BT-014920140629	-	T-10	Hand	MK-30N
BT-015020140630	-	T-10	Hand	MK-30N
BT-015120140630	-	T-6	Hand	MK-30N
BT-015220140701	-	T-10	Hand	MK-30N
BT-015320140701	-	T-10	Hand	MK-30N
BT-015420140701	-	T-10	Hand	MK-30N
BT-015520140701	-	T-10	Hand	MK-30N
BT-015620140701	-	T-5	Hand	MK-30N
BT-015720140702	-	T-5	Hand	MK-30N
BT-015820140703	-	T-10	Hand	MK-30N
BT-015920140703	-	T-10	Hand	MK-30N
BT-016020140703	-	T-5	Hand	MK-30N
BT-016120140704	-	T-5	Hand	MK-30N
BT-016220140704	-	T-7	Hand	MK-30N
BT-016320140705	-	T-6	Hand	MK-30N
BT-016420140705	-	T-6	Hand	MK-30N
BT-016520140705	-	T-6	Hand	MK-30N
BT-016620140706	-	T-6	Hand	MK-30N
BT-016720140706	-	T-6	Hand	MK-30N
BT-016820140706	-	T-7	Hand	MK-30N
BT-016920140707	-	T-6	Hand	MK-30N
BT-017020140707	-	T-7	Hand	MK-30N
BT-017120140707	-	T-7	Hand	MK-30N
BT-017220140707	-	T-5	Hand	MK-30N
BT-017320140707	-	T-5	Hand	MK-30N
BT-017420140709	-	T-6	Hand	MK-130
BT-017520140709	-	T-6	Hand	MK-30N

Data processing

(1) For sensor's stablility, values of less than 1 m for temperature 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 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.

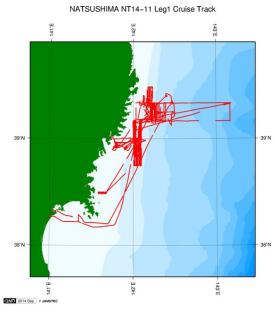
Note

(1) It is reported that T-5 probes produced by Tsurumi Seiki Co. Ltd. (TSK T-5 probes) have a fall-rate bias. Please see the following about publication policy of XBT fall-rate bias correction data.

Publication policy of XBT fall-rate bias correction data

Related Information

Cruise Data Dive Data



NT14-11 Leg1
Ship Name: NATSUSHIMA
Period: 2014-06-23 - 2014-07-09
Chief Scientist: Yasuo Furushima (JAMSTEC)
Project Name: [Tohoku Ecosystem-Associated Marine Sciences (TEAMS)]
Proposal Title: Elucidation of the marine ecosystem fluctuation mechanism in the Sanriku offshore area

Enlarge Image

Update History

2019-09-18	An observation data was registerd.
2017-06-23	An observation data was registerd.
2016-07-29	An observation data was registerd.

NATSUSHIMA NT14-11 Leg1 Expendable Bathythermograph (XBT)

Last Modified: 2019-09-18

Cruise ID: NT14-11 Leg1
Expendable Bathythermograph (XBT): Processed (DMO)-QCed
Data Policy: JAMSTEC

XBT DMO

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	XBT
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	45 - 55	Flag	-	i11	1 - 7 : space 8 : flag of depth 9 : flag of temperature 10 - 11 : space * reference : 'Definition of Quality Control Flags'
4	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

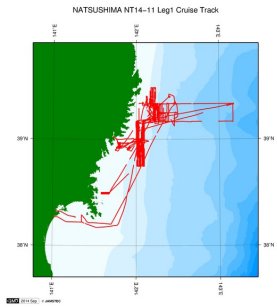
* Range and gradient check is performed to XBT data.

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

Cruise Data Dive Data



Enlarge Image

NT14-11 Leg1
Ship Name: NATSUSHIMA
Period: 2014-06-23 - 2014-07-09
Chief Scientist: Yasuo Furushima (JAMSTEC)
Project Name: [Tohoku Ecosystem-Associated Marine Sciences (TEAMS)]
Proposal Title: Elucidation of the marine ecosystem fluctuation mechanism in the Sanriku offshore area

Update History

2019-09-18	An observation data was registerd.
2017-06-23	An observation data was registerd.
2016-07-29	An observation data was registerd.

NATSUSHIMA NT14-11 Leg1 Expendable Bathythermograph (XBT)

Last Modified: 2019-09-18

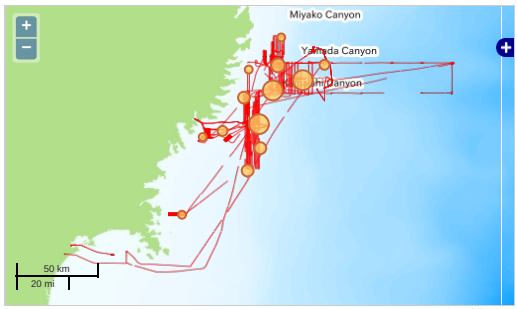
ReadMe | Observation Data | Data Format

Cruise ID: NT14-11 Leg1
Expendable Bathythermograph (XBT): Processed (DMO)-QCed
Data Policy: JAMSTEC
Observation Items: Depth, Temperature
Science Keywords:

OCEANS	> OCEAN TEMPERATURE	> WATER TEMPERATURE

Observation Map

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

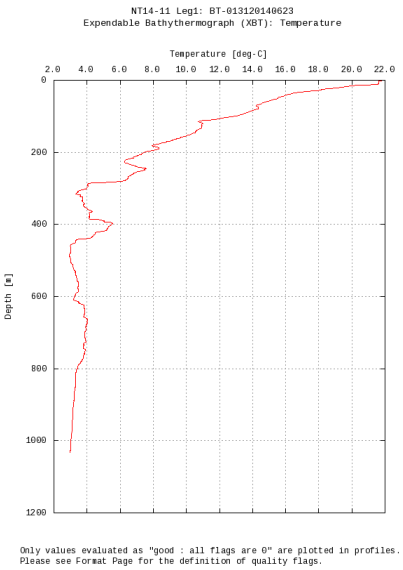


Imagery reproduced from ...

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

Figures

BT-013120140623



Data List

Add to Basket

File names
BT-013120140623.dat
BT-013220140624.dat
BT-013320140624.dat
BT-013420140625.dat
BT-013520140625.dat
BT-013620140625.dat
BT-013720140626.dat
BT-013820140626.dat
BT-013920140626.dat
BT-014020140626.dat
BT-014120140627.dat
BT-014220140627.dat
BT-014320140628.dat
BT-014420140628.dat
BT-014520140628.dat
BT-014620140628.dat
BT-014720140628.dat
BT-014820140628.dat
BT-014920140629.dat

BT-015020140630.dat

File names

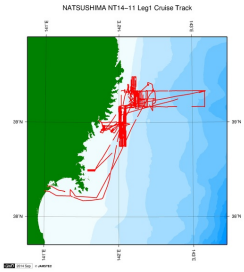
BT-015120140630.dat
BT-015220140701.dat
BT-015320140701.dat
BT-015420140701.dat
BT-015520140701.dat
BT-015620140701.dat
BT-015720140702.dat
BT-015820140703.dat
BT-015920140703.dat
BT-016020140703.dat
BT-016120140704.dat
BT-016220140704.dat
BT-016320140705.dat
BT-016420140705.dat
BT-016520140705.dat
BT-016620140706.dat
BT-016720140706.dat
BT-016820140706.dat
BT-016920140707.dat
BT-017020140707.dat
BT-017120140707.dat
BT-017220140707.dat
BT-017320140707.dat
BT-017420140709.dat
BT-017520140709.dat
ex_read2.f (Sample Program)

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

Observation	Time and Date	Lat. [°]	Lon. [°]
BT-013120140623	2014-06-23 21:06	39.3320	142.4535
BT-013220140624	2014-06-24 02:31	39.3290	142.1953
BT-013320140624	2014-06-24 21:40	38.9311	141.7773
BT-013420140625	2014-06-25 09:00	39.0028	142.0894
BT-013520140625	2014-06-25 10:01	38.8693	142.0970
BT-013620140625	2014-06-25 19:17	38.8125	142.0625
BT-013720140626	2014-06-26 08:24	39.0015	142.0548
BT-013820140626	2014-06-26 09:22	38.8736	142.0558
BT-013920140626	2014-06-26 19:03	38.7453	142.0269
BT-014020140626	2014-06-26 23:22	38.5000	141.6626
BT-014120140627	2014-06-27 11:56	39.1895	142.1665
BT-014220140627	2014-06-27 19:17	39.3166	142.2331
BT-014320140628	2014-06-28 00:54	39.3400	142.1333
BT-014420140628	2014-06-28 10:11	38.9918	142.0209
BT-014520140628	2014-06-28 12:35	38.7471	142.0230
BT-014620140628	2014-06-28 15:09	39.1233	142.0975
BT-014720140628	2014-06-28 19:09	39.1541	142.0836
BT-014820140628	2014-06-28 21:43	38.9651	141.8876
BT-014920140629	2014-06-29 22:33	38.9596	141.7833
BT-015020140630	2014-06-30 07:47	38.9933	142.0073
BT-015120140630	2014-06-30 09:56	38.7596	142.0143
BT-015220140701	2014-07-01 09:20	39.0045	142.0003
BT-015320140701	2014-07-01 11:47	39.1578	142.0838
BT-015420140701	2014-07-01 15:07	39.0710	142.0745
BT-015520140701	2014-07-01 18:49	39.1586	142.0611
BT-015620140701	2014-07-01 22:02	39.3991	142.4023
BT-015720140702	2014-07-02 22:52	39.2465	142.3325
BT-015820140703	2014-07-03 09:55	39.0086	142.0051
BT-015920140703	2014-07-03 11:02	39.1500	142.0065
BT-016020140703	2014-07-03 21:33	39.1905	142.2256
BT-016120140704	2014-07-04 08:47	39.1643	142.2053
BT-016220140704	2014-07-04 12:07	39.2560	142.2243
BT-016320140705	2014-07-05 06:48	39.1606	142.0096
BT-016420140705	2014-07-05 08:32	39.0015	142.0143
BT-016520140705	2014-07-05 12:52	39.0715	142.0235
BT-016620140706	2014-07-06 08:15	39.1870	142.1543
BT-016720140706	2014-07-06 15:06	39.3801	142.2131
BT-016820140706	2014-07-06 19:17	39.2366	142.2523
BT-016920140707	2014-07-07 08:12	39.4838	142.2131
BT-017020140707	2014-07-07 11:09	39.1753	142.2708
BT-017120140707	2014-07-07 15:06	39.3173	142.2965
BT-017220140707	2014-07-07 21:02	39.3393	142.3733
BT-017320140707	2014-07-07 22:22	39.1625	142.3886
BT-017420140709	2014-07-09 08:37	39.3055	142.0328
BT-017520140709	2014-07-09 10:43	39.0290	142.0328

Related Information

Cruise Data Dive Data



Enlarge Image

NT14-11 Leg1
Ship Name: NATSUSHIMA
Period: 2014-06-23 - 2014-07-09
Chief Scientist: Yasuo Furushima (JAMSTEC)
Project Name: [Tohoku Ecosystem-Associated Marine Sciences (TEAMS)]
Proposal Title: Elucidation of the marine ecosystem fluctuation mechanism in the Sanriku offshore area

Update History

2019-09-18	An observation data was registerd.
2017-06-23	An observation data was registerd.
2016-07-29	An observation data was registerd.

JAMSTEC
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

Go to a Dive Information
Dive ID: ---- Go

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