

## CTD and XCTD data

- File Name

1. CTD data (xxnnnn.1.ctd)
2. XCTD data (xxnnnn.xct)

where, xx: Hydrographic Code [listed in Table1]  
nnnn: Station number (4 digits)

CTD and XCTD data files consist of ASCII records of variable length. Each element is separated by the character ',' (comma, ASCII code 2Ch), and the column of the element that was not observed is filled with '-9'.

### 1 CTD data

CTD data files consist of header part (first 9 records) and data part. The following elements are separated by comma in each record. An example of CTD data file is shown in page 4.

#### (a) Header part

##### Record information

Record No.	Element
Rec-1	Ship name (listed in Table 1), cruise number and format code. Cruise number is identified with the year and the month. Format code is 'R2.1'.
Rec-2	Station number and cast number. Station number is given by the hydrographic code (listed in Table 1) suffixed with four digits.
Rec-3	The number of data records.
Rec-4	Date (year/month/day) and time at the bottom of the hydrographic cast in the Japan Standard Time (JST), which is nine hours ahead of the Coordinated Universal Time (UTC).
Rec-5	Latitude and longitude at the bottom of the hydrographic cast with degrees, '-', minutes, '.', hundredth part of minutes.
Rec-6	Water depth at the bottom of the hydrographic cast and sounding flag (listed in Table 2).
Rec-7	Corresponding station number of the subsurface current data and sub-station number.
Rec-8	Headers for data columns.
Rec-9	Units for data columns.

#### (b) Data part

Data are described at every  $1 \times 10^4$  Pa. The meaning of attached flags is shown in Table 3.

Record information

Record No.	Elements
below Rec-10	Pressure, Temperature, Salinity, Dissolved oxygen with each flag (listed in Table 3) and the number of data used for averaging.

## 2 XCTD data

XCTD data files consist of header part (first 14 records) and data part. The following elements are separated by comma in each record. An example of XCTD data file is shown in page 5.

(a) Header part

Record information

Record No.	Element
Rec-1	Ship name (listed in Table 1), cruise number and format code. Cruise number is identified with the year and the month. Format code is 'X1.1'.
Rec-2	Station number. Station number is given by the hydrographic code (listed in Table 1) suffixed with four-digits consecutive numbers.
Rec-3	The number of data records.
Rec-4	Date (year/month/day) and time at the beginning of the expendable CTD observation in the Japan Standard Time (JST), which is nine hours ahead of the coordinated Universal Time (UTC).
Rec-5	Latitude and longitude at the beginning of the expendable CTD observation with degrees, '-', minutes, '.', hundredth part of minutes.
Rec-6	Water depth at the beginning of the expendable CTD observation and sounding flag (listed in Table 2).
Rec-7	Corresponding station number of the subsurface current data and sub-station number.
Rec-8	Sea surface temperature and salinity.
Rec-9	Probe type and instrument serial number.
Rec-10	Coefficients of the depth-time equation.
Rec-11	Correction coefficient of water temperature sensor.
Rec-12	Correction coefficient of electric conductivity sensor.
Rec-13, Rec-14	Headers for data columns.

(b) Data part

Data are described at every 1 meter. The meaning of attached flags is shown in Table 3.

Record information

Record No.	Elements
below Rec-15	Depth, Temperature, flag of temperature, Salinity and flag of salinity (listed in Table 3).

Table 1: Ship codes.

Ship Name	Hydrographic	Subsurface current	BT
Kofu Maru	KH/KO	AH/AO	TH/TO
Ryofu Maru	RF	AF	TF
Keifu Maru I	KE	AE	TE
Keifu Maru II	KS	AS	TS
Shumpu Maru	SH	AH	TH
Chofu Maru	NC	AC	TC
Seifu Maru	SM	AM	TM

Table 2: Sounding flag of water depth in CTD, XCTD and BT data.

Flag No.	Definition
1	Sounding by echo-sounder (not corrected)
2	Sounding by echo-sounder (corrected)
5	Water depth measured by CTD and altimeter
6	Water depth measured by BT or XCTD submersible
9	No sounding

Table 3: Data flag in CTD, XCTD and BT data.

Flag No.	Definition
2	Acceptable measurement.
3	Questionable measurement.
4	Bad measurement.
6	Interpolated over $> 2 \times 10^4$ Pa interval.
7	Despiked.
9	Not sampled.

# Data sample

## 1.CTD data

Ship, R/V Ryofu Maru, Cruise number, 01-10, Format, R2.1					
Station, RF-1409,		CastNo , 1			
No.of Records, 1815					
Date ,	2001/10/11,	Time(JST),		1626	
Lat. ,	34-57.39 N,	Lon. ,		140-14.33 E	
Depth ,	1969 Meters,	Depth Flg, 1			
ACMstn.,	AF-308,	Substn. , PT-1			
CTDPRS,F,	CTDTMP,F,	CTDSAL,F,	CTDOXY,F,	NUMBER	
DBAR, ,	ITS-90, ,	PSS-78, ,	UMOL/L, ,	OBS.	
1.0,2,	24.9141,2,	34.0194,2,	-9.0,9,	98	
2.0,2,	24.9131,2,	34.0230,2,	-9.0,9,	27	
3.0,2,	24.9123,2,	34.0234,2,	-9.0,9,	70	
4.0,2,	24.9159,2,	34.0209,2,	-9.0,9,	59	
5.0,2,	24.9141,2,	34.0238,2,	-9.0,9,	69	
6.0,2,	24.9159,2,	34.0218,2,	-9.0,9,	36	
7.0,2,	24.9174,2,	34.0218,2,	-9.0,9,	56	
8.0,2,	24.9178,2,	34.0228,2,	-9.0,9,	63	
9.0,2,	24.9171,2,	34.0245,2,	-9.0,9,	1362	
10.0,2,	24.9142,2,	34.0236,2,	-9.0,9,	37	
11.0,2,	24.9067,2,	34.0262,2,	-9.0,9,	38	
12.0,2,	24.9019,2,	34.0244,2,	-9.0,9,	50	
13.0,2,	24.9011,2,	34.0240,2,	-9.0,9,	22	
14.0,2,	24.8973,2,	34.0252,2,	-9.0,9,	23	
15.0,2,	24.8937,2,	34.0279,2,	-9.0,9,	33	
16.0,2,	24.8878,2,	34.0302,2,	-9.0,9,	26	
17.0,2,	24.8797,2,	34.0303,2,	-9.0,9,	32	
18.0,2,	24.8701,2,	34.0291,2,	-9.0,9,	34	
19.0,2,	24.8494,2,	34.0267,2,	-9.0,9,	28	
20.0,2,	24.8269,2,	34.0256,2,	-9.0,9,	34	
21.0,2,	24.8086,2,	34.0207,2,	-9.0,9,	25	
:					

## 2.XCTD data

```
Ship, R/V Keifu Maru, Cruise number, 02-06, Format, X1.1
Station, KS-0580
No.of Records, 1001
Date , 2002/07/30, Time(JST), 0951
Lat. , 33-40.44 N, Lon. , 136-59.81 E
Depth , 2010 Meters, Depth Flg, 1
ACMstn., AS-389, Substn. ,
SurfT , 27.4 DEG-C, SurfS , 34.316
Probe , TSK XCTD, S/N , 01116856, (BathyCode: 741)
DCoef. , a= 0.0000000E+00, b= 3.4254320E+00, c=-4.7026040E-04, d=0.0000000E+00
TCoef. , a=-6.1774000E-02, b= 9.9388100E-01, c= 0.0000000E+00, d=0.0000000E+00
CCoef. , a=-1.5313300E-01, b= 1.0258900E+00, c= 0.0000000E+00, d=0.0000000E+00
DEPTH, TEMP,F, SALNTY,F
METERS, DEG-C, , PSS-78,
0, 28.05 ,3, 24.034,4
1, 27.37 ,3, 32.457,4
2, 27.27 ,3, 33.896,4
3, 27.18 ,3, 34.199,4
4, 27.20 ,2, 34.255,2
5, 27.22 ,2, 34.291,2
6, 27.27 ,2, 34.331,2
7, 27.28 ,2, 34.357,2
8, 27.29 ,2, 34.383,2
9, 27.30 ,2, 34.407,2
10, 27.30 ,2, 34.411,2
11, 27.26 ,2, 34.400,2
12, 27.10 ,2, 34.407,2
13, 27.00 ,2, 34.421,2
14, 26.93 ,2, 34.425,2
15, 26.91 ,2, 34.431,2
16, 26.91 ,2, 34.432,2
17, 26.90 ,2, 34.438,2
18, 26.90 ,2, 34.443,2
19, 26.89 ,2, 34.447,2
20, 26.89 ,2, 34.448,2
21, 26.87 ,2, 34.442,2
:
```