



## 2. Data Part

One record includes only one station observation in principle. However, at least 3 records are included for the event of ROS/CTD. The definitions of records are as follows,

- STNNBR: Station number
- CSTNO: Cast number only for CTD, ROS, BOT. '-9' is filled for the rest
- CAST TYPE: Cast type(listed in Table2)
- DATE: Date of observation(Japan Standard Time)
- JST TIME: Time of observation(Japan Standard Time)
- EVENT CODE: Type of event (listed in Table3)  
(For event code corresponding to each cast code, please refer to Table4.)
- POSITION (LATITUDE, LONGITUDE): Position of ship
- NAV: Navigation system(listed in Table5)
- DEPTH: Water depth to the bottom
- F: Flag of water depth(listed in Table6)
- SUBSTN: Subsation number Belows are documeted only for BTM/MRE cast type in CTD/ROS/BOT event
  - HT ABOVE BOTTOM: Distance from the sea bottom
  - WIRE OUT: Length of wire-out
  - MAX PRESS: Maximum pressure in each cast
  - NO. OF BOTTLES: Number of bottle for sampling
  - PARAMETER: Parameter numbers correspond to measured or sampled elements (listed in Table7)
- COMMENT: Remarks

10	20	30	40	50	60
RF-3532 , 1, CTD, 2010/02/01, 1338, BGN, 31-00.06 N, 135-30.05 E					
70	80	90	100	110	120
, GPS, 2014, 1, PT-1, 16, 2218, 2225, 36, ,					
130	140	150	160	170	180
, 2-3/ 5-6/ 9/11-12, Cd&Hg Hydroc					
190	200				
arbons					

Table 1: Ship codes.

Ship Name	Hydrographic	BT	Subsurface current
Ryofu Maru	RF	TF	AF
Keifu Maru	KS	TS	AS

Table 2: Cast type

Mnemonic	Definition
ACM	Acoustic Doppler Current Meter/Profiler
FLT	Float deployment
BOT	Bottle cast only. No CTD.
MOR	Mooring
BUC	Surface bucket sample.
CTD	CTD only, no water samples.
ROS	CTD with multibottle water sampler
CUR	Current measuring with lowered current meters from ship.
SUR	Surface Temperature/Salinity observation
DBT	Digital bathythermograph
TAR	Surface tar ball sampling
DRF	Drifter deployment
XBT	Expendable bathythermograph
XCT	Expendable Conductivity, Temperature and Depth Profiling System

Table 3: Event type

Mnemonic	definition
BGN	Beginning of cast/sampling/measuring/towing.
BTM	Bottom time for cast.
DEP	Time mooring, float, drifter or X-BT was deployed.
END	Time cast/sampling/measuring/towing completed.
MES	Time average completed.
MRE	Time messenger was released on bottle cast.
REC	Time mooring, float, drifter or other device was recovered.
SMP	Time surface water was sampled using bucket.

Table 4: Event type corresponding to cast type

Cast Type	Event Type	Cast Type	Event Type
ACM	MES	FLT	DEP or REC
BOT	BGN, MRE, END	MOR	DEP or REC
BUC	SMP	NET	BTM
CTD	BGN, BTM, END	ROS	BGN, BTM, END
CUR	BGN, END	SUR	SMP
DBT	BGN	TAR	BGN, END
DRF	DEP or REC	XBT	DEP
		XCT	DEP

Table 5: Navigation system

Mnemonic	Navigation system
DR	Dead reckoning
GPS	Global Positioning system
LC	Loran C

Table 6: 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 7: Parameter Number/Mnemonic/Field Type

Parameter Number	Parameter	Mnemonic	Units Scientific	Mnemonic	Field Type	Flag
	Station number	STNNBR			A8	
	Cast number	CSTNO			I2	
	Sample number	POS			I3	
	Bottle serial number	BTLSER			A9	I1
	Sampling time(JST)	TIME	JST	JST	I4	
	CTD pressure	CTDPRS	10 <sup>4</sup> Pa	DBAR	F9.1	
	CTD depth	CTDDEP	meters	METERS	I6	
	CTD temperature	CTDTMP	deg C	ITS-90	F9.4	
	CTD salinity	CTDSAL	PSS-78	PSS-78	F9.4	
	Potential temperature	THETA	deg C	ITS-90	F9.4	
	Potential density	SIGTHT	kg/m <sup>3</sup>	KG/M3	F9.4	
	Deep ocean standards thermometer temperature	DOSTTMP	deg C	ITS-90	F9.4	I1
0	CTD oxygen	CTDOXY	$\mu\text{mol/kg}$	UMOL/KG	F9.1	I1
1	Salinity	SALNTY	PSS-78	PSS-78	F9.4	I1
2	Dissolved oxygen	OXYGEN	$\mu\text{mol/kg}$	UMOL/KG	F9.2	I1
3	Phosphate	PHSPHT	$\mu\text{mol/kg}$	UMOL/KG	F9.3	I1
4	Nitrate	NITRAT	$\mu\text{mol/kg}$	UMOL/KG	F9.2	I1
5	Nitrite+Nitrate	NO2+NO3	$\mu\text{mol/kg}$	UMOL/KG	F9.2	I1
6	Nitrite	NITRIT	$\mu\text{mol/kg}$	UMOL/KG	F9.2	I1
9	Silicate	SILCAT	$\mu\text{mol/kg}$	UMOL/KG	F9.2	I1
10	pH(25 )	PH			F9.4	I1
	pH temperature	PH_TMP	deg C	DEG_C	F7.2	
	pH scale	PH_SCL	total scale"TS" or seawater scale"SWS"		A6(I6)	
11	Chlorophyll a	CHLORA	$\mu\text{g/l}$	UG/L	F9.2	I1
12	Phaeophytin	PPHYTN	$\mu\text{g/l}$	UG/L	F9.2	I1
16	Dissolved inorganic carbon	TCARBN	$\mu\text{mol/kg}$	UMOL/KG	F9.1	I1
17	Total alkalinity A <sub>T</sub>	ALKALI	$\mu\text{mol/kg}$	UMOL/KG	F9.1	I1
18	Dissolved organic carbon	DOC	$\mu\text{mol/kg}$	UMOL/KG	F9.2	I1
19	Dissolved organic nitrogen	DON	$\mu\text{mol/kg}$	UMOL/KG	F9.2	I1
20	Methane	CH4	nmol/kg	NMOL/KG	F9.2	I1
21	Nitrous oxide	N2O	nmol/kg	NMOL/KG	F9.2	I1
22	Freon-11	CFC-11	pmol/kg	PMOL/KG	F9.3	I1
23	Freon-12	CFC-12	pmol/kg	PMOL/KG	F9.3	I1
24	Freon-113	CFC-113	pmol/kg	PMOL/KG	F9.3	I1