GOSUD

Gosud

DATA FORMAT TSG

Version 1.6

February 5th 2010

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History

Version	Date	Comment
1.0	11/09/2005	F. Gaillard/L. Petit de la Villéon creation of the document based on GOSUD data management user's manual (T. Carval)
1.1	11/29/2005	FG/LPdV: revision after ORE-SSS technical meeting
1.2	12/01/2005	T. Carval : parameter naming conventions : <PARAM>_XXX where XXX = TSG, WS, TINT
1.3	01/17/2006	F. Gaillard, D. Mathias, correction after producing the 2000-2004 files.
1.4	07/07/2008	C. Lagadec, J.Grelet, F. Gaillard : integration in processing CORIOLIS/IRD
1.5	24/02/2009	J.Grelet: add data centres table add dimension STRING8 remove dimension DAYD_WS and change NOCOEF_CAL to 6 in § 2.1 correct dimension for SSTP_QC in §2.3.5 and LATX_EXT § 2.3.6 add new variables _CONV for calibration coefficients used to store coefficients names
1.6	12/17/2009	J. Grelet: use <PARAM> for all description of variables attribute and remove <> when field is not a template Change attribute missing_value with default_value Add global attribute DATE_TINT, CONVENTIONS and TYPE_POSITION And some corrections to agree NetCDF file, add variable attributes standard_name and coordinate
	01/12/2010	J. Grelet: Set date with English convention in history Remove FillValue for <PARAM>_CALCOEFF_CONV, <PARAM>_LINCOEFF_CONV and SSPS_EXT_BOTTLE
	02/05/2010	J.Grelet: add variable SSPS_STD (sea surface salinity standard deviation)

1. Overview of the format

This document aims at defining a common format for thermo-salinometer (TSG) data. This format is meant for the data exchange and processing. It should hold both real time and delayed mode data and various levels of resolution or processing.

The data sets found in the file are:

- General information on the file, the platform and the TSG installation
- Data series from the main TSG

And, whenever available:

- Data series from the Temperature sensor at water intake
- Data from salinity sample analysis

In the case of real time data, some variables may be missing. The file is updated as new data and information come in.

For delayed mode use, the data center is expected to provide a file that corresponds to a unique installation period of a thermo-salinometer on one ship. All available information must have been entered, in particular those referring to the calibration and water sample analysis. The group in charge of the validation will complement the file with the 'corrected' data series.

2. Description of the thermosalinometer format

2.1. Data file dimensions

Name	Definition	Comment
DAYD		Number of recorded measurements for the main TSG series
DAYD_EXT		Number of recorded measurements for external data
NCOEF_CAL	NCOEF_CAL = 7	Number of calibration coefficients
NCOEF_LIN	NCOEF_LIN = 2	Number of drift correction coefficients (linear)
STRING256 STRING14 STRING8 STRING4	STRING256 = 256; STRING14 = 14; STRING8 = 8; STRING4 = 4;	String dimensions.
N1	N1 = 1;	

2.2. Global attributes: meta-data

Name	Definition	Comment
CYCLE_MESURE	CYCLE_MESURE = <char value>;	Cruise name or travel number Example : EGEE6 or PAST0601
PROJECT_NAME	PROJECT_NAME = <char value>;	Name of the project which operates the TSG line. Example : ORE-SSS
PLATFORM_NAME	PLATFORM_NAME = <char value>;	Ship name Example : Pourquoi Pas ?
SHIP_CALL_SIGN	SHIP_CALL_SIGN = <char value>;	Ship call sign Example : FABB
SHIP_MMSI	SHIP_CALL_MMSI = <char value>;	Ship MMSI (ASN) number Example : 227 222 00
DATE_TSG	DATE_TSG = <char value>;	Date of TSG installation : YYYYMMDDHHMISS
TYPE_TSG	TYPE_TSG = <char value>;	Described in reference table 1 Example : SBE21
NUMBER_TSG	NUMBER_TSG= <char value>;	(serial number, ex: 2250)
DATE_TINT	DATE_TINT = <char value>	Date of TINT installation
TYPE_TINT	TYPE_TINT= <char value>;	Temperature sensor at intake. Described in reference table 2 Ex: SBE3
NUMBER_TINT	NUMBER_TINT= <char value>;	(serial number, ex: ????)
DATA_TYPE	DATA_TYPE = <char value>;	This field describes the type of data contained in the file. Example : TRAJECTORY, PROFIL or TIME_SERIE
DATA_MODE	DATA_MODE = <char value>;	Indicates if the file contains real time or delayed mode data. R : real time data D : delayed mode data
SAMPLING_PERIOD	SAMPLING_PERIOD = <char value>;	Sampling period in seconds: 6 to 3600
DATE_START	DATE_START = <char value>;	Date of first measurements : YYYYMMDDHHMISS
DATE_END	DATE_END = <char value>	Date of last measurements : YYYYMMDDHHMISS
SOUTH_LATX		South limit of measurements
NORTH_LATX		North limit of measurements
WEST_LONX		West limit of measurements
EAST_LONX		East limit of measurements
FORMAT_VERSION	FORMAT_VERSION = <char value>;	File format version : 1.6 for this format
CONVENTIONS	CONVENTIONS = = <char value>;	GOSUB 1.6, CF1.4
DATE_CREATION	DATE_CREATION = <char value>;	Date and time (UTC) of creation of this file. Format : YYYYMMDDHHMISS Example : 20011229161700 : December 29th 2001 16:17:00
DATE_UPDATE (optional)	DATE_UPDATE = <char value>;	Date and time (UTC) of update of this file. Format : YYYYMMDDHHMISS Example : 20011230161700 : December 30th 2001 16:17:00
DATA_RESTRICTIONS	DATA_RESTRICTIONS = <char value>;	Restriction on use for these data. Example : "NONE"
CITATION	CITATION = <char value>;	The citation should be used for publications. Example : "These data were collected and made freely available by the International Gosud Project and the national programmes that contribute to it."
COMMENT	COMMENT = <char value>;	
PI_NAME	PI_NAME = <char value>;	Name of the principal investigator in charge of the TSG line. Example : GENAVIR
DATA_CENTRE	DATA_CENTRE = <char value>;	Code for the data centre (2 char) The data centre codes are described in the reference table 7 Example : IF for Ifremer, France
DATA_ACQUISITION	DATA_ACQUISITION = <char value>;	Acquisition data centre Example : SHOM, IRD, GENAVIR, CNRS ...
PROCESSING_CENTRE	PROCESSING_CENTRE = <char value>;	Processing data centre Example : ORE-SSS, CORIOLIS/IRD, CORIOLIS/SISMER

PROCESSING_STATES	PROCESSING_STATES = <char value>;	Described in reference table 3
WS_TYPE	WS _TYPE = <char value>	Model of water sample bottle Default : NA Example: OSIL Described in reference table 6
TYPE_POSITION	TYPE_POSITION = <char value>;	Example: GPS, GPS DIFFERENTIAL, ARGOS, INTERPOLATE, MANUAL, NONE, UNKNOW

PROCESSING_STATES	PROCESSING_STATES = <char value>;	Described in reference table 3
WS_TYPE	WS _TYPE = <char value>	Model of water sample bottle

2.3. Measurements

2.3.1. Variables describing installation of TSG

Name	Definition	Comment
SSPS_DEPH	float SSPS_DEPH (N1); <PARAM>:long_name = "Nominal depth of water intake for salinity measurement"; <PARAM>:units = "meter"; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 100.; <PARAM>:format = "%6.3f"; <PARAM>:_FillValue = 99999.f;	Ex: SSPS_DEPH = 8.0
SSPS_DEPH_MIN	float SSPS_DEPH_MIN (N1); <PARAM>:long_name = "Minimum depth of water intake"; <PARAM>:units = "meter"; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 100.; <PARAM>:format = "%6.3f"; <PARAM>:_FillValue = 99999.f;	Ex: SSPS_DEPH_MIN = 6.0
SSPS_DEPH_MAX	float SSPS_DEPH_MAX (N1); <PARAM>:long_name = "Maximum depth of water intake"; <PARAM>:units = "meter"; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 100.; <PARAM>:format = "%6.3f"; <PARAM>:_FillValue = 99999.f;	Ex: SSPS_DEPH_MAX = 10.0
CNDC_CALCOEF	double CNDC_CALCOEF(NCOEF_CAL); <PARAM>:long_name = "Conductivity calibration coefficients"; <PARAM>_FillValue = 99999.f;	Calibration coefficients are real value date is in julian day from REFERENCE_DATE_TIME
CNDC_CALCOEF_CONV	char CNDC_CALCOEF_CONV(NCOEF_CAL, STRING8); <PARAM>:long_name = "Conductivity calibration coefficients convention";	Calibration coefficient convention is an enumeration of coefficients name Ex: " 'date', 'a','b','c','d','m'" or " 'date','g','h','l','j','cpcor','ctcor'"
CNDC_LINCOEF	double CNDC_LINCOEF(NCOEF_LIN); <PARAM>:long_name = "Conductivity linear drift correction coefficients"; <PARAM>_FillValue = 99999.f;	Calibration coefficients are real value date is in julian day from REFERENCE_DATE_TIME
CNDC_LINCOEF_CONV	char CNDC_LINCOEF_CONV(NCOEF_LIN, STRING8); <PARAM>:long_name = "Conductivity linear drift correction coefficients convention ";	Calibration coefficient convention is an enumeration of coefficients name Ex: " 'date', 'slope', 'offset' "
SSJT_CALCOEF	double SSJT_CALCOEF(NCOEF_CAL); <PARAM> :long_name = "Temperature calibration coefficients"; <PARAM> :_FillValue = 99999.lf;	Calibration coefficients are real value date is in julian day from REFERENCE_DATE_TIME
SSJT_CALCOEF_CONV	char SSJT_CALCOEF_CONV(NCOEF_CAL, STRING8); <PARAM>:long_name = " Temperature calibration coefficients convention";	Calibration coefficient convention is an enumeration of coefficients name Ex: " 'date', 'a','b','c','d','f0'" or " 'date','g','h','l','j','f0'"
SSJT_LINCOEF	double SSJT_LINCOEF(NCOEF_LIN); <PARAM> :long_name = "Temperature linear drift correction coefficients"; <PARAM> _FillValue = 99999.lf;	Calibration coefficients are real value date is in julian day from REFERENCE_DATE_TIME
SSJT_LINCOEF_CONV	char SSJT_LINCOEF_CONV (NCOEF_LIN, STRING8); <PARAM> :long_name = "Temperature linear drift correction coefficients";	Calibration coefficient convention is an enumeration of coefficients name Ex: " 'date','slope', 'offset' "

2.3.2. Variables describing installation of Temperature sensor at intake (TINT)

Name	Definition	Comment
SSTP_DEPH	float SSTP_DEPH (N1); <PARAM>:long_name = "Nominal depth of water intake for Temperature measurement"; <PARAM>:units = "meter"; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 100.; <PARAM>:format = "%6.3f"; <PARAM>:_FillValue = 99999.f;	Ex: SSTP_DEPH = 8.0
SSTP_DEPH_MIN	float SSTP_DEPH_MIN (N1); <PARAM>:long_name = "Minimum depth of water intake for Temperature measurement "; <PARAM>:units = "meter"; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 100.; <PARAM>:format = "%6.3f"; <PARAM>:_FillValue = 99999.f;	Ex: SSTP_DEPH_MIN = 6.0
SSTP_DEPH_MAX	float SSTP_DEPH_MAX (N1); <PARAM>:long_name = "Maximum depth of water intake for Temperature measurement "; <PARAM>:units = "meter"; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 100.; <PARAM>:format = "%6.3f"; <PARAM>:_FillValue = 99999.f;	Ex: SSTP_DEPH_MAX = 10.0
SSTP_CALCOEF	double SSTP_CALCOEF(NCOEF_CAL); <PARAM>:long_name = "Temperature calibration coefficients"; <PARAM>:_FillValue = 99999.lf;	Calibration coefficients are real value date is in julian day from REFERENCE_DATE_TIME
SSTP_CALCOEF_CONV	char SSTP_CALCOEF_CONV(NCOEF_CAL,STRING8); <PARAM>: long_name = " Temperature calibration coefficients convention";	Calibration coefficient convention is an enumeration of coefficients name Ex: " 'date', 'a','b','c','d','f0'" Or " 'date','g','h','I','j','f0'"
SSTP_LINCOEF	double SSTP_LINCOEF(NCOEF_LIN); <PARAM> :long_name = "Temperature linear drift correction coefficients"; <PARAM> :_FillValue = 99999.lf;	Calibration coefficients are real value date is in julian day from REFERENCE_DATE_TIME
SSTP_LINCOEF_CONV	char SSTP_LINCOEF_CONV (NCOEF_LIN,STRING8); <PARAM> :long_name = "Temperature linear drift correction coefficients";	Calibration coefficient convention is an enumeration of coefficients name Ex: " 'date','slope', 'offset' "

2.3.3. Coordinates for TSG/TINT:

Name	Definition	Comment
DATE	char DATE (DAYD,STRING14); <PARAM>:long_name = "Date of main instrument measurement"; <PARAM>:conventions = "yyyymmddhhmmss"; <PARAM>:coordinate = "DAYD";	This is the original data describing the date, it must not be lost
DAYD	double DAYD(DAYD); <PARAM>:long_name = "Decimal julian day (UTC) of each measurement"; <PARAM>:standard_name = "time"; <PARAM>:units = "days since 1950-01-01 00:00:00 UTC"; <PARAM>:conventions = "Relative julian days with decimal part (as parts of the day)"; <PARAM>:_FillValue = 99999.lf; <PARAM>:valid_min = 0..; <PARAM>:valid_max = 36600.; <PARAM>:format = "%11.5f"; <PARAM>:axis = "T"; <PARAM>:epic_code = 601; <PARAM>:coordinate = "DAYD";	Julian day of the measurement. The integer part represents the day, the decimal part represents the time of the measurement. Date and time are in universal time coordinate. Example : 18833.80140 : July 25 2001 19:14:00
LATX	float LATX(DAYD); <PARAM>:long_name = "Latitude of each measurement"; <PARAM>:standard_name = "latitude"; <PARAM>:units = "degree_north"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = -90.; <PARAM>:valid_max = 90.; <PARAM>:format = "%8.4f"; <PARAM>:axis = "Y"; <PARAM>:epic_code = 500; <PARAM>:coordinate = "DAYD";	Latitude of the measurement. Example : 44.4991 for 44° 29' 56.76'' N
LONX	float LONX (DAYD); <PARAM>:long_name = "Longitude of each measurement"; <PARAM>:standard_name = "longitude"; <PARAM>:units = "degree_east"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = -180.; <PARAM>:valid_max = 180.; <PARAM>:format = "%9.4f"; <PARAM>:axis = "X"; <PARAM>:epic_code = 501; <PARAM>:coordinate = "DAYD";	Longitude of the measurement. Example : 16.7222 for 16° 43' 19.92'' E
POSITION_QC	byte POSITION_QC(DAYD) <PARAM>:long_name=quality flag of position TSG <PARAM>:valid_min = 0; <PARAM>:valid_max = 9; <PARAM>:default_value = 0; <PARAM>:format = "%1d"; <PARAM>:coordinate = "DAYD";	If variable not exist, it is set at default_value during creation.
SPDC	float SPDC (DAYD); <PARAM>:long_name = "Ship speed computed from navigation"; <PARAM>:units = "knots"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 50.; <PARAM>:format = "%6.1f"; <PARAM>:resolution = 0.1; <PARAM>:coordinate = "DAYD";	Ship speed from GPS (SOG - Speed Over Ground). If SOG not available, derived from last position
REFERENCE_DATE_TIME	char REFERENCE_DATE_TIME(STRING14) <PARAM>:conventions="YYYYMMDDHHMISS"	Reference date for julian days origin The recommended reference data time is "19500101000000" : January 1st 1950 00:00:00

2.3.4. Data series 1 main TSG:

1) Measured variables

Name	Definition	Comment
PRES (optional)	float PRES (DAYD); <PARAM>:long_name = "Sea pressure in TSG"; <PARAM>:standard_name = "sea_water_pressure"; <PARAM>:units = "decibar=1000 pascals"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 10.; <PARAM>:resolution = 0.1; <PARAM>:format = "%6.1f"; <PARAM>:coordinate = "DAYD";	Sea pressure in TSG, this is an indication that pump is functioning properly
FLOW (optional)	float FLOW (DAYD); <PARAM>:long_name = "Measuring pump discharge in the TSG inlet"; <PARAM>:units = "l/min"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 100.; <PARAM>:resolution = 0.1; <PARAM>:format = "%6.1f"; <PARAM>:coordinate = "DAYD";	Water pump discharge measurement in the TSG inlet, this is an indication that pump is working properly
CNDC	float CNDC (DAYD); <PARAM>:long_name = "Electrical conductivity"; <PARAM>:units = "S/meter"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 7.; <PARAM>:resolution = 0.001; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Conductivity measured by TSG. This data may have been reduced with a median (recommended) or a mean
CNDC_STD (optional)	float CNDC_STD(DAYD); <PARAM>:long_name = "Conductivity standard deviation"; <PARAM>:units = "S/m"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 7.; <PARAM>:resolution = 0.001; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Standard deviation of conductivity measured by TSG for data which have been reduced (with a mean or median)
CNDC_CAL (optional)	float CNDC_CAL(DAYD); <PARAM>:long_name = "Conductivity calibrated "; <PARAM>:units = "S/meter"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 7.; <PARAM>:resolution = 0.001; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Conductivity, calibrated using linearization coefficients
CNDC_FREQ (optional)	float CNDC_FREQ(DAYD); <PARAM>:long_name = "Sensor Conductivity Frequency"; <PARAM>:units = "Hz"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 20000.; <PARAM>:resolution = 0.001; <PARAM>:format = "%9.3f"; <PARAM>:coordinate = "DAYD";	Sensor Conductivity Frequency measured by TSG

SSJT	float SSJT(DAYD); <PARAM>:long_name = "Water jacket temperature"; <PARAM>:units = "degree_Celsius"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = -1.5; <PARAM>:valid_max = 38.; <PARAM>:resolution = 0.001; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Temperature within TSG or water jacket temperature. Warning: this is not the ocean temperature (SST) It is used to obtain salinity from the conductivity The reduction applied is the same as for conductivity. Temperature scale is ITS-90
SSJT_QC	byte SSTP_QC(DAYD); <PARAM>:long_name = "Water jacket temperature quality flag"; <PARAM>:valid_min = 0; <PARAM>:valid_max = 9; <PARAM>:default_value = 0; <PARAM>:format = "%1d"; <PARAM>:coordinate = "DAYD";	Quality flag applied on water jacket temperature values.
SSJT_STD (optional)	float SSJT_STD(DAYD); <PARAM>:long_name = "Temperature standard deviation"; <PARAM>:units = "degree_Celsius"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = -1.5; <PARAM>:valid_max = 38.; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Water jacket temperature standard deviation for data which have been reduced (with a mean or median)
SSJT_CAL (optional)	float SSJT_CAL(DAYD); <PARAM>:long_name = "Water jacket temperature calibrated"; <PARAM>:units = "degree_Celsius"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = -1.5; <PARAM>:valid_max = 38.; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Water jacket temperature calibrated using linearization coefficients
SSJT_FREQ (optional)	float SSJT_FREQ(DAYD); <PARAM>:long_name = "Water jacket sensor temperature frequency"; <PARAM>:units = "Hz"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 20000.; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Frequency of water jacket temperature sensor
SSJT_ADJUSTED (optional)	float SSJT_ADJUSTED(DAYD); <PARAM>:long_name = " Water jacket temperature adjusted"; <PARAM>:units = "degree_Celsius"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = -1.5; <PARAM>:valid_max = 38.; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Adjusted water jacket temperature with external data (ARGO, CTD, XBT,...)
SSJT_ADJUSTED_ERROR (optional)	float SSJT_ERR(DAYD); <PARAM>:long_name = "Error on adjusted water jacket Temperature"; <PARAM>:units = "degree_Celsius"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = -1.5; <PARAM>:valid_max = 38.; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Error on adjusted water jacket temperature with external data (ARGO, CTD, XBT,…)
SSJT_ADJUSTED_QC (optional)	byte SSJT_ADJUSTED_QC(DAYD); <PARAM>:long_name = "quality flag"; <PARAM>:valid_min = 0; <PARAM>:valid_max = 9; <PARAM>:default_value = 0; <PARAM>:format = "%1d"; <PARAM>:coordinate = "DAYD";	Quality flag applied on adjusted water jacket temperature values. The flag scale is specified in table 4. If variable not exist, it is set at default_value during creation
SSJT_ADJUSTED_HIST (optional)	Char SSJT_ADJUSTED_HIST(STRING256)	Water jacket temperature inside TSG adjusted processing history

2) Ocean salinity deduced from SSJT and CNDC from TSG

SSPS	float SSPS(DAYD); <PARAM>:long_name = "Sea surface salinity"; <PARAM>:standard_name = "sea_surface_salinity"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 40.; <PARAM>:resolution = 0.001; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Sea Surface Salinity (SSS) deduced from conductivity and water jacket temperature. This is the Ocean surface salinity.
SSPS_QC	byte SSPS_QC(DAYD); <PARAM>:long_name = "Sea surface salinity quality flag"; <PARAM>:valid_min = 0; <PARAM>:valid_max = 9; <PARAM>:default_value = 0; <PARAM>:format = "%1d"; <PARAM>:coordinate = "DAYD";	Quality flag applied on sea surface salinity values. The flag scale is specified in table 4. If variable not exist, it is set at default_value during creation
SSPS_STD (optional)	float SSPS_STD(DAYD); <PARAM>:long_name = " Sea surface salinity standard deviation"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 40.; <PARAM>:resolution = 0.001; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Standard deviation of sea surface salinity measured by TSG in case when CNDC_STD not available
SSPS_CAL (optional)	float SSPS(DAYD); <PARAM>:long_name = "Sea Surface Salinity Scale Calibrated (SSTP_CAL,CNDC_CAL)"; <PARAM>:standard_name = "sea_surface_salinity"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 40.; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Sea surface calibrated salinity deduced from conductivity and water jacket temperature
SSPS_ADJUSTED (optional)	float SSPS_ADJUSTED(DAYD); <PARAM>:long_name = "Sea surface salinity adjusted"; <PARAM>:standard_name = "sea_surface_salinity"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 40.; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Sea surface salinity adjusted with external data (ARGO, CTD, XBT,...)
SSPS_ADJUSTED_ERROR (optional)	float SSPS_ADJUSTED_ERR(DAYD); <PARAM>:long_name = "Error on sea surface salinity adjusted"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 40.; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Error on sea surface salinity adjusted with external data (ARGO CTD, XBT,...)
SSPS_ADJUSTED_QC (optional)	byte SSPS_ADJUSTED_QC(DAYD); <PARAM>:long_name = "Sea surface salinity adjusted quality flag"; <PARAM>:valid_min = 0; <PARAM>:valid_max = 9; <PARAM>:default_value = 0; <PARAM>:format = "%1d"; <PARAM>:coordinate = "DAYD";	Quality flag applied on adjusted sea surface salinity The flag scale is specified in table 4. If variable not exist, it is set at default_value during creation
SSPS_ADJUSTED_HIST	char SSPS_ADJUSTED_HIST(STRING256)	Sea surface adjusted salinity processing history

2.3.5. Data series 2: Ocean Temperature from the water intake

Name	Definition	Comment
SSTP (optional)	float SSTP(DAYD); <PARAM>:long_name = "Sea surface temperature"; <PARAM>:standard_name = "sea_surface_temperature"; <PARAM>:units = "degree_Celsius"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = -1.5; <PARAM>:valid_max = 38.; <PARAM>:resolution = 0.001; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Sea Surface Temperature (SST) measured at intake with external instrument (TINT_TYPE, TINT_NUMBER) This is the Ocean surface temperature.
SSTP_QC (optional)	byte SSTP_QC(DAYD); <PARAM>:long_name = " Sea surface temperature quality flag"; <PARAM>:valid_min = 0; <PARAM>:valid_max = 9; <PARAM>:default_value = 0; <PARAM>:format = "%1d"; <PARAM>:coordinate = "DAYD";	Quality flag applied on SSTP values. The flag scale is specified in table 4. If variable not exist, it is set at default_value during creation
SSTP_CAL (optional)	float SSTP_CAL(DAYD); <PARAM>:long_name = "Sea surface temperature Calibrated"; <PARAM>:units = "degree_Celsius"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = -1.5; <PARAM>:valid_max = 38.; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Sea surface temperature calibrated
SSTP_FREQ (optional)	float SSTP_FREQ(DAYD); <PARAM>:long_name = "Sea surface temperature frequency"; <PARAM>:units = "Hz"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 20000.; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Frequency of external temperature sensor, used for SST measurement
SSTP_ADJUSTED (optional)	float SSTP_ADJUSTED(DAYD); <PARAM>:long_name = "Adjusted sea surface temperature adjusted"; <PARAM>:units = «degree_Celsius»; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = -1.5; <PARAM>:valid_max = 38.; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Adjusted sea surface temperature
SSTP_ADJUSTED_ERROR (optional)	float SSTP_ERR(DAYD); <PARAM>:long_name = "Error on adjusted sea surface temperature"; <PARAM>:units = «degree_Celsius»; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = -1.5; <PARAM>:valid_max = 38.; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD";	Error on adjusted sea surface temperature
SSTP_ADJUSTED_QC (optional)	byte SSTP_ADJUSTED_QC(DAYD); <PARAM>:long_name = " Sea Surface Temperature quality flag"; <PARAM>:valid_min = 0; <PARAM>:valid_max = 9; <PARAM>:default_value = 0; <PARAM>:format = "%1d"; <PARAM>:coordinate = "DAYD";	Quality flag applied on adjusted temperature values. The flag scale is specified in table 4. If variable not exist, it is set at default_value during creation
SSTP_ADJUSTED_HIST	Char SSTP_ADJUSTED_HIST(STRING256)	Adjusted Temperature processing history

2.3.6. Data series 3 : external data

Name	Definition	Comment
DATE_EXT	char DATE_EXT (DAYD_EXT,STRING14); <PARAM>:long.name = "Date of each external data measurement" <PARAM>:conventions = "yyyymmddhhmmss"	This is the original data describing the date, it must not be lost
DAYD_EXT	double DAYD_EXT(DAYD_EXT); <PARAM>:long_name = "Decimal julian day (UTC) of external data measurement"; <PARAM>:standard_name = "time"; <PARAM>:units = "days since 1950-01-01 00:00:00 UTC"; <PARAM>:conventions = "Relative julian days with decimal part (as parts of the day)"; <PARAM>:_FillValue = 99999.lf; <PARAM>:valid_min = 0..; <PARAM>:valid_max = 36600.; <PARAM>:format = "%11.5f"; <PARAM>:axis = "T"; <PARAM>:epic_code = 601.; <PARAM>:coordinate = "DAYD_EXT";	Julian day of the measurement. The integer part represents the day, the decimal part represents the time of the measurement. Date and time are in universal time coordinate. Example : 18833.80140 : July 25 2001 19:14:00
LATX_EXT	float LATX_EXT(DAYD_EXT); <PARAM>:long_name = "Latitude for each external data measurement"; <PARAM>:standard_name = "latitude"; <PARAM>:units = "degree_north"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = -90.; <PARAM>:valid_max = 90.; <PARAM>:format = "%8.4f"; <PARAM>:axis = "Y"; <PARAM>:epic_code = 500; <PARAM>:coordinate = "DAYD_EXT";	Latitude of the measurement (decimal). Example : 44.4991 for 44° 29' 56 N
LONX_EXT	float LONX_EXT(DAYD_EXT); <PARAM>:long_name = " Longitude for each external data measurement "; <PARAM>:standard_name = "longitude"; <PARAM>:units = "degree_east"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = -180.; <PARAM>:valid_max = 180.; <PARAM>:format = "%9.4f"; <PARAM>:axis = "X"; <PARAM>:epic_code = 501; <PARAM>:coordinate = "DAYD_EXT";	Longitude of the measurement (decimal. Example : 16.7222 for 16° 43' 19 E
SSTP_EXT	float SSTP_EXT (DAYD_EXT); <PARAM>:long_name = "Sea surface temperature from external data"; <PARAM>:standard_name = "sea_surface_temperature"; <PARAM>:units = "degree_Celsius"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = -1.5; <PARAM>:valid_max = 38.; <PARAM>:resolution = 0.001; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD_EXT";	Sea Surface Temperature (SST) from external data instrument (ARGO, CTD, XBT)
SSTP_EXT_QC	byte SSTP_EXT_QC(DAYD_EXT); <PARAM>:long_name = " Sea surface temperature from external data quality flag"; <PARAM>:valid_min = 0; <PARAM>:valid_max = 9; <PARAM>:_default_value = 0; <PARAM>:format = "%1d"; <PARAM>:coordinate = "DAYD_EXT";	Quality flag applied on external sea surface temperature data values. The flag scale is specified in table 4. If variable not exist, it is set at default_value during creation

SSTP_EXT_TYPE	Char:SSPS_EXT_TYPE(DAYD_EXT,STRING4) <PARAM>:long_name = "Type of sea surface temperature external data origin"; <PARAM>:coordinate = "DAYD_EXT";	Example :ARGO, CTD, XBT
SSPS_EXT	float SSPS_EXT (DAYD_EXT); <PARAM>:long_name = "Sea surface salinity from external data"; <PARAM>:standard_name = "sea_surface_salinity"; <PARAM>:_FillValue = 99999.f; <PARAM>:valid_min = 0.; <PARAM>:valid_max = 40.; <PARAM>:resolution = 0.001; <PARAM>:format = "%6.3f"; <PARAM>:coordinate = "DAYD_EXT";	Sea surface salinity from external data – water samples included
SSPS_EXT_QC	byte SSPS_EXT_QC(DAYD_EXT); <PARAM>:long_name = " Sea surface salinity from external data quality flag"; <PARAM>:valid_min = 0; <PARAM>:valid_max = 9; <PARAM>:default_value = 0; <PARAM>:format = "%1d"; <PARAM>:coordinate = "DAYD_EXT";	Quality flag applied on external sea surface salinity values data values. The flag scale is specified in table 4. If variable not exist, it is set at default_value during creation
SSPS_EXT_TYPE	Char:SSPS_EXT_TYPE(DAYD_EXT,STRING4) <PARAM>:long_name = "Type of external sea surface salinity data origin"; <PARAM>:coordinate = "DAYD_EXT";	Example :WS (Water Sample), ARGO, CTD, XBT
SSPS_EXT_ANALDATE	char SSPS_EXT_ANALDATE(DAYD_EXT,STRING14); <PARAM>:long_name = "Date of water sample surface salinity analysis"; <PARAM>:conventions = "yyyymmddhhmiss" <PARAM>:coordinate = "DAYD_EXT";	Date of sea surface salinity water sample analysis
SSPS_EXT_BOTTLE	char SSPS_EXT_BOTTLE(DAYD_EXT,STRING4); <PARAM>:long_name = "Sea surface salinity bottle number" <PARAM>:coordinate = "DAYD_EXT";	Number of sea surface salinity water sample Example; 0001 or B12

3. Reference tables

3.1. Reference table 1 : Thermosalinometer (TSG) type

Name
SBE21
SBE45
UNKNO

3.2. Reference table 2 : Temperature sensor at intake (TINT) type

Name
SBE38
SBE3S
TQP
UNKNO
NA

3.3. Reference table 3 : PROCESSING STATES

Code	Libellé
0A	RAW DATA
0B	NOT RECOMMEND
0C	NOT RECOMMEND
1A	DATA LOCATED
1B	NOT RECOMMEND
1C	NOT RECOMMEND
2A	NOT RECOMMEND
2B	APPLICATION . D'UN CODE DE QUALITE AUTOMATIQUE
2B+	APPLICATION D'UN CODE DE QUALITE APRES INSPECTION VISUELLE
2C	DONNEES VALIDEES PAR LE PI
2C+	CONTROLE CLIMATOLOGIQUE
3A	NON RECOMMANDE
3B	DONNEE REDUITE CALIBREE
3C	DONNEE REDUITE GRILLEE

3.4. Reference table 4 : QUALITY FLAGS

n	Meaning
0	No QC was performed
1	Good data
2	Probably good date
3	Bad data that are potentially correctable
4	Bad data
5	Value changed
6	Not used
7	Not used
8	Interpolated value
9	Missing value

3.5. Reference table 5 : Parameter code table

Code	Parameter Long name	Unit	Valid min	Valid max	Fortran Format resolution	Fill value
LATX	Latitude	Decimal degree	-90	90	%+8.41f	99999
LONX	Longitude	Decimal degree	-180	180	%+9.41f	99999
DAYD	Decimal Julian day time	Decimal day	0.0	3660.0	%9.51f	99999
SPDC	Ship speed computed from navigation	Meter/second	0	90	%6.31f	99999
PRES	Sea pressure	decibar	0	6500	%6.11f	99999
DEPH	Depth below sea surface	meter	0	6000	%6.11f	99999
PSAL	Practical salinity	PSU	33	37	%6.31f	99999
CNDC	Electrical conductivity	S/m	3	7	%5.31f	99999
SSJT	Sea surface water	Celsius	-1.5	38	%6.31f	99999

	jacket temperature	degree				
SSPS	Sea surface practical salinity	PSU			%6.31f	99999
SSTP	Sea surface temperature	Celsius degree	-1.5	38	%6.31f	99999

3.6. Reference table 6 : Water sample (bottle) type

Name
OSIL
UNKNO
NA

3.7. Reference table 7 : Data centres and institutions codes

Code	Description
AO	AOML, USA
BO	BODC, United Kingdom
CI	Institute of Ocean Sciences, Canada
CS	CSIRO, Australia
GE	BSH, Germany
GT	GTS : used for data coming from WMO GTS network
HZ	CSIO, China Second Institute of Oceanography
IF	Ifremer, France
IN	INCOIS, India
JA	JMA, Japan
JM	Jamstec, Japan
KM	KMA, Korea
ME	MEDS, Canada
NA	NAVO, USA
PM	PMEL, USA
RU	Russia
SI	SIO, Scripps, USA potentially correctable
SP	Spain
UW	University of Washington, USA
IR	IRD, France