

Processing application environment, Data Processing CTD_SBE90 process Configuration

SOCIB-Data Center Facility

Document type:	Standard Operational Procedure
Date:	2016-06-13
Description:	CTD-SBE90 process configuration for RV SOCIB CTD data processing
Authors:	C. Munoz, M.A. Rujula
Supervision:	C. Troupin
Involved Personnel:	DCF

DOCUMENT VERIFICATION LIST

Date:	Checked by (name)	SOCIB division	Ref.
2016-06-13	C. Troupin	SOS	

DOCUMENT DISTRIBUTION LIST

Date:	Distribution to:
2016-06-13	@datacenter

CHANGE RECORD

ver	Date	Description	Author	Checked by
1.0.0	2016-06-13	First version document	C. Munoz	C. Troupin

Index of contents

INTRODUCTION:	5
RELATED DOCUMENTS	5
REQUIRED FEATURES	5
PROCEDURE DEVELOPMENT	5
PROCESSING APPLICATION	6
Parsing functions for SCB-SBE9001	7
CtdSbe90Type5	7
CtdSbe90Type5Factory	7
Parsing functions for SCB-SBE9002	8
CtdSbe90Type6	8
CtdSbe90Type6Factory	9
NewDataManager	10
INSTRUMENTATION APPLICATION	11
Parsing Function Catalog	11
Variable	12
Sensor	14
Instrument	15
SOCIB RV Platform	15
CTD_SBE90 Process	16
Process Platform	24
Process Platform SCB-SBE9001	24
Period 2013-2016	24
Period 2016 - present	26
Process Platform SCB-SBE9002	30



Balearic Islands
Coastal Observing
and Forecasting
System

1. INTRODUCTION:

The aim of this document is describe a standardized procedure to configure the parsing functions that control the NetCDF files generation from the CTD profiles data acquired during the RV SOCIB cruises.

This procedure is applicable to the following SOCIB instruments:

- SCB-SBE9001. sn 09P63579-1023
- SCB-SBE9002. sn 09P63579-1031

2. RELATED DOCUMENTS

- [SOP-DCF_instrumentation-database-processing-configuration](#)
- [SOP_RVF_SBEprocessing-software-execution](#)

3. REQUIRED FEATURES

- Desktop or laptop.
- Internet connection.
- Access to /home/vessel.
- java processing-library.
- IDE Eclipse.
- Instrumentation Application access.

4. PROCEDURE DEVELOPMENT

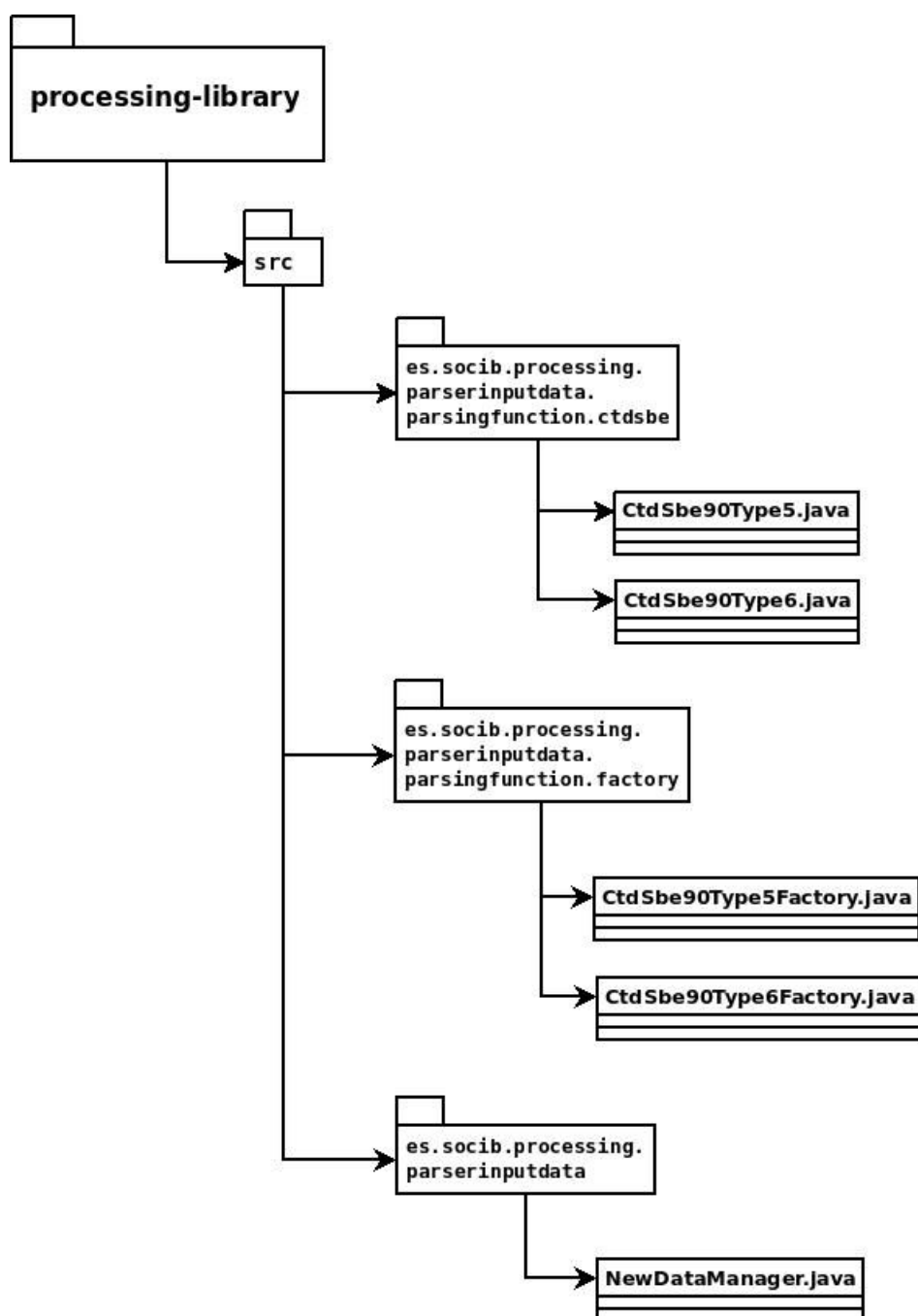
The following sections show how to properly configure the CTD_SBE90 through the following applications:

- Processing Application
- Instrumentation Application
- postgresQL Instrumentation database

4.1. PROCESSING APPLICATION

There are three different classes that need to be edited in order to generate new parsing functions to read different cnv files. This section shows the current parsing functions for both SCB_SBE9001 and SCB-SBE9002.

The following figure shows where are the java classes that define the parsing functions stored.



4.1.1. Parsing functions for SCB-SBE9001

The following java classes hold the parsing process for the **SCB-SBE9001** from **2013** until **2016**. From 2016 onwards applies [CtdSbe90Type6](#).

4.1.1.1. CtdSbe90Type5

This class reads the cnv files that have been pre-processed using the SBE Batch process **SBE9_1023** by using a regular expression. Such expression is repeated as many times as the number of data columns existing in the cnv file.

```
public class CtdSbe90Type5 extends AbstractCtdSbe90 {
    private String ROSSETE_CTD_REG_EXP = "^\\s*(-?\\d+|-?\\d+\\.\\d+|-?\\d+\\.\\d+e[+|-]\\d{2})"
+ "\\s+(-?\\d+|-?\\d+\\.\\d+|-?\\d+\\.\\d+e[+|-]\\d{2})"
+ "\\s+(-?\\d+|-?\\d+\\.\\d+|-?\\d+\\.\\d+e[+|-]\\d{2})"
+ "\\s+(-?\\d+|-?\\d+\\.\\d+|-?\\d+\\.\\d+e[+|-]\\d{2})"
+ "\\s+(-?\\d+|-?\\d+\\.\\d+|-?\\d+\\.\\d+e[+|-]\\d{2})"
+ "\\s+(-?\\d+|-?\\d+\\.\\d+|-?\\d+\\.\\d+e[+|-]\\d{2})"
+ "\\s+(-?\\d+|-?\\d+\\.\\d+|-?\\d+\\.\\d+e[+|-]\\d{2})"
+ "\\s+(-?\\d+|-?\\d+\\.\\d+|-?\\d+\\.\\d+e[+|-]\\d{2})"
+ "\\s+(-?\\d+|-?\\d+\\.\\d+|-?\\d+\\.\\d+e[+|-]\\d{2})"
+ "\\s+(-?\\d+|-?\\d+\\.\\d+|-?\\d+\\.\\d+e[+|-]\\d{2})"
+ "\\s+(-?\\d+|-?\\d+\\.\\d+|-?\\d+\\.\\d+e[+|-]\\d{2})"
+ "\\s+(-?\\d+|-?\\d+\\.\\d+|-?\\d+\\.\\d+e[+|-]\\d{2})"
+ "\\s+(-?\\d+|-?\\d+\\.\\d+|-?\\d+\\.\\d+e[+|-]\\d{2})"
+ "\\s+(-?\\d+|-?\\d+\\.\\d+|-?\\d+\\.\\d+e[+|-]\\d{2})"
+ "\\s+(-?\\d+|-?\\d+\\.\\d+|-?\\d+\\.\\d+e[+|-]\\d{2})"
+ "\\s+(-?\\d+|-?\\d+\\.\\d+|-?\\d+\\.\\d+e[+|-]\\d{2})$";
```

4.1.1.2. CtdSbe90Type5Factory

```
package es.socib.processing.parserinputdata.parsingfunction.factory;

import es.socib.processing.parserinputdata.ModelParser;
import es.socib.processing.parserinputdata.AbstractModelParserFactory;
import es.socib.processing.parserinputdata.parsingfunction.ctdsbe.AbstractCtdSbe90;
import es.socib.processing.parserinputdata.parsingfunction.ctdsbe.CtdSbe90Type5;

/**
 * @author slora
 */
public class CtdSbe90Type5Factory extends AbstractModelParserFactory {

    /**
     *
     */
    private AbstractCtdSbe90 ctdSbe90;

    /**
     * Construct a new {@link CtdSbe90Type5Factory}
     */
    public CtdSbe90Type5Factory() {
        this.ctdSbe90 = new CtdSbe90Type5();
    }

    @Override
    public ModelParser getModelParserIntance() {
        return ctdSbe90;
    }
}
```

4.1.2. Parsing functions for SCB-SBE9002

The following java classes hold the parsing process for the **SCB-SBE9002**.

4.1.2.1. CtdSbe90Type6

This class reads the cnv files that have been pre-processed using the SBE Batch process **SBE_1031** by using a regular expression. Such expression is repeated as many times as the number of data columns existing in the cnv file.

[illegible]

4.1.2.2. CtdSbe90Type6Factory

This class calls the parsing function CtdSbe90Type6.

```
package es.socib.processing.parserinputdata.parsingfunction.factory;

import es.socib.processing.parserinputdata.ModelParser;
import es.socib.processing.parserinputdata.AbstractModelParserFactory;
import es.socib.processing.parserinputdata.parsingfunction.ctdsbe.AbstractCtdSbe90;
import es.socib.processing.parserinputdata.parsingfunction.ctdsbe.CtdSbe90Type6;

/**
 * @author slora
 */
public class CtdSbe90Type6Factory extends AbstractModelParserFactory {

    /**
     *
     */
    private AbstractCtdSbe90 ctdSbe90;

    /**
     * Construct a new {@link CtdSbe90Type6Factory}
     */
    public CtdSbe90Type6Factory() {
        this.ctdSbe90 = new CtdSbe90Type6();
    }

    @Override
    public ModelParser getModelParserIntance() {
        return ctdSbe90;
    }

}
```

4.1.3. NewDataManager

The following lines are added this class.

```
else if ("CtdSbe90Type5".equals(parsingFunctionName))
    modelParserFactory = new CtdSbe90Type5Factory();
else if ("CtdSbe90Type6".equals(parsingFunctionName))
    modelParserFactory = new CtdSbe90Type6Factory();
```

4.2. INSTRUMENTATION APPLICATION

Several steps must be taken to properly configure the CTD_SBE90 process.

4.2.1. Parsing Function Catalog

- Go to Processing > Parsing function catalog and generate a **new parsing function catalog element** following the existing nomenclature. For example **CtdSbe90Type5**.

NOTE: Remember that the name of the new element must coincide with the parsing function name generated in the processing application.

Equipment

Deployments

Models

Classification

Data

Locations

Processing

Utils

SOCIB Management

*Deployments

Instruments

Process

Process platform

Variables

Parsing function catalog

Sensors

Name

Description

tdSbe90Type1

Implementation after May of 2013 for instruments SCB-SBE900X. Two CTD installed and the SPAR variable. Each line with data have 27 columns

tdSbe90Type2

Implementation for instruments SCB-SBE900X. Only one CTD installed. Each line with data must have 15 columns.

tdSbe90Type3

Implementation until May of 2013 for instruments SCB-SBE900X. The SPAR variables is not available. Each line with data have 26 columns

tdSbe90Type4

Implementation for instrument IEO-SBE25001. Two one CTD installed. Each line with data must have 16 columns.

tdSbe90Type5

Implementation for instruments SCB-SBE9001 from mar13 til jul13. The variables SPAR, DPAR not available and FLUO is available. Each line with data must have 17 columns(variables)

tdSbe90Type6

Implementation for instruments SCB-SBE9001 from jul13. The variables. Each line with data must have 34 columns(variables)

***New parsing function catalog element**

*Name:
CtdSbe90Type5

*Description:
Implementation for instruments SCB-SBE9001 from mar13 til jul13. The variables SPAR, DPAR not available and FLUO is available. Each line with data must have 17 columns(variables)

Delete Update Close

4.2.2. Variable

In case you need to import any new variable required that is not already in the variables list, you can do it through pgAdmin.

- Open pgAdmin and configure a new connection to scb-datserv:
 - **Name: SCB-DB01**
 - **Host Name: scb-db01**
 - **Port: 5432**
 - **Username: postgres**
 - **Password: “scb-db01 password”**

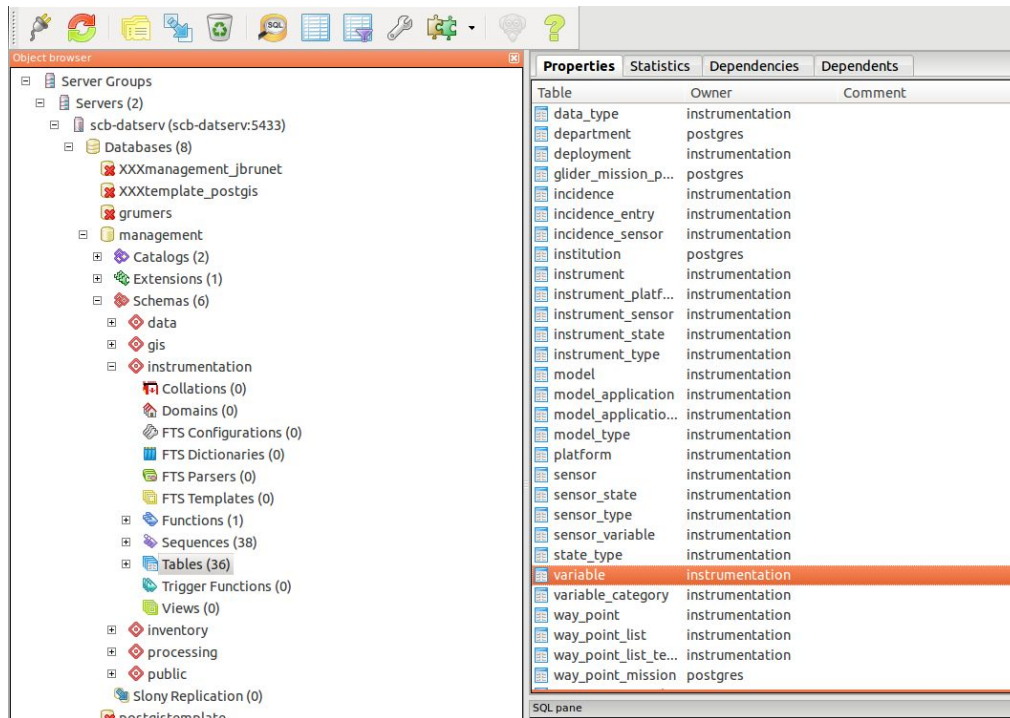
Note: Ask IT manager for the password.

The screenshot shows the 'New Server Registration' dialog box with the following fields and values:

- Name: scb-datserv
- Host: scb-datserv
- Port: 5433
- Service: (empty)
- Maintenance DB: postgres
- Username: datanucleus
- Password: (masked with asterisks)
- Store password: ☒
- Colour: (empty)
- Group: Servers

Buttons at the bottom: Ayuda, Aceptar, Cancelar.

- Connect to scb-db01.
- Select Management database.
- Select Instrumentation Schemas.
- Select variable table.



- Select the variable required.
- Set **variable_favourite** boolean to TRUE.

	old	modification bigint	modification bigint	variable_id [PK] bigint	variable_n text	variable_c text	variable_d text	variable_g text	variable_a text	variable_favourite boolean	variable_v bigint	variable_c bigint	variable_deprecated boolean	variab chara
14	37982	1305117077		19	air temper	K	Air temper	11 E130	ta	TRUE	3	1	FALSE	
15	37897			20	air temper	K	"anomaly"	25	' '	FALSE		1	FALSE	
16	37961			21	air temper	K	cloud top	' '	' '	FALSE	10	1	FALSE	

4.2.3. Sensor

- Select the different sensors belonging to the instrument used for the CTD data through the menu Equipment > Sensor.

Name	Model	Serial	Manufacturer	Purchase date	Sensor type	Instrument
ATEM-SBE902	SBE3	03P5427	Sea Bird	2011-07-25 12:35:00	Temperature	SCB-SBE902
ATEM-SBE902.2	SBE3	03P5449	Sea Bird	2011-07-25 12:35:00	Temperature	SCB-SBE902
COND-SBE902	SBE4C	043872	Sea Bird	2011-07-25 12:40:00	Conductivity	SCB-SBE902
COND-SBE902.2	SBE4C	043877	Sea Bird	2011-07-25 12:40:00	Conductivity	SCB-SBE902
OXI-SBE902	SBE43	432117	Sea Bird	2011-07-25 12:49:00	Oxygen	SCB-SBE902
TURB-SBE902	STM Sea Point	12181	Sea Bird	2011-07-25 12:50:00	Turbidity	SCB-SBE902
PAR-SBE902	PAR Biospherical QC	70363	Sea Bird	2011-07-25 11:08:00	PAR	SCB-SBE902
TRANS-SBE902	WCT-Lab 0.25-600	CS1-14130R	Sea Bird	2011-07-25 11:10:00	transducer	SCB-SBE902
APRE-SBE902	0-10,000psia	119076	Sea Bird	2011-07-25 12:44:00	Pressure	SCB-SBE902
FLUO-SB-SBE902	Seapoint 6000m	3298	Sea Bird	2011-07-25 12:53:00	Fluorometer	SCB-SBE902
SPAR-SBE902	PAR Superfide Bios.	20395	Sea Bird	2011-07-25 11:08:00	PAR	SCB-SBE902
ALTIM-SB-SBE902	Datasonica PSA 916D	52712	Teledyne	2011-07-25 11:06:00	altimeter	SCB-SBE902
DEPTH-SCB-SBE902				2013-02-20 13:35:59	depth_derived	SCB-SBE902
FLUO003-SCB-SBE902/MOORESS	Seapoint 6000m	12995	Sea Bird	2011-07-25 12:53:00	Fluorometer	SCB-SBE902

- Set the **associated variables** for each sensor and change the Name according to the NetCDF variable name.

For example **surface_downwelling_photosynthetic_photon_flux_in_air** will be **SDPAR**.

surface_downwelling_photosynthetic_photon_flux_in_air sensor-variable relation form

Name:

Units: *Precision: *Level:

Variable category: Variable:

surface_downwelling_photosynthetic_photon_flux_in_air sensor-variable relation form

Name:

Units: *Precision: *Level:

Variable category: Variable:

4.2.4. Instrument

- Select the **instrument** used for the CTD data acquisition through the menu Equipment > Instrument.
- Add the different **sensors Installed** window moving them from **available sensors** window

Name	Serial	UTC install date	UTC uninstal date
ALTIM SCB-SBE902	52712	2011-07-29 11:20:00	
COND-SBE902	043672	2011-07-27 12:56:00	
COND-SBE902.2	043677	2011-07-27 12:56:00	
DEPTH SCB-SBE902		2014-06-16 12:18:08	
FLUO-SCB-SBE902	3258	2011-07-27 12:57:00	
OXI-SBE902	432117	2011-07-27 12:57:00	
PAR-SBE902	70363	2011-07-29 11:20:00	
SPAR-SBE902	26395	2011-07-29 11:20:00	
TRANS-SBE902	CST-1413DR	2011-07-29 11:20:00	
TURB-SBE902	12181	2011-07-27 12:57:00	
WPRE-SBE902	119076	2011-07-27 12:56:00	
WTEM-SBE902	03P5427	2011-07-27 12:56:00	
WTEM-SBE902.2	03P5449	2011-07-27 12:56:00	

4.2.5. SOCIB RV Platform

- Select the **platform SOCIB_RV** through the menu Processing > Platform.
- Add an **Installed instrument** from the **available instruments** window.

Name	UTC install date	UTC uninstal date	Height	Is fixed
SCB-MET009	2013-03-11 12:03:28		0	no
SCB-POS001	2013-02-06 12:41:24		0	no
SCB-SBE9001	2014-02-01 09:28:36			no
SCB-SBE9001_v1	2013-02-06 05:00:00			no
SCB-SBE9002	2014-02-01 11:00:00			no
SCB-TSL001	2013-02-15 11:38:39		0	no

- Go to **States** and be sure that the instrument ticks Deployed, Registered and Working are enabled.

Platform									
Management Deployments Models Classification Data Locations Processing Utilities									
Management Deployments Instruments Process Process platform Variables Parsing function catalog Sensors Platforms									
SOCIB_RV									
Platform Instruments States Image									
Platform type Photo available									
Profiler_Drifter_AIVORA3001 Drifter > Profiler drifter									
Profiler_Drifter_AIVORA0001 Drifter > Profiler drifter									
Profiler_Drifter_AIVORA0001 Drifter > Profiler drifter									
Ramon_Margalef_RV Research Vessel									
SOCIB_RV Research Vessel									

Installed instruments						
Open instrument Platform Sensor						
Name	UTC install date	UTC uninstall date	Height	Is fixed	Instrument state	
SCB-MET009	2013-03-11 12:00:00		0	no	state when checked	state when unchecked UTC date (last charge)
SCB-POS001	2013-02-08 12:14:24		0	no	Deployed	Stored 2014-06-16 12:18:19
SCB-SBE901	2014-02-01 09:28:06		0	no	Registered	Unregistered 2011-12-15 11:08:24
SCB-SBE901_v1	2013-02-06 00:00:00		0	no	Working	Broken 2011-12-15 11:08:24
SCB-SBE9002	2014-03-01 11:00:00		0	no		
SCB-TSL001	2013-02-15 11:39:59		0	no		

4.2.6. CTD_SBE90 Process

- Go to Processing > Process and search **CTD_SBE90** process.

Processing variables									
Name	Variable	Type							
BEAM_ATTEN	volume_beam_attenuation_coefficient...	Mandatory							
CHLO	chl_a_fluorescence	Mandatory							
COND_01	sea_water_electrical_conductivity	Mandatory							
COND_02	sea_water_electrical_conductivity	Mandatory							
DEPTH	depth	Mandatory							
DRWR	downwelling_photosynthetic_photon...	Mandatory							
LAT	latitude	Mandatory							
LON	longitude	Mandatory							
OXI_CON	mass_concentration_of_oxygen_in_s...	Mandatory							
SALT_01	sea_water_practical_salinity	Mandatory							
SALT_02	sea_water_practical_salinity	Mandatory							
SDPAR	surface_downwelling_photosynthetic...	Mandatory							
TURB	turbidity_of_sea_water	Mandatory							
WTR_PRE	sea_water_pressure	Mandatory							
WTR_TEM_01	sea_water_temperature	Mandatory							
WTR_TEM_02	sea_water_temperature	Mandatory							

Associated dimensions		Dimension catalog	
Dimension		Name	Description
altitude		altitude	altitude without values
depth		depth	depth without values
depth_01		depth_01	Depth for DISC-01 sensor of IME-BUOY001
depth_05		depth_05	Depth for WTT05 sensor of IME-BUOY001
depth_06		depth_06	Depth for WTT06 sensor of IME-BUOY001
depth_07		depth_07	Depth for WTT07 sensor of IME-BUOY001
depth_09		depth_09	Depth for DISC-09 sensor of IME-BUOY001
depth_10		depth_10	Depth for TURB and COND sensor of IME-BUOY001
depth_12		depth_12	Depth for CLO sensor of IME-BUOY001
depth_13		depth_13	Depth for WTT13 sensor of IME-BUOY001
depth_15		depth_15	Depth for WTT15 sensor of IME-BUOY001
depth_17		depth_17	Depth for WTT17 sensor of IME-BUOY001
depth_19		depth_19	Depth for DISC-19 sensor of IME-BUOY001
depth_adcp2		depth_adcp2	depth levels for ADCP instrument (from the
depth_adcp3		depth_adcp3	depth levels of ADCP installed in Station La Milla and
depth_disc_ime_buo001		depth_disc_ime_buo001	Depth for DISC sensors of the IME-BUOY001

- Generate the **Processing variables** that might be missing. You may copy an existing one and edit it according to the new variable settings.

The following fields are required:

- Name: NetCDF variable name (for example *BEAM_ATTEN*)
- Display name: Short name (for example *Beam attenuation*)
- Coordinates: time LAT LONG DEPTH
- Is mandatory: TRUE
- Precision: 0.0001
- Resolution: 0.0001 (not really used)
- Long value: Long name (for example *Sea water beam attenuation*)
- Input units: Units used in raw data (for example *m-1*)
- Variable: Select variable from menu (for example *volume_beam_attenuation_coefficient_of_radiative_flux_in_sea_water*)
- click update button

***New Derived Variable Form**

*Name: **BEAM_ATTEN** *Display name: Beam attenuation *Is mandatory: ☒

Coordinates: time LAT LON DEPTH

*Minimum Value: *Maximum Value:

*Ancillary variables:

*References:

*Uncertainty: *Offset: *Accuracy:

*Original name:

*History:

*Scale factor: *Precision: 0.0001 *Resolution: 0.0001 *DM Indicator:

*Comment:

*Long value: Sea water beam attenuation *Input units: m-1

Variable: volume_beam_attenuation_coefficient_of_radiative_flux_in_sea_water

*Process: CTD_SBE90

Delete Update Close

- Set the **Associated dimension** as follows:
 - LAT and LON: time
 - Other variables: time and depth

SOCIB Management *Deployments *Instruments *Process *Process platform *Variables *Parsing function catalog *Sensors *Platforms

CTD_SBE90

Name: CTD_SBE90 CTD_SBE90_old

Processing variables

Name	Variable	Type
BEAM_ATTEN	volume_beam_attenuation_coefficient_of_radiative_flux_in_sea_water	Mandatory
CHL_O	chl_a_fluorescence	Mandatory
COND_01	sea_water_electrical_conductivity	Mandatory
COND_02	sea_water_electrical_conductivity	Mandatory
DEPTH	depth	Mandatory
DPAR	downwelling_photosynthetic_photon_flux	Mandatory
LAT	latitude	Mandatory
LON	longitude	Mandatory
OXI_CON	mass_concentration_of_oxygen_in_sea_water	Mandatory
SALT_01	sea_water_practical_salinity	Mandatory
SALT_02	sea_water_practical_salinity	Mandatory
SDPAR	surface_downwelling_photosynthetic_photon_flux	Mandatory
TURB	turbidity_of_sea_water	Mandatory
WTR_PRE	sea_water_pressure	Mandatory
WTR_TEM_01	sea_water_temperature	Mandatory
WTR_TEM_02	sea_water_temperature	Mandatory

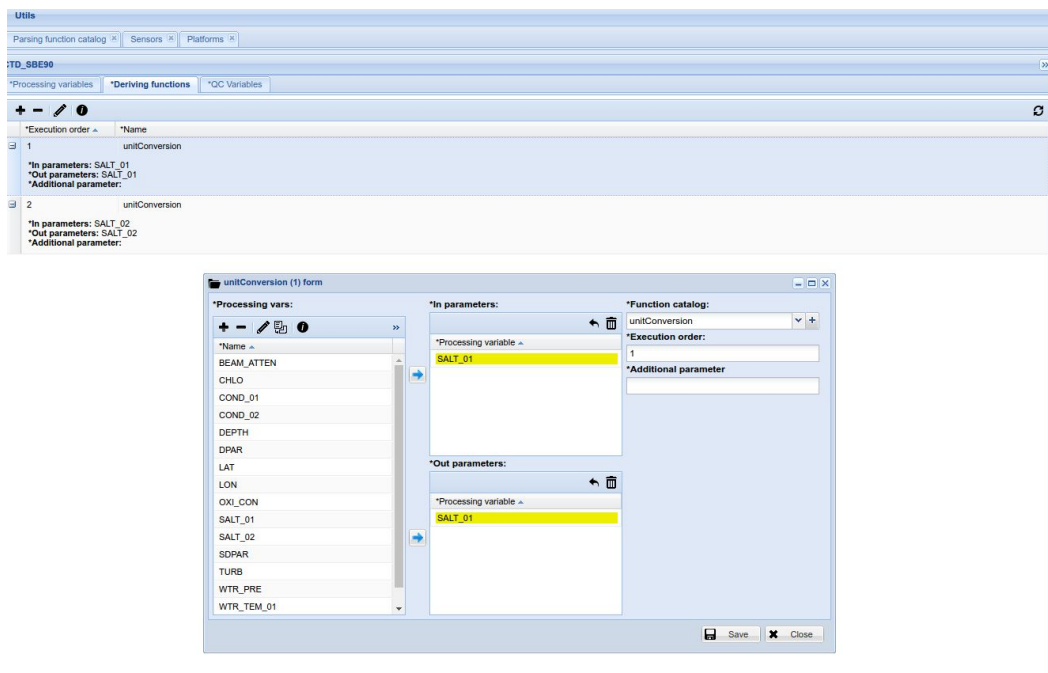
Associated dimensions

Dimension catalog

Name	Description
altitude	altitude without values
depth	depth without values
depth_01	Depth for DISC-01 sensor of IME-BUOY001
depth_03	Depth for WT03 sensor of IME-BUOY001
depth_05	Depth for WT05 sensor of IME-BUOY001
depth_07	Depth for WT07 sensor of IME-BUOY001
depth_09	Depth for DISC-09 sensor of IME-BUOY001
depth_10	Depth for TURB and COND sensor of IME-BUOY001
depth_12	Depth for CLO sensor of IME-BUOY001
depth_13	Depth for WT13 sensor of IME-BUOY001
depth_15	Depth for DISC-15 sensor of IME-BUOY001
depth_17	Depth for WT17 sensor of IME-BUOY001
depth_19	Depth for DISC-19 sensor of IME-BUOY001
depth_adcp	depth levels for AXY's current instruments (now the depth levels of adcp installed in Station La Mola and depth levels of Mobins adcp)
depth_adcp2	
depth_adcp3	

- Set the **Deriving functions** as follows:
 - SALT_01:
 - In parameters: SALT_01
 - Out parameters: SALT_01
 - Function catalog: unitConversion

- Execution order: 1
- SALT_02:
 - In parameters: SALT_02
 - Out parameters: SALT_02
 - Function catalog: unitConversion
 - Execution order: 2



- Set the **QC Variables** as follows:

Parsing function catalog x Sensors x Platforms x		
CTD_SBE90_old		
*Processing variables *Deriving functions *QC Variables		
+ - ✎ ⓘ ↺		
*Name	*Priority ▲	*Processing variable
QC_TURB	0	TURB
QC_OXI_CON	0	OXI_CON
QC_CHLO	0	CHLO
QC_SALT_02	0	SALT_02
QC_WTR_TEM_01	0	WTR_TEM_01
QC_COND_02	0	COND_02
QC_COND_01	0	COND_01
QC_SALT_01	0	SALT_01
QC_WTR_TEM_02	0	WTR_TEM_02

- For each **QC Variable** set the **Tests Instances** as follows:
 - **QC_TURB**

*Dependencies *Test instances		
- ✎ ⓘ ↺		
*Test name	*Execution order ▲	*Bad flag
valid_range	2	2
valid_range	3	4
spike	4	6
gradient	5	4
stationary	6	4
stationary	7	4

	valid max	valid min	peak threshold	max gradient	variance	window length
valid_range	15	0	-	-	-	-
valid_range	25	0	-	-	-	-
spike	-	-	3	-	-	-
gradient	-	-	-	0.0005	-	-
stationary	-	-	-	-	0	21600

stationary	-	-	-	-	0.1	43200
------------	---	---	---	---	-----	-------

○ **QC_CHLO**

No Test Instances enabled.

○ **QC_SALT_02**

*Dependencies			*Test instances		
- [edit] [info]			[refresh]		
*Test name	*Execution order ▲	*Bad flag			
valid_range	2	2			
valid_range	3	4			
spike	4	6			
gradient	5	4			
stationary	6	4			
stationary	7	4			

	valid max	valid min	peak threshold	max gradient	variance	window length
valid_range	39	36	-	-	-	-
valid_range	45	0	-	-	-	-
spike	-	-	0.2	-	-	-
gradient	-	-	-	0.000167	-	-
stationary	-	-	-	-	0	21600
stationary	-	-	-	-	0.1	43200

○ QC_WTR_TEM_01

*Dependencies		
*Test instances		
*Test name	*Execution order ▲	*Bad flag
valid_range	2	2
valid_range	3	4
spike	4	6
gradient	5	4
stationary	6	4
stationary	7	4

	valid max	valid min	peak threshold	max gradient	variance	window length
valid_range	30	10	-	-	-	-
valid_range	35	-5	-	-	-	-
spike	-	-	3	-	-	-
gradient	-	-	-	0.003	-	-
stationary	-	-	-	-	0	21600
stationary	-	-	-	-	0.01	43200

○ QC_COND_02

*Dependencies		
*Test instances		
*Test name	*Execution order ▲	*Bad flag
valid_range	1	4

	valid max	valid min	peak threshold	max gradient	variance	window length
valid_range	70	0	-	-	-	-

○ **QC_COND_01**

*Dependencies			*Test instances		
*Test name	*Execution order ▲	*Bad flag			
valid_range	1	4			

	valid max	valid min	peak threshold	max gradient	variance	window length
valid_range	70	0	-	-	-	-

○ **QC_SALT_01**

*Dependencies			*Test instances		
*Test name	*Execution order ▲	*Bad flag			
valid_range	2	2			
valid_range	3	4			
spike	4	6			
gradient	5	4			
stationary	6	4			
stationary	7	4			

	valid max	valid min	peak threshold	max gradient	variance	window length
valid_range	39	36	-	-	-	-
valid_range	45	0	-	-	-	-
spike	-	-	0.2	-	-	-
gradient	-	-	-	0.000167	-	-
stationary	-	-	-	-	0	21600

stationary	-	-	-	-	0.05	43200
------------	---	---	---	---	------	-------

○ **QC_WTR_TEM_02**

*Dependencies			*Test instances		
*Test name	*Execution order ▲	*Bad flag			
valid_range	2	2			
valid_range	3	4			
spike	4	6			
gradient	5	4			
stationary	6	4			
stationary	7	4			

	valid max	valid min	peak threshold	max gradient	variance	window length
valid_range	30	10	-	-	-	-
valid_range	35	-5	-	-	-	-
spike	-	-	3	-	-	-
gradient	-	-	-	0.003	-	-
stationary	-	-	-	-	0	21600
stationary	-	-	-	-	0	43200

○ **QC_OXY_CON**

No Test Instances enabled.

4.2.7. Process Platform

4.2.7.1. Process Platform SCB-SBE9001

4.2.7.1.1. Period 2013-2016

- The configuration for the CTD_SBE90 process platform for the SCB-SBE9001 instrument must be set up as follows:

***New process platform**

*Initial Date (UTC): 2013-02-01	*Time (UTC): 11:00:00	*Execution order: 2
*End Date (UTC): 	*End Time (UTC): 	*Split by criteria: no
Code: 	Source: 	Comment:
Update interval: 0	CDM data type: TrajectoryProfile	Title:
Keywords vocabulary: 	Sampling interval: 0	CF feature type: trajectoryProfile
References: 	QC Manual: 	Processing level: 0:1
Platform identifier: 		
*Process: CTD_SBE90		
Platform: SOCIB_RV		
Instrument: SCB-SBE9001		
*Path criteria: year = yyyy	*File criteria: day = yyyy/MM/dd	
*Parsing function: CtdSbe90Type5		

Buttons: Delete, Insert, Close

- The INPUT configuration must be as follows:

CTD_SBE90 for SOCIB_RV input configuration (instrument process)

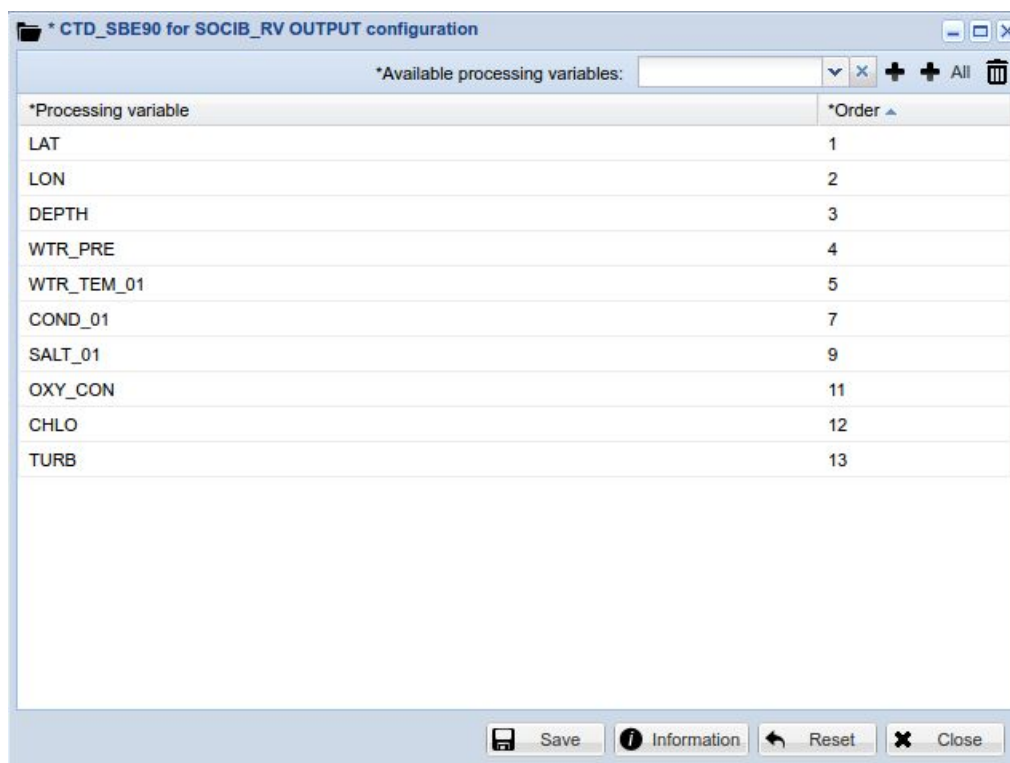
*Sensor Variable	Selected PV group	*Order ▲
WTR_PRE	WTR_PRE (sea_water_pressure)	3
WTR_TEM_01	WTR_TEM_01 (sea_water_temperature)	4
COND_01	COND_01 (sea_water_electrical_conductivity)	5
OXY_CON	OXY_CON (mass_concentration_of_oxygen_in_sea_water)	8
FLUO	CHLO (chl_a_fluorescence)	9
TURB	TURB (turbidity_of_sea_water)	10
DEPTH	DEPTH (depth)	11
SALT_01	SALT_01 (sea_water_practical_salinity)	12
LAT	LAT (latitude)	997
LON	LON (longitude)	998
WTR_PRE_SBE9001		999

Save Information Reset Close

NOTE: This INPUT configuration refers to the following SBE cnv file structure:

```
# name 0 = latitude: Latitude [deg]
# name 1 = longitude: Longitude [deg]
# name 2 = depSM: Depth [salt water, m]
# name 3 = prDM: Pressure, Digiquartz [db]
# name 4 = t090C: Temperature [ITS-90, deg C]
# name 5 = c0mS/cm: Conductivity [mS/cm]
# name 6 = sal00: Salinity, Practical [PSU]
# name 7 = density00: Density [density, kg/m^3]
# name 8 = sbeox0Mg/L: Oxygen, SBE 43 [mg/l]
# name 9 = flECO-AFL: Fluorescence, WET Labs ECO-AFL/FL [mg/m^3]
# name 10 = seaTurbMtr: Turbidity, Seapoint [FTU]
# name 11 = depSM: Depth [salt water, m], lat = 38.9998
# name 12 = sal00: Salinity, Practical [PSU]
# name 13 = density00: Density [density, kg/m^3]
# name 14 = sigma-é00: Density [sigma-theta, kg/m^3]
# name 15 = nbin: number of scans per bin
# name 16 = flag: flag
```

- The **OUTPUT configuration** must be as follows:



*Processing variable	*Order ▲
LAT	1
LON	2
DEPTH	3
WTR_PRE	4
WTR_TEM_01	5
COND_01	7
SALT_01	9
OXY_CON	11
CHLO	12
TURB	13

4.2.7.1.2. Period 2016 - present

- The configuration for the CTD_SBE90 process platform for the SCB-SBE9001 instrument must be set up as follows:

***New process platform**

*Initial Date (UTC): 2016-02-01	*Time (UTC): 10:00:00	*Execution order: 2
*End Date (UTC): 	*End Time (UTC): 	*Split by criteria: no
Code: 	Source: 	Comment:
Update interval: 0	CDM data type: TrajectoryProfile	Title:
Keywords vocabulary: 	Sampling interval: 0	CF feature type: trajectoryProfile
References: 	QC Manual: 	Processing level: 0:1
Platform identifier: 		
*Process: CTD_SBE90		
Platform: SOCIB_RV		
Instrument: SCB-SBE9001		
*Path criteria: year = yyyy		*File criteria: day = yyyy/MM/dd
*Parsing function: CtdSbe90Type6		

- The **INPUT configuration** must be as follows:

CTD_SBE90 for SOCIB_RV input configuration (Instrument process)

*Sensor Variable	Selected PV group	*Order ▲
WTR_PRE_SBE9001	WTR_PRE (sea_water_pressure)	3
WTR_TEM_01	WTR_TEM_01 (sea_water_temperature)	4
WTR_TEM_02	WTR_TEM_02 (sea_water_temperature)	5
COND_01	COND_01 (sea_water_electrical_conductivity)	7
COND_02	COND_02 (sea_water_electrical_conductivity)	8
SALT_01	SALT_01 (sea_water_practical_salinity)	10
SALT_02	SALT_02 (sea_water_practical_salinity)	11
OXY_CON	OXY_CON (mass_concentration_of_oxygen_in_sea_water)	16
SDPAR	SDPAR (surface_downwelling_photosynthetic_photon_flux_in_air)	17
DPAR	DPAR (downwelling_photosynthetic_photon_flux_in_sea_water)	18
BEAM_ATTEN	BEAM_ATTEN (volume_beam_attenuation_coefficient_of_radiati...	19
FLUO	CHLO (chl_a_fluorescence)	20
TURB	TURB (turbidity_of_sea_water)	21
DEPTH	DEPTH (depth)	22
LAT	LAT (latitude)	997
LON	LON (longitude)	998
WTR_PRE	WTR_PRE (sea_water_pressure)	999

Save Information Reset Close

NOTE: This INPUT configuration refers to the following SBE cnv file structure:

```
# name 0 = latitude: Latitude [deg]
# name 1 = longitude: Longitude [deg]
# name 2 = depSM: Depth [salt water, m]
# name 3 = prDM: Pressure, Digiquartz [db]
# name 4 = t090C: Temperature [ITS-90, deg C]
# name 5 = t190C: Temperature, 2 [ITS-90, deg C]
# name 6 = T2-T190C: Temperature Difference, 2 - 1 [ITS-90, deg C]
# name 7 = c0mS/cm: Conductivity [mS/cm]
# name 8 = c1mS/cm: Conductivity, 2 [mS/cm]
# name 9 = C2-C1mS/cm: Conductivity Difference, 2 - 1 [mS/cm]
# name 10 = sal00: Salinity, Practical [PSU]
# name 11 = sal11: Salinity, Practical, 2 [PSU]
# name 12 = secS-priS: Salinity, Practical, Difference, 2 - 1 [PSU]
# name 13 = density00: Density [density, kg/m^3]
# name 14 = density11: Density, 2 [density, kg/m^3]
```

```
# name 15 = D2-D1,d: Density Difference, 2 - 1 [density, kg/m^3]
# name 16 = sbeox0Mg/L: Oxygen, SBE 43 [mg/l]
# name 17 = spar: SPAR/Surface Irradiance
# name 18 = par: PAR/Irradiance, Biospherical/Licor
# name 19 = CStarAt0: Beam Attenuation, WET Labs C-Star [1/m]
# name 20 = flSP: Fluorescence, Seapoint
# name 21 = seaTurbMtr: Turbidity, Seapoint [FTU]
# name 22 = depSM: Depth [salt water, m], lat = 39.5
# name 23 = sal00: Salinity, Practical [PSU]
# name 24 = sal11: Salinity, Practical, 2 [PSU]
# name 25 = secS-priS: Salinity, Practical, Difference, 2 - 1 [PSU]
# name 26 = density00: Density [density, kg/m^3]
# name 27 = sigma-é00: Density [sigma-theta, kg/m^3]
# name 28 = density11: Density, 2 [density, kg/m^3]
# name 29 = sigma-é11: Density, 2 [sigma-theta, kg/m^3]
# name 30 = D2-D1,d: Density Difference, 2 - 1 [density, kg/m^3]
# name 31 = D2-D1: Density Difference, 2 - 1 [sigma-theta, kg/m^3]
# name 32 = nbin: number of scans per bin
# name 33 = flag: flag
```

- The **OUTPUT configuration** must be as follows:

*CTD_SBE90 for SOCIB_RV OUTPUT configuration

*Available processing variables: ▼ ✕ + + All 🗑

*Processing variable	*Order ▲
LAT	1
LON	2
DEPTH	3
WTR_PRE	4
WTR_TEM_01	5
WTR_TEM_02	6
COND_01	7
COND_02	8
SALT_01	9
SALT_02	10
OXY_CON	11
CHLO	12
TURB	13
SDPAR	14
DPAR	15
BEAM_ATTEN	16

💾 Save ℹ Information ↶ Reset ✕ Close

4.2.7.2. Process Platform SCB-SBE9002

- The configuration for the CTD_SBE90 process platform for the SCB-SBE9002 instrument must be set up as follows:

***New process platform**

*Initial Date (UTC): 2013-06-01	*Time (UTC): 10:00:00	*Execution order: 2
*End Date (UTC): 	*End Time (UTC): 	*Split by criteria: no
Code: 	Source: 	Comment:
Update interval: 0	CDM data type: TrajectoryProfile	Title:
Keywords vocabulary: 	Sampling interval: 0	CF feature type: trajectoryProfile
References: 	QC Manual: 	Processing level: 0:1
Platform identifier: 		
*Process: CTD_SBE90		
Platform: SOCIB_RV		
Instrument: SCB-SBE9002		
*Path criteria: year = yyyy	*File criteria: day = yyyy/MM/dd	
*Parsing function: CtdSbe90Type6		

Buttons: Delete, Update, Close

- The **INPUT** configuration must be as follows:

CTD_SBE90 for SOCIB_RV input configuration (instrument process)

*Sensor Variable	Selected PV group	*Order ▲
WTR_PRE	WTR_PRE (sea_water_pressure)	3
WTR_TEM_01	WTR_TEM_01 (sea_water_temperature)	4
WTR_TEM_02	WTR_TEM_02 (sea_water_temperature)	5
COND_01	COND_01 (sea_water_electrical_conductivity)	7
COND_02	COND_02 (sea_water_electrical_conductivity)	8
SALT_01	SALT_01 (sea_water_practical_salinity)	10
SALT_02	SALT_02 (sea_water_practical_salinity)	11
OXY_CON	OXY_CON (mass_concentration_of_oxygen_in_sea_water)	16
SDPAR	SDPAR (surface_downwelling_photosynthetic_photon_flux_in_air)	17
DPAR	DPAR (downwelling_photosynthetic_photon_flux_in_sea_water)	18
BEAM_ATTEN	BEAM_ATTEN (volume_beam_attenuation_coefficient_of_radiat...	19
FLUO	CHLO (chl_a_fluorescence)	20
TURB	TURB (turbidity_of_sea_water)	21
DEPTH	DEPTH (depth)	22
LAT	LAT (latitude)	997
LON	LON (longitude)	998
WTR_PRE_SBE9002		999

Save Information Reset Close

NOTE: This INPUT configuration refers to the following SBE cnv file structure:

```
# name 0 = latitude: Latitude [deg]
# name 1 = longitude: Longitude [deg]
# name 2 = depSM: Depth [salt water, m]
# name 3 = prDM: Pressure, Digiquartz [db]
# name 4 = t090C: Temperature [ITS-90, deg C]
# name 5 = t190C: Temperature, 2 [ITS-90, deg C]
# name 6 = T2-T190C: Temperature Difference, 2 - 1 [ITS-90, deg C]
# name 7 = c0mS/cm: Conductivity [mS/cm]
# name 8 = c1mS/cm: Conductivity, 2 [mS/cm]
# name 9 = C2-C1mS/cm: Conductivity Difference, 2 - 1 [mS/cm]
# name 10 = sal00: Salinity, Practical [PSU]
# name 11 = sal11: Salinity, Practical, 2 [PSU]
# name 12 = secS-priS: Salinity, Practical, Difference, 2 - 1 [PSU]
# name 13 = density00: Density [density, kg/m^3]
# name 14 = density11: Density, 2 [density, kg/m^3]
# name 15 = D2-D1,d: Density Difference, 2 - 1 [density, kg/m^3]
# name 16 = sbeox0Mg/L: Oxygen, SBE 43 [mg/l]
# name 17 = spar: SPAR/Surface Irradiance
# name 18 = par: PAR/Irradiance, Biospherical/Licor
# name 19 = CStarAt0: Beam Attenuation, WET Labs C-Star [1/m]
# name 20 = flSP: Fluorescence, Seapoint
```

```
# name 21 = seaTurbMtr: Turbidity, Seapoint [FTU]
# name 22 = depSM: Depth [salt water, m], lat = 40.0063
# name 23 = sal00: Salinity, Practical [PSU]
# name 24 = sal11: Salinity, Practical, 2 [PSU]
# name 25 = secS-priS: Salinity, Practical, Difference, 2 - 1 [PSU]
# name 26 = density00: Density [density, kg/m^3]
# name 27 = sigma-é00: Density [sigma-theta, kg/m^3]
# name 28 = density11: Density, 2 [density, kg/m^3]
# name 29 = sigma-é11: Density, 2 [sigma-theta, kg/m^3]
# name 30 = D2-D1,d: Density Difference, 2 - 1 [density, kg/m^3]
# name 31 = D2-D1: Density Difference, 2 - 1 [sigma-theta, kg/m^3]
# name 32 = nbin: number of scans per bin
# name 33 = flag: flag
```

- The **OUTPUT configuration** must be as follows:

* CTD_SBE90 for SOCIB_RV OUTPUT configuration

*Available processing variables: ▼ ✕ + + All 🗑️

*Processing variable	*Order ▲
LAT	1
LON	2
DEPTH	3
WTR_PRE	4
WTR_TEM_01	5
WTR_TEM_02	6
COND_01	7
COND_02	8
SALT_01	9
SALT_02	10
OXY_CON	11
CHLO	12
TURB	13
SDPAR	14
DPAR	15
BEAM_ATTEN	16

💾 Save ℹ Information ↶ Reset ✕ Close