

# Data Pre-processing

## SBE processing software configuration

*SOCIB-Data Center Facility*

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<b>Description:</b>	PSA files configuration for SBEprocessing batch process
<b>Authors:</b>	C. Munoz, K. Reeve
<b>Supervision:</b>	C. Troupin, J. Allen
<b>Involved Personnel:</b>	DCF, RVF, ETD

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## **1. INTRODUCTION:**

The aim of this document is to describe a standardized procedure to configure the batch process of the SBEprocessing software in order to process 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

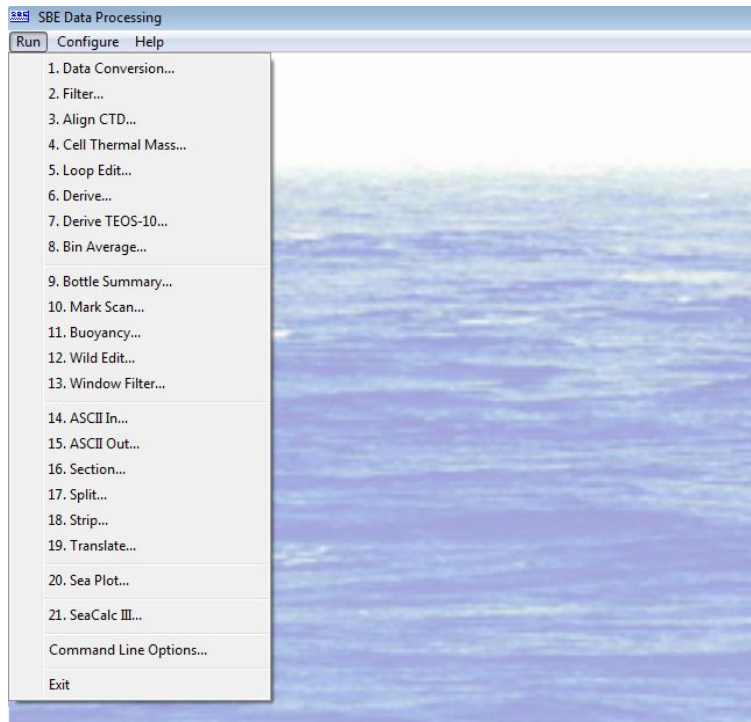
## **2. REQUIRED FEATURES**

- Desktop or laptop.
- Internet connection.
- Vessel home access.
- Windows Operating System.
- SBE Data Processing software.

## **3. PROCEDURE DEVELOPMENT**

The following sections show the proper configuration of the psa files executed in the batch process.

- Open SBEprocessing software and configure the psa files from the following sections through the RUN menu.



### 3.1. 01\_DatCnv

#### FILE SETUP

- **Program Setup File:** Save as 01\_DatCnv.psa. Must be contained in PSA\_Files directory.
- **Instrument Configuration File:** Copy the cruise xmlcon file in CON\_Files directory and rename it as SBE9-1023 or SBE9-1031 depending on which process you are.
- **Input Directory:** Set it in Step00\_hex\_files directory.
- **Output Directory:** Set it in Step01\_cnv\_files directory.

File Options Help

File Setup | Data Setup | Miscellaneous

Program setup file  
C:\Users\cmunoz\Desktop\SBESplus\_1023\PSA\_Files\01\_DatCnv.psa  
Open... Save Save As... Restore

Instrument configuration file  
C:\Users\cmunoz\Desktop\SBESplus\_1023\CON\_Files\SBES-1023.xmlcon  
Select... Modify... ☐ Match instrument configuration to input file

Input directory  
C:\Users\cmunoz\Desktop\SBESplus\_1023\CON\_Files  
Input files, 0 selected  
Select...

Output directory  
C:\Users\cmunoz\Desktop\SBESplus\_1023\CON\_Files  
Select...

Name append

Not processing

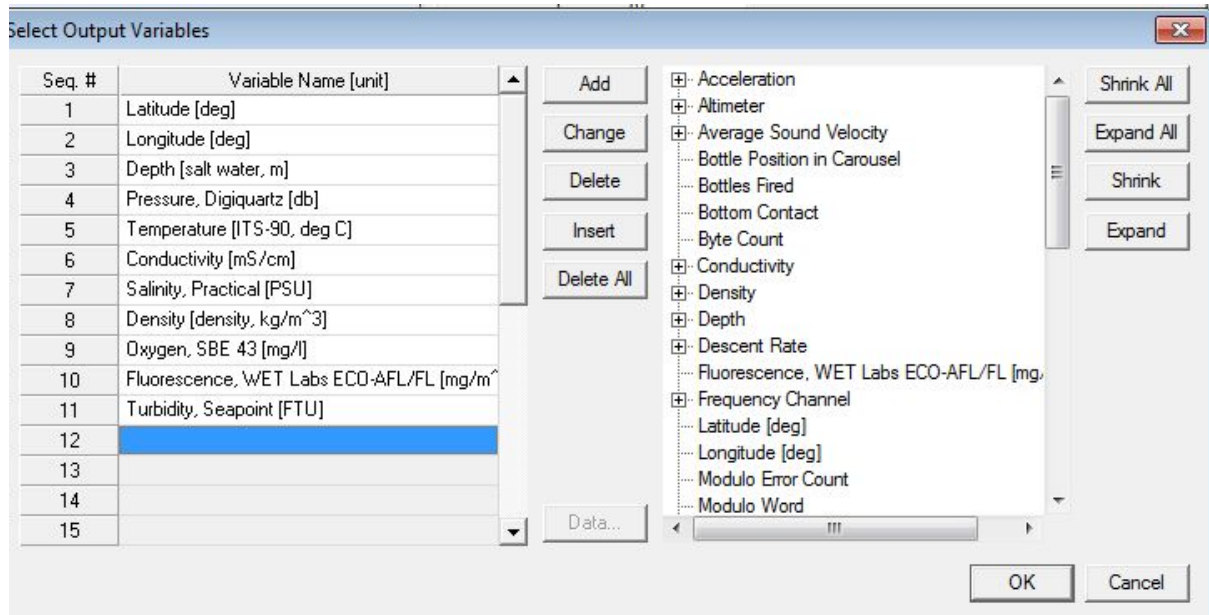
Start Process Exit Cancelar

## DATA SETUP

- Process scans to end file: TRUE
- Scans to skip over: 0
- Scans to process: 1
- Output format: ASCII output
- Convert data from: Upcast and Downcast
- Create file types: Create both data and bottle file
- Source of scan range data: Bottle log (.BL) file
- Scan range offset: 0
- Scan range duration: 2
- Merge separate header file: FALSE
- Source for start time in output .cnv header: Instrument's time stamp
- Prompt for start time and/or note: FALSE

## OUTPUT VARIABLES SCB-SBE9001 SBE9\_1023\_201303

- Add the following variables with the following order and variables:
  - Latitude (deg)
  - Longitude (deg)
  - Depth (salt water, m)
  - Pressure, Digiquartz (db)
  - Temperature (ITS-90, deg C)
  - Conductivity (mS/cm)
  - Salinity, Practical (PSU)
  - Density (density, kg/m<sup>3</sup>)
  - Oxygen, SBE43 (mg/L)
  - Fluorescence, WET Labs ECO-AF/FL(mg/m<sup>3</sup>)
  - Turbidity, Seapoint (FTU)



## OUTPUT VARIABLES SCB-SBE9001 SBE9\_1023\_201306

- Add the following variables with the following order and variables:

- Latitude (deg)
- Longitude (deg)
- Depth (salt water, m)
- Pressure, Digiquartz (db)
- Temperature (ITS-90, deg C)
- Temperature, 2 (ITS-90, deg C)
- Temperature Difference, 2 - 1 (ITS-90, deg C)
- Conductivity (mS/cm)
- Conductivity, 2 (mS/cm)
- Conductivity Difference, 2 - 1 (mS/cm)
- Salinity, Practical (PSU)
- Salinity, Practical, 2 (PSU)
- Salinity, Practical, Difference, 2 - 1 (PSU)
- Density (density, kg/m<sup>3</sup>)
- Density, 2 (density, kg/m<sup>3</sup>)
- Density Difference, 2 - 1 (density, kg/m<sup>3</sup>)
- Oxygen, SBE43 (mg/L)
- SPAR/Surface Irradiance
- PAR/Irradiance, Biospherical/Licor
- Beam Attenuation, WET Labs C-Star (1/m)
- Fluorescence, Seapoint



- Turbidity, Seapoint (FTU)

Seq. #	Variable Name [unit]
8	Conductivity [mS/cm]
9	Conductivity, 2 [mS/cm]
10	Conductivity Difference, 2 - 1 [mS/cm]
11	Salinity, Practical [PSU]
12	Salinity, Practical, 2 [PSU]
13	Salinity, Practical, Difference, 2 - 1 [PSU]
14	Density [density, kg/m <sup>3</sup> ]
15	Density, 2 [density, kg/m <sup>3</sup> ]
16	Density Difference, 2 - 1 [density, kg/m <sup>3</sup> ]
17	Oxygen, SBE 43 [mg/l]
18	SPAR/Surface Irradiance
19	PAR/Irradiance, Biospherical/Licor
20	Beam Attenuation, WET Labs C-Star [1/m]
21	Fluorescence, Seapoint
22	Turbidity, Seapoint [FTU]

## OUTPUT VARIABLES SCB-SBE9002 SBE9\_1031\_201402

- Add the following variables with the following order and variables:
  - Latitude (deg)
  - Longitude (deg)
  - Depth (salt water, m)
  - Pressure, Digiquartz (db)
  - Temperature (ITS-90, deg C)
  - Temperature, 2 (ITS-90, deg C)
  - Temperature Difference, 2 - 1 (ITS-90, deg C)
  - Conductivity (mS/cm)
  - Conductivity, 2 (mS/cm)
  - Conductivity Difference, 2 - 1 (mS/cm)
  - Salinity, Practical (PSU)
  - Salinity, Practical, 2 (PSU)
  - Salinity, Practical, Difference, 2 - 1 (PSU)
  - Density (density, kg/m<sup>3</sup>)
  - Density, 2 (density, kg/m<sup>3</sup>)
  - Density Difference, 2 - 1 (density, kg/m<sup>3</sup>)
  - Oxygen, SBE43 (mg/L)

- SPAR/Surface Irradiance
- PAR/Irradiance, Biospherical/Licor
- Beam Attenuation, WET Labs C-Star (1/m)
- Fluorescence, Seapoint
- Turbidity, Seapoint (FTU)

Seq. #	Variable Name [unit]
9	Conductivity, 2 [mS/cm]
10	Conductivity Difference, 2 - 1 [mS/cm]
11	Salinity, Practical [PSU]
12	Salinity, Practical, 2 [PSU]
13	Salinity, Practical, Difference, 2 - 1 [PSU]
14	Density [density, kg/m <sup>3</sup> ]
15	Density, 2 [density, kg/m <sup>3</sup> ]
16	Density Difference, 2 - 1 [density, kg/m <sup>3</sup> ]
17	Oxygen, SBE 43 [mg/l]
18	SPAR/Surface Irradiance
19	PAR/Irradiance, Biospherical/Licor
20	Beam Attenuation, WET Labs C-Star [1/m]
21	Fluorescence, Seapoint
22	Turbidity, Seapoint [FTU]
23	

## MISCELLANEOUS

- Latitude when NMEA is not available: 39
- Minimum pressure (db): 20
- Minimum salinity (psu): 20
- Pressure window size (db): 20
- Time window size (s): 60
- Theta-B: 0
- Salinity-B: 0
- Theta-Z/Salinity-Z: 0
- Reference pressure (db): 0
- A0: 0
- A1: 0
- A1 multiplier: Salinity
- Oxygen window size (s): 2
- Apply Tau correction: TRUE
- Apply hysteresis correction to SBE43: TRUE

- **Descent and acceleration window size (s):** 2

**Data Conversion**  
File Options Help

File Setup | Data Setup | Miscellaneous

This tab configures miscellaneous data for calculations.  
Note: Values entered only affect indicated calculations.

Depth and Average Sound Velocity  
Latitude when NMEA is not available

Average Sound Velocity  
Minimum pressure [db]   
Minimum salinity [psu]   
Pressure window size [db]   
Time window size [s]

Plume Anomaly  
Theta-B   
Salinity-B   
Theta-Z / Salinity-Z   
Reference pressure [db]

Potential Temperature Anomaly  
A0  A1  A1 Multiplier

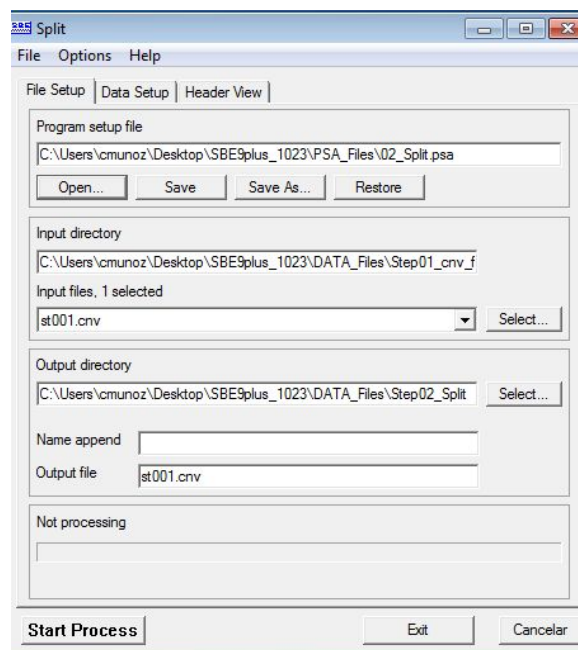
Oxygen  
Window size [s]   
☒ Apply Tau correction  
☒ Apply hysteresis correction to SBE 43 when Sea-Bird equation selected in instrument configuration file

Descent and Acceleration  
Window size [s]

## 3.2. 02\_Split

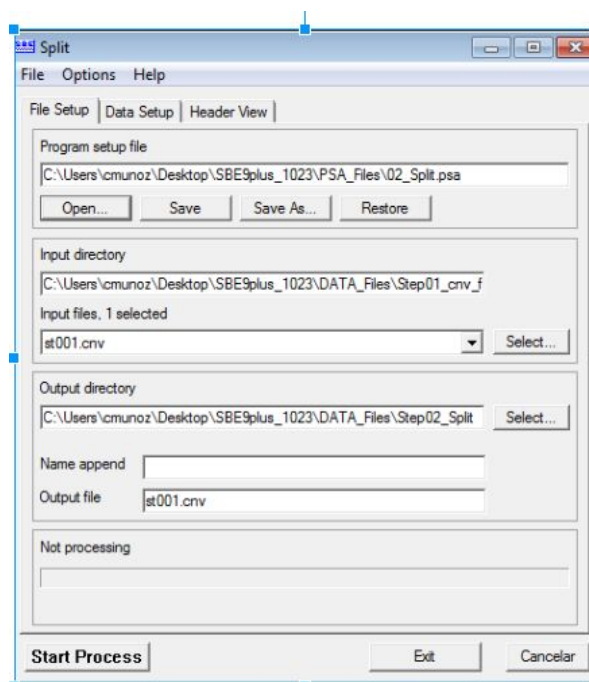
### FILE SETUP

- **Program Setup File:** Save as 02\_Split.psa. Must be contained in PSA\_Files directory.
- **Input Directory:** Set it in Step01\_cnv\_files directory.
- **Output Directory:** Set it in Step02\_Split directory.



## DATA SETUP

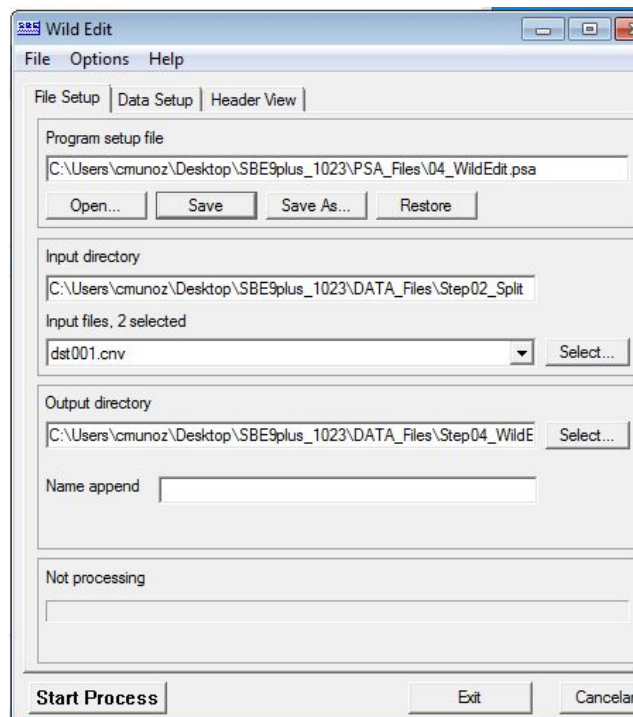
- **Output files:** Upcast and downcast
- **Exclude scans marked bad:** TRUE



### 3.3. 04\_WildEdit

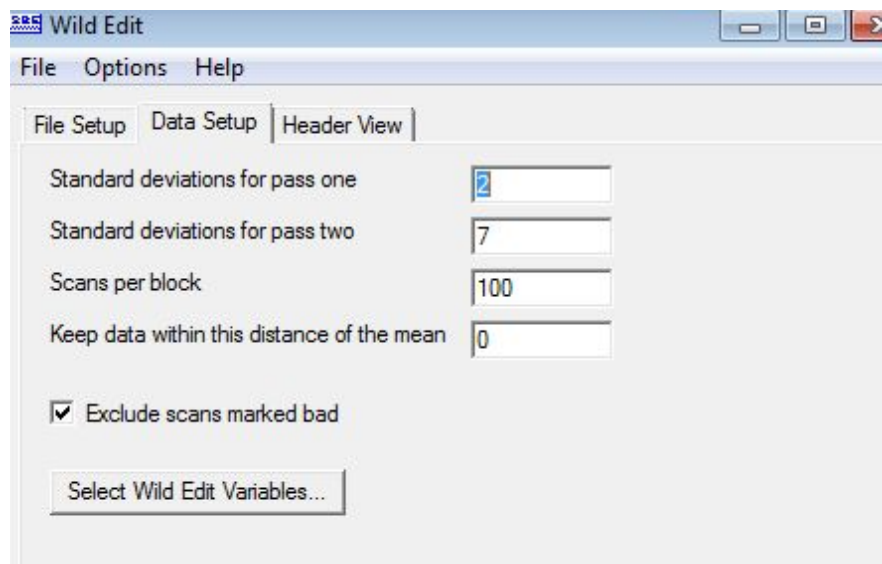
#### FILE SETUP

- **Program Setup File:** Save as 04\_WildEdit.psa. Must be contained in PSA\_Files directory.
- **Input Directory:** Set it in Step02\_Split directory.
- **Output Directory:** Set it in Step04\_WildEdit directory.



#### DATA SETUP

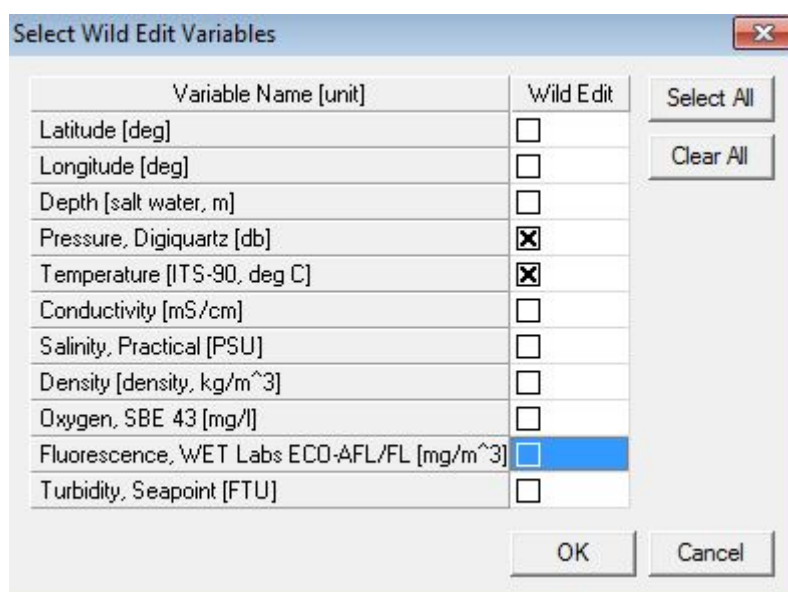
- **Standard deviations for pass 1:** 2
- **Standard deviations for pass 2:** 7
- **Scans per block:** 100
- **Keep data within this distance of the mean:** 0
- **Exclude scans marked bad:** TRUE



The 'Wild Edit' dialog box has three tabs: 'File Setup', 'Data Setup', and 'Header View'. The 'Data Setup' tab is active. It contains four input fields: 'Standard deviations for pass one' (value: 2), 'Standard deviations for pass two' (value: 7), 'Scans per block' (value: 100), and 'Keep data within this distance of the mean' (value: 0). There is a checked checkbox for 'Exclude scans marked bad' and a button labeled 'Select Wild Edit Variables...'.

### SELECT WILD EDIT VARIABLES SCB-SBE9001 SBE9\_1023\_201303

- Add the following wild edit variables with the following order:
  - Pressure, Digiquartz (db)
  - Temperature (ITS-90, deg C)



The 'Select Wild Edit Variables' dialog box shows a list of variables with checkboxes for selection. The 'Wild Edit' column has checkboxes for each variable. 'Pressure, Digiquartz [db]' and 'Temperature [ITS-90, deg C]' are checked. 'Fluorescence, WET Labs ECO-AFL/FL [mg/m^3]' is highlighted. There are 'Select All', 'Clear All', 'OK', and 'Cancel' buttons.

Variable Name [unit]	Wild Edit
Latitude [deg]	<input type="checkbox"/>
Longitude [deg]	<input type="checkbox"/>
Depth [salt water, m]	<input type="checkbox"/>
Pressure, Digiquartz [db]	<input checked="" type="checkbox"/>
Temperature [ITS-90, deg C]	<input checked="" type="checkbox"/>
Conductivity [mS/cm]	<input type="checkbox"/>
Salinity, Practical [PSU]	<input type="checkbox"/>
Density [density, kg/m^3]	<input type="checkbox"/>
Oxygen, SBE 43 [mg/l]	<input type="checkbox"/>
Fluorescence, WET Labs ECO-AFL/FL [mg/m^3]	<input type="checkbox"/>
Turbidity, Seapoint [FTU]	<input type="checkbox"/>

## SELECT WILD EDIT VARIABLES SCB-SBE9001 SBE9\_1023\_201306

- Add the following wild edit variables with the following order:
  - Pressure, Digiquartz (db)
  - Temperature (ITS-90, deg C)
  - Temperature, 2 (ITS-90, deg C)
  - Temperature Difference, 2 - 1 (ITS-90, deg C)

Variable Name [unit]	Wild Edit
Latitude [deg]	<input type="checkbox"/>
Longitude [deg]	<input type="checkbox"/>
Depth [salt water, m]	<input type="checkbox"/>
Pressure, Digiquartz [db]	<input checked="" type="checkbox"/>
Temperature [ITS-90, deg C]	<input checked="" type="checkbox"/>
Temperature, 2 [ITS-90, deg C]	<input checked="" type="checkbox"/>
Temperature Difference, 2 - 1 [ITS-90, deg C]	<input checked="" type="checkbox"/>
Conductivity [mS/cm]	<input type="checkbox"/>
Conductivity, 2 [mS/cm]	<input type="checkbox"/>
Conductivity Difference, 2 - 1 [mS/cm]	<input type="checkbox"/>
Salinity, Practical [PSU]	<input type="checkbox"/>
Salinity, Practical, 2 [PSU]	<input type="checkbox"/>
Salinity, Practical, Difference, 2 - 1 [PSU]	<input type="checkbox"/>
Density [density, kg/m <sup>3</sup> ]	<input type="checkbox"/>
Density, 2 [density, kg/m <sup>3</sup> ]	<input type="checkbox"/>

## SELECT WILD EDIT VARIABLES SCB-SBE9002

- Add the following wild edit variables with the following order:
  - Pressure, Digiquartz (db)
  - Temperature (ITS-90, deg C)
  - Temperature, 2 (ITS-90, deg C)
  - Temperature Difference, 2 - 1 (ITS-90, deg C)



Select Wild Edit Variables

Variable Name [unit]	Wild Edit
Latitude [deg]	<input type="checkbox"/>
Longitude [deg]	<input type="checkbox"/>
Depth [salt water, m]	<input type="checkbox"/>
Pressure, Digiquartz [db]	<input checked="" type="checkbox"/>
Temperature [ITS-90, deg C]	<input checked="" type="checkbox"/>
Temperature, 2 [ITS-90, deg C]	<input checked="" type="checkbox"/>
Temperature Difference, 2 - 1 [ITS-90, deg C]	<input checked="" type="checkbox"/>
Conductivity [mS/cm]	<input type="checkbox"/>
Conductivity, 2 [mS/cm]	<input type="checkbox"/>
Conductivity Difference, 2 - 1 [mS/cm]	<input type="checkbox"/>
Salinity, Practical [PSU]	<input type="checkbox"/>
Salinity, Practical, 2 [PSU]	<input type="checkbox"/>
Salinity, Practical, Difference, 2 - 1 [PSU]	<input type="checkbox"/>
Density [density, kg/m <sup>3</sup> ]	<input type="checkbox"/>
Density, 2 [density, kg/m <sup>3</sup> ]	<input type="checkbox"/>

OK Cancel

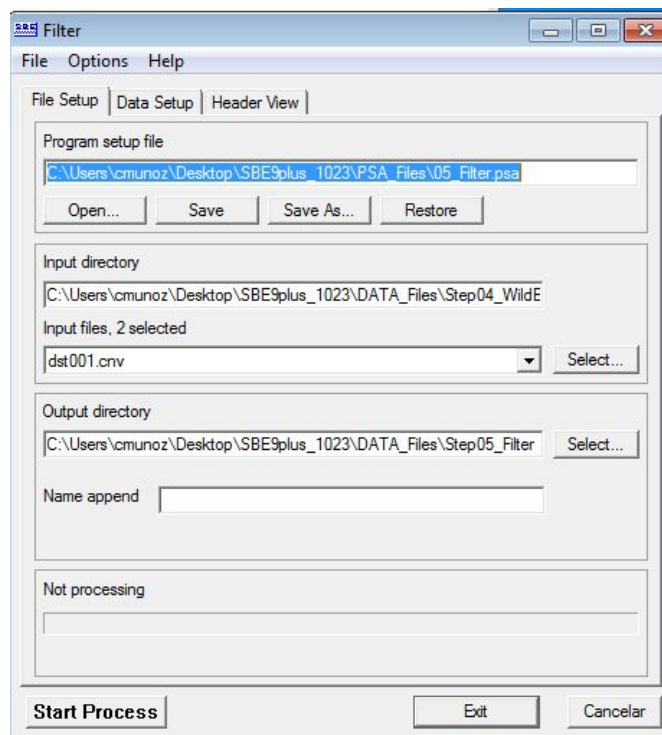
Select All  
Clear All

### 3.4. 05\_Filter

#### FILE SETUP

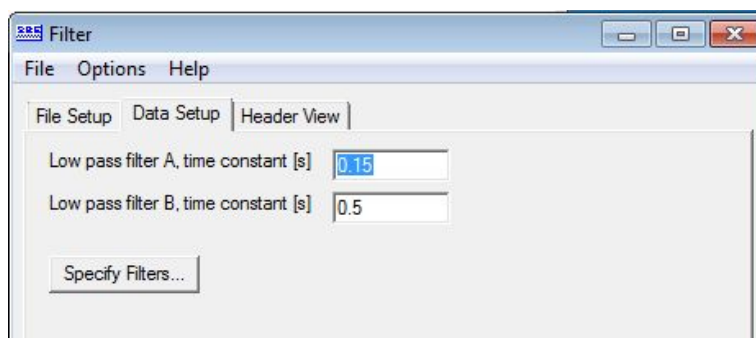
- **Program Setup File:** Save as 05\_Filter.psa. Must be contained in PSA\_Files directory.
- **Input Directory:** Set it in Step04\_WildEdit directory.
- **Output Directory:** Set it in Step05\_Filter directory.





## DATA SETUP

- Low pass filter A, time constant (s): 0.15
- Low pass filter B, time constant (s): 0.5



## SPECIFY FILTERS SCB-SBE9001 SBE\_1023\_201303

- set the following filter variables with the following types:
  - **Latitude (deg):** None
  - **Longitude (deg):** None
  - **Depth (salt water, m):** None
  - **Pressure, Digiquartz (db):** Low pass filter A
  - **Temperature (ITS-90, deg C):** Low pass filter A
  - **Conductivity (mS/cm):** None
  - **Salinity, Practical (PSU):** None
  - **Density (density, kg/m<sup>3</sup>):** None
  - **Oxygen, SBE43 (mg/L):** None
  - **Fluorescence, WET Labs ECO-AF/FL(mg/m<sup>3</sup>):** None
  - **Turbidity, Seapoint (FTU):** None

Variable Name [unit]	Filter Type
Latitude [deg]	None
Longitude [deg]	None
Depth [salt water, m]	None
Pressure, Digiquartz [db]	Low pass filter A
Temperature [ITS-90, deg C]	Low pass filter A
Conductivity [mS/cm]	None
Salinity, Practical [PSU]	None
Density [density, kg/m <sup>3</sup> ]	None
Oxygen, SBE 43 [mg/l]	None
Fluorescence, WET Labs ECO-AFL/FL [mg/m <sup>3</sup> ]	None
Turbidity, Seapoint [FTU]	None

## SPECIFY FILTERS SCB-SBE9001 SBE\_1023\_201306

- Set the following filter variables with the following types:
  - **Latitude (deg):** None
  - **Longitude (deg):** None
  - **Depth (salt water, m):** None
  - **Pressure, Digiquartz (db):** Low pass filter A
  - **Temperature (ITS-90, deg C):** Low pass filter A

- **Temperature, 2 (ITS-90, deg C):** Low pass filter A
- **Temperature Difference, 2 - 1(ITS-90, deg C):** None
- **Conductivity (mS/cm):** None
- **Conductivity, 2 (mS/cm):** None
- **Conductivity Difference, 2 - 1 (mS/cm):** None
- **Salinity, Practical (PSU):** None
- **Salinity, Practical, 2 (PSU):** None
- **Salinity, Practical, Difference, 2 - 1 (PSU):** None
- **Density (density, kg/m³):** None
- **Density, 2 (density, kg/m³):** None
- **Density, Difference, 2 - 1 (density, kg/m³):** None
- **Oxygen, SBE43 (mg/L):** None
- **PAR/Irradiance, Biospherical/Licor:** None
- **Beam Attenuation, WET Labs C-Star (1/m)** None
- **Fluorescence, Seapoint:** None
- **Turbidity, Seapoint (FTU):** None

**Specify Filters** ✕

Variable Name [unit]	Filter Type
Latitude [deg]	None
Longitude [deg]	None
Depth [salt water, m]	None
Pressure, Digiquartz [db]	Low pass filter A
Temperature [ITS-90, deg C]	Low pass filter A
Temperature, 2 [ITS-90, deg C]	Low pass filter A
Temperature Difference, 2 - 1 [ITS-90, deg C]	None
Conductivity [mS/cm]	None
Conductivity, 2 [mS/cm]	None
Conductivity Difference, 2 - 1 [mS/cm]	None
Salinity, Practical [PSU]	None
Salinity, Practical, 2 [PSU]	None
Salinity, Practical, Difference, 2 - 1 [PSU]	None
Density [density, kg/m³]	None
Density, 2 [density, kg/m³]	None

OK Cancel

## SPECIFY FILTERS SCB-SBE9002

- Set the following filter variables with the following types:
  - **Latitude (deg):** None
  - **Longitude (deg):** None
  - **Depth (salt water, m):** None
  - **Pressure, Digiquartz (db):** Low pass filter A
  - **Temperature (ITS-90, deg C):** Low pass filter A
  - **Temperature, 2 (ITS-90, deg C):** Low pass filter A
  - **Temperature Difference, 2 - 1(ITS-90, deg C):** None
  - **Conductivity (mS/cm):** None
  - **Conductivity, 2 (mS/cm):** None
  - **Conductivity Difference, 2 - 1 (mS/cm):** None
  - **Salinity, Practical (PSU):** None
  - **Salinity, Practical, 2 (PSU):** None
  - **Salinity, Practical, Difference, 2 - 1 (PSU):** None
  - **Density (density, kg/m<sup>3</sup>):** None
  - **Density, 2 (density, kg/m<sup>3</sup>):** None
  - **Density, Difference, 2 - 1 (density, kg/m<sup>3</sup>):** None
  - **Oxygen, SBE43 (mg/L):** None
  - **SPAR/Surface Irradiance:** None
  - **PAR/Irradiance, Biospherical/Licor:** None
  - **Fluorescence, Seapoint:** None
  - **Turbidity, Seapoint (FTU):** None

Specify Filters

Variable Name [unit]	Filter Type
Latitude [deg]	None
Longitude [deg]	None
Depth [salt water, m]	None
Pressure, Digiquartz [db]	Low pass filter A
Temperature [ITS-90, deg C]	Low pass filter A
Temperature, 2 [ITS-90, deg C]	Low pass filter A
Temperature Difference, 2 - 1 [ITS-90, deg C]	None
Conductivity [mS/cm]	None
Conductivity, 2 [mS/cm]	None
Conductivity Difference, 2 - 1 [mS/cm]	None
Salinity, Practical [PSU]	None
Salinity, Practical, 2 [PSU]	None
Salinity, Practical, Difference, 2 - 1 [PSU]	None
Density [density, kg/m <sup>3</sup> ]	None
Density, 2 [density, kg/m <sup>3</sup> ]	None

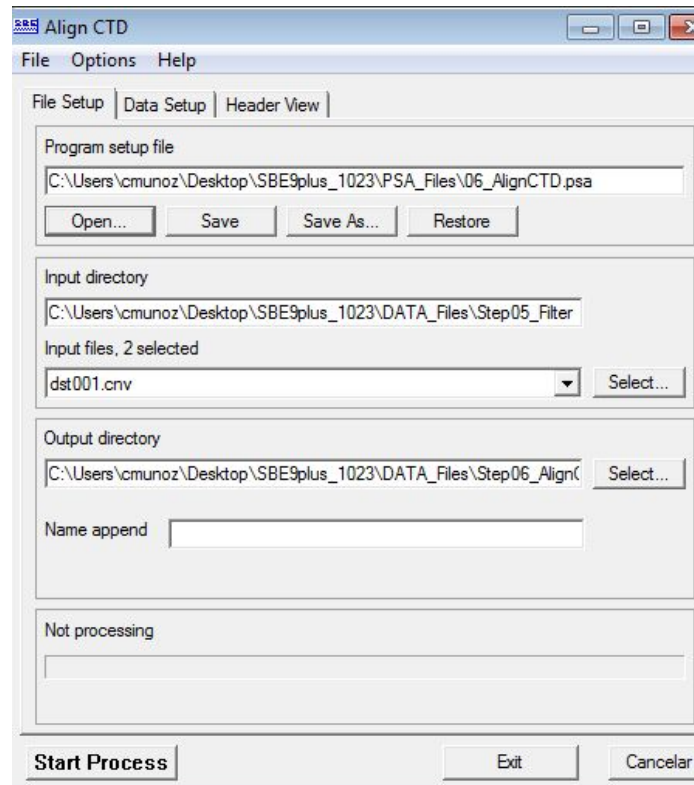
Clear All

OK Cancel

### 3.5. 06\_AlignCTD

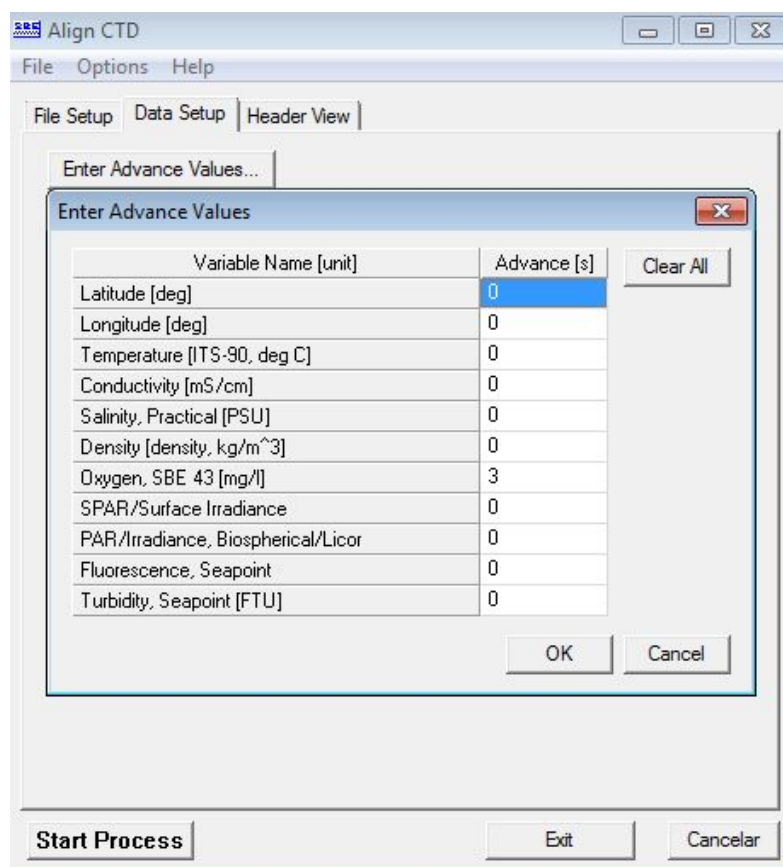
#### FILE SETUP

- **Program Setup File:** Save as 06\_AlignCTD.psa. Must be contained in PSA\_Files directory.
- **Input Directory:** Set it in Step05\_Filter directory.
- **Output Directory:** Set it in Step06\_AlignCTD directory.



## DATA SETUP

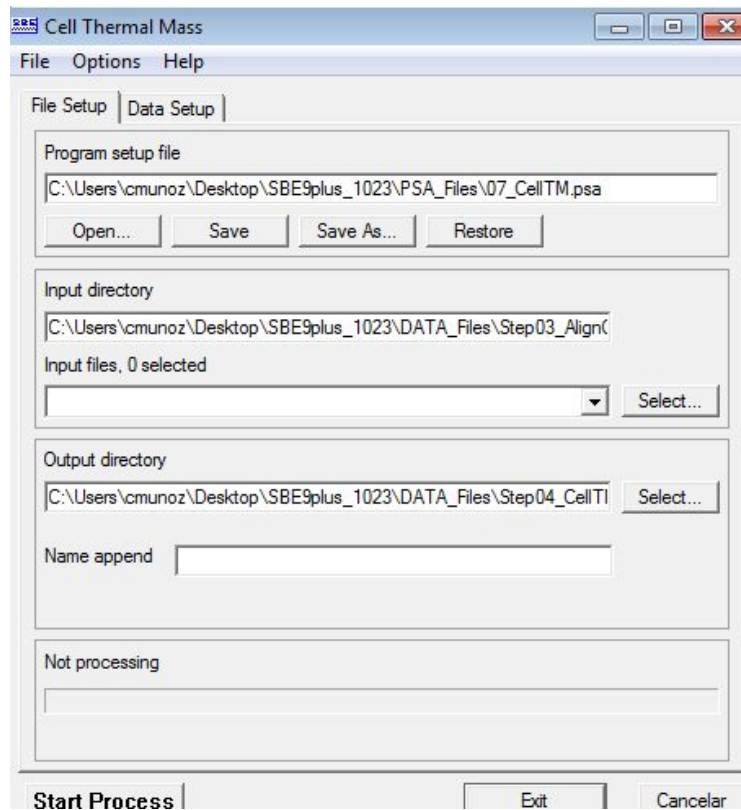
- Set the following advanced values:
  - Latitude (deg): 0
  - Longitude (deg): 0
  - Depth (salt water, m): 0
  - Pressure, Digiquartz (db): 0
  - Temperature (ITS-90, deg C): 0
  - Conductivity (mS/cm): 0
  - Salinity, Practical (PSU): 0
  - Density (density, kg/m3): 0
  - Oxygen, SBE43 (mg/L): 3
  - SPAR/Surface Irradiance: 0
  - PAR/Irradiance, Biospherical/Licor: 0
  - Fluorescence, Seapoint: 0
  - Turbidity, Seapoint (FTU): 0



### 3.6. 07\_CellTM

#### FILE SETUP

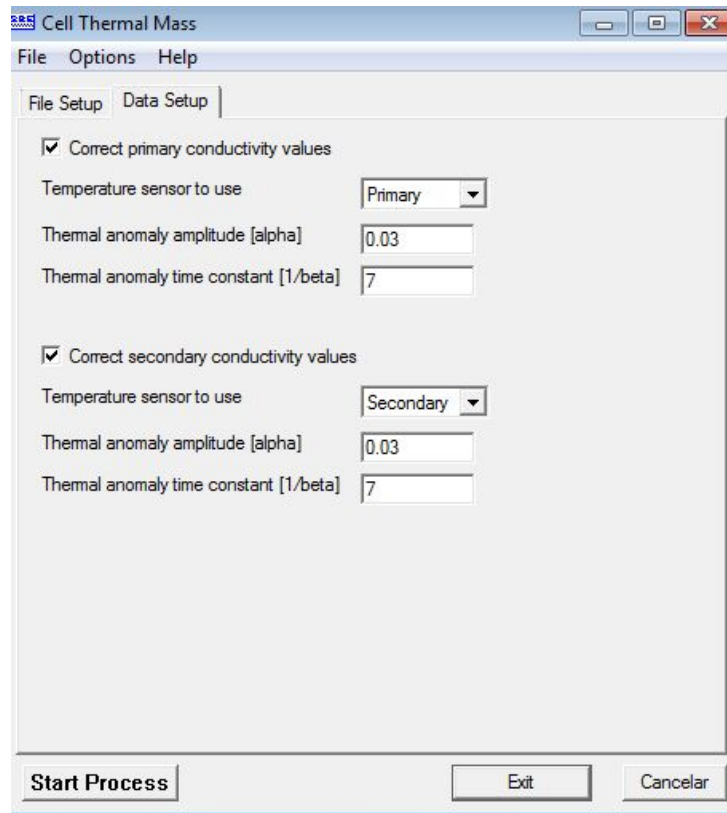
- **Program Setup File:** Save as 07\_CellTM.psa. Must be contained in PSA\_Files directory.
- **Input Directory:** Set it in Step06\_AlignCTDdirectory.
- **Output Directory:** Set it in Step07\_CelTM directory.



## DATA SETUP

- **Correct primary conductivity values:** TRUE
- **Temperature sensor to use:** primary
- **Thermal anomaly amplitude (alpha):** 0.03
- **Thermal anomaly time constant (1/beta):** 7
- **Correct secondary conductivity values:** TRUE
- **Temperature sensor to use:** secondary
- **Thermal anomaly time constant (1/beta):** 7
- **Correct secondary conductivity values:** TRUE

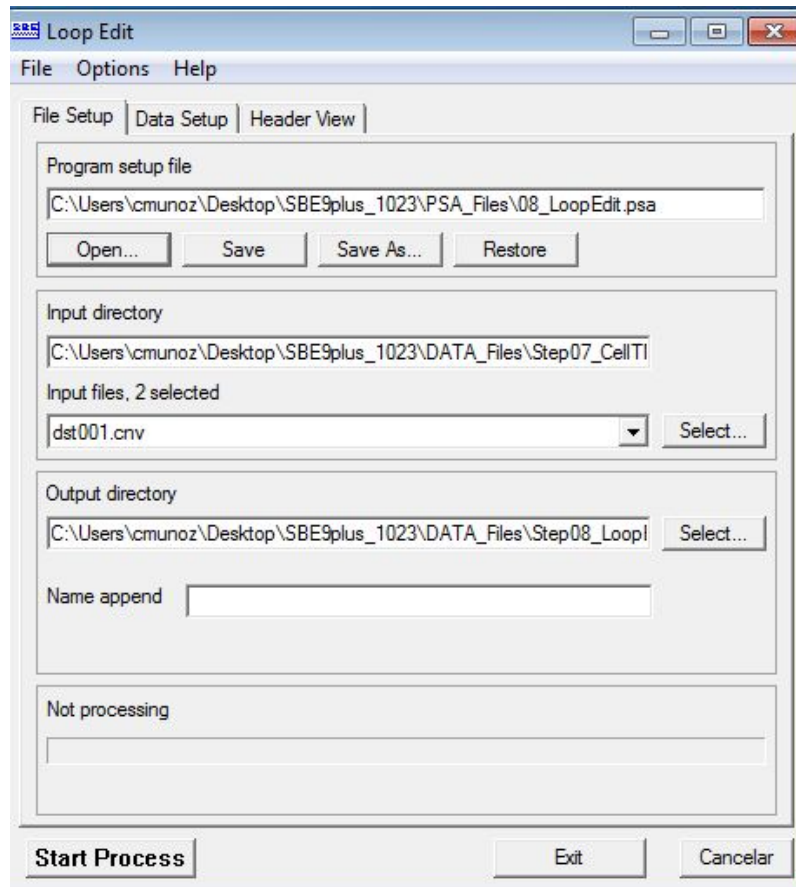




### 3.7. 08\_LoopEdit

#### LOOP EDIT FILE SETUP

- **Program Setup File:** Save as 08\_LoopEdit.psa. Must be contained in PSA\_Files directory.
- **Input Directory:** Set it in Step07\_CellTMDirectory.
- **Output Directory:** Set it in Step08\_LoopEdit directory.



## LOOP EDIT DATA SETUP

- |  |                        |
|--|------------------------|
| • <b>Minimum velocity type:</b>                | Fixed minimum velocity |
| • <b>Minimum CTD velocity (m/s):</b>           | 0.25                   |
| • <b>Window size (s):</b>                      | 300                    |
| • <b>Percent of mean speed:</b>                | 20                     |
| • <b>Remove surface soak:</b>                  | TRUE                   |
| • <b>Surface soak depth (m):</b>               | 10                     |
| • <b>Minimum soak depth (m):</b>               | 5                      |
| • <b>Maximum soak depth (m):</b>               | 20                     |
| • <b>Use deck pressure as pressure offset:</b> | TRUE                   |
| • <b>Exclude scans marked bad:</b>             | TRUE                   |

Loop Edit

File Options Help

File Setup Data Setup Header View

Minimum velocity type: Fixed minimum velocity

Minimum CTD velocity [m/s]: 0.25

Window size [s]: 300

Percent of mean speed: 20

☒ Remove surface soak

Surface soak depth [m]: 10

Minimum soak depth [m]  
(default = soak depth / 2): 5

Maximum soak depth [m]  
(default = soak depth \* 2): 20

☒ Use deck pressure as pressure offset

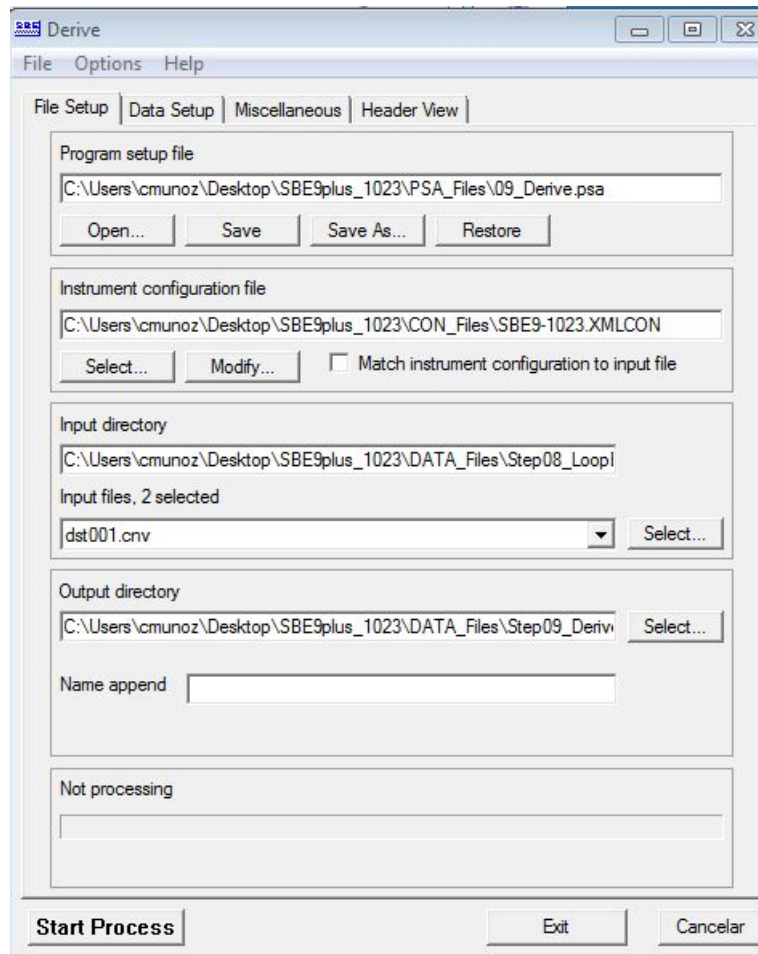
☒ Exclude scans marked bad

Start Process Exit Cancelar

### 3.8. 09\_Derive

#### DERIVE FILE SETUP

- **Program Setup File:** Save as 09\_Derive.psa. Must be contained in PSA\_Files directory.
- **Instrument Configuration File:** SBE9-1023 or SBE9-1031 depending on which process you are. Must be in CON\_Files.
- **Input Directory:** Set it in Step08\_LoopEdit directory.
- **Output Directory:** Set it in Step09\_Derive directory.

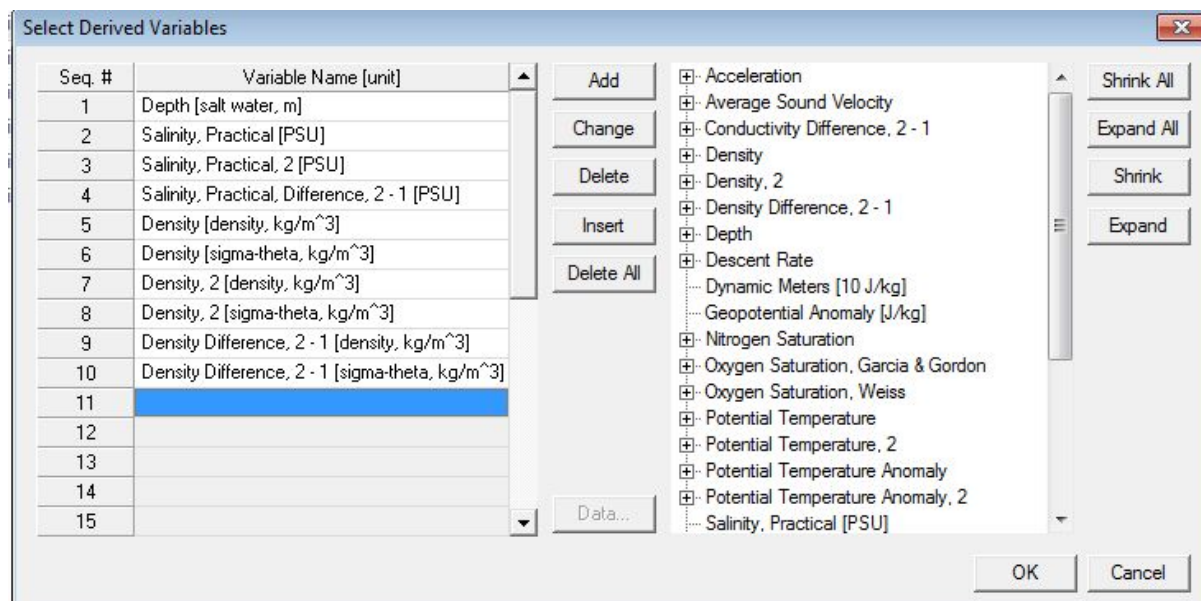


## DERIVE DATA SETUP SCB-SBE9001 SBE9\_1023\_201303

- Set the following derived variables with the order described:
  - Depth (salt water, m)
  - Salinity, Practical (PSU)
  - Density (density, kg/m<sup>3</sup>)
  - Density (sigma-theta, kg/m<sup>3</sup>)

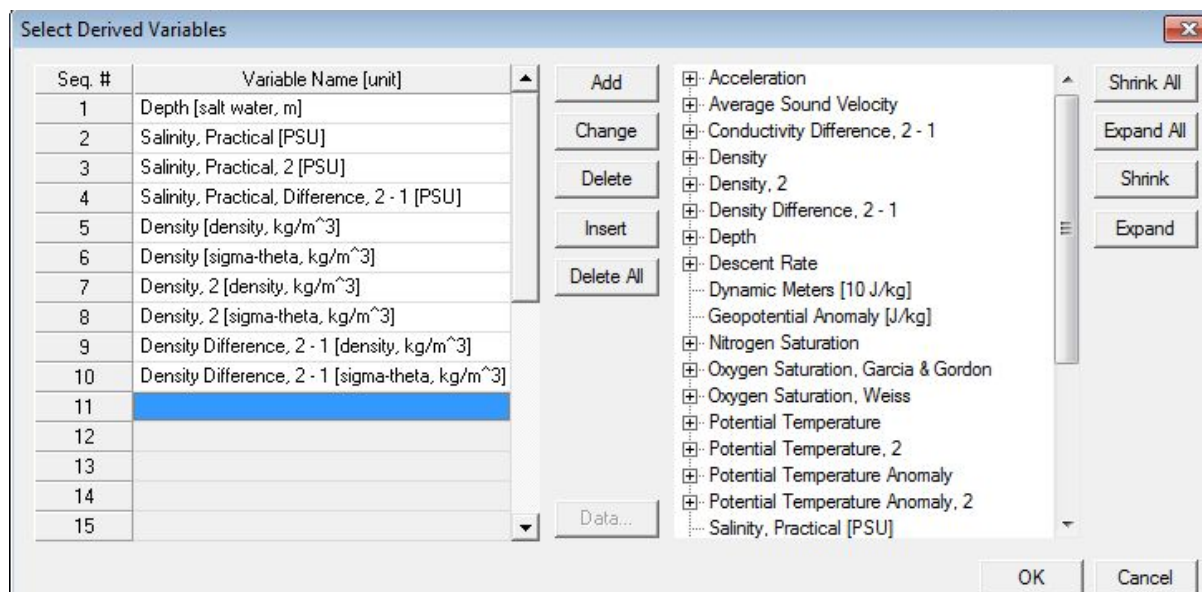
#### DERIVE DATA SETUP SCB-SBE9001 SBE9\_1023\_201306

- Set the following derived variables with the order described:
  - Depth (salt water, m)
  - Salinity, Practical (PSU)
  - Salinity, Practical, 2 (PSU)
  - Salinity, Practical, Difference, 2 - 1(PSU)
  - Density (density, kg/m<sup>3</sup>)
  - Density (sigma-theta, kg/m<sup>3</sup>)
  - Density, 2 (density, kg/m<sup>3</sup>)
  - Density, 2 (sigma-theta, kg/m<sup>3</sup>)
  - Density, Difference, 2 - 1 (density, kg/m<sup>3</sup>)
  - Density, Difference, 2 - 1 (sigma-theta, kg/m<sup>3</sup>)



## DERIVE DATA SETUP SCB-SBE9002 SBE9\_1031\_201402

- Set the following derived variables with the order described:
  - Depth (salt water, m)
  - Salinity, Practical (PSU)
  - Salinity, Practical, 2 (PSU)
  - Salinity, Practical, Difference, 2 - 1(PSU)
  - Density (density, kg/m<sup>3</sup>)
  - Density (sigma-theta, kg/m<sup>3</sup>)
  - Density, 2 (density, kg/m<sup>3</sup>)
  - Density, 2 (sigma-theta, kg/m<sup>3</sup>)
  - Density, Difference, 2 - 1 (density, kg/m<sup>3</sup>)
  - Density, Difference, 2 - 1 (sigma-theta, kg/m<sup>3</sup>)



## DERIVE MISCELLANEOUS

- **Latitude when NMEA is not available:** 39
- **Minimum pressure (db):** 20
- **Minimum salinity (psu):** 20
- **A0:** 0
- **A1:** 0
- **A1 multiplier:** Salinity
- **Oxygen window size (s):** 2
- **Apply Tau correction:** TRUE
- **Descent and acceleration window size (s):** 2



**Derive**

File Options Help

File Setup | Data Setup | **Miscellaneous** | Header View

This tab configures miscellaneous data for calculations.  
Note: Values entered only affect indicated calculations.

Depth and Average Sound Velocity  
Latitude when NMEA is not available:

Average Sound Velocity  
Minimum pressure [db]:   
Minimum salinity [psu]:

Potential Temperature Anomaly  
A0:  A1:  A1 Multiplier:

Oxygen  
Window size [s]:   
☒ Apply Tau correction

Descent and Acceleration  
Window size [s]:

### 3.9. 10\_BinAvg

#### FILE SETUP

- **Program Setup File:** Save as 10\_BinAvg.psa. Must be contained in PSA\_Files directory.
- **Input Directory:** Set it in Step09\_Derive directory.
- **Output Directory:** Set it in Step10\_BinAvg directory.



**Bin Average**

File Options Help

File Setup | Data Setup | Header View

Program setup file  
C:\Users\cmunoz\Desktop\SBE9plus\_1023\PSA\_Files\10\_BinAvg.psa  
Open... Save Save As... Restore

Input directory  
C:\Users\cmunoz\Desktop\SBE9plus\_1023\DATA\_Files\Step09\_Deriv  
Input files, 2 selected  
dst001.cnv Select...

Output directory  
C:\Users\cmunoz\Desktop\SBE9plus\_1023\DATA\_Files\Step10\_BinAv Select...

Name append

Not processing

Start Process Exit Cancel

## DATA SETUP

- **Bin type:** pressure
- **Bin size:** 0.5
- **Include number of scans per bin:** TRUE
- **Exclude scans marked bad:** TRUE
- **Scans to skip over:** 0
- **Cast to process:** upcast and downcast
- **Include surface bin:** FALSE
- **Surface bin minimum value:** 0
- **Surface bin maximum value:** 0
- **Surface bin value:** 0

**Bin Average**

File Options Help

File Setup Data Setup Header View

Bin type: Pressure

Bin size: 0.5

☒ Include number of scans per bin

☒ Exclude scans marked bad

Scans to skip over: 0

Cast to process: Upcast and downcast

☐ Include surface bin

Surface bin minimum value: 0

Surface bin maximum value: 0

Surface bin value: 0

Start Process Exit Cancel

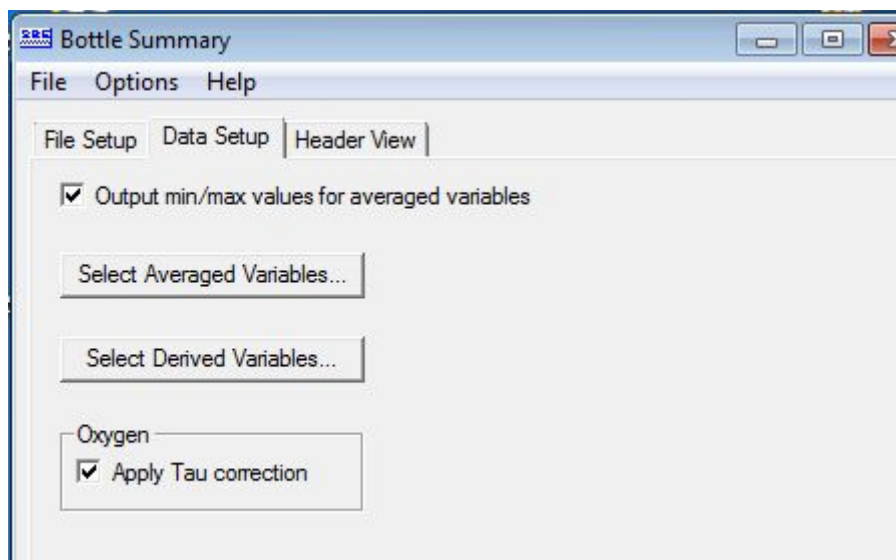
### 3.10. 11\_BottleSum

#### FILE SETUP

- **Program Setup File:** Save as 11\_BottleSum.psa. Must be contained in PSA\_Files directory.
- **Instrument Configuration File:** SBE9-1023 or SBE9-1031 depending on which process you are. Must be in CON\_Files.
- **Input Directory:** Set it in Step01\_cnv\_files directory.
- **Output Directory:** Set it in Step12\_Bottle directory.

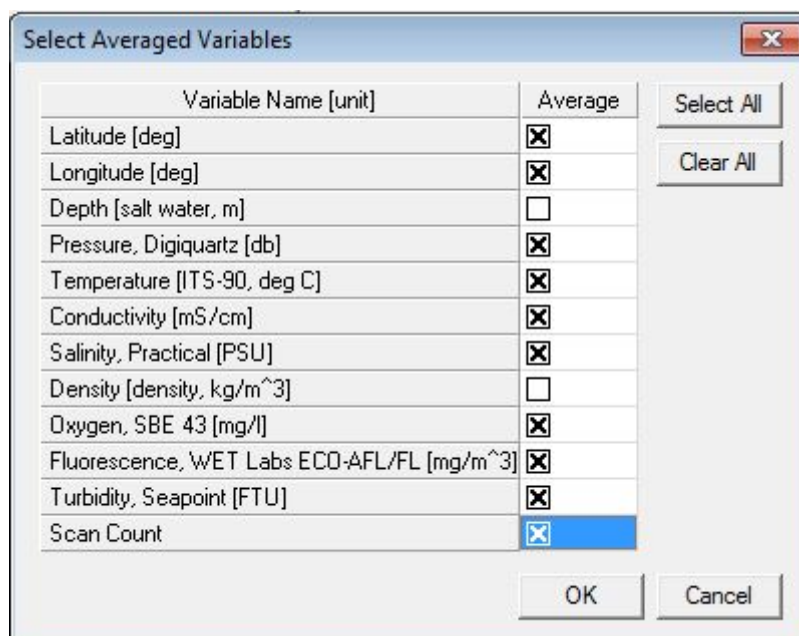
## DATA SETUP

- Output min/max values for averaged variables: TRUE
- Apply oxygen tau correction: TRUE



### SPECIFY AVERAGED VARIABLES FOR SCB-SBE9001 SBE\_1023\_201303

- Select the following averaged variables:



- Latitude (deg)
- Longitude (deg)
- Pressure, Digiquartz (db)
- Temperature (ITS-90, deg C)
- Conductivity (mS/cm)

- Salinity, Practical (PSU)
- Oxygen, SBE 43 (mg/l)
- Fluorescence, Seapoint
- Turbidity, Seapoint (FTU)
- Scan Count

### **SPECIFY AVERAGED VARIABLES FOR SCB-SBE9001 SBE\_1023\_201306**

- Select the following averaged variables:

Variable Name [unit]	Average
Latitude [deg]	<input checked="" type="checkbox"/>
Longitude [deg]	<input checked="" type="checkbox"/>
Depth [salt water, m]	<input checked="" type="checkbox"/>
Pressure, Digiquartz [db]	<input checked="" type="checkbox"/>
Temperature [ITS-90, deg C]	<input checked="" type="checkbox"/>
Temperature, 2 [ITS-90, deg C]	<input checked="" type="checkbox"/>
Temperature Difference, 2 - 1 [ITS-90, deg C]	<input checked="" type="checkbox"/>
Conductivity [mS/cm]	<input checked="" type="checkbox"/>
Conductivity, 2 [mS/cm]	<input checked="" type="checkbox"/>
Conductivity Difference, 2 - 1 [mS/cm]	<input checked="" type="checkbox"/>
Salinity, Practical [PSU]	<input checked="" type="checkbox"/>
Salinity, Practical, 2 [PSU]	<input checked="" type="checkbox"/>
Salinity, Practical, Difference, 2 - 1 [PSU]	<input checked="" type="checkbox"/>
Density [density, kg/m^3]	<input checked="" type="checkbox"/>
Density, 2 [density, kg/m^3]	<input type="checkbox"/>

Buttons: Select All, Clear All, OK, Cancel

Select Averaged Variables

Variable Name [unit]	Average
Conductivity, 2 [mS/cm]	<input checked="" type="checkbox"/>
Conductivity Difference, 2 - 1 [mS/cm]	<input checked="" type="checkbox"/>
Salinity, Practical [PSU]	<input checked="" type="checkbox"/>
Salinity, Practical, 2 [PSU]	<input checked="" type="checkbox"/>
Salinity, Practical, Difference, 2 - 1 [PSU]	<input checked="" type="checkbox"/>
Density [density, kg/m <sup>3</sup> ]	<input type="checkbox"/>
Density, 2 [density, kg/m <sup>3</sup> ]	<input type="checkbox"/>
Density Difference, 2 - 1 [density, kg/m <sup>3</sup> ]	<input type="checkbox"/>
Oxygen, SBE 43 [mg/l]	<input checked="" type="checkbox"/>
SPAR/Surface Irradiance	<input checked="" type="checkbox"/>
PAR/Irradiance, Biospherical/Licor	<input checked="" type="checkbox"/>
Beam Attenuation, WET Labs C-Star [1/m]	<input checked="" type="checkbox"/>
Fluorescence, Seapoint	<input checked="" type="checkbox"/>
Turbidity, Seapoint [FTU]	<input checked="" type="checkbox"/>
Scan Count	<input checked="" type="checkbox"/>

OK Cancel

- Latitude (deg)
- Longitude (deg)
- Depth, Salt water (m)
- Pressure, Digiquartz (db)
- Temperature (ITS-90, deg C)
- Temperature, 2 (ITS-90, deg C)
- Temperature Difference, 2 - 1 (ITS-90, deg C)
- Conductivity (mS/cm)
- Conductivity, 2 (mS/cm)
- Conductivity Difference, 2 - 1 (mS/cm)
- Salinity, Practical (PSU)
- Salinity, Practical, 2 (PSU)
- Salinity, Practical, Difference, 2 - 1 (PSU)
- Oxygen, SBE 43 (mg/l)
- SPAR/Surface Irradiance
- PAR/Irradiance, Biospherical/Licor
- Beam Attenuation, WET Labs C-Star (1/m)
- Fluorescence, Seapoint
- Turbidity, Seapoint (FTU)
- Scan Count

**SPECIFY AVERAGED VARIABLES FOR SCB-SBE9002 SBE\_1031**

- Select the following averaged variables:

Select Averaged Variables

Variable Name [unit]	Average
Latitude [deg]	<input checked="" type="checkbox"/>
Longitude [deg]	<input checked="" type="checkbox"/>
Depth [salt water, m]	<input checked="" type="checkbox"/>
Pressure, Digiquartz [db]	<input checked="" type="checkbox"/>
Temperature [ITS-90, deg C]	<input checked="" type="checkbox"/>
Temperature, 2 [ITS-90, deg C]	<input checked="" type="checkbox"/>
Temperature Difference, 2 - 1 [ITS-90, deg C]	<input checked="" type="checkbox"/>
Conductivity [mS/cm]	<input checked="" type="checkbox"/>
Conductivity, 2 [mS/cm]	<input checked="" type="checkbox"/>
Conductivity Difference, 2 - 1 [mS/cm]	<input checked="" type="checkbox"/>
Salinity, Practical [PSU]	<input checked="" type="checkbox"/>
Salinity, Practical, 2 [PSU]	<input checked="" type="checkbox"/>
Salinity, Practical, Difference, 2 - 1 [PSU]	<input checked="" type="checkbox"/>
Density [density, kg/m <sup>3</sup> ]	<input type="checkbox"/>
Density, 2 [density, kg/m <sup>3</sup> ]	<input type="checkbox"/>

OK Cancel

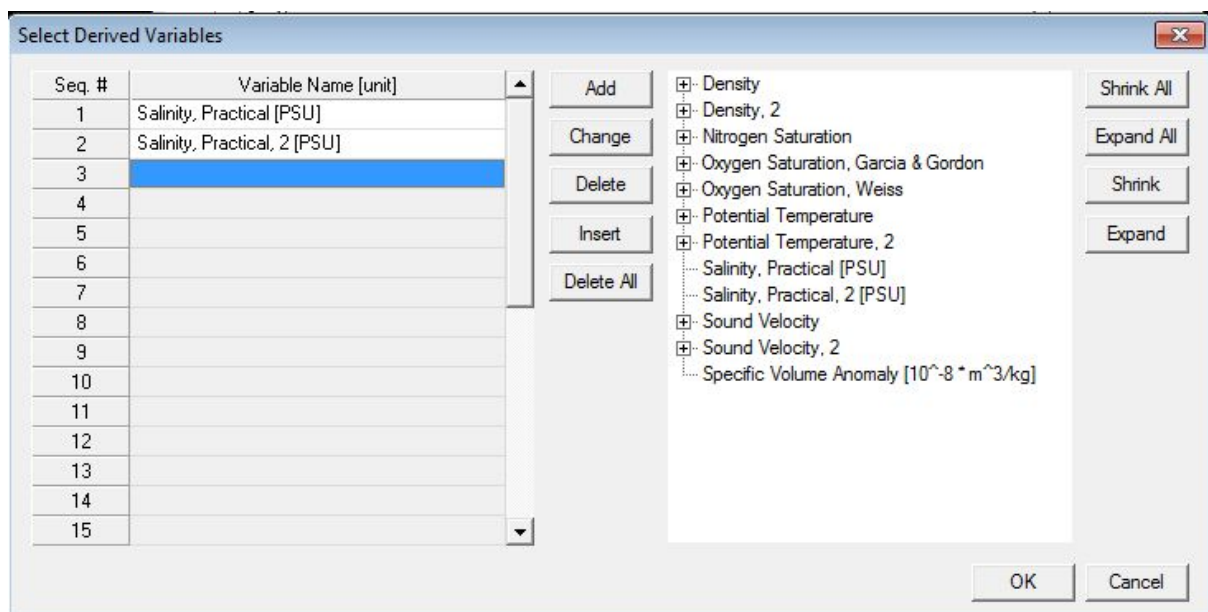
Select Averaged Variables

Variable Name [unit]	Average
Conductivity, 2 [mS/cm]	<input checked="" type="checkbox"/>
Conductivity Difference, 2 - 1 [mS/cm]	<input checked="" type="checkbox"/>
Salinity, Practical [PSU]	<input checked="" type="checkbox"/>
Salinity, Practical, 2 [PSU]	<input checked="" type="checkbox"/>
Salinity, Practical, Difference, 2 - 1 [PSU]	<input checked="" type="checkbox"/>
Density [density, kg/m <sup>3</sup> ]	<input type="checkbox"/>
Density, 2 [density, kg/m <sup>3</sup> ]	<input type="checkbox"/>
Density Difference, 2 - 1 [density, kg/m <sup>3</sup> ]	<input type="checkbox"/>
Oxygen, SBE 43 [mg/l]	<input checked="" type="checkbox"/>
SPAR/Surface Irradiance	<input checked="" type="checkbox"/>
PAR/Irradiance, Biospherical/Licor	<input checked="" type="checkbox"/>
Beam Attenuation, WET Labs C-Star [1/m]	<input checked="" type="checkbox"/>
Fluorescence, Seapoint	<input checked="" type="checkbox"/>
Turbidity, Seapoint [FTU]	<input checked="" type="checkbox"/>
Scan Count	<input checked="" type="checkbox"/>

OK Cancel



- Latitude (deg)
  - Longitude (deg)
  - Depth, Salt water (m)
  - Pressure, Digiquartz (db)
  - Temperature (ITS-90, deg C)
  - Temperature, 2 (ITS-90, deg C)
  - Temperature Difference, 2 - 1 (ITS-90, deg C)
  - Conductivity (mS/cm)
  - Conductivity, 2 (mS/cm)
  - Conductivity Difference, 2 - 1 (mS/cm)
  - Salinity, Practical (PSU)
  - Salinity, Practical, 2 (PSU)
  - Salinity, Practical, Difference, 2 - 1 (PSU)
  - Oxygen, SBE 43 (mg/l)
  - SPAR/Surface Irradiance
  - PAR/Irradiance, Biospherical/Licor
  - Beam Attenuation, WET Labs C-Star (1/m)
  - Fluorescence, Seapoint
  - Turbidity, Seapoint (FTU)
  - Scan Count
- Select the following derived variable:
    - Salinity, Practical (PSU)
    - Salinity, Practical, 2 (PSU)





### 3.11. 12\_BinAvgSCB

#### FILE SETUP

- **Program Setup File:** Save as 12\_BinAvgSCB.psa. Must be contained in PSA\_Files directory.
- **Input Directory:** Set it in Step09\_Derive directory.
- **Output Directory:** Set it in Step13\_BinSCB directory.

The screenshot shows the 'Bin Average' dialog box with the 'File Setup' tab selected. The fields are as follows:

- Program setup file:** C:\Users\cmunoz\Desktop\SBE9plus\_1023\PSA\_Files\12\_BinAvgSCB.psa
- Input directory:** C:\Users\cmunoz\Desktop\SBE9plus\_1023\DATA\_Files\Step09\_Deriv
- Input files, 2 selected:** dst001.cnv
- Output directory:** C:\Users\cmunoz\Desktop\SBE9plus\_1023\DATA\_Files\Step13\_BinSC
- Name append:** (empty field)

At the bottom, the 'Start Process' button is highlighted, along with 'Exit' and 'Cancelar' buttons.

#### DATA SETUP

- **Bin type:** pressure
- **Bin size:** 5
- **Include number of scans per bin:** TRUE
- **Exclude scans marked bad:** TRUE
- **Scans to skip over:** 0

- **Cast to process:** upcast and downcast
- **Include surface bin:** FALSE
- **Surface bin minimum value:** 0
- **Surface bin maximum value:** 0
- **Surface bin value:** 0

Bin Average

File Options Help

File Setup Data Setup Header View

Bin type Pressure

Bin size 5

☒ Include number of scans per bin

☒ Exclude scans marked bad

Scans to skip over 0

Cast to process Upcast and downcast

☐ Include surface bin

Surface bin minimum value 0

Surface bin maximum value 0

Surface bin value 0

Start Process Exit Cancel