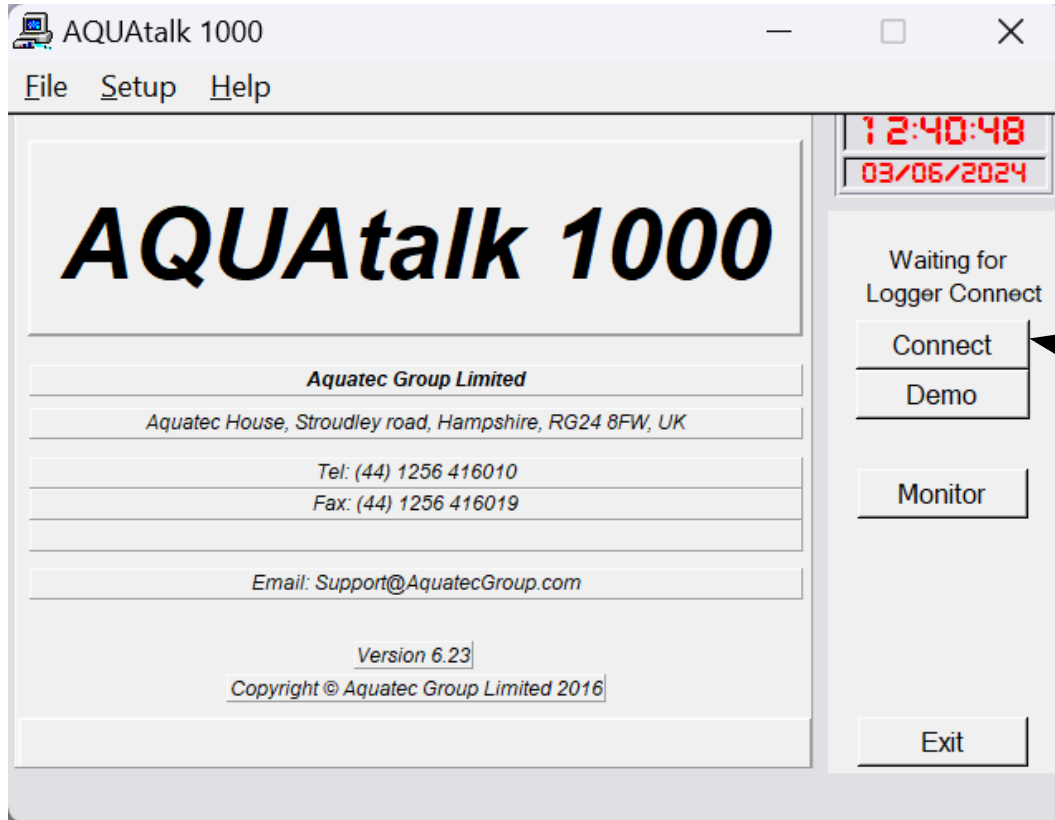


# Tutorial AQUAStalk software

## Measuring protocol :

- ❶ Fill battery of Aquascap and make sure it works properly by connecting the computer
- ❷ Temperature
- ❸ Depth of transducer
- ❹ Collect profile of both fine and sand sediments sample for the calibration, where sand sample concentration (close to the bottom) is maximum.
- ❺ Collect profile of both fine and sand sediments sample for the validation, at a different position compared to the calibration profile.

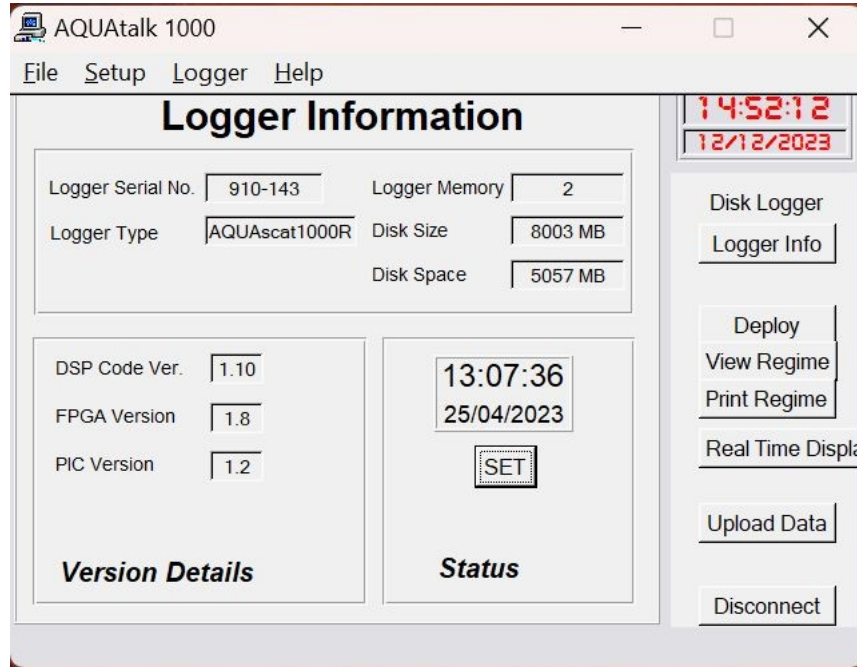
# Tutorial AQUAStalk software



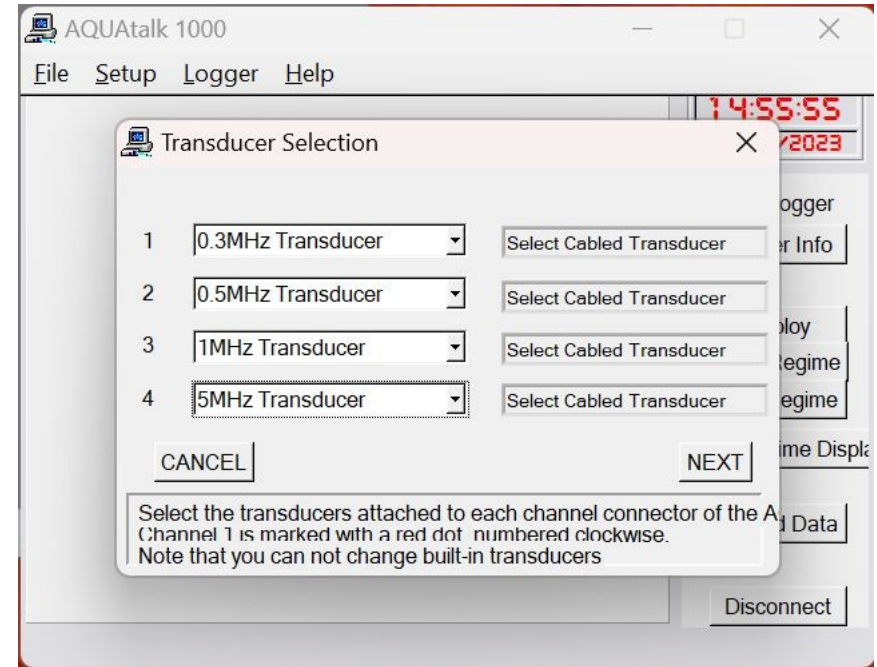
Step 0 : Click on Connect button to start and connect the logger.  
If Aquascap is ok then the connection of logger is performed automatically.

# Settings

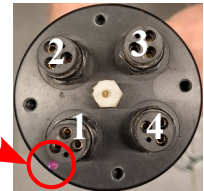
Step 1 : Click on *Deploy*



Step 2 : Select frequency for transducer(s)

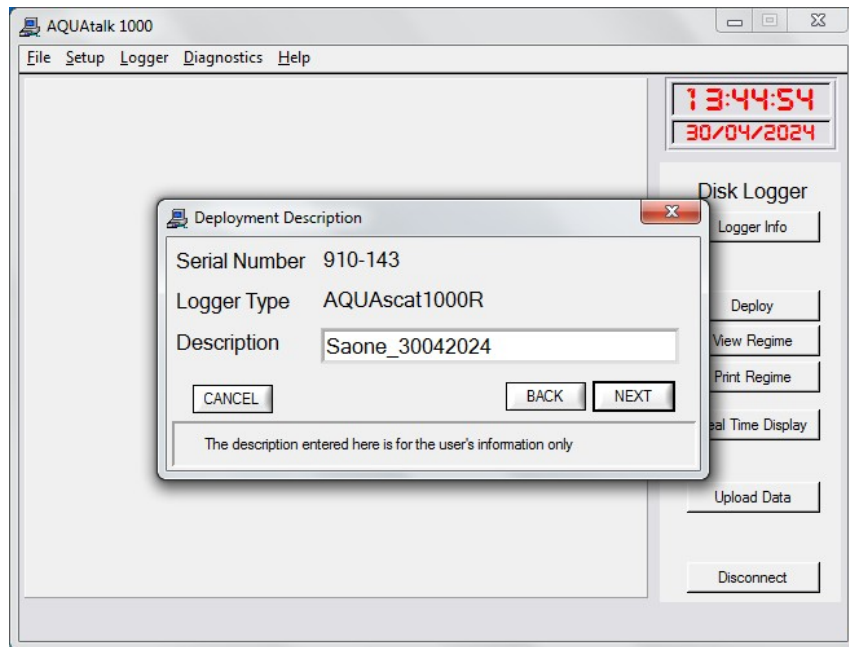


Channel 1 = mark with a red dot  
Other channel numbered clockwise

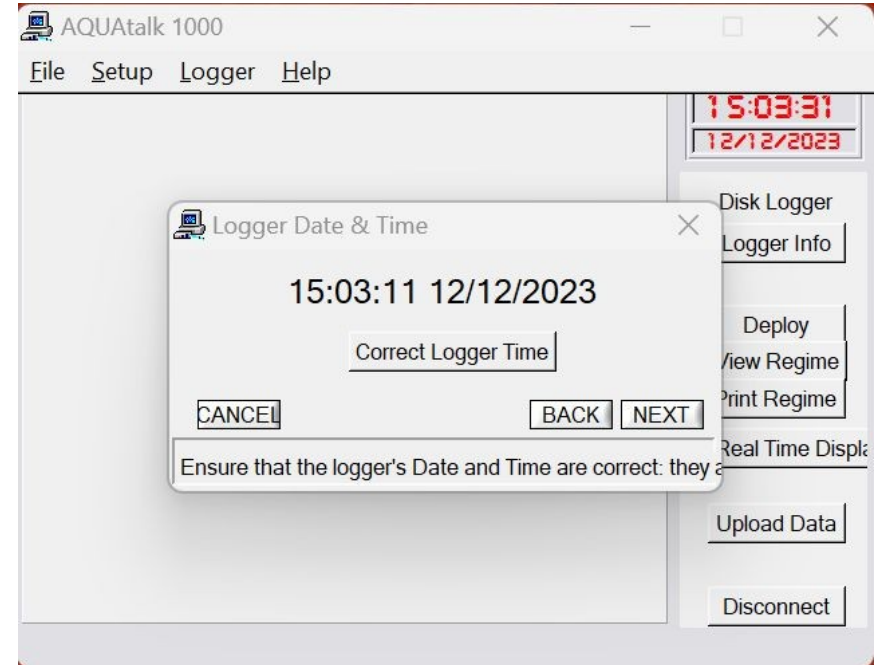


# Settings

Step 3 : Project description  
(it's not the project name)



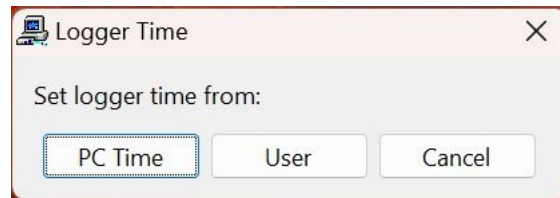
Step 4 : Define the measurements time



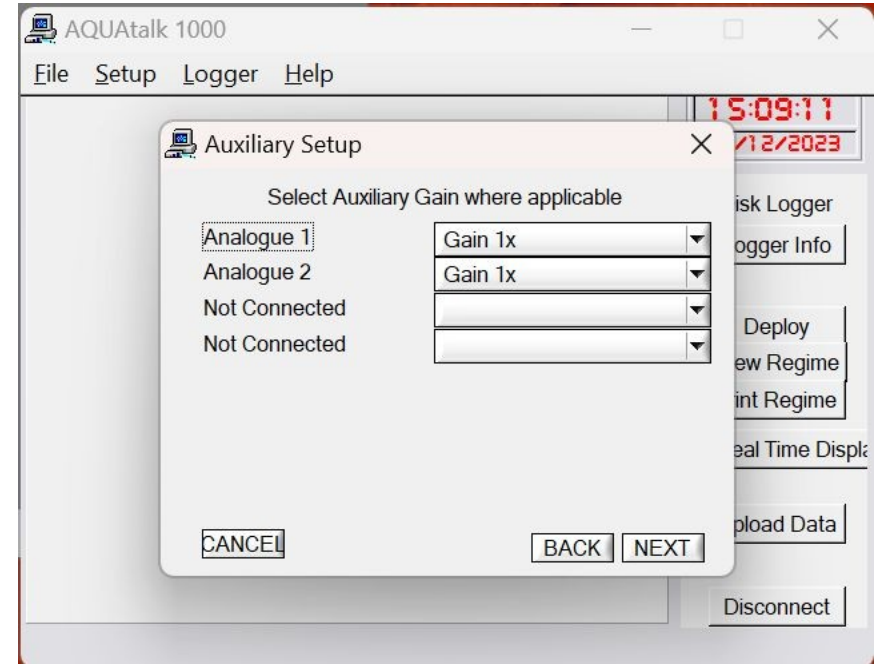
Click on *Correct Logger Time* to set the measurements time to PC time (=UTC time)

# Settings

Step 5 : Select the measurements time

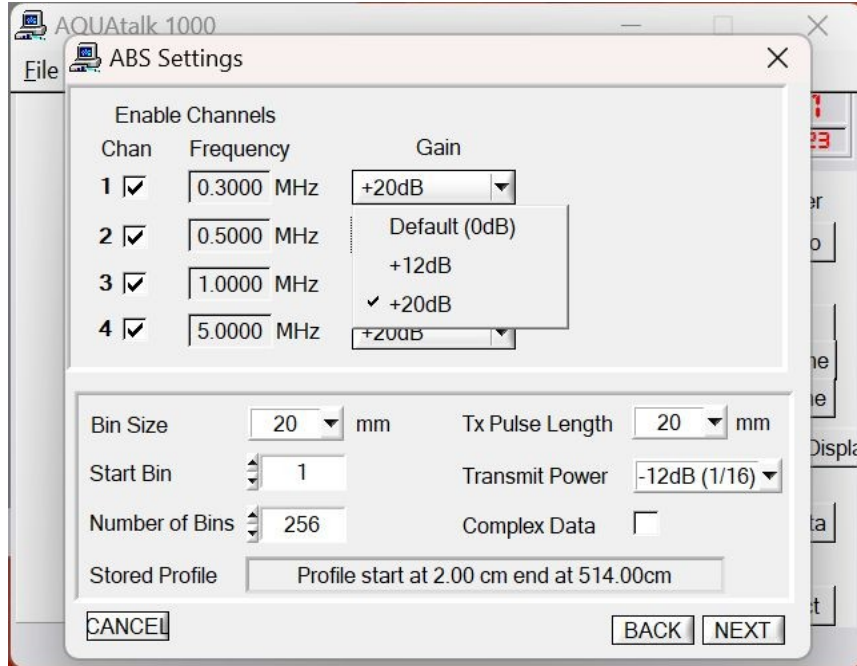


Step 6 : Define gains



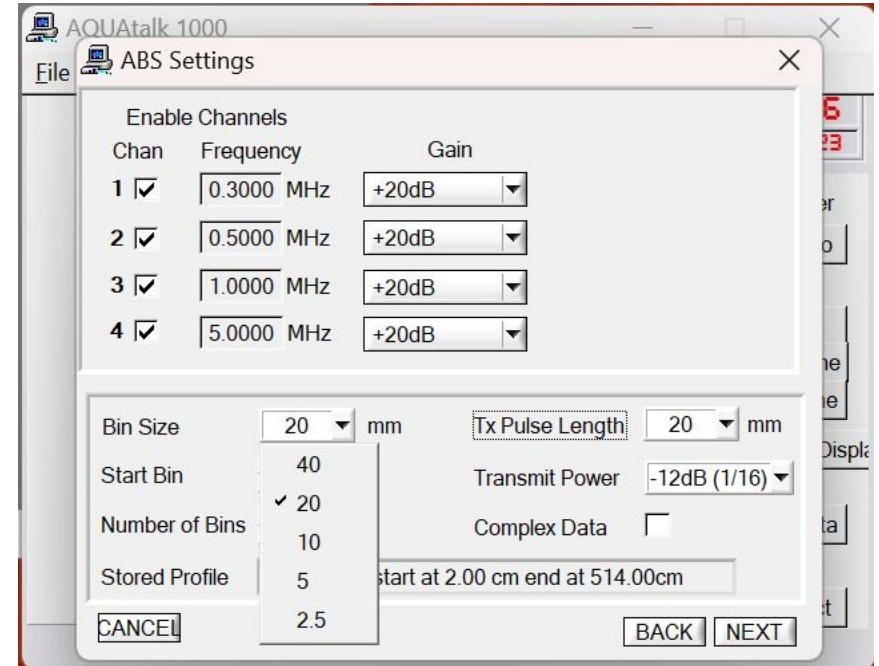
# Settings

## Step 7 : Define gains



Always select +20dB

## Step 8 : Define Cell size

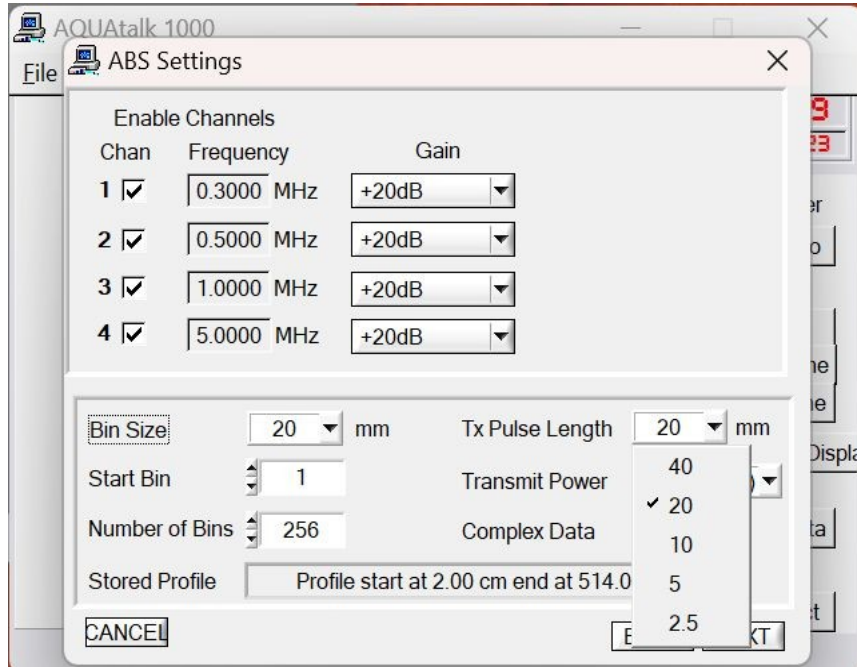


Adjust the cell size to the water depth by checking the sentence in « *Stored Profile* » :

Profile start at 2,00cm end at **514,00cm**

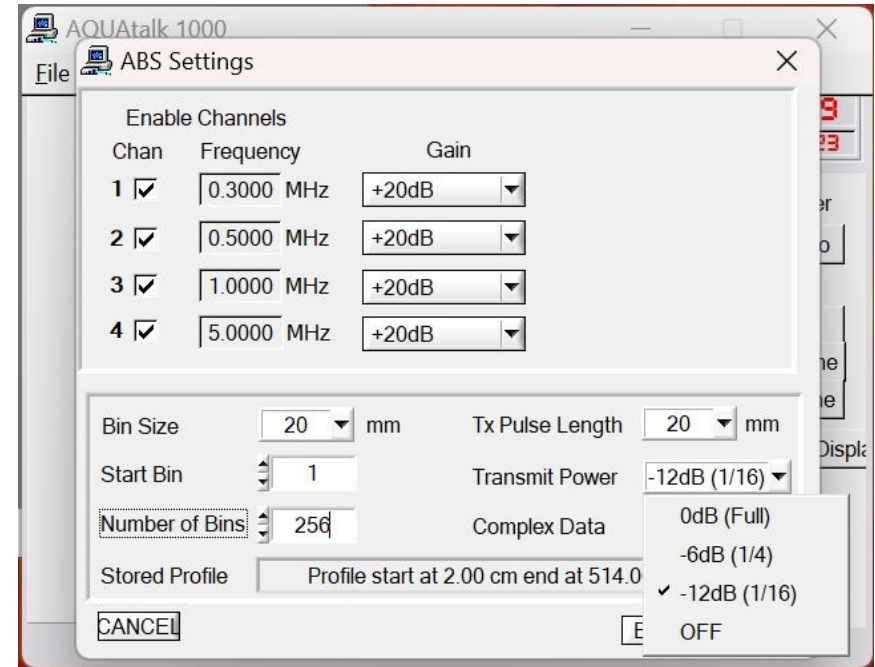
# Settings

## Step 9 : Define Pulse length



Keep the same value as « *Bin size* »  
To evaluate *Bin size* in time (sec) :  
$$Tx\ Pulse\ Length \times Frequency$$

## Step 10 : Define Transmit Power

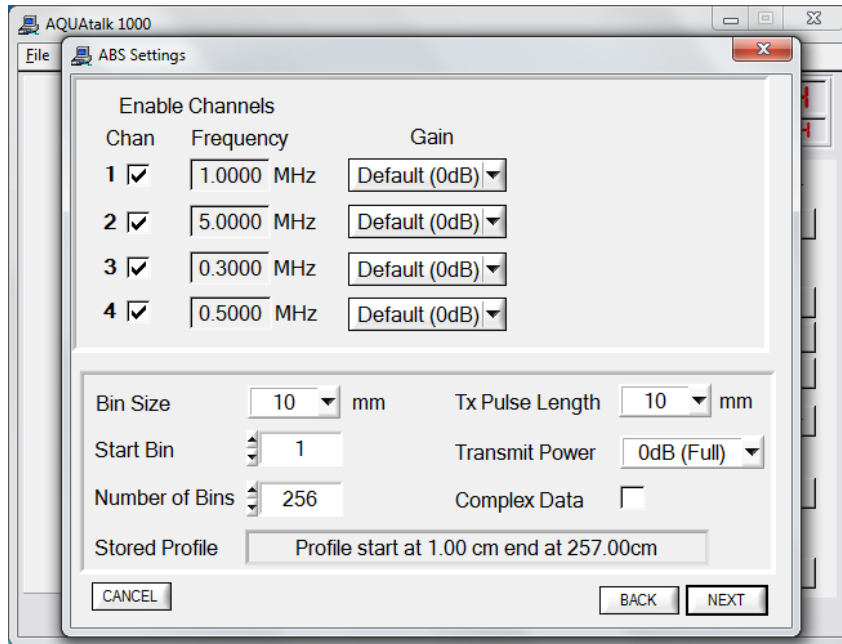


Select 0dB for emission + reception (measurements use  
to compute sediments concentrations)  
Select OFF for reception only (measurements of noise)

# Settings

Step 9 : Define number of bins

Step 10 : Define Transmit Power

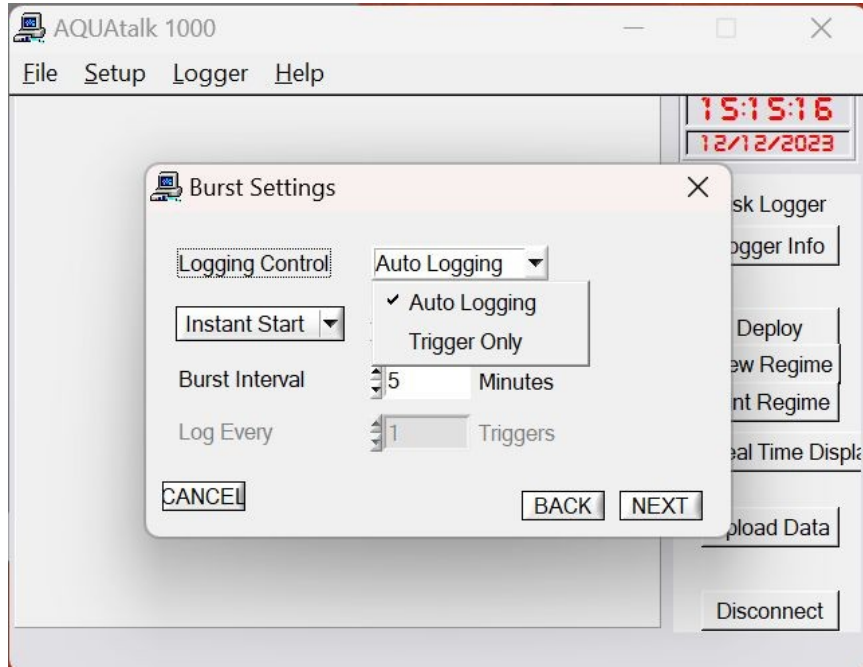


Keep the *Start Bin* at 1 and *Number of Bins* at 256 (max)



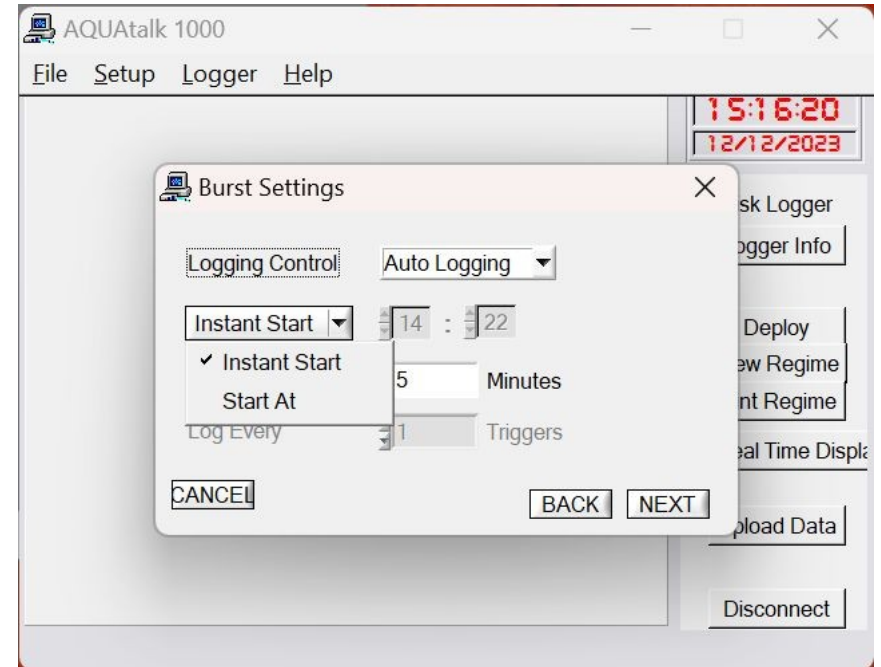
# Settings

## Step 11 : Define measurement mode



*Auto Logging* : Aquascat is triggered at a set time  
*Trigger Only* : Aquascat is trigger by the user

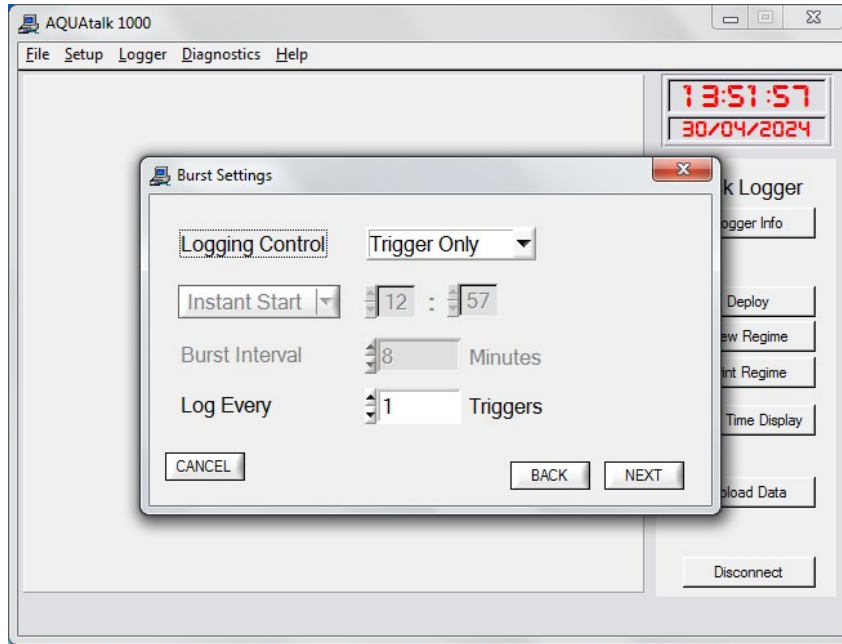
## Step 12 : Auto Logging



Set the time when the measurement are triggered

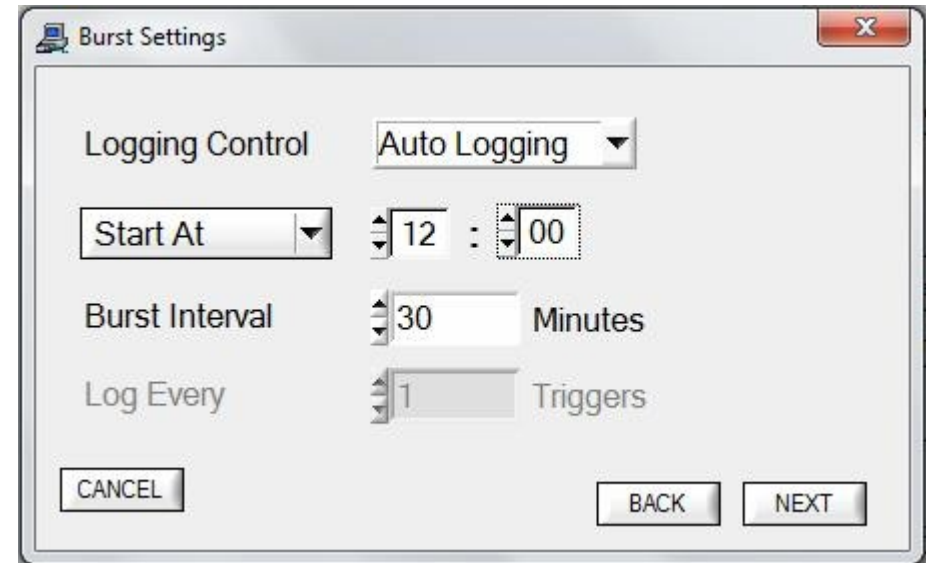
# Settings

## Step 11 : Trigger Only



The measurements are triggered by the user (external trigger)

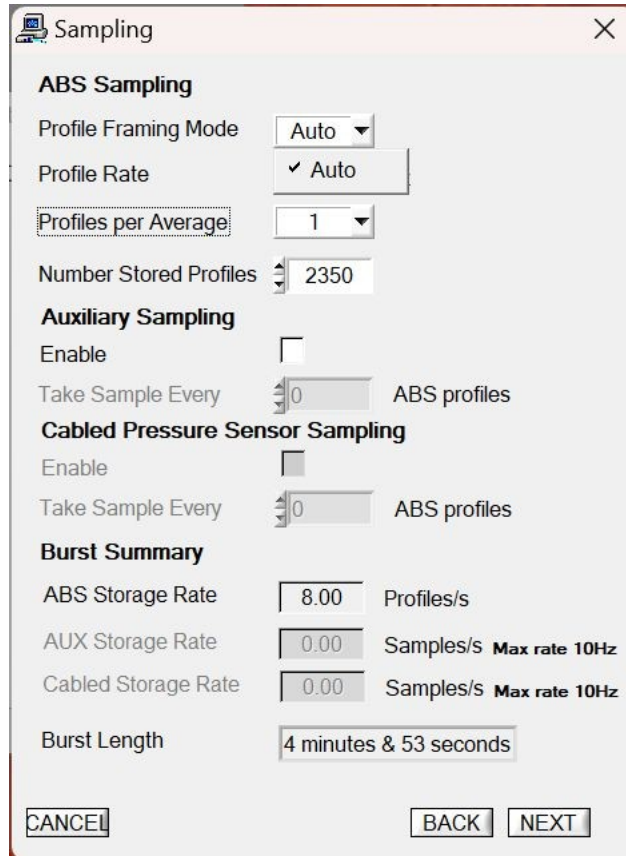
## Step 12 : Auto Logging



Set the time when the measurement are triggered (internal trigger).  
Set waiting time between two recordings.

# Settings

Step 13 : Select Profile Framing Mode to Auto



The screenshot shows the 'Sampling' settings window. The 'Profile Framing Mode' is set to 'Auto'. The 'Profile Rate' is set to 'Auto'. The 'Profiles per Average' is set to '1'. The 'Number Stored Profiles' is set to '2350'. The 'Auxiliary Sampling' section has 'Enable' unchecked. The 'Take Sample Every' slider is at '0' for 'ABS profiles'. The 'Cabled Pressure Sensor Sampling' section has 'Enable' unchecked. The 'Take Sample Every' slider is at '0' for 'ABS profiles'. The 'Burst Summary' section shows 'ABS Storage Rate' at '8.00' Profiles/s, 'AUX Storage Rate' at '0.00' Samples/s (Max rate 10Hz), 'Cabled Storage Rate' at '0.00' Samples/s (Max rate 10Hz), and 'Burst Length' at '4 minutes & 53 seconds'. At the bottom are 'CANCEL', 'BACK', and 'NEXT' buttons.

**Sampling**

**ABS Sampling**

Profile Framing Mode: Auto

Profile Rate: Auto

Profiles per Average: 1

Number Stored Profiles: 2350

**Auxiliary Sampling**

Enable: ☐

Take Sample Every: 0 ABS profiles

**Cabled Pressure Sensor Sampling**

Enable: ☐

Take Sample Every: 0 ABS profiles

**Burst Summary**

ABS Storage Rate: 8.00 Profiles/s

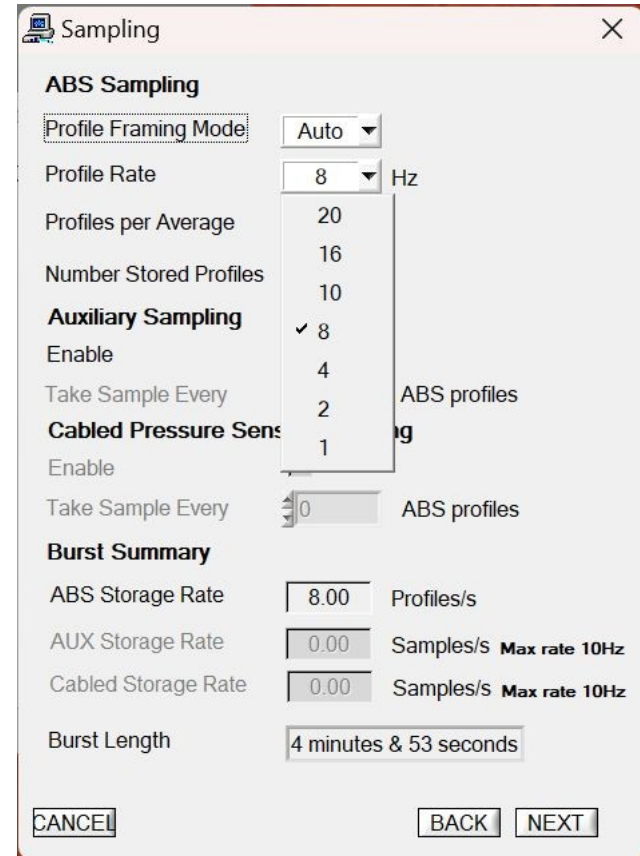
AUX Storage Rate: 0.00 Samples/s Max rate 10Hz

Cabled Storage Rate: 0.00 Samples/s Max rate 10Hz

Burst Length: 4 minutes & 53 seconds

CANCEL BACK NEXT

Step 14 : Choose measurements frequency



The screenshot shows the 'Sampling' settings window. The 'Profile Framing Mode' is set to 'Auto'. The 'Profile Rate' is set to '8' Hz. The 'Profiles per Average' is set to '20'. The 'Number Stored Profiles' is set to '10'. The 'Auxiliary Sampling' section has 'Enable' checked. The 'Take Sample Every' slider is at '0' for 'ABS profiles'. The 'Cabled Pressure Sensor Sampling' section has 'Enable' checked. The 'Take Sample Every' slider is at '0' for 'ABS profiles'. The 'Burst Summary' section shows 'ABS Storage Rate' at '8.00' Profiles/s, 'AUX Storage Rate' at '0.00' Samples/s (Max rate 10Hz), 'Cabled Storage Rate' at '0.00' Samples/s (Max rate 10Hz), and 'Burst Length' at '4 minutes & 53 seconds'. At the bottom are 'CANCEL', 'BACK', and 'NEXT' buttons.

**Sampling**

**ABS Sampling**

Profile Framing Mode: Auto

Profile Rate: 8 Hz

Profiles per Average: 20

Number Stored Profiles: 10

**Auxiliary Sampling**

Enable: ☒

Take Sample Every: 0 ABS profiles

**Cabled Pressure Sensor Sampling**

Enable: ☒

Take Sample Every: 0 ABS profiles

**Burst Summary**

ABS Storage Rate: 8.00 Profiles/s

AUX Storage Rate: 0.00 Samples/s Max rate 10Hz

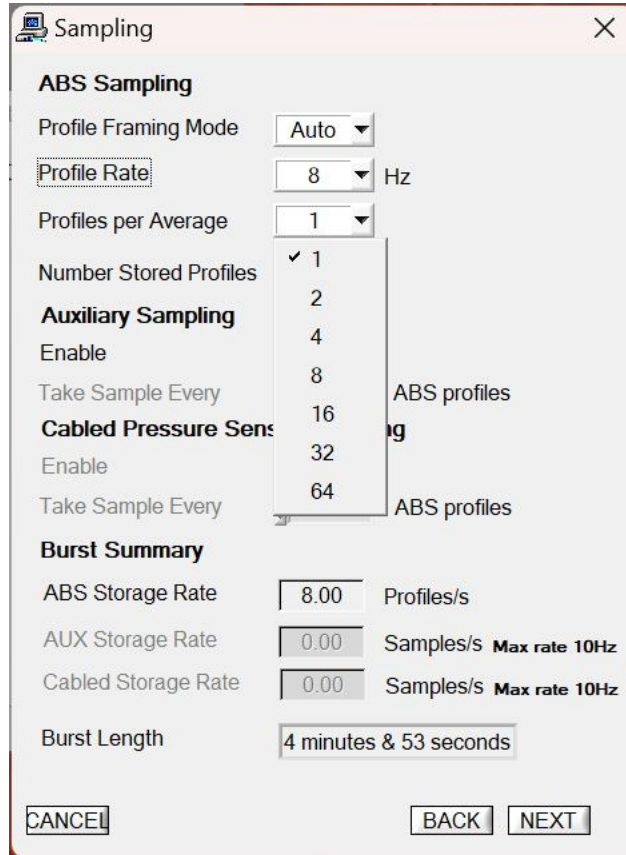
Cabled Storage Rate: 0.00 Samples/s Max rate 10Hz

Burst Length: 4 minutes & 53 seconds

CANCEL BACK NEXT

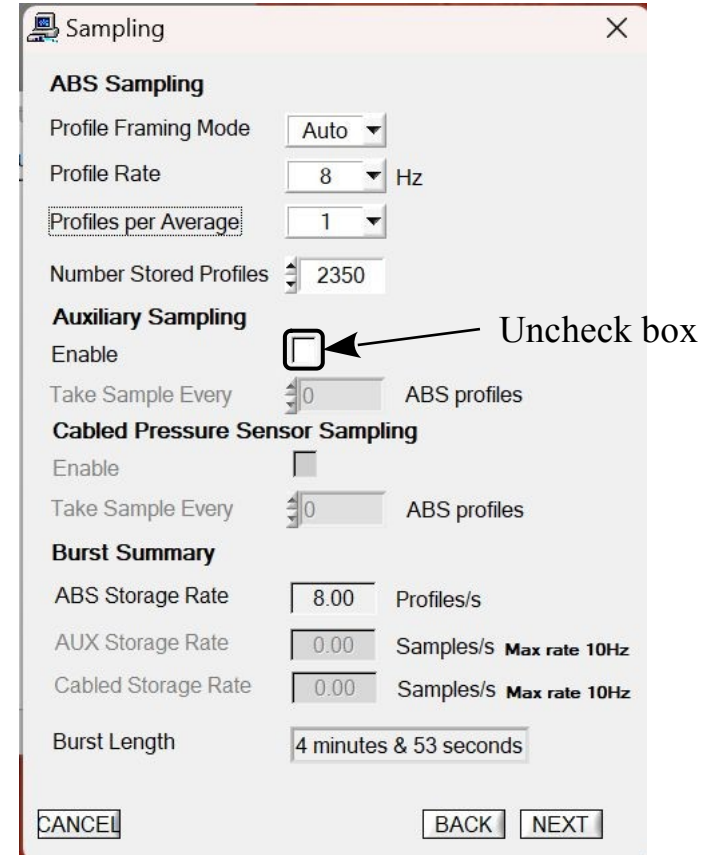
# Settings

Step 15 : Number of profiles use to average each profiles (keep 1)



The screenshot shows the 'Sampling' window with the 'ABS Sampling' section. The 'Profile Rate' is set to 8 Hz. The 'Profiles per Average' dropdown menu is open, showing options 1, 2, 4, 8, 16, 32, and 64. The option '1' is selected and marked with a checkmark. The 'Number Stored Profiles' is set to 1. The 'Auxiliary Sampling' section has 'Enable' unchecked. The 'Cabled Pressure Sensor Sampling' section has 'Enable' unchecked. The 'Burst Summary' section shows 'ABS Storage Rate' at 8.00 Profiles/s, 'AUX Storage Rate' at 0.00 Samples/s (Max rate 10Hz), 'Cabled Storage Rate' at 0.00 Samples/s (Max rate 10Hz), and 'Burst Length' at 4 minutes & 53 seconds. At the bottom are 'CANCEL', 'BACK', and 'NEXT' buttons.

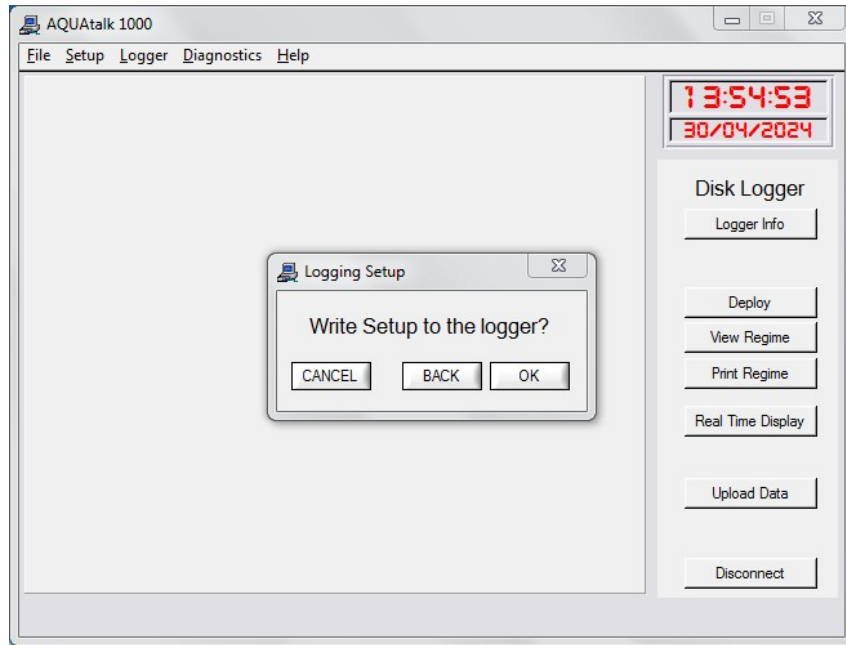
Step 16 : Check the length of measurement in *Burst length*



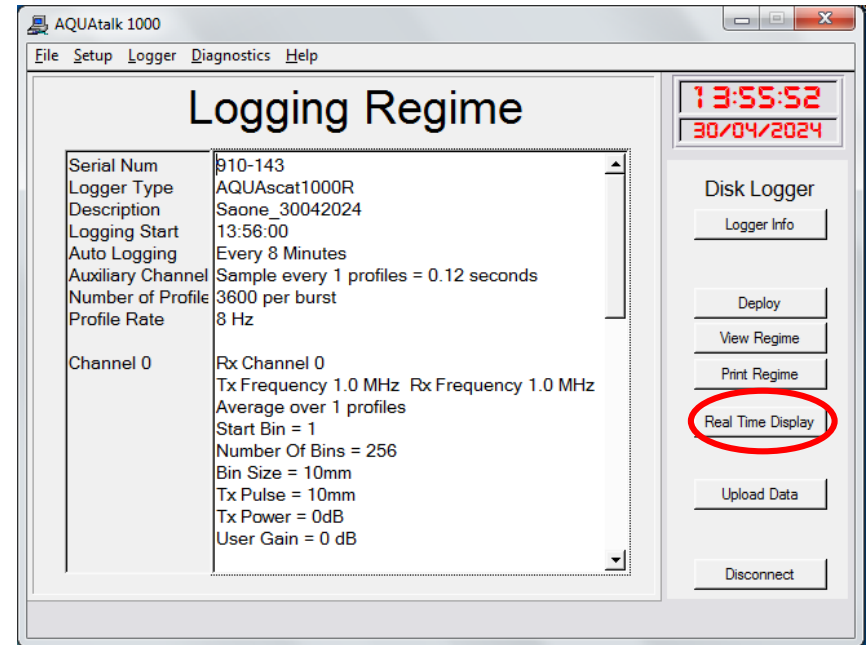
The screenshot shows the 'Sampling' window with the 'ABS Sampling' section. The 'Profile Rate' is set to 8 Hz. The 'Profiles per Average' dropdown menu is set to 1. The 'Number Stored Profiles' is set to 2350. The 'Auxiliary Sampling' section has 'Enable' unchecked, with an arrow pointing to the checkbox and the text 'Uncheck box'. The 'Cabled Pressure Sensor Sampling' section has 'Enable' unchecked. The 'Burst Summary' section shows 'ABS Storage Rate' at 8.00 Profiles/s, 'AUX Storage Rate' at 0.00 Samples/s (Max rate 10Hz), 'Cabled Storage Rate' at 0.00 Samples/s (Max rate 10Hz), and 'Burst Length' at 4 minutes & 53 seconds. At the bottom are 'CANCEL', 'BACK', and 'NEXT' buttons.

# Settings

Step 17 : Write setting in the actual measurement project (logger)



Step 18 : Project information



Click on button « *Real Time Display* » to launch the measurements

# Measurements

## Step 19 : Real Time View

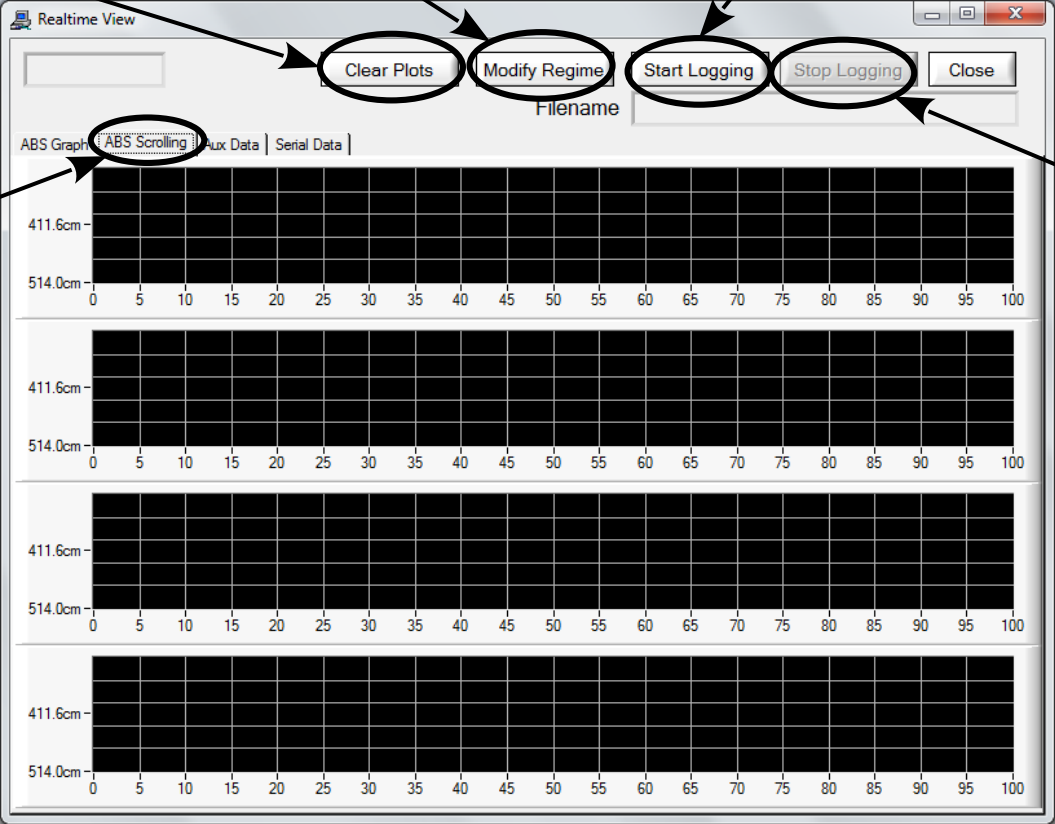
Clear plots of Real Time View

Modify Settings

Click on « *Start Logging* » to start measurements

Go to the tab « *ABS scrolling* »

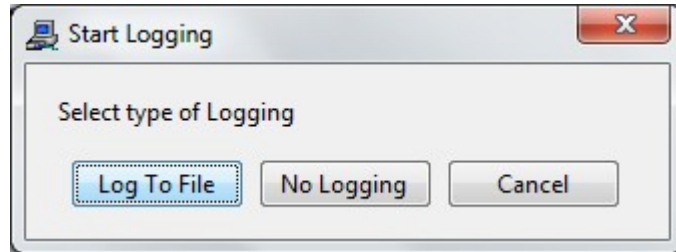
Click on « *Stop Logging* » to stop measurements



The screenshot shows the 'Realtime View' window. At the top, there is a toolbar with buttons: 'Clear Plots', 'Modify Regime', 'Start Logging', 'Stop Logging', and 'Close'. Below the toolbar is a 'Filename' input field. Underneath, there are four tabs: 'ABS Graph', 'ABS Scrolling', 'Aux Data', and 'Serial Data'. The 'ABS Scrolling' tab is selected and circled. Below the tabs are four identical empty grid plots. Each plot has a vertical axis with labels '411.6cm' and '514.0cm', and a horizontal axis with labels from 0 to 100 in increments of 5. Arrows point from the text annotations to the corresponding UI elements: 'Clear Plots', 'Modify Regime', 'Start Logging', 'Stop Logging', 'Close', 'ABS Scrolling' tab, and the four grid plots.

# Measurements

## Step 19 : Real Time View

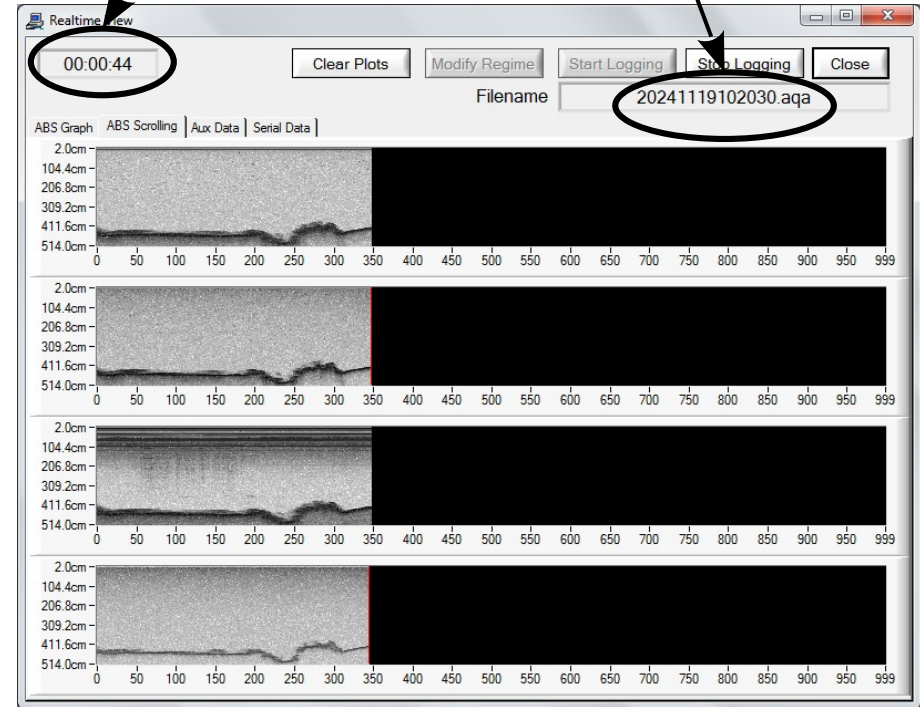


Click on « *Log To File* » to record settings and measurements to be taken

## Step 19 : Real Time View

Measurements timer  
(see burst length - step 16)

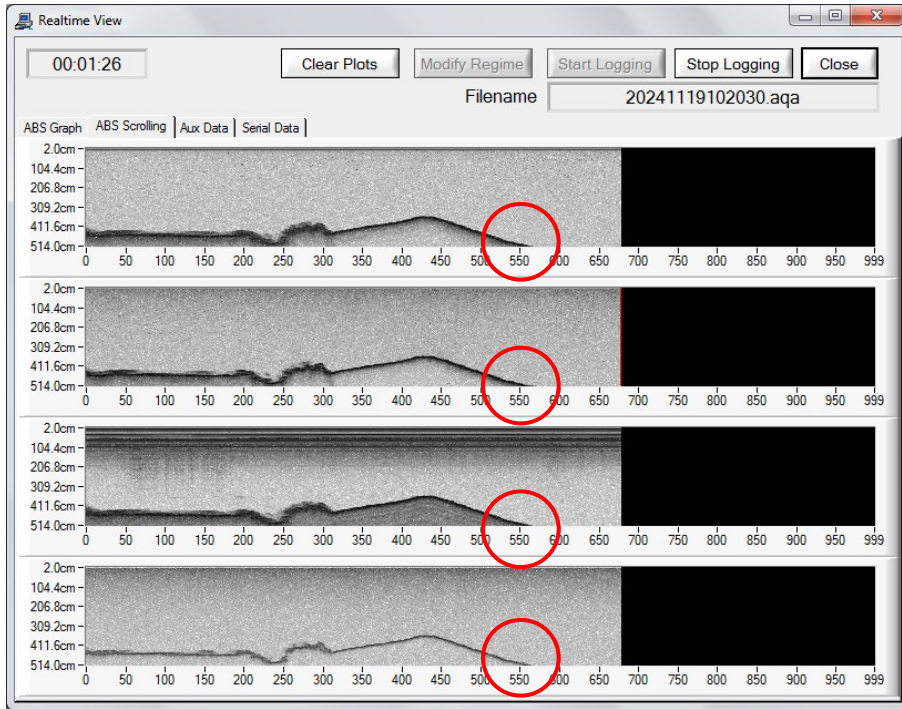
Measurements  
filename





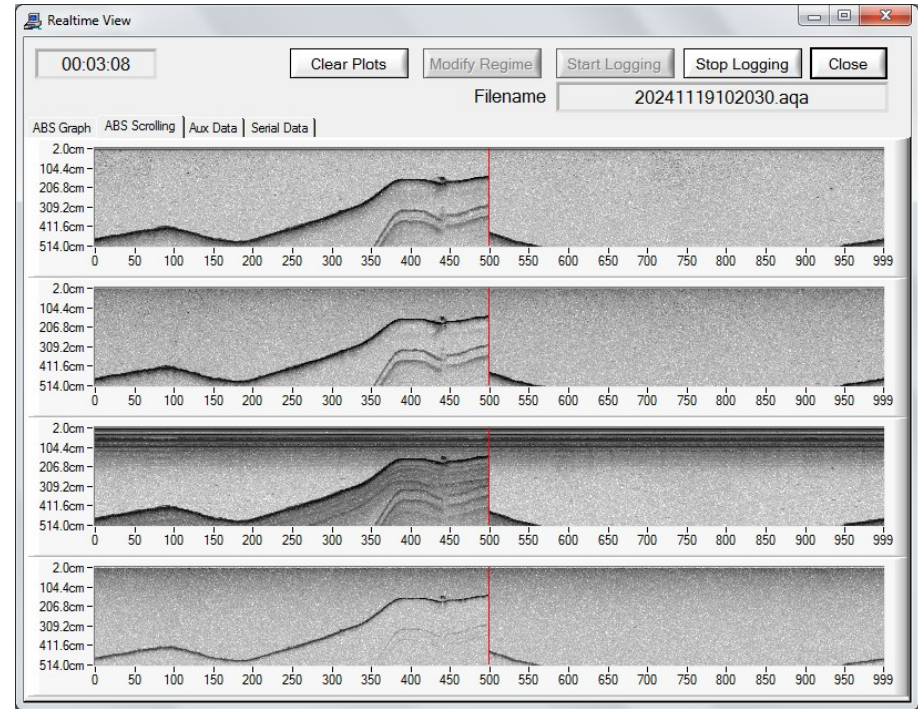
# Measurements

## Step 19 : Real Time View



River bed can't be displayed because maximum depth of the stored profile (see step 8) is not large enough.

## Step 19 : Real Time View



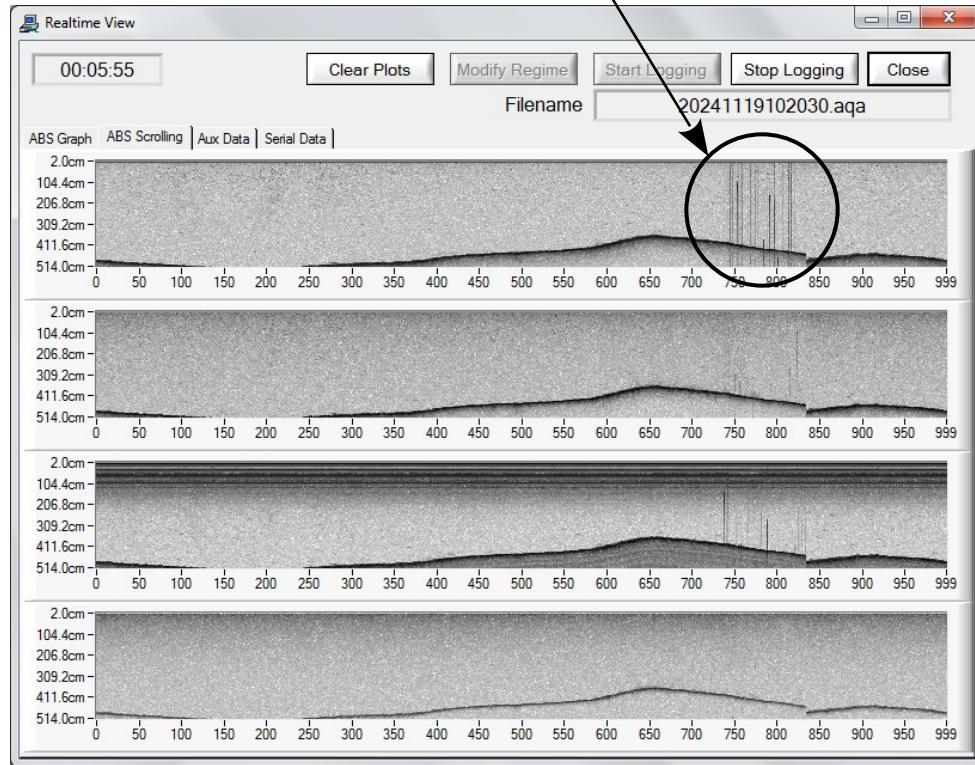
Real Time View displays a maximum of 999 profiles.



# Measurements

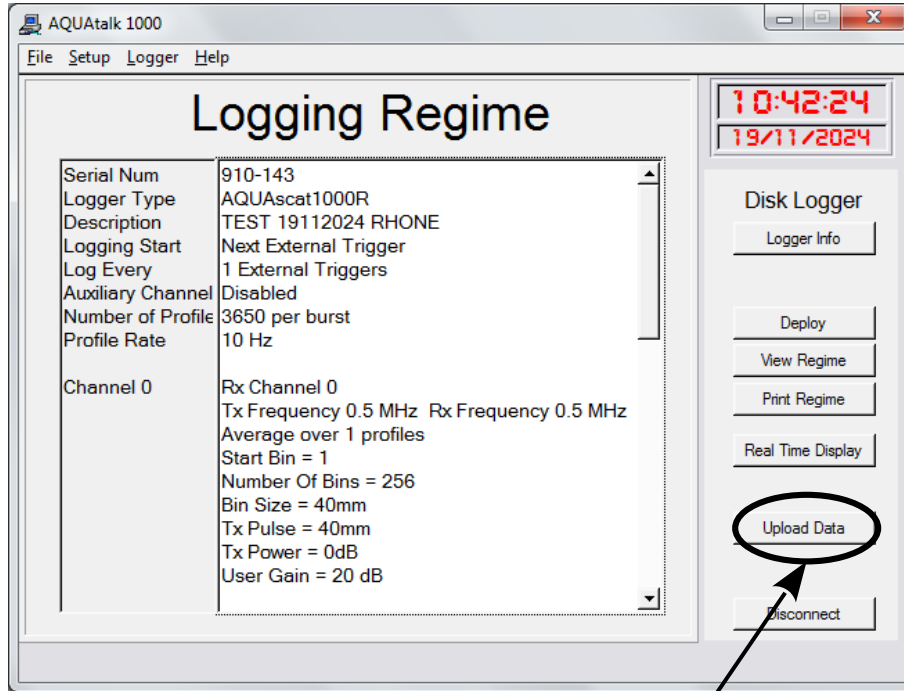
## Step 19 : Real Time View

Interferences between AQUAscatter and another acoustic tool



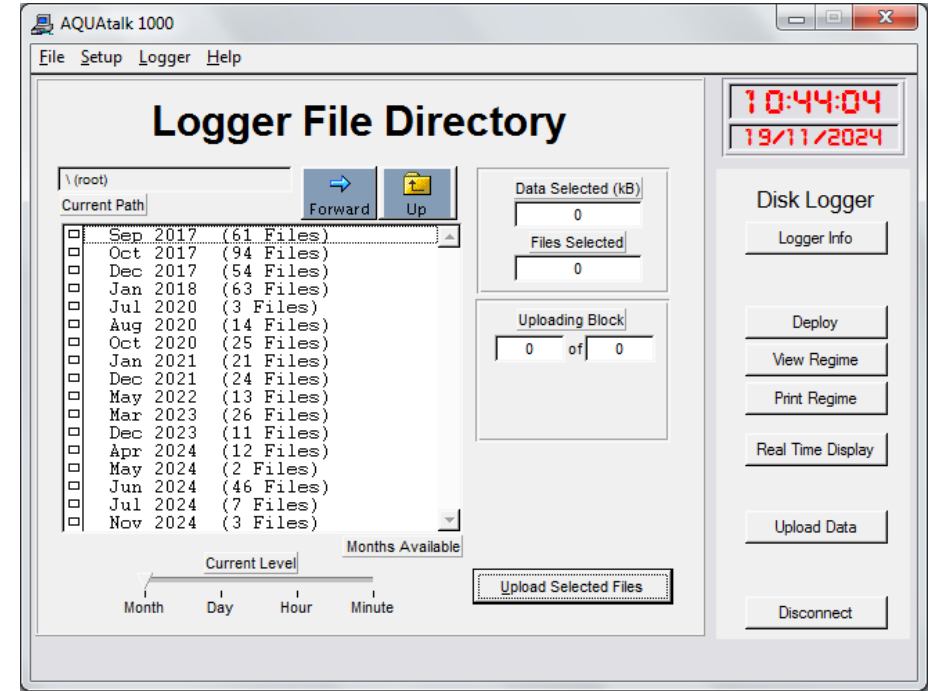
# Measurements

## Step 20 : Save data



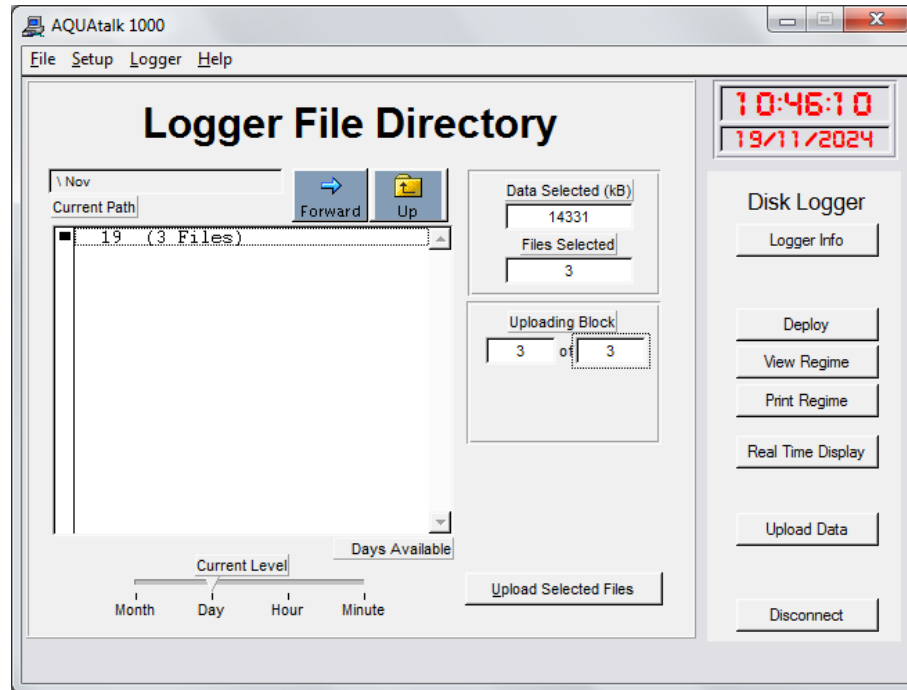
Click on « *Upload Data* » to  
save measurement to file

## Step 20 : Save data (List of folder)

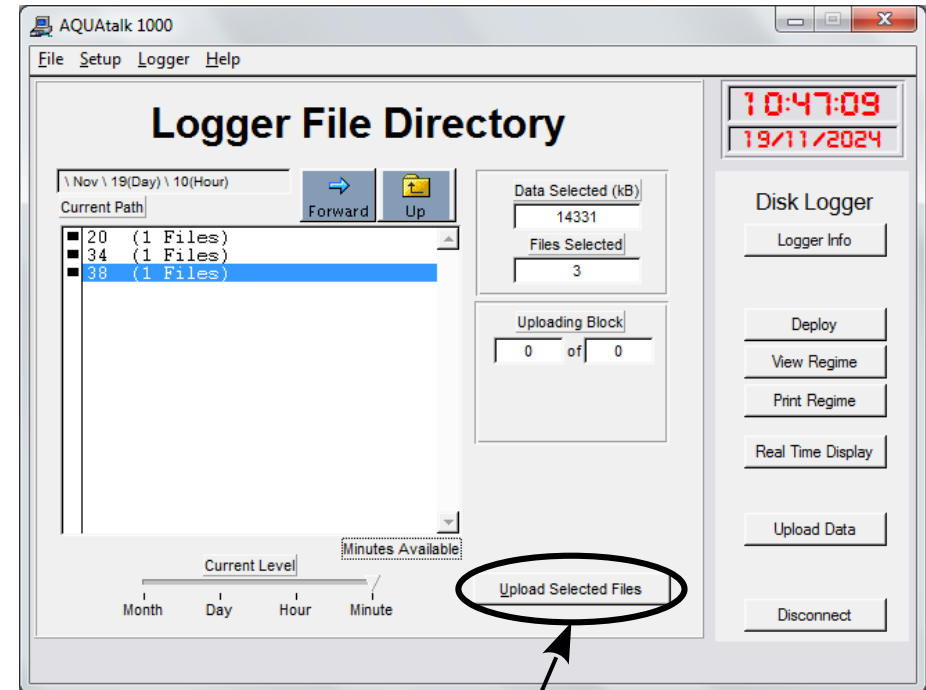


# Measurements

Step 20 : Save data (Number of files in selected folder)



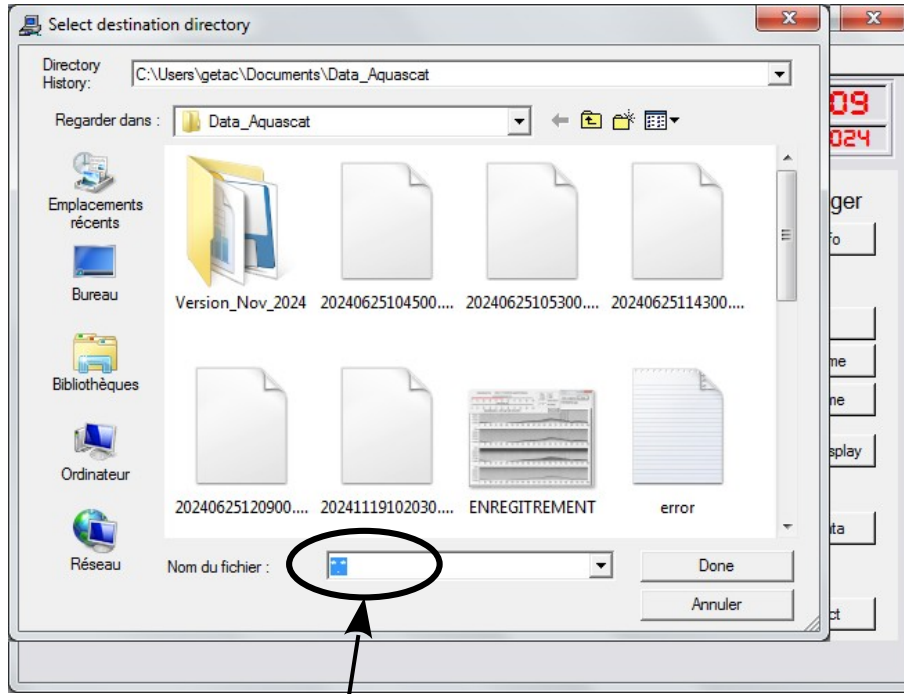
Step 20 : Save data (List of files)



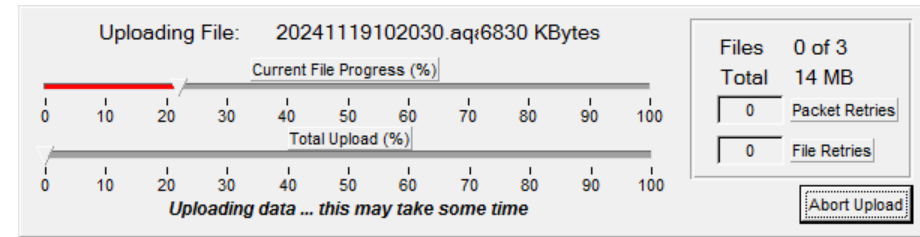
Click on « *Upload Selected Files* » to open a dialog box to save measurements

# Measurements

## Step 20 : Save data (Dialog box)



## Step 20 : Save data



# AcouSed to check measurements

AcouSed - unsaved file

File Tools Help

+ Open [Icons] [Flags]

Acoustic data | Signal preprocessing | Sample data | Sediment Calibration | Acoustic inversion | Note

Acoustic recording

Download file

Measurements information

Table of values

|   | 0    | 1    | 2    | 3    |      |
|---|------|------|------|------|------|
| 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Display option

Convert recording time to distance from bank

☒ Value ☐ GPS file

Distance :  m / record   $T_{acoustic} = T_{gate}$   sec

Set the boundaries

|                    | min  | limit ->             | <- limit             | max  | unit    |                                  |
|--------------------|------|----------------------|----------------------|------|---------|----------------------------------|
| Depth              | 0.00 | <input type="text"/> | <input type="text"/> | 0.00 | meters  | <input type="button" value="+"/> |
| Recording time     | 0.00 | <input type="text"/> | <input type="text"/> | 0.00 | seconds | <input type="button" value="+"/> |
| Distance from bank | 0.00 | <input type="text"/> | <input type="text"/> | 0.00 | meters  | <input type="button" value="+"/> |

Detect bottom of the river

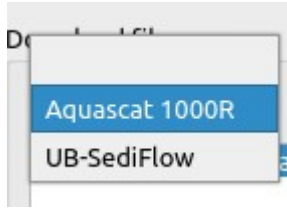
From  m to  m +/-  m

Raw acoustic data 2D field

Plot the vertical profile for one frequency

# AcouSed to check measurements

1



ABS (Acoustic Backscatter System) system choice: AQUAscat or UBSediFlow

2



Downloaded acoustic file: AQUAscat (.aqa) or UBSediFlow (.udt)

