

# D270\_User\_Manual



# **Preface**

## **Purpose of this instructions**

This paper is the user manual of D270 depth sounder of Shanghai Huace Navigation Technology Co., LTD.

## **About the instructions**

This user manual describes in detail how to install, configure and use the D270 sounder.

## **Experience requirements**

In order to better use the D270 sounder, Shanghai Huace Navigation Technology Co., Ltd. recommends that you read the user manual carefully before using it. If you are not familiar with the principle of the depth sounder, please contact us for technical advice and training.

## **Liability exemption**

Before using this product, please read this manual carefully. The information, data and illustrations contained in this manual only represent the technology we currently know. Our company will not be responsible for any direct or indirect economic losses caused by users' wrong understanding or use of this product. We reserve the right to change the functions, performance, technical specifications and manufacturing process of our products without prior notice. For more information about our products, please visit our official website ([www.huace.cn](http://www.huace.cn)).

## **Technology and Service**

Shanghai Huace Navigation Technology Co., LTD. Website opened the "service and download" section, if you have questions can leave a message through the "feedback", or directly call the technical consultation telephone: 4006206818, we will timely answer your questions.

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# 1. Introduction and installation of depth sounder

## 1.1 Introduction to depth sounder

The D270 sounding instrument can be used with the unmanned vessel series of APACHE series of CHCNAV, and can also be installed separately on the manned boat, rubber boat and other floating platforms.



The left interface of the soundsinometer Transducer is the transducer interface;

Power is the power supply and serial port communication interface;

The left button at the bottom of the screen is the function button. Press it to switch the screen to display data (sound speed/draft/water temperature).;

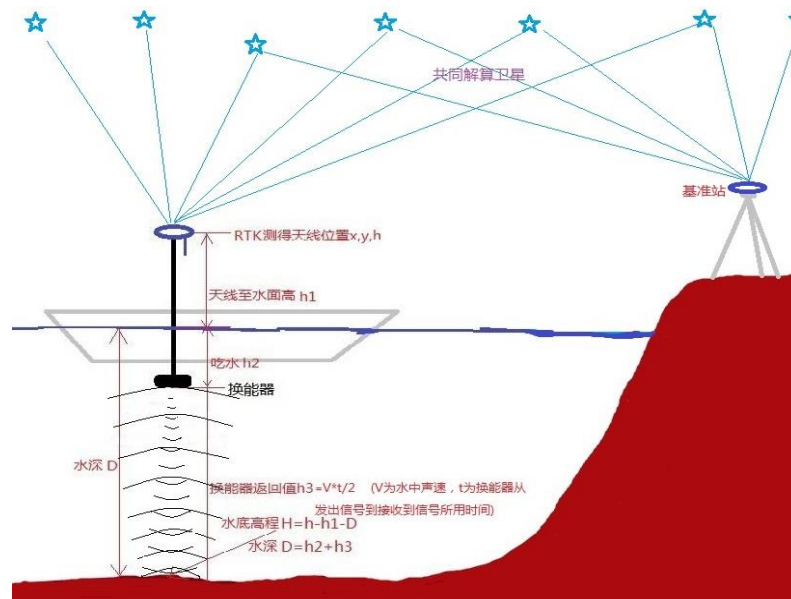
On the right is the screen power button, long press to close/open the screen display;

The depth sounder has no switch button of the whole machine. It will start automatically when powered on and shut down when powered off.

### Screen Information Description



## 1.2 Installation Instructions for depth sounder (shipborne platform)



### (1) Precautions for using the sensor probe

- 1) The sensor probe must be mounted perpendicular to the water surface.
- 2) There should be no other solid shielding between the sensor probe and the bottom of the pool, otherwise interference signals will be generated.
- 3) The sensor probe should be protected from the impact of floating objects in the water. If the suspended objects in the water easily adhere to the probe surface, please clean it in time to keep the probe surface clean.
- 4) The immersion depth of the sensor probe is recommended to be about 50cm (this distance can be increased or decreased according to the flow speed of the river).

## 2 .Introduction to data link of depth sounder

D270 sounder interacts with external devices in three ways: wifi, Bluetooth, serial port;

**Bluetooth**: The sounder receives GPGGA and other position data of RTK through Bluetooth connection;

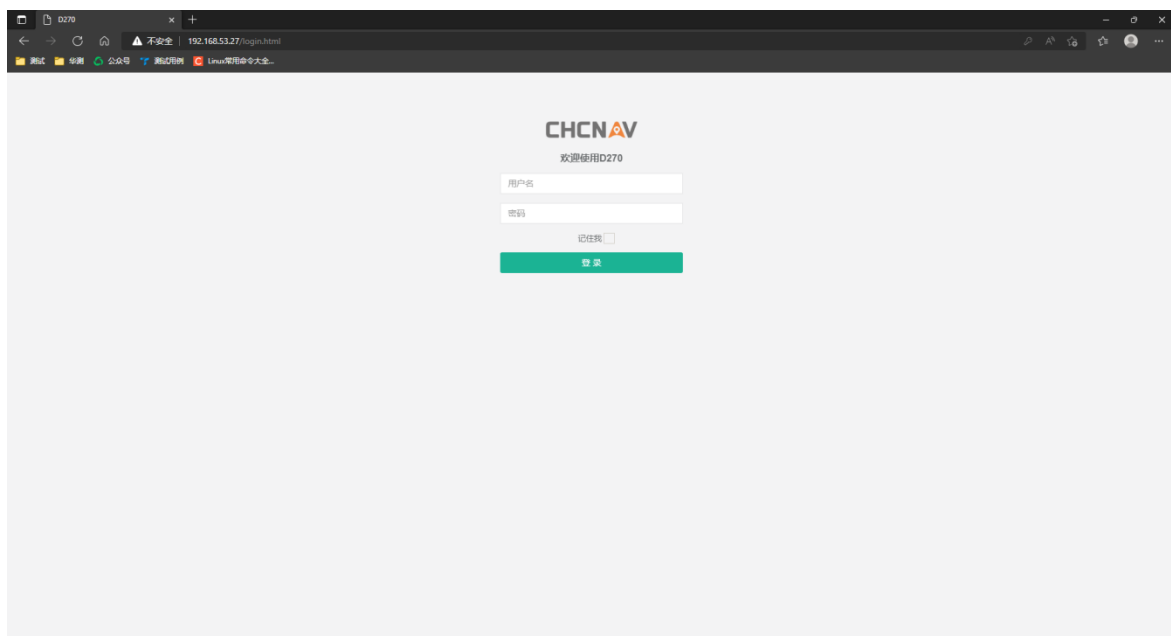
**WIFI**: : The laptop can access the web page of the sounding instrument through wifi connection to view real-time waveform, set sounding parameters and set data recording;It can also be connected via wifi, using Hydrosurvey for bathymetry control

and data post-processing;

**Serial port:** The sounder outputs the bathymetric data in SDDPT format through the serial port.

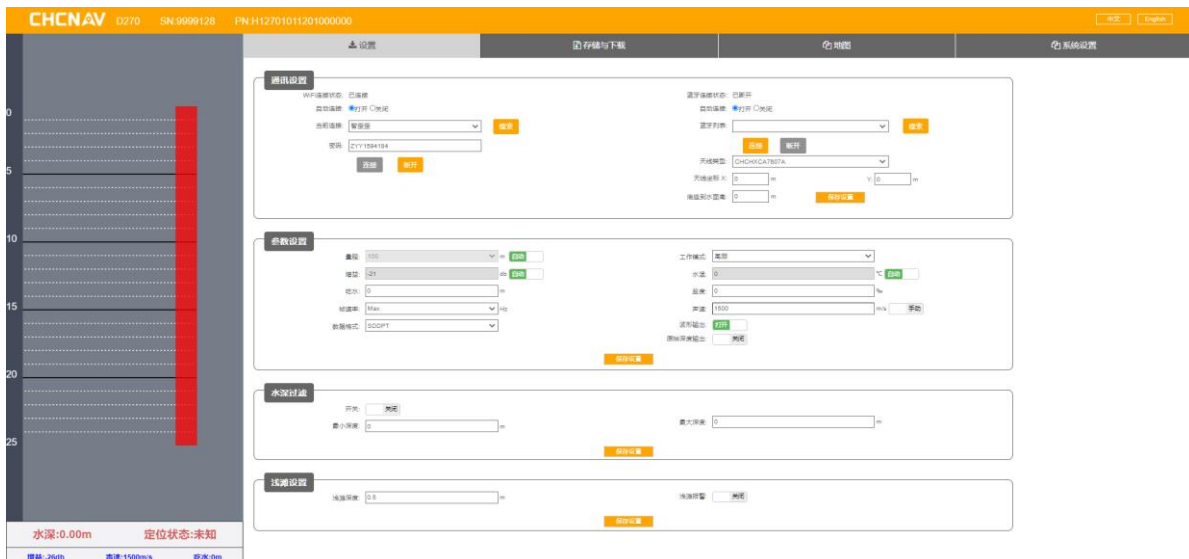
### 3. Depth finder web page introduction

After connecting the computer to WIFI: D270-XXXXxxx, you can enter 192.168.53.27 in the browser to enter the web page of the D270.



#### 3.1 Parameter Settings





### Communication Settings:

The D270 can be set up to connect to an external WIFI hotspot to provide network to load the satellite map function;

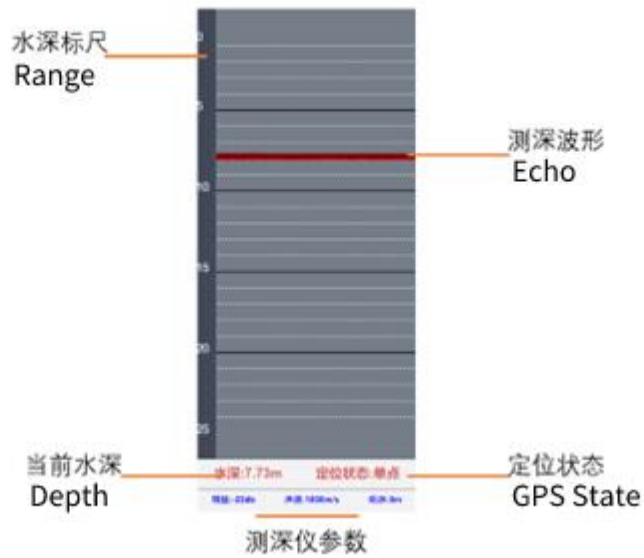
It can also be set to connect to RTK Bluetooth, obtain positioning data, and set parameters of RTK antenna to water surface and transducer.

Parameter Settings: Can set the sounder parameters (range, gain, draft, frame rate, data format, working mode, water temperature, salinity, sound speed, etc) .

The depth of the water filter: Set filter clutter.

Ford set: Shoal alarm to avoid damage to transducer or floating platform.

### Left Status Bar:



## 3.2 Storage and Download

CHCNAV D270 SN:9999128 PN:H12701011201000000 中文 English

设置 存储与下载 地图 系统设置

**数据存储**

记录类型	开启状态	记录状态	参数设置		开关		清除数据
RECORD1	开启	未记录	修改	详情	打开	关闭	清除数据
RECORD2	关闭	未记录	修改	详情	打开	关闭	清除数据
RECORD3	关闭	未记录	修改	详情	打开	关闭	清除数据
RECORD4	关闭	未记录	修改	详情	打开	关闭	清除数据

内存占用 7/2048MB

**数据下载**

数据下载

水深:0.00m 定位状态:未知

增益:-16db 声速:1500m/s 吃水:0m

Data Storage:

Record1 starts automatically upon startup by default, and starts recording automatically when water depth data and GNSS data are detected;

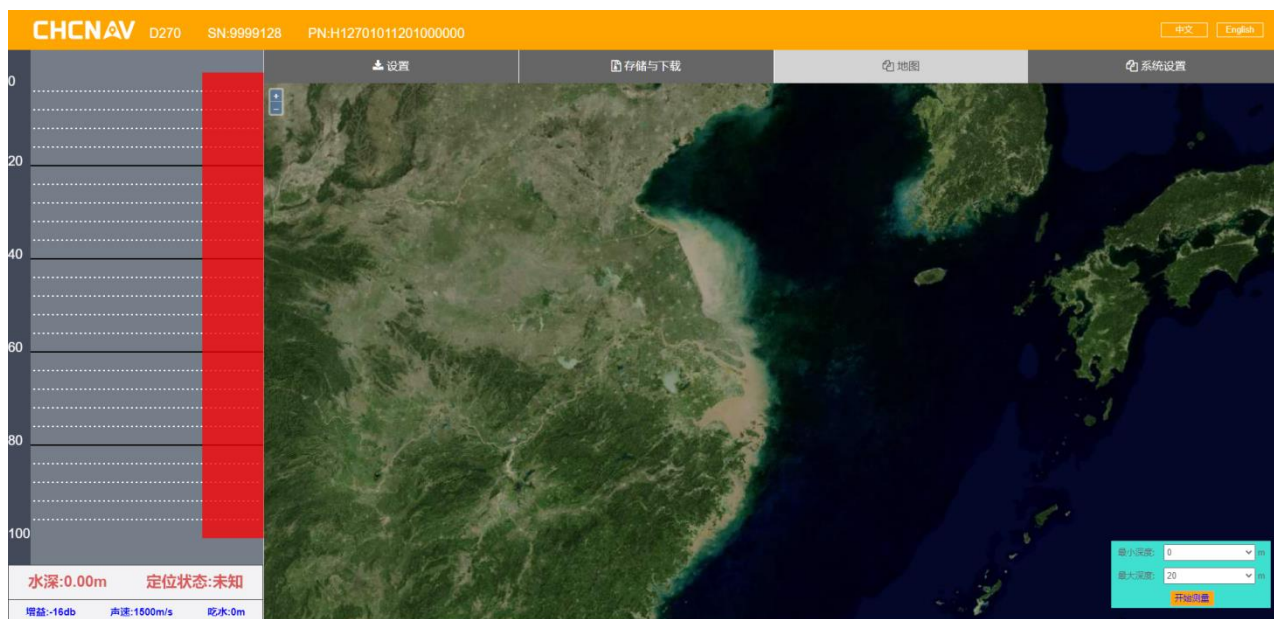
Record2 can be set manually and is linked to the HydroSurvey software when used in conjunction with the software.

Record3 and RECORD4 are reserved for use.

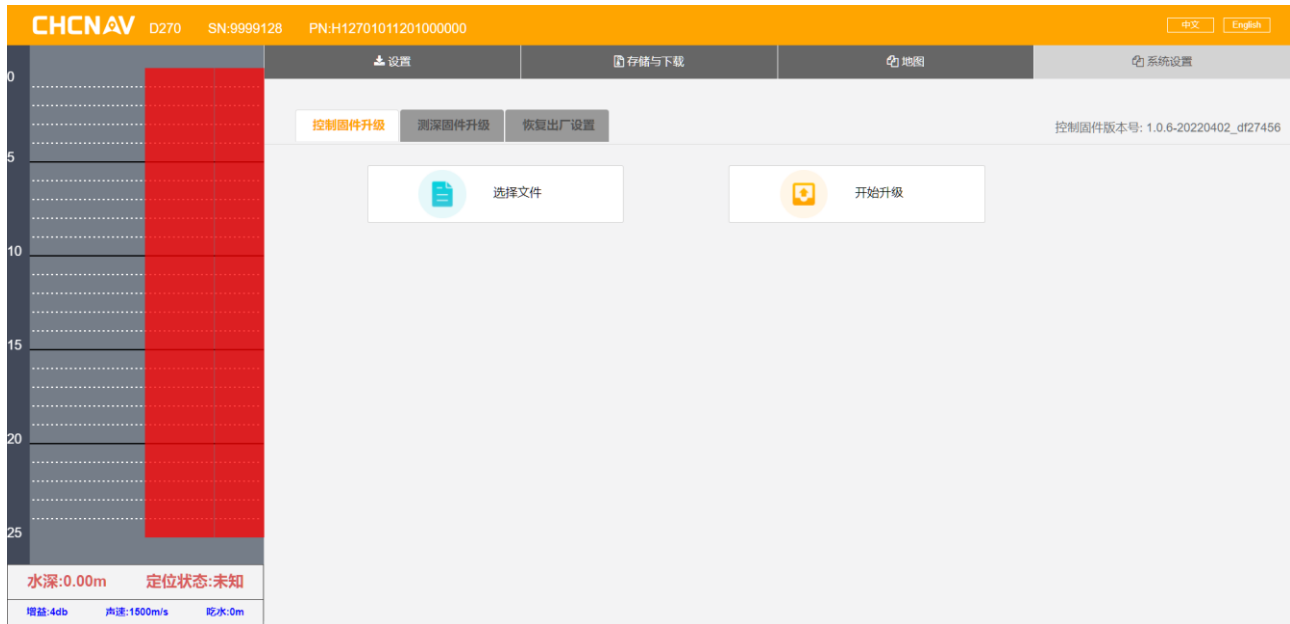
The data download: Download the measurement data stored in the depth sounder, and select the corresponding date data to download.

### 3.3 The map

The satellite map of the current location can be loaded after connecting to external WIFI in the communication Settings.



## 3.4 System Settings



Version information: The current firmware version number is displayed in the upper right corner.

Control Firmware Upgrade: To upgrade the control firmware of the host, select the file first and then click Start Upgrade.

Bathymetry firmware upgrade: For the firmware upgrade operation of the sounding part, first select the file and then click Start Upgrade.

Factory reset: Click to restore the device to factory Settings.

## 4. Supporting Software Introduction (HydroSurvey)

### 4.1、 Create a new project

Open the HydroSurvey software and click **【Project】** → **【New Project】**. The default

time of 【Project Name】 as shown in the figure is now, and it is recommended not to change it. The save path is under the 【Project】 folder in the installation directory.

The parameters to be input in the coordinate system setting are: ellipsoid, projection, reference conversion, horizontal adjustment, and vertical adjustment, which should be consistent with the coordinate system parameters in the handbook. If there is a base station translation, the base station translation parameters should be input in the calibration parameters.

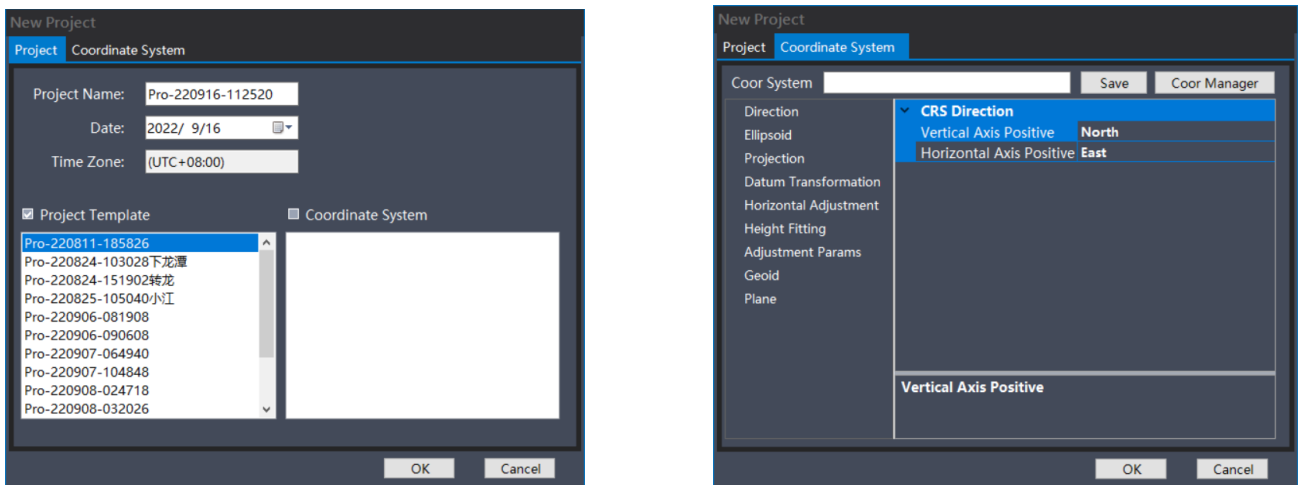


Figure Project parameter setting

## 4.2、 Data access

2.1 One Click Connection (available only when supporting the use of APACHE USV)



Figure One Click Connection

2.2 WIFI connection to the depth sounder

The computer is connected to theWIFI of the D270 sounder: D270-XXXXXXX



Open the HydroSurvey software, go to Settings - System Settings - Double click Sounder1, use the Settings shown in the following image and check Connect

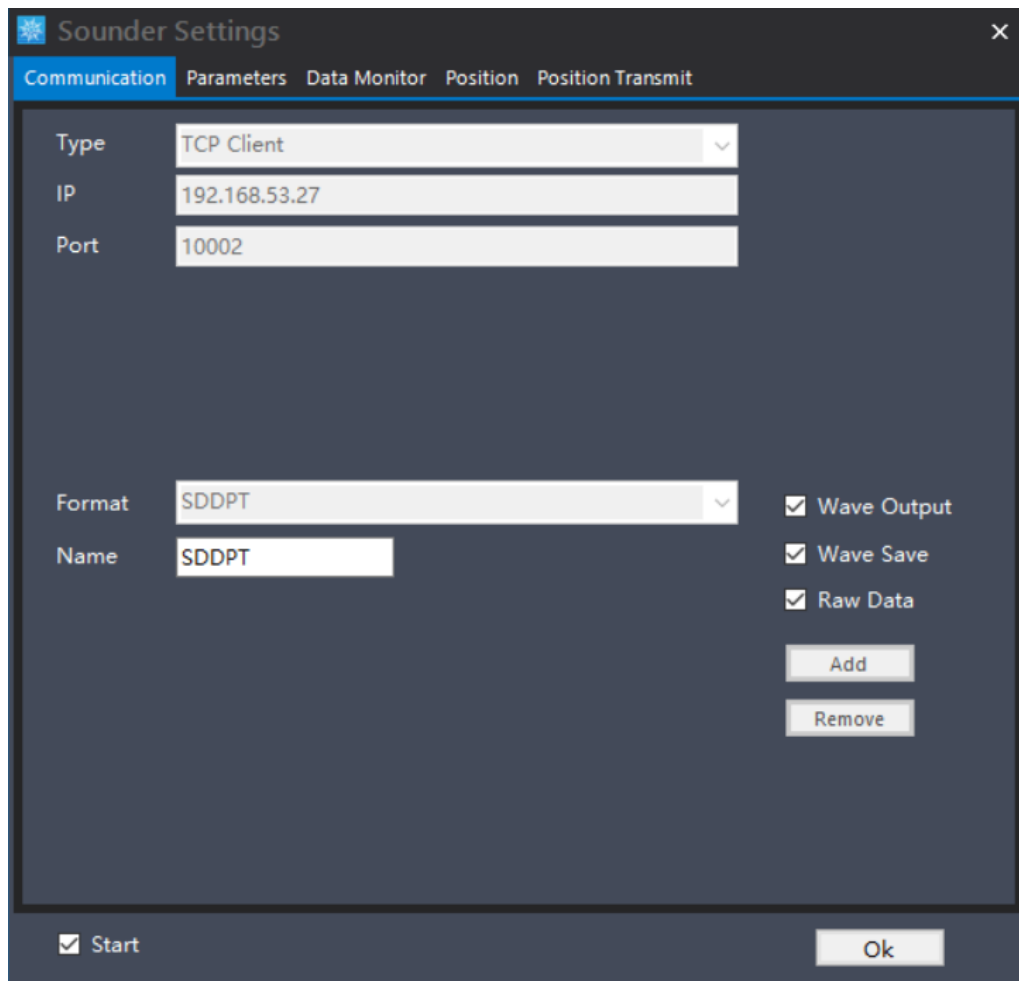


Figure Communication Settings

### 2.3 Serial port connection depth sounder &RTK

After connecting the D270 to the computer through the serial port, open the Hydrosurvey software, click Settings - System Settings - Double click Sounder1, as shown in the following figure (choose COM number according to computer identification)

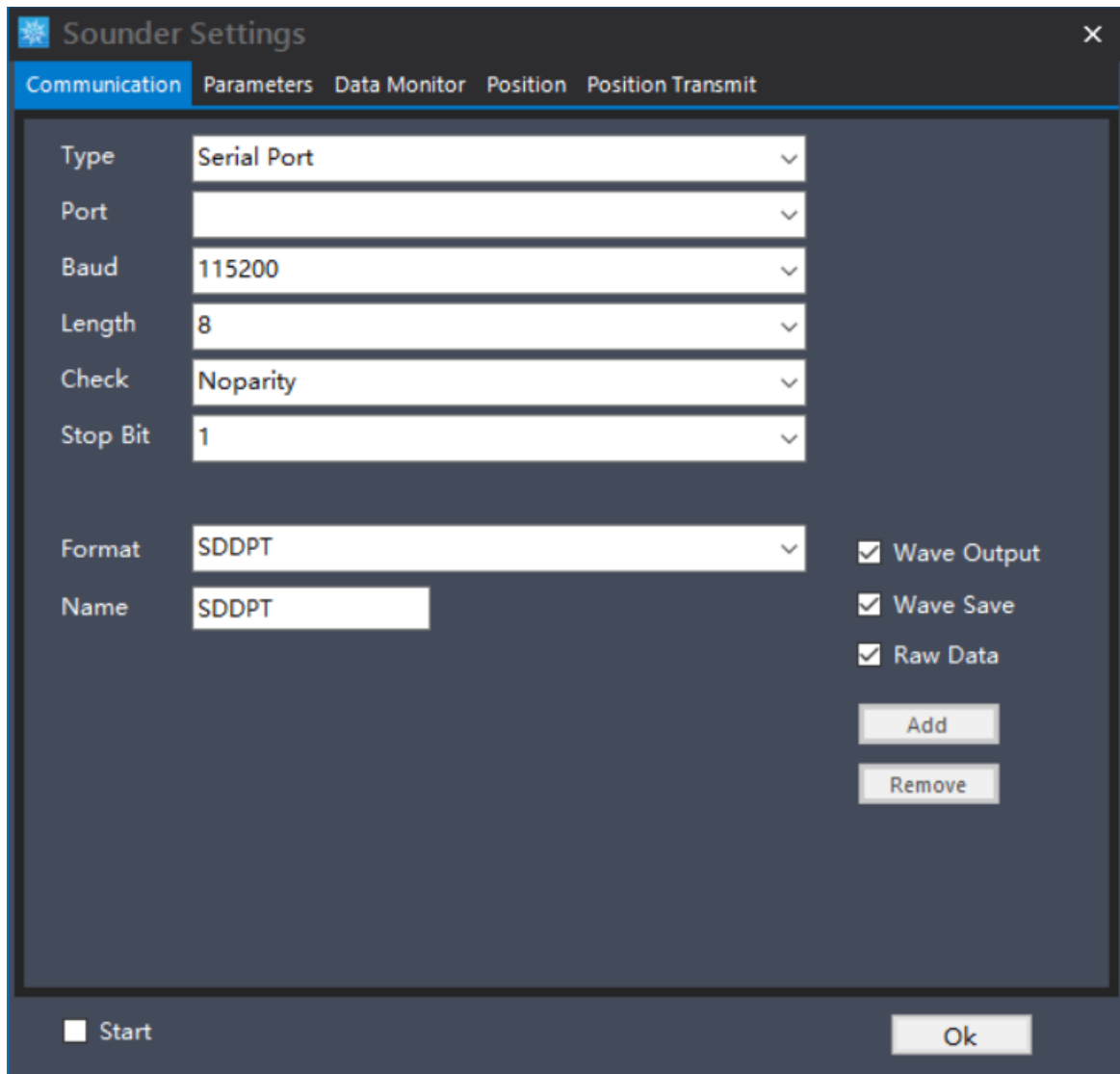


Figure Communication Settings

### 4.3、 Data records

Left mouse button click 【Setting】 → 【Recording Control】

The recording mode can be recorded by time or by distance, the recording limit can be fixed solution, the RMS limit can be checked or not checked, and the RMS information changes with the change of the location state and the solution state limit.



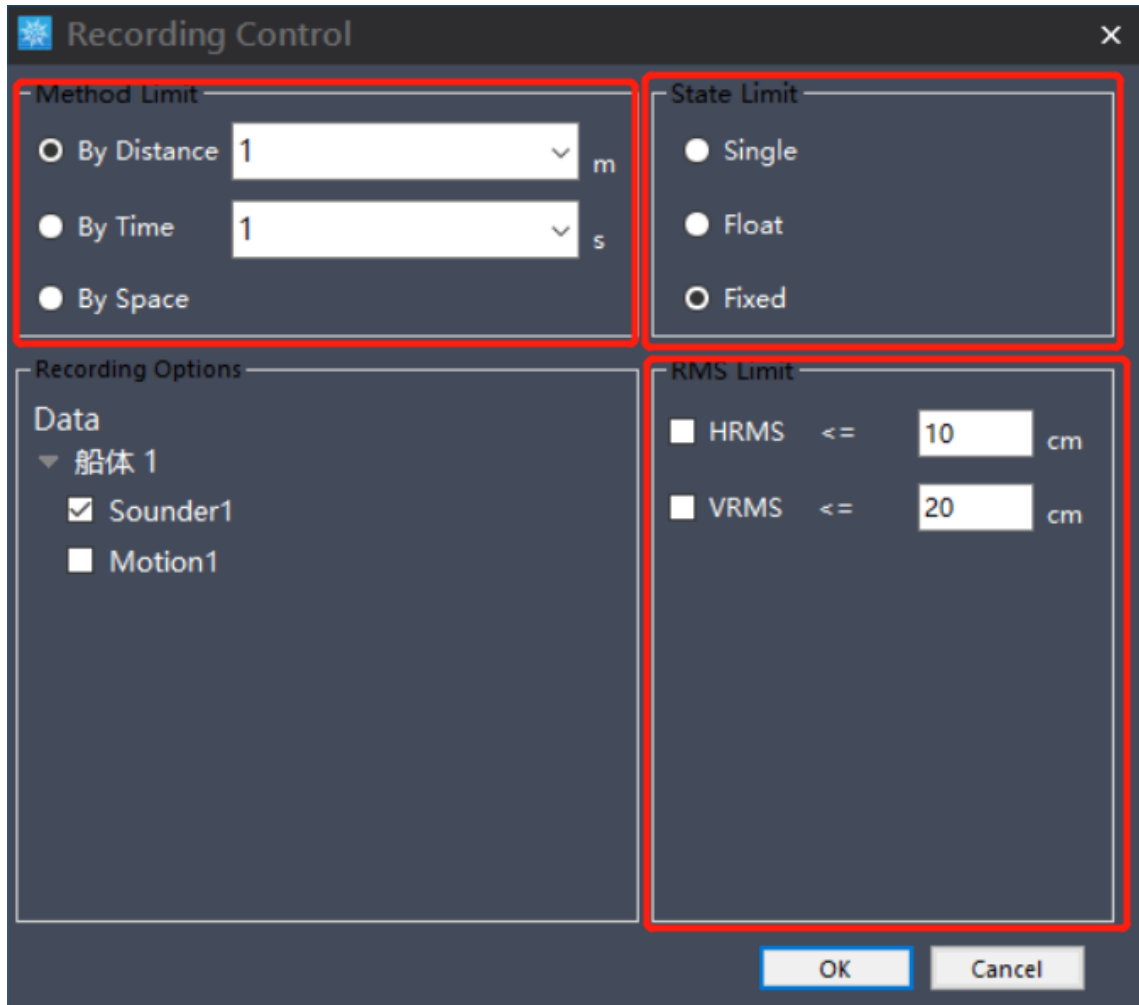


Figure Set Recording Control

## 4.4、 Measure Mode

Click 【Settings】 → 【Work Mode】 → 【Measure Mode】 with the left mouse button.

The left screen displays local coordinates and water depth.

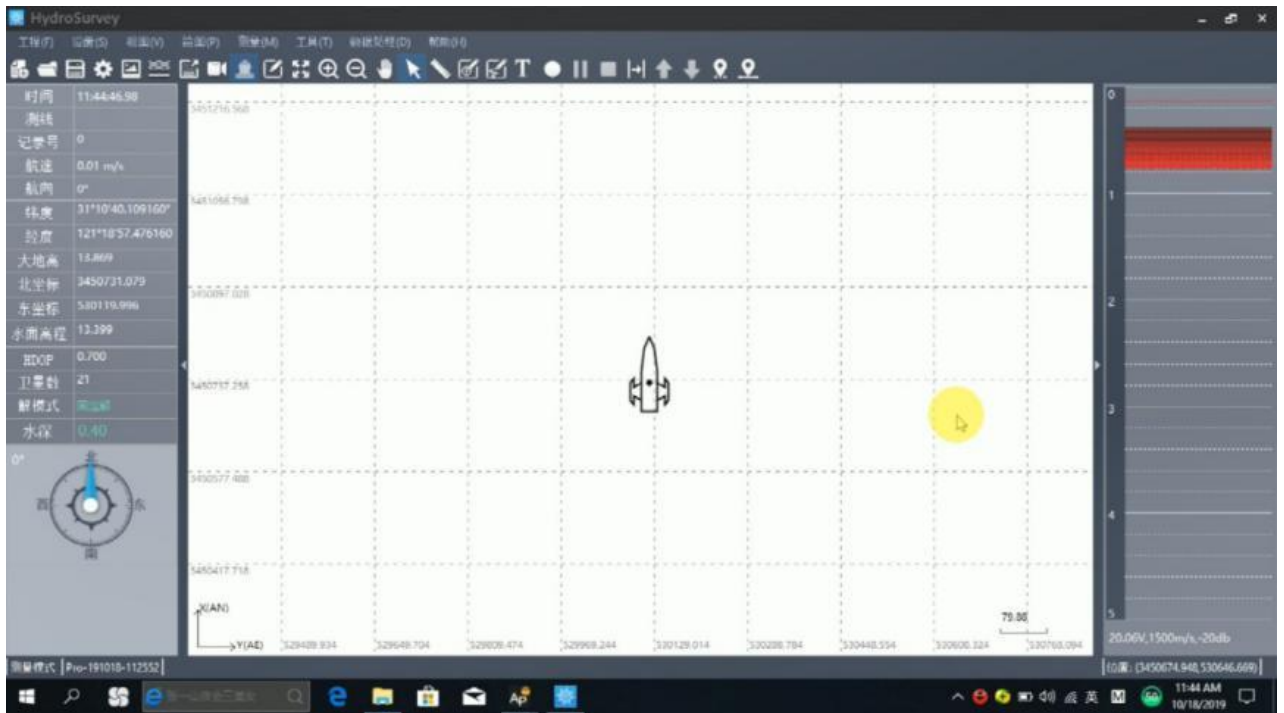


Figure Measure Mode

When the ship is sailing to the specified route to be tested, click **【Measure】** → **【Start】** to display the interface for setting line survey information. The default setting of line survey name and line survey number is enough. Automatic line change Select 3500 points for automatic line change.

After the test area task is complete, click **【Measure】** → **【End】** .

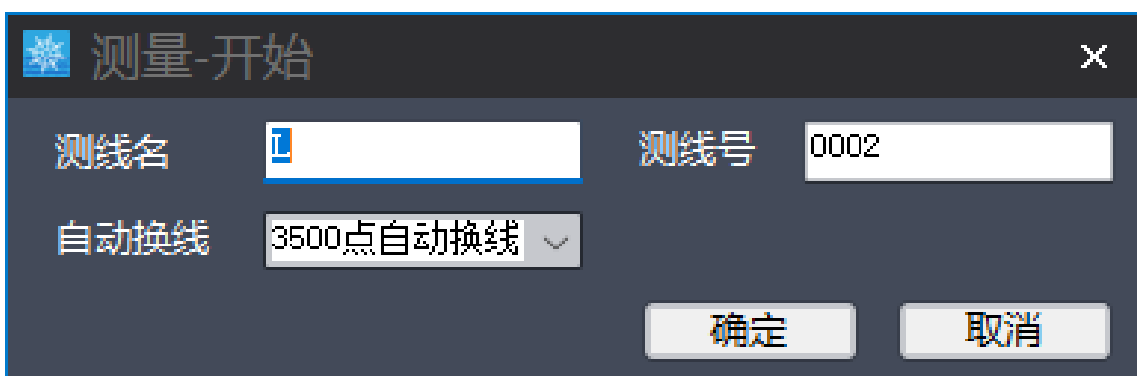


Figure Line set up

## 4.5、 Post data processing

The raw data folder of the measurement results is stored in the Project folder in the HydroSurvey software installation directory; You can also download D270 internal storage data for processing.

Open HydroSurvey software, Click **【Data Process】** → **【Depth Sample】**, the software automatically load the project file Depths under the folder of the raw data files (dep), as shown in figure:



Figure Depth Sample

Select the dep file in the right lateral line list. As shown in the figure, water surface elevation value is displayed on the upper light blue interface on the left side, and water depth value is displayed on the lower blue interface. The display position of data on the left was changed by adjusting **【Width】** and **【Depth H】** on the right, and the wrong data was deleted according to the principle of continuous topography. Select the wrong water depth point in the box, click **【Eraser】** on the

right, and process the dep files in the side line list in turn.



Figure False water depth treatment

## 4.6、Depth Sample

After processing the dep files in turn, select all the dep files in the side line list (you can also select all of them) and set the sampling interval, such as: 1 (sampling a point every 5 meters on this test line), click **【Sample】** and **【HTT】**. In the pop-up saving interface, select the saving path with the default name.

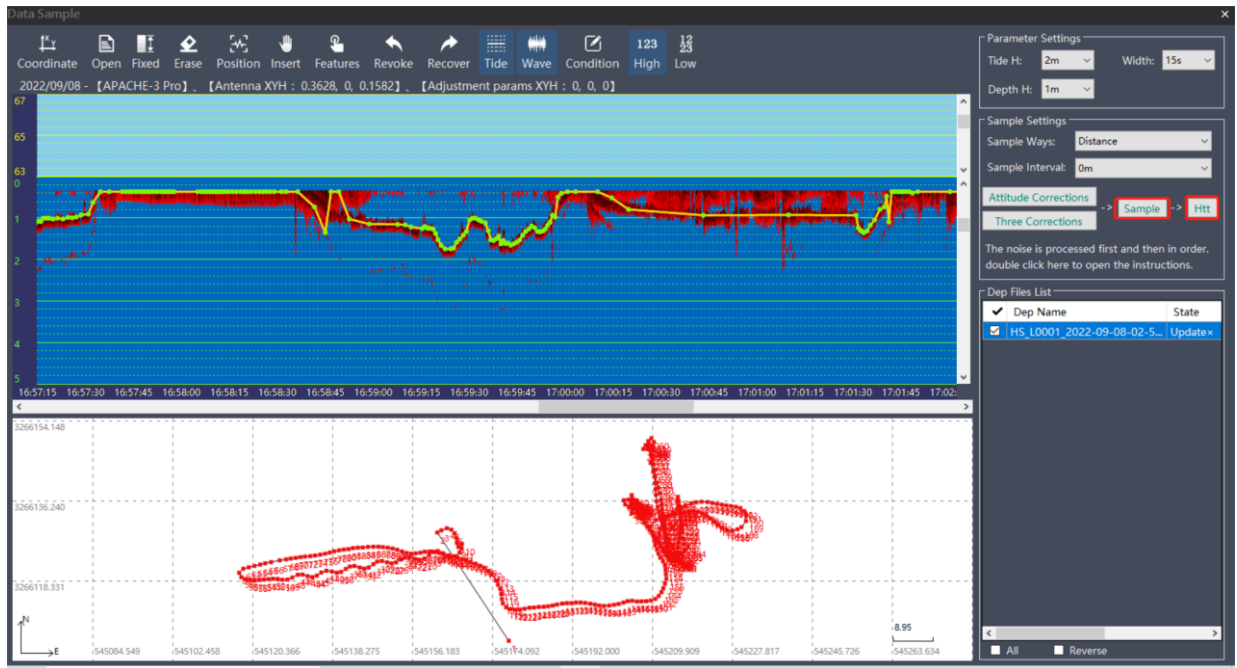


Figure Sample

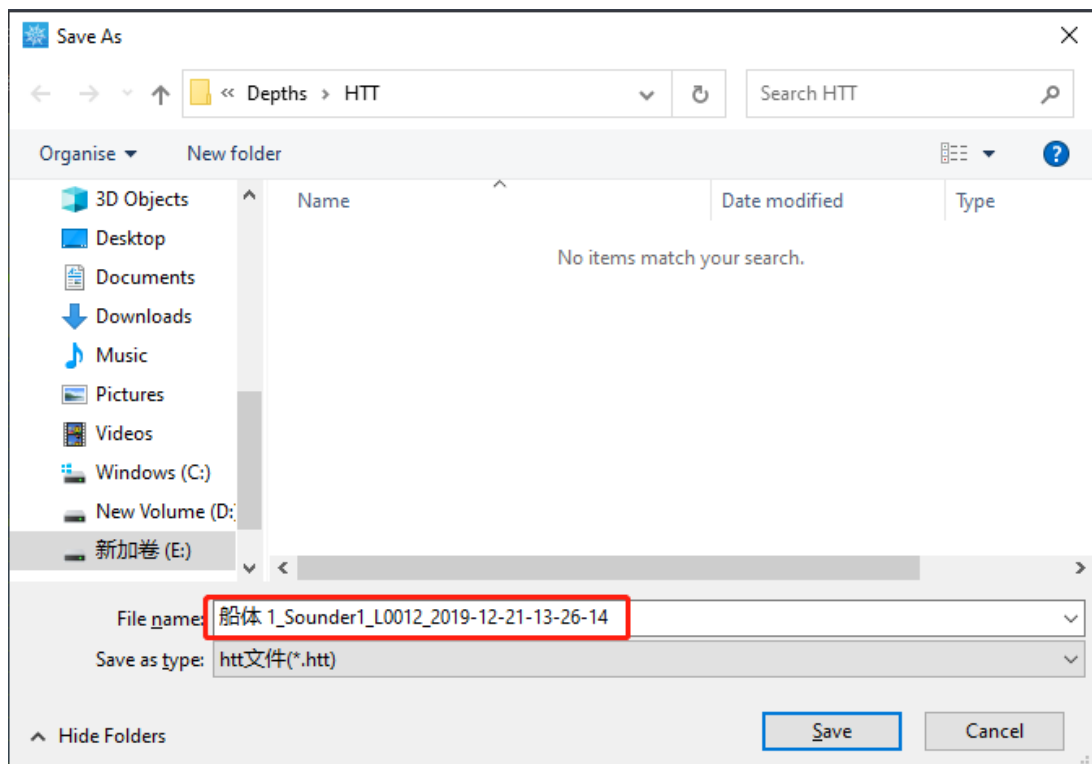


Figure Generate the HTT file

## 4.7、 Export data

Click **【Date Process】** → **【Date Export】**

Select **【Open Htts】** ,select all the HTT files you want, and select the appropriate file type.

The navigation software provides a variety of export formats to choose from, or you can customize the export format as shown in the figure.

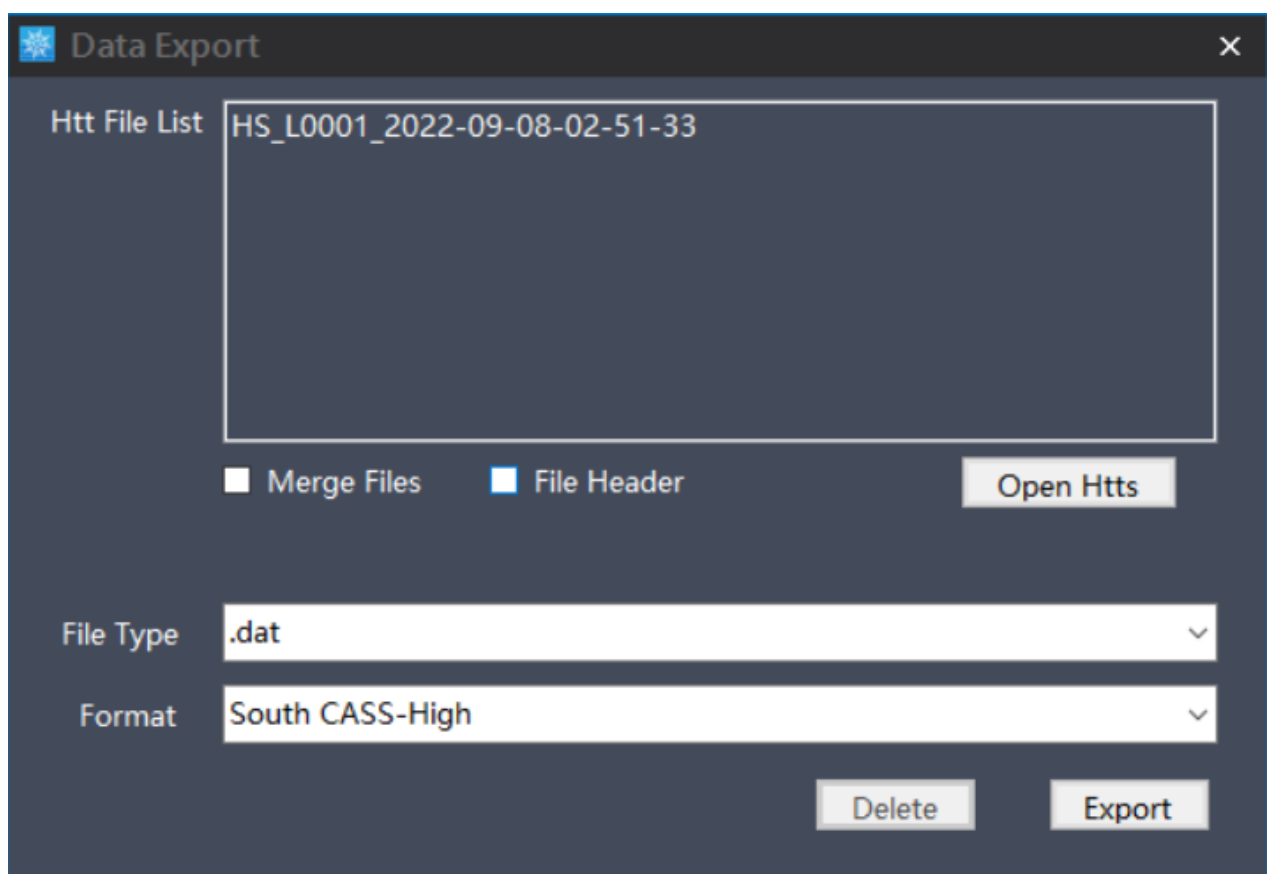


Figure Generation HTT file

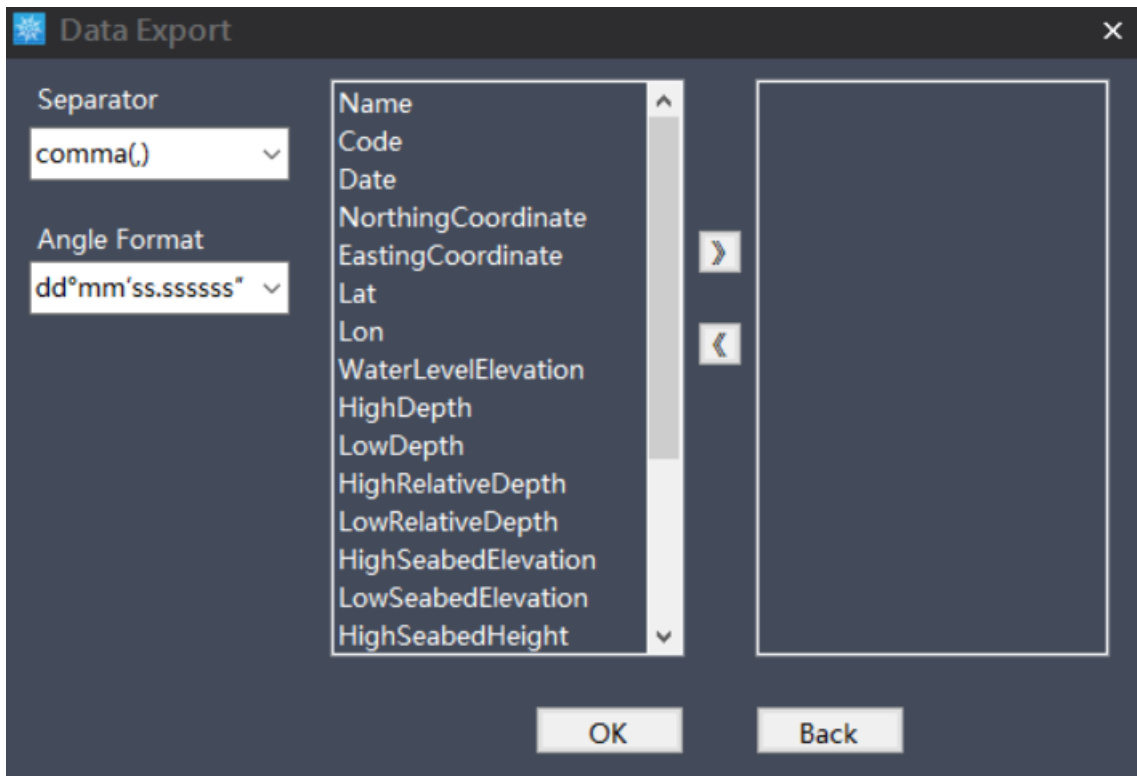


Figure Export a custom format

## **FCC warning statements:**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The device has been evaluated to meet general RF exposure requirement This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.