The gAirhawk Software 4.8 verision Operation Procedure

One-Key Process Solution

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Note

1. One-Key Process solution

It means the all parameters are recorded in the LiDAR unit (Hardware) before Shipment, and the offset (The position of the Antenna to the position of LiDAR center, also called Lever Arm) should be fixed, then it supports One-Key Process solution.

When process the data, only add the Base data, POS data and LiDAR data(Camera folders if necessary) not input the parameter manually.

Of course we support One-Key Process firmware for the clients, just share us the parameter of offset (The clients use their designed mounting kit). Some type (shipped before Nov 2020) do not support One-Key Process.

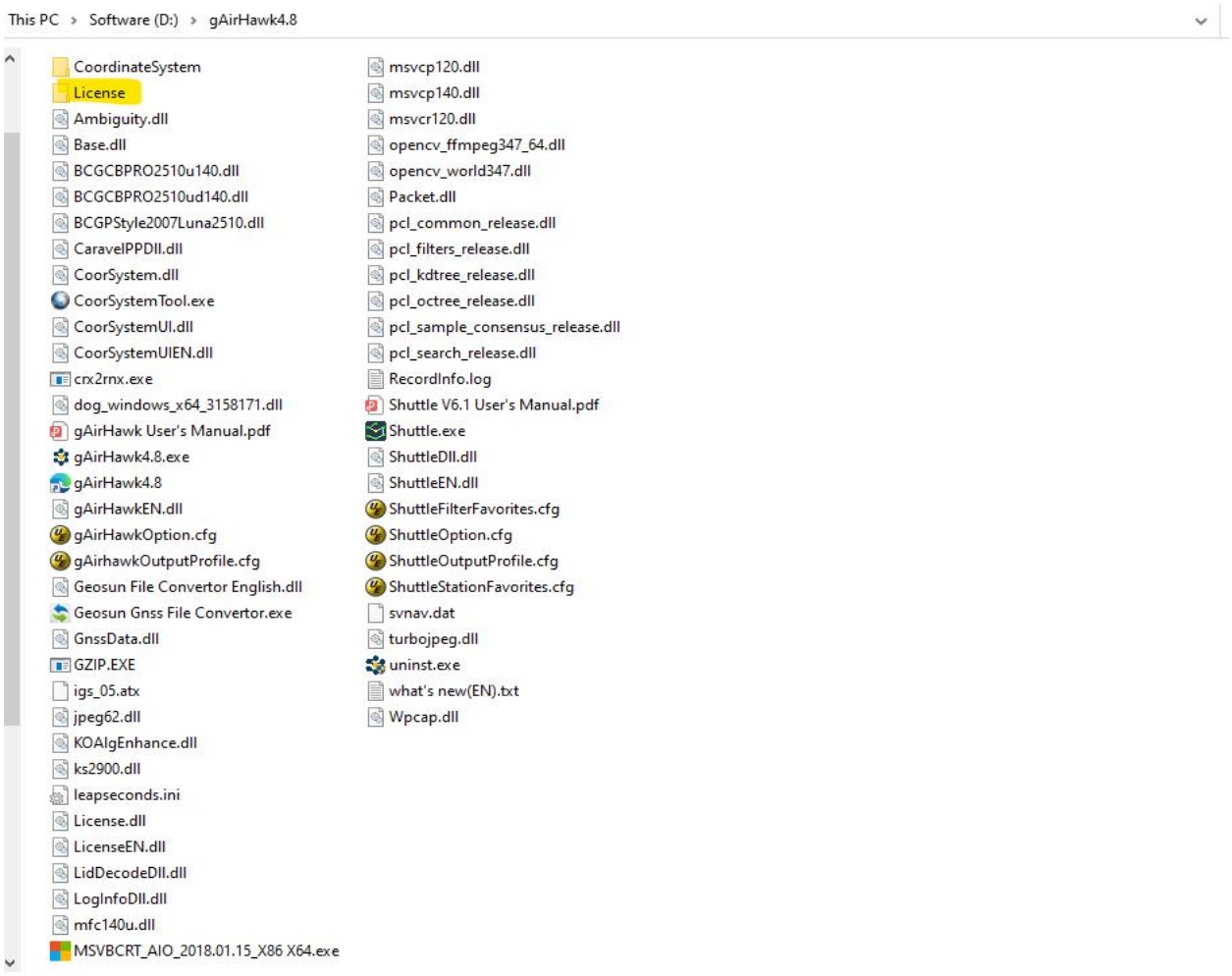
2. The gAirhawk software (4.8 version) is combined trajectory processing and lidar data processing together in gAirhawk software, it is only for LiDAR System which support One-Key Process solution. If do not support One-Key Process solution, the trajectory processing should be in Shuttle software separately.

Please install the gAirhawk software at D/E/F drive, not C drive. Just in case it works in abnormally (In Window 10 system, user' full control should be get if install on C drive).

Please copy and paste the license.dat file to the license folder which locate in the content of gAirhawk software.

Software Installation

The following figure is the content of gAirhawk software after installation successfully.

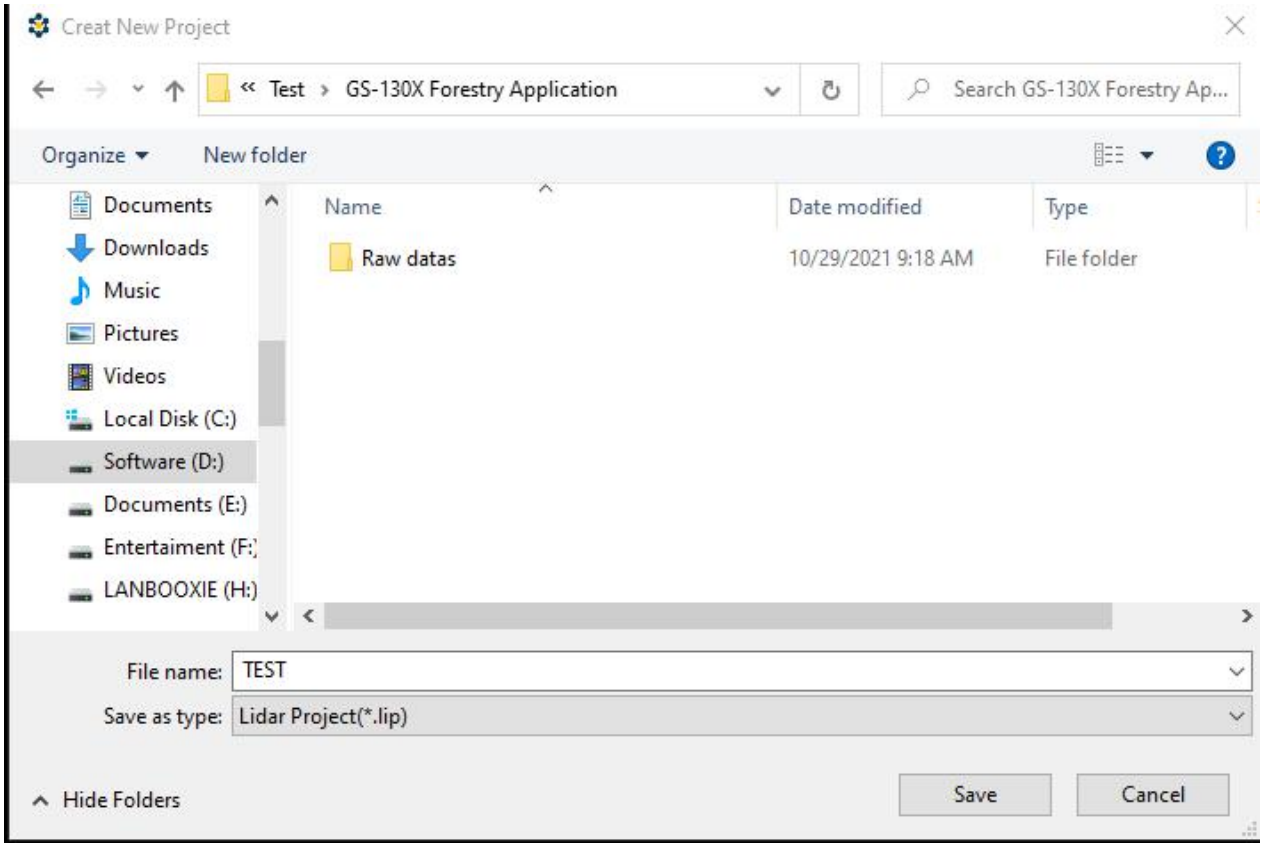


Before running the gAirhawk software, please make sure the files (base data, POS data, lidar data and image folder if required) are ready.

Double click the gAirhawk icon on desktop, enter into the interface of operation, as following

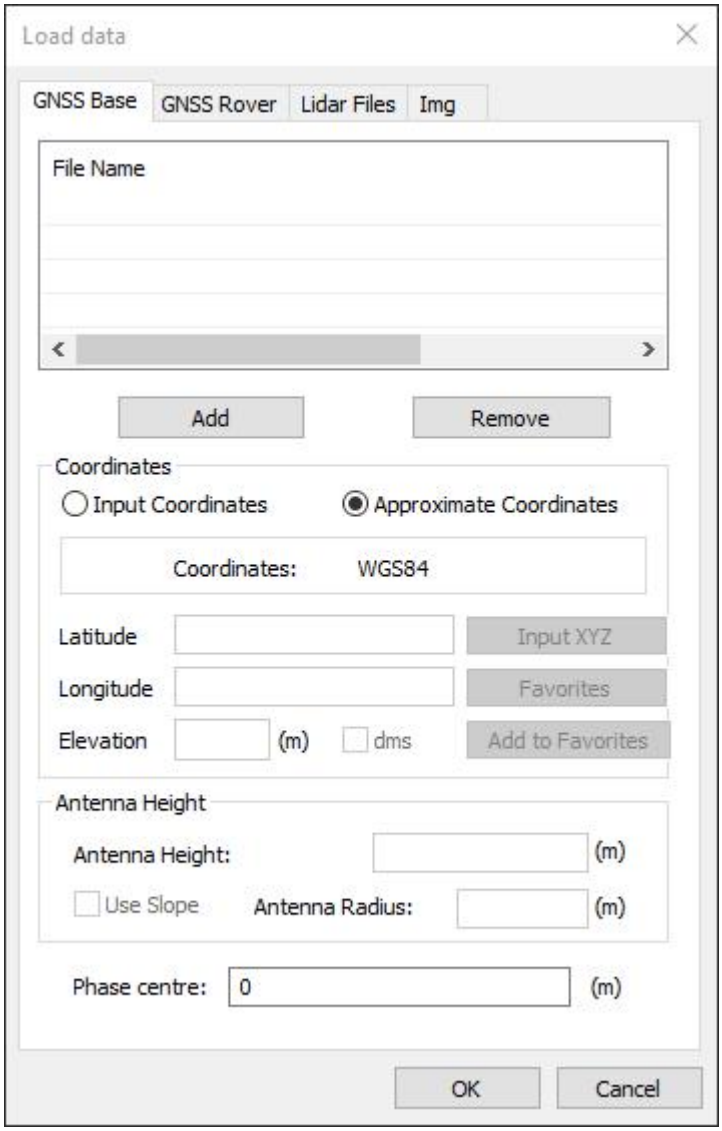
1. Create a New Project

Click the File icon, select New Project, enter into Create New Project interface, as following



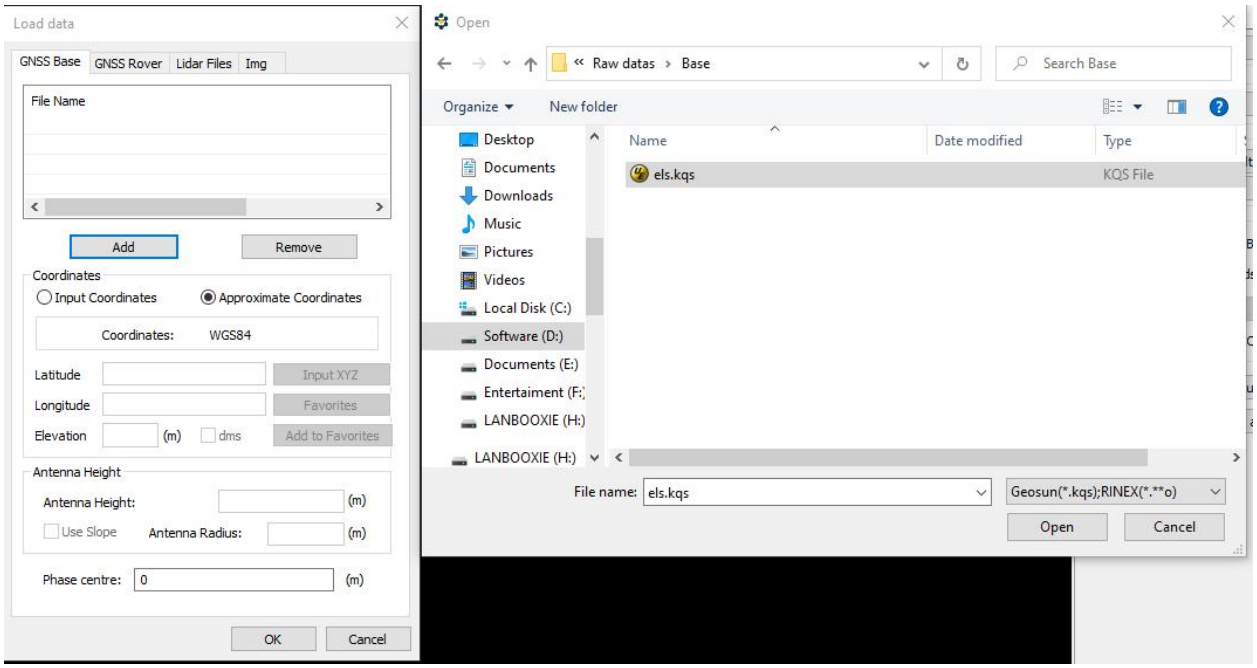
The file is named as the TEST, then click the Save icon (Save the file with the same location), enter into

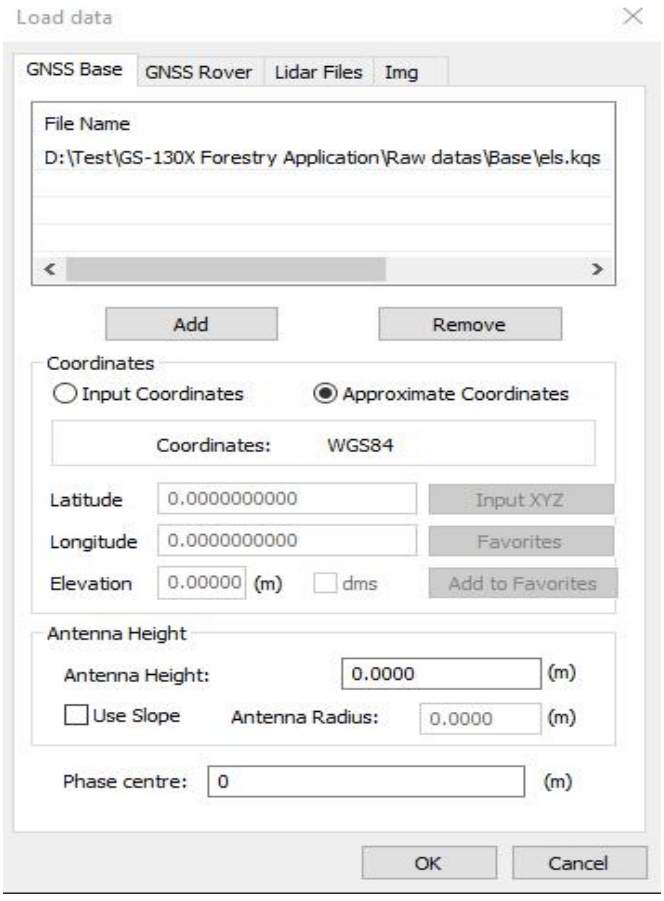
Load data interface, as following



There are GNSS Base bar, GNSS Rover bar, Lidar File bar and Img bar (Only for the lidar system with Camera)

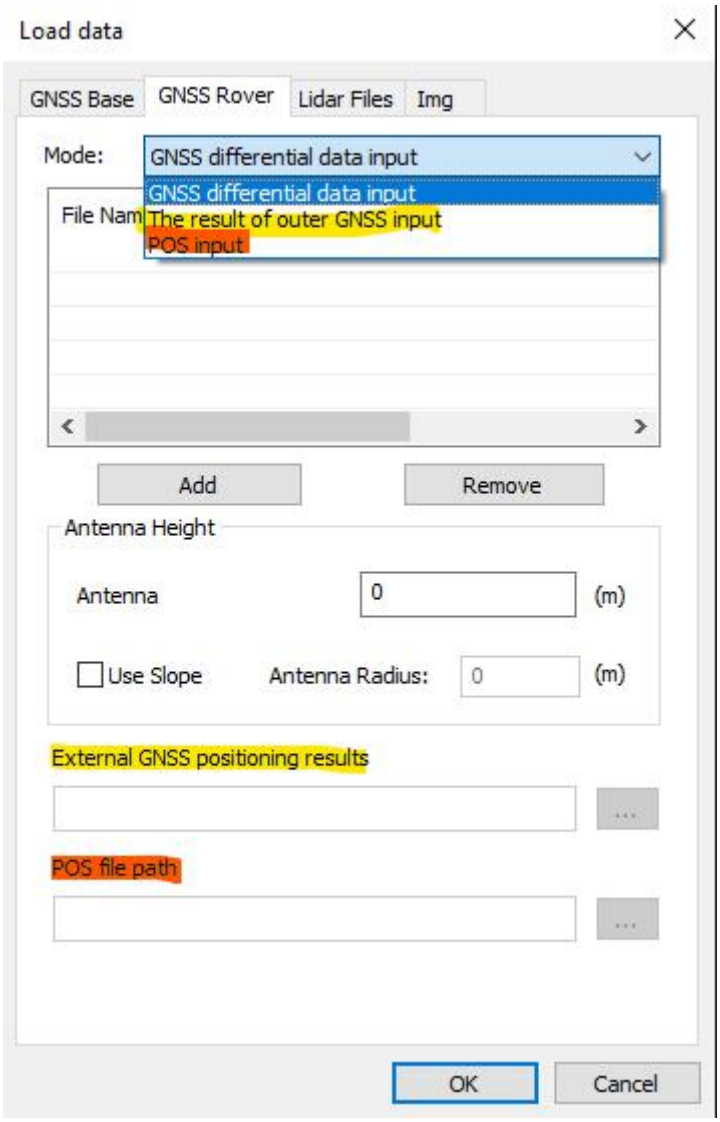
Click the GNSS Base bar enter into GNSS Base interface, click the Add bar to add the base data, as following





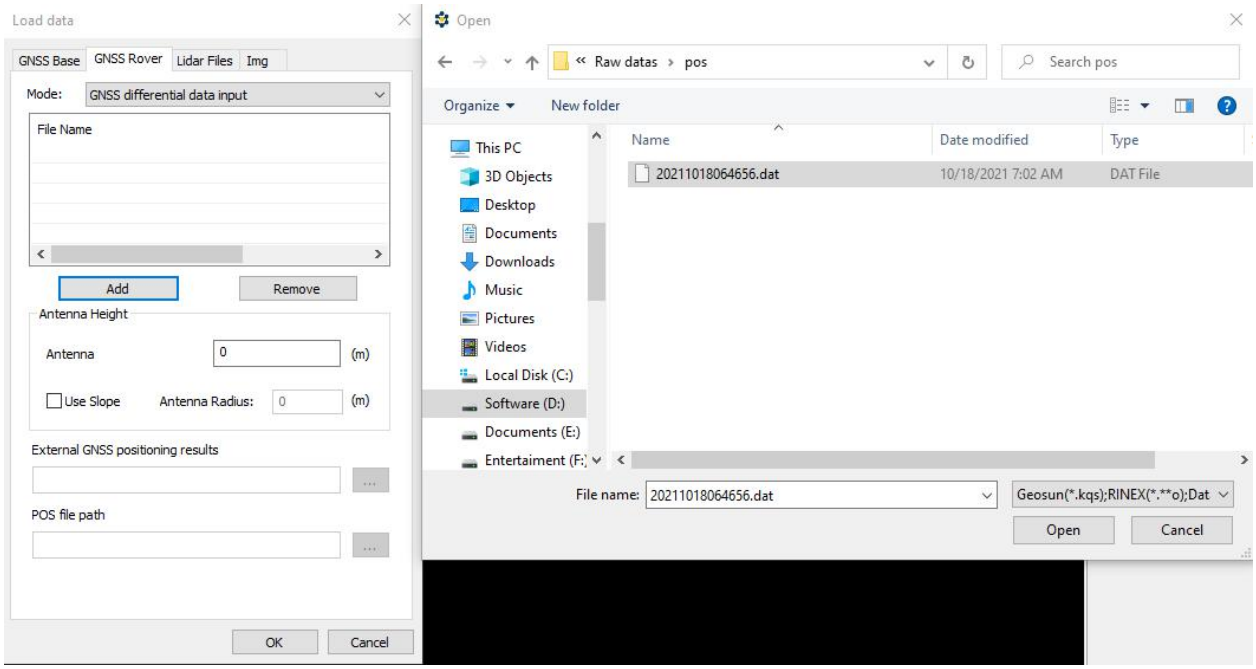
Please input coordinates if base station coordinate required.
Or select Approximate Coordinates.

Click the GNSS Rover bar enter into GNSS Rover interface,
The Mode: there is drop-down menu, as following 6-2

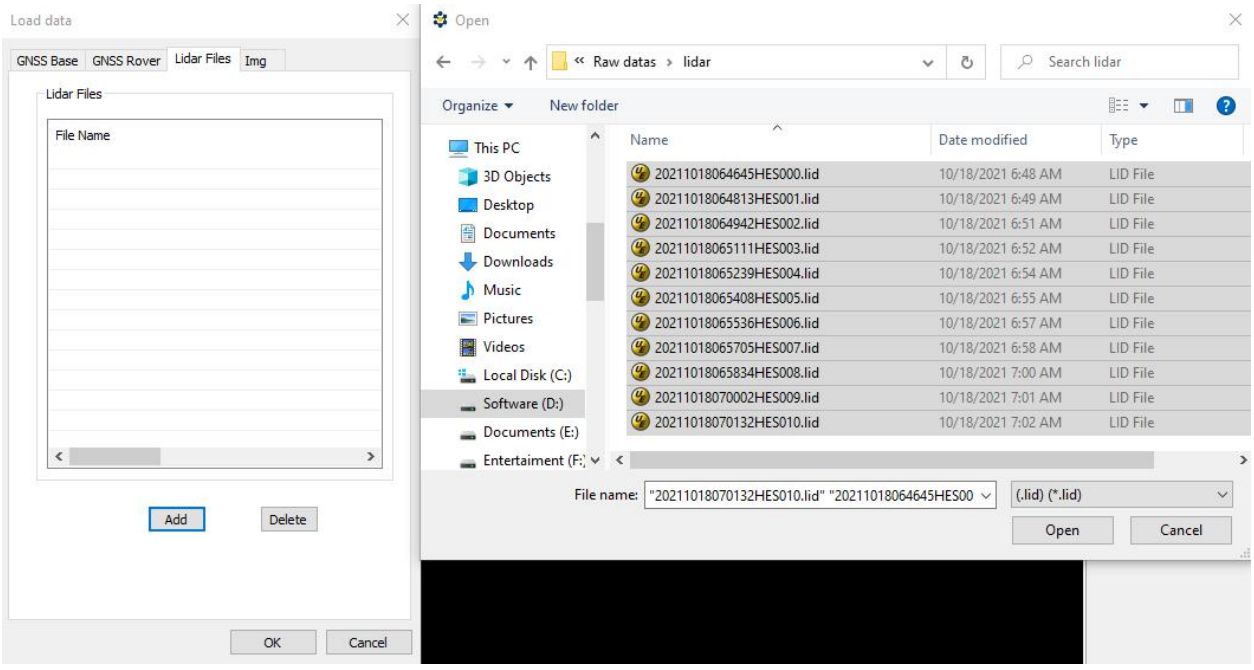


Hereby we only select the GNSS differential data input for One-Key Process solution.
If select The result of outer GNSS input, only External GNSS Positioning results is available.
If select POS input, only POS file path is available.

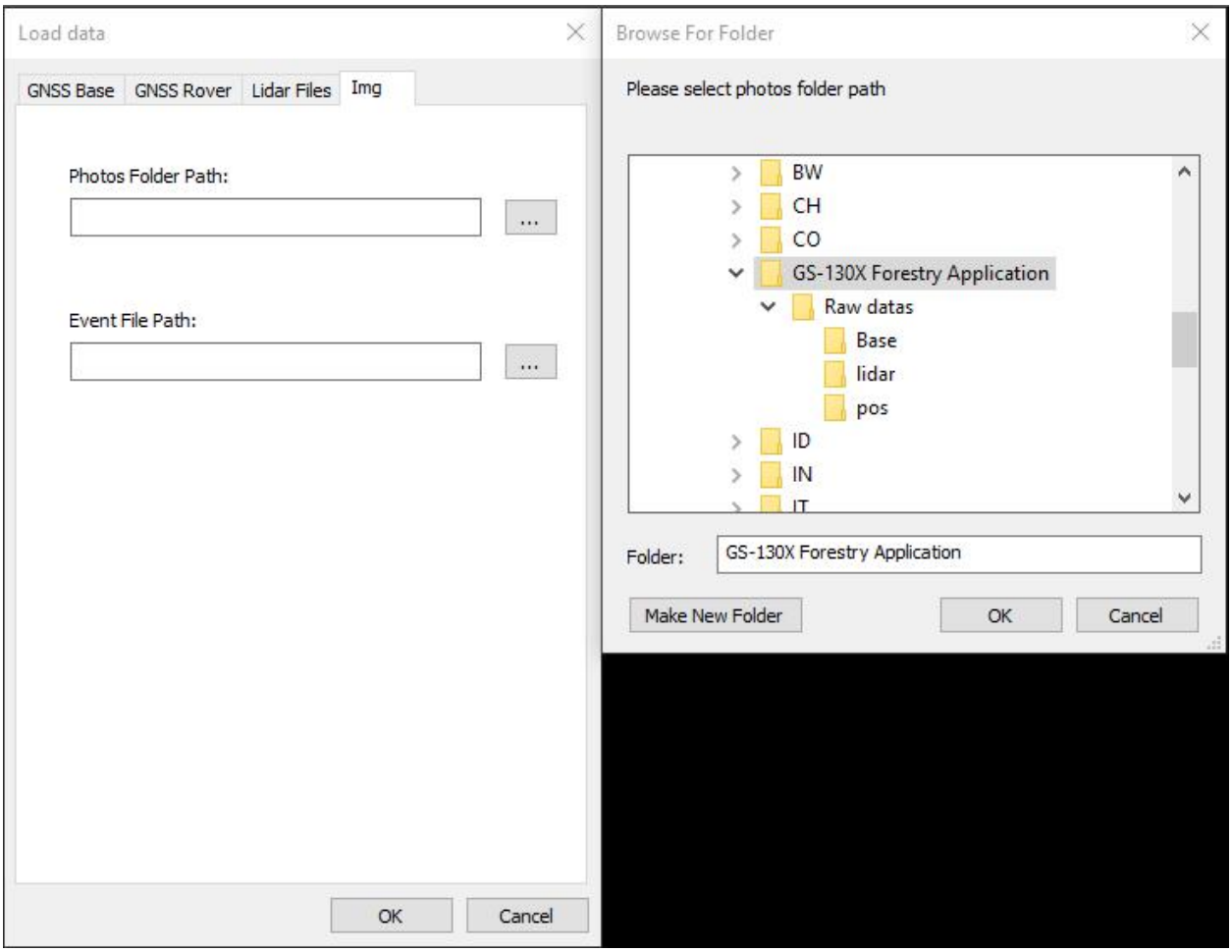
Click the Add bar to add the GNSS Rover data, as following



Click the Lidar files bar enter into Lidar files interface, click the Add bar to add the lidar files, as following

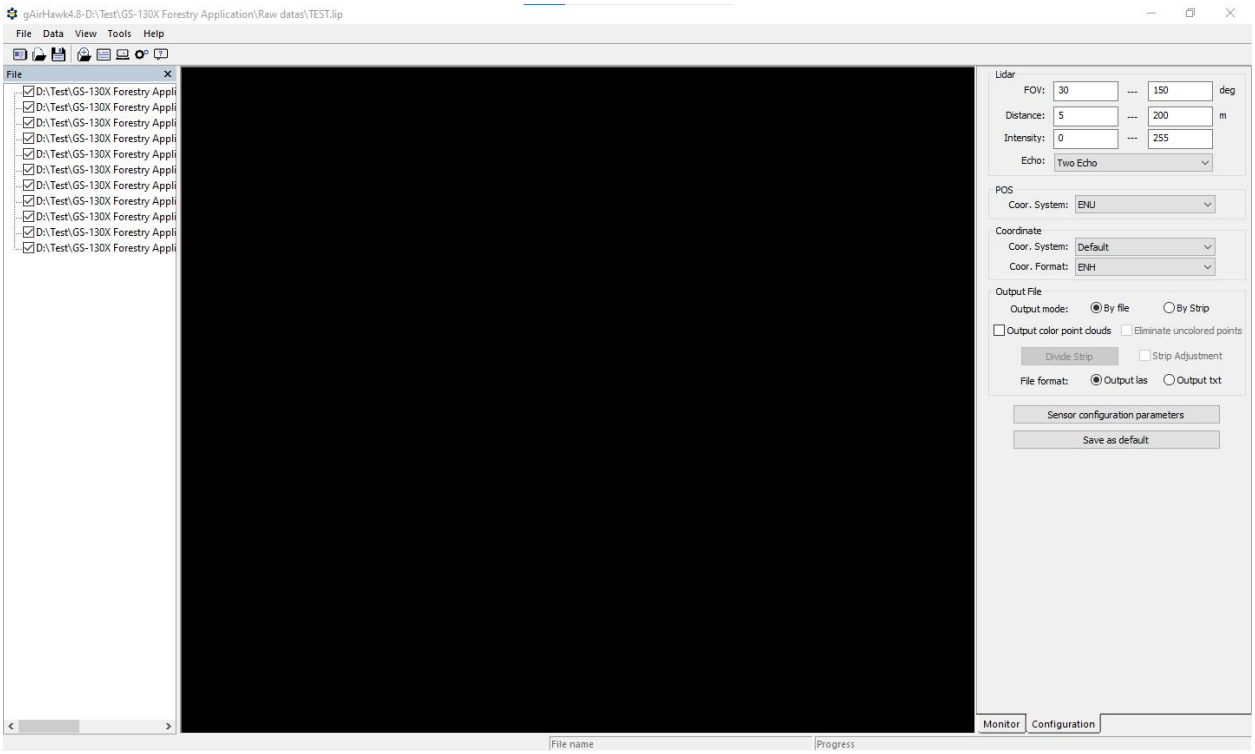


Click the Img bar enter into Img interface, click the checking box to load the Photos Folder Path, as following (If the LiDAR System is with Camera)



In this step, no need to load Event File Path (Only for One-Key Process solution)

Click the OK bar, finish Adding files, as following (7-1)
After processing data and color point cloud output, if mismatch happens(image and point cloud), please delete the first photo from the beginning whatever the number of trigger event and the photos is.



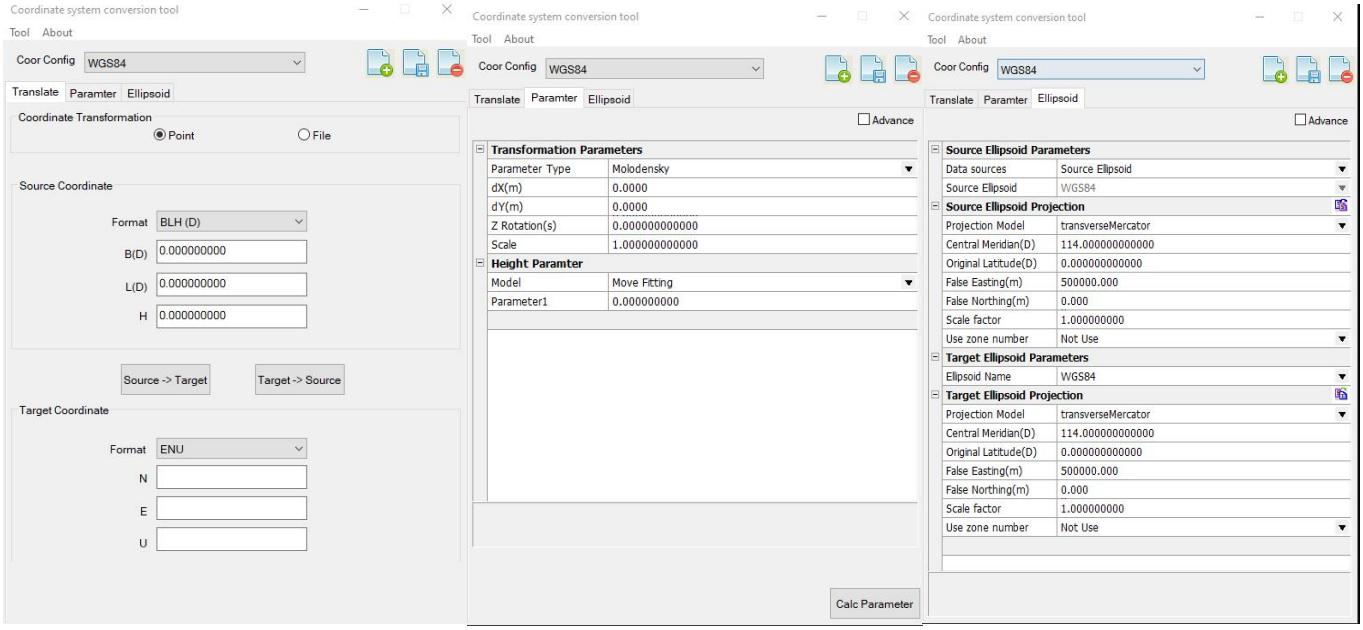
2. Set the Coordinate System

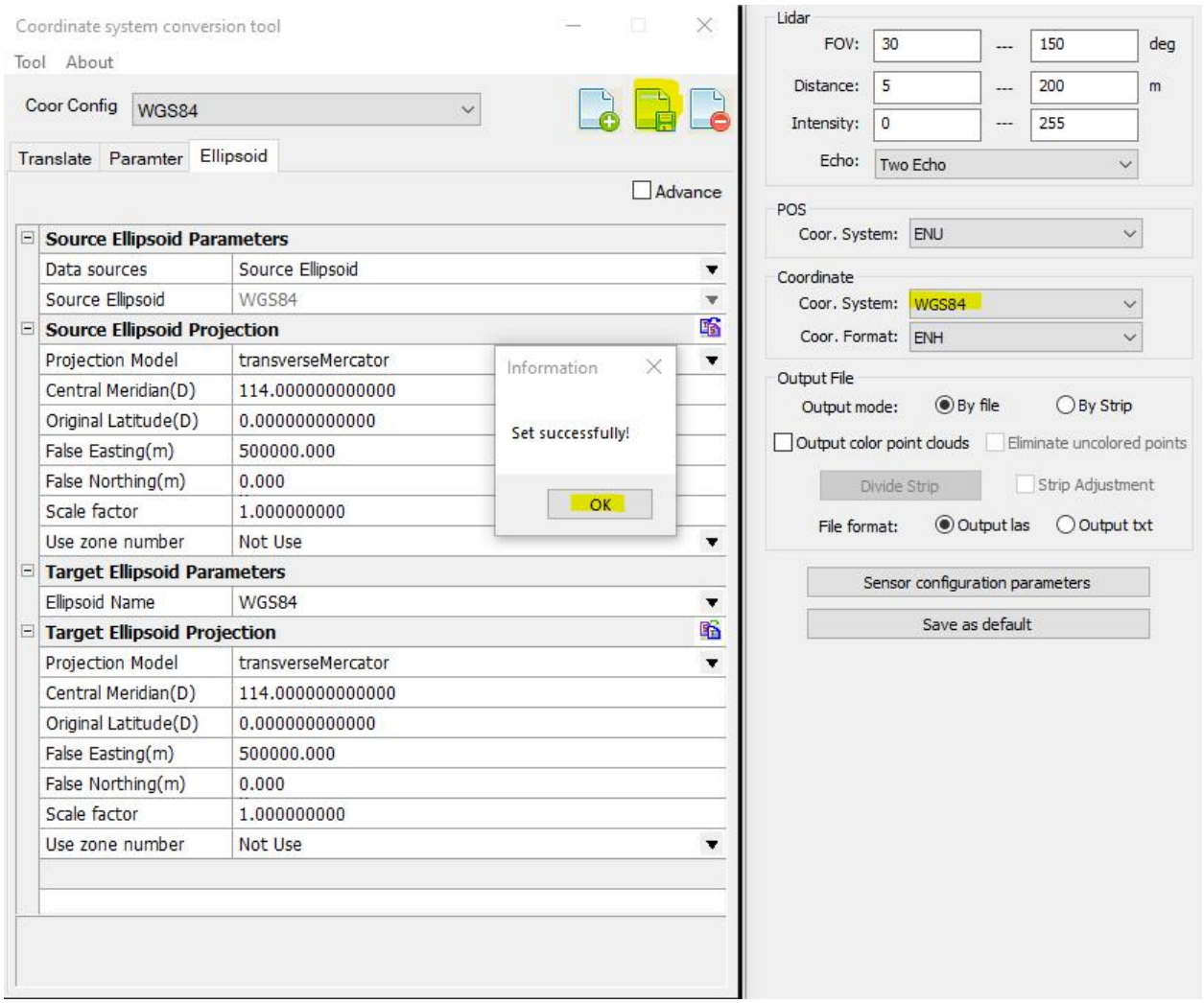
Click the Tools bar, select Coordinate System, enter into Coordinate System Conversion Tool interface,

Click the  , Create new coordinate system, name as WGS 84 (For example), click the OK icon, enter into Coor Config interface,

There are Translate bar, Parameter bar and Ellipsoid bar

In this step, only click the Ellipsoid bar to set the parameter, as following,





click the OK bar to save setting.

In this step, the local coordinate system is available according to the clients requirements. If not familiar with setting, please check the local surveyor or consult engineers.

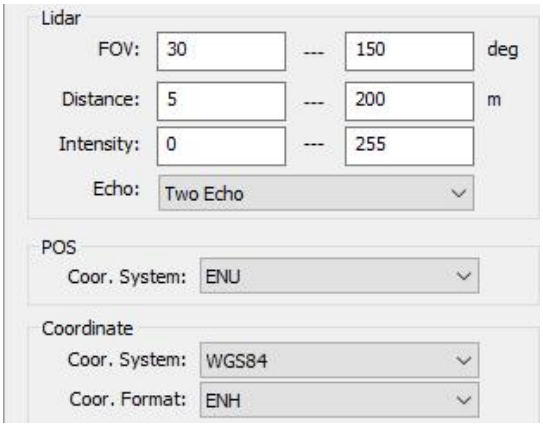
3. Set the Parameter

FOV : 30-150 (According to Recommendation)

Distance : 5-200M (According to flight height)

Intensity: 0-255

Echo : Two Echos (Two and Triple Echos are available)

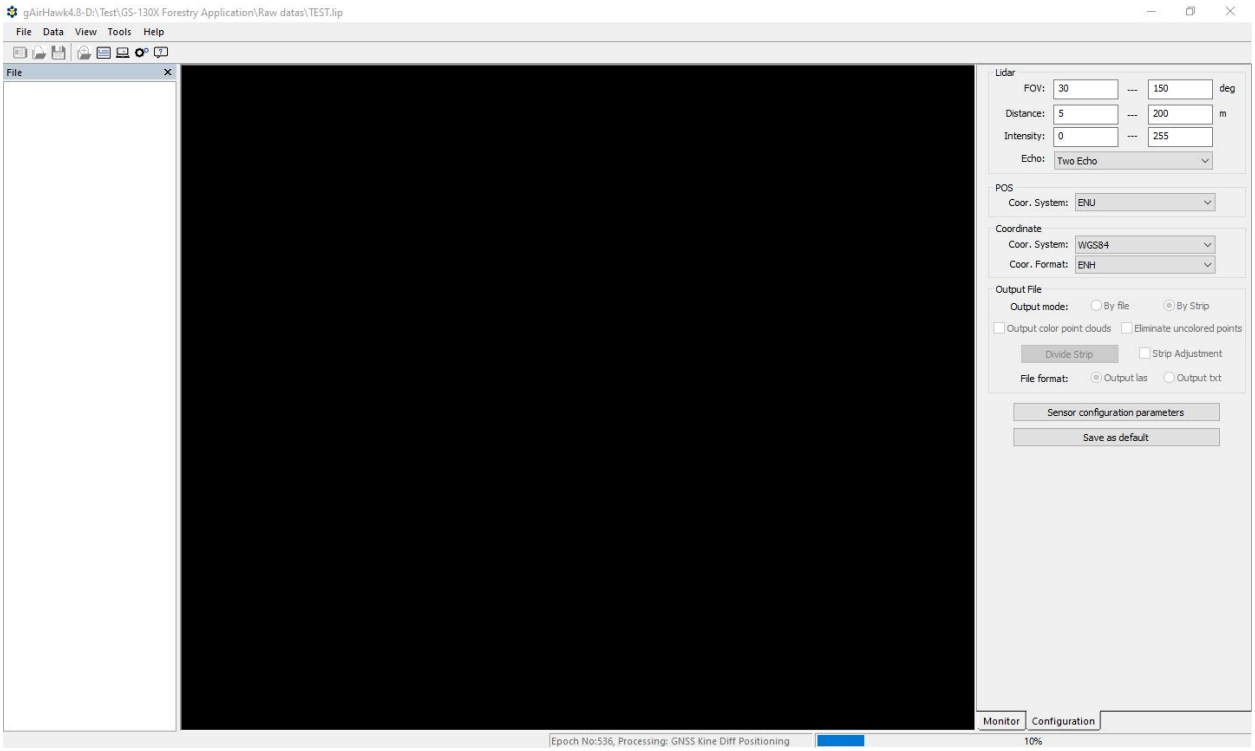


Then select
POS (ENU, NED) ENU is default.
Coordinate system and Format (ENH, XYZ(ECEF), BLH (DMS) and BLH (Degree) are available according to the requirement.

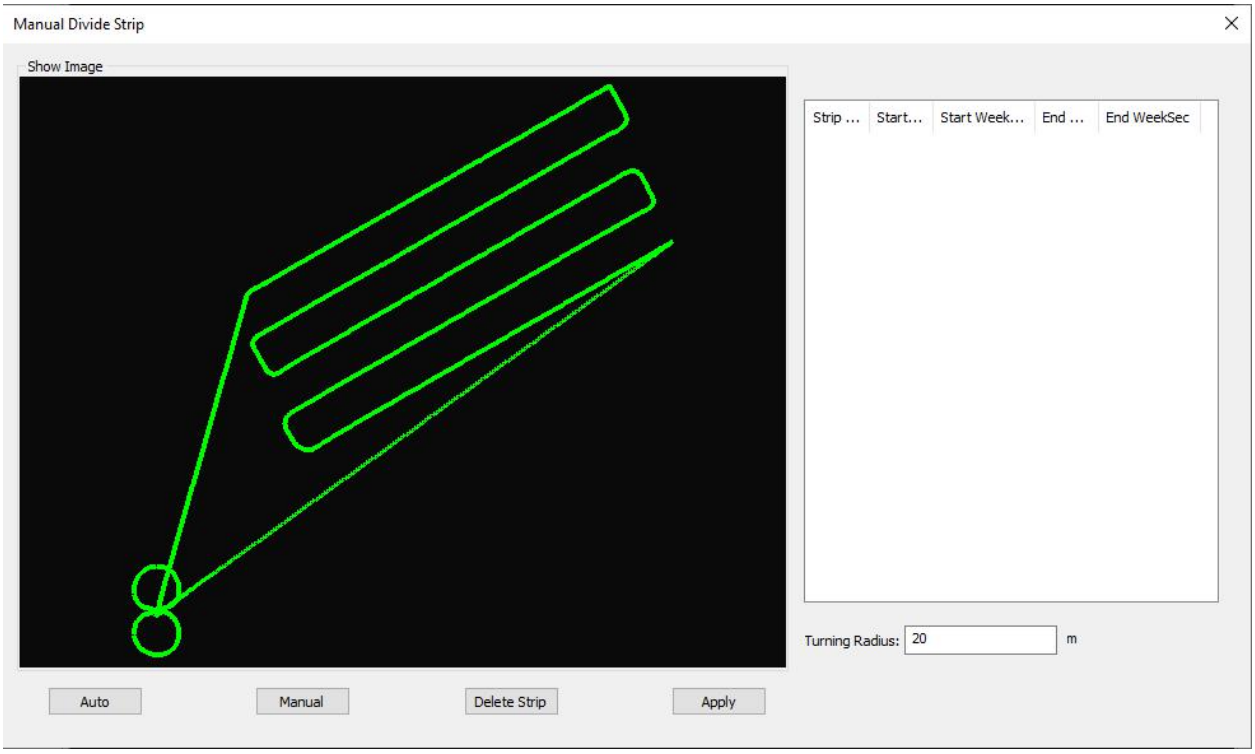
Output file
Output mode By file or By Strip
File format By Output Las or Output txt (According to the clients' requirement)

Output color point clouds is selected only for the LiDAR system with Camera.
Eliminate uncolored points is selected means the point cloud without color will be eliminated.

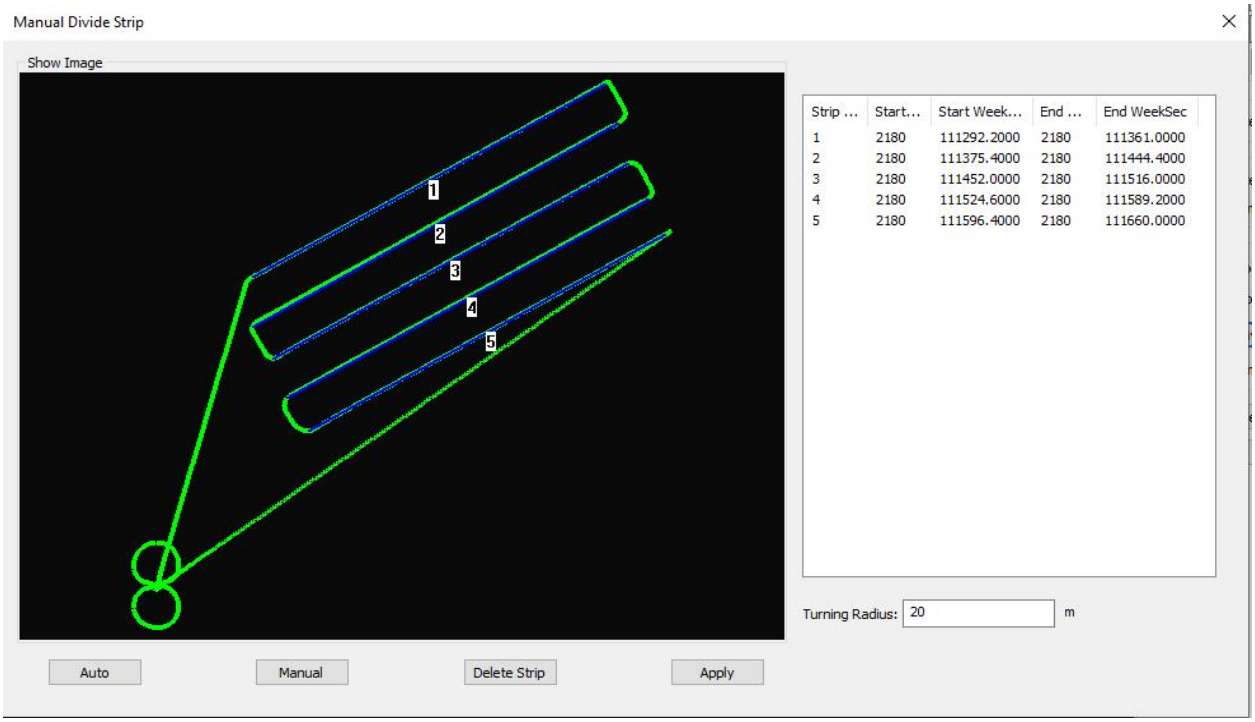
If select Output mode By strip, the data processing start automatically (File partition, Kinematic Differential GNSS), as following



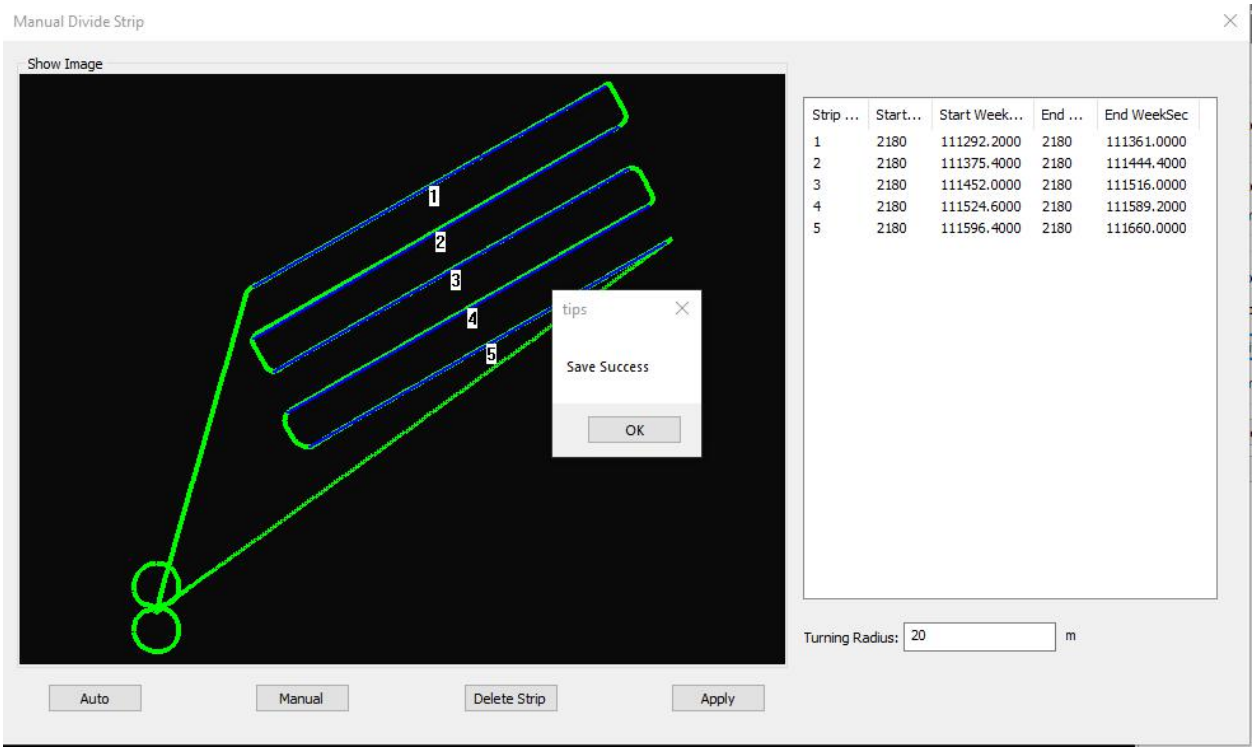
Then the trajectory dialogue pop up (Or Click the Divide Strip Bar), as following



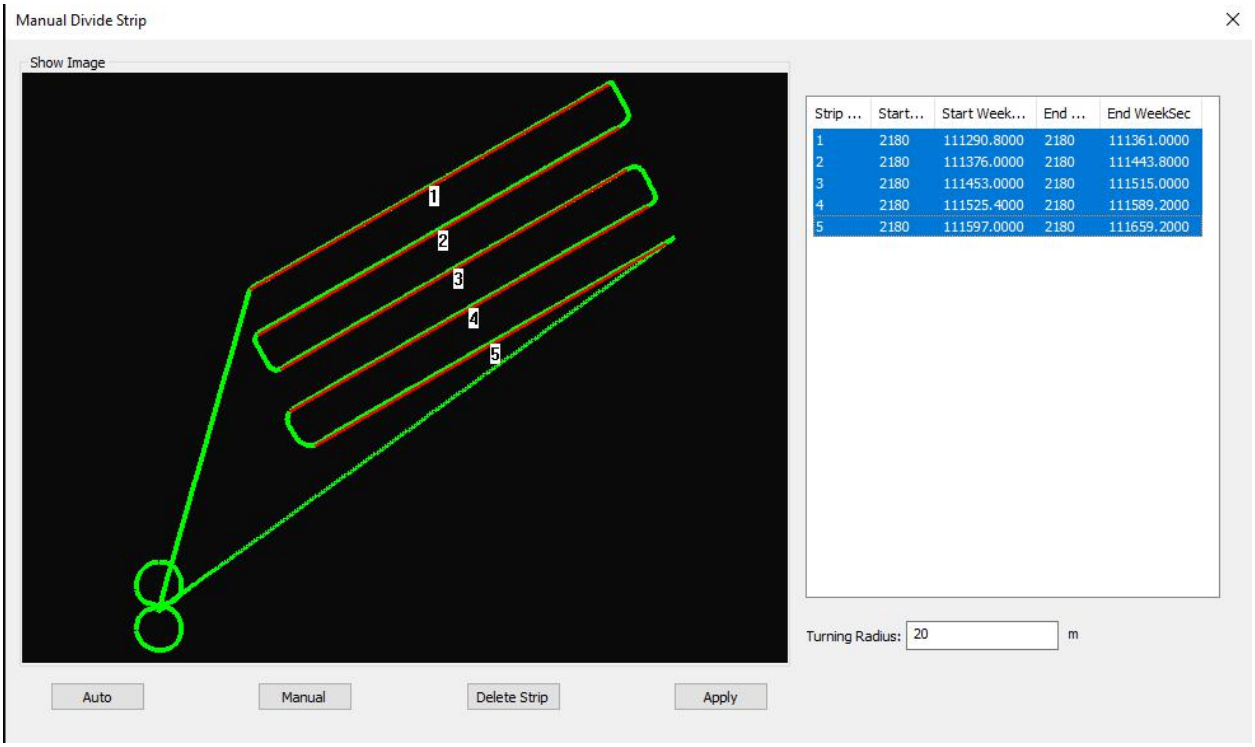
Enter into Manual Divide Strip interface, click the Manual bar to choose the strips (the client could choose the strips according to requirements, and only straight strips are chosen, removed radius parts)
Click the strip from the start to the end with left click (Mouse, not holding the mouse) to finish selecting one strip, re-peat this step to select all the strips you required. As following



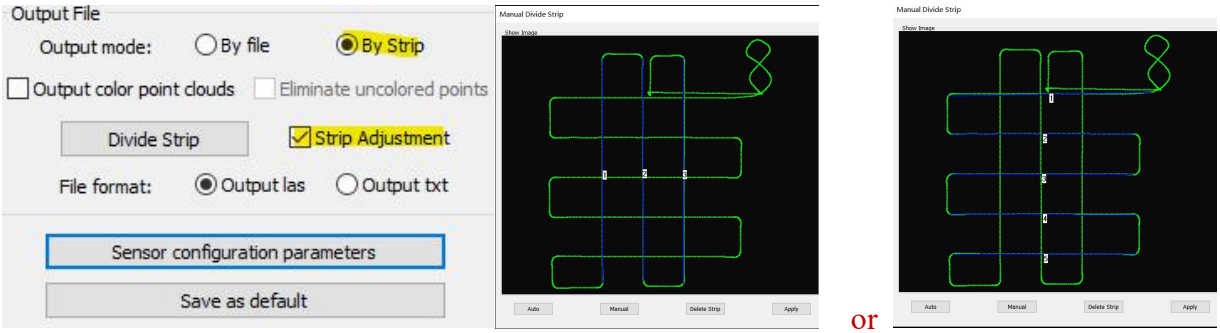
Click the Apply bar, to Save success.Then select OK bar to finish Manual Divide Strip, as following



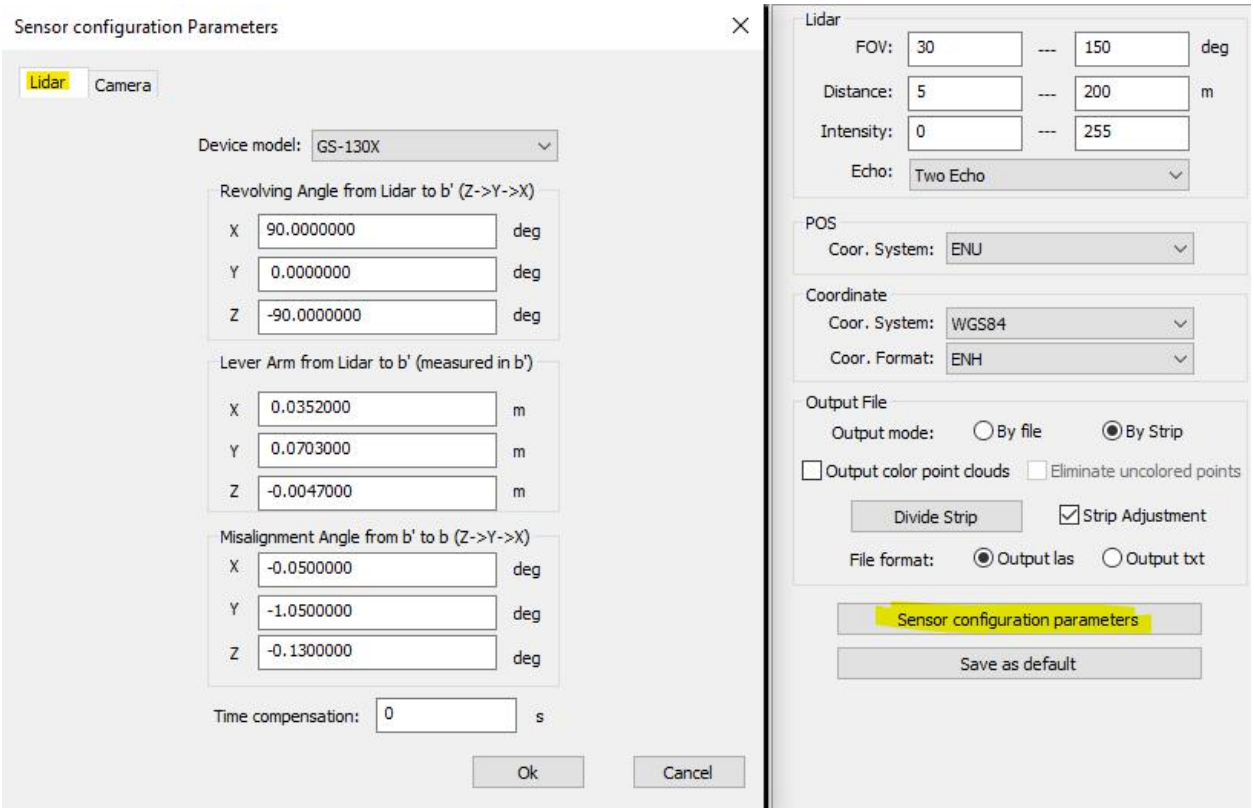
If you want to delete the strips or re-select the strips, just select the strips on right (strip 1,2,3,4,5) Then click the Delete Strip bar, it is done as following

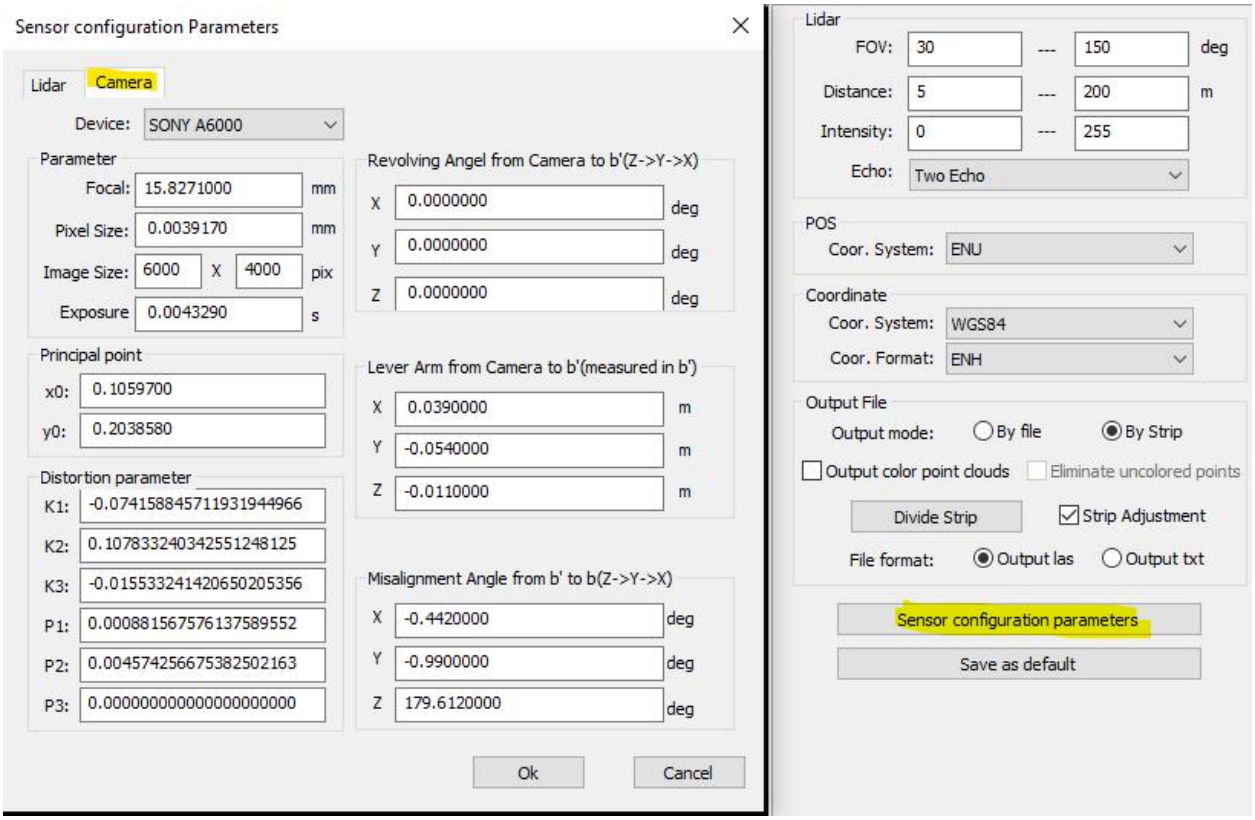


When select Strip Adjustment function, the strips are only selected from North to South (South to North) or from East to West (West to East), but not full strips.



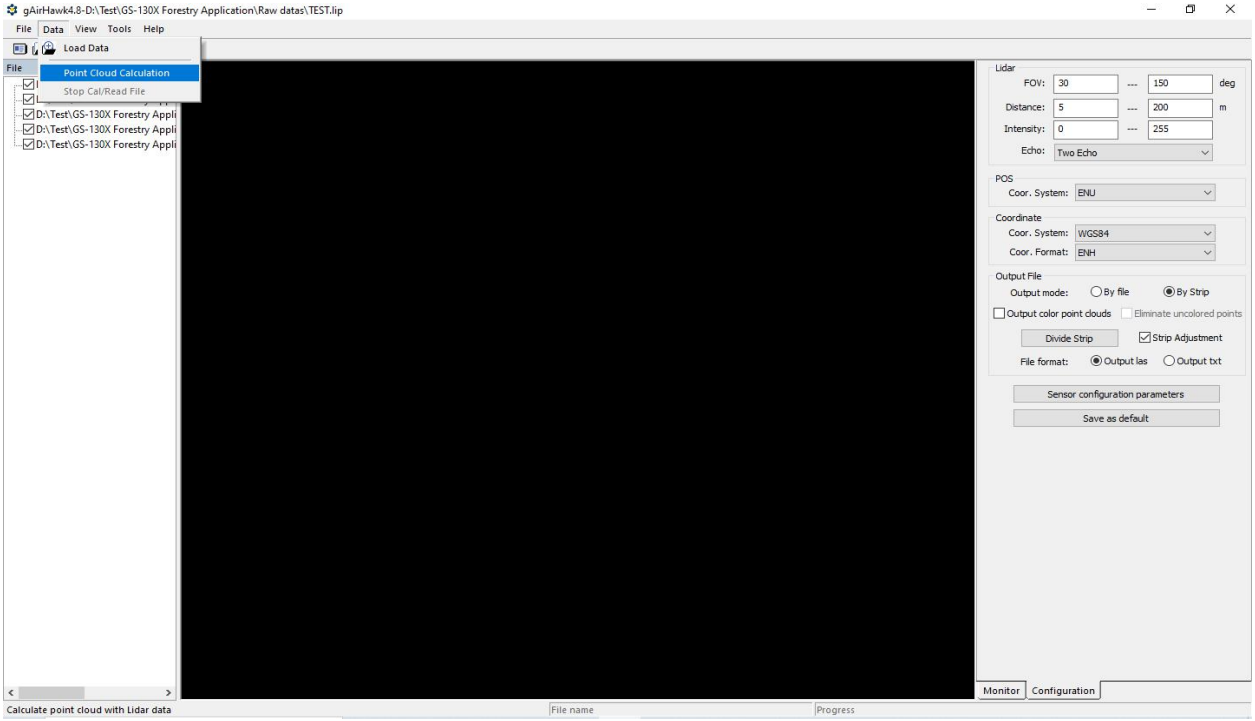
Click the Sensor Configuration Parameter bar to view the parameter (When add the lidar and camera files), the system will read these parameter automatically. As following



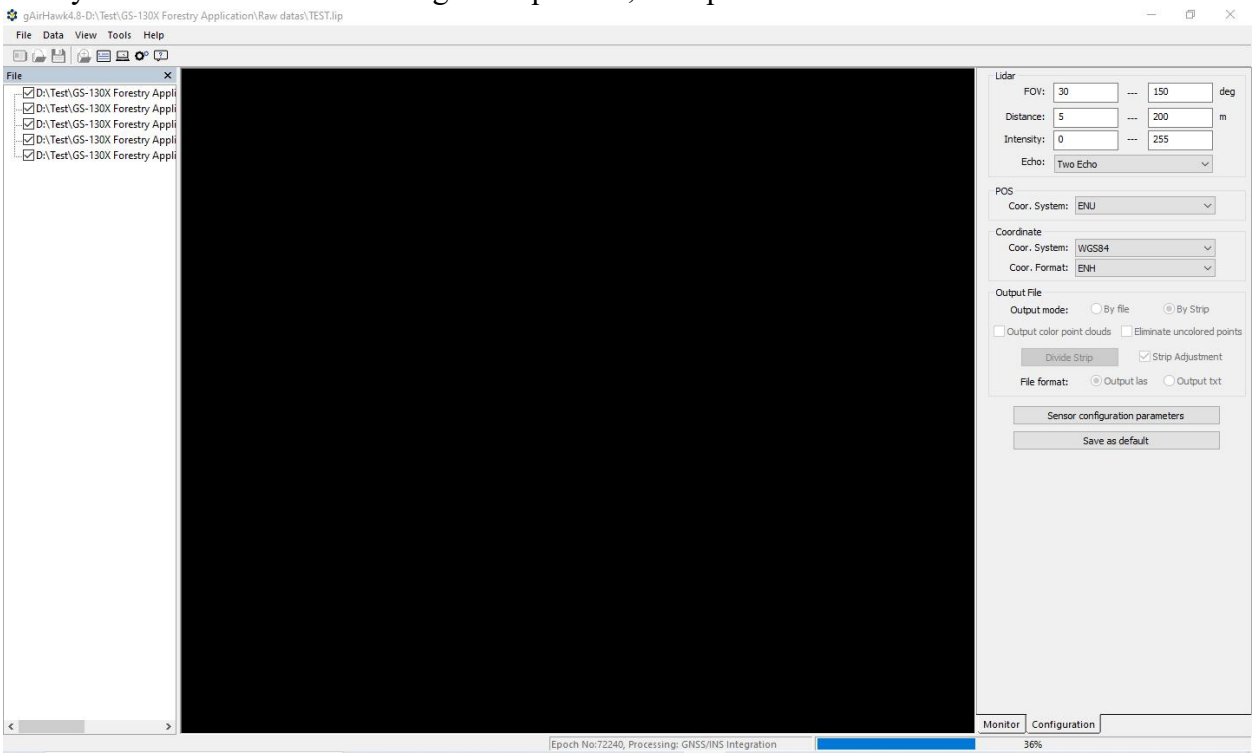


4. Point Cloud Calculation

Click the Data Bar, select Point Cloud Calculation to start to process the data. The progress bar is movement. As following

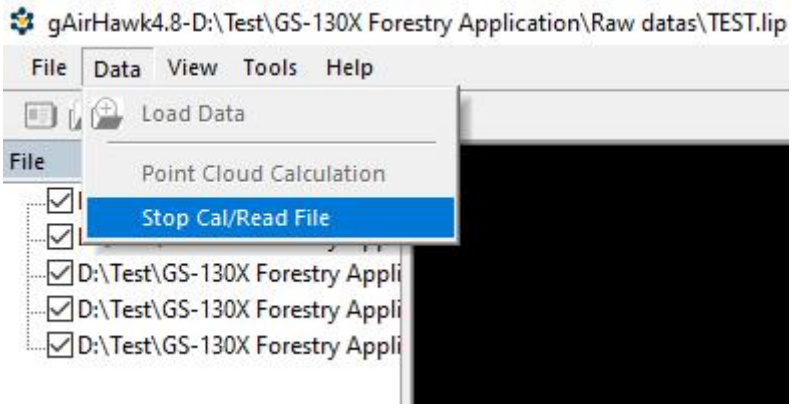


Firstly it does the GNSS/INS integration process, then process the LiDAR data.

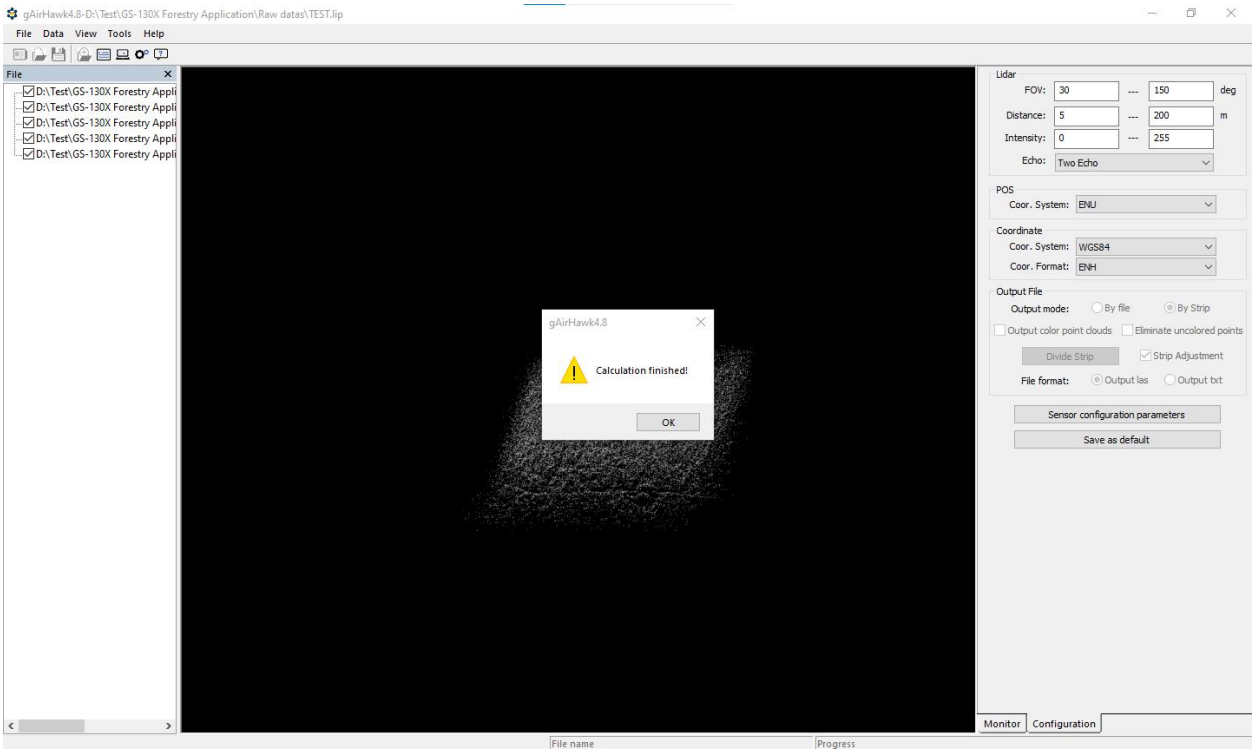


During processing, forward & backward the roller of mouse to zoom in/out, the point clouds display strip by strip.

It could stop when you click the Stop Cal/Read File bar if required.

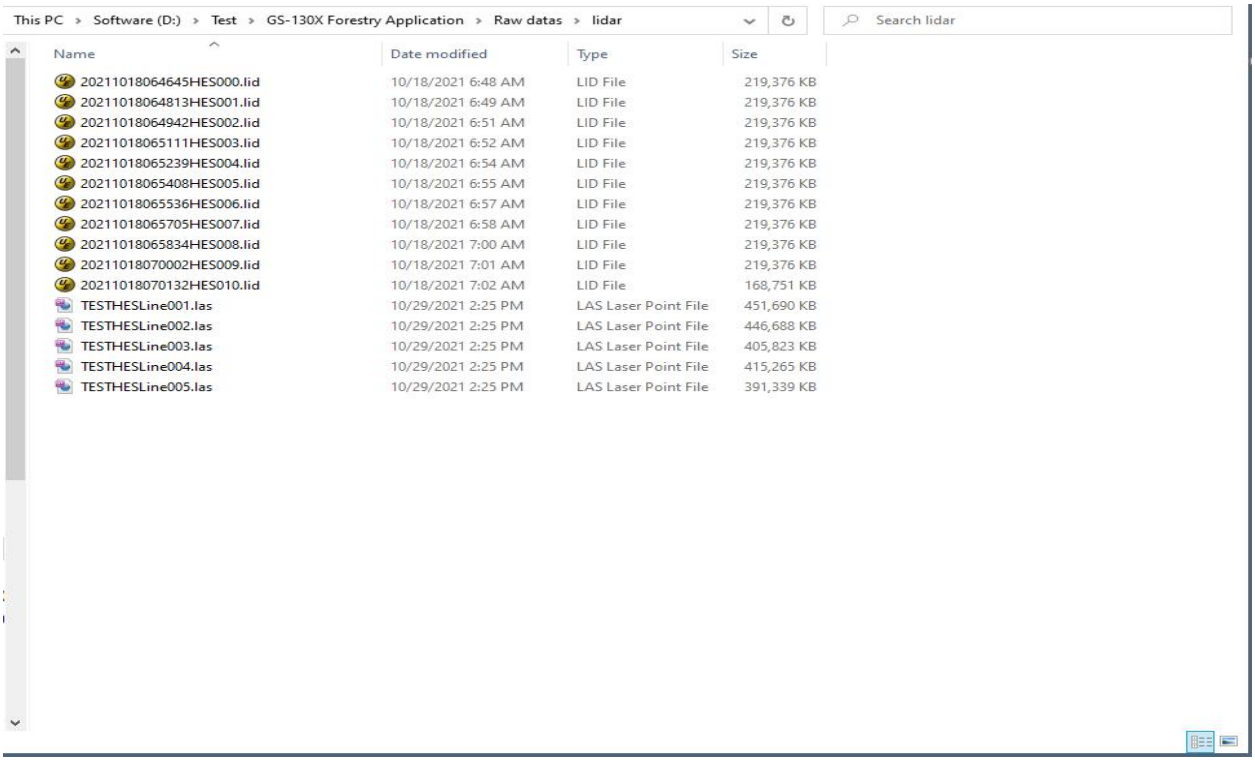


After processing, the progress bar stops and display Calculation finished! . As following (12-1)



Click the OK.

Check the LAS files in original files.



Click the Save bar to save this project.

Note: The data displayed in gAirhawk is 0.1% of total number of point clouds. Please review the LAS files and do the next procedure by 3rd party software (Cloudcompare, Terrasolid and QTM).