

Summary

Brief instructions on how to use SCS900 and a Seafloor echosounder for a small hydrographic survey.

In Trimble's SCS900 software it is possible to combine the depths of a Seafloor echo sounder and the positions of a GNSS Receiver.

In order to do so, a DLL and program should be stored in the "Trimble SCS900" Folder on your TSC3. I recommend plugging your TSC3 into your computer and using file explorer to complete this part.

File structure on the TSC3 is: Open Folder "Program Files", next open Folder "Trimble", then open folder "Trimble SCS900". Copy the following files into this folder:

SCSE_smtsc.dll & SMTsc.exe

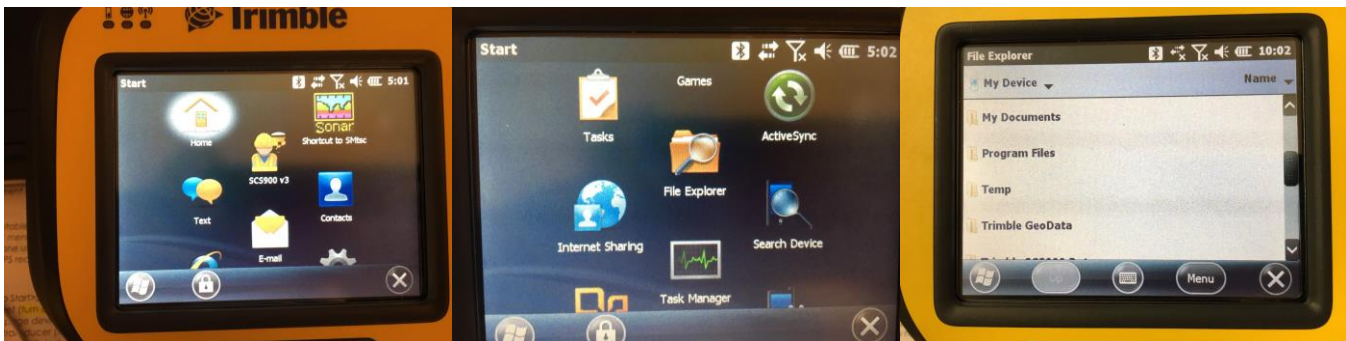
These files can be found at: <https://seafloorsystems.com/support/software-support?limit=20&limitstart=20>

It is important that the program reside in and run from this folder.

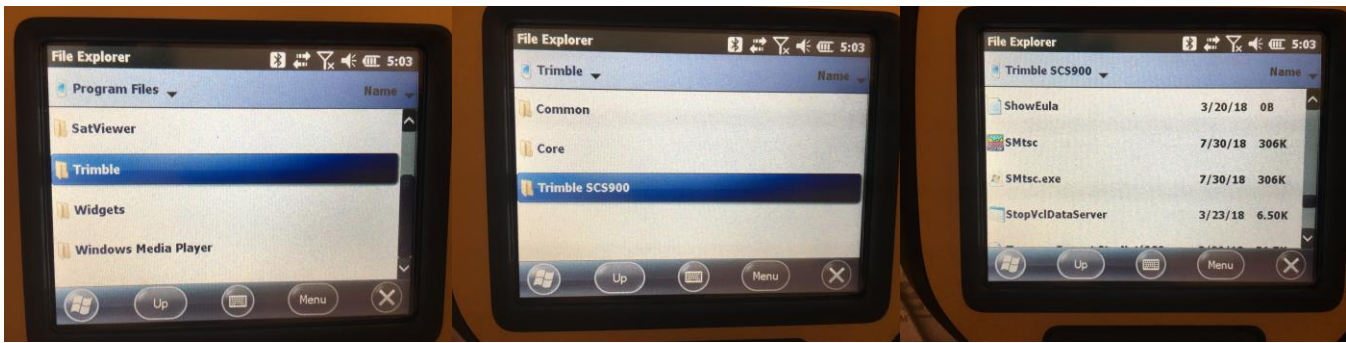
Create a Short Cut in the Start Menu for SonarMite:

It is possible to create a shortcut of the executable in the folder \Windows\Start Menu enabling the software to be started from the start menu. To do this you must create the shortcut in the TSC3 using File Explorer on the data collector. The Start Menu folder is not available through file explorer on your computer. Please see screen shots below to create the shortcut.

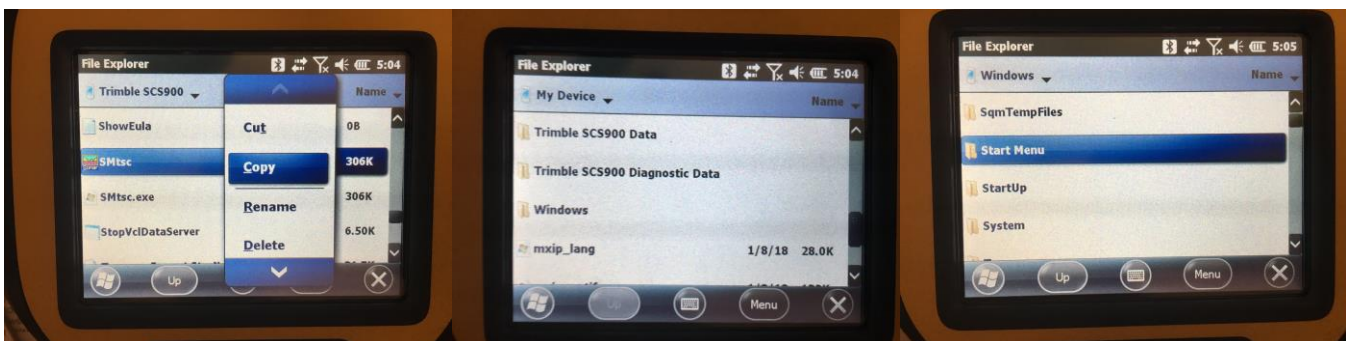
From Window Start Screen scroll down to File Explore. Make sure you are on My Device then open the Program files folder.



Next open the Trimble Folder, then the Trimble SCS900 folder. In this folder find the SMTsc file. I use the up and down arrows highlight the SMTsc file.



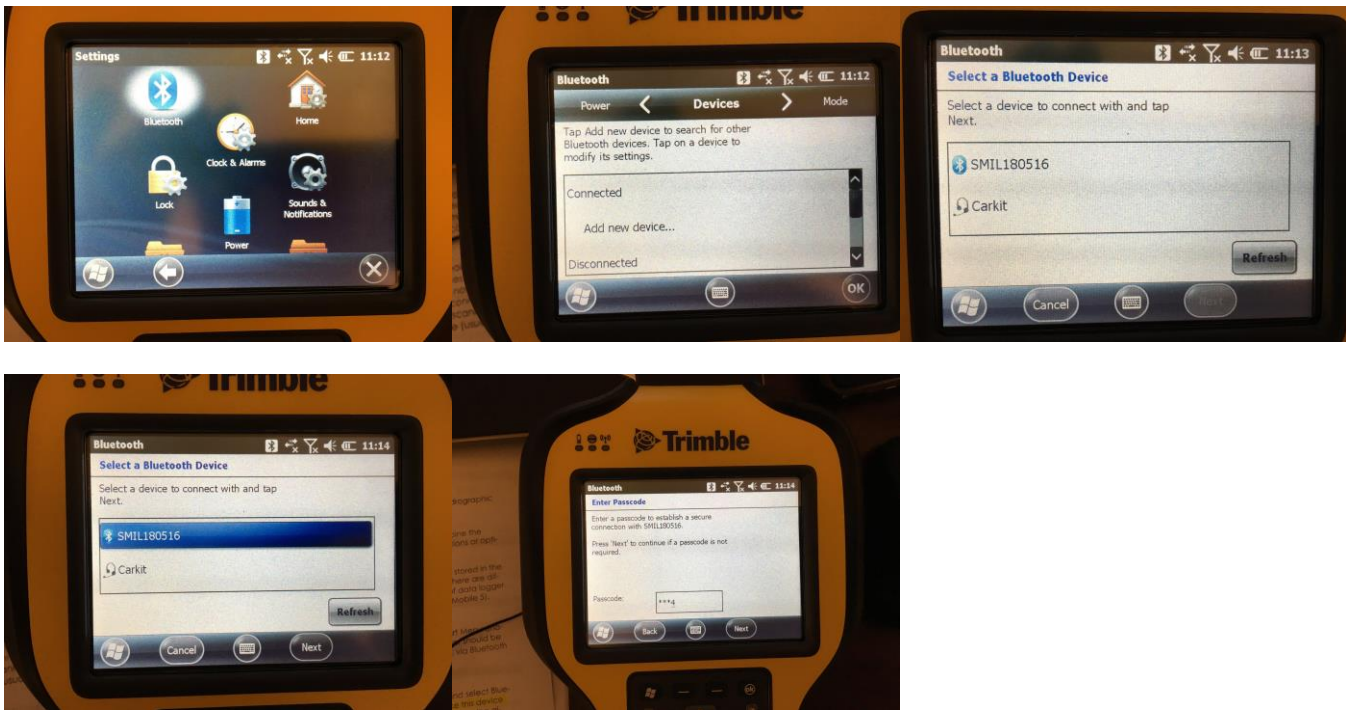
Now press the Menu button to copy the file. When you press the Menu button you will need to scroll down to find the edit option. Under the edit option is the copy option. You can also pick and hold the file with the stylus to bring up the copy file option. Now navigate to the Start Menu folder “I use the Up key to get back to the main folder”. Now open the Windows folder, Start Menu folder, and then Programs folder. Now use Menu/edit/Paste Shortcut. This will place the short cut on your start menue.



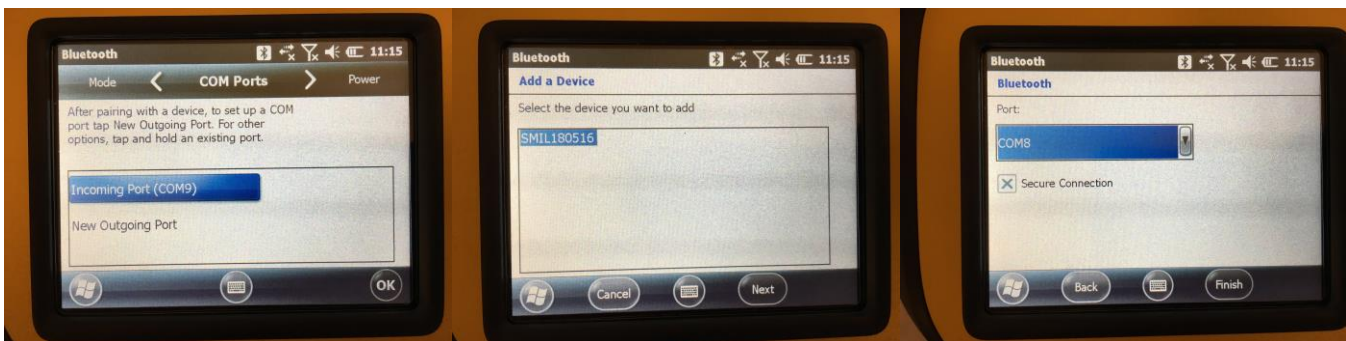
Now connect the echo sounder to the TSC3 via Bluetooth. (it is also possible to use a serial cable if the GPS receiver supports Bluetooth).

Pairing Bluetooth Devices

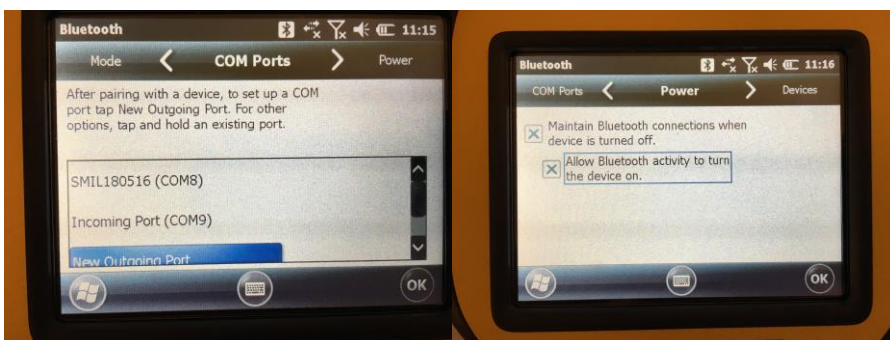
Assuming the Sonarmite is not paired yet, go to Start>Settings> and select Bluetooth. Make sure the checkboxes are both ticked (**turn on Bluetooth and make this device discoverable to other devices**) now select the page devices. At this stage, turn on the already charged Sonarmite by connecting the transducer (the green light flashes briefly) now select Add new device and the scanning procedure will start. After all discoverable devices are found, select the Sonarmite (usually named SM*****, where ***** stands for the serial number) and select next. Enter the passkey (usually this is 1234 or 1111) and hit next.



On the top of the screen choose COM Ports. Now select New Outgoing Port. Pick your device from the list. In this case it is SMIL50516. It will now assign a com port. In this case COM8. **Uncheck the secure connection box.**



Make sure you confirm the com port and note it for use later (in this case Com8). I also have found that checking these two boxes during use of the sonar keeps the connection from dropping. This is found under the power tab at the top.



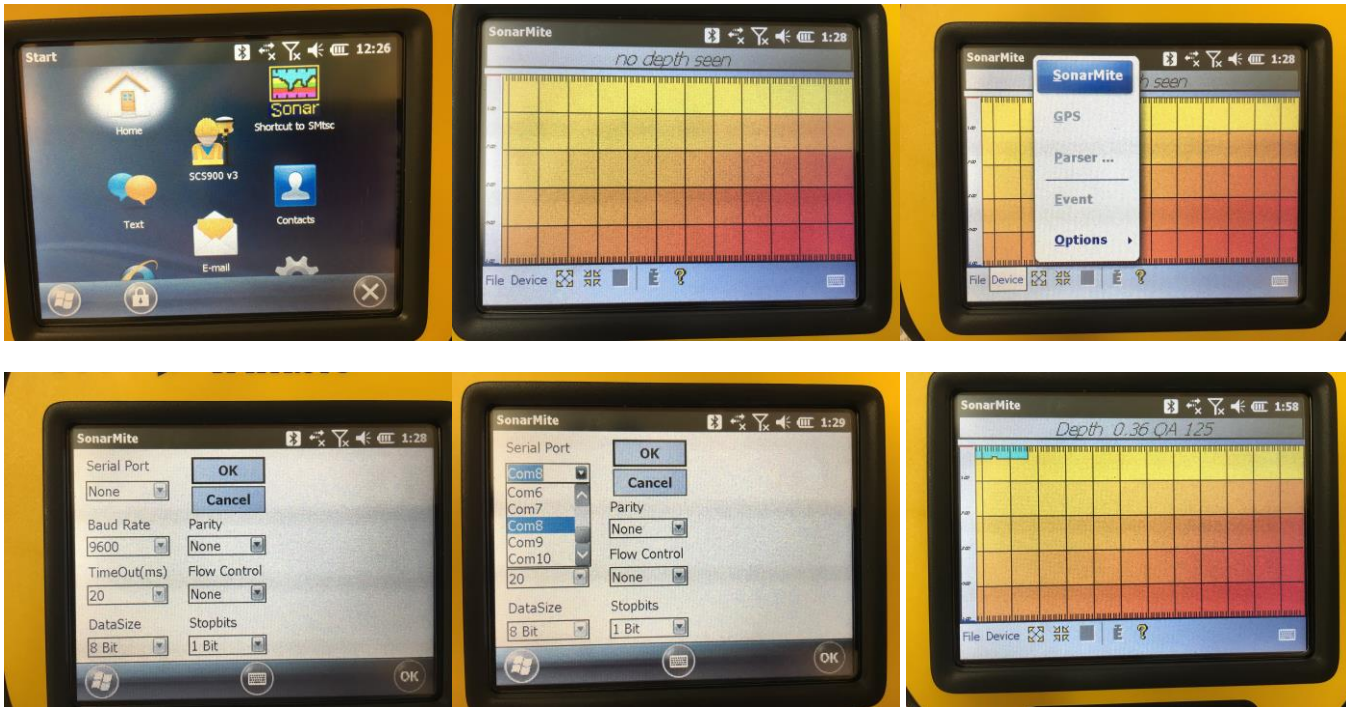
Starting a Hydrographic survey

In order to combine the depths from the SonarMite and the positions in SCS900 it is essential the SonarMite software is started and remains running during the survey.

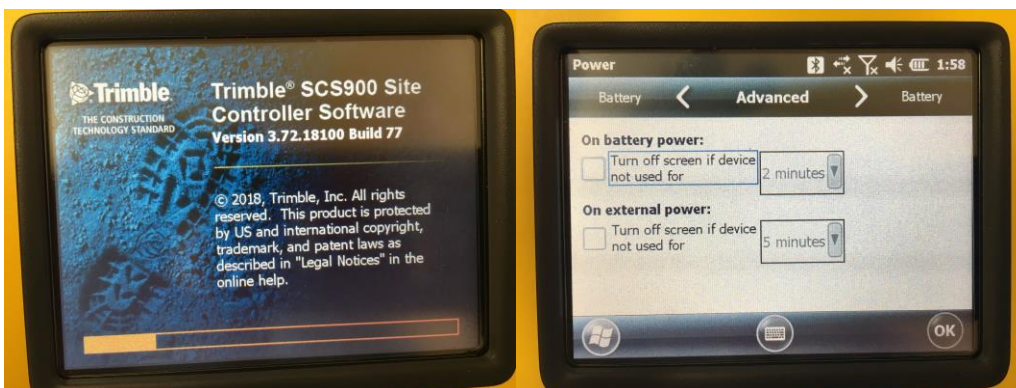
Starting the SonarMite Software

If a shortcut is created, select Start>Windows button>SMTsc. If the software is not registered, please register on Ohmex's website <http://ohmex.com/registration.php>

Now you will need to connect to the SonarMite. Pick on Device and choose SonarMite. Next under serial port choose the com port you had earlier. In this case it is COM8. Leave all other settings to the default. Press OK. As you can see if your sonar is in water you will start getting depth readings.

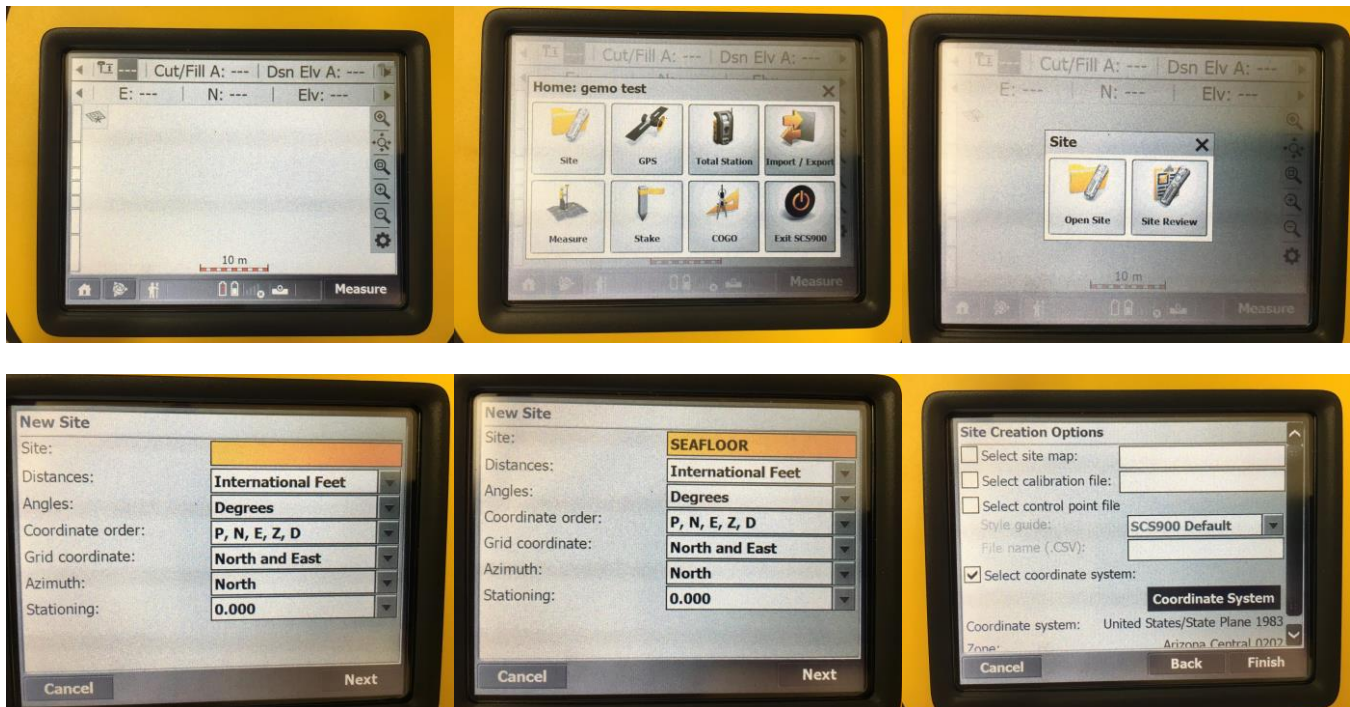


Your TSC3 should now be connected to your SonarMite. The BlueTooth light on the device should be solid blue. If your sounding unit is in water the power light should be green. Now start SCS900 by pressing the windows button on your data collector and picking the SCS900 icon. This is a picture of the version I am using. I also disabled turning off the screen when performing a survey to make sure the bluetooth connection was not lost to the Sonarmite under the power options.



The concept of Sites, Designs and Work orders are assumed as common knowledge. If not, please refer to the SCS900 manual.

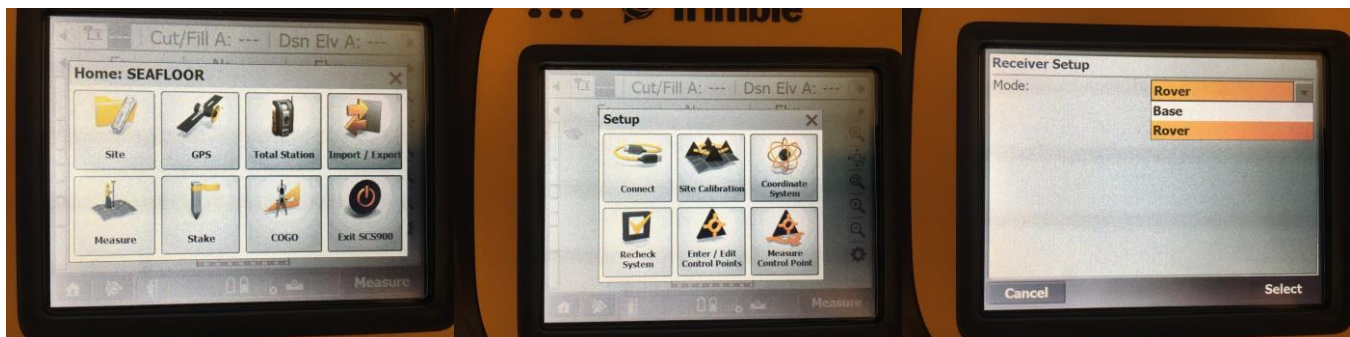
Before starting the Hydrographic survey, be sure to check the system setup by measuring a bench mark. Start SCS900 and create a new Work Order Select the site or create a new one (A site contains the items mentioned above) in this case a new site is created.

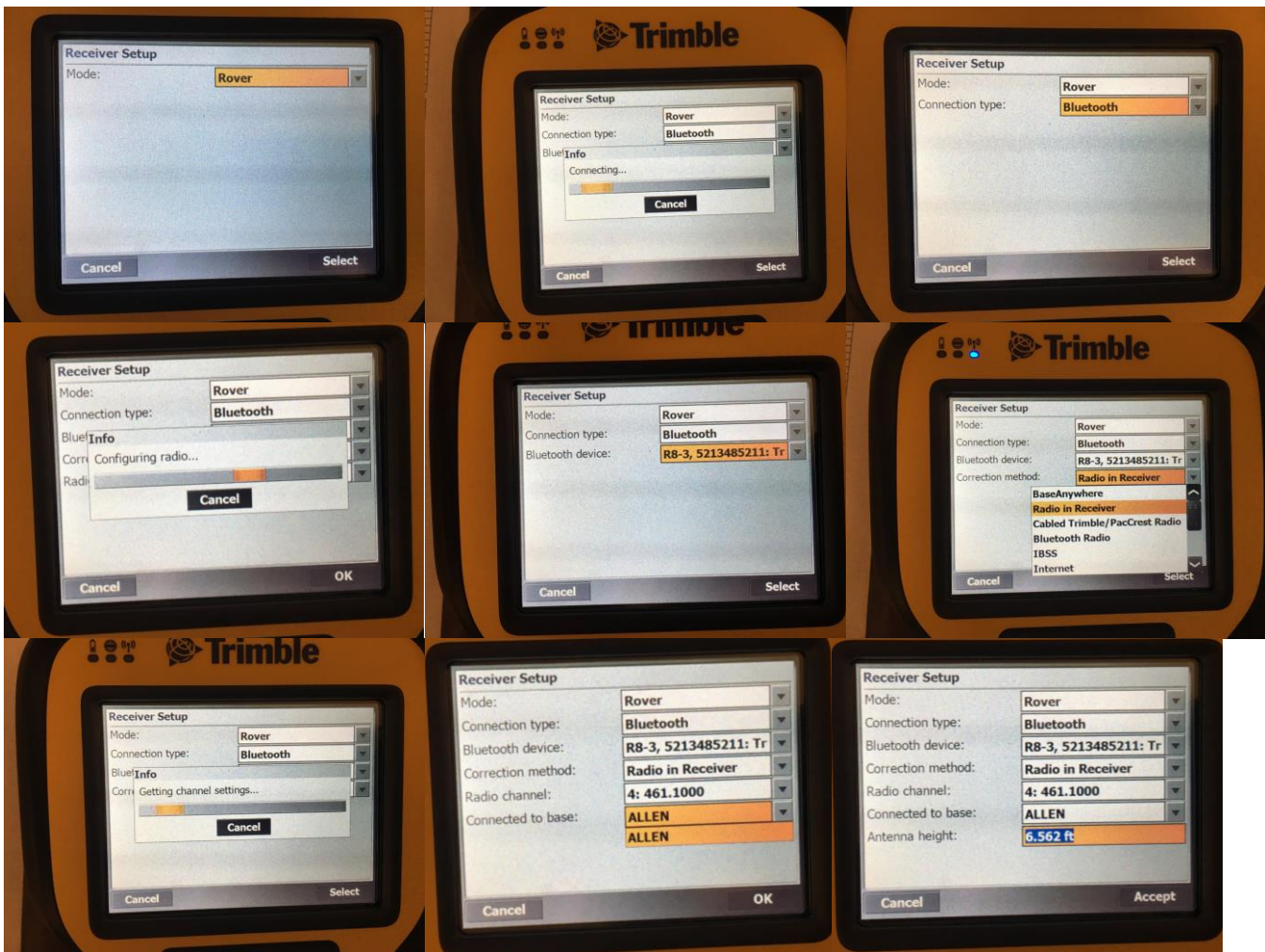


System Setup

Now it is time to start the rover, Select System Setup and Setup Rover, or go directly to Measure Surface or Topo Surface and SCS900 will prompt you to set up a GPS rover. In this process, follow the instructions on screen

The instructions will take you step by step through the system setup. It will ask you if the receiver is connected by cable or Bluetooth (a), if it uses an internal, external radio or other correction method (b), and the coverage map grid size and antenna height (c) Now it is time to start the rover. I use GPS – Connect – Mode Rover.

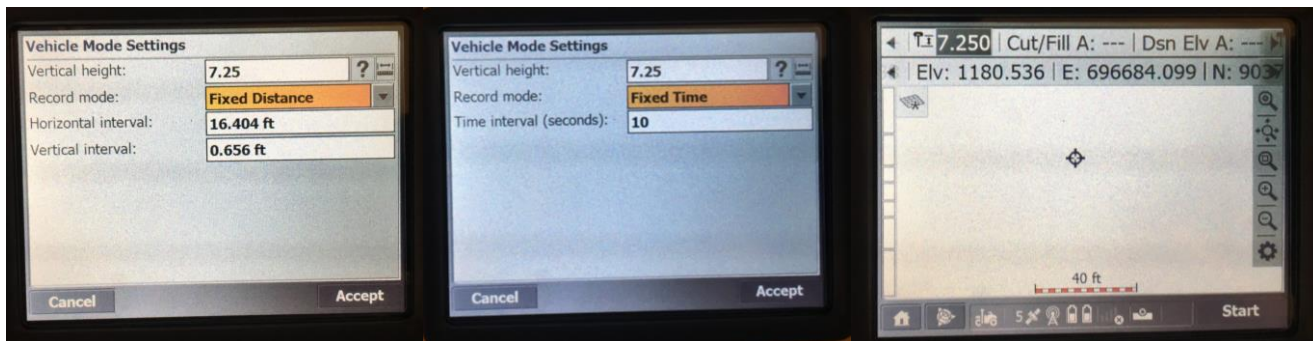




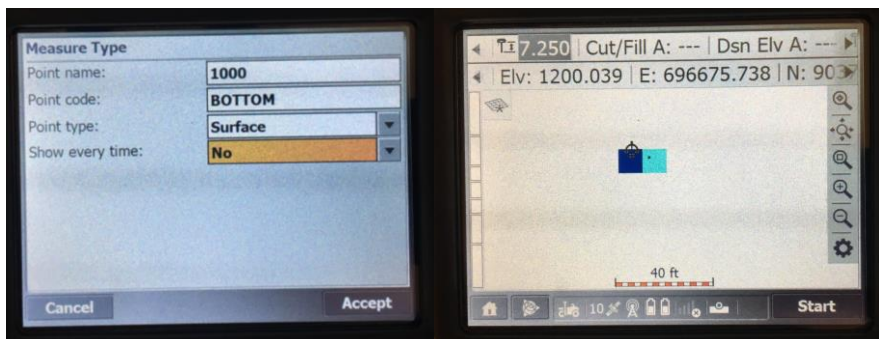
Antenna Height should be the height you use for checking control. Most companies use a 2 meter pole or 6.562 feet.

Now that your rover is stated its time to set the collection mode. I use Vehicle with Fixed Time or Distance. I like fixed time but you will end up with some data overlap. Since we are looking for the bottom these points can be deleted later if necessary. Remember that the Vertical Height is measured to the bottom of the transducer.

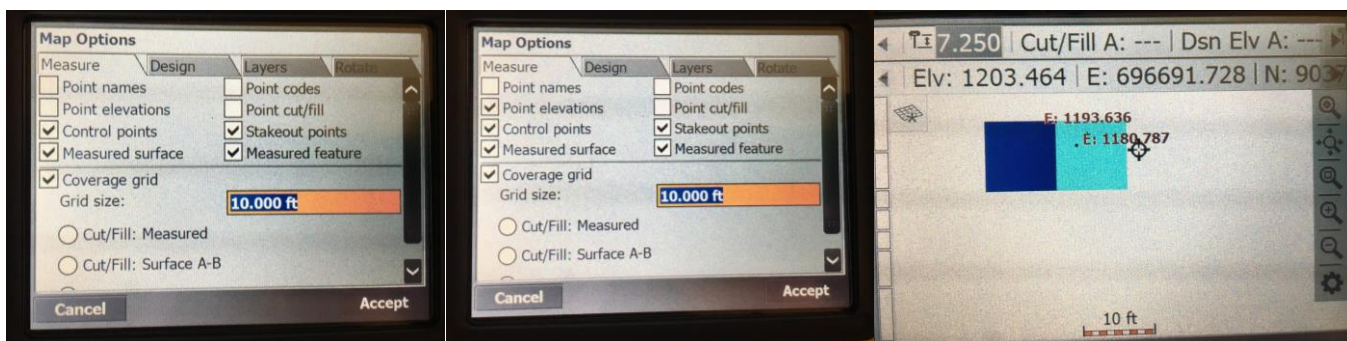




After the first measurement you will need to input the point number, point code, point type. I am not sure that surface is the best selection. I used it for this job but any point type will work. You will now see points being collected.



To check that you are getting readings from the sonar you will want to turn on point elevation display. If you press the gear in the lower right above the start button you will get this menu where you can turn on point elevation display.



As you can see the current elevation of the GPS is different than the measured elevation displayed on the point (Elev is 1203.464 and the point elevation is 1193.636). This shows that we are getting combined data from the GPS and the sonar. Once the job is completed it is time to export the points so they can be imported into your software. Go to Import Export / Measured Data / CSV File. You can also export a DXF or other formats.



This file is stored in the output folder of this project. Can also copy the file onto a thumb drive.