

SuperOne Seismograph



User's Manual V 2.0© 2019



For technical support please contact support@andesimaging.com

What is SuperOne?

SuperOne is a single-channel, high-resolution, digital seismograph to be used for acquisition of seismic refraction and reflection data.

Main features:

- Light, portable and easy to use
- Full gear fits in a backpack
- Highest resolution (32 bit) in the market
- For use with Windows tablet or laptop

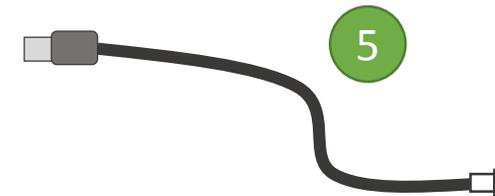
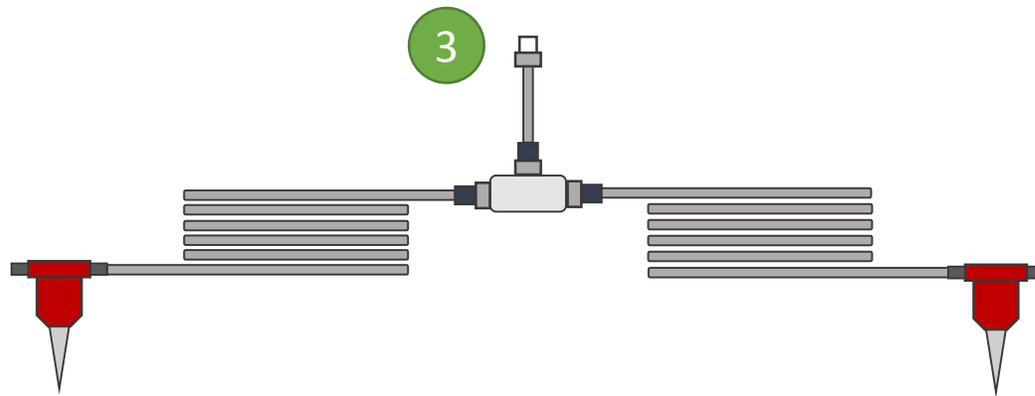
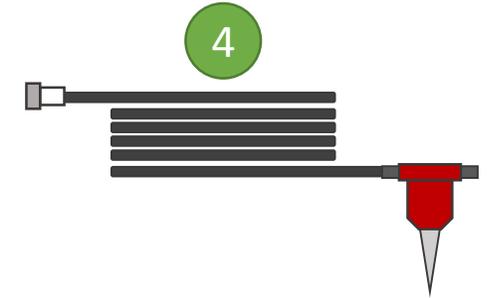
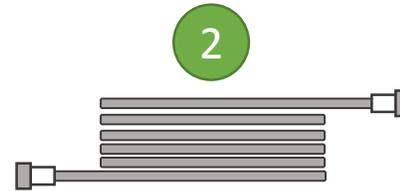
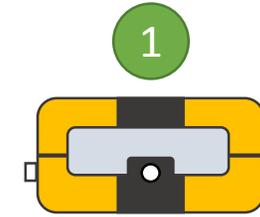
Ideal for depth-to-bedrock, layer dip, thickness and seismic velocities of top layers. V_p and V_s^* , determination of geotechnical modules, geometry and thickness of weathered layer, seismic tomography.

*requires a horizontal geophone



SuperOne system

1. Main console
2. Trigger cable for the console
3. Trigger geophones cable (for two shot points)
4. Channel geophone cable
5. USB cable (power and data)



Connecting your seismograph



USB: this is a male 4-pin connector on the right side of the console. Connect to any USB port on computer or laptop with cable provided.



Connecting your seismograph

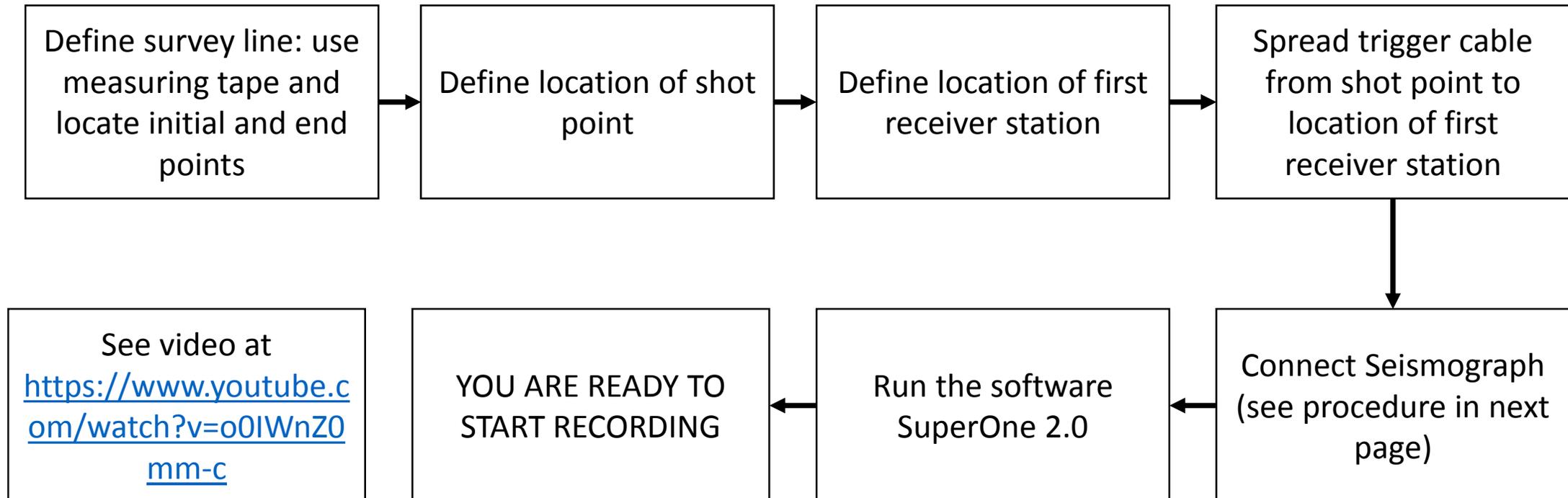
CH: this is a female 4-hole connector on the left side of the console. Connect to geophone with cable provided.



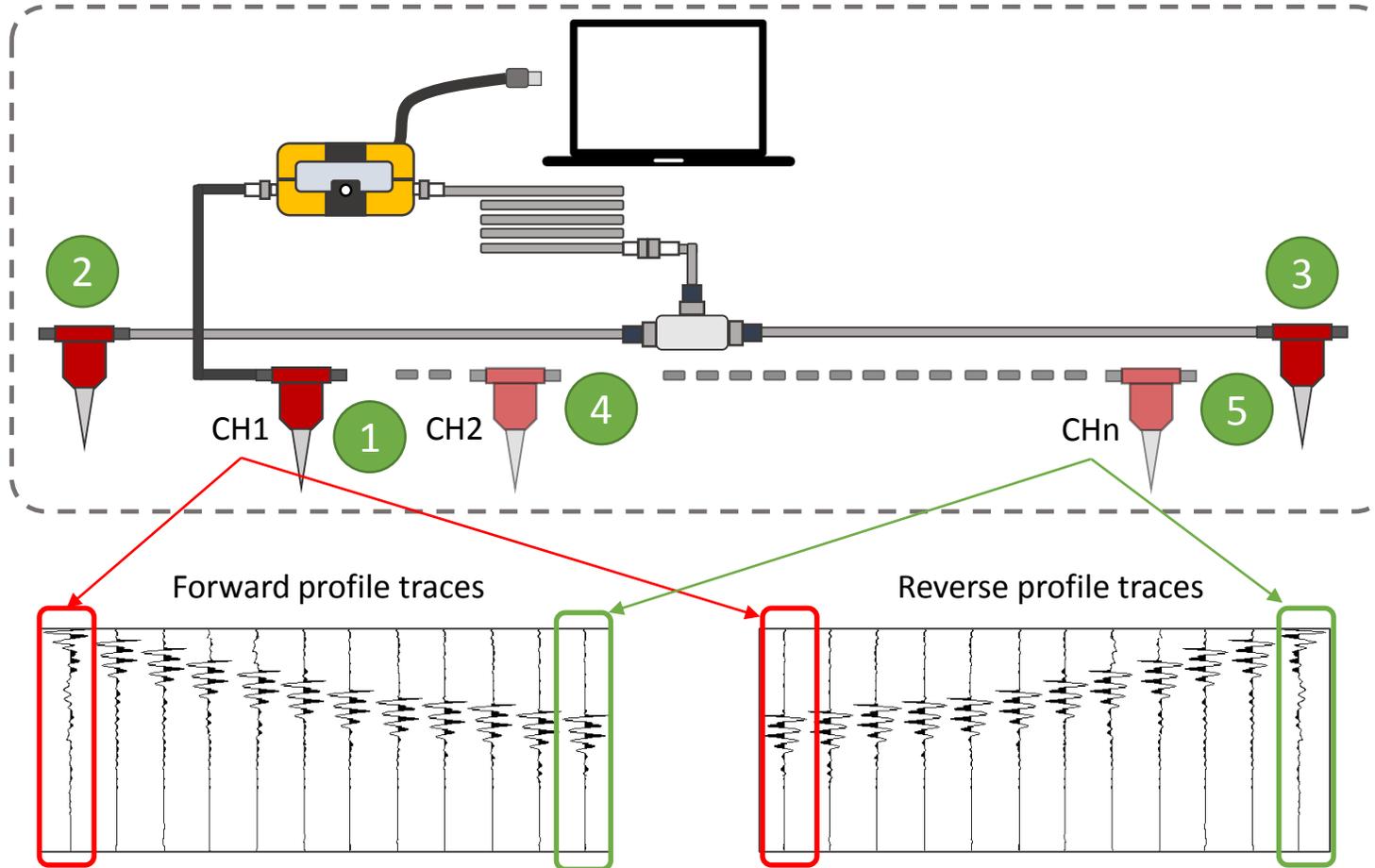
TRIG: this is a female 3-hole connector on the left side of the console. Connect to trigger with cable provided.



Procedure to prepare for seismic data acquisition



Acquiring seismic data



1. Locate first channel (first receiver station)
2. Hammer the ground to get forward profile trace for the first channel
3. Hammer the ground to get reverse profile trace for the first channel
4. Locate next channel and place geophone. Then hammer to get forward profile trace and reverse profile trace
5. Move along the line one channel at a time until the last channel (forward and reverse) has been acquired

Installing the SuperOne software on Windows OS

- To find “setup.exe”, navigate to Setup\Volume\
 - Double click on “setup.exe”
 - Accept the terms by clicking OK when prompted
 - The installer assistant will inform you of successful installation.

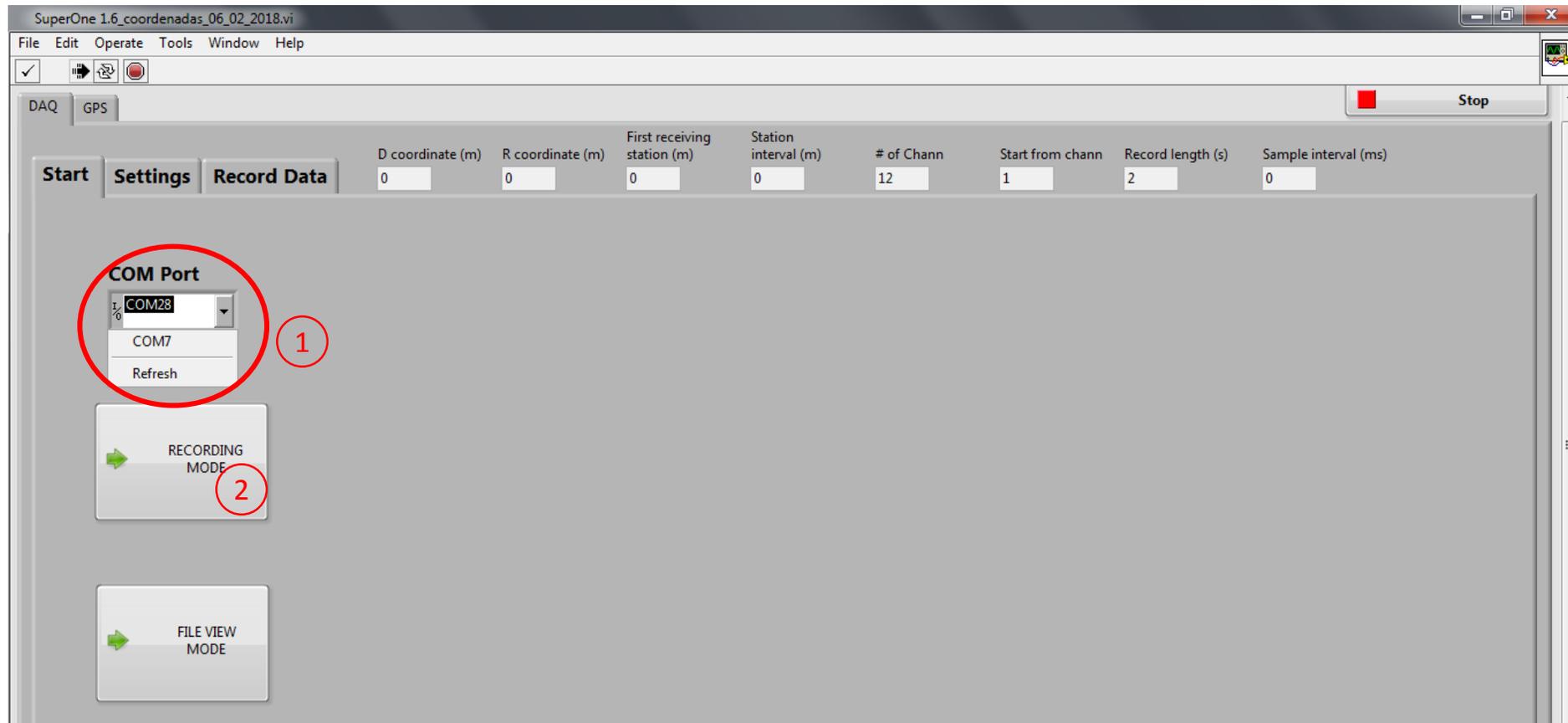


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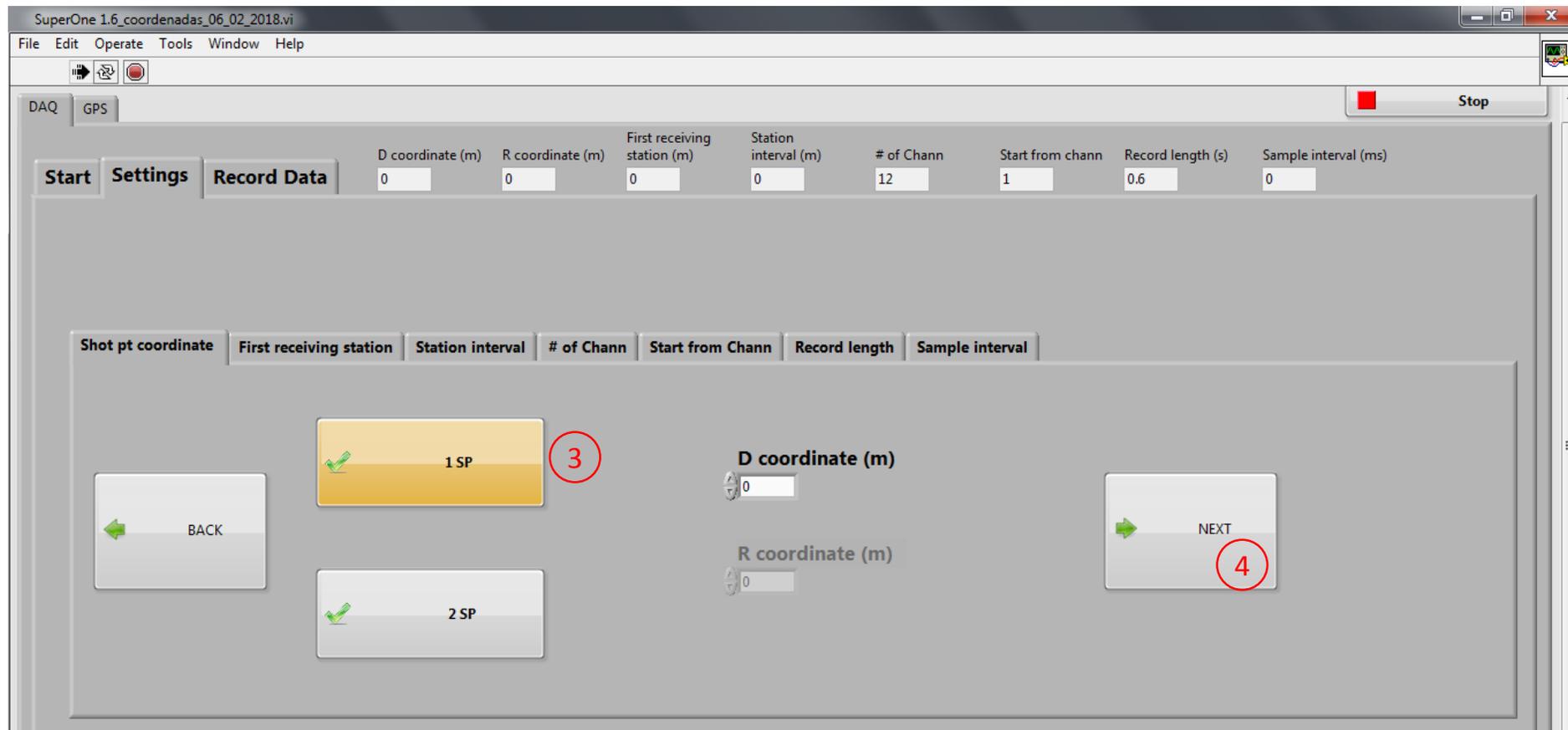
Operating the SuperOne recording software



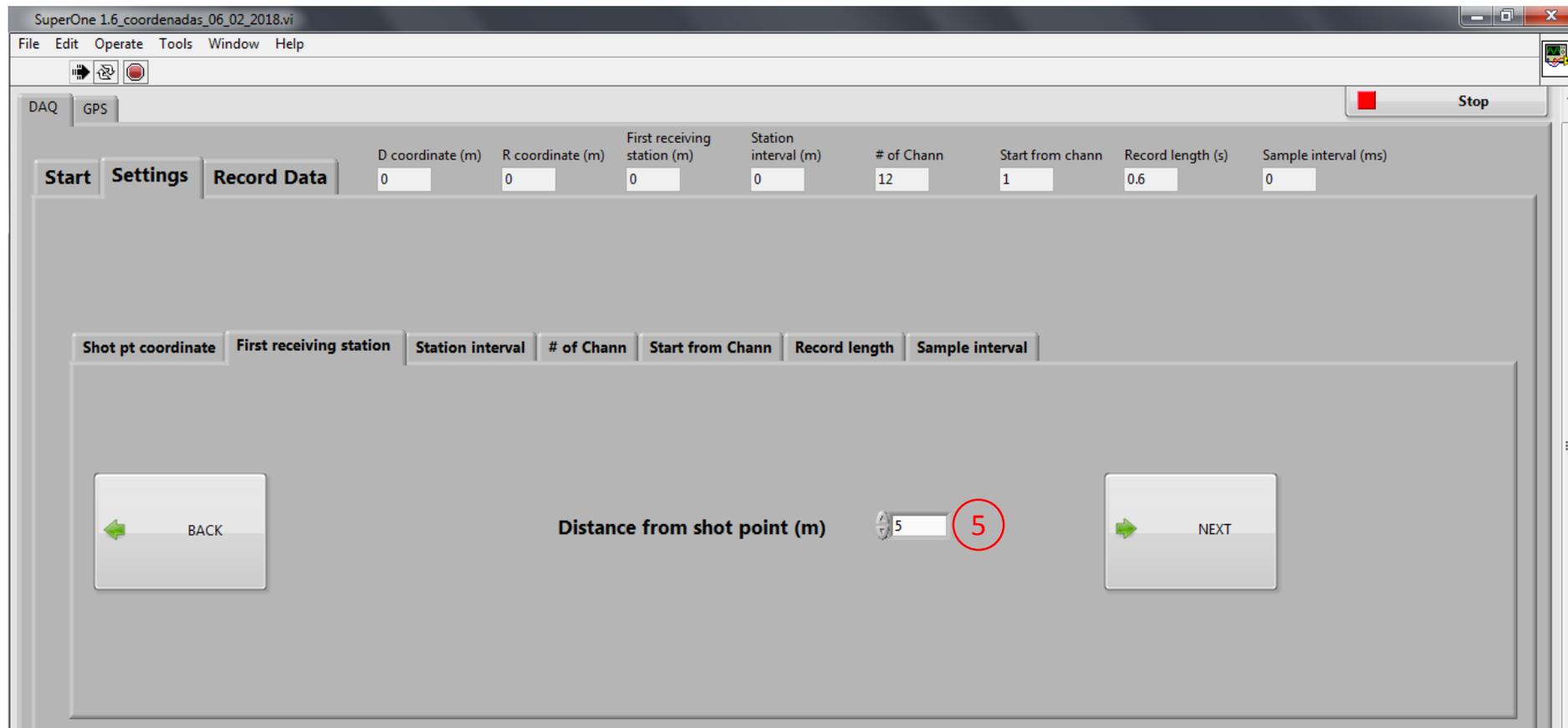
1. Choose COM Port: This tells your computer how to communicate with SuperOne. A port different than COM28 should appear if console is connected to the computer.
2. Click on “RECORDING MODE”, to go to the settings tab



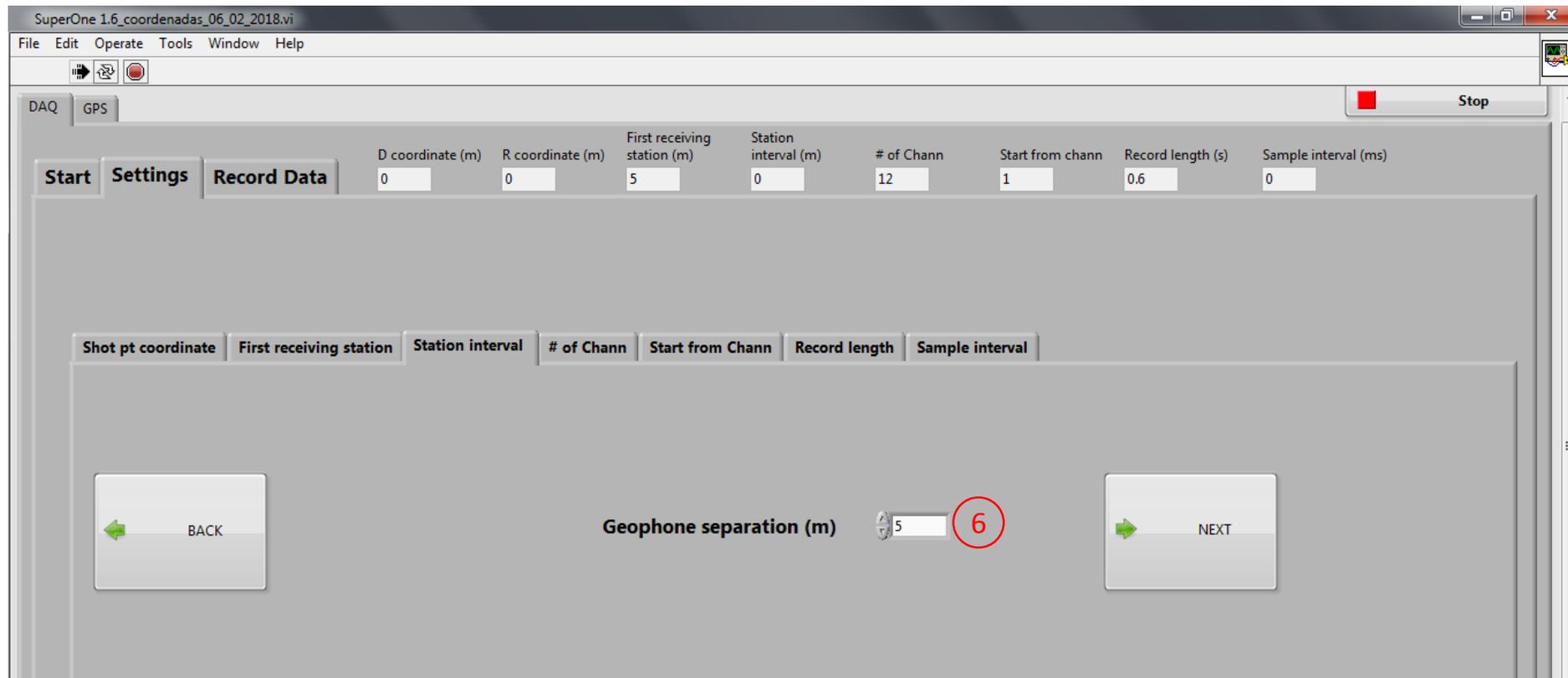
3. Click on 1 SP, to tell the system you will only shoot from one spot (You can also use two shot points: forward and reverse. In this example we will use just one)
4. Enter the relative coordinate (in meters along line) of shot point. We recommend to leave it at zero. Click on “NEXT” to go to next settings tab. If two shot points are needed, enter relative coordinate of reverse shot point (R coordinate).



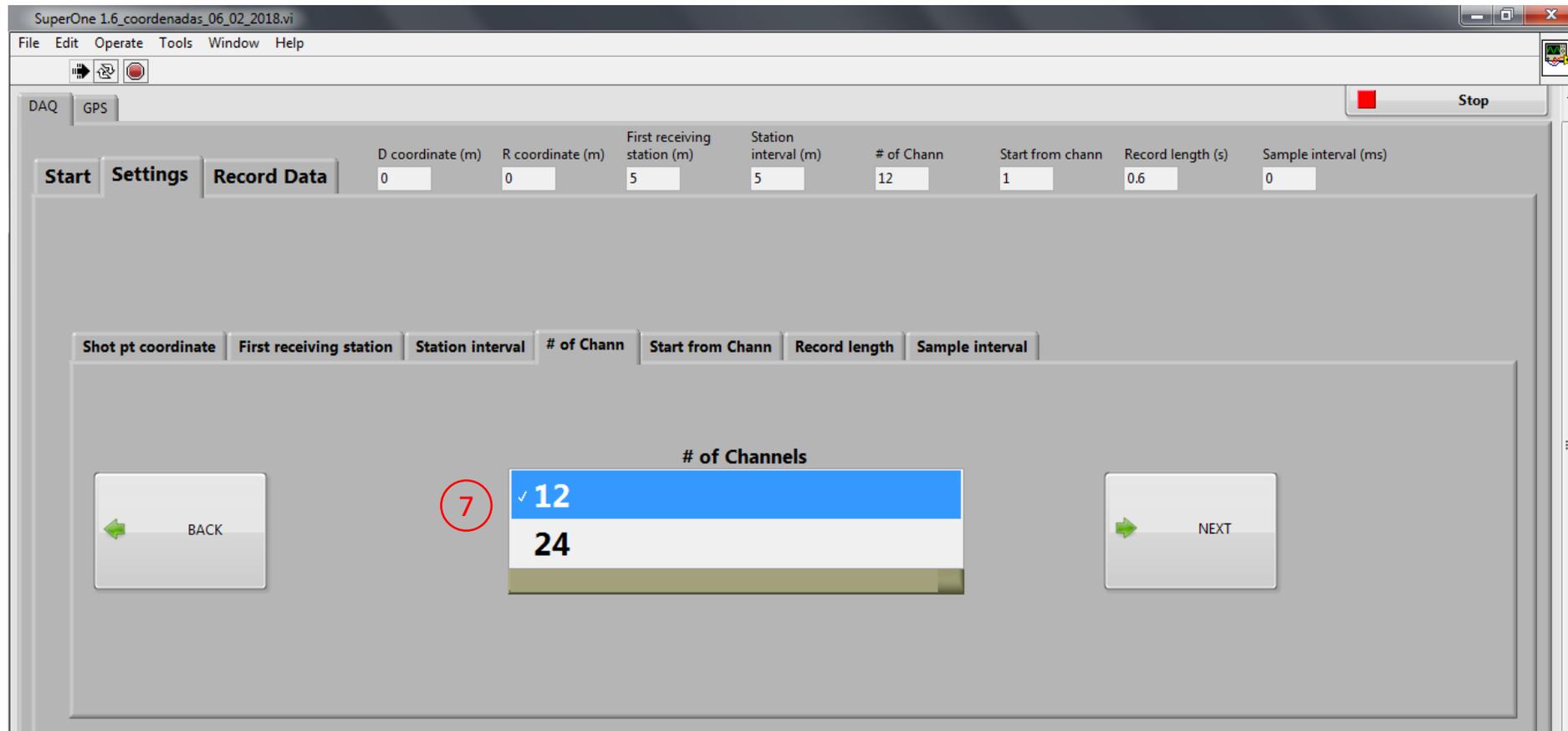
5. Enter coordinate (in meters along line) of first receiving station relative to shot point. Click on “NEXT” to go to next settings tab. Anytime click on “BACK” to change some value in the last step.



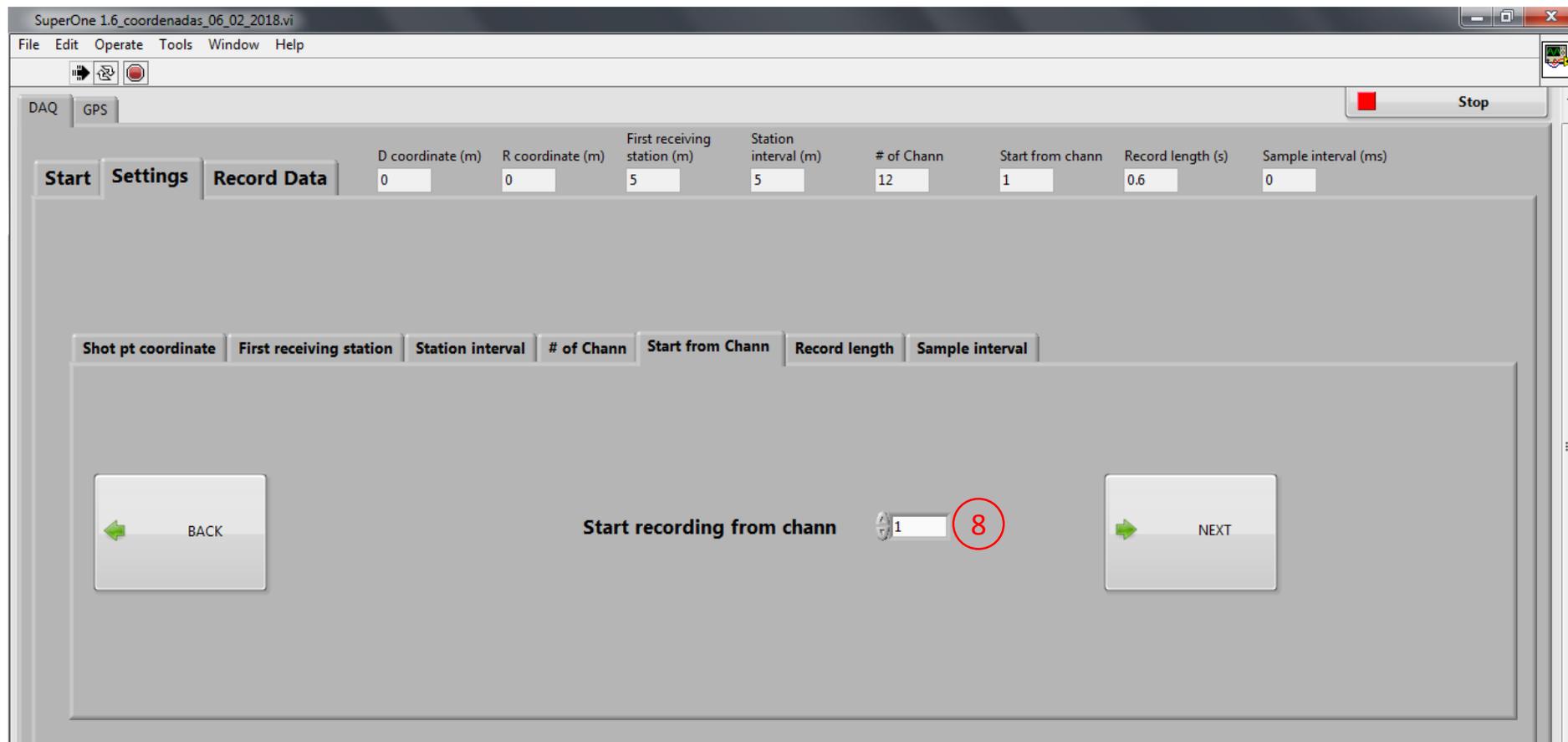
6. Define geophone interval (in meters). Remember to use the same separation along entire line. Click on “NEXT” to go to the next tab.



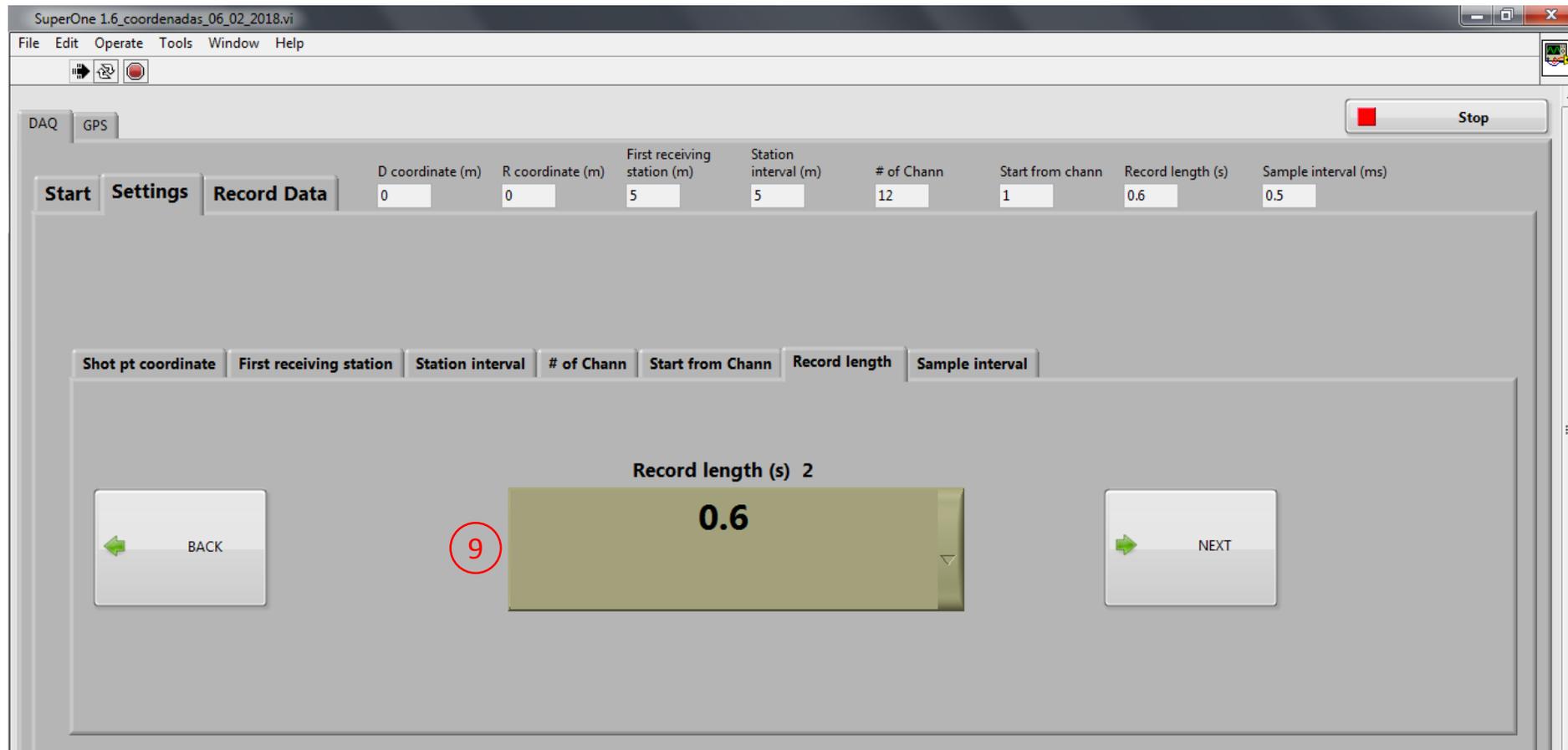
7. Define number of “channels”, by choosing among 12 or 24. If you are planning on less than 12, choose 12 channels. Click on “NEXT” to go to the next tab.



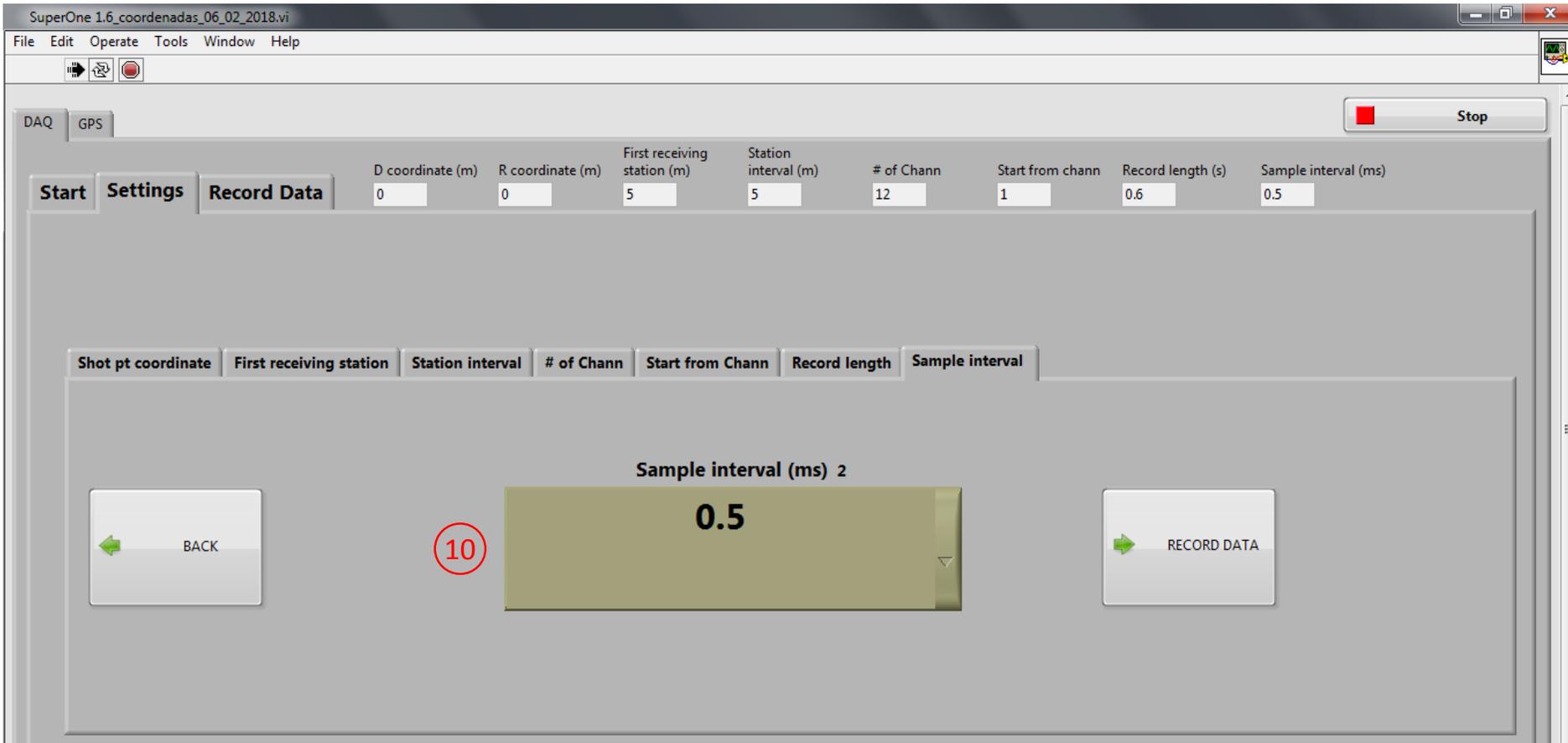
8. Choose starting channel. This will always be “1”, unless you have stopped recording in the middle of a line, and want to resume recording at an intermediate channel. Click on “NEXT”.



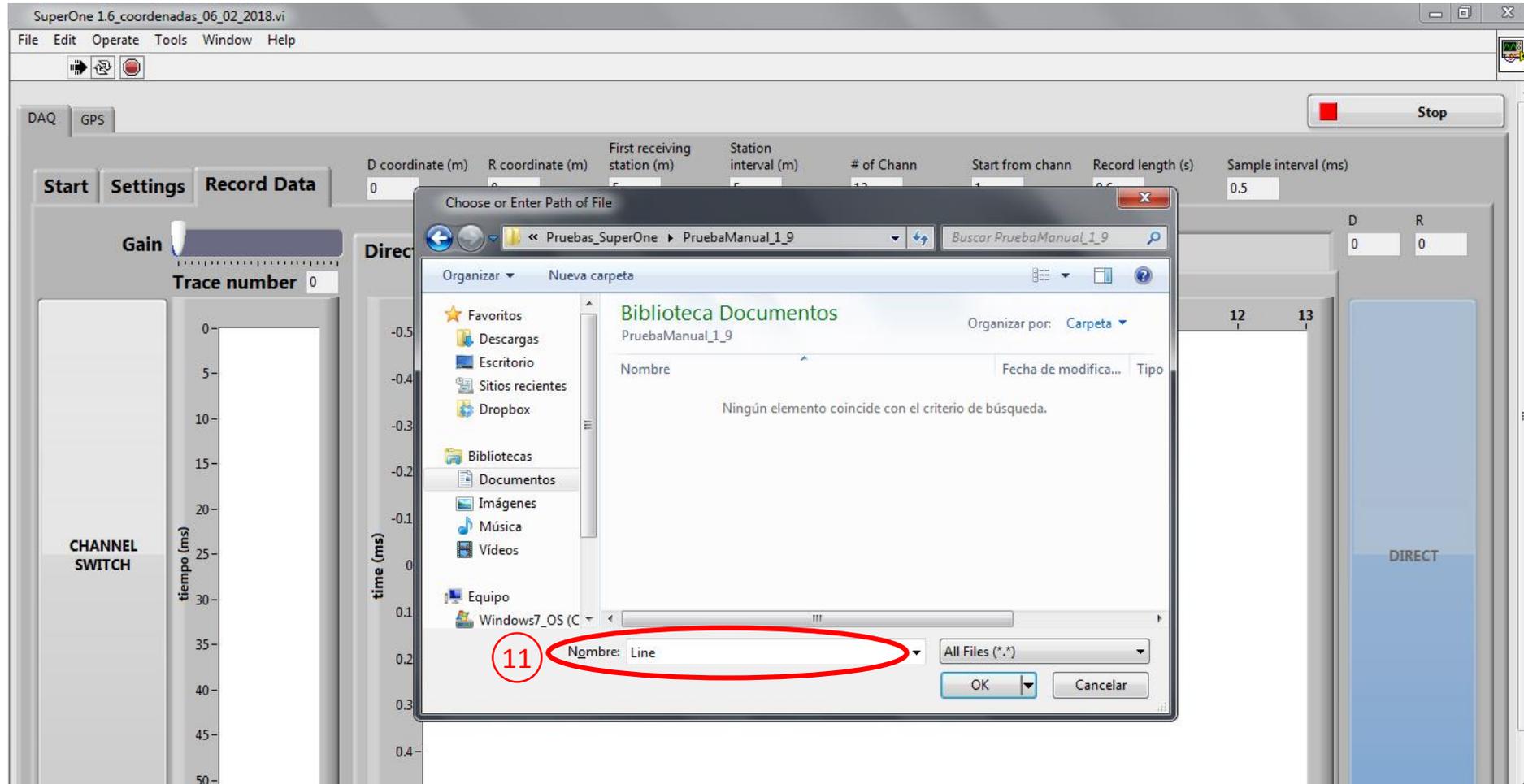
9. Define your desired record length, in seconds. Choose from the options in drop-down list (0.2, 0.4, 0.6, 1, 2). Click on “NEXT” to go to final settings tab.



10. Define your desired sample interval, in milliseconds. Choose from the options in drop-down list (0.25, 0.5, 1, 2). Click on “RECORD DATA” to enter acquisition mode.

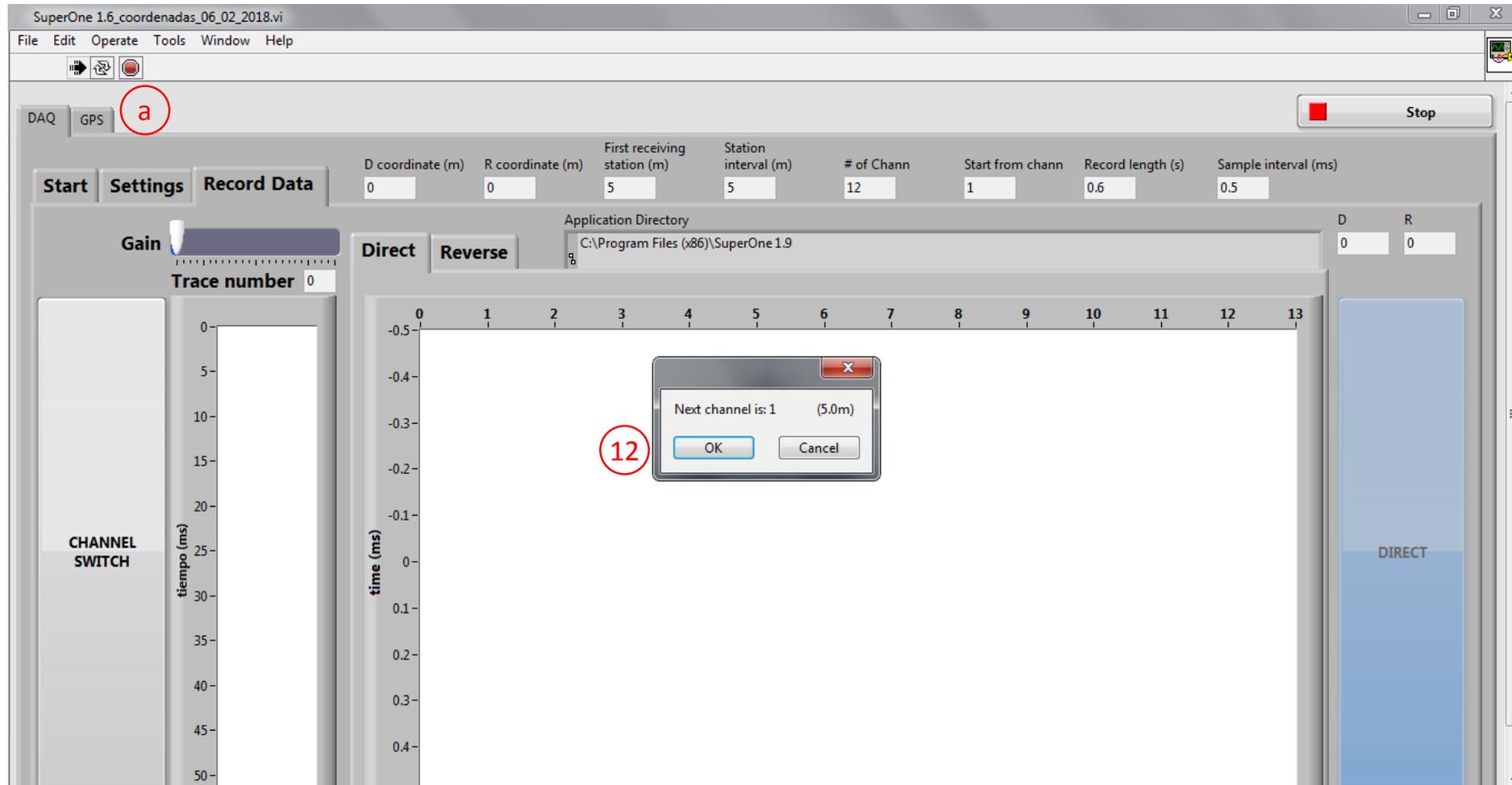


11. Navigate to the location where you want to save your data, and define file name for your line of survey. Click OK.

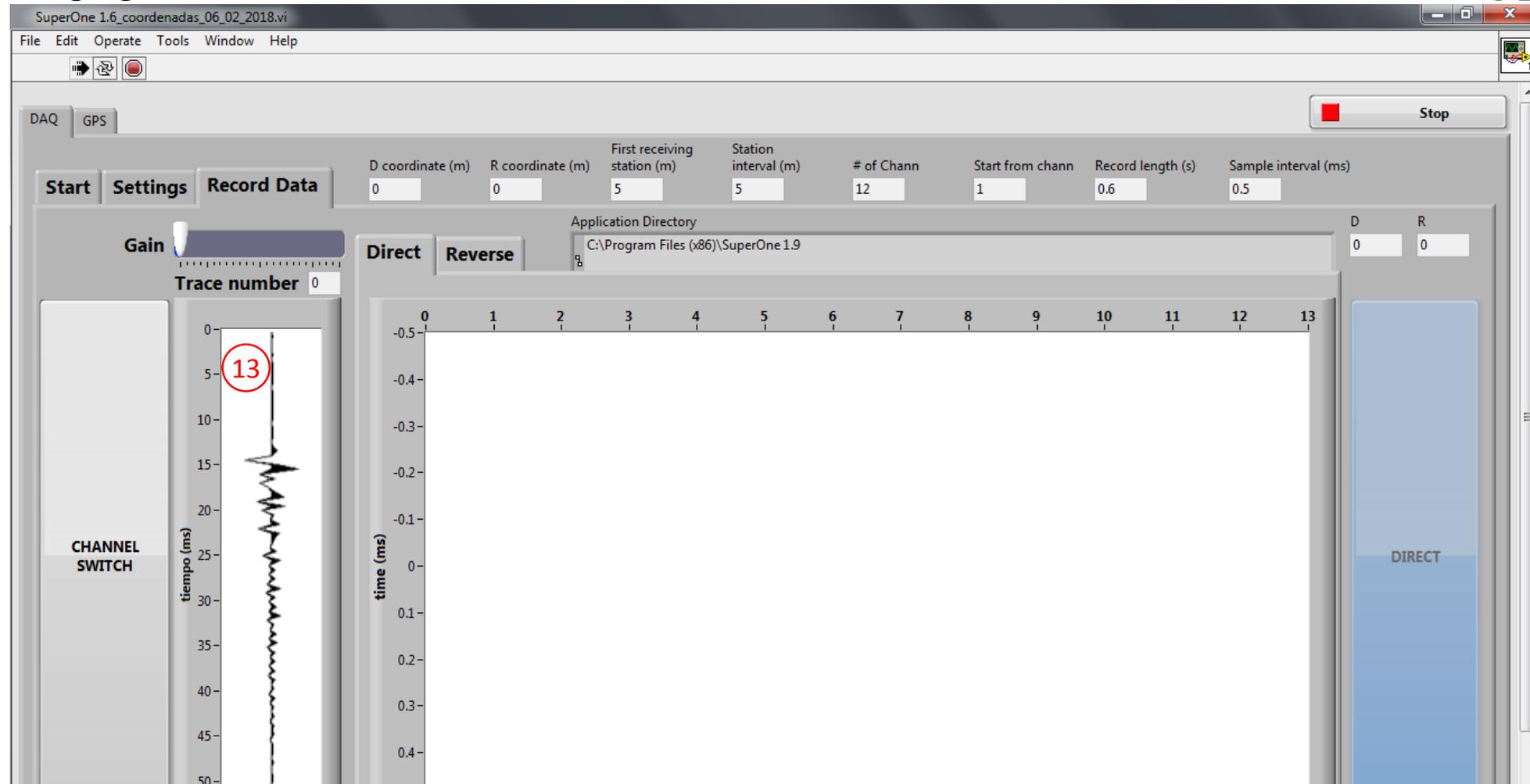


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12. Note information window indicating the channel number you are about to record. Click OK. If you have Internet connection, you can see GPS coordinates for each point in the “GPS” tab (a).

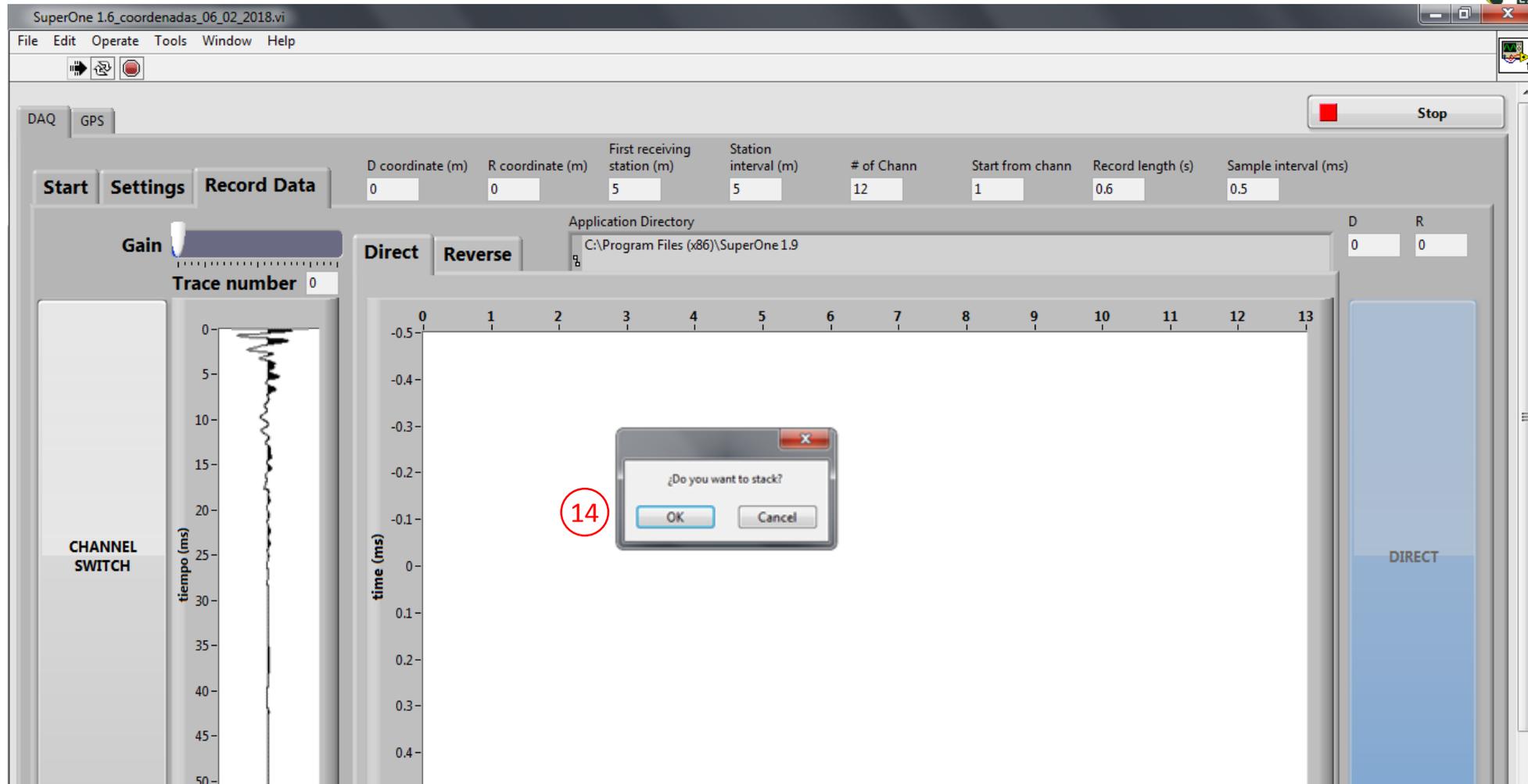


13. Shoot near the trigger for a first test and look at the trace on the left-side graph. Use this display to make sure that your geophone (Channel) is properly connected and sensing signals.



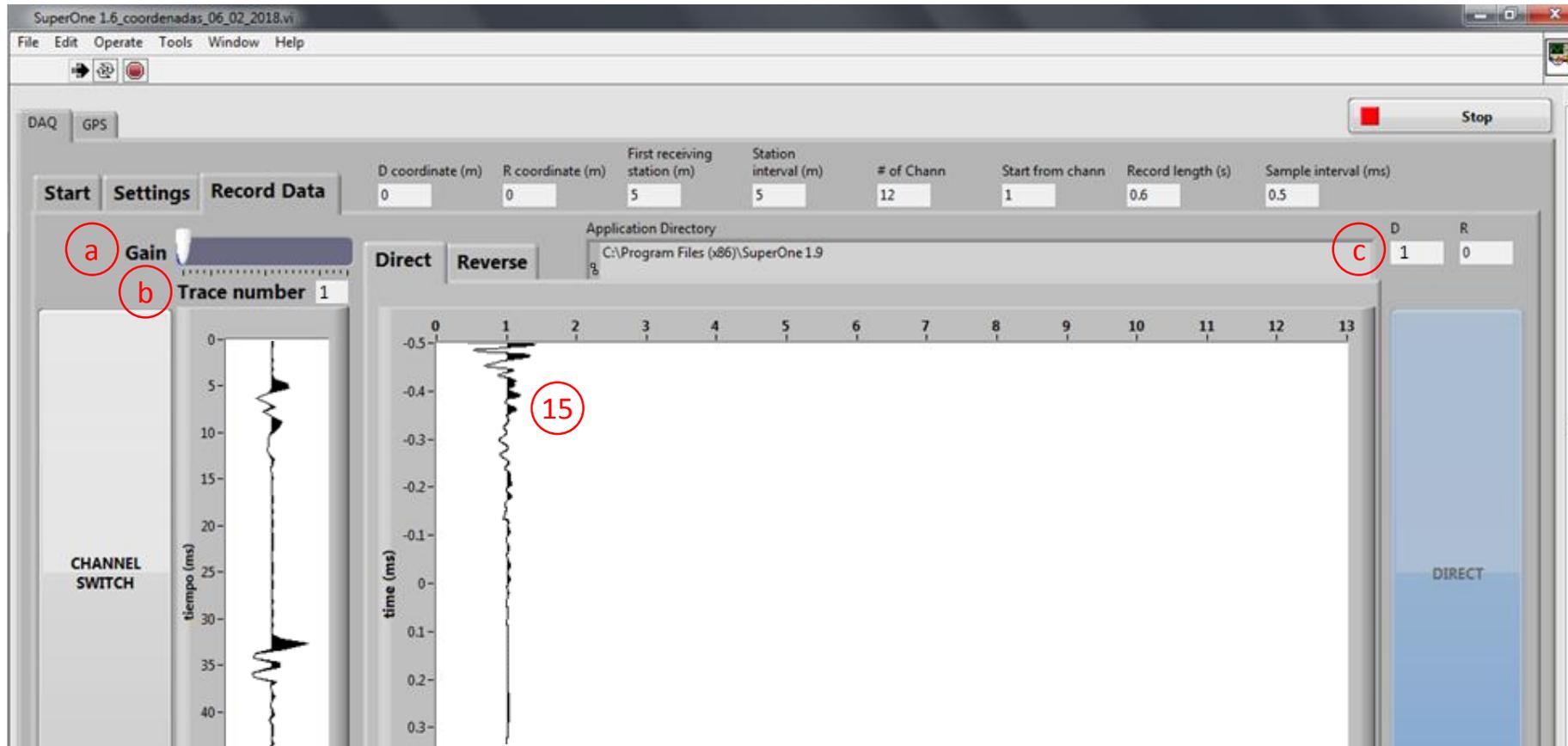
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14. Any time you shoot, a confirmation window will appear asking if you want to stack this trace. Clicking “OK” will stack the trace. Clicking “Cancel” will discard trace.

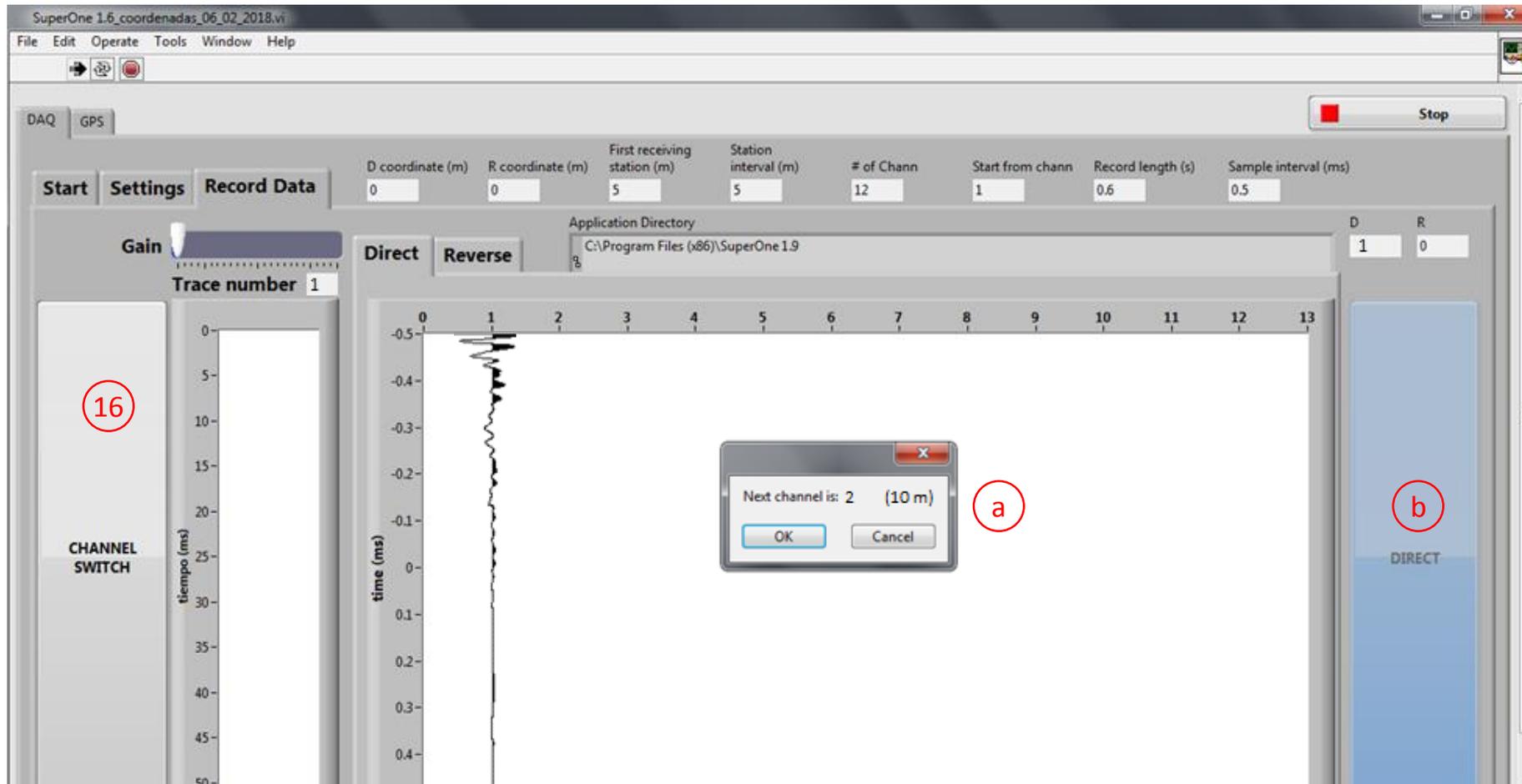


15. View stacked trace.

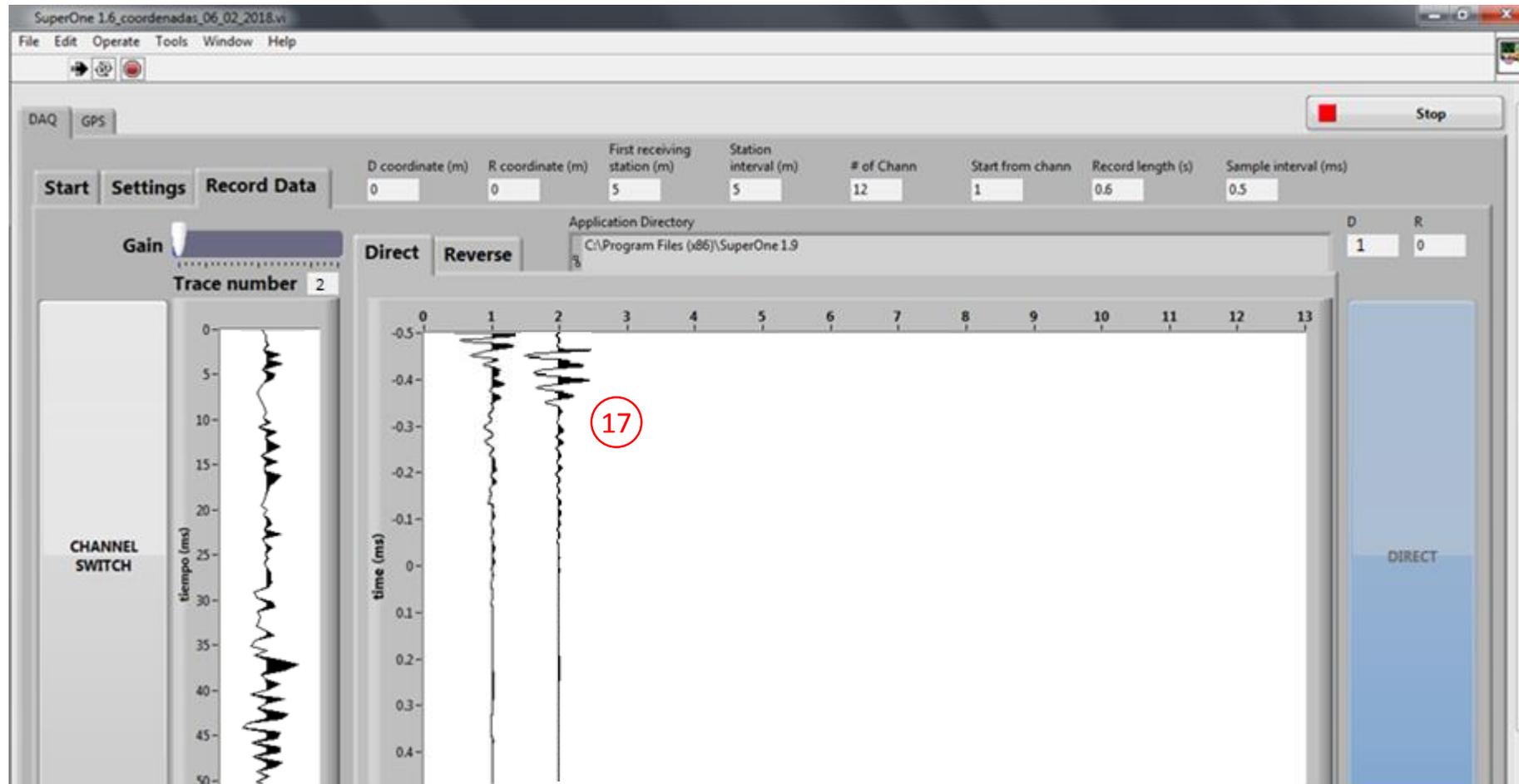
- (a) You may want to adjust trace gain at any time by sliding cursor left or right. Far channels may require high gain. You should see the effect of gain on the live trace, not on saved traces.
- (b) Note current trace number (same as channel number)
- (c) Note how many shoots you have made for the current trace



16. Click CHANNEL SWITCH button (16). A window will pop up (a), showing the number of next channel and its relative coordinate (in meters from SP). Click OK. System is ready for a new shot. If you choose two shot points in step 3, click the right-side button (b) to switch to Reverse mode and get the Reverse trace for the current channel.

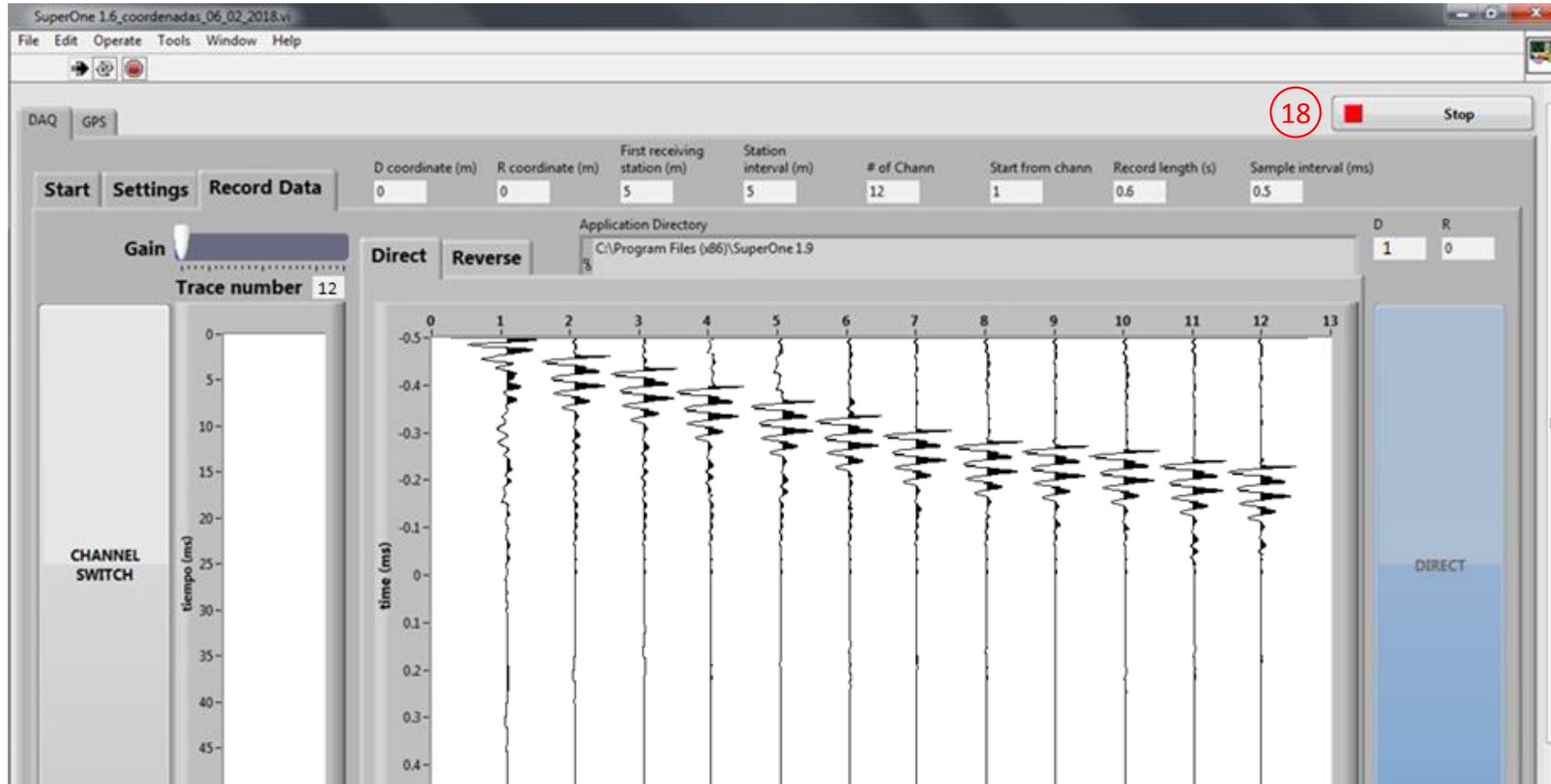


17. Note saved trace on main window.



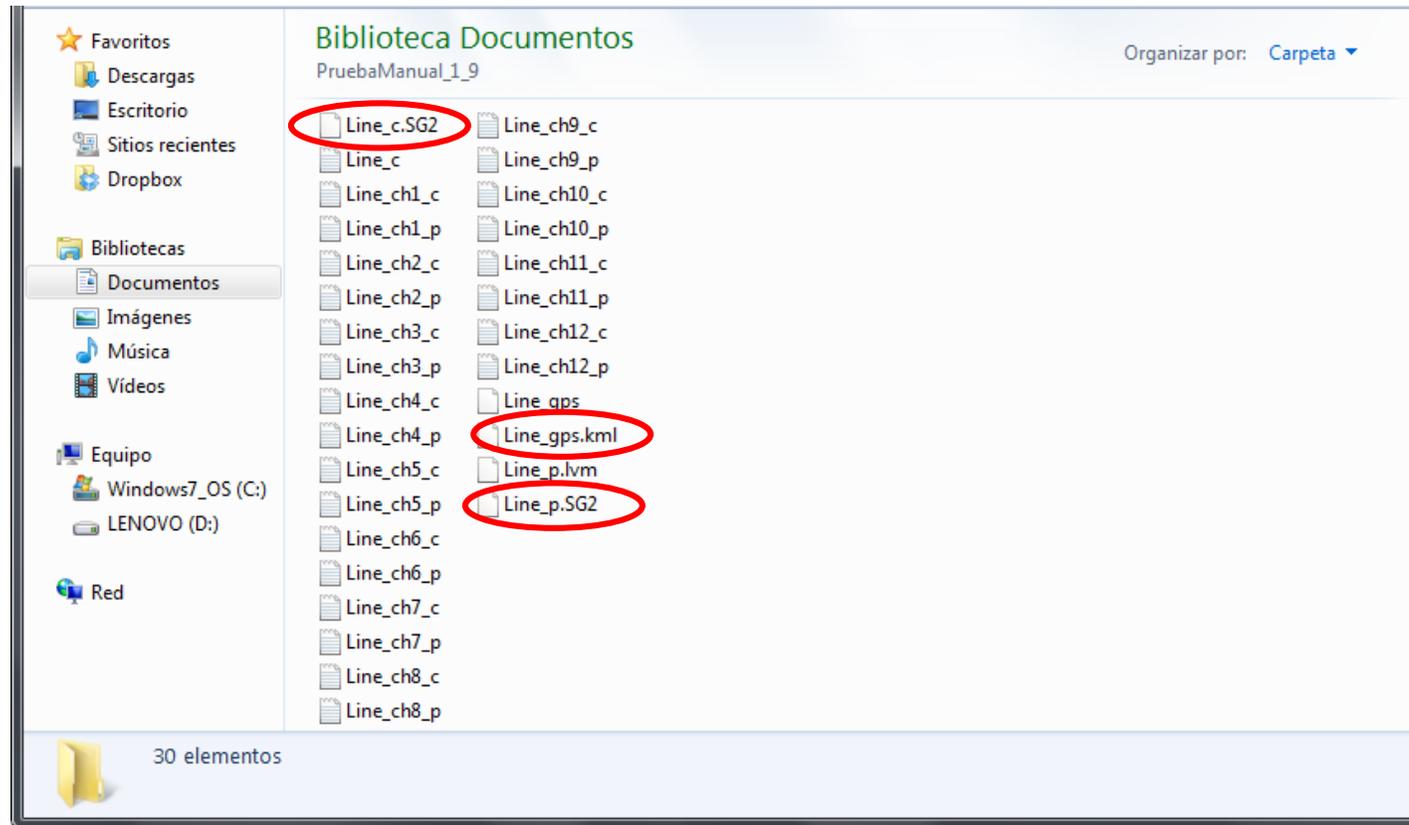
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18. Finish recording: you may stop acquiring data at any time, by pushing the “Stop” button located in the upper right corner. Otherwise, recording will stop automatically when you have acquired the number of channels defined in step 7.



File management: SuperOne saves your data at the moment you stack each trace, so you won't have to worry about file saving.

If you have named your line "Line", SuperOne will save two main files for you: "Line_p.SG2" and "Line_p.txt". In addition, it will save each trace individually, named "Line_chN_p.txt", where N is the channel number. SG2 files are useful to work with commercial seismic software, and TXT files contain the raw data. The KML file allows to see each channel GPS coordinates in a software like Google Earth.



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