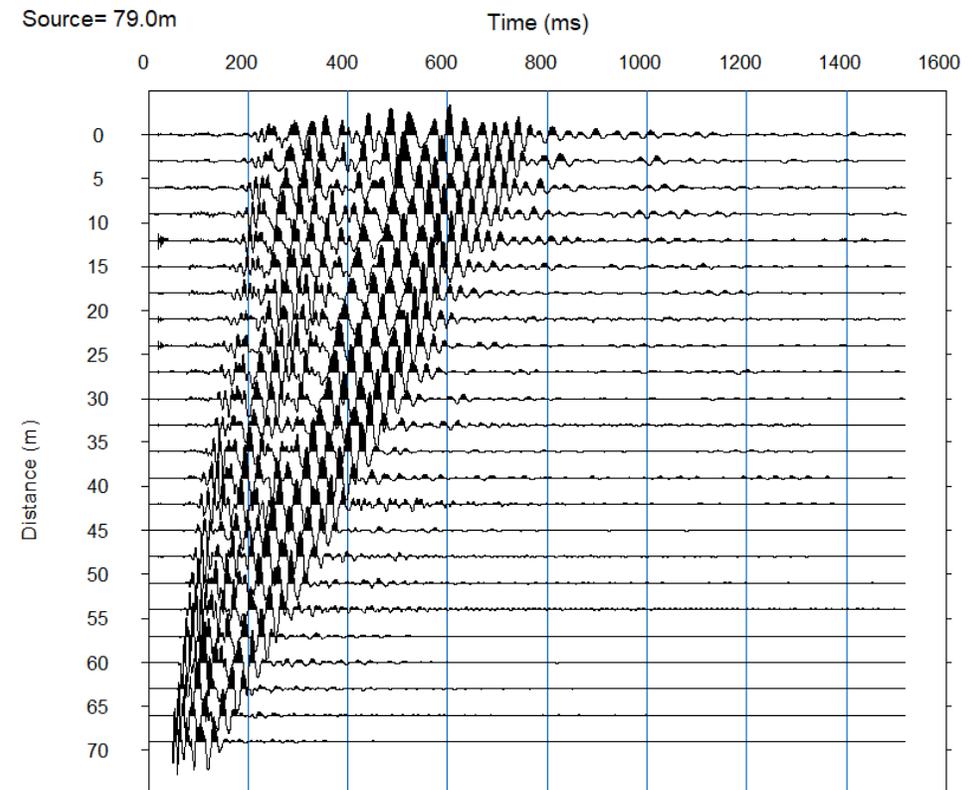
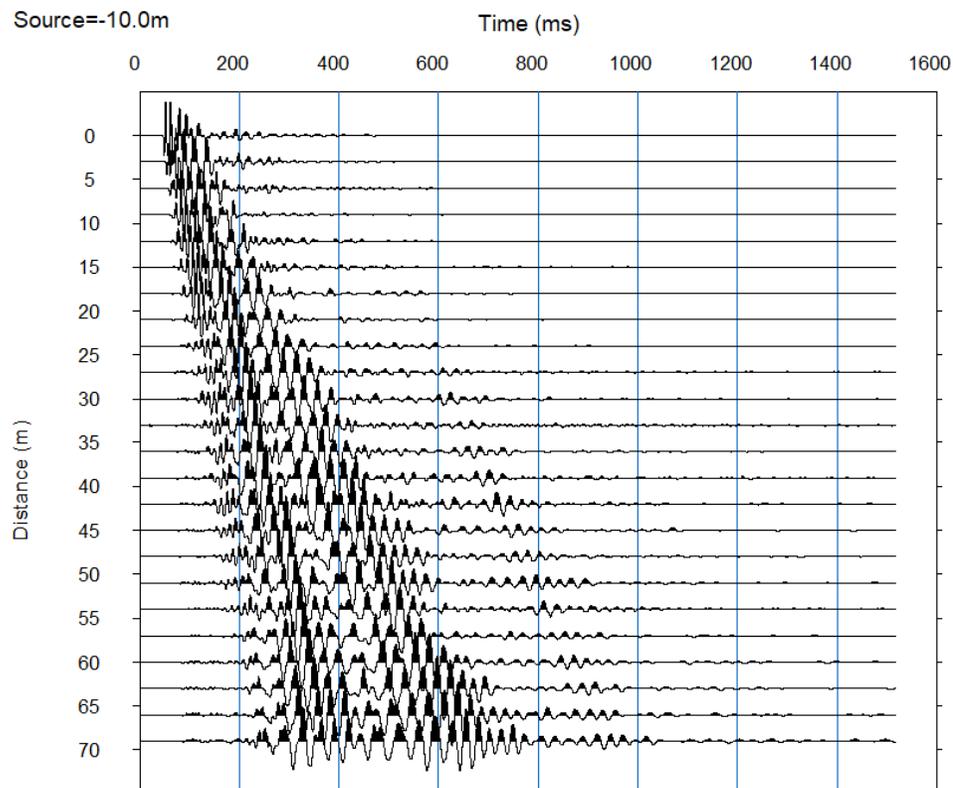
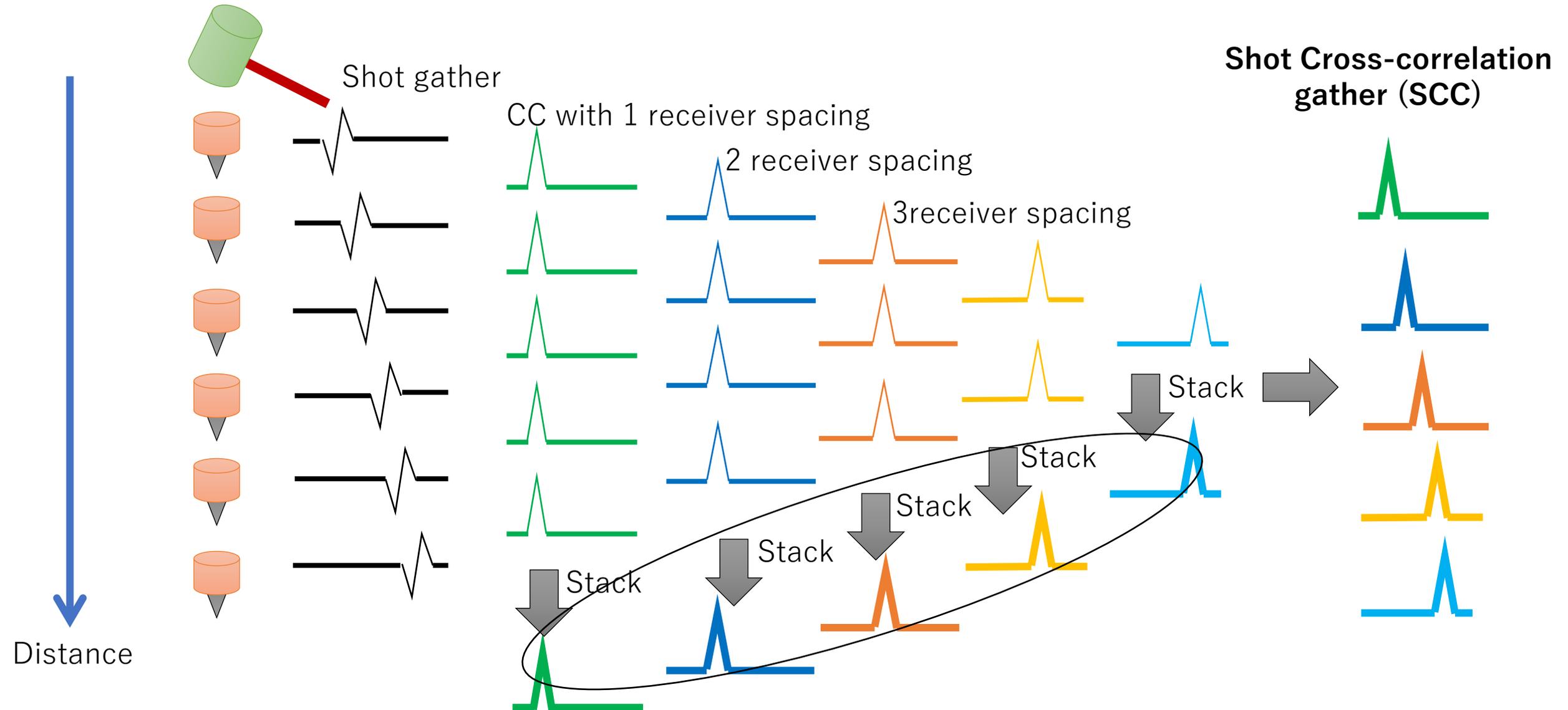


Calculate a dispersion curve from multi-shots in 1D MASW

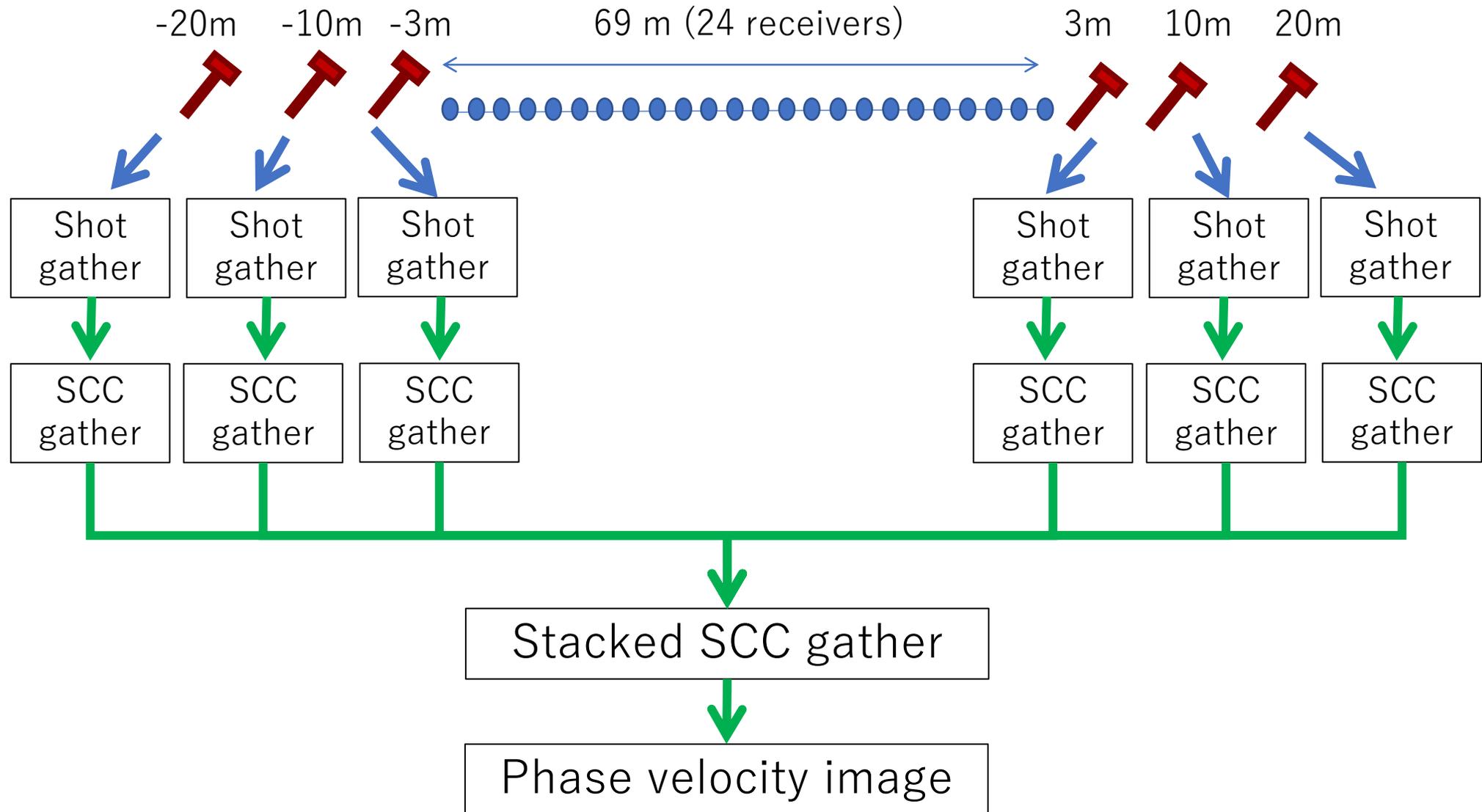
In 1D MASW processing, shots with different shot locations cannot be stacked in time domain. For example two opposite end shots as shown below cannot be processed together as raw data. SeisImager calculates Shot Cross-correlation (SCC) gathers at first to stack shot gathers and calculate a phase velocity image from the stacked SCC gathers. This document briefly explains the concept of SCC gather and demo summarizes how to calculate a phase velocity image from multi shots in 1D MASW processing.



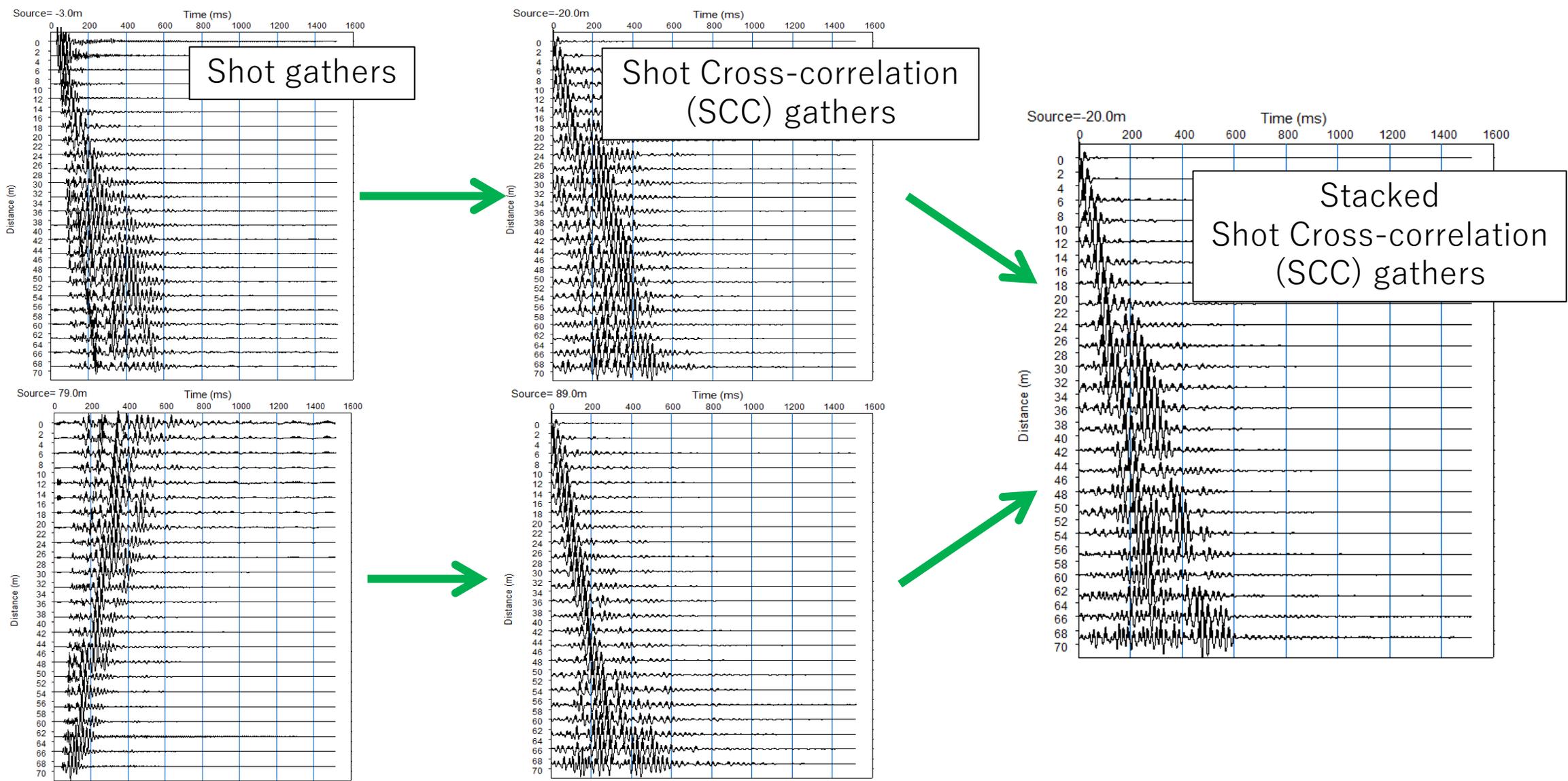
Shot Cross-correlation (SCC) Gather



Shot Cross-correlation (SCC) Gather

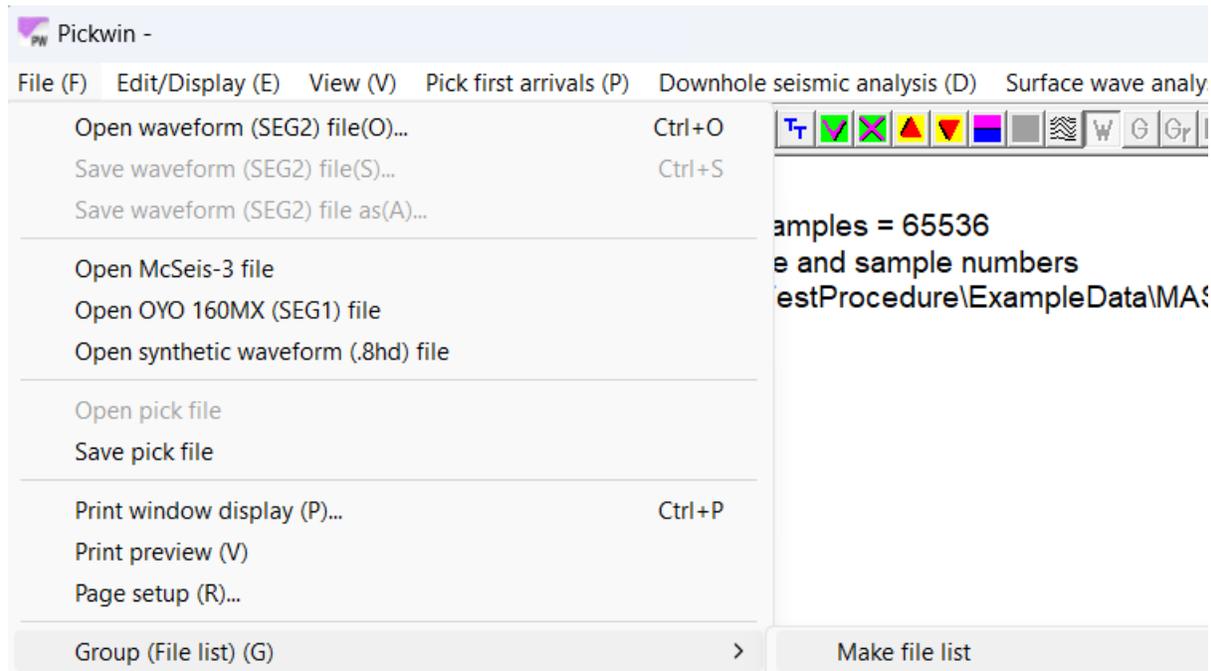


Shot Cross-correlation (SCC) gathers

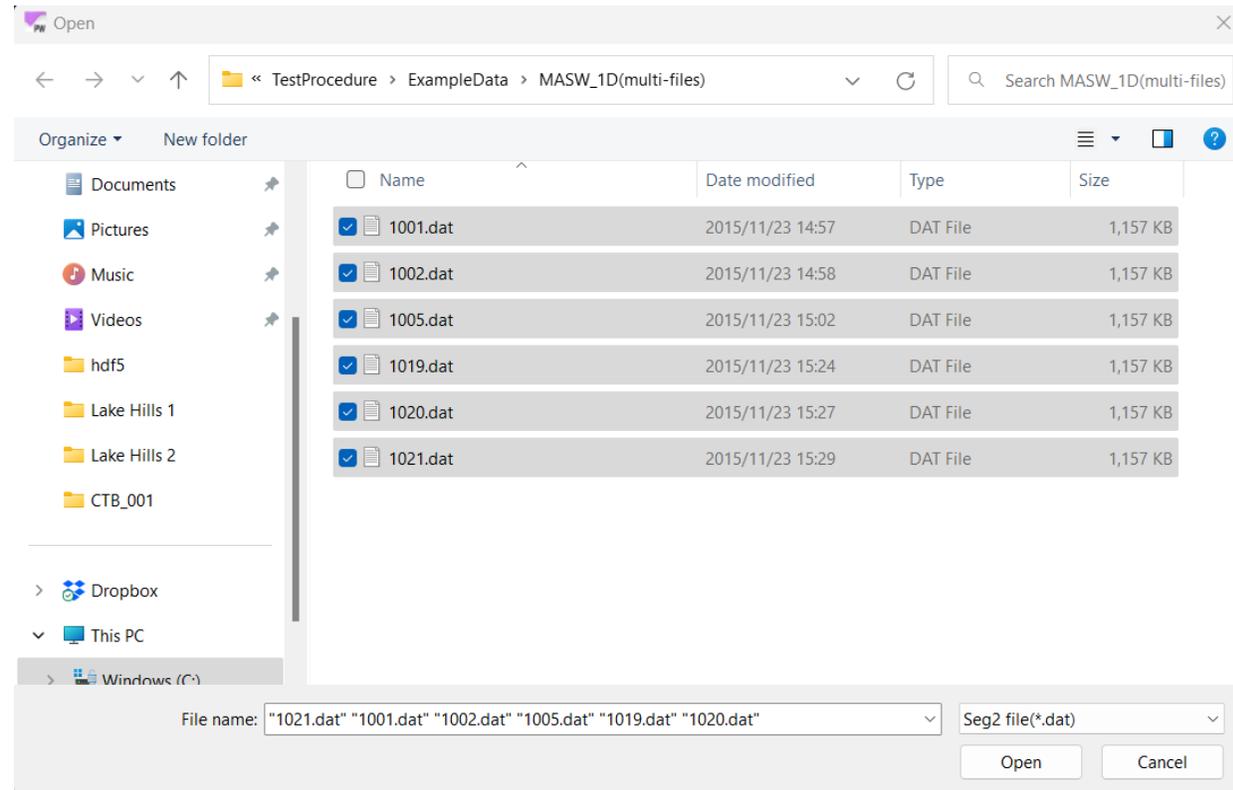


1) Make file list

1.1 Select “Group (File list)”, “Make file list.”

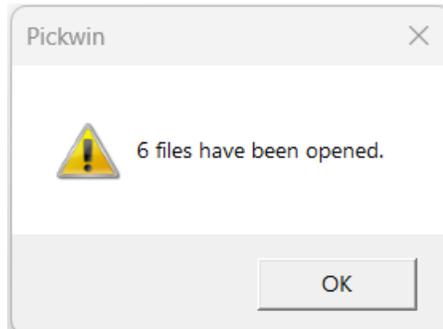


1.2 Select shot gather files to be processed.

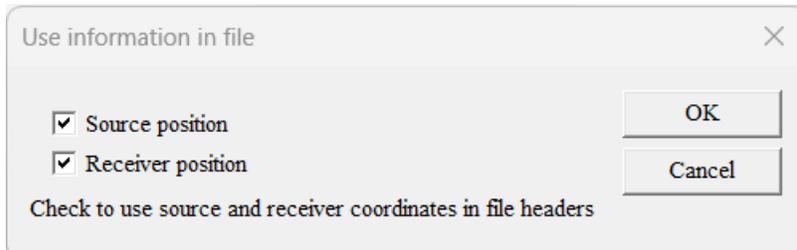


1) Make file list

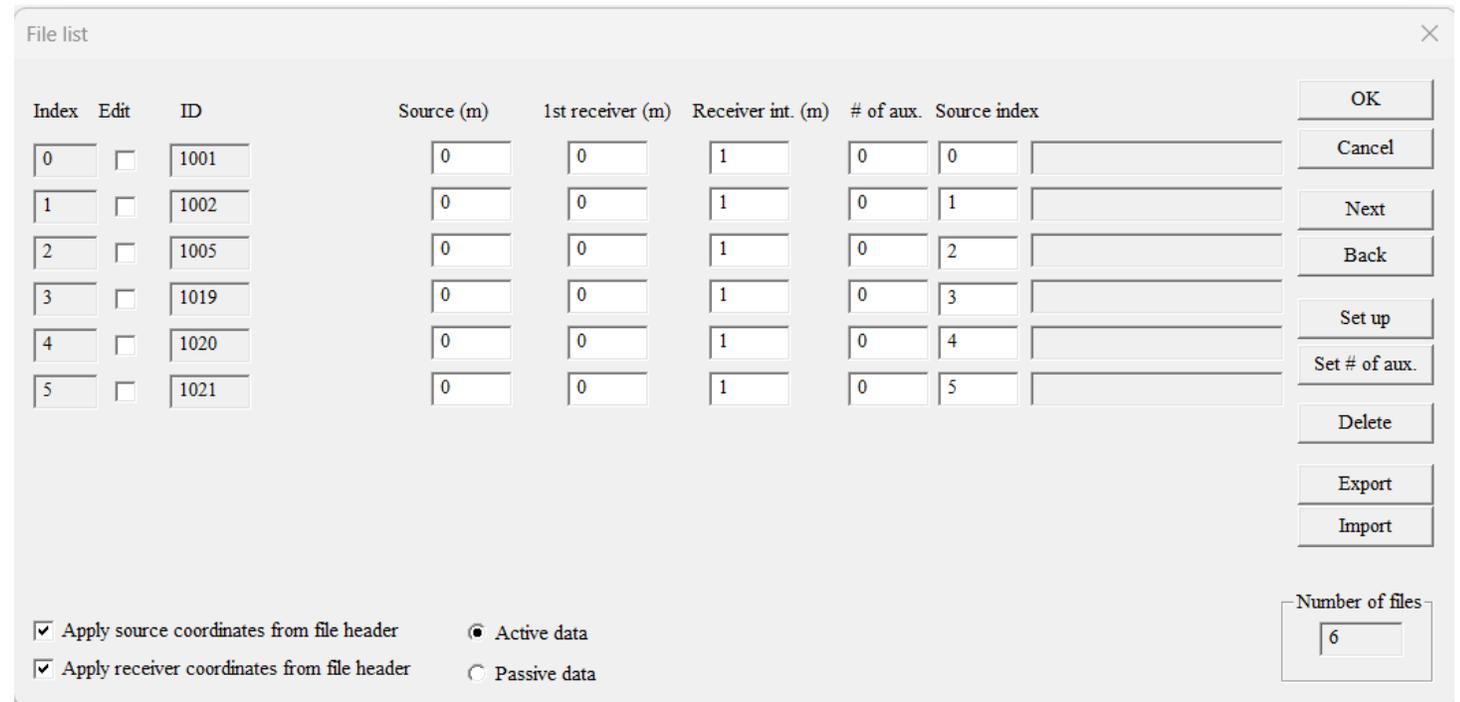
1.3 Confirm number of files.



1.4 Set up the use of source receiver position information in files.



1.5 Confirm file IDs.



1) Make file list

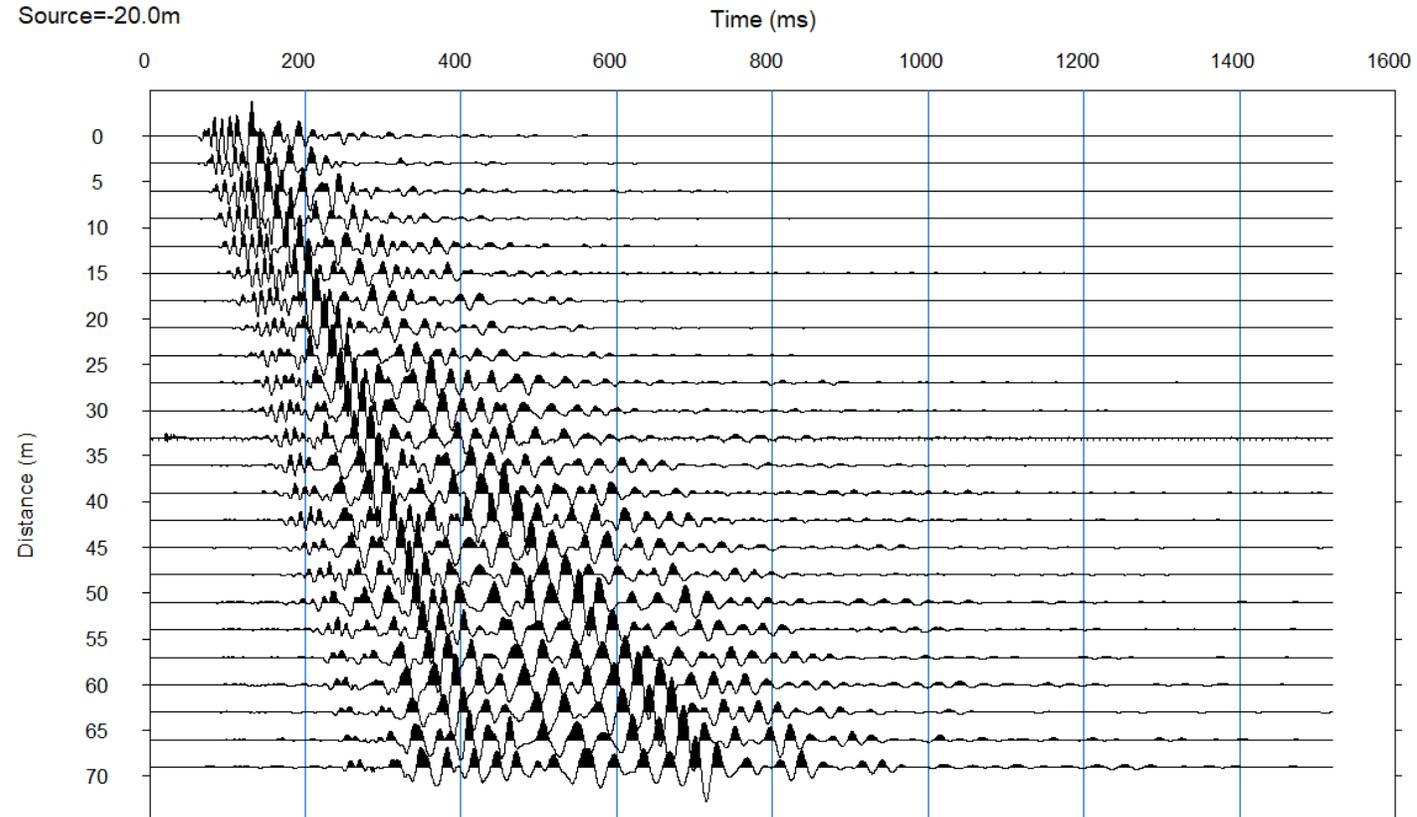
1.5 Raw shot gathers.

Use  to scroll shot gather files.

Status : No editing

File list : file = 1/6

Source=-20.0m

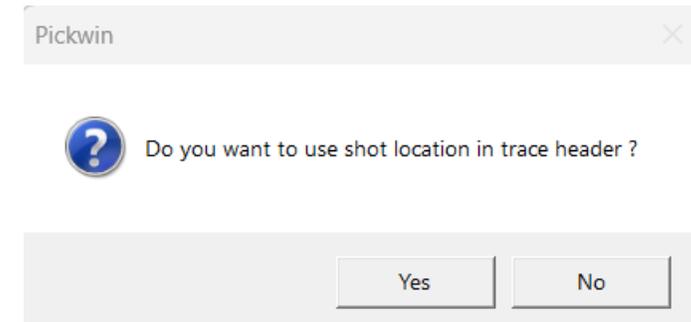


2) Calculate Shot Cross-correlation (SCC) gather

2.1 Select “Surface wave analysis”, “Stack as Shot Cross-Correlation (SCC) gathers (1D active data)”.

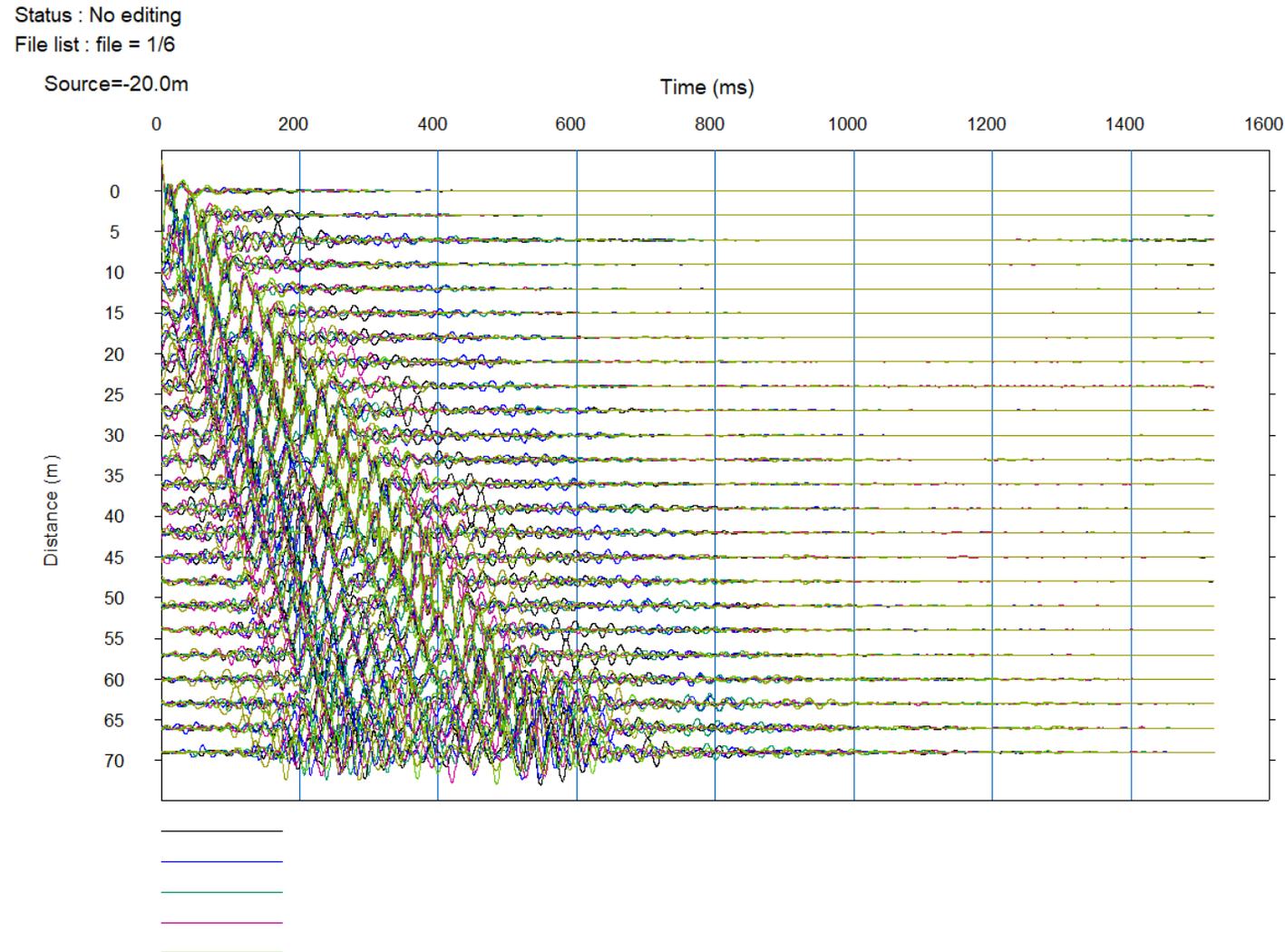


2.2 Click “Yes” if each file contains correct shot locations. Clicking “No” automatically detects shot locations based on trace amplitude.



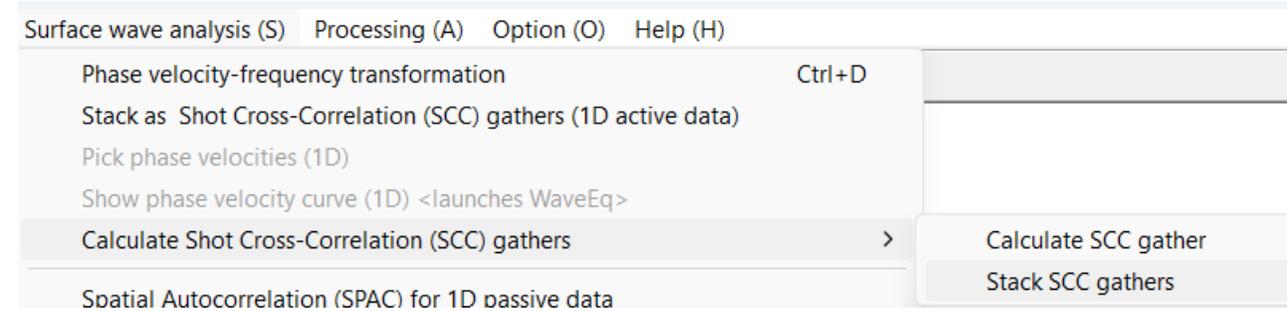
2) Calculate Shot Cross-correlation (SCC) gathers

2.3 Calculated Shot Cross-correlation gathers appear. Make sure there is no time-shift among files (traces).

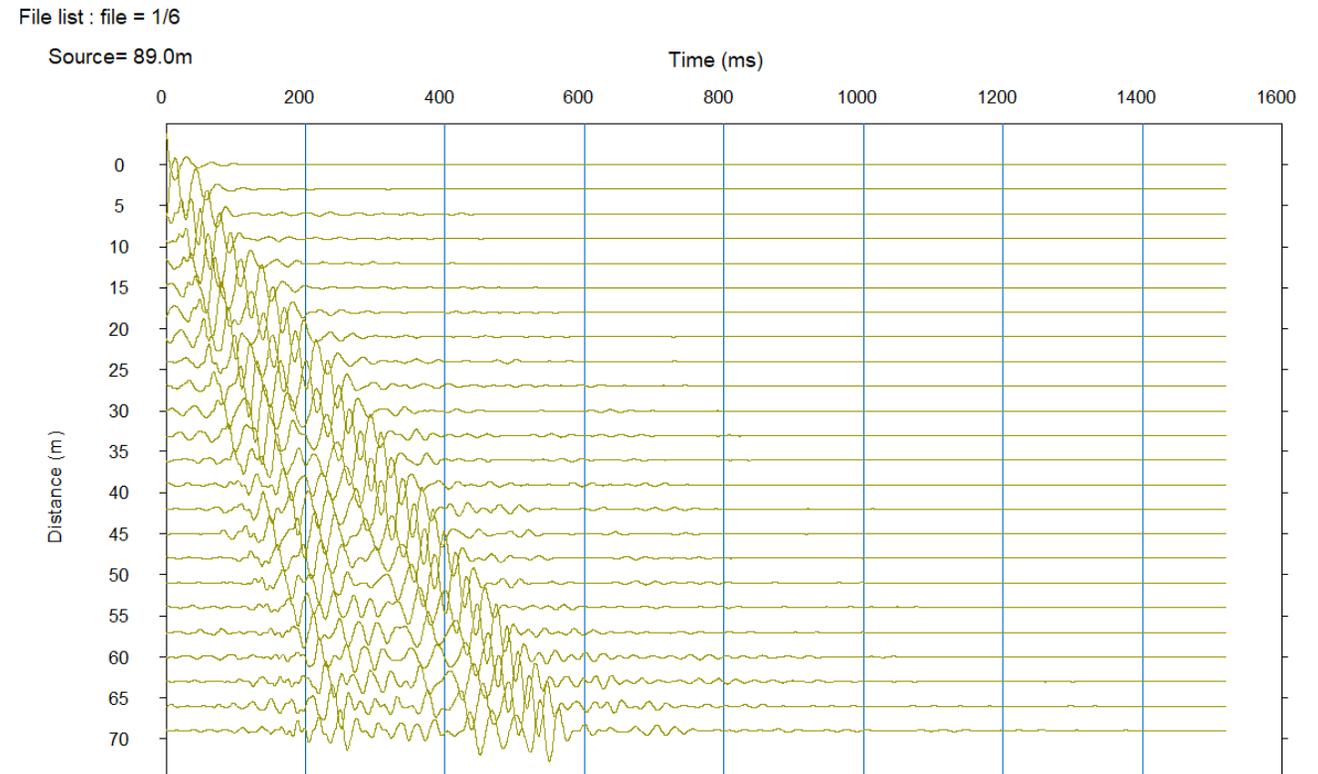


3) Stack Shot Cross-correlation (SCC) gathers

3.1 Select “Surface wave analysis”, “Calculate Shot Cross-Correlation (SCC) gathers”, “Stack SCC gathers”.



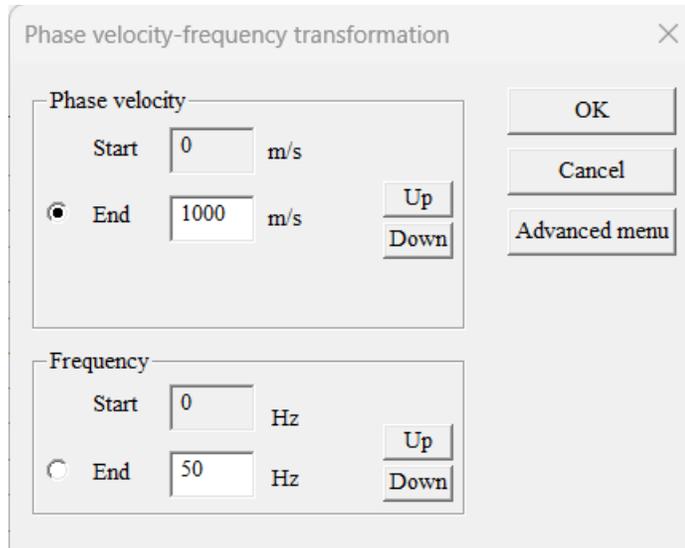
3.2 A stacked SCC gather appears.



4) Calculate a phase velocity image

4.1 Select “Surface wave analysis”, “Phase velocity-frequency transformation” or press “Ctrl+D”.

4.2 Set up parameters.



The dialog box is titled "Phase velocity-frequency transformation" and has a close button (X) in the top right corner. It is divided into two main sections: "Phase velocity" and "Frequency".

Phase velocity section:

- Start: 0 m/s
- End: 1000 m/s (selected with a radio button)
- Buttons: Up, Down, OK, Cancel, Advanced menu

Frequency section:

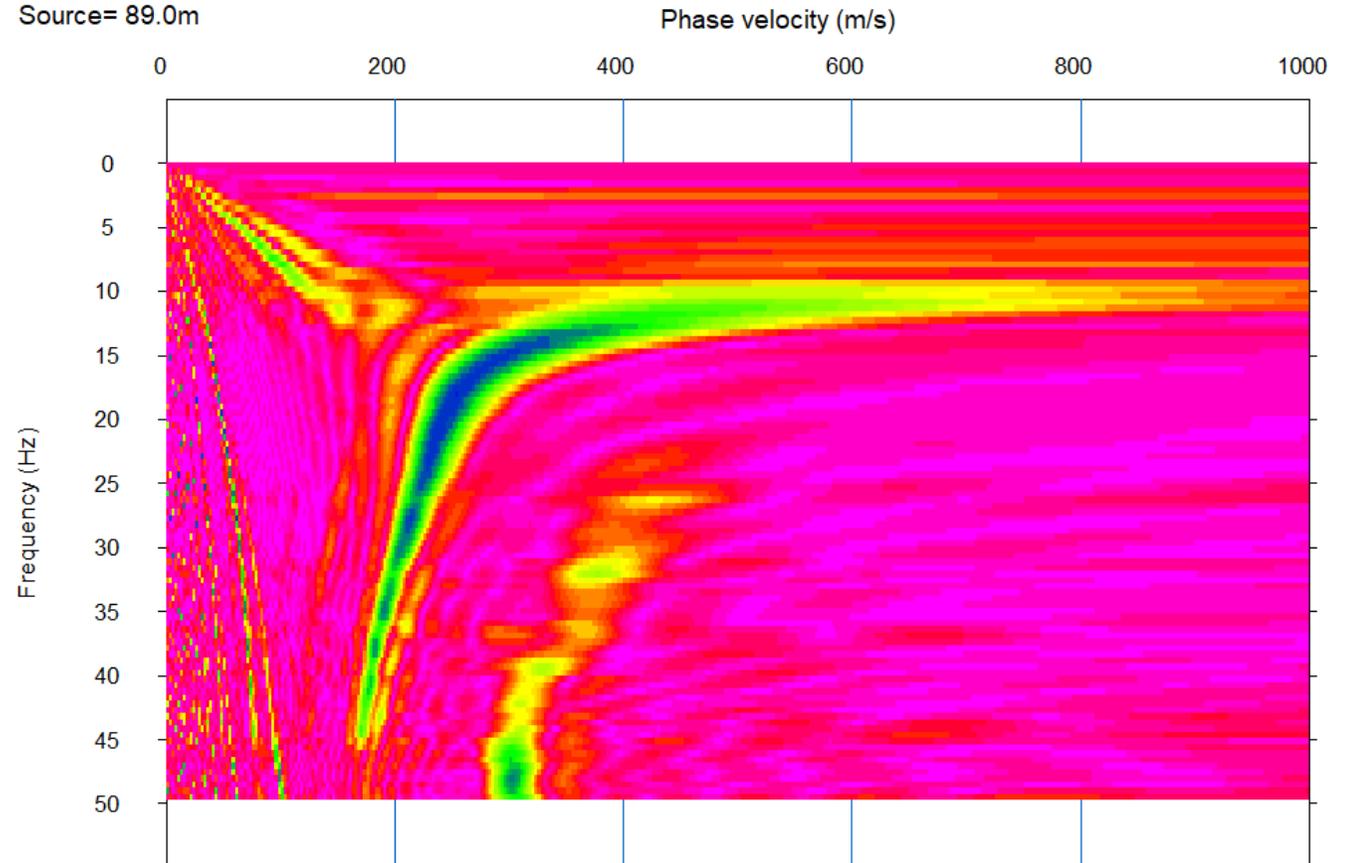
- Start: 0 Hz
- End: 50 Hz (selected with a radio button)
- Buttons: Up, Down

4.3 A phase velocity image appears.

Status : No editing

File list : file = 1/6

Source= 89.0m



Optional : Calculate a Shot Cross-correlation (SCC) gather for each file (without group file list)

Select “Surface wave analysis”, “Calculate Shot Cross-Correlation (SCC) gathers”, “Calculate SCC gather” to calculate a SCC gather for each file.

