

## **Instructions for *ShearPro* 1.3**

### **1. General Information**

- 1) This program can be run on operating systems Window 95/98/2000/XP;
- 2) Shear wave files of the same format as the ASCII files converted from the binary files collected by Hogentogler computers are used as input, as shown in Figure E.1;

### **2. Install**

- 1) Unzip/copy all the files of this program into a new folder;
- 2) Find the setup.exe file and set up the program on your computer;
- 3) The icon of ShearWavePro should appear on your Start Program Menu.

### **3. Configuration**

After starting this program, click the menu item of “File\Configurations” to set up the necessary parameters, which include the string distance between the cone and the seismic source, and the distance between the geophone and cone tip, as shown in Figure E.2.

### **4. Load the files**

Click the menu item of “File\Load...” and load the raw shear wave files in ASCII format. After the files are loaded, the filtered waves should appear on the screen with the corresponding depth shown on the left of each wave train, as shown in Figure E.3.

## **5. Clip the waves using the window**

Each wave train has a window, which consists of a left (red) bar and a right (blue) bar. These bars can be selected and dragged by the mouse to clip the waves, and only the part that is left in the window is used for future computations, as shown in Figure E.4.

## **6. Run**

After the waves have been clipped by the window, click the menu item of “Run\Cross-Correlation” to compute the wave velocity.

## **7. View**

- 1) After cross-correlation is performed, the items in the pull-down menu of “View” are enabled, and the results can be viewed by clicking these items;
- 2) The raw shear wave trains can be displayed on screen by clicking the item of “Original Waves”;
- 3) The filtered shear wave trains can be displayed on screen by clicking the item of “Original Waves”;
- 4) The computed shear wave velocity can be plotted on screen by clicking the item of “Shear Wave Velocity from Cross-Correlation”;
- 5) The computed coefficient of determination ( $r^2$ ) for cross-correlation can be plotted on screen by clicking the item of “Coef. of Determination”;

6) Data of the computed velocity and coefficient of determination data can be displayed by clicking the item of “Velocity Data”, and the data can be saved in a text file. Format of the saved file is shown in Figure E.5.

## **8. Save**

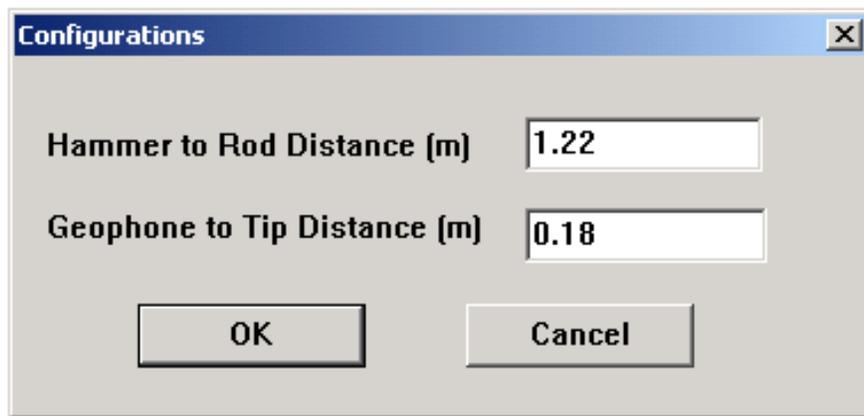
After the results are generated, they can be saved in a .swp file by click the menu item of “File\Save” or “File\Save As...” And this file can be opened by click the menu item of “File\Open”.

Note: User accepts all risks associated with output data and results. Authors make no claim to accuracy or reasonableness of results and possible errors.

Sounding: coke01  
Depth: 1.075 meter(s)

TIME (ms)	AMPLITUDE
0.025	-0.1049
0.050	-0.1006
0.075	-0.0964
0.100	-0.0964
0.125	-0.0964
0.150	-0.0899
0.175	-0.0964
0.200	-0.0921
0.225	-0.0985
0.250	-0.0964
0.275	-0.0985
...	....

**Figure E.1** Format of input shear wave file



**Figure E.2** Configurations at the start of the program *ShearPro*

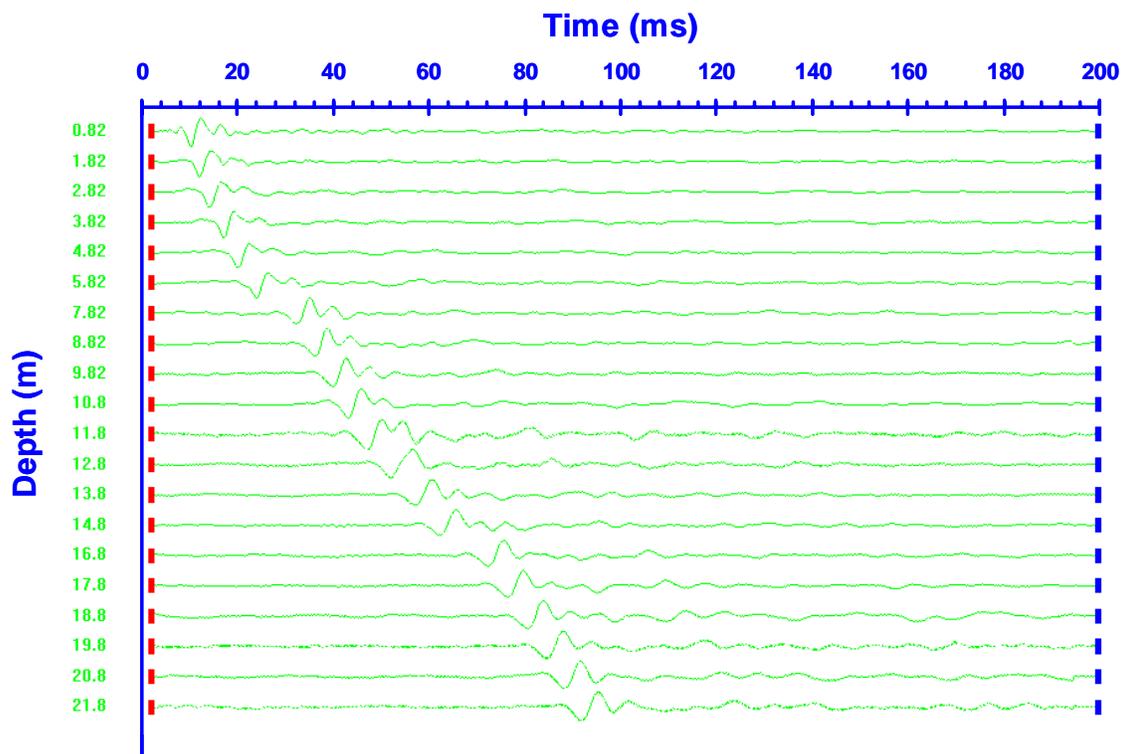
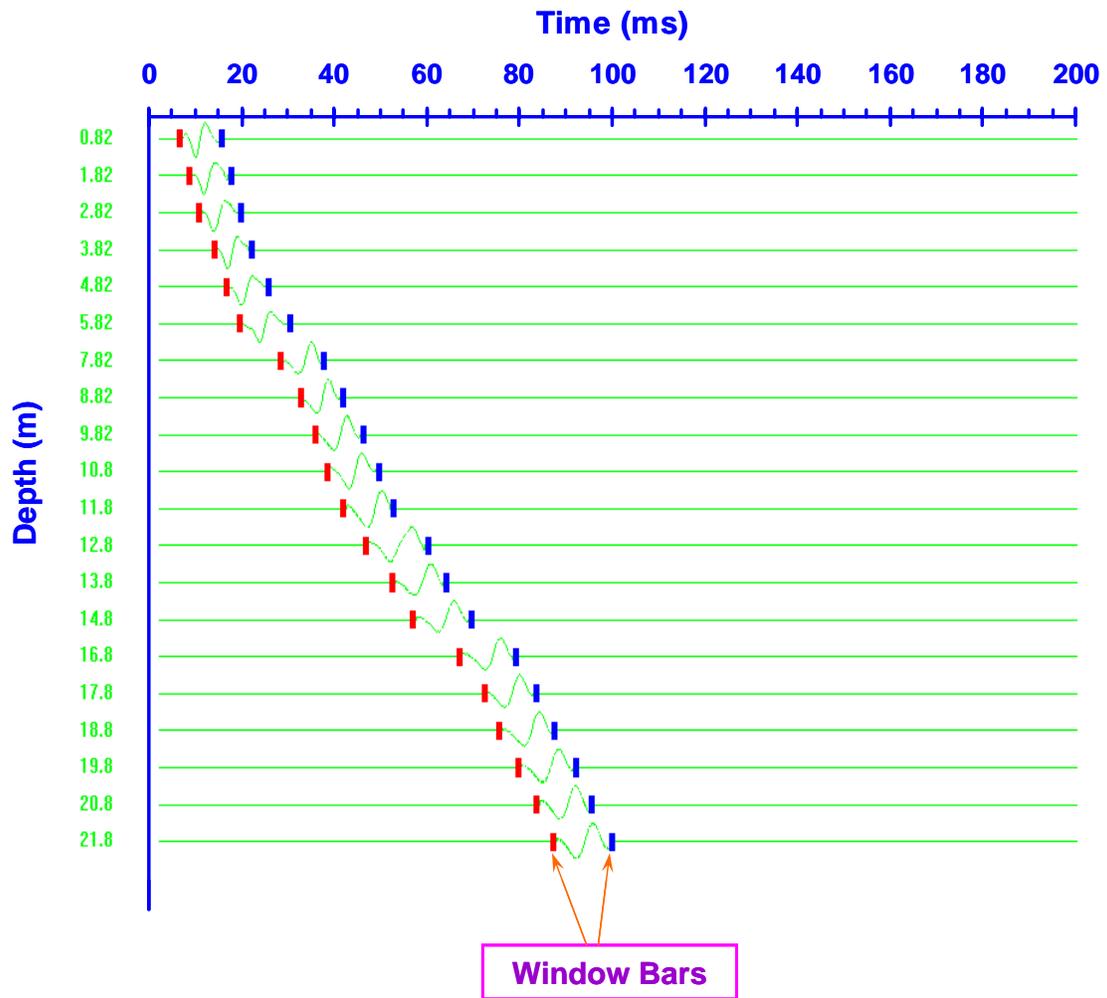


Figure E.3 Shear wave trains displayed on screen after shear wave files are loaded



**Figure E.4** Trimmed shear wave trains collected at Mobile Infirmiry Medical

Depth(m)	Velocity(m/s)	r2
1.320000	339.344360	0.756075
2.320000	375.113068	0.759930
3.320000	328.946930	0.956530
4.320000	307.812653	0.606270
5.320000	256.445557	0.857751
6.820000	226.870239	0.367164
...	...	...

**Figure E.5** Format of output data of computed shear wave velocity and coefficient of determination