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Sounding Better!

Enhancing Sub-bottom Images

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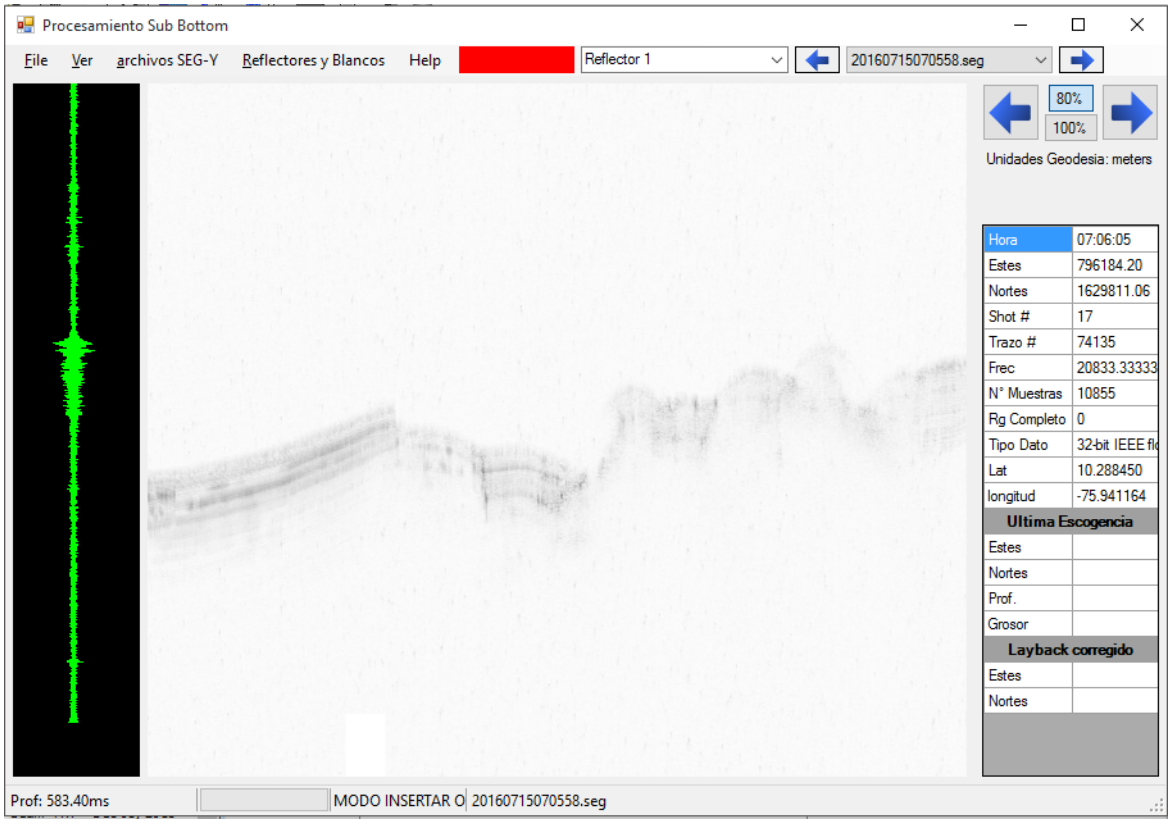
During an integration of a Kongsberg SBP 300, that system converts sub-bottom RAW files to SEG-Y, a format that is recognized by HYPACK®. When I opened the file in the SUB-BOTTOM PROCESSOR, the different layers were not so clear, as is shown in Figure 1. The strength of the signal decreases with distance and according to the material of the layers, and, in some cases, the information is not as smooth as is needed.

FIGURE 1. *SEG-Y File*



The program includes an option called TVG (Time Varying Gain) that compensates for the signal loss due to the absorption. This option is on the “Time Varying Gain” tab. Insert a value of gain and finally press [Apply]. Once you do that you are going to see more information in the Sub-Bottom image:

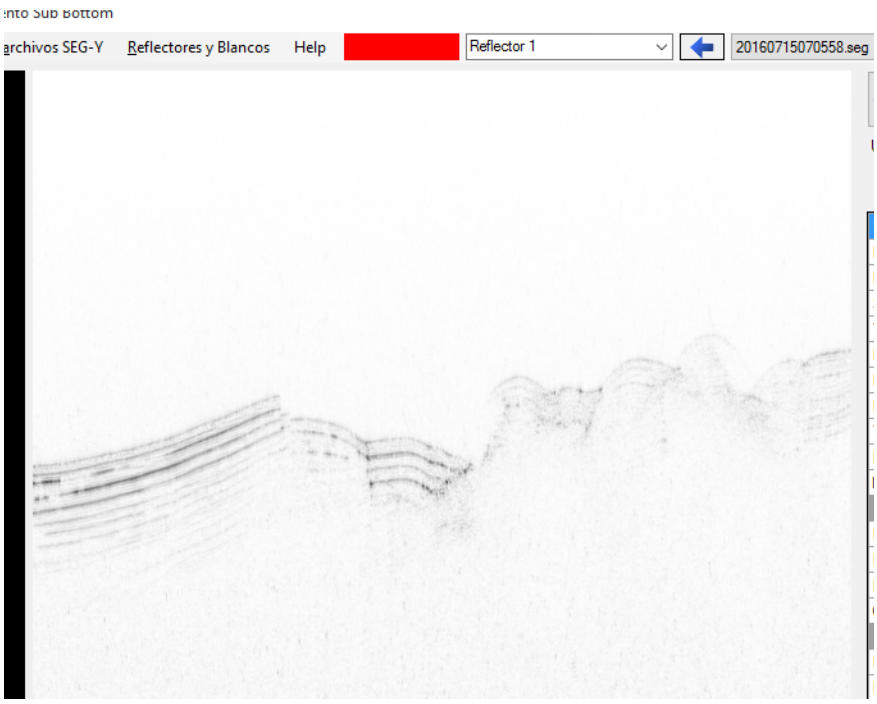
FIGURE 2. *Applied TVG*

Now the processor shows more data, but the different layers are not very clear. To solve this, the Frequency Filter tab has some options that allow you to identify the bottom and the layers. Click [Enable Bandpass] to keep only the frequencies within the filter range. You have to insert the Low and High Frequency filter range; you can start with the following values:

Low Frequency Cutoff = (System Frequency)/2

High Frequency Cutoff = 2(System Frequency)

FIGURE 3. *Results from the Band Pass Filter*



With the options described above, you can render an image with clear information that makes identifying the layers easy.

FIGURE 4. *Digitizing the Sub-bottom Layers*