In the Name of God

Exploration Seismology- Project‐1

Purpose of this project: Make acquainted with convolution, correlation and 1D Fourier transform.

Date assigned: 13‐8‐03 Date due: 27‐8‐03

Consider the given data (assumed as reflectivity section). The sampling interval and CMP distance are dt = 0.004 and dx = 20, respectively.

1. Consider a sinusoid function with a continuously variable frequency as an example of sweep with the length of 10 s and maximum frequency of x Hz. x can be 40, 50, 60, 70, 80 and 90 on your choice. Plot the sweep.
2. Make corresponding initial section by convolving sweep and section. Prepare your figures with appropriate zoom.
3. Make stack section by correlating it with sweep. Crop appropriate interval if necessary.
4. Take Fourier transform of wavelet and plot its amplitude and phase spectrum.
5. Take 2D Fourier transform of stack section and plot it in F-K domain.

Please prepare a presentation for your work including programming codes and appropriate figures (initial section and different results). Different steps of work should be explained graphically. The project should be completed individually, and some of students may be asked to present their works.

Best regards,

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