Combined Migration of GPR data for layered media

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In this contribution we will propose the combination of migration results achieved from the same GPR dataset, aimed to mitigate the effects of the nonuniformity of the propagation velocity of the waves throughout the investigated domain. The nonuniformity of the propagation velocity can be appreciated from the diffraction hyperbolas [1] possibly present in the data, or directly from the results of the focusing [2] achieved from different trial values of the propagation velocity. In ref. [3] an algebraic combination of two (but theoretically even more) migration results achieved from different migration parameters applied to the same data has been shown. In that paper, the case of a horizontal variation and the case of a vertical variation of the propagation velocity of the electromagnetic waves in the soil were considered. Here, we will consider the case of a layered medium with non-flat interface between two adjacent layers, which is a case of interest in several practical application, and is a case where we have both a vertical and a horizontal variation of the parameters. Analogously to ref. [3], we will consider both the aspect of the focusing and that of the combined time-depth conversion.

References

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