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Construction Technique Of High Resolution Velocity Field - New Attribute For Seismic Interpretation

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Summary

In this work, we propose a technique for High-Resolution Velocity construction based on Amplitude Inversion combined with Dynamic Auto Correlation or Dynamic Time Warping. The main aim for this workflow is to provide a High-Resolution velocity field that can be used as an attribute in data interpretation and classification. Synthetic examples show that the algorithm can reconstruct the P-wave velocities from log data in the case of no anisotropy. We demonstrate cases of constructed velocity field's implementations for lithology, pore pressure and reservoir highlighting. Taking into account that technique does not require big computation resources, that makes it a convenient seismic interpretation attribute.

Figure 4 Comparison of seismic interval and High-Resolution interval velocities implementations for seismic interpretation, particular for lithology prediction.

(a) - right picture is interval velocity with seismic overlaid (in time); left picture is zoom of the seismic section (in depth) with lithology prediction overlaid.

(b) - right picture is High-Resolution velocity section with seismic overlaid (in time); left picture is zoom of the seismic section (in depth) with lithology prediction overlaid.

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