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基于局部相似度的叠前非稳态相位校正方法

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Pre-stack non-stationarity phase correction based on local similarity

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摘要 针对叠前常相位校正方法没有考虑子波相位随时间和空间变化以及精度有限的问题，在整形最小二乘反演的框架下，提出了一种基于局部相似度的叠前非稳态相位校正方法。通过计算相位旋转后的地震道与优化后的模型道之间的局部相似度，估算各地震道与模型道之间的局部相位差；再进行相位校正，即可得到相位一致的叠前道集。理论模型和实际资料处理结果表明，本文方法可以有效校正叠前道集中相位不一致现象，改善叠加效果，提高速度分析的精度，具有较高的实用价值。

关键词： 叠前相位校正 局部相似度 非稳态 整形最小二乘反演

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Abstract： To take the non-stationarity (time- and space- varying property) of phase attribute in prestack gathers into account, we propose a new prestack phase correction method based on local similarity in the framework of least-squares inversion with shaping regularization. The proposed method calculates firstly local similarity between the phase-rotated trace and the optimal reference trace, then estimates the phase difference between each trace and the reference trace with this local similarity. Finally the aligned prestack gathers are obtained after phase correction. Experimental results of synthetic and real data show that our proposed method can correct the phase inconsistency between traces in prestack gathers and realize coherent stack so as to improve the stack quality. local similarity between the phase-rotated trace and the optimal reference trace, then estimates the phase difference between each trace and the reference trace with this local similarity. Finally the aligned prestack gathers are obtained after phase correction. Experimental results of synthetic and real data show that our proposed method can correct the phase inconsistency between traces in prestack gathers and realize coherent stack so as to improve the stack quality.

Keywords： prestack phase correction   local similarity   non-stationary   shaping regularized least squares inversion

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