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南海南部深部结构的复杂构造地震成像

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Seismic imaging of complicated deep structures in southern South China Sea

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摘要

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摘要 南海南部海底崎岖、地下构造复杂、二维地震资料中多次波非常发育, 在地震数据处理中很难获得令人满意的成像效果, 为此本文采用了预测反褶积后F-K域滤波及叠前时间偏移后Radon变换去除多次波的组合方案, 有效地衰减了多次波, 突出了有效信号能量; 采用速度分析点加密法获取了更为准确的速度, 实现了陡倾角构造与海山的准确成像; 采用百分比扫描弯曲射线克希霍夫叠前时间偏移法, 有效地保证了处理结果的准确性和有效性, 获得了清晰的地震成像, 并最终形成了对南海南部海域地震数据具有针对性的处理流程。

关键词: 南海南部 处理流程 叠前时间偏移 Radon变换

Abstract: Because of rugged seafloor, complex underground structure, and well developed multiple waves in 2D seismic data in southern South China Sea, it is difficult to obtain satisfactory imaging results in seismic data processing. This paper attenuated the multiple waves effectively, enhanced the effective signal energy by using a combination solution of filtering in F-K domain after predictive deconvolution and the Radon transformation after pre-stack time migration to remove multiple waves. We achieved accurate imaging of steep angle structures and seamounts, by increasing velocity point densities to analyze more accurate velocities. The clear seismic imaging was obtained by using percentage scanning curved-ray Kirchhoff pre-stack time migration method, to effectively ensure the accuracy and validity of the results. Eventually a processing flow was formed for seismic data in the southern South China Sea.

Keywords: Southern South China Sea Processing flow Pre-stack time migration Radon transform

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