

综合评述

油气地球物理技术发展新动向

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摘要 针对复杂新区和老油区挖潜, 从3个方面阐述了以地震勘探为主的油气地球物理技术的发展现状和趋势。在复杂地表及复杂地质条件下的地震成像方面, 非线性层析静校正和炮域地震资料处理流程能够较好地完成复杂地表及复杂地质条件下地震资料静校正, 基于共反射点道集的偏移速度分析能够获得复杂地区较为准确的速度模型, 而各向异性叠前深度偏移能更好地实现对复杂地质体的偏移成像。在油藏综合地球物理技术方面, 以高密度单点数字地震技术、多波多分量地震技术以及时移地震技术为代表的油藏综合地球物理技术能为油气田开发提供必要的技术支撑, 尤其是高密度单点数字地震技术, 给地球物理界带来了新的发展机遇, 成为地震勘探技术未来发展的重要方向。在地震储层预测方面, 应用叠前弹性波阻抗反演和地震资料的曲率属性能进一步提高复杂地质条件下的地震储层预测的成功率。

关键词 [偏移成像](#); [速度分析](#); [油藏综合地球物理](#); [储层预测](#)

Latest development of geophysical prospecting for petroleum

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Abstract Taking complex new exploration frontiers and reserves tapping in mature oilfield as targets, this paper describes the current status and future trend of geophysical prospecting for petroleum. In seismic imaging in complex near surface and subsurface geologic settings, nonlinear tomographic static correction and shot domain seismic data processing yield desired static correction results. Common reflection point gather based velocity analysis results in accurate velocity models. Anisotropic prestack depth migration achieves good imaging of complex geologic bodies. In integrated reservoir geophysics, high density single point digital seismic, multi-wave multi-component seismic, and time-lapse seismic provide solid support for the production of oilfield. High density single point digital seismic brings about new opportunities of development to the geophysical industry. It will be a very important development direction of seismic technology. In seismic reservoir prediction, the success rate of seismic reservoir prediction may be further improved by applying prestack elastic wave impedance inversion and seismic curvature attribute.

Key words [static correction](#); [migration](#); [velocity analysis](#); [integrated reservoir geophysics](#); [reservoir prediction](#)

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