

## 方法技术

## 塔中沙漠区碳酸盐岩三维地震勘探技术

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收稿日期 2006-1-23 修回日期 2006-3-8 网络版发布日期 2009-8-10 接受日期

**摘要** 塔克拉玛干沙漠中部地区, 广泛发育碳酸盐岩岩性油气藏, 勘探前景良好。在该区域实施的三维地震勘探中, 针对碳酸盐岩裂缝储层进行了以削弱采集脚印、提高信噪比和分辨率为目的的观测系统量化设计, 采取了100%的潜水面下激发和高精度的表层调查及沙丘曲线静校正等野外采集方法, 应用了三维叠前多域、多方法串联迭代去噪等处理手段, 以及礁滩复合体综合解释技术, 三维地震资料品质得到了大幅度的提高, 地质认识得到了更新, 大大提高了钻井成功率。

**关键词** [沙漠区](#); [碳酸盐岩](#) [三维地震勘探](#) [去噪](#) [综合解释](#) [观测系统](#)

## 3-D seismic exploration techniques for carbonate rocks in the central desert area of Tarim basin

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**Abstract** In the central part of Taklamakan Desert, lithologic reservoir of carbonate rock distributes widely and shows great hydrocarbon potential. A series of techniques were adopted in 3-D seismic exploration, accounting for the fractured carbonate reservoirs in this area. Layout was designed quantitatively to weaken acquisition footprint and increase signal-to-noise ratio and resolution. Excitation was carried out under water table. High accuracy near surface investigation and static correction of sand dune curve were performed. Noises were suppressed by different techniques such as 3-D multi-domain noise elimination, and cascaded use of different noise elimination methods. Compound reef flat was comprehensively interpreted. With the improvement of 3-D seismic data quality, geologic insight has been renewed, and hit rate of drilling well has increased greatly.

**Key words** [desert area](#); [carbonate rock](#); [3-D seismic exploration](#); [noise elimination](#); [integrated interpretation](#); [layout](#)

分类号

**DOI:**

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