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## 局部指数拟合异常提取法在普光气田的应用

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Application of the method of extracting local exponential fitting abnormality to Puguang gas field

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摘要

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**摘要** 在分析现有一些地震属性预测油气的应用效果及局限性基础上,提出了一种新型的地震参数提取方法——局部指数拟合异常提取法(曾称之为“地震数据体结构特征预测油气方法”)。该方法首先假定地震波形局部是由背景和异常组成,其背景用指数函数拟合,拟合残差沿深度积分符合最小二乘原则;然后,进行灰度矢量相关分析,并借以预测油气储集体所在位置和分布特征。应用该法,可以实现油气储层预测中纵、横向算法和划分标准的统一,图与表的联动对比,最大限度地减少了人为因素的影响,从而较大地提高了钻前油气预测的成功率。最后,以普光气田为例,利用该方法所研究的结果,经4口实钻井验证,均获得巨厚气层,取得了显著的经济效益,证明了该方法的有效性和实用性,值得推广应用。

**关键词:** 地震数据体 结构特征 油气储层预测

**Abstract:** The method of extracting local exponential fitting abnormality is a new seismic attributes extraction technology which was previously called seismic data structure characteristic method. First, local seismic waveform is assumed to be made up of background and abnormality; the background can be fitted with exponential function, and the integration of fitting error along depth accords with least squares principle. Then we can predict the location and the plane distribution by computing the seismic data amplitude structure abnormal value to do correlation analysis. Using this method, we can adopt the same arithmetic and partition criterion for hydrocarbon prediction in the vertical and horizontal direction, decreasing the artificial effect, and enhancing the veracity and the reliability of the pre-drilling hydrocarbon prediction. We have applied this method in the Puguang gas field. And we provide four exploration wells with the study results. All wells confirm that there are very big thick pay-layers by the drilling results. The result will be a good proof for further developments in the field. The method has very good practicability.

**Keywords:** Seismic data Structure characteristic Hydrocarbon layer prediction

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