塔里木盆地塔中卡1三维工区碳酸盐岩储层预测技术与应用

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Carbonate reservoir prediction technology and its application in Ka-1 3D acreage in Tazhong area,Tarim Basin

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摘要 塔里木盆地塔中地区卡1三维工区前期勘探成果表明,奥陶系鹰山组碳酸盐岩储层以"裂缝、溶孔"型为主,但近期重新处理的地震数据中发现了一些"串珠、短轴状"强振幅地震反射异常体。针对这一现象,在新处理地震数据体的基础上,采用地震数字正演模拟、不连续性检测、古地貌恢复和地震多属性分析等技术,重新开展了卡1三维工区奥陶系鹰山组碳酸盐岩储层预测研究。结果表明,平面上呈"折线"状分布的强振幅异常体是火成岩的响应,而平面上呈散点状、剖面上呈"串珠"状的强振幅反射是较大尺度溶洞型碳酸盐岩储层的响应。这一成果已得到近期完钻井W20的证实,为本区下一步勘探部署开拓了新的方向。

关键词: 不连续性检测   正演模拟   储层预测   碳酸盐岩   卡1三维工区   塔中地区

Abstract: Previous exploration and research results show that the carbonate reservoir spaces of the Ordovician Yingshan Formation in Ka-1 3D acreage in Tazhong area are dominated by fractures and dissolution pores.However,recent reprocessed seismic data reveal some bead-shaped and short-axis-shaped high amplitude anomalies in Ka-1 3D seismic data.For this reason,many techniques,such as numeral seismic forward modeling,incoherence detection,palaeogeomorphology restoration and multiple seismic attribute extraction,are integrated to re-predict the Ordovician YingShan Formation carbonate reservoirs in Ka-1 3D acreage.The results show that the zig-shaped strong amplitude anomalies in plane view represent igneous rocks,while strong amplitude anomalies being scattered in plane view and beads-shaped on profile represent carbonate reservoirs with large cavities.These interpretations have been verified by well W20 completed recently.

Keywords: incoherence detection   forward modeling   reservoir prediction   carbonate rocks   Ka-13D acreage   Tazhong area

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