

天然气地球物理勘探

基于地震资料的薄互层储层三维地质建模——以埕海油田二区为例

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摘要:

滩海地区井资料少、井距较大, 形成以地震资料为主的勘探开发技术系列, 对滩海地区地质模型能否满足早期开发需要进行评价, 面临滩海区特殊的地面、地下地质条件, 薄互层的储层预测存在困难, 基于地震资料的地质建模研究是其关键技术之一。以埕海油田埕海二区为例, 三维储层建模技术通过对地震属性、地震反演数据和测井数据的直接协同, 在平面上融合地震数据的空间结构和钻井描述的地质特征, 在垂向上则在反演数据的基础上, 进一步刻画储层垂向的特征, 使其趋于测井的尺度。此三维综合建模的方法比较适合砂泥薄互层的预测。通过对埕海油田二区已建立的薄互层地质建模效果评价研究, 认为受沉积相影响滩海油田薄互层较发育, 比较适合采用井—震结合的方法进行地质建模研究。通过对反映薄互层的岩相模型进行平面和垂向精度分析, 优选出符合地质认识的岩相模型。

关键词:

Three-dimensional Geological Reservoir Modeling of Thin Beds Based on Seismic Data: A Case on Chenghai Oilfield II Area

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Abstract:

In beach area, a series of the exploration and development technology is mainly based on seismic data due to the lack of well data and the distant spacing between the wells. Whether the geological model can meet the needs of early development is required evaluation. As the special ground and underground geological conditions and the difficulty of thin interbedded reservoir prediction, one of the key technologies is geological modeling based on seismic data. Taking Chenghai oilfields II area as an example, three-dimensional reservoir modeling technology with cooperation of seismic attributes, seismic inversion data and logging data, integrates seismic data and description of the geological drilling features in the plane, and in vertical further characterizes the vertical reservoir characteristics on the basis of the inversion data, so as to approach the logging scale. This method of three-dimensional integrated modeling is suitable for thin interbedded sand\|mud projections. Studies on the geological model evaluation of the thin alternating layers show that the thin alternating layers are comparatively developed in beach area. The method of combining wells data and seismic data is adopted in geological modeling. The lithfacies model of the thin interbedded layers is analyzed in plane and vertical accuracy, and the lithfacies model which consists with the geological recognition is optimized.

Keywords:

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