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黄骅坳陷前新生代残留盆地结构与基底性质研究

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Research on pre-Cenozoic residual basin structure and basement property of Huanghua Depression

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摘要

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摘要 利用综合地球物理方法研究前新生代残留盆地结构是当前深层油气勘探亟待解决的问题之一。本文基于高精度重力、航磁、地震等综合地球物理资料,通过位场正演剥离和正则化滤波技术对黄骅坳陷前新生代残留盆地结构展开研究,构建黄骅坳陷宏观的盆地立体格架,分析前新生代残留地层的展布及残留厚度特征,探讨盆地基底的三分性问题。研究表明,黄骅坳陷宏观上呈现垂向分层、东西分带、南北分区的盆地结构特征;前新生代残留盆地总体为NNE-NE向展布,但沉积中心与残留地层厚度明显不同于新生代沉积特点,在歧口新生界巨厚区残留厚度较小;盆地基底表现出三分性特征,区内“T”型交叉的两组隐伏深断裂可能为燕辽基底、鲁西基底和太行基底的拼接线;前新生代盆地结构、残留厚度与基底三分性特征均表现出受深部断裂构造的影响和控制。

关键词: 黄骅坳陷 地球物理场 残留盆地结构 重磁异常正演剥离 基底三分性

Abstract: The pre-Cenozoic residual basin structure study through integrated usage of geophysical methods is currently one of the problems to be solved immediately in deep oil and gas exploration. Based on geophysical data, including high-precision gravity, aeromagnetic and seismic data, this paper describes the pre-Cenozoic residual basin structure of Huanghua Depression, builds three-dimensional basin macro-frame, analyzes pre-Cenozoic residual spread and thickness features, and discusses the trichotomous property of basement in terms of potential field forward stripping and regularization filtering. It is revealed that Huanghua Depression has the basin area of vertical stratification, East and West sub-zone, North-South structural features. Pre-Cenozoic residual basin in general is NNE-NE direction to the distribution, but the sedimentary center and the residual strata thickness differ from those of Cenozoic and the residual thickness is smaller in Qikou Cenozoic area. The basement shows characteristics of trichotomy, that is, "T" type intersection of two hidden deep faults may be the stitching line among Yanliao, Luxi and Taihang basement. Pre-Cenozoic basin structure, residual thickness and trichotomous property of basement are all shown by the impact and control of deep faults.

Keywords: Huanghua Depression Geophysical field Residual basin structure Potential field forward stripping Trichotomous property of basement

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