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南海大陆边缘盆地演化与油气资源潜力

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南海前新生代残留盆地分布综合地球物理研究

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Integrated geophysical research on the distribution of Pre-Cenozoic residual basins in the South China Sea

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摘要 为了对南海海域的前新生代残留盆地分布有个整体而全面的认识,本文开展了南海残留盆地宏观分布的综合地球物理研究.通过岩石物性分析,综合重、磁、震等地球物理方法,利用正演与反演方法,分区计算并求取了南海的重力基底和磁性基底埋深,得到了中生界及前中生界残余厚度,给出了整个南海前新生代残留盆地的宏观格架与残余厚度分布特征并讨论了前新生代油气前景.研究结果表明南海东北部的东沙隆起和潮汕坳陷、台西南盆地和北港隆起、南部的礼乐滩地区等应具有较好的前新生代油气资源潜力.

关键词: 南海 前新生代残留盆地 重力基底 磁性基底 综合地球物理方法

Abstract: In order to assess the oil and gas resource potential of Pre-Cenozoic in the South China Sea (SCS), macro-distribution of Pre-Cenozoic residual basins is studied by using integrated geophysical methods. Based on the analysis of rock physical properties and gravity and magnetic data, the distribution of gravity basement, magnetic basement and residual thickness of Pre-Cenozoic strata in the South China Sea have been obtained by forward modeling calculation and inversion methods. According to topography and tectonic evolution of the South China Sea, the study area is divided into five regions, and each region selected different parameters for inversion calculation. The results show that Pre-Cenozoic residual basins of the South China Sea have a good potential for oil and gas resources, such as Dongsha uplift, Chaoshan depression, Southwest Taiwan Basin of Northeastern South China Sea, Peikang uplift of western Taiwan, and Liyue Basin (Reed Tablemount) of Southern South China Sea.

Keywords: South China Sea Pre-Cenozoic residual basin Gravity basement Magnetic basement Integrated geophysical methods

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