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论文

南海西北次海盆新生代构造 沉积特征及伸展模式探讨

1 国家海洋局 海底科学重点实验室, 浙江 杭州 310012
2 山东科技大学, 山东 青岛 266510

摘要:

通过对穿越西北次海盆的3条地震测线以及一条深反射地震剖面的解释,对其新生代的构造 沉积特征进行研究,探讨了伸展模型,并进而对其新生代的构造演化过程和动力学机制进行了分析。结果显示:西北次海盆在30 Ma时开始发育,断层的活动期集中在渐新世,并大致以海盆中部的岩浆岩凸起为轴对称分布,对渐新统的沉积起控制作用。海盆扩张东强西弱,西部显示出更多的陆缘裂谷盆地的特征。25 Ma后扩张轴向南跃迁,西北次海盆的海底扩张运动停止,进入裂后沉降阶段。构造展布方向受到其南侧的中—西沙地块的影响,大致沿其北部边界展布。深反射地震剖面所反映的深部地壳结构也显示出大致沿海盆中轴对称的特征,显示研究区很可能为纯剪的变形模式。

关键词: 关键词:南海西北次海盆;新生代;构造 沉积特征;纯剪

Cenozoic tectono sedimentary characteristics and extension model of the Northwest Sub basin, South China Sea.

1 Key Laboratory of the Submarine Geoscience, State Oceanic Administration, Hangzhou 310012, China
2 Shandong University of Science and Technology, Qingdao 266510, China

Abstract:

Several seismic profiles and one ocean bottom seismic profile crossing the Northwest Sub basin, South China Sea, are introduced in this article. Based on the interpretations of these profiles and combined with structural geology, we have discussed the Cenozoic tectono sedimentary characteristics and extension model of this sub basin. The results show that the Northwest Sub basin began its sea floor spreading since 30 Ma. The extension activities mostly happened during the Oligocene. The rifts distributed symmetrically around the spreading center, which is occupied by igneous body now. Sediments in this period are characterized by chaotic and discontinuous reflectors, indicating rift filling clastic sediments. Further to the west, the sub basin has more rifted depression characteristics. After 25 Ma the spreading center migrated to the south, the Southwest Sub basin began its spreading. The NW direction stress caused by it may have ceased the opening of the Northwest Sub basin. The Northwest Sub basin experienced thermal cooling and exhibited a broad subsidence. The Zhong Xisha block may have influenced the structural distribution of the basin. The deep crustal structure showed by the velocity model of OBS profile are also symmetrical around the spreading center, which indicates that the Northwest Sub basin experienced its extension in pure shear mode.

Keywords:

Key words: the Northwest Sub basin, South China Sea; Cenozoic; tectono sedimentary characteristics; extension model

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通讯作者:

作者简介: 丁巍伟(1977—),男,博士,副研究员,主要从事海洋地质学方面的科研工作。E mail:

wwdingsio@yahoo.com.cn