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塔里木盆地巴楚隆起区构造-热演化历史研究

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A study on tectono-thermal evolution history of Bachu uplift in Tarim basin

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摘要 参考文献 相关文章

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摘要 巴楚隆起是塔里木盆地重要勘探地区之一,其构造-热演化史制约着该区烃的生成、运移及聚集.本文在恢复巴楚地区4
剖面沉积埋藏史的基础上,通过求解热传导方程,计算了它们的构造-热演化历史.计算过程中首先利用"回剥"法,确定莫霍面处
再利用地壳重力均衡原理,求得各时期的莫霍面埋深,最终确定盆地基底热流和地表热流.结果表明,该地区构造-热演化可以划
段,其中三叠纪热演化阶段地温梯度及地表热流达到最高值,分别为32 ℃/km和73.6 mW/m^2,而现今地温梯度及地表热流值
为20 ℃/km和46.4 mW/m^2.计算得出的现今地表热流密度值略大于实测值,分析认为主要由于中新世以来,巴楚隆起区侧向
快了地表热流的衰减所致.最后在模拟基础上,探讨了生热率、热导率对盆地热演化的影响.

关键词: 塔里木盆地 构造-热演化 数值模拟 热流密度

Abstract: Bachu uplift is one of the major oil prospect areas in Tarim basin. Its tectono-thermal evolut
significantly influence hydrocarbons formation, migration and accumulation. In this paper, we reveal the t
histories of four seismic profiles spanning Bachu uplift and present the tectono-thermal history of this reg
solving two-dimensional heat conduction equation. During the simulation, we calculate the average heat
value at Moho surface by using "back tripping" method. Then we employ the principle of isostatics to cor
burial depths of Moho surface during geological period, finally we calculate the basal and surface heat flo
basin. The numerical results show that the tectono-thermal history of this region can be divided into sev
stages. The maximum of the geothermal gradient and heat flow appeared in Triassic period with the valu
℃/km and 73.6 mW/m^2 respectively, and the minimum of them appears now, the values are 20 ℃/km an
mW/m^2 respectively. Because of lateral thermal diffusion since the Miocene Epoch, the average heat flow
the calculation is slightly greater than actual value. At last, we discuss the influence of thermal conduct
heat generation on thermal evolution of a basin.

Keywords: Tarim basin Tectono-thermal evolution Numerical simulation Heat flux density

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