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中扬子地区晚震旦世-早寒武世转折期台-盆演化及烃源岩形成机理

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摘要：

在中国南方中扬子地区早寒武世早期,沉积了一套黑色碳质页岩、碳硅质页岩、黑色粉砂质页岩,分布范围广,厚度大,有机碳含量高,属于腐泥型为主的有机质类型,为中国南方海相区域主力烃源岩之一.为了认清该套烃源岩的形成环境,通过对岩石学特征、沉积相的变化、台-盆转化的研究并结合一些地球化学指标分析了该地区在转折期古环境发生的变化,初步探讨了下寒武统这套主力优质烃源岩的形成背景,提出了一个热水活动-上升洋流-缺氧事件复合模式,即为在地壳拉张背景下,热液活动与上升洋流共同作用造成生物产率提高,水体缺氧,使得有机质大量埋藏并得以保存,构成了在中扬子克拉通上和东南边缘重要的下寒武统优质烃源岩.

关键词：下寒武统 中扬子地区 硅质岩 黑色页岩 烃源岩 热液活动 缺氧

Platform Evolution and Marine Source Rock Deposition during the Terminal Sinian to Early Cambrian in the Middle Yangtze Region

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Abstract:

Extensive thick black chert-shale successions with high abundance of sapropel-type organic matter occur in the Lower Cambrian in the middle Yangtze area, and hence they are considered as one of the most favourable source rocks in this region. In this paper, detailed crossing-platform-strike facies tracing from the platform margin through marginal slope, and petrological studies of the chert successions, integrated with geochemical approaches, were carried out to unravel the platform evolution and mechanism of source rock deposition. Our data indicate that hydrothermal venting of silica chimneys along the platform margin, likely induced and channeled by the synchronous deep-seated faulting there in the course of accelerated breakup of Rodinian supercontinent, occurred intensely in the Early Cambrian; it was proposed to responsible for the extensive deposition of the chert-black shale successions as that the hydrothermal venting could have provided abundant nutrient materials, anoxic fluids and greenhouse gases to the ocean and/or atmosphere, leading to the oceanic anoxia and increase in primary productivity, possibly with the help of upwelling currents, which were favourable for the accumulation and preservation of organic matter.

Keywords:Lower Cambrian middle Yangtze region chert black shales source rock hydrothermal activity anoxic

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