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扬子褶皱带侏罗纪砂岩古地磁及其褶皱带弧形弯曲的成因

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Paleomagnetism of Jurassic sandstones from Yangtze fold belt and its implications for the 〖JP2〗 fold belt curvature

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摘要 为了更好地认识上扬子褶皱带和中扬子褶皱带走向差异的机制，我们对中、上扬子褶皱带过渡的关键地区重庆市万州和云阳两个地区的中、晚侏罗世砂岩进行了古地磁研究.逐步热退磁分离出两个组分，低温组分（LTC）在所有样品中均分离出来，为现代地磁场的重磁化；中侏罗世样品和万州地区的晚侏罗世样品分离出来的高温组分（HTC）也为现代地磁场的重磁化.云阳地区晚侏罗世样品分离出来的高温组分通过逐步展平褶皱检验显示：在褶皱展平至33.8%时，精度参数达到最大，相应的古地磁方向为D=19.1°，I=48.9°（α_{95}= 6.3°），古地磁极为73.5° N，198.2° E（dp=5.5°，dm=8.3°），与白垩纪参考古地磁极对比，此高温组分揭示云阳地区在褶皱变形的后期经历了7.7° ±6.1° 的顺时针旋转.结合前人的数据，我们认为中扬子褶皱带普遍存在弯山构造（orocline），这可能与华北板块向华南板块的挤入作用有关；但是中、上扬子褶皱带过渡地区的弧形弯曲总体上不是由弯山构造形成的，很可能是在太平洋板块向北西方向俯冲的宏观板块构造背景下的应变分异作用形成的.

关键词 扬子褶皱带， 侏罗纪， 古地磁， 弯山构造

Abstract: To promote our knowledge about the origin of the difference in fold axis strikes between upper and middle Yangtze fold belt, we conducted a paleomagnetic study of Middle and Late Jurassic sandstones from Wanzhou and Yunyang County, Chongqing City, a transition zone between the upper and middle Yangtze fold belt. Stepwise thermal demagnetization isolated two components. The low temperature components (LTC) were isolated from all the samples and overprinted by recent geomagnetic field. The high temperature components (HTC) isolated from the Middle and Late Jurassic samples from Wanzhou County were also overprinted by recent geomagnetic field. Stepwise unfolding indicates that the maximum precision parameter of HTC isolated from the Late Jurassic samples from Yunyang County is achieved at 33.8% unfolding. The best-clustered HTC mean direction is D=19.1°, I=48.9° (α_{95}=6.3°), corresponding to a paleopole at 73.5° N, 198.2° E (dp=5.5°, dm=8.3°). Compared with the Cretaceous reference paleopole, it reveals that Yunyang County has experienced a clockwise rotation of 7.7° ±6.1° at the late stage of folding. Combined with published data, our new results support a general orocline in the middle Yangtze fold belt, most probably caused by indentation of NCB into SCB. However, the curvature in the transition zone of upper and middle Yangtze fold belt could be due to strain partitioning in the course of NW directed subduction of the Pacific plate rather than oroclinal bedding.