

冀北早白垩世火山—沉积作用及构造背景

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摘要: 根据火山岩Rb—Sr等时线测年结果, 将张家口组置于下白垩统下部。讨论了早白垩世139~138Ma左右的张家口组和120Ma左右的化吉营组2期火山岩的组分特征和岩浆来源, 认为它们的成因与底侵作用引起的下地壳部分熔融有关, 与该区发现的140~120Ma麻粒岩包体所反映的底侵作用一致。从火山—沉积作用相互联系的角度, 可以将这2期火山岩和它们各自上覆的沉积地层看做上、下2个火山—沉积旋回。下部的火山断陷盆地和上覆的沉积拗陷盆地组成了二元结构的盆地。沉积盆地的特征、火山岩的成因及同期麻粒岩的存在, 总体反映了晚中生代伸展背景下的构造热体制。

关键词: 冀北; 张家口组; 化吉营组; 火山—沉积旋回; 底侵作用

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Early Cretaceous volcanism-sedimentation in northern Hebei and its tectonic setting: A discussion

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Abstract: The Zhangjiakou Formation is attributed to the lower part of the Lower Cretaceous according to the Rb-Sr isochron dating data of volcanic rocks. The composition features and magmatic origin of the volcanic rocks of the Zhangjiakou Formation (~140Ma) and those of the Huajiying Formation (~120Ma) are discussed. It is concluded that the genesis of those volcanic rocks is related to partial melting of the lower crust caused by underplating, which is consistent with the underplating reflected by granulite inclusions (140:120Ma) in the study area. In the context of the interaction between volcanism and sedimentation, the volcanic rocks of the above-mentioned two phases and their respective overlying sedimentary strata may be considered to be the upper and lower volcano-sedimentary cycles. The underlying volcanic fault basin combines with the overlying downwarped basin to form a basin with a binary structure. The features of the sedimentary basin, origin of the volcanic rocks and existence of contemporaneous granulites—all these suggest a tectono-thermal regime in a late Mesozoic extensional setting.

Key words: northern Hebei; Zhangjiakou Formation; Huajiying Formation; volcano-sedimentary cycle; underplating