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云南个旧高峰山花岗岩成因:锆石U-Pb年代学及地球化学约束

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摘要：

高峰山花岗岩体位于个旧矿区东区高松矿田南部,为一隐伏岩体,岩性主要为中粒黑云母二长花岗岩。本文对该岩体进行年代学、地球化学研究以约束其形成时代和岩石成因。锆石LA-ICP-MS U-Pb定年获得的形成年龄为85.76±0.58Ma,即白垩纪晚期。地球化学数据显示,高峰山花岗岩具有高硅富碱的特点,属于准铝质到过铝质的高钾钙碱性花岗岩;并富集Rb、U、Ta、Pb、Nd,而亏损Ba、Nb、Sr、P、Zr、Eu、Ti;稀土元素总量为(ΣREE)为146.7×10^{-6}~236.1×10^{-6},铕负异常非常明显(δEu为0.03~0.11),具有类似M型的四分组效应。初步研究表明,高峰山花岗岩具有A_2型花岗岩的特征,是地壳部分熔融形成的母岩浆经高程度的分离结晶作用形成的,是晚中生代华南西部岩石圈拉张伸展的地球动力学背景下,滇东南-桂西一带大规模岩浆活动-成岩事件的产物。

英文摘要：

The Gaofengshan granite is located in the eastern part of the Gejiu ore district, Yunnan Province. The lithology of the granitoid is mainly medium grained biotite monzonitic granite. In this paper, zircon U-Pb dating and geochemistry of the Gaofengshan granite is studied to constrain its geochronology and petrogenesis. Zircon LA-ICP-MS dating yields an emplacement age of 85.76±0.58Ma, which suggests that this granite formed in the Late Cretaceous. Geochemically, this granite is silica riched in composition, with high content of alkali (Na_2O+K_2O). It's a metaluminous to peraluminous granite and belongs to the high-K calc-alkaline series, and characterized by enrichment of Rb, U, Ta, Pb, Nd and depletion of Ba, Nb, Sr, P, Zr, Eu, Ti. The abundance of ΣREE varies in the range of 146.7×10^{-6} to 236.1×10^{-6}, and it has intensely negative Eu abnormality (δEu=0.03~0.11). What's more, it reflects a tetrad-like effect with a shape of "M". These features are coincident with A_2 granite. Geochemical characteristics show that the parental magma of the Gaofengshan granite was derived from the partial melting of crust, and experienced a strong crystal fractionation process. New data of this study indicate that the Gaofengshan granite was one component of the large scale Late Cretaceous magmatism in western Cathaysia block, which viewed as under a regional lithospheric extension tectonic setting.

关键词：高峰山花岗岩 锆石U-Pb年龄 地球化学 岩石成因 云南个旧

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