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浙江次坞地区晋宁晚期双峰式岩浆杂岩带的地球化学特征: Rodinia超大陆裂解的岩石学记录

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摘要:

次坞地区晋宁晚期火山岩与侵入岩由基性岩(上墅组下段基性火山岩与次坞辉绿岩体)和酸性岩(上墅组上段酸性火山岩与道林山碱长花岗岩体)组成, 它们在时空上紧密伴生, 成因上密切相关, SiO_2 含量集中分布在两个区间, 缺乏 SiO_2 为57%~68%的中性及中酸性成分, 构成一套双峰式岩浆杂岩组合。酸性岩在化学组成上富硅碱而贫钙镁, 准铝-过铝质, 富含Zr、Nb和稀土元素, FeO^*/MgO 、Rb/Sr比值大, 显示出A型花岗质岩石的成分特征; 基性岩具有富铝、钠、钛和偏碱性的特征, 形成于陆内全陆缘张裂环境。基性岩与酸性岩由不同的源区熔融形成, 基性岩起源于亏损程度较低的地幔或来源于亏损地幔的岩浆受到陆壳物质的混染, 酸性岩可能起源于地壳中既含有基性地壳组分和又含有酸性地壳组分的源区的部分熔融。双峰式岩浆杂岩的形成, 是华南Rodinia超大陆裂解事件的岩石学记录, 揭示了华南Rodinia超大陆裂解始于青白口纪。

英文摘要:

The Late Jinningian volcanic and intrusive rock in the area of Ciwu are consist of basic rock (Shangsu Formation lower-section basic volcanic rock and Ciwu diabase) and acid rock (Shangsu Formation upper-section acid volcanic rock and Daolinshan alkalic feldspar granite). They coexist in term of both time and space, with closely related cause of formation. The SiO_2 content falls in two concentrated ranges, with a lack of neutral and neutral-acid elements between 57%~68%, constituting a set of bimodal magmatic complex. The acid rock is rich in silicon and alkali while poor in calcium and magnesium, metaluminous to peraluminous, abounds in Zr, Nb and rare earth elements, and has high ratio of FeO^*/MgO and Rb/Sr, which suggest the characteristics of A-type granite rock. The basic rock is rich in aluminum, sodium and titanium, and weak alkaline, formed in the continental-marginal tensional environment. The basic and acid rock are formed by different source zone fusion. Basic rock originates from mantle with less degree of depletion, or from depleted mantle magma which is contaminated by continental crust substance. The acid rock may originate from partial fusion in the crust which contains both basic crust material and acid crust material. The formation of bimodal magmatic complex is a petrological record of Rodinia supercontinent break event in South China, which reveals that the Rodinia supercontinent break in south China begins at Qingbaikouan.

关键词: [晋宁晚期](#) [双峰式](#) [岩浆杂岩](#) [地球化学](#) [Rodinia超大陆裂解](#) [次坞地区](#)

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