

汪洋. 2009. 北京白查A型花岗岩的地球化学特征及其成因与构造指示意义. 岩石学报, 25(1): 13-24

北京白查A型花岗岩的地球化学特征及其成因与构造指示意义

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基金项目: 国家自然科学基金(40572128, 40376013, 40104003)

摘要:

位于北京昌平区的年龄为127Ma的白查岩体是一个晶洞过碱性花岗岩岩株, 其侵位于燕山造山带西段的八达岭岩基中。白查岩体具有高硅、Zr、Ga、Pb、HFSE和REE含量, 高Fe/Mg和Ga/Al比值, 强烈亏损Ca、Sr、Eu, 具有亏损放射性成因Pb同位素的特征。白查岩体属于Dall' Agnol和Oliveira (2007)定义的典型的还原型A型花岗岩, 其地球化学特征与燕山带中生代晚期的后石湖山(山海关)和窟窿山A型花岗岩非常相似。白查花岗岩起源于华北克拉通下地壳镁铁质源岩在相对贫水、高温、低氧逸度条件下的低程度部分熔融。综合区域地质背景和该岩体的成岩机制判断, 白查花岗岩的形成标志燕山西段造山崩塌阶段的到来。除浙江东南瑶坑过碱性花岗岩外, 白查岩体是具有A1型花岗岩元素地球化学特征但并非形成于非造山大地构造背景的过碱性花岗岩的又一个实例。

英文摘要:

Located in Changping District of Beijing Municipality, the 127Ma aged Baicha pluton is a vug peralkaline granitic stock intruded into the Badaling Batholith of Yanshan orogenic belt. It obtains high contents of silica, Zr, Ga, Pb, HFSE, and REE, with high Fe/Mg and Ga/Al ratio, but extreme low contents of Ca, Sr, and Eu; meanwhile, the granite exhibits the depleted radiogenic lead isotopes. Therefore, Baicha pluton is the typical reduced A-type granite defined by Dall' Agnol and Oliveira (2007). In geochemistry, Baicha pluton is very similar to the late Mesozoic Houshishushan (Shanhaiguan) and Kulongshan A-type granites in Yanshan belt. The origin of Baicha pluton is inferred to low-degree melting of the lower mafic crust of North China Craton, under the high temperature, low water and oxygen fugacity conditions. Based on regional geology and petrogenetic regime, Baicha granite is considered as a hallmark of the beginning of orogenic collapse in the western segment of Yanshan orogenic belt. Besides Yaokeng pluton in southeastern Zhejiang Province, Baicha pluton is another peralkaline granite reported in China that has A1-type element geochemistry but was not generated in anorogenic tectonic setting.

关键词: [A型花岗岩](#) [地球化学](#) [岩石成因](#) [构造意义](#) [燕山](#) [北京](#)

投稿时间: 2008-06-10 最后修改时间: 2008-07-04

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