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阿拉善地区新元古代早期花岗岩的地球化学和锆石Hf同位素特征

作者	单位
耿元生	中国地质科学院地质研究所,北京 100037
周喜文	中国地质科学院地质研究所,北京 100037

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摘要:

阿拉善地区新元古代早期变形花岗岩地球化学具有高硅富碱,高钾贫铝、钙和镁为特点, FeO^T/MgO 值和 $10000Ga/Al$ 值都明显高于I型和S型花岗岩,与A型花岗岩相似,可能形成于拉张环境。在AFM对CFM图解上多数样品落在变杂砂岩部分熔融区。锆石Hf同位素中, $\epsilon_{Hf}(t)$ 值在0值附近,与同时期亏损地幔的 $\epsilon_{Hf}(t)$ 有较大的差距。锆石Hf两阶段的模式年龄峰值在1.56Ga,与岩石的形成时间0.904~0.926Ga有较长的时间间隔。这些特点表明该区花岗岩的母岩来自具有较长地壳滞留时间的地壳物质的部分熔融。AL0817-2号样品锆石Ti的饱和温度计计算表明,它们结晶温度在815℃左右。

英文摘要:

The Early Neoproterozoic deformed granites in Alax area of Inner Mongolia are characterized by high SiO_2 , alkali (Na_2O+K_2O) and REE, low Al_2O_3 , CaO, MgO, FeO^T , $K_2O>Na_2O$, and intensely negative Eu abnormality. Their values of FeO^T/MgO and $10000Ga/Al$ are higher than the values of I-type granite and S-type granite, but similar to values of A-type granite. The most of samples are plotted in the domain of partial melting of greywacke at AFM vs. CFM diagram. Zircon $\epsilon_{Hf}(t)$ values are near zero, which are obviously lower than those of the depleted mantle $\epsilon_{Hf}(t)$. These analyzed zircon grains display a maximum peak of their Hf isotopic two-stage model ages at ca. 1.56Ga, which is far older than their forming time (ca. 0.9Ga). Above characteristics in whole-rock geochemistry and zircon Hf isotope of the deformed granites indicate that the parental magma of the granites was derived from partial melting of the older materials that were long residence in the crust. Zircon Ti thermometer of a sample AL0817-2 reveals that these granites were crystallized at ca. 825°C.

关键词: [变形花岗岩](#) [新元古代早期](#) [锆石Hf同位素](#) [地壳物质部分熔融](#) [阿拉善地区](#)

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主办单位: 中国矿物岩石地球化学学会

单位地址: 北京9825信箱/北京朝阳区北土城西路19号

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