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摘要:

墨脱花岗岩带位于南迦巴瓦构造结东侧,是冈底斯岩浆带的东南延伸部分。本文报道了该地区背崩和达木2个花岗岩体的全岩地球化学、锆石U-Pb年代学及锆石Hf同位素数据。锆石U-Pb定年结果表明,背崩和达木花岗岩体的年龄分别为62Ma和64.5Ma。岩石地球化学数据显示,两个花岗岩体SiO<sub>2</sub>含量为71.09%~74.37%,K<sub>2</sub>O的含量为1.38%~5.93%,A/CNK为1.01~1.02,均属于高钾钙碱性过铝质岩石。所有样品均显示出强烈的轻、重稀土分异((La/Dy)<sub>N</sub>=13.55~31.3;(La/Yb)<sub>N</sub>=16.82~50.41),平坦的Ho到Lu稀土元素分布样式((Ho/Yb)<sub>N</sub>=0.93~1.42), $\delta E_u$ 主要介于0.78~1.09,总体上具有正-微弱负异常,具较高Ba、Sr/Y、La/Yb和低Y、Mg<sup>#</sup>(<45),亏损HFSE元素(Nb、Ti、Zr)。墨脱高Sr/Y花岗岩具有不均一的 $\epsilon_{Hf}(t)$ 值(-11.22~4.87)和相对年轻的Hf模式年龄(552~1179Ma)。锆石Hf同位素数据和锆石饱和温度(746~791℃)均显示幔源物质在墨脱花岗岩形成过程中发挥了较为重要的作用。墨脱高Sr/Y花岗岩可能是在印度-亚洲大陆碰撞阶段,由新特提斯洋俯冲过程中产生的基性岩浆底侵作用使陆壳熔融并发生壳幔岩浆混合作用所形成。

英文摘要:

The Motuo granite belt, which can be regard as the southeastern extension of Gangdese granite belt, locates in the east of Namche Barwa Syntaxis. This paper reports a systematic study of geochemical, LA-MC-ICP-MS U-Pb zircon dating and Hf isotopes data of both Beibeng and Damu granites. The dating indicates that these two granitic blocks emplaced at 62Ma and 64.5Ma, respectively. The chemical analyses show that: (1) the granites are high-K calc-alkaline peraluminous, with SiO<sub>2</sub> from 71.09% to 74.37%, K<sub>2</sub>O from 1.38% to 5.93% and A/CNK from 1.01 to 1.02. (2) The Motuo granites are highly enriched in LREE ((La/Dy)<sub>N</sub>=13.55~31.3, (La/Yb)<sub>N</sub>=16.82~50.41) and depleted in HREE. They also demonstrate flat HREE patterns for elements from Ho to Lu with (Ho/Yb)<sub>N</sub>=0.93~1.42, positive or slightly negative Eu anomalies (0.78~1.09), relatively high Ba, Sr/Y and La/Yb, low Y and Mg<sup>#</sup> (<45), as well as depleted HFSE (Nb, Ti, Zr). The Motuo granites are heterogeneous in zircon  $\epsilon_{Hf}(t)$  values (-11.22~4.87), and have relatively younger zircon Hf crustal modal ages of 552~1179Ma. Both zircon Hf isotopic data and bulk-rock zircon saturation temperature (746~791℃) indicate that mantle-derived materials may have played an important role in the generation of Motuo granites. We propose that, with the underplating of mantle-derived magma during India-Asia continental collision, the Motuo high Sr/Y granites were most likely generated from the magma mixing between mantle source and crust source.

关键词: [南迦巴瓦构造结](#) [墨脱](#) [冈底斯岩浆带](#) [高Sr/Y花岗岩](#)

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