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赣南东坑盆地早侏罗世侵入岩的锆石SHRIMP测年——兼论赣南粤北地区成岩后期构造热事件

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摘要:

在确定粤北霞岗杂岩形成于早侏罗世的基础上, 本文报道了赣南东坑盆地含湖杂岩和临江盆地玄武岩的SHRIMP锆石U-Pb年龄。含湖杂岩由正长岩、花岗闪长岩和辉长辉绿岩组成, SHRIMP锆石U-Pb年龄值花岗闪长岩 $193 \pm 2\text{Ma}$, 混有正长岩的辉长辉绿岩 $196 \pm 1\text{Ma}$, 属于早侏罗世产物。野外可见花岗闪长岩中正长岩包体与基性岩包体共存、以及基性成分渗入正长岩包体中的现象, 可能表明存在多次结晶作用。含湖以东约8km处的花岗斑岩 $186 \pm 3\text{Ma}$ 。临江盆地的玄武岩则有2570Ma、1730Ma、800Ma、430Ma、190Ma等多期多组捕获锆石的年龄, 最迟为早侏罗世, 但不能与含湖杂岩构成燕山早期的双峰式火成岩组合。多组~195Ma的火成岩表明, 早侏罗世中国东南部岩浆活动间歇期可能时间不长, 即印支期的挤压在早侏罗世已经转向伸展垮塌, 或者即将开始从特提斯构造域向太平洋构造域的转变。对赣南东坑盆地含湖杂岩和粤北霞岗杂岩钾长石的 $^{40}\text{Ar}/^{39}\text{Ar}$ 测年结果为132~137Ma之间, 表明中国东南部受到太平洋板块俯冲带后退引起的后缘扩张和动力学背景从挤压到拉张的构造转换事件影响, 及由此所引发的大面积火成岩对早期火成岩成岩后期构造热事件扰动。这一认识可以促进对赣南粤北地区早侏罗世构造属性及其后续构造演化的深入研究。

英文摘要:

Besides the ages of the Early Jurassic Xialan complex in northern Guangdong Province, this paper reports the SHRIMP zircon U-Pb ages of magmatic rocks in Dongkeng and Linjiang basins, southern Jiangxi areas, southeastern China. The SHRIMP zircon U-Pb ages of $193 \pm 2\text{Ma}$ for granodiorite and $196 \pm 1\text{Ma}$ for gabbro-diorite from Hanhu, Dongkeng basin, show that the mixed Hanhu complex intruded in the Early Jurassic. Field observation indicates that the gabbro-diorite coexists with syenite in granodiorite, and that the basic components enter the syenite. Another granite porphyry pluton, about 8km east of Hanhu, is dated at $186 \pm 3\text{Ma}$. In addition, the captured zircons of basalt from Linjiang basin yield SHRIMP U-Pb ages of 2570Ma, 1730Ma, 800Ma, 430Ma and 190Ma, showing that the basalt was formed later than 190Ma (the Early Jurassic). But the intruded Hanhu complex can't compose this basalt into a suite of bimodal volcanical rocks. These contemporary ages shed new light on the quiescent stage of magmatic activity in southern China during 200~180Ma, and revealed that the transition from the Tethyan to Pacific tectonic domains may have begun at or before ~195Ma. Furthermore, the $^{40}\text{Ar}/^{39}\text{Ar}$ ages of 132~137Ma for K-feldspar from both Hanhu and Xialan complexes suggest that there were no immediately later thermal events in southern Jiangxi and northern Guangdong areas until the Early Cretaceous. Owing to the subduction zone of the paleo-Pacific plate migrated oceanward to the southeast, the geodynamic system of southeastern China changed from compression to extension, and caused the production of voluminous Early Cretaceous igneous rocks. These rocks, in turn, influenced the Hanhu and Xialan complexes. The confirmation of these tectono-magmatic events will be helpful to understand the Early Jurassic tectonic evolution in this area.

关键词: [SHRIMP年龄](#) [\$^{40}\text{Ar}/^{39}\text{Ar}\$ 测年](#) [早侏罗世](#) [岩浆活动](#) [构造热事件](#) [赣南粤北地区](#)

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