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韩国太白山盆地古生界砂岩碎屑锆石U-Pb年代及其区域构造含义

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摘要:

韩国中东部的太白山盆地位于京畿、岭南两个构造单元之间。采用LA-ICP-MS方法, 从太白山盆地寒武统、中-上石炭统(下二叠统?)砂岩碎屑锆石中分别获得27个和47个U-Pb有效年龄, 前者记录了1820~1945Ma、2172~2195Ma、2473~2593Ma等3期可信的构造热事件, 相对概率峰值分别为1897Ma、2177Ma以及2528Ma; 后者记录了288~340Ma、461~474Ma、1780~1892Ma、1941~1959Ma、2012~2050Ma等5期可信的构造热事件, 其中相对概率峰值为305Ma和1867Ma的两组年龄比较集中。研究认为, 太白山盆地与京畿、岭南两个地块均发育大约1850Ma的构造热事件, 缺乏华南比较特征的新元古代构造热事件; 进一步依据太白山盆地相应时段沉积古流向和古地理分布, 说明太白山盆地至少与岭南地块之间存在密切的碎屑物源和构造属性关系, 其构造热事件记录可与华北克拉通对比。另一方面, 尽管中-上石炭统(下二叠统?)碎屑锆石记录了峰值为305Ma和468Ma可能发生在华北-朝鲜联合块体南缘的俯冲或构造热事件, 但上述两个样品的碎屑锆石均缺乏新元古代构造热事件的年龄记录, 所以亲华南的陆块至少在晚石炭世(早二叠世?)以前并未向太白山盆地提供碎屑物源。

英文摘要:

The Tabeaksan basin is situated between the Kyonggi and Yongnam blocks, central-eastern Korea. Two samples were respectively sampled from the Lower Cambrian and Middle-Upper Carboniferous (Lower Permian?) sandstone layers of the basin, which detrital zircon U-Pb ages were measured by the LA-ICP-MS method. The sample 03TB01, 27 age data, records three reliable tectonic-thermal events in 1820~1945Ma, 2172~2195Ma and 2473~2593Ma, with relative probability peak ages of 1897Ma, 2177Ma and 2528Ma. The sample 03TB09, 47 age data, records five reliable tectonic-thermal events in 288~340Ma, 461~474Ma, 1780~1892Ma, 1941~1959Ma and 2012~2050Ma, in which most ages fall into two events with relative probability peak ages of 305Ma, 1867Ma. It was found that one similar tectonic-thermal event about 1850Ma all occurred in the Tabeaksan basin and the Kyonggi and Yongnam blocks, with lack of Neoproterozoic zircon ages distinct to the South China block. Based on the published depositional paleocurrent and paleogeographic framework of Lower Cambrian and Middle-Upper Carboniferous (Lower Permian?) for the Tabeaksan basin and its adjacent area, this research presents that close detrital provenance relationship existed between the Tabeaksan basin and Yongnam block at least during those periods of time, which tectonic attribute can be compared with the North China craton. On the other hand, though the Middle-Upper Carboniferous (Lower Permian?) sample records zircon U-Pb peak ages of 305Ma and 468Ma, probably related to tectonic-thermal events occurred in south margin of the united North China-Korea block, no detrital provenances supplied the Tabeaksan basin at least before Late Carboniferous (Early Permian?) due to few Neoproterozoic tectonic-thermal events recorded in detrital zircons of the two samples mentioned above.

关键词: [碎屑锆石](#) [U-Pb年代](#) [构造热事件](#) [太白山盆地](#) [韩国](#) [华北](#)

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