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摘要:

锡林郭勒杂岩是华北板块北缘古生代褶皱带内出露面积最大的变质岩系. 以前多被当着前寒武纪的古老地块. 本文通过对该杂岩中副片麻岩和正片麻岩的锆石SHRIMP U-Pb年代学研究发现, 副片麻岩中的锆石多为岩浆锆石, 其 $^{206}\text{Pb}/^{238}\text{U}$ 加权平均年龄为 $406 \pm 7\text{Ma}$ , 指示它们的原岩主要是由近同期(略早些)的岩浆岩风化后就近沉积的产物. 该年龄应代表源区(岛弧型?)花岗岩的形成时间. 同时也是副片麻岩原岩沉积的下限年龄. 正片麻岩中岩浆锆石的 $^{206}\text{Pb}/^{238}\text{U}$ 加权平均年龄为 $382 \pm 2\text{Ma}$ , 代表花岗片麻岩原岩的侵位年龄. 岩石中锆石的变质增生边的形成年龄为 $337 \pm 6\text{Ma}$ , 代表锡林郭勒杂岩发生变质和变形的时间. 该变质事件可能与贺根山缝合带内所发生的一次主要的碰撞造山作用有关. 这些年龄资料充分说明, 锡林郭勒杂岩并非古老地块, 而是华力西早期岩浆作用、沉积作用和变质作用事件的产物. 整个事件是在较短的时间范围内( $\sim 70\text{Ma}$ )完成的. 推测该杂岩发育在碰撞造山带的弧前环境. 中亚-蒙古造山带东南部(内蒙古的中、东部)碰撞前的构造格局可能不是典型的多岛洋体制. 由于缺少古老的陆块, 造山过程更多的表现为大洋的大陆化过程. 即洋内俯冲形成岛弧, 岛弧在被动大陆边缘拼贴聚合转化为新的陆地.

英文摘要:

The Xilingele complex is one of the maximal series of metamorphic rocks outcropped in the Paleozoic folded region along the northern margin of the North China Craton, has been ever considered as a Precambrian block before. In this work, we acquired zircon SHRIMP U-Pb data of the complex in order to gain the forming ages of their protoliths and metamorphism ages to constrain the orogenic processes of the eastern part of the Central Asian-Mongolia Orogenic Belt. The results are as follows: Most zircon grains from the paragneiss were formed in magma, their weighted mean  $^{206}\text{Pb}/^{238}\text{U}$  age is  $406 \pm 7\text{Ma}$ , taken to represent the emplacement age of the source rock (arc-related granite?) and the lower limited age of the sedimentary rock. The magmagenic zircon grains from the granitic gneiss yield a single, coherent population with a weighted mean  $^{206}\text{Pb}/^{238}\text{U}$  age of  $382 \pm 2\text{Ma}$ , taken to represent the emplacement age of its protolith. The metamorphic age of the paragneiss and the granitic gneiss, dating from the metamorphic overgrowth rims of zircon grains, is  $337 \pm 6\text{Ma}$ . This metamorphism might be related with an major collision in the Hougenshan suture. Taken together, it is suggested that the Xilingele complex is the products of Early Variscan magmatism, sedimentation and metamorphism other than an ancient block. The duration of the Xilingele complex formed is only about 70Ma, which may imply that the Xilingele complex developed at fore-arc environment. The tectonic pattern before collision in the eastern part of the Central Asian-Mongolia Orogenic Belt might be not a typical ocean with poly-islands. Owing to the absence of ancient block, the orogenic process is more possibly a continentized ocean, i.e., arc islands formed by subduction within ocean, then convergence of arc islands along the passive continental margin and developed a new continent.

关键词: [锡林郭勒杂岩](#) [SHRIMP定年](#) [华力西期](#) [中亚造山带](#) [内蒙古](#)

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