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**Geochronology of detrital zircons from schist in Kyrgyz South Tianshan: evidence for the provenance of metamorphic sediments in the accretionary complex**

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The Tian Shan of Central Asia is located in the southwestern part of Central Asian Orogenic Belt. The tectonic evolution of the South Tian Shan suture is subject to hot debate. In the Kyrgyzstan, South Tian Shan mainly consists of ophiolitic mélangé, volcanic, metamorphic rocks and sedimentary rocks ranging in age from Silurian to Late Carboniferous. Metamorphic rocks are exposed along the Atbashi Range. Eclogite from the higher-grade schist yielded a Sm-Nd isochron age of  $319 \pm 4$  Ma for the HP metamorphism<sup>[1]</sup>. This work focuses on the depositional age of the metamorphic sedimentary by detrital zircons and simply discusses the geological implications.

Large scale interbedded muscovite-quartz-schist and marble occur to 20 km southwest of the well-known Atbashi eclogite. Zircons from muscovite-quartz-schist mainly have irregular shape. These zircons have chaotic internal structures. Some zircons are characterized by subhedral to euhedral shape with zonation, and some show metamorphic texture. The metamict crystals are high-U with very low-luminescent CL (cathode luminescence). Some zircons have narrow rims with high luminescent CL, which might be related to the metamorphism. These zircons show wide age variations from  $406 \pm 4$  Ma ( $^{206}\text{Pb}/^{238}\text{U}$ ) –  $2856 \pm 36$  Ma ( $^{207}\text{Pb}/^{206}\text{Pb}$ ). Muscovite-quartz schist was considered as a part of Precambrian metamorphic terrane (Mesoproterozoic Atbashi Formation). The youngest age (406 Ma) of detrital zircon implies the sedimentary age of protolith should be no earlier than the Early Devonian. The number of 22 zircon ages for the muscovite-quartz schist sample is far too low for a detailed provenance analysis and only provides a sketch of the age spectrum of the source. The old zircons are similar to that reported from the Tarim craton and the North and Middle Tian Shan. Ages ranging from 1.5 Ga to 900 Ma and from 850 Ma to 750 Ma are also known in the Tarim craton and the North and Middle Tian Shan<sup>[2-3]</sup>. The four youngest grains have  $^{206}\text{Pb}/^{238}\text{U}$  ages of 436 – 406 Ma are absent in the Tarim craton. Such ages are typical of granitoids in North Tian Shan in Kyrgyzstan<sup>[4]</sup>, and these grains therefor could have been derived from those granitoids. Tectonic reconstructions for the Paleozoic South Tian Shan basin of Kyrgyzstan suggest that clastic sediments on the northern side of the South Tian Shan could have been deposited on the continental slope of the Kazakhstan continent<sup>[1]</sup>. Accepting this hypothesis, the provenance of the metamorphic sediments was probably derived from the North and Middle Tian Shan, which was to the north of the oceanic basin.

*References:*

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