

## **The Jurassic to Paleogene detrital record of the Central Asian Orogenic Belt: results from the Kyrgyz Tien Shan**

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The Central Asian Orogenic Belt (CAOB) represents one of the largest Phanerozoic accretionary orogens in the world, pinched between North China - Tarim, Kazakhstan and the Siberian craton. It stretches from the Pamir in the southwest, over the Tien Shan, Junggar, Altai and Sayan mountain ranges to the Baikal rift in the northeast. The basement of the CAOB exists of various tectonic units that were assembled during several Paleozoic collision-accretion events. By the Permian, the accretionary tectonics in the CAOB culminated as all major composing units were joined. After final construction in the Late Paleozoic, the CAOB was subjected to several phases of Mesozoic deformation and was again reactivated in the Late Cenozoic as distant effect of the India-Eurasia collision. The Meso-Cenozoic reactivation episodes occurred in an intracontinental setting, related to tectonic far-field effects originating at the Eurasian margins. Subsequently intracontinental orogens, such as Tien Shan, were built superimposed on the inherited basement architecture and the erosion products of their exhuming mountain ranges accumulated in sedimentary basins. New sedimentological and detrital zircon U-Pb (LA-ICP-MS) results from several Jurassic to Paleogene sedimentary sections in Kyrgyzstan provide new insights in the Mesozoic - early Cenozoic geodynamic evolution and related basin-range interactions of the Kyrgyz Tien Shan. Studied sedimentary sections are located in the Fergana and Yarkand-Fergana basins to the west of the Talas-Fergana Fault (TFF) and in the Issyk-Kul and Ming-Kush-Kökömeren basins to the east of the TFF. The U-Pb ages of the post-Precambrian zircon grains found in 18 Jurassic to Paleogene sandstones, can be generally divided into four groups: Caledonian (470-390 Ma), Hercynian (315-260 Ma), Triassic (250-210 Ma) and Jurassic (190-160 Ma) ages. The differences in sedimentation pattern and detrital zircon U-Pb age components suggest that the TFF played an important role in the distribution of the sedimentary deposits. During the humid Early-Middle Jurassic, the TFF probably acted as a listric fault with strong subsidence in the Yarkand-Fergana basin. The provenance of the sediments can be explained by both local sources from close to the TFF and more distal sources to the (south)west of the TFF. A strong aridification event around the Jurassic-Cretaceous transition, together with a renewed compressive tectonic phase, led to the deposition of large conglomerate packages to the west of the TFF. Within one of the conglomerates, a mafic sill with an emplacement age of  $144 \pm 8$  Ma based on apatite U-Pb LA-ICP-MS dating indicates small-scale volcanism during the Lower-Cretaceous. During the Late Cretaceous to early Paleogene, the Yarkand-Fergana basin was likely connected to the Fergana basin and experienced some marine influence by the Paratethys Sea. In contrast, to the east of the TFF, low-relief mainland was maintained during the Cretaceous and sedimentation - without marine influence - resumed since the early Paleogene.