



## **Upper Paleozoic tectonics in the Tien Shan (Central Asian Orogenic Belt): insight from new structural data (Kyrgyzstan)**

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Due to successive block accretions, the polarity of structures and tectonic evolution of the Central Asian Orogenic Belt (CAOB) are still a matter of debate. There are several conflicting models about the polarity of subduction during the Paleozoic, the number of microplates and oceanic basins and the timing of tectonic events in Kyrgyz and Chinese Tien Shan.

In this study, we propose new structural maps and cross-sections of Middle and South Kyrgyz Tien Shan (MTS and STS respectively). These cross-sections highlight an overall dextral strike-slip shear zone in the MTS and a north verging structure related to south-dipping subduction in the STS. These structures are Carboniferous in age and sealed by Mesozoic and Cenozoic deposits. In detail, the STS exhibits two deformation phases. The first one is characterized by coeval top-to-the north thrusting and top-to-the-South normal shearing at the boundaries of large continental unit that underwent High-Pressure (Eclogite facies) metamorphism. We ascribe this phase to the exhumation of underthrust passive margin units of the MTS. The second one corresponds to a top to the North nappe stacking that we link to the last collisional events between the MTS and the Tarim block.

Later on, during the Late Carboniferous, a major deformation stage is characterized by the deformation of the MTS and its thrusting over the NTS. This deformation occurred on a large dextral shear zone between the NTS and the MTS known as Song-Kul Zone or Nikolaïev Line as a “side effect” of the Tarim/MTS collision.

Based on these observations, we propose a new interpretation of the tectonic evolution of the CAOB. The resulting model comprises the underthrusting of the MTS-Kazakh platform beneath the Tarim and its exhumation followed by the folding, shortening and thickening of the internal metamorphic units during the last collisional events which partitioned the deformation between the STS and the MTS.

Finally, the docking of the large Tarim Craton against the CAOB corresponds to a short lived collision phase (320-300 Ma), which ended the long-lived Paleozoic subduction history in the CAOB.