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Constraints on the structural evolution of the southern segment of the Central Asian Orogenic Belt by Paleomagnetic data

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A detailed paleomagnetic investigation has been carried out on sedimentary and volcanic rocks of Paleozoic age in the Kyrgyz Tien Shan in order to elucidate the paleotectonic and paleogeographic parameters for the evolution of the southern part of the Central Asian Orogenic Belt (CAOB) during Paleozoic times.
The paleomagnetic data obtained so far generally agree with other high quality published data for coeval rocks, mainly from Kazakhstan. Combining the different data sets, results in two distinct swaths for the Ordovician and Carboniferous which are both displaced to the east of the European Apparent Polar Wander Path (EuAPWP). Whereas the Ordovician mean paleo- south poles are spread between 20° to 100° E in longitude and 0° to 40° S in latitude, the Carbonifeous pole positions plot in a region between 320° and 140° E in longitude and 65° to 40° S in latitude.
Both define more or less parallel small circles which pass through the Ordovician and Carboniferous segments of the EuAPWP, respectively. The poles of rotation for both small circles plot in today's Siberia, are only some 15° apart and lie close to the sampling region.
We note that the amounts of rotation are not a function of age of individual pole positions leading to the conclusion that both small circles are the result of individual blocks rotating by individual amounts with respect to each other and the EuAPWP during post-Carboniferous times. To explain these observations, we propose a paleogeographic scenario, in which oblique subduction and collision, accompanied by major strike slip fault systems, led to a fragmentation of the previous amalgamated accretionary orogen.