

Cimmerian hydrothermal activity in the Sakar Mountains of SE Bulgaria

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The Sakar Unit of the Strandja Massif is located in SE Bulgaria in the Sakar Mountains, adjacent to the Rhodope and Strandja mountains. The tectonic evolution of the Sakar and Strandja mountains (Stradja Massif) is the subject of recent intensive discussion, as this region is crucial for reconstructing the link between the Balkanides, considered as part of the Variscan Orogen, and the Pontides, associated with subduction of the Paleo-Tethys Ocean. The Sakar Unit mostly consists of the ca. 300 Ma granitic Sakar Pluton, hosted in a high-grade metamorphic complex, and is unconformably overlain by Triassic-Middle Jurassic metasediments. The post-magmatic evolution of the Sakar Unit is poorly known, but it is suggested that Late Jurassic-Early Cretaceous thermal activity, significantly overprinted the Sakar granitoids. LA-ICP-MS U-Pb apatite and titanite dating in this study yields c. 114 Ma crystallisation ages for 'Alpine-type' veins (Ap+Tnt+Ab+Act+Chl+Rt) at Kanarata quarry, Hlyabovo which cut partially albitized Sakar-type granitoids. This age is interpreted as the age of hydrothermal activity during Late Jurassic-Early Cretaceous Cimmerian orogenesis in the Strandja Massif. These are the first documented Cimmerian ages from the western part of the Strandja Massif (Sakar Mountains), and temporally overlap with Ar-Ar ages from the eastern part (Strandja Mountains). The lack of Alpine resetting of U-Pb and Ar ages confirms that Strandja Massif escaped significant Alpine metamorphism and deformation, as opposed to the Rhodopes.

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