

New LA-ICP-MS U/Pb zircon data on various granitoids from the European side of the Tethyan Mesozoic suture

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Modern radiometric age determinations of many geological events of the Serbian part of the Balkan Peninsula are still poor. Most age constraints are still based on superpositional relationships of the distinguished geological units. New LA-ICP-MS U/Pb zircon age determinations obtained within the SCOPES Project provided a good basis for re-visiting and/or refining the interpretations of some geodynamic events. This contribution is an interim report of the so far acquired data which focused on two granitoid suites: in the Eastern Serbian Carpatho-Balkanides and along the East Vardar Zone.

Presumably Variscan granitoids and associated intermediate rocks occur at several localities within the East Serbian Carpatho-Balkanides: the Plavna mass intruded green complex of the Vrška Čuka terrane, Gornjani, Tanda and Blizna magmatites penetrate the Inovo series of the Stara Planina-Poreč terrane, while Neresnica and Blizna masses are intruded into Proterozoic Osanica gneisses and Proterozoic-Early Cambrian Green Complex within the Kučaj terrane. Petrographically, these rocks correspond to syenites, syenodiorites, granodiorites and granites. All of them are mainly reported as I-type intrusives formed in the late stage or after the amalgamation of the East Serbian terranes. The mean ages done by LA-ICP-MS U/Pb zircon method for Brnjica massive are in range of 292.5 ± 7.5 to 293.4 ± 5.0 Ma, Gornjane 302.3 ± 4.5 to 303.7 ± 5.5 Ma, Blizna 298.6 ± 7.2 Ma, Tanda 290.4 ± 3.4 to 305.7 ± 3.4 Ma, Neresnica 289.4 ± 6.5 to 295.8 ± 4.9 Ma and Plavna 267 ± 16 to 290.5 ± 8.1 Ma.

The second group comprises calc-alkaline granitoids and related rocks intruded into the Mesozoic ophiolitic complexes of the East Vardar zone in Serbia (Ždraljica and Kuršumljia areas). They appear as small isolated, and strictly intra-ophiolitic magmatic bodies. On the basis of petrochemical characteristics they were divided as (i) intermediate rocks, (ii) low- Sr_i granites and (iii) high- Sr_i granites. The age of all occurrences was determined by the fact that the intrusives cut Mesozoic ophiolites and that the ophiolites themselves are covered by an Upper Jurassic overstep sequence. Zircon ages acquired by TIMS (unpublished) on diorite (ZD-703/2) and low- Sr_i granite (V-306/6) have an intercept on the age of 170.16 ± 0.44 Ma, while low- Sr_i granite (KS-214) shows an age of around 90 Ma. New LA-ICP-MS U/Pb zircon data partly confirm the Jurassic age of the low- Sr_i granite (KS-205) and high- Sr_i granite (KS-226B) with 151.6 ± 5.7 Ma and 152 ± 16 Ma, respectively. However, data for zircons from low- Sr_i granite (KS-209) gave an age of 31.83 ± 0.84 Ma. These distinctively younger ages suggest that the origin and evolution of calc-alkaline intrusives within the East Vardar zone ophiolites must be reinterpreted. They should not be considered as Mesozoic magmas formed during subduction or obduction processes. There is a possibility that some of the existed bodies (around 30 Ma) represent small satellitic bodies as counterparts of the Oligocene Jastrebac granitoid. The age of 90 Ma cannot be related to any known igneous event in the close vicinity, but igneous rocks similar in age indeed occur in the northern part of the Vardar zone near Belgrade. Although geodynamic significance of this Upper Cretaceous age remains to be elucidated, it is fairly possible that it indicates the southward continuation of the narrow belt of Late Cretaceous ophiolite, known as the Sava zone.