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Visean overprint of the Devonian-Early Carboniferous granites: result of Variscan collisional stage revealed by zircon SHRIMP dating (Tribeč Mts., Western Carpathians)

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The granites with I- and S-type affinity in the Variscan segments of the Alpine West-Carpathian edifice belong to the oldest intrusions within the European Variscides. Granites and granodiorites of the West-Carpathian crystalline basement are mostly classified as S-type, whereas tonalities and granodiorites belong to the I-type suite. Both suites probably originated in the volcanic arc setting as product of subduction-related regime in the Galatian superterrane (Broska et al. 2013). The I- and S-type granite bodies were firstly identified in the West-Carpathian Tribeč Core Mountains and the new SHRIMP and CHIME datings recognised their Visean geotectonic overprint. The subduction-related I-type granites show the age span 364-358 Ma followed by the intrusion of the S-type granites dated by SHRIMP on 358 Ma. The bimodal SHRIMP data of a dyke placed within S-type granites show ages 351 Ma and 330 Ma, or primary vs. alteration age. The CHIME age from monazite dating shows 347 Ma because monazite indicate probably early stage of massive granite alteration perhaps during collisional process, younger zircons represents later phase of the event. CHIME dating of newly formed monazite in greisenised S-type granite gives the age 344 Ma. The granite showing strong greisenization (total degradation of feldspars and formation of quartz - white mica assemblages) is dated by SHRIMP on 355 Ma. The greisenised granite contains abundant tourmaline with high dravitic molecule, Sr-rich apatite and common monazite. Abundant tiny stoichiometrically pure apatite grains in this granite indicate their exsolution from feldspars enriched in phosphorus. The S-type granite dyke from the ridge of the Tribeč Mts gives zircon SHRIMP age 355 Ma and CHIME monazite age 342 Ma. The dating results of the Tribeč granites identified: **(1)** older Upper Devonian/Lower Mississippian subduction-related I-type tonalites (ca. 364-351 Ma), and **(2)** S-type granites Middle/Upper Mississippian (Visean) intruding in time span 342-330 Ma reflecting probably of the collisional event in the Variscan orogeny. Dual evolution of the Tribeč Mts. Variscan granitic rocks is partly corroborated by Hf isotopes from the dated zircons with $\epsilon\text{Hf}_{(t)}$ = +3.5 ~ -2.4 for the older granites, and $\epsilon\text{Hf}_{(t)}$ = -0.3 ~ -4.9 for the younger ones. The evolution of the I- and S-type granites seems to be rather different from the granite evolution known in the Bohemian Massif and therefore the origin of Variscan hybrid granites from the Western Carpathians we placed on the SW side of Galatian volcanic arc as result of Paleo-Tethys subduction (see Stampfli and Borel, 2002, Stampfli et al. 2013).

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