monzonitoids, subalkaline granite-porphyries or elvans to ongonites and topazites are recognized within this belt. Fluorite-bearing biotite granites and elvans demonstrate higher Zr, Th and LREE, that is typical of the rocks of the heightened alkalinity. As opposed to them topaz- and cryolite-bearing rare-metal granites and ongonites are marked by higher F, Li, Rb, Ta, Sn, W contents. There is an increase in fluorine concentration (to 2.5-3.0 wt. %) in the rocks series from microcline-albite to amazonite-albite granites and ongonites. With such F concentration alkali (Na) can transit into water fluid, therefore gradual transition of ongonites to topazites is observed on these rocks. The granitoid rocks of the Daurian-Khentei batholith forms the central part of a huge Early Mesozoic magmatic area. The age of granitoids of the Abdar-Khoshutula intrusive-dike series varies from granites of the Khoshutula massif (224 Ma) to the rare-metal granites of the Abdar intrusion (209-212 Ma). The palingenic granites most likely formed at an early stage from the ancient substratum that was accompanied by a simultaneous intrusion of high-alkaline syenites melt through a deep fault. At the late magmatic stage an extensive zone of the increased permeability was gradually filled up by granite intrusions and dikes that was accompanied by a differentiation of the granitic melt resulting in genesis of rare-metal granites in cases subvolcanic ongonites. As compared with the granitoids of the Khoshutula pluton the Abdar massif is a more sub-surface intrusion occurring among the terrigenous rocks of the uppermost sequence. The varieties recognized in the Abdar massif (from early leucogranites to amazonite-albite granites) have the facies transitions without cross-cutting relationship, that can point out a possible genesis of all rocks of the intrusion during the magmatic differentiation inside the magma chamber. Two trends of the geochemical evolution were found for the studied series which correspond to two stages of its formation. Granitoids having the geochemical characteristics of the palingenic crustal origin formed at the early stage of the Abdar-Khoshutula series evolution. Subvolcanic dikes and the Abdar massif of rare-metal granites enriched with lithophile elements originated at a final stage of the geochemical evolution. The granitic magmatism of the final stage is potential with respect to rare-metal mineralization.

New U-Pb zircon age constraints for the emplacement of the Reguengos de Monsaraz Massif (Ossa Morena Zone)

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The Reguengos de Monsaraz massif is located in the Portuguese sector of the Ossa Morena Zone (ZOM), one of the major geotectonic units of the Iberian Variscan Belt. It intruded Lower Paleozoic metasediments, strongly affected by deformation and metamorphism during the Variscan orogeny. Pluton emplacement was responsible for the development of a contact metamorphism aureole in the surrounding country rocks. Based on regional constraints, the intrusion was included in the group of the late-post-tectonic granitoids. The pluton shows an inversely zoned pattern and consists of tonalitic to granodioritic rocks with abundant mafic microgranular enclaves, occupying most of the presently exposed intrusion area and minor bodies of gabbro-diorites in the east and centre. Field, petrographical and geochemical data reveal that mixing / mingling between mantle- and crustally-derived magmas and fractional crystallization played a major role in the genesis and evolution of these granitoids [1]. Early attempts to date the Reguengos de Monsaraz intrusion, using Rb-Sr isotopic data for a feldspar-amphibole pair from one granodiorite sample, yielded an age of 297.5 ± 2.9 Ma. This age was interpreted as a cooling age and provided a minimum estimate for the timing of magmatic crystallization. In order to better constrain the age and emplacement sequence of the massif,

five samples representing the different magmatic units (gabbro diorites, tonalites and mafic microgranular enclaves) were selected for determination of U-Pb zircon ages by isotope dilution techniques. The zircon populations from two samples of the gabbro diorites (one from the central sector and the other from the easternmost body) yielded overlapping 206Pb/238U average ages of 337.4 ± 1.1 Ma and 338.6 ± 0.7 Ma, respectively. Similar ages were obtained in two samples from the main tonalite-granodiorite facies (337.3 ± 2.3 Ma; 337.8 ± 0.7 Ma). Finally, the zircons from the microgranular enclave yielded a $^{206}Pb/^{238}U$ average age of 336.5 ± 0.5 Ma. A slightly younger age was obtained in two fractions of titanite from the enclave (333.6 ± 2.5 Ma), suggesting either resetting of their original magmatic ages or late stage crystallization. The new U-Pb age data support a coeval emplacement for all the members of this suite, at approximately 337-338 Ma. Such a close space-time association between mafic and felsic granitoids is consistent with the proposed mixing model. According to recent studies, this sector of the OMZ was affected by three Variscan deformation events [2]. The earlier deformation phases (D1 and D2) occurred in Late Devonian (≈ 380-360 Ma) and Early Carboniferous times (≈ 360-345 Ma), whilst the latter (D3) has a Pennsylvanian age (305-295 Ma). Based on the available geochronological information, the emplacement of the Reguengos de Monsaraz magmas took place at a time of tectonic quiescence between D2 and D3. The relatively young Rb-Sr age recorded in the feldspar-amphibole pair may therefore reflect the effects of the last tectonothermal event, also documented by the replacement of hornblende crystals by actinolite.

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The genesis of Lower Ordovician ME and host biotite-muscovite granodorite from Oledo pluton (CIZ, Portugal)

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At the Central Iberian Zone (CIZ) of the Iberian Massif, most of the granitic plutons are related to the last ductil deformation phase D3 of the Variscan orogeny. Ordovician magmatism has been considered rare at the CIZ. Recent geochronological data indicate a Lower Ordovician emplacement age for granitic rocks from the CIZ (Antunes et al., 2009; Neiva et al., 2009). The ID-TIMS U-Pb ages of zircon and monazite crystals indicate an Early Ordovician age of 479 - 480 Ma for the Oledo pluton (Antunes et al., 2009). This pluton intruded a Cambrian schist-metagreywacke complex and consists of four distinct granodioritic to granitic phases which are contemporaneous and derived from different magmatic sources. The medium-grained biotite-muscovite granodiorite intruded the biotite granodiorite on the west part of the pluton and the contact is sharp. The biotite-muscovite granodiorite contains fine-grained biotite tonalitic and biotite granodioritic microgranular enclaves (ME) which show rounded or ovoid shapes and some of them present irregular sharp, occasionally crenulated and diffuse contacts. ME are darker and richer in mafic minerals than the host granodiorite. They are peraluminous (A/CNK=1.0 to 1.1) and contain quartz, albite-labradorite, K-feldspar, biotite, zircon, apatite, monazite and ilmenite. Most variation diagrams for granodioritic enclaves and host granodiorite and their biotites and ilmenites show linear trends. The tonalitic ME are not related to these rocks. The rare earth element (REE) patterns are subparallel for LREE and MREE, but cut each other on the HREE. The plagioclase shows an oscillatory zoning and acicular apatite occurs. Tonalitic