

## **METAMORPHIC AGES FOR HP/HT ROCK PEBBLES - EVIDENCE FOR HIGH EXHUMATION RATES AT THE E MARGIN OF EUROPEAN VARISCIDES**

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High-grade rocks are commonly exposed at present erosional levels in mountain belts. In the E part of the European Variscides, crustal rocks exhumed along near-to-ITD P-T path over at least 24 km occur. Visean conglomerates at the E margin of the Bohemian Massif contain pebbles of crystalline rocks - gneisses, magmatic rocks, granulites - the latter reflecting equilibration at variable crustal depths. The age of conglomerate sedimentation (327-335Ma, from palaeontology) constrain the minimum age of crystalline rocks exhumation. Single and multigrain U-Pb dating of abraded zircon, monazite and rutile of a garnet-rich HP felsic granulite pebble yielded Variscan ages between 336-337 (zircon) and 330Ma (rutile). Monazites are 0-4 Ma younger than zircons; rutiles are up to 5 Ma younger than monazite. A durbachite pebble is also of a Variscan age - magmatic zircons are discordant at 325-332Ma, with U.I. at 360Ma. A cordierite-bearing LP migmatite pebble contains a Proterozoic component, and there is also evidence for both an earlier (zircon discordia L.I. at  $372 \pm 9$  Ma, rounded zircons concordant at 380Ma) and a later Neo-Variscan event (329-330 Ma, monazite). The HP granulite pebble age conforms those for exposed granulites. Average exhumation rates of 4.8 mm/yr have to be envisaged if the zircon ages are attributed to the HP event. The latter, however, has to be questioned due to the persisting HT during the exhumation, and because zircon or monazite could have grown on the post-HP 'retrograde' part of the P-T path. Independent constraints (petrographic, microtextural) are needed to support this interpretation.