



## **CRUSTAL PROVENANCE AND EARLY PALAEOZOIC CONTINENTAL BREAK UP OF N GONDWANA: A Nd ISOTOPE AND REE STUDY OF (META)GRANITOIDS FROM THE PRE-VARISCAN BASEMENT, N BOHEMIAN MASSIF, CENTRAL EUROPE**

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Pre-Variscan (meta)granitoids occurring in the Krkonose-Jizera region of the NW Bohemian Massif (Czech W Sudetes) were emplaced at ca 500 Ma (Kröner *et al* 2001). They are calc-alkaline in character and generally predate or are coeval with minor felsic metavolcanic rocks and voluminous metabasites (the former are mostly WPG-like, the latter display a wide spectrum of compositions from N-MORB to alkali WPB types) that were generated in an extensional regime related to fragmentation of the N Gondwanan margin (Crowley *et al* 2000). The (meta)granitoids vary considerably in LREE enrichment ( $(\text{Ce}/\text{Yb})_N = 2$  to 8), whereas two felsic metavolcanics included in the study display  $(\text{Ce}/\text{Yb})_N = 3$  and 4. The (meta)granitoids are characterised by  $\epsilon\text{Nd}_{(t)}$  values of -4.8 to -3.2 and have two stage  $T_{DM}$  ages of 1.5 to 1.2 Ga. The felsic metavolcanics display  $\epsilon\text{Nd}_{(t)}$  values of +5.6 to +6.2. This indicates that the felsic metavolcanics formed from a depleted mantle source and did not experience any major crustal contamination. The (meta)granitoids however, predominantly formed by recycling of pre-existing continental crust. The (meta)granitoid  $T_{DM}$  ages do not necessarily signify a crustal component of this age and only provide a lower age limit on the older components involved in their petrogenesis. It is possible that a mixture

of Archaean, Palaeoproterozoic and Neoproterozoic aged sources were utilised in this early Palaeozoic granitoid magmatic event.

References: Crowley, Q.G., Floyd, P.A., Winchester, J.A., Franke, W. Holland, J.G. 2000. Early Palaeozoic rift-related magmatism in Variscan Europe: fragmentation of the Armorican Terrane Assemblage. *Terra Nova*, **12**, 171-180.

Kröner, A. Jaeckel, P. Hegner, E., Opetal, M. 2001. Single zircon ages and whole-rock Nd isotopic systematics of early Palaeozoic gneisses from the Czech and Polish Sudetes. *International Journal of Earth Sciences*, **90**, 304-324.