

DFG Schwerpunktprogramm 1158 "Antarktisforschung": Time resolution of metamorphic-magmatic events in the Palaeozoic active margin of the northern Wilson Terrane (Ross Orogen, North Victoria Land)

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Summary

The Wilson Terrane in North Victoria Land (Antarctica) belongs to the Early-Palaeozoic Ross accretionary orogen. High-grade metamorphism and magmatism of the Granite Harbour Intrusives are attributed to a magmatic arc setting of the terrane. U-Pb zircon/monazite as well as K-Ar and Ar-Ar mica/hornblende age data is yet available from the Oates Coast to the north. It signalize a ~490 - 470 Ma rapid cooling subsequent to isothermal decompression during granulite-facies conditions, apparently untypical for a magmatic arc evolution. A better understanding of these observations can be expected by an extensive screening of metamorphic and magmatic age in the Wilson Hills, the Lazarev Mountains and the Daniels Range by the electron-microprobe (EMP) monazite dating method on numerous samples recovered during the GANOVEX expeditions. The cost and time-efficient EMP monazite dating and related metamorphic studies potentially can provide information on (a) pre-Ross orogenic thermal events, (b) P-T-time evolution by correlation of mineral-chemical data from monazite and garnet-bearing assemblages, (c) protolith ages on acidic members of the Granite Harbour Intrusives suite and (d) ages of the major thrusting events. The study contributes in an exemplaric way to resolve the geodynamic processes in a magmatic arc terrane which is a characteristic part of an Early-Palaeozoic accretionary orogen.

Publications

Schulz, B., Henjes-Kunst, F., Schüßler, U. (2010): Evaluation of EMP-Th-U-Pb monazite ages and comparison to U-Pb SHRIMP data in the high-grade Wilson Terrane (Antarctica). - Meeting German Min. Soc., Sept. 2010, Münster. Europ. J. Min., Beiheft., in press.