

## **Organic metamorphism during thrusting within the Eoalpine upper plate (NW margin of the Gurktal nappes, Eastern Alps)**

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Burial heating and Eoalpine (Cretaceous) thrusting of the very low- to low-grade metamorphic Königstuhl and Stolzalpe nappes above higher-grade metamorphic basement nappes (e.g. Gstoder and Bundschuh nappe; Iglseider, this volume) transformed carbonaceous material into anthracite, metaanthracite and semigraphite.

In a kinematically well-constrained section at the northwestern frontal margin of the upper Austroalpine nappe stack, this transformation has been investigated by vitrinite reflectance measurements and Raman spectroscopy of carbonaceous materials (RSCM). A continuous RSCM trend indicates an equilibrated temperature profile of ca. 200-600°C along an almost complete section through the Eoalpine upper plate. By the use of an automated peak fitting software and a thermometrically well-calibrated reference series, the IFORS approach of Lünsdorf et al. (2017) estimates continuously the metamorphic peak temperatures in a deep crustal section. The certainty of ca.  $\pm 25^\circ\text{C}$  at a confidence level of 0.9 resembles the data variability within a sample location. Due to the large calibration range, the method is able to reconstruct a thermal crustal profile in three dimensions, showing geodynamic processes in the area of the Gurktal Alps.

### Reference:

Lünsdorf, N. K., Dunkl, I., Schmidt, B. C., Rantitsch, G., Eynatten, H. von (2017): Towards a higher comparability of geothermometric data obtained by Raman spectroscopy of carbonaceous material. Part 2: A revised geothermometer. *Geostandards and Geoanalytical Research*. 41, 593–612.