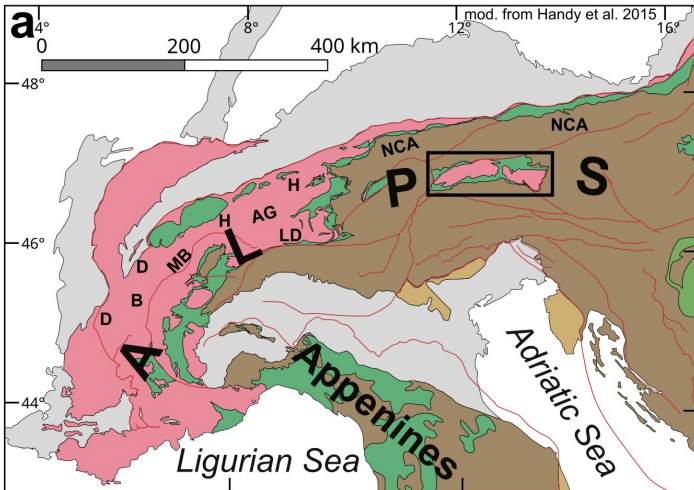


Three-dimensional temperature variations in a fossil subduction zone resolved by RSCM thermometry (Tauern Window, Eastern Alps)

Philip Groß¹, Jan Pleuger¹, Mark R. Handy¹, Timm John¹

¹Freie Universität Berlin



Foreland

Foreland basins, graben fill

Adria-derived units

autochthonous cont. margin

accreted continental margin

Oceanic units

Alpine Tethys

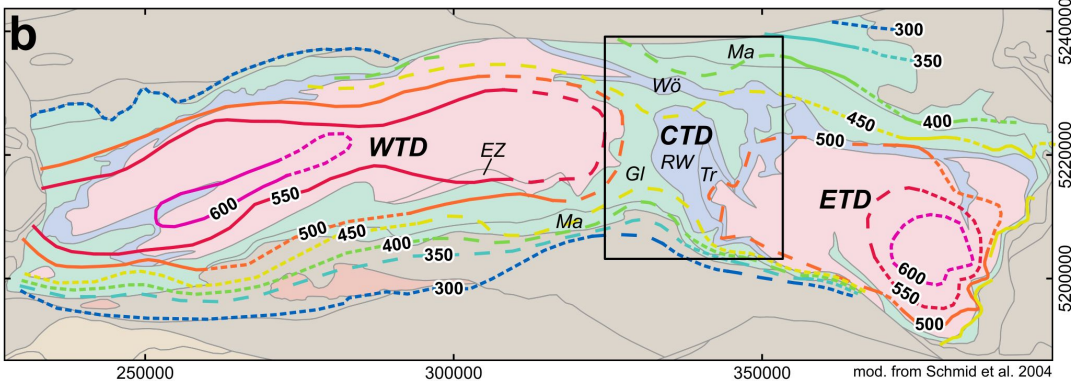
Neotethys

Europe-derived units

accreted continental margin

main faults

Study area: Central Tauern Window, Eastern Alps



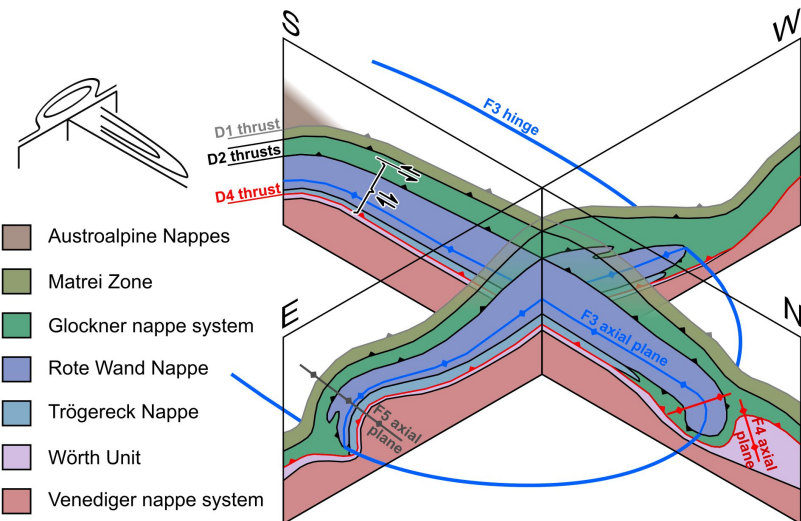
Barrovian temperature contours



Main tectonic units

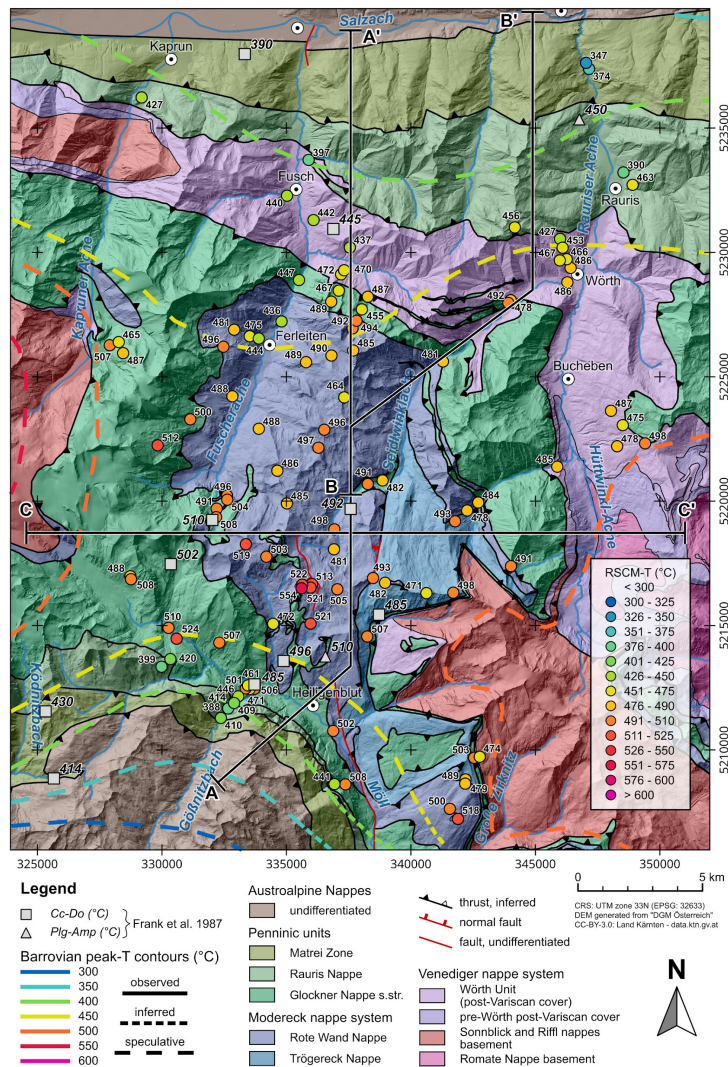


Local structure: Isoclinal sheath fold nappe



Groß et al., submitted

Raman spectroscopy on carbonaceous matter (RSCM) gives metamorphic peak-temperatures reached in the central Tauern Window

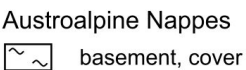
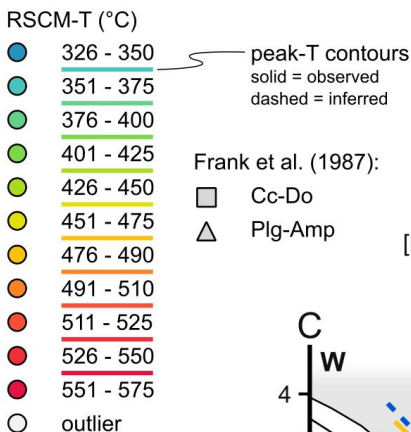


Groß et al., submitted



Iso-peak temperature contours show a sheath-like pattern, mimics the fold geometry!

This indicates sheath-folding of the contours.



Penninic units

 Matrei Zone

 Glockner Nappe system

Modereck nappe system

 Rote Wand Nappe

 Trögereck Nappe

Venediger nappe system

☐ cover

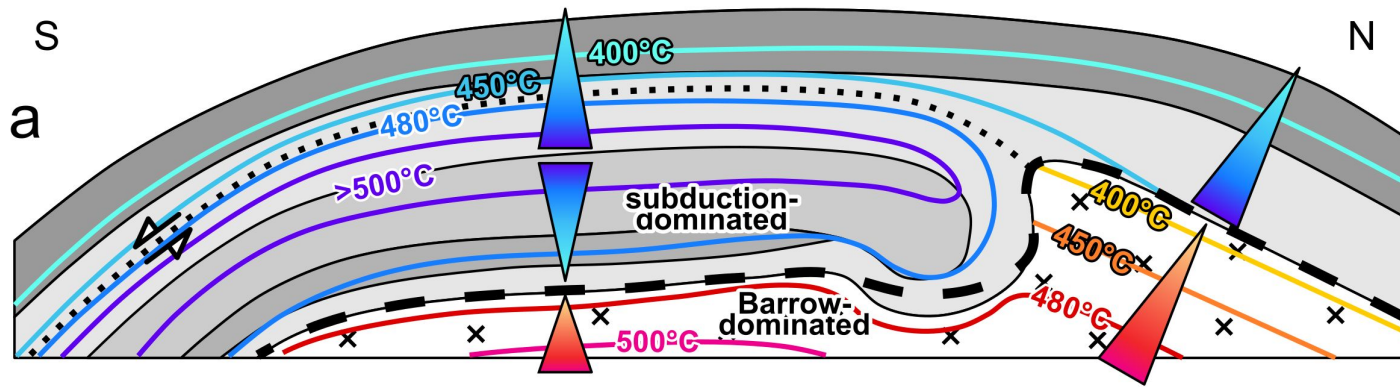
$\begin{bmatrix} x & \\ & x \end{bmatrix}$ basement

domain boundary

inferred fault between
Glockner and Rauris nappes

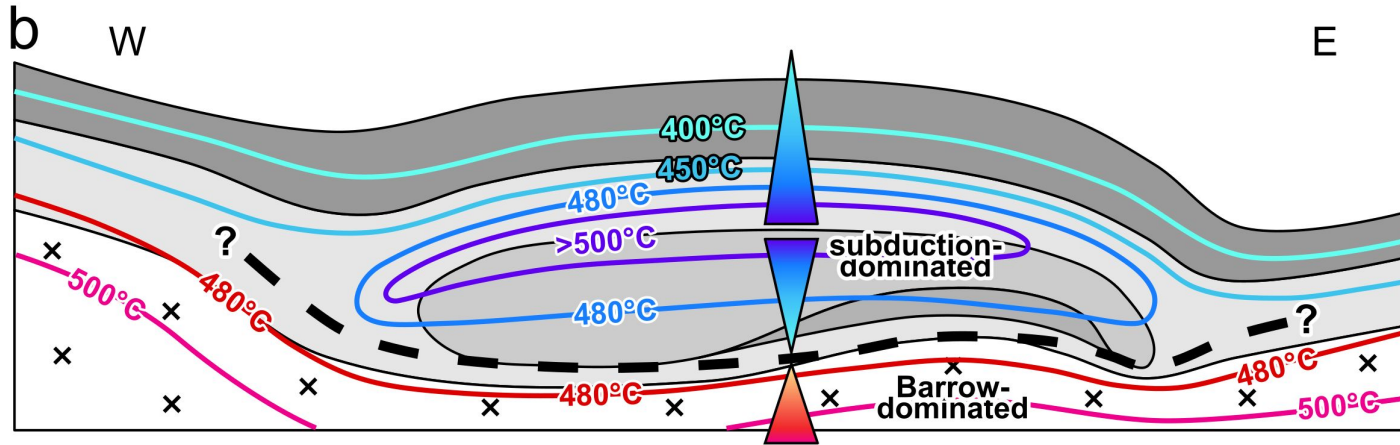
Groß et al.,
submitted





Generalized peak-T patterns:

Subduction-dominated pattern displays sheath-like geometry.



Matrei Zone



Rote Wand Nappe



Venediger nappe system



Glockner nappe system



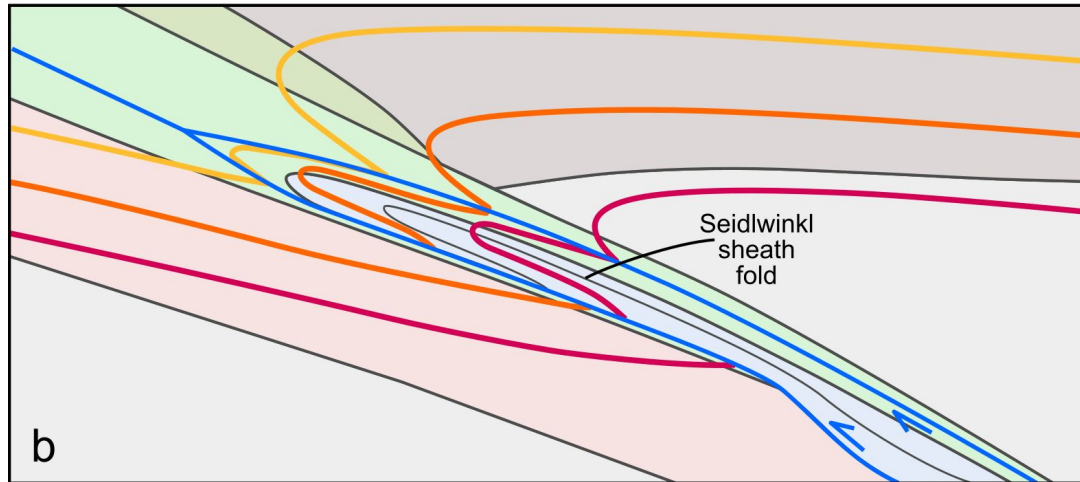
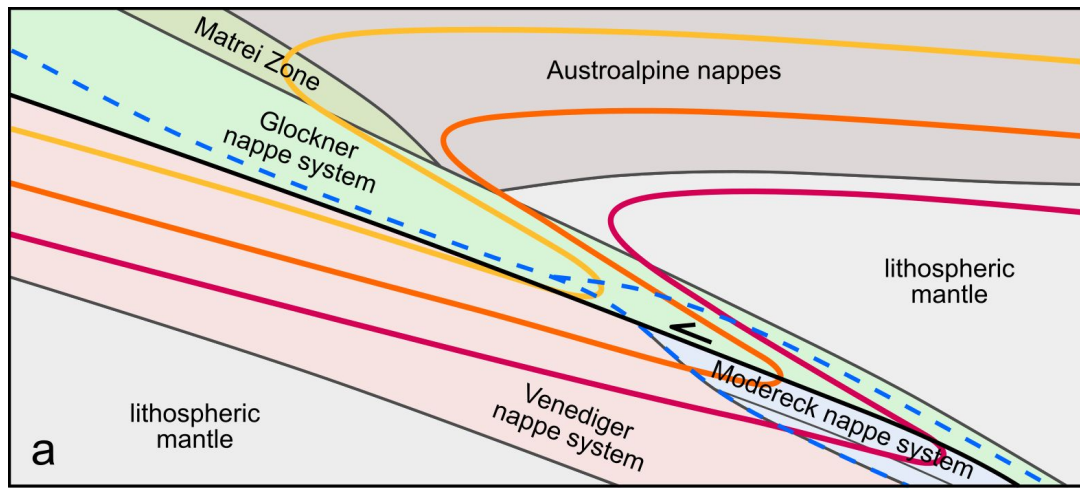
Troger Nappe



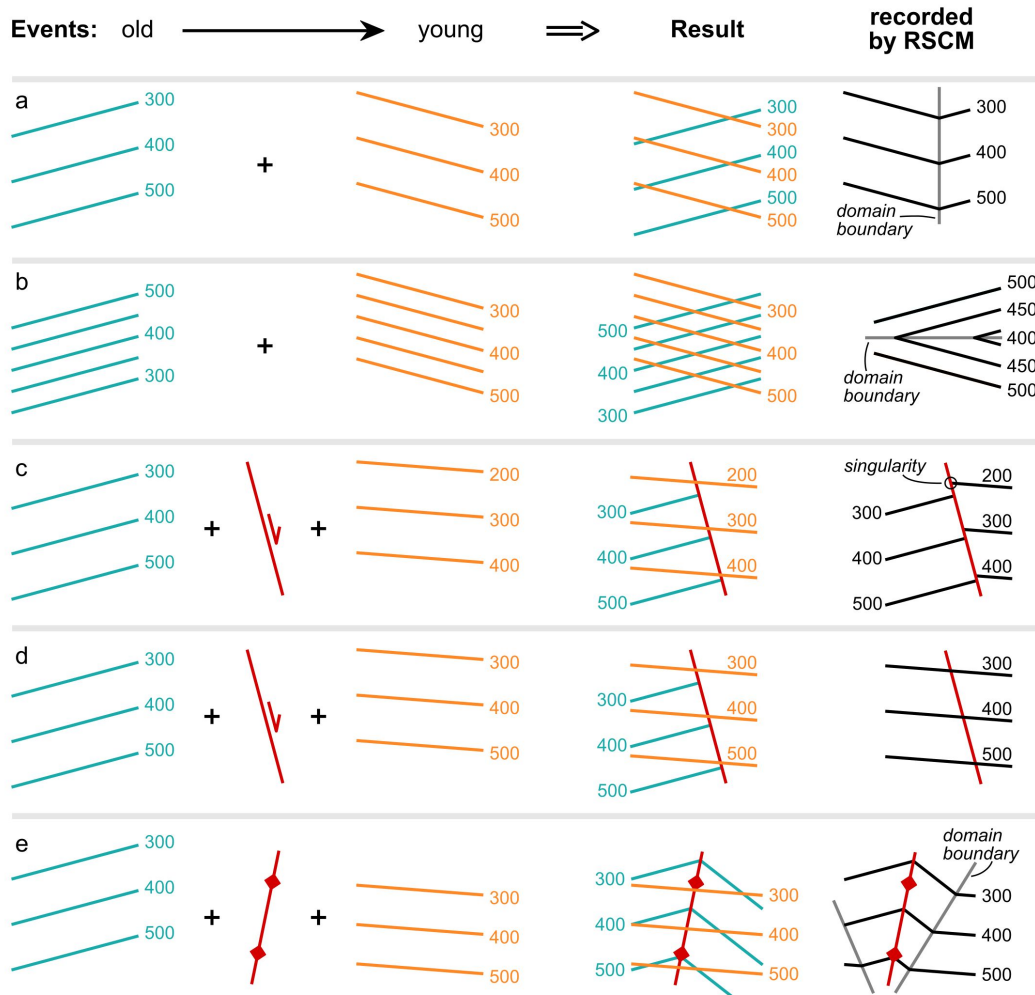
decreasing temperature

Groß et al.,
submitted





Development of folded peak-T contours (red, orange and yellow lines) by formation of a sheath nappe fold during exhumation.



Appendix A: Overprinting patterns

Groß et al.,
submitted

Appendix B: Data projection

