Long- and Short-Term Landscape Evolution of the Carpathian Bend Zone

Linking Low-Temperature Thermochronology with Geomorphometric Analyses

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Supplementary Material

1 Thermochronological data

All thermochronological data used in this study can be found on `https://zenodo.org/records/20019470`. The DOI is 10.5281/zenodo.20019469. For questions, please contact Lea Schönleber, lea.schoenleber@plus.ac.at, `https://orcid.org/0009-0003-0820-506X`.

Figure 1: QR Code with the link to the dataset.

2 Additional figures

A pdf of the poster itself is provided as a presentation file. The following figures are an addition to the poster.

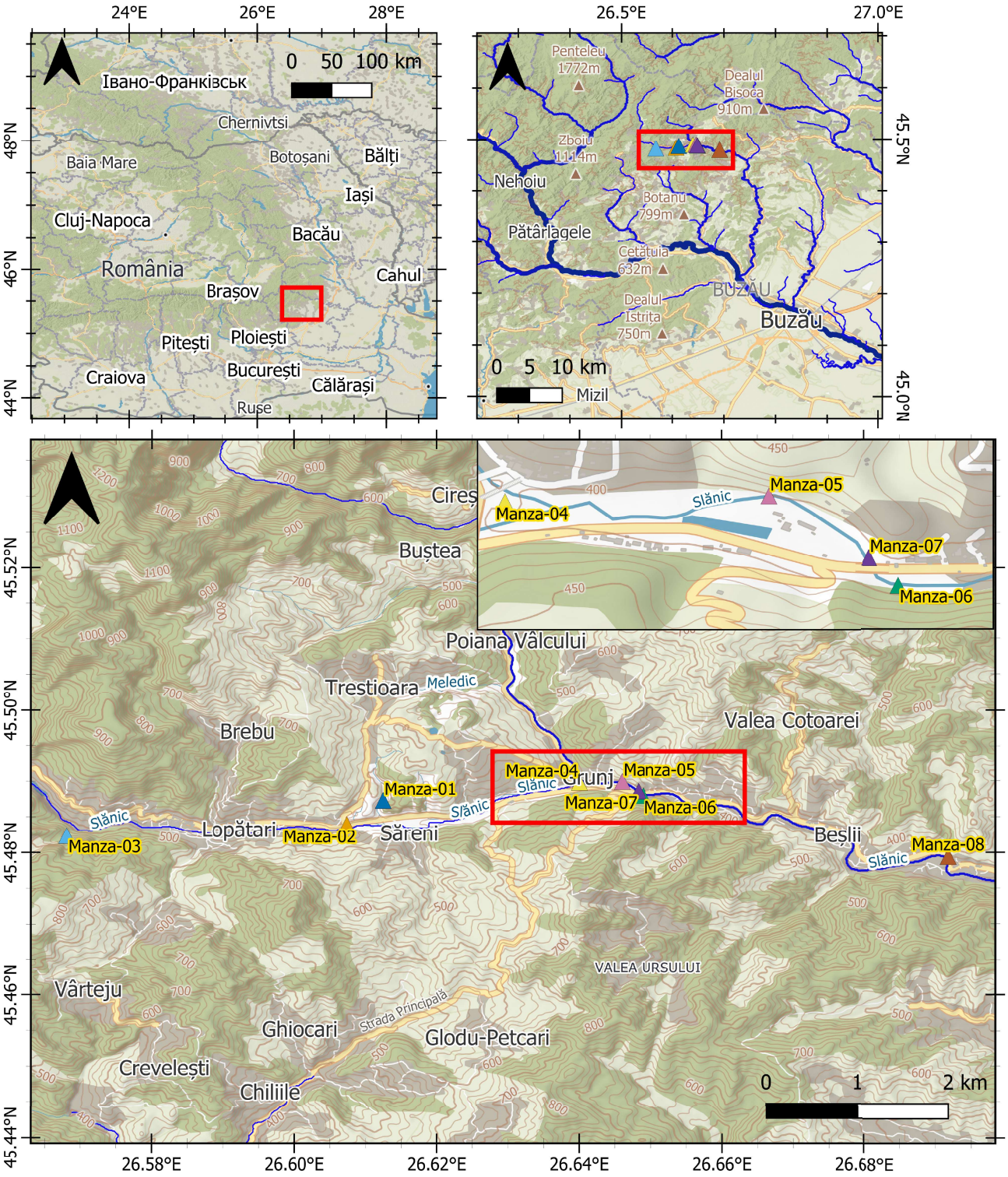

Figure 2: Location of the study area and the samples within the Carpathian Bend Zone. (Background map from MapTiler and OpenStreetMap.)

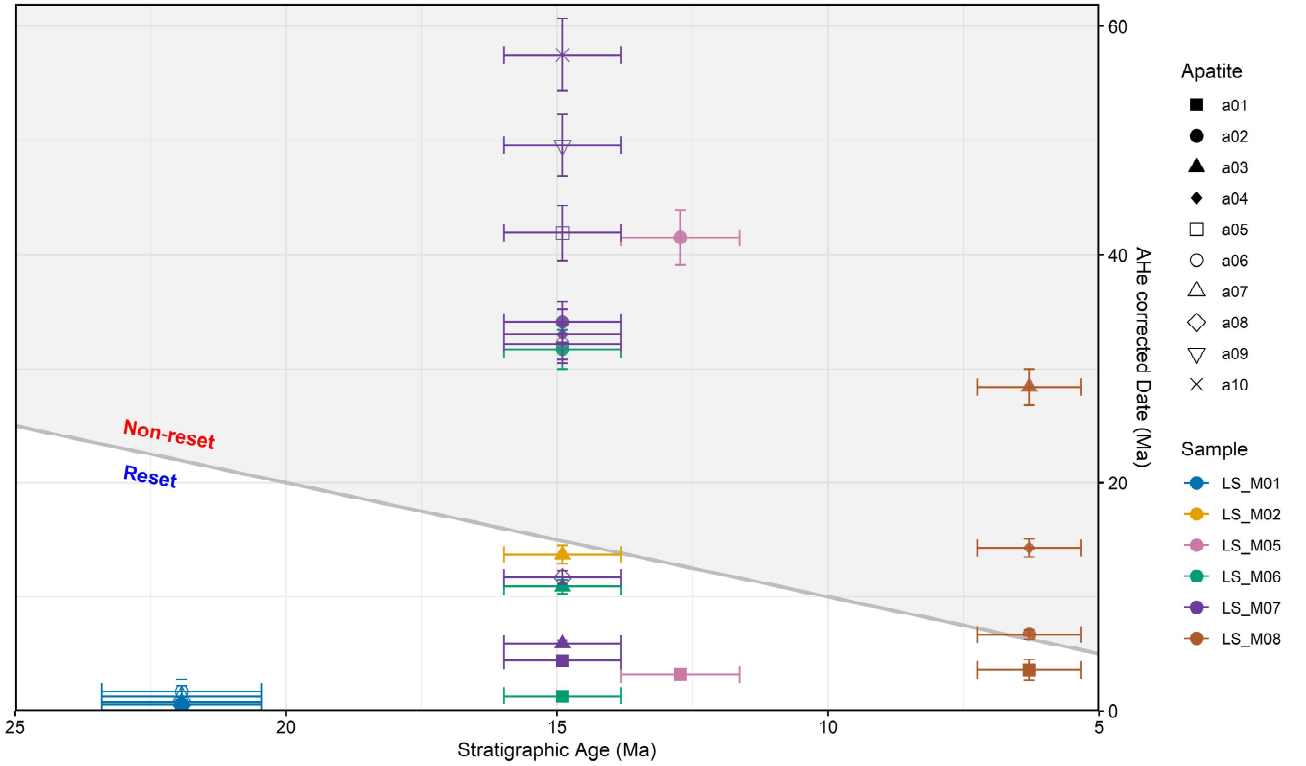

Figure 3: Distribution of the dates of the samples according to the stratigraphic age. All dates are FT corrected. The errors of the stratigraphic age span the duration of the stage according to Cohen, K., D. Harper & P. Gibbard (2025). ICS International Chronostratigraphic Chart 2024/12.).

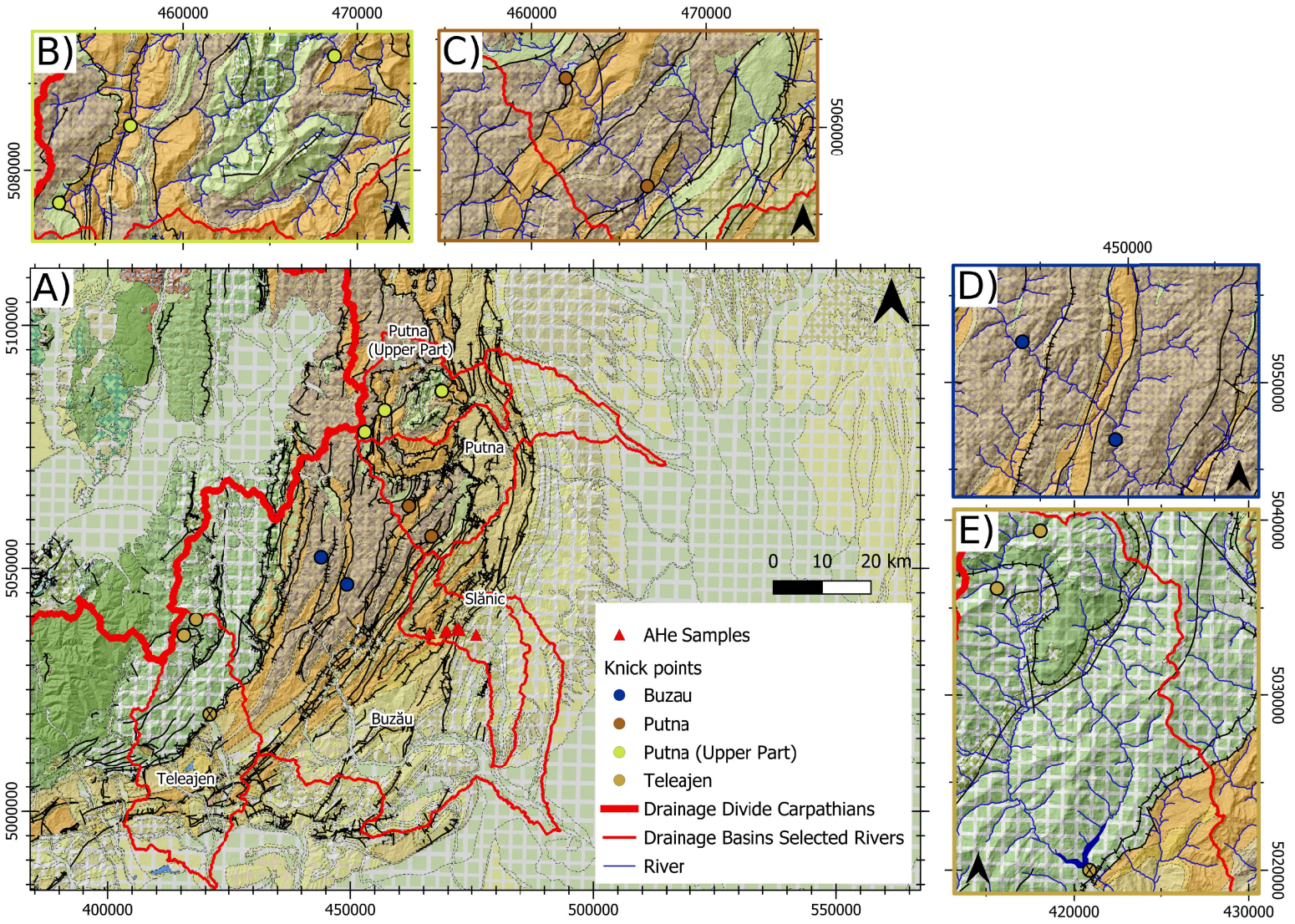

Figure 4: A) Geological map with the locations of the knick points. The smaller panels B) to E) show parts of the central maps with more details around the knick points of each river. Some knick points, especially in the northern river networks are located at lithologic boundaries. The knick points in the southern basins are mostly independent from lithological boundaries.
(River network and drainage basins calculated from DEM (©DLR 2024).), Geological map from Institutul Geologic al României (2017): Geological Map of Romania (Geologic Units and Geologic Structures), 1:200000. Bucharest. https://inspire.igr.ro/geoserver/geolro200k/wms?REQUEST=GetCapabilitiesSERVICE=WMSVERSION=1.3.0.)

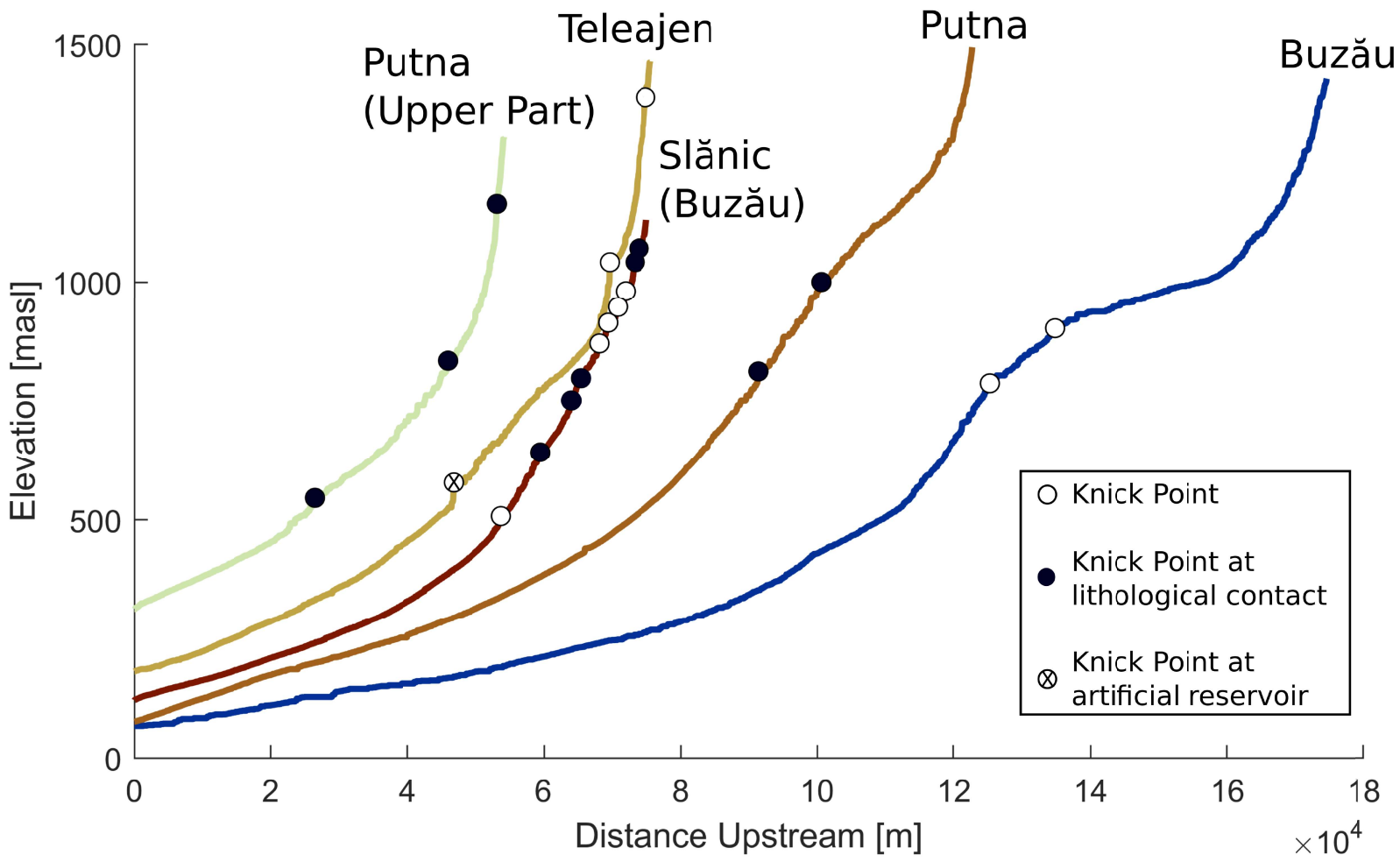

Figure 5: River profiles of the main trunks of the selected networks with knick points founded by the Mathlab Topotoolbox, Knickpointfinder. The colored knick points are located at lithological contacts or geological structures.

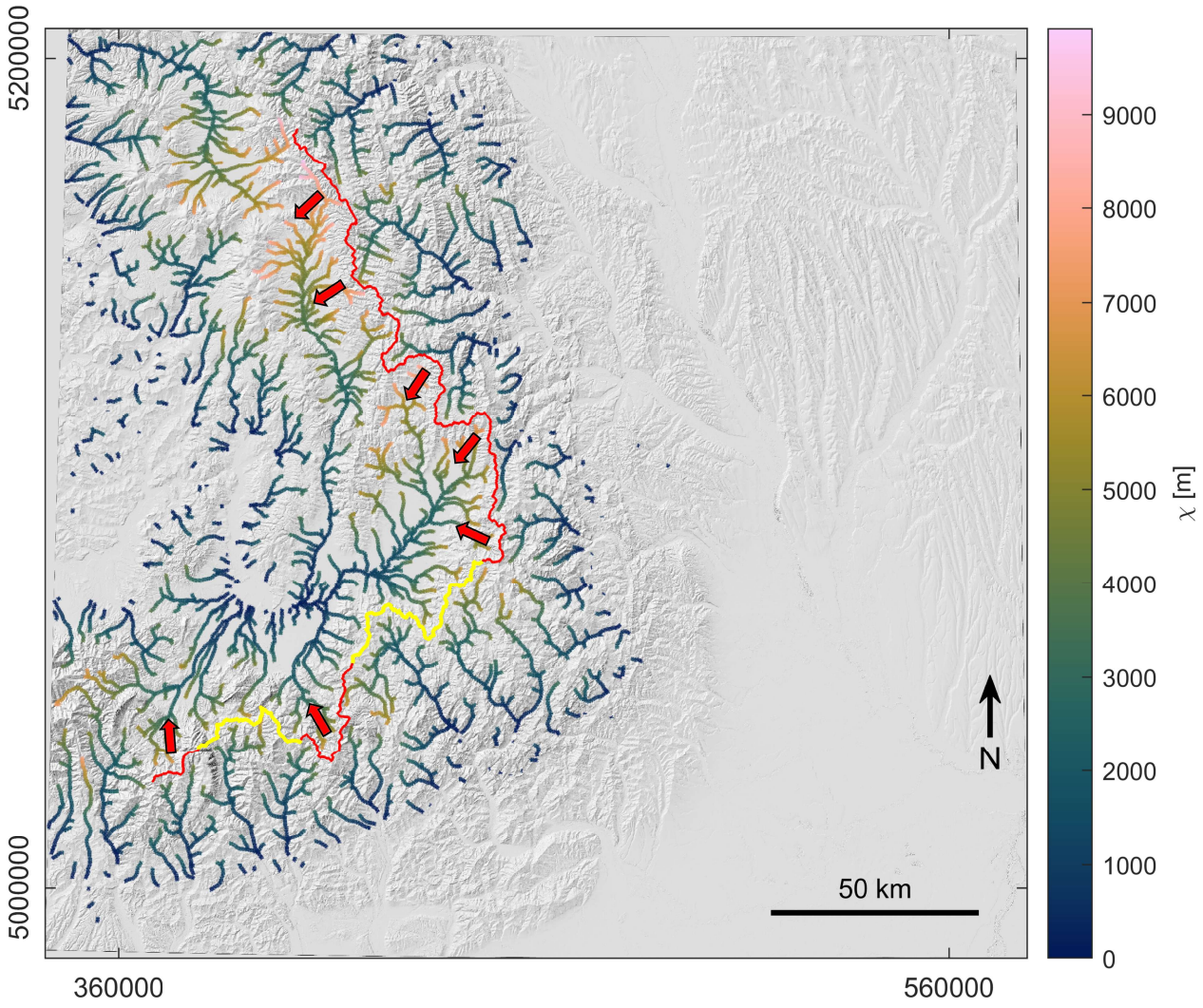

Figure 6: Resulting Chi-map for channels with a minimum drainage area of 10 km² and a common base level of 500 metre above sea level. The orogenic drainage divide is indicated by a red line. The yellow parts of the drainage divide are considered stable as the Chi-values of the channel heads are equilibrated. For the analysis, the DEM was reprojected to UTM 35N (EPSG: 25835).

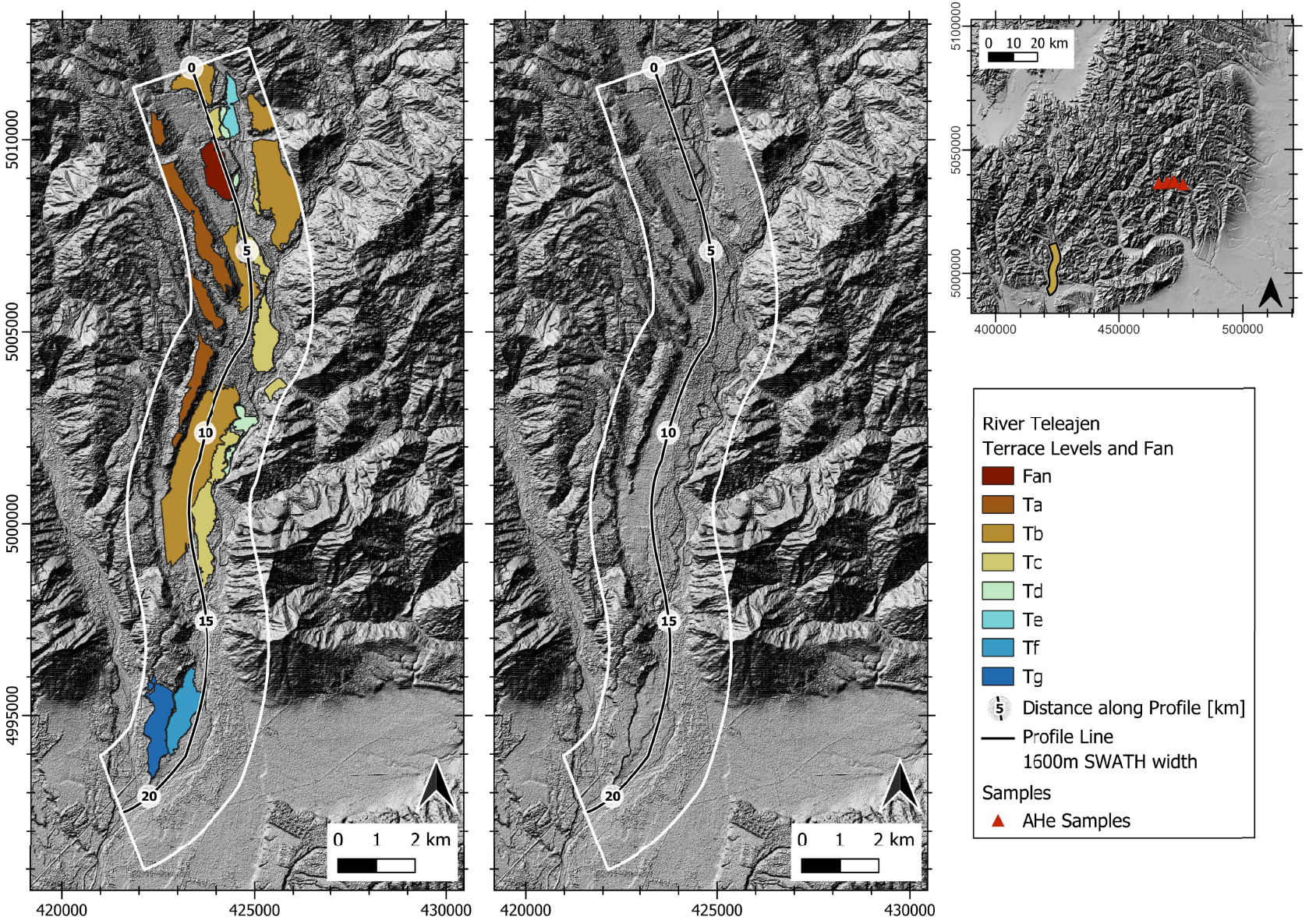

Figure 7: Mapped terraces along the Teleajen river. Same colored terraces belong to a flight of terraces along the river. The SWATH width for the analysis is 1600m. The red marked area is most likely a fan from a channel entering the valley from the east. The hillshade in the background is calculated from the TanDEM-X DEM (©DLR 2024). The terrace mapping was done with the R-based package MAMU (Pollhammer, T., Salcher, B., & Fuchs, S. (2024): MAMU: an R package for GIS-based river terrace mapping, morphostratigraphic evaluation of terrace maps and outcrop data and river long profile modelling. Abstract from EGU General Assembly 2024, Vienna. https: doi.org/10.5194/egusphere-egu24-16766).