



Understanding landscape evolution by establishing chronologies using high-resolution luminescence dating

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Reconstructing Quaternary environments requires interpretation of terrestrial sediment archives. These archives document environmental conditions as well as the geomorphological processes, which were responsible for their formation. To interconnect locally modelled landscape histories and reveal their stratigraphic significance, numerical chronologies are of crucial importance. Optical Stimulated Luminescence (OSL) dating techniques represent the leading dating methods on sediment archives for the last 250,000 years and have been proven to be successful in the last decades, e.g. for establishing high-resolution chronologies on loess records.

Corresponding to the increasing demand of numerical data during the last decade, luminescence ages are produced more and more rapidly using different approaches. However, the dating process remains challenging and the time needed to produce reliable luminescence ages may be underestimated by non-dating specialists.

Based on a case study from Saxony (Germany) this contribution focuses on what might remain obscure when working with age results and it highlights some advantages of establishing high-resolution chronologies. It provides a hint on which background data are essential, what assumptions usually are needed and what pitfalls should be avoided. Finally, the contribution intends to track the steps to decipher the archive and to understand the former morphological processes.