



Numerical age dating of Danube terraces from one fault block (Rauchenwarth) west of the Vienna Basin Transform Fault (Austria)

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Fluvial terraces within the extensional structure of the Vienna Basin have been dissected by faults related to the sinistral movement of the Vienna Basin Transform Fault System (VBTF, Decker et al., 2005). Each fault block within the basin displays a slightly different succession of terraces regarding their number, elevation, and preservation. Generally, altitudes of terrace bases within the Vienna Basin vary between 5 and 130 m above the recent Danube river bed.

This study focuses on one clearly confined fault block, the Rauchenwarth Plateau, located south of the Danube. The plateau forms the western part of intra-basinal hills crossing the Vienna Basin and consists mainly of Miocene sediments that are in part covered by quaternary fluvial terrace deposits at different elevations. The entire succession is widely covered by loess or re-deposited aeolian sediments. To depict the formations below the loess cover we use 19 wells to construct three sections crossing the eastern part of the block in E-W and two parallel sections in N-S direction. The sections show that three levels of fluvial terraces at the northern eastern side of the block are preserved. The lowest and highest levels are accessible in gravel pits with well-defined Miocene bases. These two levels with terrace bases ~67 m and ~24 m above the recent Danube contain large quartz cobbles suitable for dating using in-situ produced ²⁶Al and ¹⁰Be. Sample sets were taken at 11 m (higher terrace) and 14 m (lower terrace) below today's surface. Sandy sediments from the lower level were in addition dated by luminescence on feldspar using the pIRIR 225 signal. Age calculations using the isochron method (Balco and Rovey, 2008) as well as inverse modelling for the upper level suggest burial durations of ~1.2 Ma. Results of age calculations using cosmogenic nuclides as well as luminescence ages for the lower level will be presented at the conference.

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References

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