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Research interests

- interactions in the system plant – soil – sediment (recent and paleoecosystems)
- formation processes and recrystallization rates of pedogenic carbonates
- pedogenesis under arid to semihumid climates
- rhizoliths (calcified roots) as archives of paleovegetation and input of root-derived compounds
- rhizosphere processes
- reconstruction of paleovegetation and paleoecological conditions based on stable carbon isotopes of organic matter and carbonates as well as lipid molecular proxies
- Central and Southeast European terrestrial sediments (loess, dune sands)
- lipid composition of higher plants and turnover of plant-derived lipids in soils
- quantification of root-derived compounds in soils and sediments
- distinction between root- and shoot-derived, as well as between grass- and tree-derived organic compounds
- terrestrial carbon cycle and organic matter stabilization in the deep subsoil
- sustainable subsoil management