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Dynamics and intensity of climate change recorded in palaeosoils

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Summary

A fundamental and multidisciplinary approach to investigate abrupt climate change enables us to obtain valuable data and interpret the dynamics of these changes. The aim of the CSF project ACCENT is the exploration of palaeosols intercalated in (i) loess (Baranja), (ii) the Đurđevac Sands in the Pannonian area (continental climate), (iii) fluvioglacial sediments in the Privilaka and (iv) lacustrine sediments of the Vrgorac Lake in the Dinaric area (Mediterranean climate). Investigations of loess-palaeosoil sequences enabled to reveal the warming intensity of archived interstadials (chernozem, brown forest soil or *terra rossa*), as well as postpedogenetic alterations (hydromorphy). Comparison with modern soils, developed from similar parent materials and on similar reliefs, indicate much longer and more intense warmings than in present climates. Additionally, loess-palaeosoil sequences revealed the existence of thick, uniform (cumulic) horizons, evolved just above well-developed palaeosoils. They are meaningful archives in the context of Late Pleistocene and Holocene climatic oscillations. Accordingly, this analytical approach will enable exploring the dynamics of the various facies transitions mentioned above and correlate them in other proposed sections. This research will improve our understanding of the spatial extent and differences in appearing of abrupt climate changes in the Pannonian and Dinaric areas, and correlation with the European Sand Belt and the Mediterranean.

Key words: Abrupt climate change, loess, dune, fluvioglacial sediment, karst lake