

ABSTRACT
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Palaeomagnetic and Magnetostratigraphic Research of Cave Sediments: Theoretical approach, and examples from Slovenia and Slovakia

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The palaeomagnetic and magnetostratigraphic research represents the important tool for the deciphering of the age of cave infill process, when classical bio- and chronostratigraphic data are missing, which is a case of inner-cave facies, especially. Sedimentary fills of studied profiles were separated into individual sequences and cycles divided by numerous evidences of breaks in deposition (erosion features and/or precipitation features). Therefore, unconformities can hide a substantial geological time. The magnetostratigraphy of cave sediments brought surprisingly new data on age of the last cave filling, changing local theories for dating of speleogenetical processes: (a) Classical Karst (SLO): obtained magnetostratigraphic data older than Brunhes/Matuyama boundary clearly show the age of speleogenesis cannot be connected with Pleistocene climatic cycles. Fills of fossilised caves are clearly older than about 1.8 Ma. The speleogenesis was probably connected speleogenetical phase related to the Messinian crisis and the fossilization with post-Messinian sea-level rise in the Mediterranean region, and (b) speleogenesis of well-known Demänovská Cave System (Low Tatra Mts., SK) was much older than supposed earlier. Correlation of obtained magnetostratigraphic results, radiometric dating and river terraces of tributaries of the Váh River indicate definitively that there is no real correlation of cave levels and river terraces noted in numerous textbooks or river terraces of the Váh River are older than supposed earlier.