



Paleoclimatic implications of the red continental deposits from south-western Transylvania (Late Cretaceous – Paleogene)

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In the SW corner, the Transylvanian Basin advances like digitate embayments towards the adjacent mountains (Apuseni Mts in the west and South Carpathians in the south). Among the various sedimentary formations exposed in this region, the Upper Cretaceous to Lower Tertiary successions that are cropping out in Alba Iulia-Sebeş area are of special interest, marking the sedimentary environments evolution near the K/T boundary (Codrea & Dicea, 2005). At this level redish continental formation was deposited

The redish continental formation is typical of fluvial depositional system (braided rivers) characterized by numerous internal bars where coarse sediments are stored temporally. In composition of this formation can be distinguished ten facieses: six rudites facies (orto and para conglomerates polymictics), three arenites facieses (fine to medium arenites) and a siltic facies (red paleosoils). Arenites and rudites facieses filling the channel. The redish silts, with pedogenetic levels and plants traces representing overbank deposits.

Based on whole-rock geochemistry of fine fraction using micro XRF technique and on XRD mineralogy of mudstones was possible to identify the tropical paleoclimate type, by alternating of wet - dry periods.

Mineralogical analysis by XRD made possible the separations in two classes of paleosoils: calcisoils and vertisoils. The clay minerals identified in paleosoils levels are closely related to the alteration processes of the polymictic pebbles contained in subjacent conglomerates.

Grain-size analysis of paleosoil sequences showing a decrease of pedogenetic intensity upward and more preservation of the detrital material unaltered.

Faunal association is similar to Cretaceous fauna from Hateg Basin which may lead to a potential correlation of clastic deposits from both sedimentary basins Transylvanian Basin and Hateg Basin (Codrea & Dicea, 2005; Csiki & Benton, 2010).