



Decomposition of carbonate rocks – examples from the Franconian Alb (South Germany)

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Carbonate rocks often show sharp contacts to overlying loamy deposits. The sedimentary cover results from the supply of external material more than the contribution of insoluble residues (IR) formed by corrosion of the carbonate rocks. The allochthonous nature of the cover is indicated by large amounts of constituents coming from rocks which occur outside of the karst area or these rocks were deposited on top of the carbonate rocks earlier. Thus the question comes up how and where the transition from a fresh carbonate rock to residual deposits or a loamy cover happens.

Due to the sedimentpetrographic attributes of the carbonate rocks (content of insoluble residues, microfacies, chemistry, porosity and permeability) different types of corrosion and decomposition paths can be observed. While micritic limestones often show sharp contacts at the rock-cover transition or at cave walls grain-supported limestones and rocks with higher amounts of larger components or a higher permeability present rough or pitted surfaces.

In contrast to impure limestones and marls the low contents of insoluble residues observed for dolomites limit their contribution for the formation of residual deposits. Otherwise limestones very seldom show calcareous transition material. Different solubilities of the constituents cause temporal and local accumulations of the dolomitic grains by a gradual decomposition of dolomitic rocks. Therefore, such dolomitic silt and sand is often concentrated within caves or at the surface.

From the Franconian Alb corrosion sequences from fresh carbonate rocks to residual deposits will be presented for selected localities. For different rock types these successions are characterized by diverse granulometric, chemical and sedimentpetrographic features.