

## Clay mineralogy of a 10 Ma interval in the NW Tethyan Upper Cretaceous (Postalm, Austria)

***Meszar, M.<sup>1,\*</sup>, Gier, S.<sup>1</sup>, Wagreich, M.<sup>1</sup>***

*1) Department für Geodynamik und Sedimentologie, Wien, Austria, \*E-mail: maria.meszar@univie.ac.at*

The changes in clay mineralogy of Upper Cretaceous sediments of the Northern Calcareous Alps over a time span of 10 Ma were investigated in this study. The Upper Santonian to Upper Campanian Postalm section (Gosau Group, Nierental Formation, Austria) comprises more than 180 m of alternating and cyclic pelagic limestones and marlstones with a distinct CORB (Cretaceous Oceanic red Beds) facies. The section was logged bed-by-bed, a total of 369 samples were taken for sedimentological and stratigraphical investigations. Selected samples were investigated for clay minerals as indicators for paleoclimatic conditions. Chlorite and illite are interpreted as indicators for predominantly physical weathering during cooler climate whereas smectite and kaolinite are indicators for predominantly chemical weathering in more warm-humid climate.

The clay fraction was extracted out of the limestones and marlstones with EDTA to dissolve the carbonate without affecting the clay minerals. After complete dissolution of carbonate, the < 2 µm fraction was separated by sedimentation. The clay fractions were further treated with different saturations (Mg-ions, K-ions, ethylene glycol and glycerol), analyzed with x-ray diffraction, and quantified.

First results show that the clay fractions consist of 52–59 % smectite, 32–36 % illite, 4–6 % kaolinite and 5–7 % chlorite. It seems that the amount of smectite is decreasing up section whereas kaolinite is increasing. This mineralogical change could indicate a shift to a more humid climate.