



Cretaceous palaeoenvironmental changes inferred from foraminifera communities in the Northern Calcareous Alps (Austria)

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The outcrop at Postalm (Northern Calcareous Alps) exhibits the development of a marine environment from a comparatively shallow shelf to bathyal environment.

Cyclic marly limestones with marl intercalations display an almost complete Santonian to Maastrichtian succession. Within this succession a well defined interval, the *R. calcarata* total range zone has already undergone detailed stratigraphic investigation. The implementation of a cyclostratigraphic model, providing the exact duration of precession cycles (i.e. 19,6 ka), was followed by a high resolution assessment of foraminifera and nannoplankton communities of this interval (Wagreich et al., 2012).

Over 300 bed-by-bed samples have been taken alongside the outcrop to give a "per-cycle" resolution.

As foraminifera data suggest the outcrop covers an interval ranging from the uppermost Santonian *Dicarinella asymmetrica* to the Maastrichtian *Gansserina gansseri* Zone (nannofossil zones CC17 to CC22) and indicates several changes in palaeoenvironment. The lowermost part of the section (uppermost Santonian) displays a comparatively shallow shelf environment yielding high percentage of benthic foraminifera. Highly diverse foraminifera communities can be identified. Planktic and shallow water benthic species are present in equal numbers. Furthermore, bivalves, sponges and echinoderms are highly abundant in the lower parts of the section. A distinct deepening can be observed from the basal Campanian to the Maastrichtian.

Changes in foraminifera communities are evident. The upper parts of the section display foraminifera packstone yielding predominantly planktic foraminifera. Benthic foraminifera are present in almost every sample in varying numbers but never exceeding a 10 percent share of the total foraminifera community. The taxonomic composition of benthic foraminifera communities shows a high amount of infaunal agglutinating species in the stratigraphically younger sections of the outcrop.

The uppermost part of the section displays frequent turbidite events.

Observing palaeoenvironmental changes inferred from foraminifera communities with an established chronostratigraphic framework could lead to a better understanding of the course of events in the northwestern Tethyan Penninic realm in the Upper Cretaceous.

References

Wagreich M., Hohenegger J., Neuhuber S. (2012). Nannofossil biostratigraphy, strontium and carbon isotope stratigraphy, cyclostratigraphy and an astronomically calibrated duration of the Late Campanian *Radotruncana calcarata* Zone. *Cretaceous Research*, 38: 1-17