

## Eocene dinoflagellate cyst assemblages from the northwestern Tethyan margin (Adelholzen section, Eastern Alps, Germany)

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Rich and well-preserved assemblages of organic-walled dinoflagellate cysts (dinocysts) found within 28 samples collected from the Eocene sediments of the Adelholzen section in southeastern Germany are herein presented. The sediments accumulated during the Lutetian and Priabonian at a ramp-type margin of the northwestern Tethys. One hundred organic-walled dinocyst species were found at the section, which is riddled with unconformities. The composition of the successive dinocyst assemblages reflects the sea-level changes within the depositional area. *Areoligera coronata* and *Cordosphaeridium gracile* dominate the assemblage within the glauconite-rich siliciclastic sandstone (lower Adelholzen beds) of the lower transgressive system tract, which spans the calcareous nannoplankton subzones NP15a and NP15b. A hiatus comprising at least ca. 1.5 million years truncates these deposits and indicates an erosional episode. Rapid sea-level rise in Biochron NP16 caused a new transgression and the deposition of calcareous marlstone and limestone rich in nummulitids. In this part of the section (middle Adelholzen beds), *Homotryblium tenuispinosum* is by far the most abundant dinocyst species, and rare but consistent occurrences of *Impagidinium* spp. suggest a more open marine environment. A lithological shift from limestone to marlstone, a change from nummulitids to discocyclinids, and finally the complete disappearance of larger benthic foraminifera indicates continuous deepening of the environment. An increase in *Spiniferites* spp., *Operculodinium* spp., and occurrences of *Homotryblium floripes* characterize the dinocyst assemblage of this marlstone (upper Adelholzen beds). A 0.5 m thick condensed layer, which consists essentially of iron-coated glauconite grains and scattered phosphate nodules, represents the maximum flooding surface of the transgressive sequence, for which a palaeodepth of ca. 300 m is assumed. The overlying marlstone (“Stockletten”) of the highstand system tract is punctuated by a hiatus of ca. 4.3 million years spanning the entire Bartonian. The stratigraphically important species *Rhombodinium longimanum*, *Rhombodinium perforatum*, *Distatodinium ellipticum*, *Nematosphaeropsis labyrinthus* and *Selenopemphix nephroides* have their lowest occurrences in the Priabonian (zones NP18 and NP19) of the section.