



Middle Miocene calcareous nannoplankton and planktonic foraminifers assemblages from the scientific borehole Baden-Sooss (Austria, Central Paratethys)

S. Ćorić (1), C. Rupp (1) and J. Hohenegger (2)

(1) Geological Survey of Austria, Neulinggasse 38, A-1030 Vienna, Austria
(stjepan.coric@geologie.ac.at; christian.rupp@geologie.ac.at)

(2) Department of Palaeontology, University of Vienna, Althanstrasse 14, A-1090 Vienna, Austria (johann.hohenegger@univie.ac.at)

Quantitative analyses on calcareous nannofossils and planktonic foraminifera were carried out on 102 Middle Miocene samples from the scientific borehole Baden-Sooss (Vienna Basin). All samples can be assigned to nannoplankton Zone NN5 (Martini, 1971). The low concentration of *Helicosphaera walbersdorfensis* Müller, 1974 allows correlation with Mediterranean nannoplankton Subzone MNN5a.

Typical near-shore forms as small reticulofenestrads accompanied with smaller numbers of *Umbilicosphaera jafari* Müller, 1974, *Reticulofenestra haqii* Backman, 1978, *Coccolithus pelagicus* (Wallich, 1871) Schiller, 1930, and *Reticulofenestra pseudumbilicus* (Gartner, 1967) Gartner, 1969 dominate the calcareous nannoplankton assemblages. Inter-species correlations and correlations to stable isotopes and magnetic susceptibility together with multivariate statistical methods (Cluster analysis, Indicator value method, nonmetric Multidimensional Scaling) enabled the reconstruction of trends in the palaeoenvironment of the upper water mass during this part of the Badenian.

C. pelagicus is negatively correlated with magnetic susceptibility, thus higher percentages of this form coincide with lower values of magnetic susceptibility and suggest lower water temperature. Oscillations in abundances of small reticulofenestrads could signalise changes in temperature inferring warmer, stratified water and lower salinity.

Higher percentages of *Sphenolithus heteromorphus* Deflandre, 1953 and *S. moriformis* Brönnimann & Stradner, 1960) Bramlette & Wilcoxon, 1967 coincide with increased magnetic susceptibility and can be used as indicators for increased water temperature. The abundance peaks of *U. jafari* reflect a slight increase in salinity. The higher erosion rate on the continent is documented by high percentages of the reworked calcareous nannoplankton. This can be correlated with the intensified input of magnetic particles as documented by magnetic susceptibility.

Low variations in abundance of ecological sensitive species suggest relatively low fluctuating environments. The deeper part of the core (-102 to -40m) shows opposite oscillating trends (with long periods) in salinity and temperature. Around -70m of the core the salinity maximum is combined with a temperature minimum and, vice versus, a salinity minimum and temperature maximum can be found around -50m. Trends in the upper core part are more discontinuous, possibly due to gaps in the sedimentation record as caused by intensified tectonics. Generally, a linear trend towards slightly increasing salinity, eutrophication and lowered temperatures could be documented for the upper core part.

Quantitative analyses on planktic foraminiferal faunas were carried out on 36 samples (in 2.5 to 3.6m intervals from 8.4m to 101.8m). The picked specimens were counted on generic level including some artificial groups like “four chambered globigerinids”. A detrended correspondence analysis (DCA) resulted in three gradients (axis). The first axis is positively correlated with the group “five chambered globigerinids” and abundance (planktic foraminifera per gram) and negatively correlated with *Globigerinoides* and diversity. This is interpreted as a “cool shallow water factor”. The second gradient is positively correlated with *Globoturborotalita* and *Globigerinita* (axis 2) and the third with *Globoquadrina* and *Globigerinella* (axis 3). Interpretation of these two gradients is more sophisticated and not finished up to now.

The rare to common occurrence of species stratigraphically important for the Paratethys such as *Uvigerina grilli* Schmid, *Vaginulina legumen* (Linnè), *Praeorbulina glomerata circularis* (Blow), and *Orbulina suturalis* Brönnimann indicate a position within the lowermost part of the Upper Lagenid Zone (Early Badenian).

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