



The stratotype of the Early Miocene Ottnangian stage revised

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The stratotype section for the regional Central Paratethys stage of the Ottnangian (Early Miocene, mid-late Burdigalian) is located at Ottnang-Schanze in the North Alpine Foreland Basin of Upper Austria (Rögl et al., 1973). About 10m of silty clays with layers of fine sand (“Schlier”) are exposed with two faults running through the succession. A new study on the section combines biostratigraphic information from dinoflagellates, foraminifers and calcareous nannoplankton as well as geochemical data ($\delta^{18}\text{O}$, $\delta^{13}\text{C}$, TOC, S, CaCO_3 content).

The studied samples revealed 70 species of dinoflagellate cysts including several biostratigraphic markers characterizing the Burdigalian (e.g. *Exochosphaeridium insignia*, *Nematosphaeropsis downiei*, *Sumatradinium soucouyantiae*, *Sumatradinium druggii*, *Hystrichokolpoma reductum* and *Cerebrocysta poulsenii*). The recorded assemblages are equivalent to the dinocyst zone Ein of Jiménez-Moreno et al. (2006) and range within dinoflagellate zones DN3 of de Verteuil and Norris (1996) and D17a of Lourens et al. (2004).

Investigations on foraminifers $>150\mu\text{m}$ revealed moderately to well preserved assemblages with a significant increase in total numbers of specimens up-section. Benthic foraminifers include high numbers of *Lenticulina inornata-melvilli* together with the lower Ottnangian index taxa *Amphicoryna ottnangiensis* and *Sigmoilopsis ottnangiensis*. Other common benthic foraminifera include *Spiroplectamina pectinata*, *Marginulina hirsuta* (lower part of the section) and *Caucasina cylindrica* (upper part of the section). Planktic foraminifers are dominated by globigerinids, their abundance shows high variation between 6-59%.

The samples are rich in well preserved calcareous nannoplankton with high amounts of *Coccolithus pelagicus* (Wallich) Schiller. The frequent occurrence of *Helicosphaera ampliapertura* Bramlette & Wilcoxon and the absence of *Sphenolithus heteromorphus* Deflandre suggest a stratigraphic correlation with upper NN2-NN3 nannoplankton zones (Martini, 1971).

Geochemical measurements on bulk sediment samples revealed $\delta^{18}\text{O}$ values from -5.31‰ to -4.42‰ , $\delta^{13}\text{C}$ -values range from -0.25‰ to $+0.69\text{‰}$. Both isotopic signals show no clear trend. Tests of *Lenticulina inornata-mevilli* from various samples show rather constant values ranging from -0.52‰ to $+0.11\text{‰}$ for $\delta^{18}\text{O}$ and from -0.95‰ to -0.48‰ for $\delta^{13}\text{C}$. TOC values vary within a very narrow range between 0.31% and 0.45%, the carbonate content ranges from 26-35%. Sulfur data range from 0.06% to 0.49% showing a slight trend towards higher values up-section.

Further studies on the samples with respect to stratigraphy, geochemistry and paleocology will lead to an integrated description of the Ottnangian stratotype section. The results will contribute to a better understanding of the last transgressive phase of the Central Paratethys in the western North Alpine Foreland Basin.

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