



Lower Muschelkalk magnetostratigraphy from Central Germany and its relationship to the Middle Triassic geomagnetic polarity timescale

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For the Triassic, two parallel concepts of stratigraphic subdivision are currently in use: (a) a high-resolution biostratigraphy for the marine Triassic that is mainly based on conodonts and ammonoids, and (b) a high-resolution lithostratigraphy for the epicontinental Triassic, such as the tripartite Germanic Triassic (Buntsandstein, Muschelkalk, Keuper). In Central Germany, the about 100 m thick marine Lower Muschelkalk consists mostly of marlstones, massive to thin-bedded micritic limestones, and intercalated bioclastic or oolitic limestones, which show a pronounced cyclicity. These small-scale cycles are considered to represent short eccentricity cycles, forming a robust high-resolution cyclostratigraphic framework. Furthermore, it is supported by several well-known marker beds, which can be traced over large parts of the intracratonic Central European Basin using a combination of litho-, cyclo-, and (gamma-ray) log-stratigraphy. Biostratigraphically, the Lower Muschelkalk most probably corresponds to most of the Bithynian and Pelsonian substages of the Anisian.

To establish a Lower Muschelkalk magnetostratigraphy, about 150 paleomagnetic samples have been collected from two outcrops from Central Germany. The subsequent demagnetization revealed magnetite as main carrier of primary remanence. Integrated into a multistratigraphic approach, the resulting Lower Muschelkalk high-resolution bio-cyclo-magnetostratigraphy enables to contribute to an improved correlation with Tethyan bio-magnetostratigraphies.