



High resolution bio-magnetostratigraphy of Early to Middle Miocene continental sediments in the North Alpine Foreland Basin

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High resolution geochronology for the Early and Middle Miocene in continental environments is crucial to link locally observed climatic and evolutionary trends with processes on a global scale. Cyclic alluvial sediments of the North Alpine Foreland Basin (NAFB) yield one of the best fossil records for this time interval in continental Europe, which is used for a reliable local biostratigraphy based on small mammals. In addition, high quality palaeoclimatic data has been derived from botanic and ectothermic vertebrate remains, which are abundant in these sediments. However, the stratigraphic correlation of the Early and Middle Miocene of the NAFB with other continental sections of similar age and with the global timescale is still problematic due to the lack of absolute age tie points. In order to improve the chronostratigraphy of the NAFB, several sections of alluvial sediments of Karpatian to Badenian age were sampled for palaeomagnetic studies. Preliminary results indicate the presence of at least six intervals of normal and reversed polarity in three sections from the Mainburg area, ca. 60 km north of Munich. In the lowermost section (Puttenhausen), an 18 m thick sequence of fine clastic sediments is interpreted to represent four subchrons of chron C5Cn. Pedogenic fabrics in the lower part of the Puttenhausen section indicate warm winter temperatures and high seasonality in precipitation. This is in good agreement with palaeobotanic data from coeval strata. Further study is needed to clarify if significant cooling indicated by pedogenic and palaeobotanic data from younger sediments in the NAFB represents an equivalent to the Mi2 isotope event.