Geophysical Research Abstracts
Vol. 19, EGU2017-9699, 2017
EGU General Assembly 2017

Integrated stratigraphy of the Ammer section, Northern Alpine Foreland Basin, Germany: examining the age and origin of the earliest deposits in the Paratethys

Annique van der boon (1), Anouk Beniest (2), Agnieszka Ciurej (3), Elzbieta Gaździcka (4), Arjen Grothe (1), Reinhard Sachsenhofer (5), Cor Langereis (1), and Wout Krijgsman (1)

(1) Paleomagnetic Laboratory Fort Hoofddijk, Utrecht University, Utrecht, The Netherlands (a.vanderboon@uu.nl), (2) ISTEP, Université Pierre et Marie Curie, Paris, France, (3) AGH Cyfronet, Academic Computer Center, Krakow, Poland, (4) Institute of Geological Sciences, Polish Academy of Sciences, Krakow, Poland, (5) Department Applied Geosciences and Geophysics, Montanuniversität Leoben, Leoben, Austria

The Northern Alpine Foreland Basin (NAFB) was an arm of the epicontinental Paratethys Sea during the Oligocene. The Oligocene and Miocene deposits in the Paratethys are linked to a long-term phase of episodically oxygen-poor conditions. This led to the deposition of organic-rich shales over millions of years, which nowadays make up the most important part of the source rocks of the Paratethys. At the Eocene-Oligocene transition (EOT), global sea-level dropped by an estimated 70 meters. Both this eustatic sea-level drop and large scale tectonic movements are inferred as mechanisms for restriction of connections to the global ocean and consecutive basin isolation in the Paratethys.

Discriminating sea-level effects from tectonic processes requires accurate dating of Oligocene deposits. Here, we use an integrated stratigraphic approach, combining different biostratigraphic techniques with magnetostratigraphy and organic geochemistry, to determine the age of the Tonmergel formation along the Ammer River in southern Germany. The Tonmergel formation is usually interpreted as the equivalent of the Paratethys Lower Oligocene organic-rich shales. The age of deposits (typically mapped as Oligocene) in this region is currently under debate, as some studies suggest they might be late Eocene in age. The absence of marker species for biostratigraphic zones, the scarcity of ash layers and the lack of formally defined boundaries of nannoplankton zones around the Eocene-Oligocene interval (e.g. the NP19-20/NP21 boundary) further obstruct accurate dating.

Here we present the results of our magnetostratigraphy, biostratigraphy and organic geochemistry and interpret whether any lithological changes can be linked to climate forcing or tectonic processes. Based on the combined results of our study we provide several options for the age of these earliest Paratethys deposits, and discuss our preferred option.