

Ber. Inst. Erdwiss. K.-F.-Univ. Graz	ISSN 1608-8166	Band 21	Graz 2015
STRATI 2015		Graz, 19 – 23 July 2015	

New data on the stratigraphy of the *Rzehakia (Oncophora)* Formation in the German part of the North Alpine Foreland Basin (Western Paratethys, late Burdigalian)

REICHENBACHER, Bettina¹, SANT, Karin², KIRSCHER, Uwe³, PIPPÈRR, Martina¹,
KRIJGSMAN, Wout², JUNG, Dietmar⁴, DOPPLER, Gerhard⁵

¹ Department of Earth- and Environmental Sciences, Palaeontology & Geobiology, Ludwig-Maximilians-University, Richard-Wagner-Strasse 10, 80333 Munich, Germany

² Paleomagnetic laboratory “Fort Hoofddijk”, Dept. of Earth Sciences, Utrecht University, Budapestlaan 17, 3584 CD Utrecht, The Netherlands

³ Department of Earth- and Environmental Sciences, Geophysics, Ludwig-Maximilians-University, Theresienstraße 41, 80333 Munich, Germany

⁴ Bavarian Environment Agency, Hans-Högn-Straße 12, 95030 Hof

⁵ Bavarian Environment Agency, Haunstetter Straße 112, 86161 Augsburg

The *Rzehakia (Oncophora)* Formation (Rz Fm) is traditionally thought to represent the regressive facies of the late Otnangian in the Central Paratethys. However, some of the ten currently described faciostratotypes of the Rz Fm are located above crystalline basement rocks while others overly Eggenburgian sediments (Čtyroký et al., 1973). It is therefore possible that the facies characterized by *Rzehakia* and co-occurring molluscs developed locally and indicates a brackish facies during the early/middle/late Otnangian rather than a precise late Otnangian age (Reichenbacher et al., 2013). The “Kirchberger Schichten” (KS) at the type locality near Ulm, SW Germany, represent the only faciesstratotype of the Rz Fm that is located in the Western Paratethys. In our previous work (Reichenbacher et al., 2013), we have provided a new magnetostratigraphic framework for the KS and their under- and overlying strata and we have correlated the KS to the early Karpatian (C5Cr and C5Cn.3n). Since that study, we conducted additional sedimentological, micropalaeontological and magnetostratigraphic work based on a total of eleven drill cores located in the German Molasse Basin. Our new data confirm the Karpatian age of the KS, but indicate an even slightly younger age for the KS (C5Cn.2r and C5Cn.2n). Furthermore, our sedimentological data suggest that the lowermost unit of the KS is the shelly layer with abundant *Cerastoderma* and *Mytilopsis* (rather than the sands with *Rzehakia* that underlie the shelly layer) and that this shelly layer accumulated during a new transgression. Considering the definition of the Karpatian stage (Cicha et al., 1967; Cicha & Rögl, 2003), (i) the Karpatian is a time span of the Miocene between the terminal beds of the Otnangian and the global first appearance of *Praeorbulina glomerosa*, (ii) the Karpatian overlies at its stratotype the brackish Rz Fm, (iii) the Karpatian mollusc, foraminiferal, ostracod and otolith fauna is different from those of the Eggenburgian and Otnangian and includes mostly species that are also typical for younger Miocene strata. The KS fulfill criteria (i) and (ii). We therefore conclude that the KS represent the transgression of the Karpatian in the German Molasse Basin, rather than the regressive facies of the late Otnangian. However, a still enigmatic feature of the KS is that their beds hold numerous species of bivalves, gastropods, fishes and also some foraminifers that are currently considered as typical for the late Otnangian and that new faunal elements are scarce. Our new data additionally indicate an age of approximately 16.47 Ma for the KS/Upper Freshwater Molasse boundary, which means that deposition of the Upper Freshwater Molasse at the northern rim of the German Molasse Basin started later than previously expected (Reichenbacher et al., 2013; Abdul Aziz et al., 2010). This new age matches nicely with the previously determined age for the base of the OSM in the Swiss Molasse Basin (~16.5 Ma; Reichenbacher et al., 2013).

Acknowledgments: This work was financially supported by the European Fund for Regional Development (EFRE) and the Bavarian Environment Agency (LfU).