

Ber. Inst. Erdwiss. K.-F.-Univ. Graz	ISSN 1608-8166	Band 20/1	Graz 2014
PANGEO AUSTRIA 2014	Graz, 14. September 2014 – 19. September 2014		

New investigations concerning the Upper Ottnangian sands in the Lower Austrian Molasse Basin

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In the Early Miocene (Late Ottnangian), a global sea level drop and the continuous rise of the Alps lead to the regression of the Parathethys and to the sedimentation of the Upper Freshwater Molasse. In the Lower Austrian Molasse Basin, this event is represented by yellowish-brownish to greyish white mica-rich and carbonate-free sands and silts with clayish interlayers, formerly called Oncophora Beds (OB), which crop out between St. Pölten and Tulln. A new definition combines these sediments, now called Traisen-Formation (TF) together with the Dietersdorf Formation within the Pixendorf Group.

Drill cores from OMV-wells predominantly from the NW show hundreds of meters thick sequences of pelites with intersections of sands interpreted as representing the OB. Contrary to the mainly brackish TF, a turbiditic deeper-water environment is inferred.

An OMV-funded project will investigate the relationship between these sediments, their stratigraphical and chronological range, provenance and internal stratigraphy.

First results from outcrops and the Wildendürnbach-K4 well confirm large differences in grain size, structures and carbonate content. XRD-results indicate quartz, feldspar, muscovite, chlorite, calcite and dolomite as the main minerals within the sands and pelites. Pyrite is frequent. Halite and kaolinite occur.

Heavy minerals show high amounts of homogenous almandine-rich garnets (60-70 %), up to 20 % epidote and amphiboles (8-15%) for the TF. Characteristic chemical compositions of garnet (alm \sim 65; gro \sim 22; pyr \sim 9; spes \sim 4) and high white mica contents possibly point towards medium grade metapelitic rocks from Austroalpine Crystalline Complexes of the Eastern Alps as a main source area, but other sources could also be identified. Further investigations will show, if the “deep-water OB” can be defined as a further separate formation of the Pixendorf Group.