A NEW LITHO- AND CHEMOSTRATIGRAPHICAL CONCEPT FOR THE MIOCENE LOWER AUSTRIAN MOLASSE BASIN (LAMB)

PALZER-KHOMENKO, Markus* (1); KNIERZINGER, Wolfgang (1); WAGREICH, Michael (1); MESZAR, Marie-E. (1); GIER, Susanne (1); SOLIMAN, Ali (2); KALLANXHI, Mădălina-Elen (3)

1: University of Vienna, Austria; 2: Tanta University, Egypt; 3: Babeș-Bolyai University, Romania

markus.palzer@gmx.at

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The Lower Austrian Molasse Basin (LAMB) situated between the Bohemian Massif, the Waschberg-Zone and the easternmost Alpine thrust units constitutes a key position for the evolution of the Eastern Alps and the Alpine foreland basin in the transition to the Western Carpathians.

There, up to 2000m thick Miocene sediments occur which are dominated by fine grained pelitic “Schlier-type” sediments and thick sand-dominated strata with a highly homogeneous composition and fossil content. Therefore, a distinction of several units remained difficult and problematic in the past.

An OMV funded project investigated drill cores throughout the LAMB and compared the results with the “surface geology” and it`s proposed terminology.

Profiles of carbonate content, XRD, XRF, whole rock chemistry, clay minerals, calcareous nannoplankton (CNP) and dinoflagellate cysts were investigated. The lack of good age constraints (especially microfossils) remains most challenging for such investigations.

4 stratigraphic signals can be correlated throughout the basin:

• Carbonate Minimum Interval (CMI): A calcite and fossil-poor to -free interval with increased smectite and reduced pyrite contents.

• Bioturbated Sandstone: A prominent unit of bioturbated sediments interpreted as major transgression horizon.

• Onset of Mica Sedimentation (OMS): The increasing (topwards) mica contents mark a change in lithological and chemical composition and a shift in provenance.

• Basal Kaolinite Enrichment Zone (BKEZ): Enrichment of kaolinite and several elements are related to the basal boundary to the Pre-Neogene Basement.

A new lithostratigraphy is proposed which can be used in case of poor or missing chronostratigraphical or biostratigraphical data. In this concept, the CMI marks an environmental crisis due to the narrowing (and isolation) of the LAMB during the uppermost Ottnangian with the sand-dominated **Traisen Formation** in the S and the pelitic **Zellerndorf Formation** in the north. Sediments overlying the CMI can be attributed to the Karpatian **Laa Formation**. “Schlier-type” sediments underlying the CMI represent the **Robulus Schlier** (frequently used working term). The **Bioturbated Sandstones** (working term) mark the lower boundary of the pelitic Schlier-succession. The underlying quartz and K-feldspar rich and mica poor sands were summed up as **Basal External Sands** (working term, compareable to Linz-Melk Formation but of uncertain age).