



Provenance Analysis of Lower Miocene Sediments in the Lower Austrian Molasse Basin

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In the Early Miocene (Late Oligocene) a global drop of the sea level and the continuous rise of the Alps caused a regression of the Paratethys. During this time interval the Traisen Formation (formerly Oncophora beds) was deposited in the Lower Austrian Molasse Basin. These yellowish-brownish to greyish mica-rich and carbonate-free sands and silts with clayish interlayers were originally named after a brackish water bivalve ("Oncophora"- now *Rzehakia*). The southeastern part of the TF partly interfingers with finer sands of the Dietersdorf Formation (DF). The Pixendorf Group combines the TF and the DF [coarse sands, conglomerates, blocks] of the Upper Oligocene lithostratigraphic units in Lower Austria. West to the Waschberg Zone a deeper-water environment (so called Oncophora beds in former literature, herein [informally] renamed to Wildendürnbach Member) with sediment gravity flows (turbidites, muddy/sandy slumps) is inferred from OMV well data. Examinations of these fine sandstones, silts and laminated pelites have been carried out on the basis of the Wildendürnbach-4 OMV drilling core. Analyses of the TF revealed rather homogenous heavy mineral assemblages, dominated by high amounts of garnet (~65%) and relatively high amounts of epidote/zoisite (~10%) and amphiboles (~10%). Conducted surveys point towards a primary influence of metamorphic (metapelitic) source rocks of Austroalpine Crystalline Complexes of the rising Eastern Alps. Heavy mineral analysis of the WDK-4 drilling core showed even higher amounts of garnet (~80%) combined with minor amounts of rutile, staurolite, apatite, epidote/zoisite, tourmalines, zircon and amphiboles. Consistent heavy mineral assemblages and chemical data (EMPA) suggest a stratigraphical correlation with the Křepice Formation and the Ždánice-Hustopeče Formation in the Czech Republic and sedimentary influence from the Western Carpathian Flysch Belt.