THE NORIAN “FISH SHALES” OF THE WIESTAL („SEEFELD-FORMATION“, UPPER TRIASSIC, SALZBURG, AUSTRIA)

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In the Wiestal-region north-east of Hallein (Salzburg, Austria), the upper part of the Hauptdolomit-Formation (Northern Calcareous Alps, Norian, Upper Triassic) contains dark grey laminated, bituminous dolomitic limestones of the Alaunian Seefeld-Subformation. This up to 10 m thick succession was deposited in tectonically induced, small-spaced depressions under restricted, anoxic conditions of bottom waters near the water/sediment interface. The basins were surrounded by the widespread carbonate platform of the Hauptdolomite- and Dachstein-Formations. The Wiestal-site contains individual-rich assemblages of small- to large-sized ganoid fishes in at least five distinct fossil horizons. The mainly neopterygian fish fauna show perfect preservation, isolated embedding or fossilisation in complete swarms, even partly preserved isoorientation of fish bodies. Almost a few thousand specimen found during the field seasons 2012 to 2014 can be assigned to the “classical” neopterygian genera composed of Paralepidotus, Legnonotus, Pholidophorus as well as rare Dandya and Semiolepis. Furthermore, it provided three specimens of the palaeopterygian Saurichthys deperditus and one specimen of the pycnodont Eomesodon hoeferi. A single scale of a large-sized crossopterygian, a well-preserved lobster-like crawfish and m-sized gagate derived from disarticulated wood are attributed to very rare associated findings. As the fish-bearing horizons show significant differences in their fish faunule including almost all growth stages of the highly variable species Paralepidotus ornatus, new implications regarding taxonomy, sedimentology, taphonomy and palaeoecology have risen. Until now, the origin of the documented fossil mass mortality within the flat depressions is still under discussion. One possibly scenario could be a local toxification of the complete water body due to algal blooms that led to a quick death and fast embedding both of single specimens and complete fish swarms.