

NEW INSIGHTS INTO THE WORLD OF MESOZOIC ECHINODERMS – EXCEPTIONALLY PRESERVED FOSSILS FROM THE ORNATENTON FORMATION OF THE WIEHEN HILLS (CALLOVIAN, MIDDLE JURASSIC)

Pauly, L.¹

¹Rheinische Friedrich-Wilhelms-Universität Bonn, Institute for Geosciences, Bonn, Germany,
s6lupaul@uni-bonn.de

Despite having a fairly extensive fossil record in the Middle Jurassic, articulated fossils of echinoderms from this epoch are rather rare. Much of our knowledge of some of the earliest representatives of important post-Palaeozoic groups is based on isolated ossicles, often making inferences on morphology and systematics difficult. Taphonomic biases add to this problem: in particular, most of the typical Callovian siltstone and mudstone deposits throughout Europe only include poorly preserved, isolated and overall rare remains of echinoderms, which has led to the believe that they did not constitute an important part of Callovian marine ecosystems. A newly discovered well-preserved echinoderm fauna from the Ornatenton Formation of Wallücke in the Wiehen Hills includes a total of 14 species belonging to the Crinoidea, Asteroidea, Ophiuroidea and Echinoidea. Some of the fossils belong to previously unknown species and will be described in a publication that is currently in preparation. Unusual morphological features include echinoid-like spines in a solasterid asteroid, unique spine morphologies in a polycidarid echinoid and the overall very small size and delicate build of many of the different species. Preservation of the fossils is often exceptionally good and includes fully articulated crinoids and asterozoans as well as echinoids with attached spines, intact lanterns and complete apical discs. The fossils are interpreted to belong to several obrution deposits where distal storm events resulted in sudden burial of the animals with fine-grained sediment. The new fauna shows that the perceived rarity of echinoderms in Callovian fine-grained successions is at least in part due to taphonomic circumstances and that the actual diversity and abundance might have been much higher than expected.