Geophysical Research Abstracts
Vol. 13, EGU2011-2437, 2011
EGU General Assembly 2011

Transition between the massive reef – backreef and cyclic lagoon facies of the Dachstein Limestone in the southern part of the Dachstein Plateau, Northern Calcareous Alps, Upper Austria

Janos Haas (1), Olga Piros (2), Tamás Budai (2), Ágnes Görög (3), Gerhard Mandl (4), and Harold Lobitzer (5)

(1) Geological, Geophysical and Space Science Research Group of the Hungarian Academy of Sciences, Eötvös Loránd University, H 1117 Budapest, Pázmány sétány 1/c, Hungary (haas@ludens.elte.hu), (2) Hungarian Geological Institute, Stefánia út, 14 H 1143 Budapest, Hungary, (3) Paleontological Department, Eötvös Loránd University, H 1117 Budapest, Pázmány sétány 1/c, Hungary, (4) Geologische Bundesanstalt, Neulinggasse 38, A 1030 Vienna, Austria, (5) Lindaustrasse 3, A 4820 Bad Ischl, Austria

Along the southern margin of the Dachstein Group Norian massive reef limestones are exposed that progress northward into well-bedded cyclic peritidal-lagoonal carbonates (Roniewicz et al. 2007). Characteristic features of the transitional zone are presented and interpreted. The cyclic succession is made up of alternation of subtidal and peritidal beds. The subtidal beds are usually oncoidal and contain megalodonts, gastropods, and foraminifera. Some of the subtidal beds were affected by pedogenic alteration, karstification and meteoric early diagenesis. The peritidal beds are usually red; they contain reworked soil derived material and were also affected by incipient pedogenesis. Based on the foraminifera fauna and considering also the geological setting, the studied beds at Handgruben can be assigned to the (Upper?) Norian. The studied sections are compared with the coeval cyclic internal platform deposits, which occur near to Mt Krippenstein, in the northern part of the Dachstein Plateau (Haas et al. 2007). The facies differences between the marginal and the internal cyclic successions can be summarized as follows.

1. Above the erosional, karstic disconformity surface the A facies appear to be thicker in the marginal zone (Handgruben section) where traces of the in situ pedogenesis could also be observed.
2. The B facies (stromatolites, loferites) are usually present at the basal part of the cycles in the platform interior succession (Krippenstein), whereas similar facies (laminated mudstone but not stromatolite) was found only in a single cycle in the studied marginal succession.
3. The C facies is typically oncoidal packstone, grainstone in the marginal zone and peloidal bioclastic wackestone, packstone and grainstone in the platform interior area; megalodonts are common in both.

These differences probably reflect the differences in the paleogeographic setting. In the marginal zone, near to the offshore edge of the platform oncoid shoals developed under relatively high-energy conditions above the fair-weather wave base. The marginal patch-reefs (knoll-reefs) may have situated somewhat deeper. The wide platform interior area was located behind the marginal shoals and during the high sea level periods it was slightly deeper than the oncoid mounds. The sea-level drops led to subaerial exposure and related karstification both the shoal belt and the interior lagoon. Rising sea level led to establishment of tidal flat conditions on the platform interior whereas the subaerial conditions prolonged on the slightly elevated previous shoals which resulted also in incipient pedogenesis.

Referenses

Haas, J., Lobitzer H., & Monostori, M. (2007): Characteristics of the Lofer cyclicity in the type locality of the Dachstein Limestone (Dachstein Plateau, Austria).- Facies 53, 113–126, es in the Transdanubian Range, Hungary.- Facies, 53, 263-286, Berlin-Heidelberg.

Roniewicz, E., Mandl, G. W., Ebli, O. & Lobitzer, H. (2007): Early Norian Scleractinian Corals and Microfacies Data of the Dachstein Limestone of Feisterscharte, Southern Dachstein Plateau (Northern Calcareous Alps, Austria).- Jb. Geol. B.-A., 147, 577-594, Wien.