LATE TRIASSIC FORE-REEF EVOLUTION OF THE DACHSTEIN CARBONATE PLATFORM – ION-EXCHANGE AND BIOSTRATIGRAPHIC ASPECTS

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The Late Triassic fore-reef evolution of Mt. Jenner in the Berchtesgaden Alps, Germany offers a rare geological archive, in which a high-resolution conocont dated slope from the Dachstein Carbonate Platform can be studied in context with sequence stratigraphic cycles.

The analysis of Lacian transgressive/regressive cycles throughout the earliest Dachstein platform progradation has revealed that mixing advection of sea-water with meteoric-water through the sediment favoured biochemical, redox-sensitive reactions on compounds and mineral surfaces, and a shallow-burial dolomite formation with high Mg/Ca-ratios in normal marine salinity, respectively. In the latest Lacian, temporary exposures of the carbonate platform caused in lowered sediment accumulation rates and drove low-energetic environments on the slope. Characteristic hopanes indicate, in these stratified layers an input of palaeosoil material with biodegraded land plants. Shifts in the sediment permeability influenced the concentration and mobility of the ions, and the flow of electrolytic charge in organisms. A first occurrence of the Griphoporella, Boueina and Aciculella dasycladales, in correlation with conodonts can be reported. During the Alaunian 1 to 3I, first tectonic pulses, coupled with ocean-acidification proxies caused in an aggradation of the platform, as seen in the fore-reef geometry. Corals, algae, foraminifers and calcified microbes recover and bloom in the Alaunian 3II. The Mg/Ca-concentration decreased when shell and skeleton production exploded. Salinity and microbial fermentation processes in the sediments were strongly influenced by the eustatic pulses. A strong tectonic pulse at the Alaunian/Sevatian boundary with increasing subsidence resulted in rapid platform progradation on Mt. Jenner.

This Late Triassic fore-reef architecture can be directly correlated with other high resolution Dachstein carbonate platform successions, dated by means of conodonts in the eg., Eastern Alps, Western Carpathians and Julian Alps.

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