

## **Sea-level and climate changes in the Northern Calcareous Alps: New insights from the Rhaetian Zlambach Formation of the Hallstatt Basin (Austria)**

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The uppermost Triassic (Rhaetian) Zlambach Formation, as developed in the Northern Calcareous Alps of Austria was deposited in the basinal realm of the open marine deeper Hallstatt shelf of the Tethys Ocean. The main part of the Zlambach Formation succession consists of sedimentary sequences, each divided into three parts: (1) a medium-grained intraclastic pack-, grainstone at the base, overlapped by (2) a calcisiltite/calclutite and finally (3) a calclutite mudstone at the top of the sequence.

Field, microfacies, stable isotope and trace element investigations suggest that the medium-grained intraclastic-bioclastic pack-, grainstones are predominantly allochthonous origin, having been derived as a detrital carbonate signal from the adjacent southern marginal Dachstein reef, while the calclutite mudstones were mainly composed of pelagic sediments and grains. Thus, the compositional variation of the microfacies inferred to result from gravity-induced carbonate deposits, which are in accordance a distal toe-of-slope setting of the calciturbiditic sequences.

In this study, it is postulated that the calciturbidites were deposited in response to regional and/or global eustatic variations. A model is presented in which the basinward export of detrital carbonate was negligible during sea-level lowstands, increasing to a maximum during sea-level highstands. These sea-level variations may be either climate-induced or related to tectonic processes or a combination of both.