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Late Triassic (Rhaetian) carbon isotope stratigraphy and depositional environments of deep neritic to basinal deposits in the Northern Calcareous Alps (Austria).

Mette, W.¹, Clémence¹, M.-E., Thibault², N., Korte², C. and Boussaha, M.²

¹ Institut für Geologie, Universität Innsbruck, Innrain 52, 6020 Innsbruck, Austria, Wolfgang.Mette@uibk.ac.at

² Department of Geosciences and Natural Resource Management, University of Copenhagen, Øster Voldgade 10, DK-1350, Copenhagen C., Denmark

The Rhaetian Zlambach Formation of the Northern Calcareous Alps is a succession of fine-grained limestones and shales deposited in an open marine toe of slope to basin environment of the Hallstatt Basin (north-western Tethys). The Rossmoosgraben section near to Bad Goisern (Hallstatt area, Austria), a 56m thick Zlambach Formation succession, consists of several thickening upwards sedimentary cycles with significant environmentally forced cyclic variations indicated by microbenthic microfossil assemblages, trace fossil associations, carbon isotopes and trace element ratios. Microfacies and trace element results indicate that distal calciturbiditic intercalations at the top of each cycle were derived from the nearby Dachstein carbonate platform. Trace fossils and micropalaeontologic data also show cyclic changes of oxygen concentrations at the sea floor. The turbiditic intercalations can be explained by sea level changes controlled by climatic fluctuations (humid-arid).

According to an earlier reconstruction of the depositional history and stratigraphic dating of the "Dachsteinriffkalk" (Krystyn et al. [1]) the Dachstein carbonate platform drowned and platform growth stopped in the Middle Rhaetian (Rhaetian 2). The stratigraphic range of turbiditic intercalations at the Rossmoosgraben section, however, shows that the platform growth continued into the upper Rhaetian *Choristoceras marshi* ammonoid zone. A distinct negative shift of carbon isotope data ($\delta^{13}\text{C}_{\text{bulk}}$) from the Rossmoosgraben section, on the other hand, is suggestive of environmental change in the Upper Rhaetian (Rhaetian 3).

References:

[1] Krystyn L Mandl G and Schauer M (2009) Austrian Journal of Earth Sciences 102: 23-33

