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Geochemical and geophysical records of the Middle Devonian sequence in the Carnic Alps

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The late Eifelian Kačák Event (HOUSE, 1985) is a period of global anoxia coincident with widespread deposition of black shale and chert documented in sedimentary sequences of hemipelagic, pelagic and some neritic facies globally. The event-interval is constrained to the *kockelianus-ensensis* conodont zones (HOUSE, 1985) and associated with the faunal changes and extinctions. A significant negative $\delta^{13}C$ excursion and a broad depression in the magnetic susceptibility (MS)-curve have been recognized in the late Eifelian, which are related to the Kačák Event (HLADIL et al., 2002). In our study we focus on the Middle Devonian units of the Carnic Alps (Austria-Italy) and aim to define the Kačák Event by using microfacies analysis, biostratigraphy based on conodonts and the application of stable isotope geochemistry and magnetic susceptibility.

Selected units observed are the Hoher Trieb Formation (Eifelian–Frasnian) of Mt. Pizzul, Lanza (Italy) and the Valentin Limestone of Wolayer Glacier section (Austria). The former unit is characterized by gray to dark gray flaser and platy limestone which are intercalated by black shale and chert layers with silicified corals bearing breccia levels framing the interval. Slope settings are assumed for deposits of this formation which accumulated at the distal part of the fore reef. Totally 64 rock samples were collected for the study from the unit outcropping at Zuc di Malaseit Basso (ZMB; sampled interval 4.5 m). A depression in MS-values (55.73 to -2.44) is observed between sample nos. ZMB34 middle2 and ZMB7 middle, with a distinctive negative shift in carbon isotope from 2.2 (ZMB23 top1) to 0.1 (ZMB20-1), which corresponds with the Kačák event-interval.

The Valentin Limestone consists of highly condensed sediments, which were accumulated in a pelagic environment. According to SCHÖNLAUB (1985), the upper part of the Eifelian is unconformably overlain by beds of Givetian age, with the boundary allocated between bed-no. 70 and 71. We collected 15 limestone samples across the Eifelian–Givetian interval within gray tentaculite wacke- and packstones (bed-no. 69 to 72; in total, an interval of about 25 cm) for the MS (laboratory device KLY-3, Institute of Geology AS CR) and drilled 124 samples from the bulk-rock for the carbon and oxygene isotope analyses. MS-patterns show a trend that documents a decrease in values (47.45 to 27.71) between bed-nos. 69 top to 70a top, where a 5 mm or less thick dark limestone-level is intercalated (70a middle). Across this interval, carbon isotopes shift slightly (2.0 to 1.8), whereas oxygen values show a distinctive positive shift (-8.9 to -6.8). This slight excursion might correspond with the Kačák Event.

A next step of our study will be the correlation of isotopes and MS patterns across the Eifelian–Givetian boundary with deposits of the carbonate platform to clarify whether the Spinotti Limestone, *Amphipora* Lst or Kellergrat Reef Lst might represent the coeval neritic equivalent to the pelagic deposits across the Kačák Event.

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