The Eifelian Givetian Stage Boundary (Middle Devonian) at Tsakhir, Govi Altai Region, Southern Mongolia

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The Eifelian-Givetian boundary was a time of significant mass extinction and climate change, marking the approximate end of a global transgressive episode known as the Kačák–otomari event, identified at sections in North America, Europe, and Africa. However, the position of the Eifelian-Givetian boundary and strata equivalent to the Kačák–otomari interval in Mongolia has not been extensively studied. Through the study of microfossils and magnetic susceptibility, Middle Devonian strata will be characterized and compared to established Eifelian-Givetian sections.

The lithology of the Tsakhir section is similar to stratigraphic sequences found in North America, where Eifelian carbonates of the Onondaga Formation are overlain by the shales of the Marcellus and Skaneateles Formations. The presence of Polygnathus xylus xylus, Polygnathus linguiformis linguiformis, Polygnathus ensensis, and Icriodus sp. in samples collected from 65.5 meters above the zero marker constrain the age of the outcrop to the Lower varcus Subzone of the Lower Givetian. Positive shifts in magnetic susceptibility were observed in samples collected from 0.0-3.4 meters and from 46.0-49.0 meters. These trends are similar to what is observed in strata in North America and Morocco, where there is a positive shift in magnetic susceptibility just below the Eifelian-Givetian Boundary.

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