The biostratigraphic and chemostratigraphic frameworks of Changtang section in South China: A continuous and complete section of the Frasnian-Famennian boundary

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Abstract

The Late Devonian Frasnian-Famennian Boundary (FFB) witnessed a sharp decline of biodiversity of marine invertebrates, i.e., the F-F mass extinction, collectively known as the F-F mass extinction event, one of the big five mass extinctions in Phanerozoic. The F-F boundary may also experience an oceanic anoxic event, i.e., the Kellwasser Event (KE). To understand the biological turnovers and environmental changes in the F-F transition, it is critical to establish the high-resolution stratigraphic framework.

Here, we report the conodont biostratigraphy of the Changtang Section in South China, which transect the FFB. The Changtang section was located in the intra-platform basin of Yangtze Block, and is mainly composed of limestone. Compare to other sections in South China, the Changtang section records the most complete conodont zonation near the FFB, but lacks the direct geological evidence of KE, i.e., no black shale depositions. We integrate biostratigraphic and chemostratigraphic frameworks of the Changtang section, and compare it with other canonical sections in South China and the Global Stratotype Section and Point of FFB. Overall, the complete biostratigraphy of the Changtang section warrants its potential as a standard section of the FFB in China.

Keywords: Frasnian, Famennian Boundary, Kellwasser Event, South China, conodont belt, Changtang section, section assessment

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