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足尾帯大釜セクションにおける下部?中部三畳系境界付近の遠洋性深海堆積物の微化石・炭素同位体層序
Biostratigraphy and carbon isotope stratigraphy of the Olenekian-Anisian pelagic deep-sea section from Ogama, Ashio Belt

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The recovery of life after the end-Permian mass extinction occurred around Anisian (early Middle Triassic). At the Olenekian-Anisian (Lower-Middle Triassic) boundary (O-AB), the lithologic change from claystone dominant facies to radiolarian-rich bedded chert facies has been reported from the Panthalassic pelagic deep-sea sediments in Japan. This trend has been interpreted to reflect a biotic recovery of the pelagic Panthalassa (Isozaki, 1997, Takahashi et al., 2009). However, spatial variations in the lithofacies of these pelagic deep-sea sediments have seldom been investigated in detail, due to the scarcity of well-preserved sections. This study reports a high-resolution microfossil- and carbon isotope-based stratigraphy around the O-AB from a new pelagic deep-sea section (Ogama section) situated in the Tochigi Prefecture, eastern Japan. The lower 8.5 m of the Ogama section is composed of alternating claystone and chert, while the upper 9 m is composed of bedded chert. Age diagnostic fossils show that the alternating claystone and chert interval can be correlated to the Spathian (upper Olenekian: uppermost Lower Triassic) to middle Anisian (lower Middle Triassic), and the bedded chert interval to the middle (to upper) Anisian. Organic carbon isotope values show a positive peak near the lowest occurrence of the conodont Ch. timorensis. This fact accords with the carbonate carbon isotope record reported from shallow-water marine carbonate sections.

The lithological transition from alternating claystone and chert to bedded chert facies near the OA-B has also been reported from the well-studied sections in the Inuyama area, Central Japan (compiled in Ikeda et al., 2010). Although the timing of this lithologic transition is roughly coincident for the two study areas, a conspicuous difference in lithology is observed around the O-AB. In the Ogama section, the O-AB falls within a 4 m thick, organic-rich black claystone dominant interval. In contrast, the O-AB interval in the Inuyama area is composed mainly of grey siliceous claystone. This suggests that production and/or preservation of organic matter was greater at the depositional grounds of the Ogama section. Further comparison of lithologic characters of the two study areas could promote the understanding of the pelagic oceanic environments around the O-AB.
Keywords: Olenekian-Anisian boundary, Conodont, Radiolarian, Carbon isotope