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Abstract

The Toarcian Oceanic Anoxic Event (T-OAE) is one of the most severe paleo-environmental perturbations in the Mesozoic. Although the Karoo-Ferrar volcanism has been implicated as a possible trigger for the T-OAE, the linkage between the Karoo-Ferrar volcanism and the global environmental changes remains controversial. In this thesis, I report stratigraphic profiles of $^{187}\text{Os}/^{188}\text{Os}$ ratios and $\delta^{13}\text{C}_{\text{org}}$ values from Pliensbachian to Toarcian deep-sea cherts that crop out at the Inuyama area, SW Japan. Based on the secular variation of $^{187}\text{Os}/^{188}\text{Os}$ ratios and $\delta^{13}\text{C}_{\text{org}}$ values observed in the analyzed cherts, I demonstrate that the Karoo-Ferrar volcanism occurred shortly before the T-OAE period in the central Panthalassa. This large-scale volcanism enhanced the atmospheric CO_2 level and triggered subsequent intensified continental weathering, which led to the suppression of oxygen level at the bottom of the Panthalassic Ocean.