

LINKING THE TOARCIAN OCEANIC ANOXIC EVENT WITH KAROO-FERRAR LARGE IGNEOUS PROVINCE VOLCANISM

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The Early Jurassic Toarcian Oceanic Anoxic Event (T-OAE ; ~183 Ma) is marked by the widespread development of anoxic/euxinic conditions in response to climatic and environmental change, and major changes in the exogenic carbon cycle resulting from elevated carbon release and burial at that time. The rapid changes in Earth system processes associated with the T-OAE are often linked to Karoo-Ferrar Large Igneous Province (LIP) volcanism, but a direct, temporal (or causal) relationship is not very well established due to limited age-constraints on both the Karoo-Ferrar LIP itself as well as marine sedimentary successions comprising the T-OAE.

Here, we present new geochemical data and age-constraints on both biostratigraphically well-calibrated marine sedimentary successions and Karoo-Ferrar LIP volcanism and show a direct temporal relationship. This suggests that LIP volcanism did likely play a crucial role in (initiating) the events associated with the T-OAE.