

## Continental weathering trigger for the Mid-Cenomanian Event

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The emplacement of a Large Igneous Province (LIP) is implicated in the triggering of the Cenomanian-Turonian Ocean Anoxic Event 2 (OAE 2; ca 94 - 95 Ma). However, evidence for a similar initiation mechanism for the Mid-Cenomanian Event (MCE; ca 96.5 Ma), a precursor to OAE 2 when comparable environmental conditions persisted, remains unclear. This short-term carbon cycle perturbation during the MCE is associated with several changes which together may have ultimately cumulated to OAE 2. Thus, understanding the changes/process that led to the onset of the MCE could have implication for understanding the long term carbon cycling feedback that led to the initiation of OAE 2.

Using Osmium isotope analysis, this study presents a reconstruction of mid-Cenomanian seawater  $^{187}\text{Os}/^{188}\text{Os}$  from the Iona-1 core, SW Texas to tests the competing roles of LIP versus continental weathering activity in triggering the MCE. The absence of a prolonged unradiogenic Os isotope excursion (low  $^{187}\text{Os}/^{188}\text{Os}$ ) during the MCE interval argues against LIP involvement in the event's initiation. Rather, increased radiogenic  $^{187}\text{Os}/^{188}\text{Os}$  at the onset of the MCE indicates that the event was triggered by increased continental weathering. However, the combination of a muted unradiogenic Os-isotope excursion coincident with a  $^{40}\text{Ar}$ - $^{39}\text{Ar}$  age of 96.4 Ma of basalts from Ellesmere Island, Canada, towards the end of the MCE, is consistent with High Arctic LIP-related volcanic activity that may have contributed to the demise of the MCE.