

## Supplementary Figures

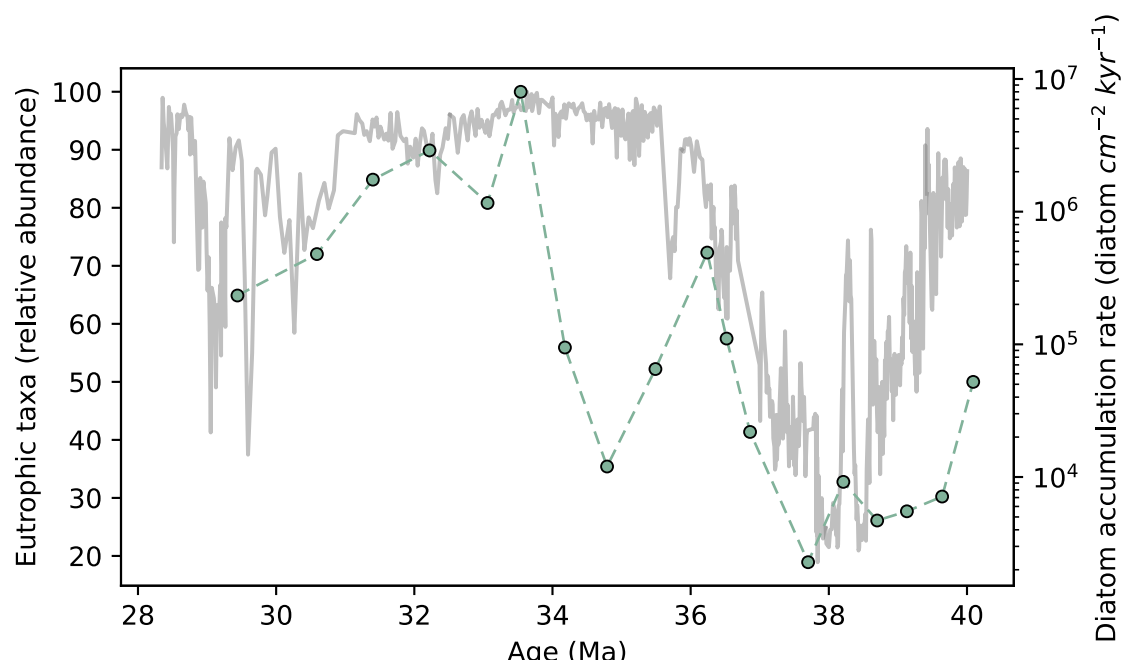
### **Increasing opal productivity in the late Eocene Southern Ocean: Evidence for increased carbon export preceding the Eocene-Oligocene glaciation**

Özen *et al.*

This file contains:

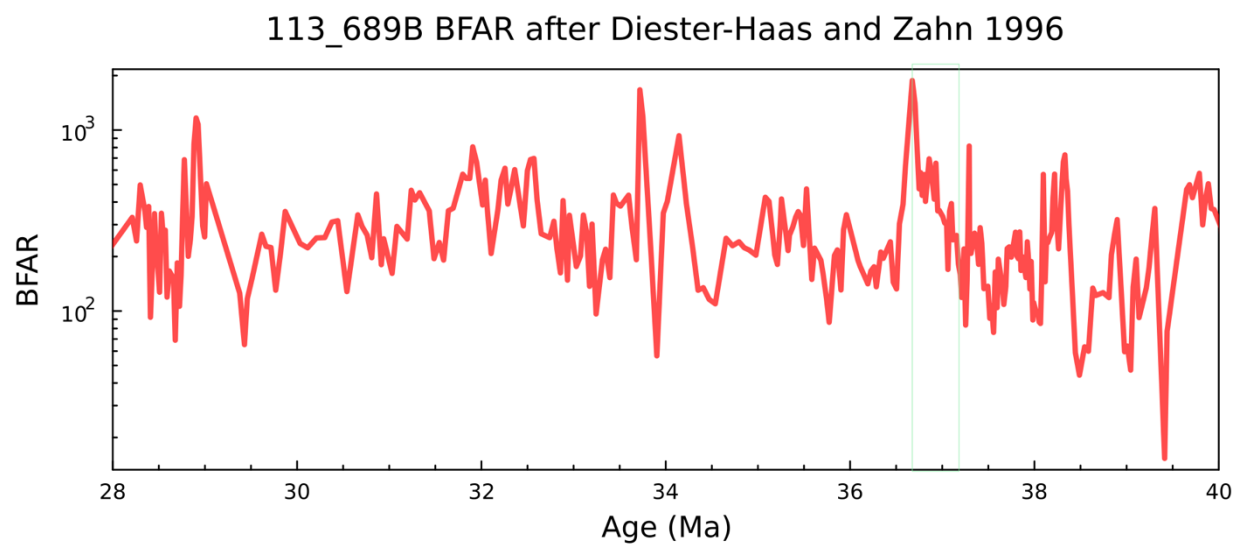
- Supplementary Figure S1
- Supplementary Figure S2
- Supplementary Figure S3
- Supplementary Figure S4





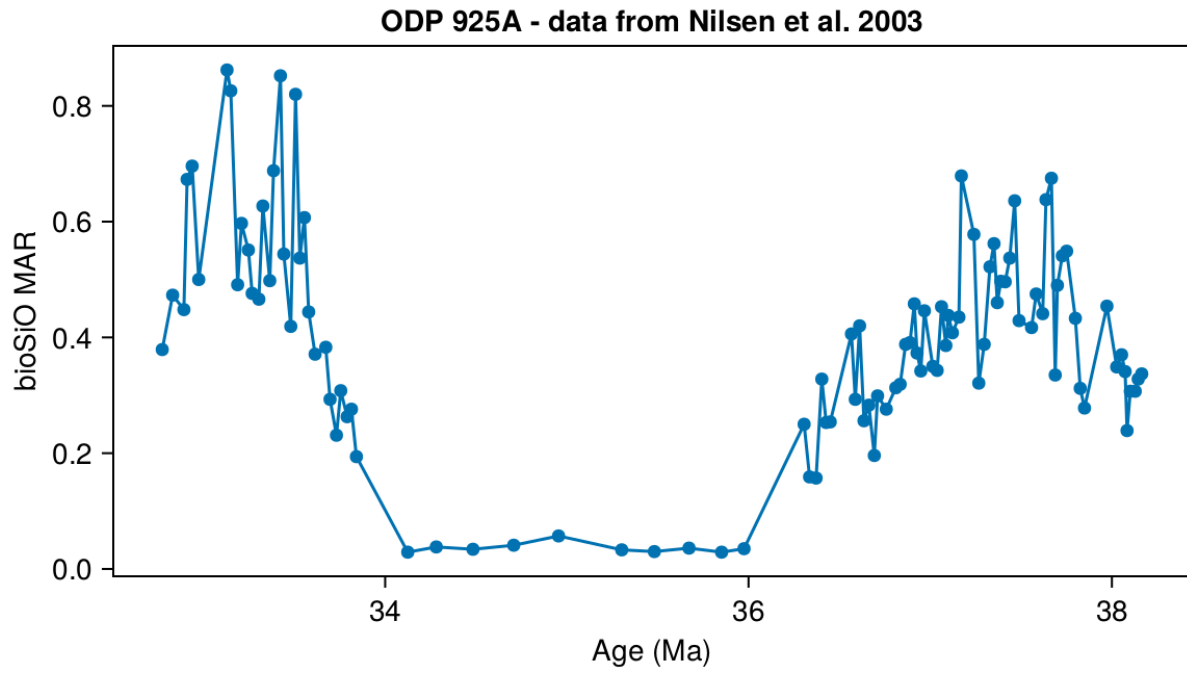
**Figure S1. Kerguelen Plateau productivity dynamics across the Eocene/Oligocene transition. Comparison of eutrophic nannofossil relative abundances from Villa et al. (2014) with diatom MAR (this study).**





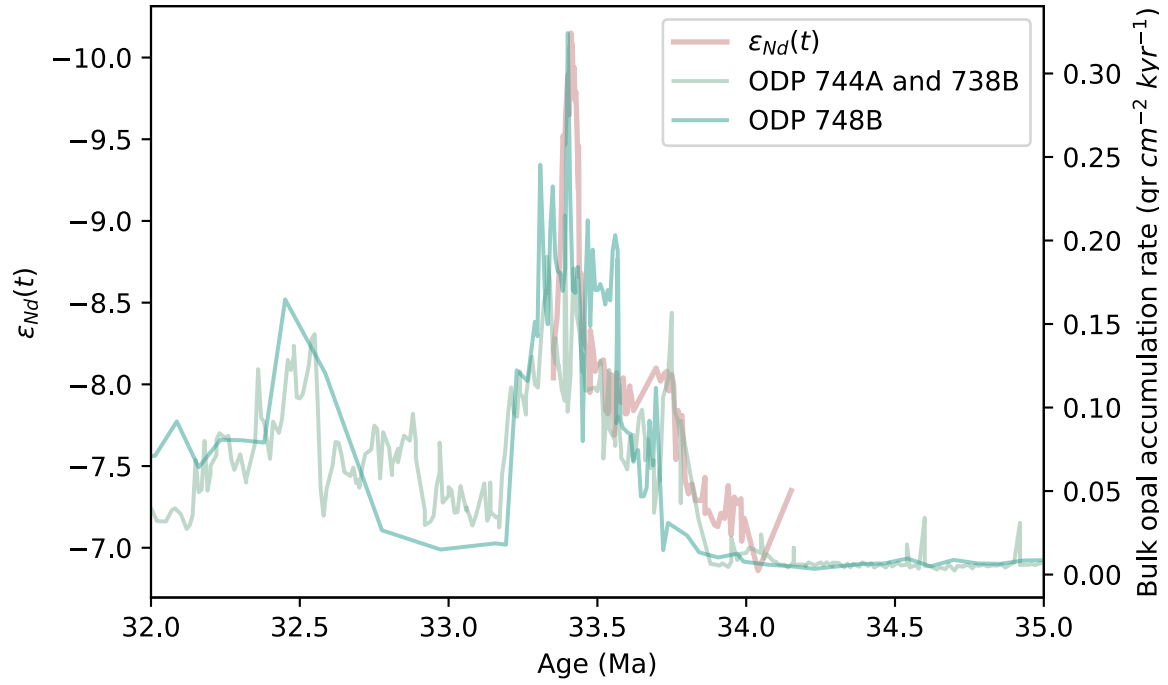
**Figure S2.** Benthic foraminifera accumulation rates (benthic foraminifera  $\text{cm}^{-2} \text{kyr}^{-1}$ ) from Diester-Haas and Zahn (1996), updated using our revised age model for ODP Site 689.





**Figure S3. Opal record from the equatorial Atlantic. Opal accumulation data from Nilsen et al. (2013) illustrate a characteristic two-pulse pattern observed across multiple sites, with varying degrees and magnitudes. The first pulse occurs around ~38–36 Ma, followed by a second pulse in the earliest Oligocene.**





**Figure S4. Distinct coupling between neodymium (Nd) isotope ratios ( $\epsilon_{Nd}$ ) from ODP Site 738B (Scher et al., 2011) and bulk opal accumulation rates from the same region (ODP Sites 744A and 748B; Salamy and Zachos, 1999; Brylka et al., 2024). Data points for both proxies have been updated using our revised age models.**