

Determining species ecology through small quantity isotope analysis

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The fossil shells of planktonic foraminifera from oceanic sediments are widely used as a proxy for ocean parameters (including: temperature, salinity). The impact of their ecology on the geochemical fingerprint of their shells however is understudied. The oxygen ($\delta^{18}\text{O}$) and carbon ($\delta^{13}\text{C}$) isotope composition, whilst allowing palaeo-reconstructions, also may include ecological information. The reliance of palaeoceanographers upon foraminiferal based proxies thus merits the better understanding of the life history of the organisms that provide our proxies. We present recent single specimen and individual chamber isotope measurements from sediment trap samples that highlight a number of important features, including the depth migration that individual foraminifera undergo during ontogeny.

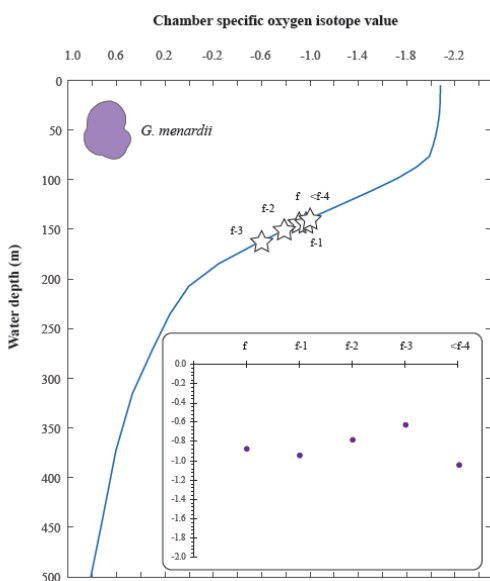


Figure 1: Single chamber measurements from a *Globorotalia menardii* shell (inset) from final to preceding chambers (f), plotted on the predicted equilibrium $\delta^{18}\text{O}$ calcite (blue line).