

Investigating shell thickness and preservation in two species of planktonic foraminifera over millions of years

¹O. Gadson, ²L. Anderson, ³N. Umling, ²B. Hönisch

¹*Georgetown University*, ²*Lamont-Doherty Earth Observatory of Columbia University*,
³*American Museum of Natural History*

Planktic foraminifera are abundant microorganisms in the ocean fossil record. Their fossil shells reflect the chemistry of their environment from the time the individual foraminifera were alive, making foraminifera carriers of valuable proxies for paleoclimate and paleoceanographic conditions. However, the quality of shell preservation can impact the quality of proxy data. Previous research has used optical and scanning electron microscopy (SEM) to assess shell preservation, which are inherently semi-quantitative methods. That being said, recent research has suggested that area-density measurements can serve as a tool to indicate overall sediment sample preservation using coretop sediments. In this study, we used silhouette area and weight measurements of individual shells of the planktic species *Globigerinoides ruber* and *Trilobatus trilobus* to assess area density and shell thickness of these microfossils through time. We present multi-million year measurements of area density on shells of these two species from tropical Pacific Ocean sediments at Ocean Drilling Program (ODP) site 872.