

Variation in thickness of *G. ruber* tests from the Scott Plateau, Timor Sea (6-60Ka)

B.N. OPDYKE¹, J.R. EDWARDS¹ AND S. EGGINS²

¹Department of Earth and Marine Sciences, Australian National University; jonathan.edwards@ga.gov.au; bno@ems.anu.edu.au

²Research School of Earth Sciences, Australian National University; stephen.eggins@anu.edu.au

Chamber thickness of the near surface dwelling (0-50m) planktonic foraminifera *Globigerinoides ruber* was measured from the Scott Plateau, Timor Sea spanning 6-63Ka. Chamber thickness was measured concurrently with Mg and Sr employing a novel approach; laser ablation inductively coupled mass spectrometer (LA-ICP-MS). This method allows for precise determination of depth profiles of trace elements and chamber thickness on individual foraminifera tests.

Fifteen *G. ruber* per sample interval were analysed and the average value determined. During the Holocene average chamber thickness is 6.95µm compared to an average of 8.62µm for samples spanning the last glacial period through Stage 3 (18-63Ka). This represents a 20% decrease in chamber thickness during the Holocene compared to glacial to interstadial values.

Comparison with the Vostok CO₂ atmospheric record [1] highlights a broad correlation with chamber thickness, where relatively thin chambers occur during periods of high CO₂. It is proposed that this covariation is related to variations in the surface seawater carbonate ion concentration [CO₃²⁻] through time.

References

- [1] Shackleton N.J. (2000) *SCIENCE* **289**, 1897-1902.