

Interactive comment on “Calcification intensity in planktonic Foraminifera reflects ambient conditions irrespective of environmental stress” by M. F. G. Weinkauf et al.

Anonymous Referee #2

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This study addresses the question of whether calcification intensity in planktonic foraminifera is sensitive to abiotic versus ecological stress. The study uses Sapropel S5 as a paleo-analogue to the problem and combines test weight measurements with stable isotope analyses and faunal composition / absolute abundances to conclude that calcification intensity can be related to ambient seawater conditions (possibly carbonate saturation state) but probably not to ecological stress.

This is an interesting study and is very well written. The use of statistics is commendable. I would advise publication with some modest revisions.

Comments in order of appearance:

C4568

11214 Line 14: ‘Calcification intensity’ expressed by size-normalised weight. ‘Intensity’ seems to imply something about the rate but do we have good evidence that the life cycle or calcification time per chamber remains constant?

11222 Line 5 and throughout: The weight results are expressed as weight per unit area, rather than weight – needs attention. If the weights are to be normalised to size, then the relationship between volume and cross sectional area needs to be included.

11222 Line 1: Perhaps it would be better to have d18O measurements on a deeper dweller as well?

11224 Line 19: Perhaps this can be the case for d18O but are there no vital effects for d13C?

11225 Line 16: Can the authors confirm that the ‘modern’ samples are both ‘pre-industrial’ (i.e. not influenced by recent CO2 change)?

11228 Line 16: Why ‘presumably’?

11229 Line 19: The samples just prior to S5 are at most 1600 years older than S5 and as such are not from MIS 6. The suggestion that heavier weights at this time relative to the Holocene might be due to higher carbonate saturation as a result of glacial pCO2 values is not well supported.

Interactive comment on Biogeosciences Discuss., 10, 11213, 2013.

C4569