

Interactive comment on “The impact of seawater calcite saturation state by modifying Ca ion concentrations on Mg and Sr incorporation in cultured benthic foraminifera” by M. Raitzsch et al.

E. Hathorne

ehathorne@ifm-geomar.de

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Happy new year Markus. I have read the paper and think it is a good and interesting contribution. Detailed comments below.

11348, Line 23-25, Actually the effect seems very small and you should put this into the context of the estimates of seawater Ca concentration during the Cenozoic from the literature. What would the impact on Mg/Ca temperature estimates be in the Eocene?

11349 Line 27, “. . .field studies on benthic foraminifera contradict. . .” but which studies in particular?

11350 Line 15, It was actually Segev and Erez (2006) who did the seawater Mg/Ca culturing experiments.

11350 Line 20, It is a bit forward to call it “calcium ion effect” try simply concentration.

11351 Line 23, “. . .sodium hypochlorite bath. . .” sounds dangerous.

11353 Line 3, “. . .with modified carbonate chemistry.” I thought this study was about Ca concentration?

11354 Line 8-14, You cannot cite our abstract like this as it is not published properly, like at AGU or Goldschmidt, and I hate it when people cite abstracts. I would cite my 2008 JAAS paper saying non-matrix matched calibration works for many elements in a calcite matrix using a 193nm laser. Concerning the change in laser power, can you show some data for the Utrecht Iceland Spar Calcite versus solution ICP-MS values for it? Just some values for Mg from the period of your analyses would be fine. Then you do not have to mention the paper in prep which will be in prep for some time to come.

11354 Line 16, GLITTER is not made by New Wave Research, check out www.glitter-gemoc.com/

11355 Line 4-5, This relationship is not clear for depressa with only the highest [Ca₂₊] experiment showing an increase greater than the error estimates shown.

11355 Line 16, The depressa Mg/Ca data points are all within the error estimates shown. What is the level of confidence shown here? You should try to be consistent and use either 1 or 2 sigma throughout.

11356 Line 6-8, rephrase

11356 Line 21-25, Please provide some evidence for this besides SEM images which are always subjective. Some SEMs are fitted with EDAX which could measure a high Mg phase on the surface. Also try calculating the saturation sate of high Mg phases in the various experimental solutions.

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11358 Line 10-12, rephrase

11358 Line 16-, Be careful comparing aragonite to your high Mg and low Mg calcite.

11359 Line 9, The growth rate dependence shown in Kisakürek et al. (2008) is very small, especially considering the measurement uncertainties.

11359 “Role of Mg/Ca SW”, I do not think you have a large enough range of experimental Mg/Ca ratios to really extrapolate your results like this. The results are also all within error of each other and should not be interpreted as currently in Fig 6.

11360 Line 20-22, The variations being discussed seem to be within the error estimates shown on Fig 5c.

Finally, something is missing, put the results in the context of the secular variation of seawater Ca. When was the seawater Ca concentration twice that of modern?

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