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Interactive comment on "Distribution of chlorine and fluorine in benthic foraminifera" *by* Anne Roepert et al.

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Thank you for presenting for the first time data on the distribution of F and Cl in foraminiferal calcite. I have some short comments of issues I noticed during a quick read of the manuscript, which are mainly concerning the lack of details of the culture experiments and the graphical presentation of the data. I leave a proper review to the invited referees.

Fig 1. The miliolid species come from two salinity conditions, according to table 1. From which salinities are the specimens show in Fig. 1? And which chambers: ultimate, penultimate, etc? I think a SEM picture of the studied areas would be a good addition to Fig. 1. I see the general overview pictures in the appendix, but I would like to see also

the higher magnification image.

Looking at the location of the measurements of the miliolids, and the explanation of the culture set-up, how can you assure the measurements were done on newly formed (experimental) calcite? Judging the orientation of the foraminifera in the SEM images in Appendix A1, it seems like you are not measuring e.g. the last chambers, which are a bit less complex. Especially in the case of Archaias, the last chambers seem to be on the top left of the image, and it looks likes the authors choose a quite complex location for the analysis. Why not analyse the last chambers, where the direction of growth is more clear? Also, the polishing of the Sorites doesn't seem to include the last chambers, because they appear to be still inside the resin (or was the specimen broken?). Please indicate the chamber numbers (F, F-1 etc) and, most important, which ones are precipitated in the experiment. This is crucial, since the authors compare to the culture conditions in Fig. 3 and Fig. A4. Also, please mirror the scalebar in these figures for readability.

In my opinion, the culture experiments have to be described more in detail, clearly stating the differences between the set-ups. Even though the other experiments are published already, some basic details can be stated in section 2.1. Also there is no clear indication how samples were cleaned, while the cleaning can have a major effect on the element distribution (Glock et al., 2019: https://doi.org/10.3389/feart.2019.00175). Digging through the publications of the other experiments, this information can be retrieved. But cleaning method is not presented for the unpublished experiment. Please add this information.

How were the E/Ca measured for the milliolid species? Since these specimens are coming from an unpublished experiment, and are not "previously described (Geerken et al., 2018; van Dijk et al., 2019)", as the authors state. Please give these details.

It looks like the Archaias angulatus cultured at salinity 40 has lower Na/Ca then the specimens from salinity of 30. What are the consequences for the Na/Ca – salinity

proxy, and the idea that milliolids are precipitating from seawater vacuoles?

Also indicate the salinity conditions in the figures/captions in figures and tables, e.g. appendix A1, and table A1.

Consider changing the terminology, from rotaliid to hyaline and milliolid to porcelaneous.

For future work, please also consider to analyse also the natural chambers from the field for comparison with the experimental chambers. Especially for the specimens that were culture using Instant ocean salt, which is an industrial manufactured salt, lacking e.g. certain organic complexes. Also, as indicated in van Dijk et al., 2019 (https://www.frontiersin.org/articles/10.3389/feart.2019.00281/full), there is a high intra- and inter-specimen variability for many elements. Therefore, please consider measuring several chambers and specimens to gain a robust dataset.

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