

Biogeosciences Discuss., referee comment RC1
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Comment on bg-2021-213

Anonymous Referee #1

Referee comment on "Calcification response of reef corals to seasonal upwelling in the northern Arabian Sea (Masirah Island, Oman)" by Philipp M. Spreter et al., Biogeosciences Discuss., <https://doi.org/10.5194/bg-2021-213-RC1>, 2021

The overall topic and conclusions of the manuscript are interesting, however the sample size is simply not sufficient to warrant publication. Three replicate cores is just not enough to have robust statistics, and there is unfortunately no solution to this short of the authors collecting more samples. Variations in absolute growth rates and trends are highly variable among corals, making three replicates an unreasonable number. The community standard for growth rate studies requires much better replication.

I unfortunately do not see the need to comment in great detail on the technical aspects of the manuscript, since I just cannot recommend acceptance without more suitable replication, regardless of any revisions that could be made to the text. The one thing I will comment on is that the title and abstract is poorly aligned with the contents of the study. I had no idea there was going to be Li/Mg geochemistry in this study based on the title and abstract. Actually, the only way I see forward for the authors (besides getting more corals) is to completely re-frame the study based on the geochemistry. In general, the bar for publication of coral geochemical studies is lower in terms of replication, and the temperature proxy aspects of the work, while still not very well replicated in my opinion, could make for a publication. However, this would require a complete re-write because I cannot have confidence in any of the growth patterns and trends that are currently the focus of the study. Finally, one last comment: I don't think it makes sense to compare the growth rates to just the GBR. There are many other studies of growth rates to compare to from other locations, a departure from the GBR SST-growth trend could arise for all sorts of reasons beyond the authors' interpretation, and the oceanography of the GBR is more complex than described as there is upwelling in certain areas and at certain times.

I regret that I cannot be more supportive.