

Interactive comment on “Low Florida coral calcification rates in the Plio-Pleistocene” by T. C. Brachert et al.

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Review 2 This review is acknowledging the potential of our study but is rising some doubts on our methodological approach. These doubts concern - the use of the modern analogue data from the WA and IP (which are “from an ecological gradient” – we agree) for explaining deep-time data. Answer: This is not an issue because we consider the recent as a key to the past. Non-analogue situations are quite common in the geological record, but in our study we are dealing with genera that still exist in the modern ocean and in the region of study today. Therefore, we consider to infer a non-analogue situation is taken quite from afar. We agree, nonetheless, the WA and IP to represent an environmental gradient, and this is exactly why we consider the IP worth to be discussed as well. - the depth of growth of the corals compared. Answer:

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It is true that we have no clear constraints on the water depth at the site of growth of the individual specimens. We assume the corals to derive from the same depth window because all *Solenastrea* have the same growth form. Although this fact gives no quantitative water depth information, we consider the depth window to be the same. The hint on the Bosscher paper (Bosscher, H., 1993, Coral Reefs) is very good. The calcification changes with depth are important, and we will use it in the discussion, but complicated also by turbidity, as the same author has found out (Bosscher in Schlager, 1991). We inferred density and extension to be strongly linked with variable turbidity; details of the reasoning may be found in <http://www.biogeosciences.net/13/1469/2016/> and should not be repeated here. We only say that water depth has likely not changed significantly during the growth of a colony and that, therefore, variable turbidity or SST are substantially more likely drivers of calcification changes. Apparently, our text is not sufficiently clear in this part and we will check if it needs modification. - the growth strategies differ due to the type of skeletal architecture (porous vs. solid skeleton), and therefore, differ between *Porites* and *Orbicella*, and correspondingly also between related taxa (*Solenastrea*, [*Pseudo*]diploria). Answer: We agree with this concept, but do not find evidence of this aspect in our data. It may represent an artifact of the small numbers of specimens (*Porites* n = 1, *Orbicella* n =2). We will modify our diagrams accordingly and discuss the problem more clearly.

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