

Review of: "Projections of ocean acidification over the next three centuries using a simple global climate carbon-cycle model" by C.A. Hartin et al.

General comments:

The paper presents a fast and competent model tool for future projections of the carbonate system. This is something I think is needed as complement to the more complex, computationally expensive earth system models. The study now includes a sensitivity study and the manuscript is improved by it.

The paper is interesting, and presents a promising concept. It still needs some smaller corrections, but nothing major.

Specific comments:

I have no major specific comments at this stage in the review process.

Line-by-line corrections:

Line 27: beta and Q10 has not been previously defined here, please do so.

Line 47: superscript the + sign in H⁺.

Line 210: "he" should be "the"?

Lines 260-261: Is "set of parameters" and "the input parameters" the same parameters? Clarify in the text and please refer the reader to a table (table 7?) were they are listed or list them in the text. As of now, it is too hard to follow.

Lines 263-263: I don't understand the sentence. Are you comparing the range of omega and ph to atmospheric temperature range in your own model or another model or ... something else? Clarify.

Lines 267-268: I think it should be mentioned that also surface ocean temperature (table 7) has a rather large impact on omega. The effect of a 10% change in this parameter gives as large changes in omega as the Q10 change.

Line 298: "within the land" sounds weird to me, re-write to "on land" or something?

Line 303: The end of the sentence needs to be re-written.

Lines 332-333: Has this been found anywhere else, or is it new?

Line 388: Homogenize the size of the tables and improve presentation (unless that is done in the final layout anyway)

Line 415: Figure 1 has no dashed arrows that I can see.