



EGUsphere, referee comment RC1  
<https://doi.org/10.5194/egusphere-2022-564-RC1>, 2022  
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## **Comment on egusphere-2022-564**

Anonymous Referee #1

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Referee comment on "Long-term and short-term inorganic carbon reservoirs in Aegean seawater – an experimental study" by Fabian Matthias Gäb et al., EGU sphere,  
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### General comment

The paper by Gäb et al., quantified the fraction of DIC that entered the Aegean Sea since the beginning of industrialisation. With their experimental approach, they quantify the percentages of different DIC reservoirs in the Aegean Sea and they subsequently discussed the buffering capacity of the analysed geographical area in the near future.

I enjoyed reading the paper that is lean and intuitive. The aim of the paper is clear. However, I found in the text several unnecessary repetitions (introduction and discussion). I think that the discussion could be better developed and in some cases (see below) it's not a very discussion but a repetition of what is already known or written in the results. I was also very surprised by the paragraph in the conclusion that talks about the eventual beneficial effect of variations in carbonate chemistry (and nano-nuclei formations) for calcifiers. This final - and therefore important- statement comes out of the blue and without any previous discussion/introduction of the topic and good references.

More comments down here:

Discussion: the two chapters 4.1 e 4.2 could go together.  
Moreover, Line 264-270 are indeed the descriptions of the results. What do the authors want to say here? This part should be moved to the results and eventually, they can discuss here the difference DIC reservoir and what they mean in this part.

I suggest changing the title of 4.3 with something that relates the study's results to the application for future predictions.

Lines 315-318 It's a kind of repetition of what was previously said as a global rule/condition (lines 297-303) but here for the Aegean Sea. Almost the same words are used and it seems that the reader is reading the same thing twice. This part should be reformulated.

#### Conclusion:

Every author has his/her personal style while writing a manuscript. I personally, for example, don't write long conclusions and I leave more room for discussion. But I try here to follow the author's style. So, said so, Lines 320-328 are another repetition of something that I read several times already. It's unnecessary.

What surprised me a lot was the paragraph from Line 335 since out of the blue the authors mentioned the consequences (maybe beneficial) of the formation of nano-nuclei on calcifiers.

I think that if the authors want to say something about this topic they should dig more: (i.e. a new discussion chapter on this topic). Only a few studies are cited and for example, it is not even clear what they mean with calcifiers: nannoplankton (e.g. coccolithophores), zooplankton like foraminifera?

What the authors are saying here about the consequences of this kind of carbonate chemistry perturbation on marine calcifiers is interesting. But the author has two choices: just mentioned it briefly (more briefly than in the text) or dig more into the topic. I suggest the latter since it would also make the paper much more appealing.

#### Small comments:

##### Introduction:

Lines 35-40: split into two sentences because it's too long. Maybe after Doney et al., (2009).

Line 40: more recent references? These are quite old.

##### Methods:

Line 100: that is? Delete

##### Results:

Line 150 Mackenzie 1990

Line 153: ?? Respectively so low??? Can you rephrase and maybe delete the brackets?

##### Discussion:

Line 253: don't alter

Line 282: delete see below. Unnecessary

Line 294: e.g. "□"

##### References:

The journals are not available for all papers. Is that a choice?

The author's list, the title, the pages/volumes number and the year are available but the journals are never mentioned.

Moreover, the authors should add more doi to the list.