

Interactive comment on “Impact of climate and hydrochemistry on shape variation – a case study on Neotropical cytheroidean Ostracoda” by Claudia Wrozyzna et al.

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Also referee #3 characterizes the manuscript positively and appoints the results as thought-provoking. His concerns are similar to the both other referees and refer to missing explanation for the mechanisms that drive shape variation. He/she suggests adding complementary studies that show relationship between environmental variables and valve shape. It is also noted that we should describe the effects of change in morphological characteristics on ecological significance such as effects on production and behavior.

- As described above, we comprehend that from the referee's perspective it is nec-

C1

essary that the mechanisms of the ecologically induced shape changes should be explained. For the aforementioned reasons, these interpretations remain very speculative. Nonetheless, we will check our discussion carefully and try to hypothesize possible mechanisms (see reply to referee #1, functional vs. physiological meaning).
- Indeed, the understanding of the ecological significance on, e.g., production and behavior, would be of great importance. Yet, information on ostracod biology is quite fragmentary. It is questionable whether the ecological significance of morphological changes in other, better-studied organism groups is comparable to the present study. However, we will check the literature for appropriate studies.

[P2] L11- There have been many studies that environmental variables and morphology. Authors have to show the importance of focusing Ostracods. Authors is just writing “Ostracods represent a model group for the study of ecophenotypical variation . . .”. The reasons why Ostracods are model organisms should be described. And the ecological value of Ostracods should be explained.

- We wanted to avoid a lengthy introduction therefore kept it as short as possible. We will add the explanation why they are considered as model organisms. As far as possible, we will include information about their ecological value.

L12: calcitic ! calcific?

- Calcitic is the correct term for describing materials that are made of calcite (as ostracode valves).

[P3] L13- You should describe the brief life cycle of Cytheridella, such as dispersal patterns, life-span, reproduction.

- In fact, our data set provides the first in-depth information about distribution and environmental parameters (e.g., conductivity, pH, ...). This is astonishing since Cytheridella is one of the most widespread Neotropical ostracod species. However, information about life cycle, life span and reproduction is not available from the literature

C2

and cannot be deduced from our data. That is why the interpretation of the underlying physiological processes of the shape-environmental relationship is so difficult. L22-23: Please write about storing condition. In a freezer?

- We stored samples in a freezer. Details will be supplied in the revised manuscript version.

[P9] L22-L2(P10): Authors guess the relationships between genetic differences and carapace shape at the discussion part, lengthy. It is not good to describe lengthy about what is not contained your data. Please delete this speculative sentences.

- Unnecessary information will be deleted to shorten the discussion.

Fig. 3-5 The symbol of data from “Punta Laguna” should be changed.

- The symbol will be changed.

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