

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

### **Anonymous Referee #3**

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Authors studied about the relationships between geographical variation and some environmental variables. This manuscript is relatively well written, and these results are thought-provoking. However, I hesitate to accept this MS in this high impact journal.

The authors observed meaning patterns between Environmental variables and shape of Ostracods valves. However, I think it is difficult to find definite causal relationships between them from these results. Sure, authors cite some studies that some environmental variables such as temperature crustaceans' molting, maturation and growth. However, to explain the underlining mechanisms that drive shape variation, it is logically invalid. If there were some complementary studies that show relationship between

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some variables (e.g. temperature, Cl<sup>-</sup>, SO<sub>4</sub><sup>2-</sup>) and valve shape, authors should add.

If any, author should describe the effects of change in morphological characteristics on ecological significance. Such as effects on production and behavior.

[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.

L12: calcitic → calcific?

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

L22-23: Please write about storing condition. In a freezer?

[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.

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

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