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# *Interactive comment on* "Baseline for ostracod-based northwestern Pacific and Indo-Pacific shallow-marine paleoenvironmental reconstructions: ecological modeling of species distributions" *by* Yuanyuan Hong et al.

**Yuanyuan Hong et al.**

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Response to Manuscript Reviewers' Comments

Title: Baseline for ostracod-based northwestern Pacific and Indo-Pacific shallow-marine paleoenvironmental reconstructions: ecological modeling of species distributions

Dear Prof. Irizuki, Thank you all for your valuable comments on my manuscript. Please find the relevant excerpts from your report reproduced below, alongside their respective



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responses. Yours sincerely, Yuanyuan Hong (email: oocirclr@gmail.com)

1. When the relationship between ostracod distributions and environmental factors is studied, autochthonous ostracod data should be basically used. However, you did not discuss whether ostracod assemblages or specimens were autochthonous or allochthonous. For example, because Xestoleberis is phytal genus, it is basically allochthonous specimens in bottom sediments and transported from intertidal zones with Zostera beds or calcareous algae. You should add several sentences about this taphonomic problem.

We agree that a phytal genus like Xestoleberis is allochthonous, and its value in studying ostracod distribution and related environmental factors is limited. We added some sentences regarding taphonomic problems in the revised manuscript. Please see line 218–223 “A small percentage of specimens of phytal genera (e.g., Xestoleberis spp., Neonesidea spp.) were contained in each sample, which are basically allochthonous specimens in bottom sediments transported from surrounding phytal environments. The value of allochthonous species to environmental interpretation is limited, however most ostracod specimens in each sample are composed of benthic, muddy sediment dwellers which are considered autochthonous.”

2. Total organic carbon content (TOC) in bottom sediment is very important for ostracod distribution (Irizuki et al., 2011, 2015a, 2018) and it is a good indicator to estimate eutrophication and dissolved oxygen (DO) in the past in case of studies based on core samples. Though you did not examine TOC in sediment, you had better discuss the importance of TOC as an environmental factor and that TOC is strongly related to eutrophication and DO. (Irizuki, T., Hirose, K., Ueda, Y., Fujihara, Y., Ishiga, H., Seto, K., 2018, Ecological shifts due to anthropogenic activities in the coastal seas of the Seto Inland Sea, Japan, since the 20th century. Marine Pollution Bulletin, 127, 637-653.

Yes, indeed, we did notice eutrophication and hypoxia can be important factors for





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ostracods. It's the reason why we used Chlorophyll-a and DO in our modeling. They are reliable proxy for eutrophication and hypoxia. We agree TOC is important for paleo studies, but this MS is on modern distribution, and so it's out of the scope of our MS.

3. Minor problems are directly highlighted and revised in the text. Please also note the supplement to this comment: https://www.biogeosciences-discuss.net/bg-2018-405/bg-2018-405-RC1- supplement.pdf

Please see the attached pdf file for replies. For other corrections, please see the revised manuscript.

Please also note the supplement to this comment:
https://www.biogeosciences-discuss.net/bg-2018-405/bg-2018-405-AC2-supplement.pdf

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