

Dear Elger,

We submit hereby a revised manuscript entitled "A Novel specimen-based Mid-Paleozoic dataset of antiarch placoderms (the most basal jawed vertebrates)" (ESSD-2021-394). We have carefully revised the manuscript text based on the referee's suggestions and given a point-by-point response. Our response is given in normal font, and changes/additions to the manuscript are given in the track-changes text in the supplement.

We hope the manuscript after careful revisions meet your high standards. The authors welcome further constructive comments, if any.

Yours sincerely,
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Please kindly send all written correspondence to Min Zhu.

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Point-by-point response

Thanks for the kind comment and revision suggestions for the manuscript. We revised the manuscript carefully.

Section 2.5 is named as 'Reason for choosing genus level to perform visualization'. This is an explanation of using data and a part of data analysis process. Please rename this title or move to related part.

Response: Accepted. We moved this part to **2.3 Data Processing and Quality Control**.

Lines 42-43, 179, 233, and others, there are wrong characters in genus and species names. Probable errors of the PDF file. Please check and correct them.

Response: Lines 42-43, "*Bothriolepis*, *Asterolepis*, and *Pambulaspis*" is correct.

Line 179 "*Jiangxilepus*", 'Bothriolepidoidei' and '*Pterichthys*' is the incorrect spell in PBDB. We gave the correct spells in the following sentence. E.g., *Jiangxilepis* (Jia et al., 2010), 'Bothriolepidoidei' (Miles, 1968), and *Pterichthyodes* (Hemmings and Rostron, 1972).

Line 233, "*Liujiangolepis suni*" (Wang, 1987) is correct.

We carefully checked all the genus and species names and corrected the spelling mistake in other parts (see track-changes).

Line 59, a reference on the FAIR principle is need to give.

Response: Adopted.

Line 203, 'equator' should be 'paleo-equator'

Response: Adopted.

Line 218. Two suggestions about the figure 6, 1) give numerous ages to each small stage; 2) some colors, e.g. pink and red, are not easy to discern when plotting closer on the map. Please consider and make revision.

Response: Revised. We added the numerous ages to each stage and increased the contrast between the two colors

Reference:

Hemmings, S. K., and Rostron, J.: A multivariate analysis of measurements on the Scottish Middle Old Red Sandstone antiarch fish genus *Pterichthyodes* Bleeker. Biological Journal of the Linnean Society, 4(1), 15-28, 1972.

Jia, L. T., Zhu, M., and Zhao, W. J.: A new antiarch fish from the Upper Devonian Zhongning Formation of Ningxia, China. Palaeoworld, 19(1-2), 136-145, 2010.

Miles, R. S.: The old red sandstone antiarchs of Scotland: Family bothriolepididae. Monographs of the Palaeontographical Society, 122(522), 2-127, 1968.

Wang, S. T.: A new antiarch from the Early Devonian of Guangxi, Vertebr. Palasiat., 25, 81-90, 1987.