

Reply on RC2

Huaihai Chen et al.

Author comment on "Lower functional redundancy in "narrow" than "broad" functions in global soil metagenomics" by Huaihai Chen et al., SOIL Discuss.,
<https://doi.org/10.5194/soil-2021-148-AC2>, 2022

Reply to Reviewer #2

Major comments:

1. Creating an overview figure highlighting how the data was input, transformed, and analyzed:

Done. Thanks so much for the suggestion. We have added a figure of an overview of data acquisition, transformation, and analysis processes in this study in the supplementary files as suggested by the reviewer (Pg13 L276-277, Supplementary Fig. 1).

2. L206 Deal with unclassified groups in taxonomic classification levels across datasets:
Done. Thanks for the comment. We used the genus level as the taxonomic classification level across different datasets. Following default setting in MG-RAST, if the species were classified into the higher classification levels than genus but failed to be identified at the genus level, they were classified into "unclassified" groups. Across different studies, there were 2.16 ± 0.85 % of sequences belonging to the "unclassified" groups, showing that most taxonomic groups could be classified into the genus level. We have added this information in the Materials and Methods section as suggested by the reviewer (Pg8 L169-175).

3. L437-438 More discussion about the differences in network properties between broad and narrow functions:

Done. Thanks for the suggestion. We have added more information in the discussion section about the implications of the differences in network properties between broad and narrow functions as suggested by the reviewer (Pg23 L465-472).

4. Discussion about the relationship may be more coupled in extreme environments with significant selective pressure:

Done. Thanks for the comments. We agreed with the reviewer that certain environmental factors may have significant effects on the coupling of taxonomy and function due to their selective pressure, such as the extreme environment of ice cap, so we have added this point in the discussion section that different protocols and analyses from collected studies may lead to potential bias in the discussion and conclusion (Pg19 L390-394).

Technical Comments:

1. L106 Change to "constructed":

Done. Thanks for the comment. The word has been changed as suggested by the reviewer

(Pg6 L120).

2. L156 Change to "conducting each":

Done. Thanks for the comment. The word has been changed as suggested by the reviewer (Pg8 L175).

3. L305 Adding/changing the topic sentences:

Done. Thanks for the comment. The sentences have been rephrased as suggested by the reviewer (Pg16 L327-329, Pg20 L412-415, Pg22 L455-458).