

Earth Syst. Sci. Data Discuss., referee comment RC4  
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## Comment on essd-2021-454

Anonymous Referee #4

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Referee comment on "A compiled soil respiration dataset at different time scales for forest ecosystems across China from 2000 to 2018" by Hongru Sun et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2021-454-RC4>, 2022

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Understanding soil respiration in large forest such as in China is of utmost importance, and compiling a database with available data regarding this topic highly relevant for the scientific community and stakeholders. Thus, the topic is worth of publication. However, clarifications should be provided before publication.

In the Introduction, the aims of the paper must be clarified. It seems this will be a review paper but latter the reader find there is data analysis also.

In section 2.1, why was the search focused on publications performed 2018?

L83: it is not clear what you meant. Should this be provided in section 2.3?

In section 2.3 it is not clear why you used WEBPLOTDIGITIZER. It seems you used it to extrapolate published data. Please, better explain. How much of your database is based on published data and your estimations? Why the selection of 5cm and 10 cm soil depth? Was it linked with data availability?

L103: I guess there may be other equipment models to perform these measurements, so I suggest to use the name of the equipment (e.g. infrared gas analysers)

L105: "The typical days" – does it mean that you did not compile all the available data? (the reader needs to know the aim of the study)

The methodology used for data analysis must be clarified. Did you consider different climatic zones in the analysis? If so, which ones? The methodology used to calculate temperature sensitivity must be explained in section 2.

L114: how did you estimated this value? Based on a weighted average between emissions and the extent of each climate zone? Please, explain in the methodology.

L158: how did you assess the significance of the differences? Please, explain it in the methodology

L160: what is the meaning of EBF, ENF and DNF?

L162: Meaning of MF?

L165: so the analysis was also performed based on ecosystem type? Please, explain it in the methodology

Section 5: you don't need a separate section to provide this information. You can include it in the Conclusions

Fig.1: it will be interesting to show also the climate zones and if possible the main ecosystem types