

1 Title: A compiled soil respiration dataset at different time scales for forest ecosystems across China
2 from 2000 to 2018

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4 **Dear Editors and Referees:**

5 Thank you very much for your kind consideration and help to our manuscript! According to
6 your suggestions, we furtherly revised our manuscript. All the modifications were listed as follows.

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8 **Referee #1:**

9 **Comment:** The author basically answer my question well. I recommend to accept it for publication.

10 **Response:** Thanks again for your useful suggestions to improve our manuscript.

11

12 **Referee #3:**

13 **Comment:** I applaud the authors for the thorough revision of the manuscript and the restructuring
14 of the dataset/repository. Please find my conclusive comments below:

15 Figure 1: Please use a metric scale bar (meters instead of miles). The small map inlet in the lower
16 right corner has no added value and should be removed. I would suggest to use a different colour
17 for the dots (e.g. grey instead of yellow) so that they are easier to differentiate from the background
18 colours for the forest types.

19 **Response:** Thank you for your suggestions. We have made some changes in Figure 1. First, we
20 changed the scale bar from miles to kilometers. Second, yes, using yellow points make it
21 indistinguishable from the background, but grey points were also not obvious. So we used dark
22 points. Finally, to best display the China map, its southernmost part (i.e. the small map) is usually
23 put in the lower right corner in most studies (e.g., Feng et al., 2018; Wen et al., 2018; Meng et al.,
24 2021).

25 Feng J, Wang J, Song Y, et al. 2018. Patterns of soil respiration and its temperature sensitivity in
26 grassland ecosystems across China. *Biogeosciences*, 15: 5329-5341.

27 Meng X, Mao K, Meng F, et al. 2021. A fine-resolution soil moisture dataset for China in
28 2002-2018. *Earth System Science Data*, 13: 3239-3261.

29 Wen JQ, Chuai XW, Li SC, et al. 2018. Spatial-temporal changes of soil respiration across China
30 and the response to land cover and climate change. *Sustainability*, 10: 4604.
31 doi:10.3390/su10124604.

32 **Comment:** I couldn't find the rasterised dataset. Is it included in the ESRI Map Package (.mpg)?

33 **Response:** We rasterized this dataset to 1 km resolution. Yet compared with the large forest area of

34 China ($188 \times 10^4 \text{ km}^2$), the small samples ($N=634$) and their unbalanced distributions would result
35 in the large uncertainties. Data coverage is a challenge for larger-scale extrapolation, and the simple
36 interpolation analysis based on this data may be inaccurate. Thus, the rasterized dataset was not
37 included in the manuscript.

38 **Comment:** ESRI Map Package (.mpg): I appreciate that a file that contains the metadata
39 (coordinates, elevation, study site name, forest type, etc.) for each study site was included. However,
40 I recommend to provide a geopackage (.gpkg) instead of the proprietary ESRI Map Package as the
41 geopackage can be easily imported in any GIS.

42 **Response:** The file "metadata.gpkg" was established and updated in the dataset.

43 **Comment:** When I open the data and metadata files, the hyphen ("❖C") is not correctly displayed.
44 Please check the encoding.

45 **Response:** I have checked the data and metadata files, the abnormally displayed hyphen " - " was
46 revised to "-".

47 **Comment:** Line 208: Delete "one"

48 **Response:** "one" was deleted in Line 196.

49 **Comment:** Line 267: "Form Fig. 4..." => "From Fig. 4..."

50 **Response:** "Form Fig. 4" was revised to "From Fig. 4" in Line 254.

51 **Comment:** Line 269: "...were smaller those..." => "...were smaller than those..."

52 **Response:** "were smaller those" was revised to "were smaller than those" in Line 255.

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57 Thanks again for the reviewers and the editors for your kind consideration and help!

58

59 Best regards

60

61 Sincerely yours,

62

63 Hongru Sun, Zhenzhu Xu, Bingrui Jia