Reply to Editors

Dear Dr. Dalei Hao and Polina Shvedko,

We would like to sincerely express our gratitude for your work in processing our manuscript entitled “Spatiotemporally consistent global dataset of the GIMMS Leaf Area Index (GIMMS LAI4g) from 1982 to 2020” (essd-2023-68) submitted to *Earth System Science Data*. We have carefully considered the **file validation comments** and made modifications to the manuscript accordingly.

Below we provide point-to-point responses, each following the specific comment from the editor. We hope that the modified manuscript can meet the publication standard in ESSD.

Sincerely yours,

Zaichun Zhu, Ph. D. (on behalf of the author team)

School of Urban Planning and Design

Peking University

Tel: 86 185 0042 6608

Email: zhu.zaichun@pku.edu.cn

[Comment 1] *1. Your reference list includes works "in preparation" or "in review". Such works can be cited upon submission if being available to the reviewers. They should not be cited in the final, accepted manuscript, unless published, accepted for publication, or available as preprint with a DOI.*

[Response 1] We thank the editor for pointing this out. The work "in preparation" in the previous version of the manuscript refers to Zha et al. (in preparation):

Zha, J., Li, M., Zhu, Z., Cao, S., Zhang, Y., Zhao, W., and Chen, Y.: Spatiotemporally consistent global Landsat leaf area index validation dataset, in preparation. [see review asset]

This work has recently been posted as a preprint in EarthArXiv with a DOI and we have updated the in-text citation (Zha et al., 2023) and the reference in the revised manuscript:

Zha, J., Li, M., Zhu, Z., Cao, S., Zhang, Y., Zhao, W., and Chen, Y.: A direct evaluation of long-term global Leaf Area Index (LAI) products using massive high-quality LAI validation samples derived from Landsat archive, EarthArXiv [preprint], https://doi.org/10.31223/X58T05, 13 September 2023.

[Comment 2] *2. Please ensure that the colour schemes used in your maps and charts allow readers with colour vision deficiencies to correctly interpret your findings. Please check your figures using the Coblis – Color Blindness Simulator (https://www.color-blindness.com/coblis-color-blindness-simulator/) and revise the colour schemes accordingly.*

[Response 2] Thanks for this message. We have used the Coblis – Color Blindness Simulator to double-check all the figures in the manuscript and supplementary materials. Color schemes in Figure 7, Figure 11, Figure S15, and Figure S16 have been updated accordingly, as below:

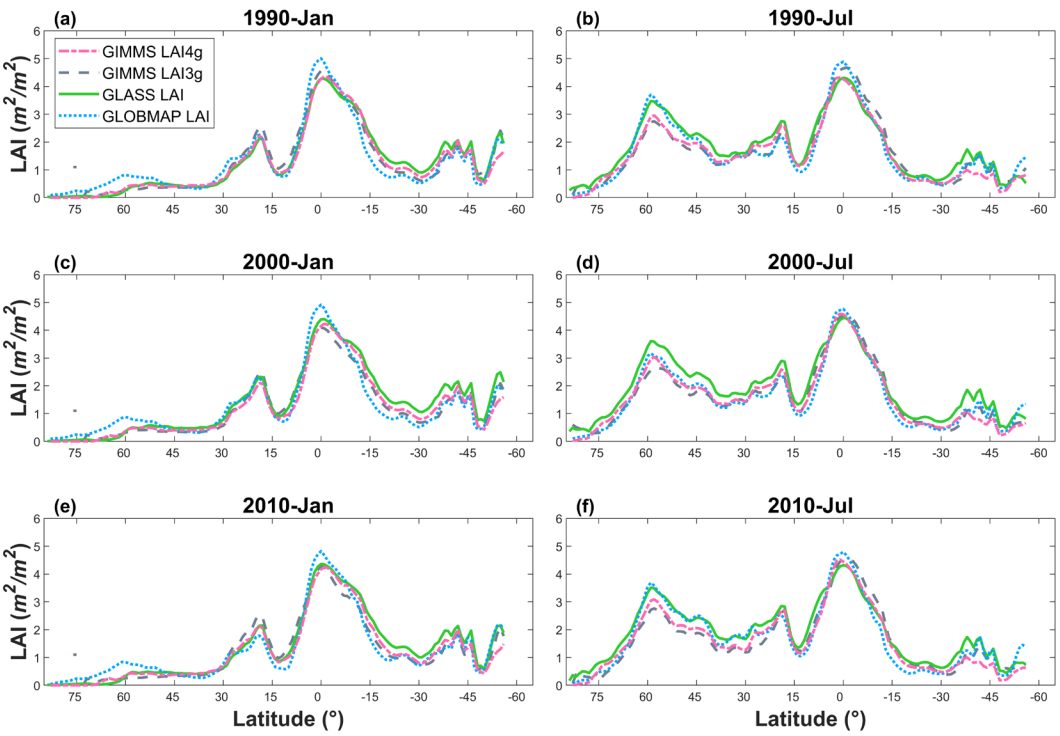

Figure 7. Inter-comparison of spatially averaged LAI along latitude between the GIMMS LAI4g, GIMMS LAI3g, GLASS LAI, and GLOBMAP LAI in January and July of the years 1990, 2000, and 2010. The spatial average was calculated at an interval of 1°.

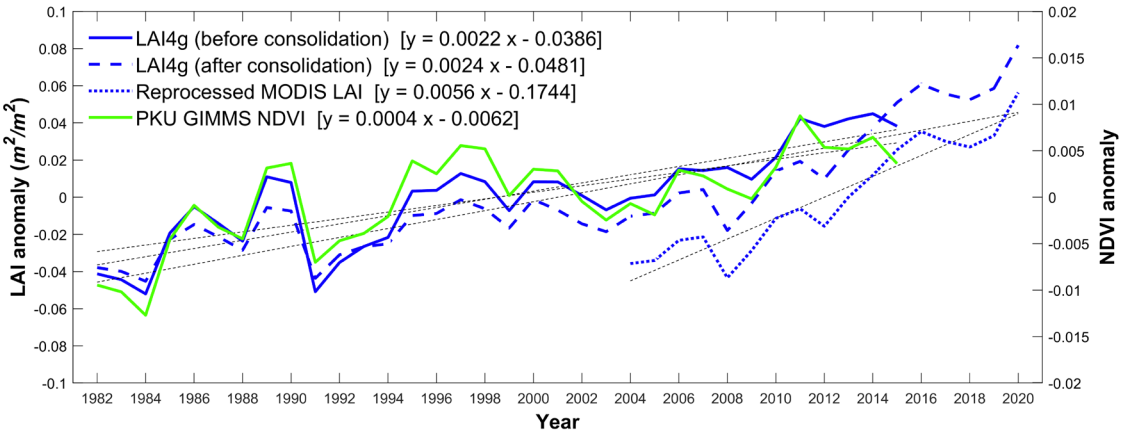

Figure 11. Annual anomalies and trends of GIMMS LAI4g before consolidation (1982−2015), GIMMS LAI4g after consolidation (1982−2020), Reprocessed MODIS LAI (2004−2020), and PKU GIMMS NDVI (1982−2015). Note that the regression equations

within the square brackets were calculated from different periods depending on the products.

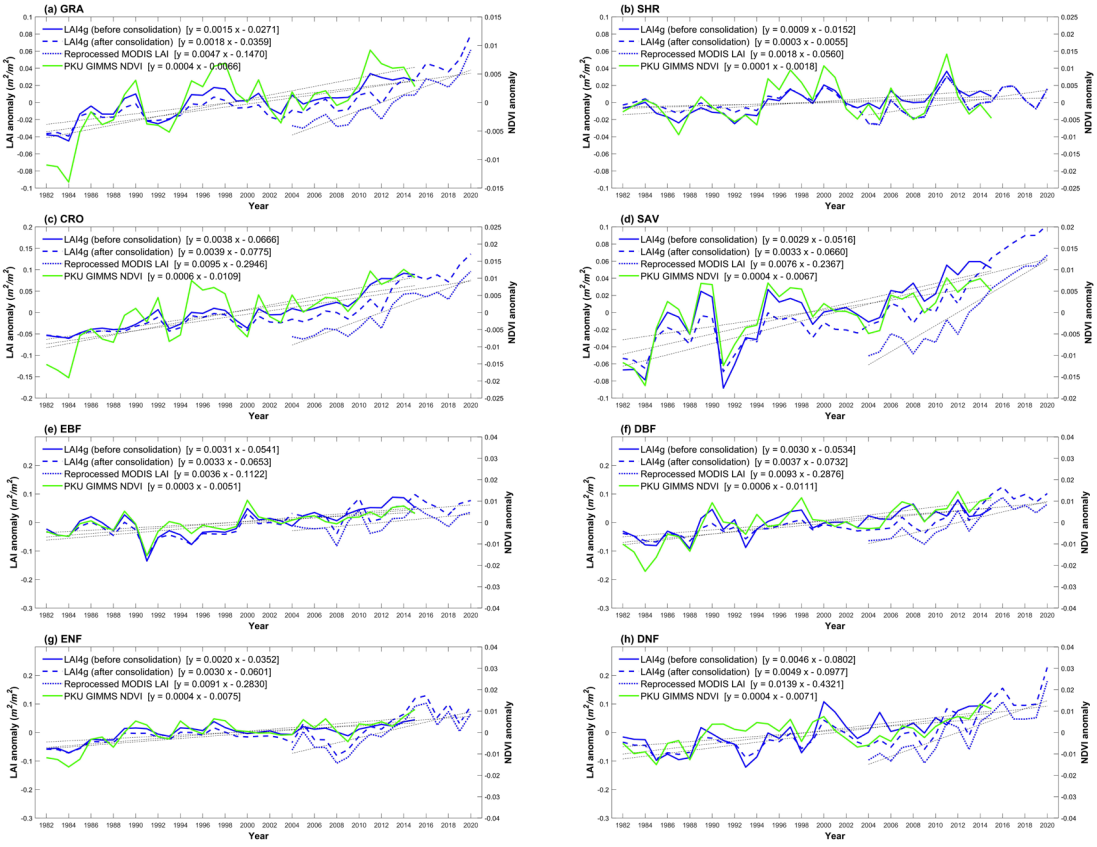

Figure S15. Annual anomalies (m^2m^{-2}) and trends of GIMMS LAI4g before consolidation (1982−2015), GIMMS LAI4g after consolidation (1982−2020), Reprocessed MODIS LAI (2004−2020), and PKU GIMMS NDVI (1982−2015) for different vegetation biome types.

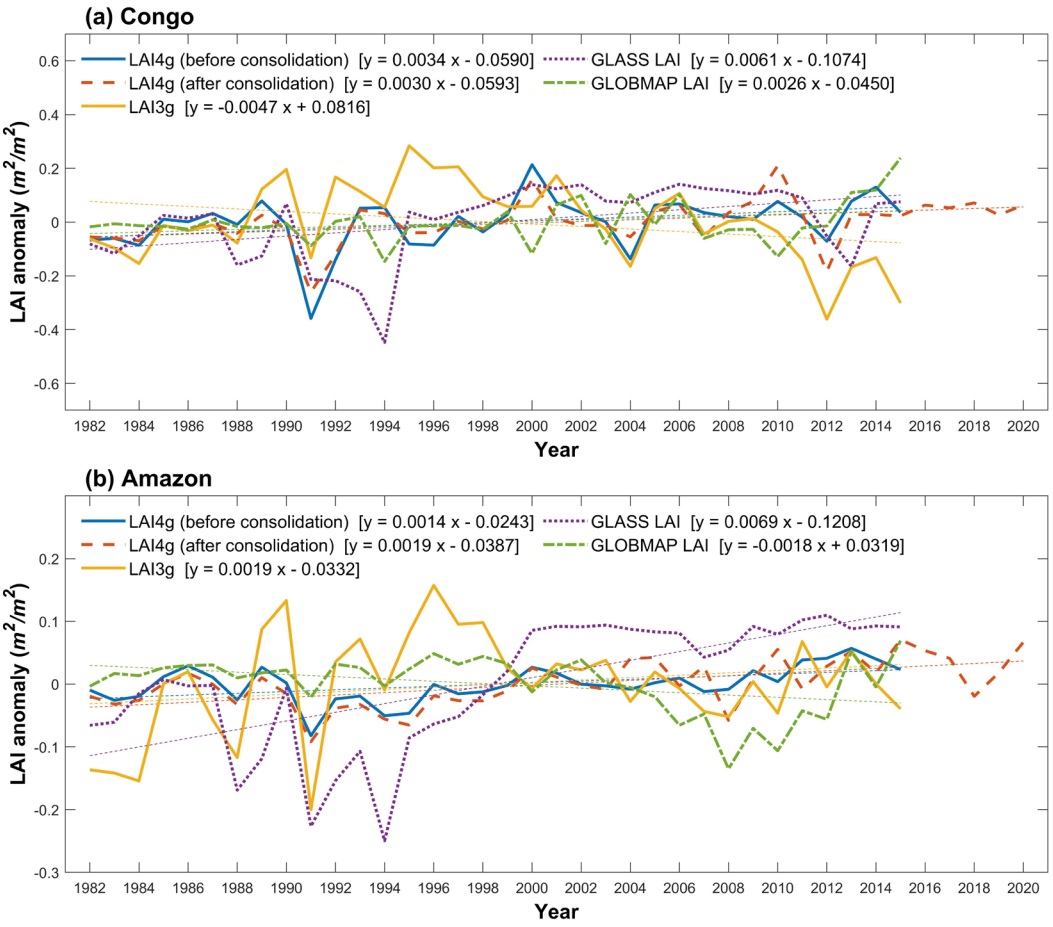

Figure S16. Annual anomalies (m^2m^{-2}) and trends of GIMMS LAI4g before consolidation (1982−2015), GIMMS LAI4g after consolidation (1982−2020), GIMMS LAI3g (1982−2015), GLASS LAI (1982−2015), and GLOBMAP LAI (1982−2015) in the Congo (a) and Amazon (b) forests.

[Comment 3] *3. It seems that table is included as figure #10. If it is so, it must be re-labelled as table and the references in the manuscript text must be adjusted accordingly. A table may be inserted as an image, but still be called as a table.*

[Response 3] We apologize for the confusion. In Figure 10, we intended to use colors to better interpret the results (LAI accuracy differences between periods). However, the colors may not be well presented and the figure was more like a table. In the revised manuscript, Figure 10 has been improved as below.

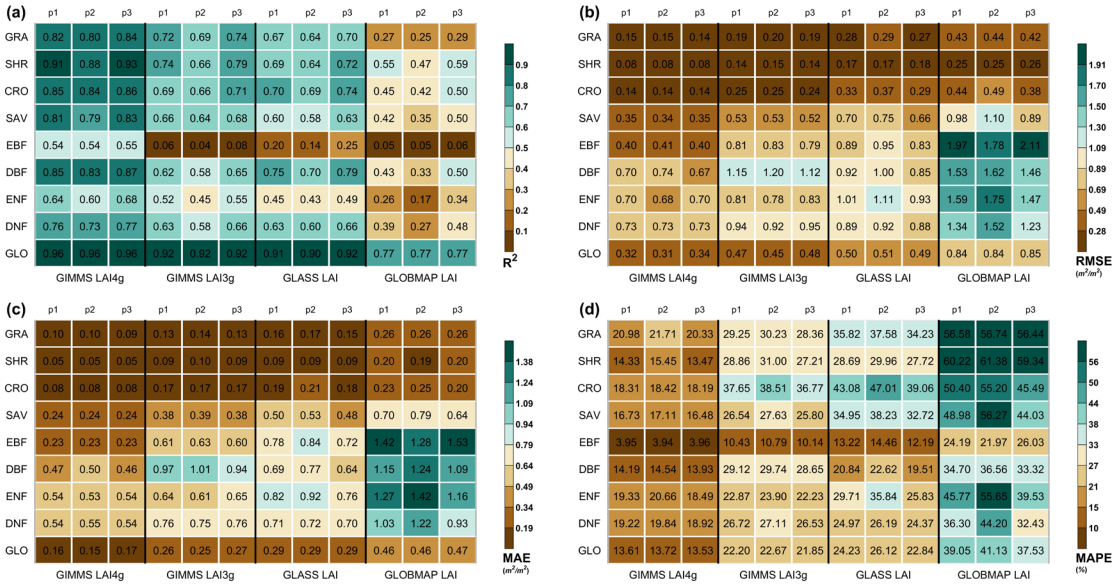

Figure 10. Temporal consistencies between different periods for the global LAI products. The global LAI products include GIMMS LAI4g, GIMMS LAI3g, GLASS LAI, and GLOBMAP LAI). The periods are 1984−2015 (p1), 1984−2000 (p2), and 2001−2015 (p3). The consistencies were evaluated at the biome level using R^2 (a), RMSE (b), MAE (c), and MAPE (d) calculated based on Landsat LAI samples. GLO represents the global vegetation biome.