Dear Editor, please find attached our revised manuscript. We have dealt with all the reviewer's comments and your recommendations and hope this improved version has addressed all the outstanding issues.

As per your recommendation, we have included the map showing distance to the field plots in Figure 6.

Regarding the reviewer 1's comments:

1) Raise the importance of Figure A1 (Location of sampling sites in Africa, Australia, and South America from the TROBIT Project). I suggest moving the map in Figure A1 as a main figure (Figure 1) of the paper. This will also help readers to better understand the spatial patterns shown in Figure 5, especially the priority map at the bottom.

We have moved Figure A1 into section 2.1 of the Methods.

2) Add more explicit discussion on the uncertainties of the field data used in this study for VCF evaluation, in e.g. lines 477-479. When discussing the various uncertainty factors of the presented analysis, readers should be reminded of the limited number of field sites and their spatial distribution (I understand that this has already been briefly mentioned above in the Results section in lines 356-357), as well as the uncertainties associated with allometric equations for calculating CAI from DBH. The authors are also suggested to extend the discussion by sharing thoughts on the implications for future in situ data collection (e.g. directly measure tree canopy cover from the field).

We have amended the Discussion to include additional clarification on the associated uncertainties. The revised version is as follows:

[There is also the uncertainty associated with the field data collection. In our case, the site-specific CAI standard errors (supplement B in Torello Raventos et al., 2013) are small and show no systematic bias, and are therefore not expected to significantly change our results. However, our results in Figure 6 have been extrapolated from a limited number of field sites, with somewhat limited distribution across the tropics. While our uncertainty map gives a good idea of areas of concern, for a more robust description of MODIS VCF's accuracy, we would need substantially more widely distributed in-situ sites to represent the tropics. Field data collection remains costly and labour intensive and adopting protocols that ensure standardisation and data sharing via information platforms would facilitate large-scale validation exercises. In the case of validating woody cover products, including direct tree cover measurements such as crown area would also help.

However, the reality for much of pre-existing data is that they are not standardised, and field data (whether standardised or not) are not designed to be directly comparable to remote sensing-derived variables. Here, our technique offers a potential solution to this. By accounting for uncertainties that arise from differences between the available in-situ data and the remotely sensed variable we are able to use in-situ data, which may initially seem unsuitable, to carry out a more conservative evaluation.]

Lines 44-45 The sentence "We estimate that MODIS VCF could be underestimating tropical tree cover by as much as 29%" is an exaggeration, as it represents the very extreme case of the wide ranges and scenarios of the findings from this particular study (7-29% or 0-21%, depending on analysis scenarios, lines 394-397). Thus, the exaggerated statement should be removed from the abstract.

The lines describing our results in the abstract has been amended to

 [Our scenarios suggest that MODIS VCF accuracy can vary substantially, with tree cover underestimation ranging from 0 to 29 %.]

Lines 456-458. "Models calibrated using MODIS VCF (Brandt et al., 2017; Lasslop etal., 2020; Burton et al., 2019; Kelley et al., 2019, 2021) also risk inheriting these biases and should therefore be validated using other sources of data." This generation is beyond the current analysis, and is more likely wrong than correct. Recommend deleting this statement from the manuscript.

We amended the line to:

[There is a risk of bias propagation when MODIS VCF (or related products) is used as a single source for benchmarking models (e.g. Brandt et al., 2017; Lasslop et al., 2020; Burton et al., 2019; Kelley et al., 2019, 2021). To avoid this, studies should try use multiple data sources (e.g. for woody cover possibly the GEDI lidar based canopy cover product, Tang et al 2019) whether for model calibration/validation (e.g. Sellar et al., 2019 and Wiltshire et al., 2020, Burton et al., 2021) or hypothesis testing (e.g. Taylor et al., 2012).]

We are not clear what the reviewer means by ' more likely wrong than correct'. We believe it is important to highlight to the readers the risk associated with using a biased product as the sole source for benchmarking a model or testing a hypothesis. We hope the introduced changes have helped clarify our message.

However, if the removal of this line is essential to secure the acceptance of our paper, we are happy to oblige and take it out altogether.