Interactive comment on "The PROFOUND database for evaluating vegetation models and simulating climate impacts on forests" *by* Christopher P. O. Reyer et al.

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Dear Prof. Carlson, Dear Reviewers

Thank you for handling our manuscript and for your patience with us. We have had several delays in revising the paper and database 1) because of the current situation with everybody being at home etc. and 2) because we found one error in the tree dataset for the stand Soro. It took us quite some time to get this fixed and we had to add more expertise on reconstructing data from tree rings. This is why we have added a new co-author, Flurin Babst. Other than that, we have made all changes requested by the reviewers and replied to their comments. We have also fixed a few minor is-

sues, spelling mistakes etc. in the database and the paper which are documented in a change log available on the DOI landing page. Thank you for giving us the opportunity to resubmit our work to ESSD! On behalf of all co-authors Christopher Reyer

Reviewer 1: Current topic, meeting the need for having comprehensive modelling data sets within structured database (PROFOUND DB) and R-package (ProfoundData), providing opportunity for more simple reproduction of modelling results. Database is particularly valuable in the sense that provide excellent bases for implementation of different modelling approaches using range of environmental variables (soil, climate, forest stand and remote sensing data). R-package is allowing exploration, ploting, extraction of the data, calibration and evaluation of modelling results, which can be useful. Provided long climate time-series together all relevant modelling data are general advantage. Manuscript is written quite precisely. It includes large amount of relevant information regarding modelling forest pilot plots. It fully satisfies the form of technical data paper. It is acceptable to remain published in current form. Reply: Thanks for your constructive attitude and for seeing the value of our paper.

Page 18 Line 16,17 – "NO3" and "NH4", numbers should be in subscript, as it is in other text. Reply: Thanks for spotting, changed.

Page 20 Line 3,4 - "20th", "21st", st in superscript. Reply: Thanks for spotting, changed.

Table 4. - adjust cell values in uniform way Reply: Thanks for spotting, changed.

Reviewer 2: This database is very well presented and I have only three smallish comments, although the first and second ones are important. Reply: Thanks for your constructive attitude and for seeing the value of our paper.

There is no mention either in the manuscript title neither in the abstract that this is a database for Europe forests only. I strongly suggest that this comes indicated in the manuscript title and abstract. Reply: Thanks, very good point: We have changed the title into: "The PROFOUND database for evaluating vegetation models and simulating

climate impacts on European forests" And also adjusted the third sentence of the abstract to include a mentioning of Europe: "The PROFOUND Database (PROFOUND DB) provides a wide range of empirical data on European forests to calibrate and evaluate vegetation models that simulate climate impacts at the forest stand scale."

How does this dataset differentiate from other datasets of its kind for DGVM evaluation, such as ILAMB (Collier et al. 2018 JAMES)? Reply: This is an interesting point. Actually, in terms of the scope - providing data for thorough model evaluation ready to be used by modellers alongside a software packet etc - it is very similar. However, the crucial difference is that our dataset is focussing on the forest stand scale and hence aims at presenting most data at that scale while ILAMB and related databases and tools are global in scope. Additionally, we provide long-term and detailed measurements of forest stand structure which is not available in global datasets.

P5L6: hydrological cycle is also a biogeochemical cycle, so why the differentiation? Reply: Good point, we removed "hydrological and"

Apart from that this is a high quality and useful database. Reply: Thanks again for your constructive attitude!