

The manuscript would benefit if the authors could provide the reference depth their root biomass estimates are referring to. Is it top 100 cm, 30 cm, or all roots until bedrock? What is the sampling depth of the individual studies? Can we be sure that all the roots were sampled or would it make sense to include sampling depth as an additional predictor in the random forest?

Response: Thank you for the constructive comments. In our process of building the machine learning models, we did consider the depth related variables (section 2.3). We tested the maximum rooting depth as a candidate predictor (Line 124, tracked version of the manuscript). However, the maximum rooting depth had a minor impact on the performance of the machine learning model and was not selected as a final predictor. The maximum rooting depth was extracted from a global database as most entries in our observation databases did not explicitly report to which depth people extracted roots. In root studies, researchers generally dig deep into the soil until they could extract most of the roots. In our database, observations likely vary in depth. We do not have a standardize reference depth. Different species growing under different environments are likely have different rooting depth. We assumed individual root studies (which reported extracting most of the root) are valid and predicted total root biomass. In our current database, we have very limited information on the extracting depth from each individual study. The limited impact of maximum rooting depth in our test remain to be confirmed as the uncertainties in maximum rooting depth may also play a role. Future root measurements with standard protocol and detailed depth information are likely to be helpful in improving large scale root studies. We added "Note the maximum rooting depth had a minor impact on model performance and was not selected in the final model. The depth to which roots inhabit varies among species and environment. Our model predictions are therefore not specific to a certain soil depth." around Line 215 to make this point clearer.