

Interactive comment on “Global ecosystem-scale plant hydraulic traits retrieved using model-data fusion” by Yanlan Liu et al.

Anonymous Referee #2

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This study presents an integrated approach between vegetation modeling and Earth observations to derive the hydraulic trait, a crucial parameter to better understand the impact of droughts on vegetation. This new approach is likely to improve the parameterization of vegetation in land surface models. The manuscript is well organized and written, the approach is well described, the results are convincing. It also fits the scope of the journal. I just have a few minor comments:

1) In the abstract and other parts of the manuscript, you write: "VOD is proportional to vegetation watercontent and therefore closely related to leaf water potential". You should specify that you choose a high-frequency VOD, X-band instead of L-band for instance, as the high frequencies are more sensitive to the leafy component of the vegetation and the lower frequencies to the woody component (see Frappart et al.,

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Remote Sensing, 2020 for a recent review on VOD).

2) Why did not you include the equatorial and boreal forests in this study? It would have been interesting to see the results in Amazonia to compare them with the gradient observed by Jones et al., Environmental Research Letters, 2014, who identify adaptation to both water and light availability from west to east.

3) Why did you choose LPRM VOD and soil moisture products instead of LPDR? In a recently published study (Li et al., Remote Sensing of Environment, 2021) one of you is co-author, LPRM X-VOD was found to be more correlated to vegetation indices (NDVI, EVI, ...) than the other X-VOD products including LPRM.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2020-649>, 2020.

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