Biogeosciences Discuss.,
https://doi.org/10.5194/bg-2020-360-RC1, 2020

Biogeosciences Discussions
Open Access
EGU

Interactive comment on "Retrieval and validation of forest background reflectivity from daily MODIS bidirectional reflectance distribution function (BRDF) data across European forests" *by* Jan Pisek et al.

Anonymous Referee #1

Received and published: 30 December 2020

Pisek et al. provides the description and validation for their method for retrieving understory NDVI values for a variety of forest types and seasons from MODIS BRDF data. They found that their method produces good estimates for open canopies, but that it had limited performance for closed canopies and that MODIS data quality and spatial heterogeneity impact the performance.

Overall, I found the study and manuscript straight-forward, concise, and with a high potential to be impactful. Thus, I do not have any major comments and most of the comments I have relate to improving the readability of the manuscript. There were

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several instances where making the language more consistent would help. Specifically, I would choose to refer to the canopy by the openness or the foliage coverage instead of switching between the two, which can be confusing or at least requires a little extra thought. Figure 5 shows the data in terms of openness, but the main text often refers to it as foliage coverage. This became an issue in the sentence on line 300-301 where I believe there is a mismatch between this assertion that FR-FBn has high openness (and low FC) and the low openness value that is shown in Figure 5.

Specific comments:

Line 155: the ending of the sentence was cut off

Line 211: missing spaces between values and “nm” units

Line 242: missing space between 0.5 and “km” unit

Figure 3: Font needs to be bigger especially in panels b and d.

Figure 5: It took me a bit to understand what many of the individual parts of the figure indicated and I do not think it is self-explanatory enough as a figure and caption. I found most of the caption initially confusing, specifically the concept of “understory NDVI ranges.” (1) I think it should be explicitly stated that the understory NDVI ranges are what you predicted/estimated and that these are for selected days (the ones you measured). I would consider changing the caption to be closer to “estimated understory NDVI ranges for selected days are given in blue bars for sites that were well represented and orange bars for sites that were poorly represented. . .” (2) I do not think that green squares should be used for the computed nadir NDVI values because this makes it look like they are intervals (like the “ranges”) when they only represent point values. They have no uncertainty associated with them based on my understanding and, thus, another shape should be selected. Additionally, it was initially not clear to me what these values were and I think it should be clarified in the caption that these are the total NDVI values, which is how you refer to them in the text. (3) You reference

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section 2.2 for how the ranges were obtained, but I think you meant to reference 2.3 as 2.2 does not include a description of the estimated ranges (only the in situ measured ones). (4) Further description of how the in situ measurements are displayed is required, specifically what the point (mean or median?) and bars (I think the +/- 1 standard deviation based on the text) indicate. (5) I would consider reordering the rows/sites. Currently it is ordered by increasing in situ measurements, but the text does not include a discussion around this. Instead I would consider ordering based on the canopy openness because this would help illustrate your result in line 297-298 that the retrieval of understory signal is not accurate if foliage cover exceeds 85%. This is only a suggestion though.

Figure 6: I have the same comment has in Figure 5 around making the labels in the caption more explicit.

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