Biogeosciences

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Discussions

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Interactive comment on "Separating of Overstory and Understory Leaf Area Indices for Global Needleleaf and Deciduous Broadleaf Forests by Fusion of MODIS and MISR Data" *by* Yang Liu et al.

Anonymous Referee #1

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General comments Liu et al. present a global algorithm to separate under –and over-story Leaf Area Index (LAI) from forest (excluding the tropics). The resulting global LAI datasets are worthwhile and useful for other members in the community (e.g. modeling). Overall, the paper is well written, with clear articulation of the methods, and appropriate and clean visuals. Sometimes the text remains merely descriptive but that may be ok for an algorithm paper. One prerequisite for publication that is not fulfilled is that the authors should make their global datasets available for publication by posting them on a well-accepted data repository (e.g. ORNL DAAC).

Specific comments - Can you please make the data products available for further use by the scientific community? - It seems that only one field site with understory LAI was

available for validation? Are there any other? With regard to all field sites (understory LAI, overstory LAI, NDVI understory), it would help the interpretation if the authors also shortly clarify how these field measurements were taken? For example, how was understory LAI derived in the field? Or how was understory NDVI derived? What was the instrumentation set-up? - Related to validation, when using the Kobayashi LAI dataset, was there any ground or field validation of the Kobayashi dataset? - In terms of the paper structure: would it make sense to first present the validation results and then go on with the global overview? - English language is generally ok, however in some cases the of the article 'the' is redundant. I have indicated some instances in the annotated pdf. - In the map figures (Figures 4, 5, 6, 9) it would help the presentation if there was a separate legend class fort he EBFs that were masked out. Then the reader would immediately know which areas were excluded. - The latitudinal and longtitudinal transects (Figure 6) may not be useful especially since there is no coverage in the tropics. Maybe you could limit the latitudinal transect tot he temperate and boreal biomes? - In Figure 7a the frequency peaks at LAI of 6 (for DBF) and at LAI of 8 (for all forest types) seem very artificial. In the tekst you indeed mention that these peaks are there because of set saturation values. Is there a way to get rid of this artifact? - This may be somewhat challenging but would make the product even more useful; is there a way to estimate pixel-based uncertainty? For example, by assigning uncertainties to all steps in the algorithm (e.g. biome-specific functions, choice of clumping index, uncertainties in MISR backgorund reflectivity, etc.) in an error propagation exercise. - In the Discussion section near the end it could be nice if the authors could highlight some areas of research that could directly benefit from their datasets.

Technical corrections Some small suggestions are made in the annotated pdf.

Please also note the supplement to this comment:
http://www.biogeosciences-discuss.net/bg-2016-448/bg-2016-448-RC1-
supplement.pdf

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Interactive
comment