Dear Authors and Colleagues

Thank you for your contributions
Thanks for the authors for the replies to the reviews of your paper and for the revision.

Your published forest maps of CONUS represent a useful data set and in your ESSD manuscript you show a range of comparison with other data products, from in situ to other remote sensing derived data sets. The manuscript, the data description and data publication do not yet fulfill the requirements of ESSD and improvements are needed. A major revision of the manuscript and a minor revision of the dataset publication is needed.

You describe three annual CONUS forest maps 2015,2016, and 2017 and you propose that based on your method more yearly products could be produced. ESSD is not publishing papers on remote sensing methods, the focus of an ESSD manuscript needs to be on the usability of the data sets that are described.
On the positive side, what is well done in your manuscript,

i) you are providing assessments, cross validation and intercomparison with a wide range of products, detailed descriptions and data visualisations
ii) that the value of your product is in representing a high-quality robust CONUS forest cover product for 2016 (cross-checked with 2015 and 2017, i.e. your data publications are three annual maps that you keep, but the maximum value of your data publication lies in the 2016 most robust assessment of forest cover)

Recommendations to the authors – can you change some aspects of discussion and conclusions accordingly, also slightly change the focus of the title

i) The wide availability of forest and land cover maps based on satellite data provides more information for users than ever before. However, it is challenging for users to understand the differences in the forest products and decide which data to use for a specific application. Your manuscript can support the understanding of different forest products. Could you therefore in some cases even discuss in more detail why some products align in some ways and differ in others with your product and FIA estimation.
ii) Provide more details and regional assessments on your CONUS forest cover products for 2016. E.g, how about the performance in mountainous terrain? Can you cross check with fire scar products -does this make sense?
Can you carefully formulate what is included in the evergreen forest class, do you include evergreen needle-leaf and evergreen broad-leaf? What is included in the deciduous forest class ?
do you also include summergreen needle-leaf, e.g. larch?

In general,

figures and tables: explain all abbreviations in figure and table captions

please enhance your writing style and consider professional proofreading - Sometimes sentences are not complete and remain unclear, e.g. p.15 ‘It is still unclear that the performance of the integrated datasets for monitoring the annual dynamics of forest distribution and forest functional types over the temperate regions.’

Throughout your manuscript, standardize your terms, reuse the same term for forest, non forest and the two forest classes you create, e.g., Table 2: the term ‘Nonforests ‘ does not exist, in most cases in your sentences, the use of ‘forest’ is more appropriate than ‘forests’, Figure 8 naming and abbreviations not consistent, and in general not consistent throughout the text.

Try to avoid in general sentences such as … JAXA forests identified, … JAXA forests missed ... pixels, i.e., describe your products using a language without attributing actions to them. Avoid to imply human-like qualities to non-human subjects.

”The resultant PL-Forest maps (forest and non-forest) in 2015-2017 were validated by the validation samples generated by the third party” – in a scientific manuscript do not use the term ‘third party’, use a reference or author and oral communication

In general,

Please provide more information related to your replies to the reviewers also in your manuscript text.

e.g, Reviewer 3 asked Line 178-179, how did you identify land cover changes? If a sample changed from other land cover types to Forest during 2015-2017, shall we keep this sample or delete it? How many forest samples before and after the removing.

Your new sentence in the manuscript text: ”The samples with land cover changes were identified visually according to the Google Earth images during 2015-2017, which were removed out in this study.” This sentence remains very unclear, Please put sentences in the manuscript text in with more detail

e.g., Reviewer 3 asked Line 203-204, ‘the time differences could have small effect on the assessment’, what do you mean ‘time differences’? if it’s difference for canopy height or cover, it may not be necessarily correct.

Your new sentence in the manuscript text: ”We recognize the time difference between the ICESat data (2003-2009) and the PALSAR-2 data (2015-2017), which may affect the assessment, dependent upon the land use change. ” This sentence remains unclear, Please put a sentence in the manuscript text in with more detail, e.g. is there a consequence, can you estimate the magnitude? E.g. areal change due to fire scares?

Details

Introduction

We propose that you (shortly) introduce the CONUS forest types

Chapter 2

2.2. HH, HV .. and 2.3. vegetation indices …introduce abbreviations the first time you use them

Can you include more information on FIA data in chapter 2.6 or in a separate small subchapter – on data from field inventory and upscaling to forest area, e.g. in table 1 there is no minimum height threshold does this mean that also areas with trees < 5 m height are included ?

P8 L167 please explain the symbols in the equation you show in your text – is there a reference?

Introduce FQ LSWI e.g. in a sentence, and as equation before using it in 2.8 L295 (FQLSWI)

Can you define what forest types you include in your product, natural, managed and plantations?

Figures

Figure 2 – add source of DEM in figure caption

Figure 7 d, frequency of forests – unit is missing, e.g. year?, add explanations of the color coding in the figure caption

Data publication

ESSD requires an optimization of the published data sets.

Please include a read me document describing the format of the data: e.g. geotiff, which projection, band variables, units

product evergreen forest is binary, does it include evergreen needle-leaf and evergreen broad-leaf? Does a product for summergreen forest exists, as you show summergreen in the figures or does the users need to construct the summergreen forest product by themselves? Could this become an additional product in your data publication?

Please enhance the title – e.g. include the data sources and the region of your product and enhance the abstract.