General comments:

This study presented a datasets of forest map according to FAO's definition, which is of great importance to the sustainable development and biomass estimation in specific. From the results presented in this paper, the accuracy is of good performance, and it has a great contribution for large-scale forest mapping work. However, I recommend the authors to address the following issues before the manuscript can be considered to be published on ESSD.

1. The description of method about forest mapping is not comprehensive enough, even was ignored. Please express this part fully. The detail of methodology is missing, which is not acceptable without further modification regarding the scope of ESSD journal. It is not easy for readers to know how they produced the datasets without further knowledge from the cited paper.

2. The availability of existing reference datasets needs to be further clarified, especially in the accuracy comparison part.

3. For the statistical accuracy analysis, the authors used 5km as the pixels' resolution. Why not conduct such analysis on a higher resolution? The resolution of the cartographic results in this paper is already very low (e.g., 50 m, 250 m, 500 m). Using a lower resolution to is actually much more friendly to a better accuracy, but it's fake. Please reconduct the uncertainty analysis to make it more convincible like previous studies [1-4].

4. Did the forest map from 2007 to 2010 (Fig. 5) also combine PALSAR data and MODIS? Please clarify it, because the "or" in the caption is not consistent with the description in the text. For 2007-2021 evergreen forest mapping, only MODIS data were used only, which is clear. Similar mistakes are quite often in the manuscript, such as Sections 3.1 and 3.2. Please recheck the manuscript thoroughly.

5. Please add zoomed images (e.g., optical images) for details analysis to prove your results is corrected. Please refer to the existing research analysis [1-4].

6. Section 3.4 should be placed in the introduction instead of “Results and discussion” since section 3 described the advantages satellite lidar data for result assessment.

7. The comprehensive discussion of the results is inadequate in the manuscript, such as the possible reasons for misclassifications.

8. Generally speaking, the source data used in this paper are quite outdated. (e.g.,? This deficiency leads to a much lower significance of this study. Why not use more modern data like Sentinel, ICESat-2, ALOS-2? This should be answered seriously, as well as in the text.

10. The topic of this study, which is "annual forest" and "evergreen forest", as we can see in the title and abstract. But as I know, and as we can know from the results, these two types of forests are almost the same in Amazon. So why separate them apart if the difference is not significant (see Section 3.3 and Fig. 9)? Or, what’s the difference between them and how we can tell it from the results?

Reference:

[1] Shimada, Itoh, Motooka, et al. New Global Forest/Non-Forest Maps from ALOS PALSAR Data (2007-2010) [J]. Remote Sensing of Environment, 2014, 2014,155(-): 13-31.DOI:10.1016/j.rse. 2014.04.014.

[2] Martone M, Rizzoli P, Wecklich C, et al. The global forest/non-forest map from TanDEM-X interferometric SAR data[J]. Remote Sensing of Environment, 2018, 205:352-373.DOI:10.1016/j.rse.2017.12.002.

[3] Mazza A, Sica F, Rizzoli P, et al.TanDEM-X Forest Mapping using Convolutional Neural Networks[J].Remote Sensing, 2019, 11(2980).DOI:10.3390/rs11242980.

[4] Pulella A, Santos R A, Sica F, et al. Multi-Temporal Sentinel-1 Backscatter and Coherence for Rainforest Mapping[J]. Remote Sensing, 2020, 12(5):847-.DOI:10.3390/rs12050847.

Specific comments:

1. Line 262: 0.03×10^6 -> 3×10^4;

   Line 248: 0.75×10^6 -> 7.5×10^5; please check such representation.

2. Line 165, Fig.1(a) and (b): The legend should be included in the figure.
3. Line 199, Fig.4(c) and (d): The label is too crowded to read.

4. Line 269, Fig.7: add a legend, like Fig. 5.