Ms. Ref. No.: PHOTO-D-24-01726  
Title: On the consistency and stability of vegetation biophysical variables retrievals from Landsat-8/9 and Sentinel-2  
ISPRS Journal of Photogrammetry and Remote Sensing

Dear Dr. Najib Djamai,  
Reviewers have now commented on your paper and a Major Revision is recommended. While the manuscript has potential for publication in the ISPRS Journal, the final decision will depend on the quality of the revisions. If you are prepared to undertake the work required, I would be pleased to consider the revised paper for publication. (see below and on https://ees.elsevier.com/photo/).  
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I would appreciate if you could submit your revised paper by Feb 23 2025 11:59:59:000PM.  
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Yours sincerely,

Qihao Weng, Ph.D.

Editor-in-Chief  
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**Reviewers' comments:**

AE: two review reports follow. The reviewers considered that your study addresses a critical gap in the validation and intercomparison of vegetation biophysical variables derived from Sentinel-2 and Landsat data and makes a substantial contribution to the field. The manuscript is well-prepared but there are several issues that need to be improved: better emphasize the practical implications of your work, resolve repetitive and misplaced content, improve methodological transparency (e.g., on regression algorithms and spatial resolution differences), and fix formatting errors such as missing or duplicated figures and table references.

**Reviewer 1:**

The paper explored the consistency and stability of vegetation LAI, FAPAR, and fCOVER estimated from Landsat-8/9 and Sentinel-2 over the NEON and CCRS sites.  
The paper is finely prepared. I have some comments for authors to consider in their revision.  
I guess the pdf file was corrupted during the Word to pdf conversion. Many figures and tables citations were missing or wrong.

|  |  |
| --- | --- |
|  |  |
| L34. Missing table number. |  |
| L107-110. Authors state that CEOS has not identified methods to calculate stability and they have calculated stability in this study. 1) Somehow, I did not see how the stability was calculated in this study. 2) Please note that GCOS-200 defined product stability as the maximum acceptable change in systematic error measured in decadal time scales (https://unfccc.int/files/science/workstreams/systematic\_observation/application/pdf/gcos\_ip\_10oct2016.pdf). The GCOS definition can be used as a guideline for the study. 3) The temporal stability has also been explored in a couple of previous studies (https://doi.org/10.34133/2021/9842830, https://doi.org/10.1016/j.rse.2021.112438) for kilometric LAI products. |  |
| L153 The same figure was duplicated twice below. Also in L165. |  |
| L164-176. Duplicated lines. |  |
| L240. Table number. |  |
| 2.2.a. I'm wondering whether this RM quality control process is necessary. It seems an arbitrary process. |  |
| L344, L369, L386, L395, L405. L437, L450, missing figure numbers |  |
| Figure 4. What's the 1e2 in the figure? |  |
| L436. A duplicated figure. |  |
| L567. Figure 2 -> Figure 10? |  |
| Figure 9. Provide full names for std and CI in figure title. |  |
| L485. Figure 2 -> Figure 10. |  |
| L504. Citation Xii et al. 2022 was not in reference. |  |
| L505. Provide the hyperlink citation in reference. |  |
| L513. "here" -> "There" |  |

Reviewer 3: The study addresses a critical gap in the validation and intercomparison of vegetation variables from Sentinel-2 and Landsat data, making a substantial contribution to the field. The paper is well-written, though some sections (e.g., methods and discussion) could be more concise or focused. The following issues need to be carefully addressed:

|  |  |
| --- | --- |
| # Abstract: you need to better highlight the practical implications or novel contributions of the study. |  |
| # lines 82-94: this part belongs to the methodology section |  |
| # lines 97-99: please provide a clear definition of uncertainty and bias in the context of your study |  |
| # line 116: explain the term stability |  |
| # line 159: can you provide more information on the ESUs (e.g. size) |  |
| # lines 158-176: please check this part because there is a repetition of the same information. The same applies to Figure 1 |  |
| # Table 1: all abbreviations should be explained in the table caption. This applies to all tables added to the paper |  |
| # 185: used the already defined abbreviation. This should be checked and corrected throughout the manuscript accordingly |  |
| # lines 194-206: provided links makes it difficult to follow the conveyed message. |  |
| # 231-237: again, provided links makes it difficult to read the paper |  |
| # general comment on the methodology: discuss the limitations due to the spatial resolution differences between Sentinel-2 and Landsat sensors. More information on the regression algorithm should be provided (a reference to a previous study is not enough) |  |
| # line 240: what table do you refer to? |  |
| # 344: Figure number is missing. The same applies to line 395 |  |
| # how do you explain these results: forested classes were underestimated by between ~0.05 and ~2 for LAI and between ~0.05 and ~0.20 for fAPAR while non-forested classes were slightly overestimated by ~0.5 for LAI and ~ 0.1 for fAPAR? |  |
| # line 513: check the sentence and improve it |  |
| # broader ecological or climatic implications of stability and bias findings are not fully explored. |  |

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