

First, I would like to appreciate the efforts that have been taken by the authors to collect and analyze 13-years field measurements for the manuscript “A leaf area index, LAI, data set acquired in Sahelian rangelands (Gourma, Mali) over the 2005-2017 period”. Secondly, the open-access dataset provided by the authors will be an asset for future research use, which is quite appreciable indeed. However, I believe the manuscript requires major revisions mostly about the way it is written and the structure and text body of especially abstract, introduction, site description, and field sampling strategy and data description. It gets sometimes very difficult to follow the logic and methodology used in this manuscript. I also recommend the authors to fix the sentence structure, e.g., avoid run-on sentences, and grammatical and spelling issues that I have noticed throughout the paper. In addition, I would recommend the authors to rerun the data analysis using yearly MODIS imagery corresponding the year of collected data in the field, which I will explain it later in my list of comments. Furthermore, the current type of provided line numbers makes addressing comments very difficult.

Here are some of my concerns and comments regarding this manuscript:

1. The title doesn't carry out the main picture and purpose of this research. Also, as I found the study region is in the northern Sahel and thus the title needs to be changed as “...rangelands in the northern Sahel...”.
2. Abstract, P 2, L5-10, you can't draw a strong conclusion about using this dataset for a better understanding of the Sahelian vegetation response to the current rainfall changes unless you scientifically provide evidence that this study area at the northern Sahel has similar vegetation community with the rest of the Sahel.
3. 1. Introduction, L5, please add the exact internet link for this reference (GCOS, 2011) in the citation list and look at the following reference and include it, Bojinski et al. 2014. The Concept of essential climate variables in support of climate research, applications, and policy. Bull. Am. Meteorol. Soc. 95:1431-1443.
4. P 3 L10, “The seasonal variation of the ECVs, i.e. the vegetation phenology” please change it to “..., i.e. changes in the vegetation phenology”.
5. P3 L20, “low trees” is vague. Does it mean short stature trees or dispersed trees?
6. P3 L35, MODIS needs to be in parentheses. Please add all abbreviations in the

parenthesis and be consistent about using your terminology.

7. P3 L35, "...instruments have been providing continuous estimation of the ECV...".

Please change it to "... have been used to provide a continuous estimation...".

8. P3 L35-40, You mentioned past research emphasized on using spatially heterogenous rangeland for validating ECVs on for example MODIS imagery, but at the beginning of next page, you are describing your study site as having lowest spatial heterogeneity. Looks these statements are contradictory. Please explain why your selected study site was different from what literature pointed out about the spatial heterogeneity.

9. P3 L40, the whole sentence from "With the main objectives....gov/) projects." is a vague run-on sentence. Please break it down to smaller clear sentences. Also, is it the objective of this study? If so, you need to clearly state this objective. I assume you have two main objectives: 1- validation of computed vegetation indices from the satellite imagery such as MODIS 2- providing open-access dataset. You need to deliver these main objectives at the end of introduction in a clear and strong way.

10. P4 before L5, "Before the set-up of a seasonal ..." this sentence is about field sampling strategy and needs to go to that section.

11. 3. Site description, P4 L10, please change "the annual rainfall mean" to "the mean annual rainfall".

12. P4 L20, what is "super-site"? Please explain it at the first time you are using it.

13. P4 L20, "clayed loamy" should be "clay loam".

14. P4 L20, "...and its understory herb layer in a clayed-loamy plain, ...". Please change it to "...and its understory herb layer in a plain of dominantly clay loam soils,...".

15. P4 L25, "clay loamy" and on the next sentence "clay-loamy". Please be consistent about using your terminology and change them to "clay loam".

16. P.4, L35, why were you bias about your sampling directions at N-S or E-W, and not to randomly choose the transect direction? Please justify it.

17. P.4, L35, "geolocated" please change it to "georeferenced".

18. P.4, L35, "to within an approximately 10-metre accuracy" please change it to "with approximately 10-meter horizontal positional accuracy".

19. P4, L40, "approximately 100 (50)"? 100 (50) is vague. Please explain it.

20. P4, L40, "herbaceous (forest) sites" is confusing. Please explain it. The term forest in the

parenthesis gives readers the impression of equality to the herbaceous.

21. P5 L5, "...maintained horizontal thanks to bubble-levels." is vague. What does "thanks" mean here? Please rewrite it in a clear way.
22. P5 L10, "non green" please change it to "non-green".
23. P5 L10, "and has proved to be efficient" please change it to "and has been proved to be efficient".
24. P5 L25, " $\pm 17.3\%$ " and " $\pm 36.5\%$ " are accuracy or standard deviations? If they are standard deviations, please be careful about using your terminology.
25. P5 L30, "Afterwards, the herbaceous green canopy rapidly dried out apart from the forest understory composed partly with the perennial herb". It is confusing. Please rewrite it in a clear way.
26. 5. Use of the data set, P6 L30, this is an objective of this study and needs to go to the end of introduction.
27. 4.1. Validation of satellite products, P7, L5, "...the clumping efforts performed thanks to the estimated aggregation factor, ..." what is the meaning of "thanks" here. It is a confusing sentence. Please rewrite it.
28. P7 L10, why is "VEGETATION" capitalized? Does it convey a specific meaning here? Please explain it.
29. P7 L10-15, what does it mean "The collection 6 benefited from improved surface reflectances and biome type inputs (Wolfe et al., 2013), and provided more accurate products (Xu et al., 2018b)"? It is confusing. Why didn't you compare year by year computed vegetation indices from MODIS imagery and field dataset for 13 years? How do you deal with the yearly fluctuations of precipitation in such an arid climate that significantly impacts the leaf area index and other vegetation characteristics? Based on your analysis, you are assuming the vegetation indices derived from MODIS imagery at the period of 2005-2017 are similar to the period of 2015-2017. I recommend you rerun the analysis using year by year comparison between computed vegetation indices from the MODIS imagery and the field survey.
30. P6 L20, please change "meso scale" to "mesoscale".
31. P14, Figure 1, Please make a joint map with this figure that shows the study area in the African continent.
32. P18, Figure 5, the issue of specified comparison of MODIS imagery with field surveys,

for vegetation indices, is pretty much clear on the data points where data are clumped row by row, especially in the regression plot for Kelma forest, and this type of comparison is not statistically true and can cause erroneous results.

33. P22, Table 3, Why are almost half of your sampling sites include a very low yearly sample size, e.g., sites no. #17 Agoufou NS, #18 Timbador NS, #18 Timbador EW, #31 Tara NW-SE, #40 Eguerit EW, and #41 Bilantao NE-SW, and how do you justify drawing conclusion from the results of such an small sample size? What is the reason for not having enough samples at those sites? By having such a small sample size, making conclusion for those sites with specific plant communities and thus a broader conclusion for the entire vegetation communities across the northern Sahel could be questionable.

34. Supplements, Figure S2, the picture numbering (the letters) doesn't correspond to the letters written in the figure caption.

35. The type of soils in Table S1 and Table S2 do not look correspond to each other for some sites. For example, Kelma Plain (#21b) site shows a dominant soil type of clay loam in the Table S1 but the percentage of soil particles in Table S2 shows a very low amount of clay particles about 1-2 %. Please check them out and use the common soil textural triangle to find out the soil texture class for every site.