

Earth System Science Data Review:

A leaf area index, LAI, data set acquired in Sahelian rangelands (Gourma, Mali) over the 2005-2017 period.

Eric Mougin, Mamadou Oumar Diawara, Nogmana Soumaguel, Ali Amadou Maïga Valérie Demarez, Pierre Hiernaux, Manuela Grippa, Véronique Chaffard, Abdramane Ba

Paper Summary

LAI, FCover, PAR and clumping index of rangelands in the Sahel are presented on a time series of 13 successive rainy seasons from 1005/2017. The variables have been acquired from hemispherical photographs along 1 km sampling. The paper also present retrievals of LAI based on moderate radiometers. Data seems to be useful for satellite direct retrievals of LAI and other variables and or for model assessment and comparisons.

Review Assessment

This paper contains a number of errors that makes the reading flow difficult. Now it also contains numerous spelling and technical errors. However, the most important question I have is what is the science here? I understand the value of some of the variables but what is the science here is hard to get. This review finds this paper border line between rejection and major reviews. This is because this journal seems to focus on data. However, science data should be explained in the more compelling and more justifiable scientific framework.

Comments

Delete LAI from the title.

Change rangelands of Gourma in Mali – Eliminate parenthesis.

Through the abstract there are three instances in which you define acronyms that are not used through the abstract. - then I would suggest to use the entire word and then when the paper start in the Introduction you define those acronyms.

Why these variables are climate essential? You are giving sweeping statement without justification. Please restrict you writing to the specific of what the variable is about without loading any extra concept.

Change “understorey” by understory

Abstract evaluation: this abstract si unspecific. The abstract should summarize overarching objective, what the project is about and what the main results are. Your abstract does not respond to any of those parameters.

Line 3: explain what you mean by “one half the total leaf area index”.

Line 4-off: References should go in chronologic order.

Line 15: what are production efficiency models?

In general acronyms are expressed in parenthesis. Western African Monsoon (WAM).

Line 43: check if you can use an internet link as reference.

Normally at the end of an introduction the paper should describe a roadmap of what the paper is about. Missing here.

Lines 11 and 20: there is a mismatch in the use of supersite and then super-site. You should keep coherency across the paper.

Lines 25 – off change numbers by the actual word.

Line 39: change “metre” by meter

Line 5: give the absolute height to verify the resolution and your camera characteristics.

Line 9: change “centre” by center.

Line 22: moderate remote sensing sensors. You need to put examples and references here.

Line 25: here you express variations of estimates of LAI and PAI. From where these number so are coming from?

Line 31: please use a more academic verb instead of “catch”.

Section 4: what is this? I really don't understand the purpose of this section.

Figure 1. This illustrate very-well the sites but it is difficult to see where this is located. Can you please add a larger area map with an inset so that we can see where this region is actually located.

Figure 3. time series of LAI. These series are not clearly explained why Kelma herbs peaks far away from Agoufou?

Figure 4. Here you show rainfall and LAI. However LAI is known to be very sensitive to temperature and therefore inversely dependent to rainfall. Then for datasets that focus on vegetation that eventually respond to climate shift it is mandatory to know the time series of rainfall rather than the accumulated rainfall. The vegetation onset depends not only on radiation and temperature but also on the precipitation during the beginning of the season.

Figure 5. Kelma Forest exhibits a different dynamic behavior than Agoufou for LAI below 1 m²m⁻².” No explanation in the text what is the attribution to this feature.

Also the scattering dispersion is larger in the second plot compared to the first plot for LAI larger than 1 m²m⁻².

Figure 6. It is difficult to understand the meaning of this comparison. I think you should clearly explain why this comparison is needed. And. Actually why the series diverge differently.