

We thank the reviewer for the constructive comments. All the comments have been considered, and the changes have been made in line with all the comments. The original comments were provided in pdf form, so we have extracted them here, where we provide replies on a per comment basis. Our replies are given in blue. We also provide a modified manuscript in pdf with the changes highlighted in red.

1. I suggest add another keyword, such as “primary production models”.  
Revised as suggested.
2. In my view, incorporating a reference table with the description, units, and notation for all variables would significantly enhance the readability of the paper.  
Revised as suggested. A new Appendix was added with such a table.
3. Could you clarify the term "a single value for noon irradiance". I assume it refers to the discrete peak value at solar noon used to scale the daily light curve, rather than a mean value computed for the midday period.  
You are correct. This was revised as suggested.
4. Normalised production ( $P^B$ ).  
Revised as suggested.
5. The biomass profile is not presented in this figure. I think it would enrich the plot to include like P and I .  
Revised as suggested. This figure was remade to include the biomass profile as well.
6. Previously, in the manuscript referred to the "biomass profile" rather than the "chlorophyll profile". It is highly recommended to maintain this specific format to ensure consistency.  
Revised as suggested. We have made this change throughout the manuscript.
7. Could you clarify the use of the caret symbol (^) on the photosynthetic parameters? specifically if it denotes estimated.  
You are correct. This is now stated explicitly in the manuscript.
8. Chlorophyll or biomass (B). Previously ,in the manuscript y referred to the "biomass profile" rather than the "chlorophyll profile". It is highly recommended to maintain this specific format to ensure consistency.  
Revised as suggested. We have made this change throughout the manuscript.
9. I think is no need to mention the auxiliary data that was not used in the inverse model.  
Revised as suggested.
10. The parameter  $I_k$  is not defined when the main photosynthetic parameters are first introduced in the inverse model; or figure 1 instead, its explanation is delayed until this section. I suggest defining alongside the primary parameters, or alternatively, within the caption of Figure 1 where the symbol is visually presented.  
Revised as suggested. This parameter is now defined when the photosynthetic parameters are first introduced.

11. To remain biologically realistic, these parameters cannot be zero, which would indicate zero light absorption or carbon fixation. Their lower bounds are set to a minimal positive value (e.g.,  $10^{-3}$  or).  
[Acknowledged. Revised as suggested.](#)
12. The range, mean, and median should share an identical number of decimals.  
[Revised as suggested.](#)
13. This should be placed in the section where it is first mentioned, rather than in the Results. I suggest moving it to the section where the photosynthetic parameters are explained.  
[Revised as suggested.](#)
14. To maintain consistency with the format of the previously described variables these sentences would be modified. The distribution of .....ranged from .... to ....., with a mean of... and a median of ... The bulk of the values were found below..., displaying a positively skewed distribution with a long right tail.  
[Revised as suggested.](#)
15. Report the parameter  $I_k$  using zero decimal places.  
[Revised as suggested. We now report  \$I\_k\$  with the same number of decimal places as the rest of the parameters.](#)
16. Distribution of the .....