Biogeosciences Discussions

Biogeosciences Discuss., referee comment RC3
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Comment on bg-2022-50

Anonymous Referee #3

Referee comment on "Excess radiation exacerbates drought stress impacts on canopy conductance along aridity gradients" by Jing Wang and Xuefa Wen, Biogeosciences Discuss., https://doi.org/10.5194/bg-2022-50-RC3, 2022

This manuscript used ^{18}O enrichment of leaf organic matter above source water ($\Delta^{18}O$) as proxy for g_s per leaf area to explore the effect of drought stress on g_s the interaction effects of abiotic and biotic constraints on canopy along aridity gradients in Loess Plateau (LP), Inner Mongolian Plateau (MP), and Tibetan Plateau (TP). The topic and methods are interesting. However, some corrections are needed before it is ready for publication in an international scientific journal. My comments and suggestions are the following.

- Introduction: Please put the last paragraph (Line 81-91) before the penultimate paragraph (Line 72-80).
- Fig.1: Is the Y variable in (b) consistent with (f)? If yes, please unify them. Similarly, please modify the Y variable in (c) (d) (g) (h).
- Fig.2: Please delete the "***" in Fig. 2(b).
- Fig.3: The X variable name in Fig.3(c) (TSR) is inconsistent with the name in the legend (SR). Please modify it.
- Table 1: The asterisk in the seventh row is inconsistent with other rows. Please revised them.
- Fig.4: Please label the P value in each figure to ensure the reliability of the model. In addition, please add a priori model of effects of variables on the g_s to Supplementary Information.
- Fig.4: Why are there many types of SEMs for g_s? Even in the same area, there are two SEMs for g_s. How to determine which is the most accurate?
- There are many problems in the manuscript. For example, (1) "s" of g_s should be a subscript; (2) leaf area (Line 114); (3) as follows (Line 118); (4) "max" of $Temp_{max}$ should be a subscript (Line 194); (5) All the abbreviations in the figures should be explained; etc. Please check the full text carefully.