

Biogeosciences Discuss., referee comment RC2
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Comment on bg-2022-50

Anonymous Referee #2

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-RC2>, 2022

The manuscript by Wang et al. used the community $1/\delta^{18}\text{O}$ as the proxy for the time-integrated canopy conductance, and the investigated the interactive effects of multiple environment stressors and community traits on the spatial variability of canopy conductance along aridity gradients in three Plateaus with different radiation and temperature conditions. Without doubt, the topic is of urgent current interest. The study was generally well designed and executed with reasonable data analyses, and it was well written. However, there are a few problems in the present version; thus, I would recommend a minor revision of the paper before publication.

General comments:

(1) The second hypothesis does not make sense to me. It is an abrupt hypothesis, as authors described in earlier paragraphs that solar radiation and temperature can have both positive and negative impacts on g_s . It would be useful to added the basic climatic context for the three grassland transect.

(2) It is essential that the authors to discuss the influence of temperature and VPD on $\delta^{18}\text{O}$ spanning large altitudinal and/or latitudinal gradients, because temperature and VPD may lead to large inter-site offsets in leaf $\delta^{18}\text{O}$ values.

Specific comments:

(1) Line 109: replace "plats" with "plots".

(2) Lines 175-177, partial correlation analyses can be used to examine the actual links between $1/\delta^{18}\text{O}$ and soil moisture and vapor pressure deficit in Tibetan Plateau.

(3) Figure 4, please add the meaning of the asterisks and arrows.

(4) Line 270, SLA integrates leaf tissue density and thickness.