Biogeosciences Discussions

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Comment on bg-2022-50

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Community 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-CC2, 2022

This study of the impacts of stress factors and plant traits on stomatal conductance along aridity gradients is critical and timely. It represents a lot of work and will make a good addition to the literature, but there are some aspects that can be improved.
1 There are expressions like “drought”, “dryness”, “low soil moisture” and “soil moisture stress” in this manuscript. I don’t think these have the same meaning. Please check and use it properly. Similarly, this manuscript focused on gs, but sometimes there are expressions like “canopy gs”.

2 I think hypothesis should be based on the information provided in the introduction. In terms of the hypothesis 2 “excess solar radiation and low temperatures will result in differences in gs among transects”, I don’t understand how low temperatures will affect gs according to the information in introduction.

3 The last paragraph should be the last but one paragraph or in the methods.

4 There may be interspecific difference in gs, so information on plant species and species composition of the three study sites should be provided.

5 The headline of the first part in the discussion should be changed, because the patterns of gs among the tree transects are similar, but differ in magnitude. In addition, the authors attribute this difference to the temperature-induced changes in photosynthesis, which I don’t agree. Indeed, gs and photosynthesis are closely correlated, for example, to maximize carbon gain and minimize water loss according to the optimal stomatal behaviour. However, in my opinion, the correlation between gs and photosynthesis is regulated by stomatal behaviour.

6 line 25 delete “at leaf level”.

7 line 24 change “in one” and “in the other” into (1) and (2), respectively.

8 I suggest that “interaction effects” may be changed into “interactive effects”.