

Referee 2 's Comments:

- 1. Title I recommend the title be slightly changed to Parameterization of a coupling CO₂ and H₂O gas exchange model at the leaf scale in *Populus euphratica***

Reply: We have changed the title as '[Parameterization of a coupled CO₂ and H₂O gas exchange model at the leaf scale of *Populus euphratica*](#)'

- 2. Abstract Page 6504 Lines 2: I recommend you move simultaneously in front of predict 3: change "of" to "in" 7: photosyntheticis spelled wrong 9: delete "sets" 12: delete "of" and move "rates" after "transpiration"**

Reply: We move simultaneously in front of predict; 3: we think it should be using 'of' not 'in'; 7: we have changed; 9: we have deleted "sets"; 12: we have changed according to the referee's suggestion.

- 3. Introduction Page 6504 Lines 22: delete "with this frame work"**

Reply: We have deleted the word 'with this frame work'.

- 4. Page 6505 Lines 1: change "for various materials" to "among species" 2: end sentence after needed and delete text through Kosugi et al. i.e. this portion of the sentence does not make sense as stated. 6: end sentence after model and delete text through scales 10: this paragraph does not end well because the last sentence is not very well supported by the content of the paragraph. At a minimum, delete "of interest" in line 9. 14: "in vivo" should be italicized 16: delete "set" and replace with "curve" 17: replace "subsets" with "segments" and then stick with the use of "segments" 17: end sentence after "segments", delete "and" and start new sentence "The parameters:::.. 17: change "of" to "for" and change "customarily" to "then" 19 "delete "three" 21" change "the sense of" to "essence at" 25: spelling of noisy and data misspelled 26: delete "All these promote us" to " Therefore, we set out:::.." 27: delete "perfectly" 27: "FvCB" has not been define yet. Please define 29: change "estimate" to "estimation"**

Reply: Line 1: "for various materials" has been changed to "among species";

Line 2: The sentence is ended after needed;

Line 6: we end sentence after model and delete text through scales

Line 9: the word 'of interest' has been deleted;

Line 14: "*in vivo*" has been change to italicized

Line 16: "set" is replaced with "curve"

Line 17: "subsets" has been replaced with "segments" and then stick with the use of "segments".

Line 17: We ended sentence after "segments", and started new sentence "The parameters..."

Line 17: we changed "of" to "for" and changed "customarily" to "then".

Line 19: we have deleted "three"

Line 21: we have changed "the sense of" to "essence at"

Line 25: spelling of noisy and data are corrected

Line 26: we deleted "All these promote us" to " Therefore, we set out..."

Line 27: we deleted "perfectly"

Line 27: "FvCB" is changed to Farquhar et al. (1980) photosynthesis model, and the defined is given below.

Line 29: we changed "estimate" to "estimation"

- 5. Page 6506 Lines 8: delete "method" 11: change "that" to "the following" 14-15: point 4 is very confusing. It seems you are trying to say multiple things in a single point? Please revise for clarity 17: have the end of the sentence read "at the edge of barren and semi-barren deserts (Gu et al., 2004)." 26 : replace "missing of even non-existent" with "lacking" 27: should you not quote who did "rarely" 29 "delete "in suit"**

Reply: Line 8: we have deleted "method"

Line 11: we changed "that" to "the following"

Line 14: point 4 is changed as 'It can be computed simply and has a high implicit parallelism'.

Line 17: we end the sentence at the edge of barren and semi-barren deserts (Gu et al., 2004).

Line 26: the word 'rarely' changed to 'not'.

Line 29: in suit has been changed to 'in situ'

- 6. Page 6507 Line 5: delete "specific 6: delete "s" on scales 15: add "the" before "FvCB"**

Reply: We have changed according to the referee's suggestions

- 7. Page 6508 Line 7: delete "s" on temperatures**

Reply: we deleted 's' on temperatures.

- 8. Page 6509 Line 14: change "an" to "the"**

Reply: We have change an to the.

- 9. Page 6510 Line 17 "delete "and" 21: delete "noticed" and replace with "noted" 22: change "firstly to "first**

Reply: We have made the revisions according to the referee's suggestions.

- 10. Page 6511 Line 5: delete "is" 8: change "and" to "with" and "is" to "of" 13: Begin sentence with "P. euphratica trees::::::::::." And delete "materials" 14 "delete "P. euphratica trees" 15: delete "sunny" 16 "change exposing to "exposed" 20: delete "s" on "clamps" 21 "change" generation "to "construction"**

Reply: We have made the revisions according to the referee's suggestions.

- 11. Page 6512 Line 24: add "the" before "reading"**

Reply: We have added 'the' before reading.

- 12. Page 6513 Here I have a major problem with the methods description From line 12 on, it more reads like a back ground in formation section rather than a description of what they did. This then continues on to page 6514 up to the results section. In other words, I can't follow what they did because this section is written as if to describe what GA is**

rather than how they applied it.

Reply: This section describes how GA works and the linkage between the GA and the photosynthesis model. We think it is necessary to tell the reader about the background about GA.

13. Line 12: add “an” after “is” and add an “s” to “mimic”

Reply: We have made the revisions according to the referee’s suggestions.

14. Probably the best part of the manuscript .However, why was a RMSE analys is not perfomed instead of the linear regression?

Reply: According to the referee’s suggestions, the RMSE analysis is add to photosynthesis rate and evaporation rate. See Fig.7.

15. The discussion could be a lot clearer and more organized. The equations in the discussion do not help the clarity and as they are currently used, do not add much.

Reply: Thanks for the commens. We think it may be not integrative if we delete these equations. Thus, we keeps the equations in the discussion.