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Biogeosciences Discussions

Interactive comment on "The importance of radiation for semi-empirical water-use efficiency models" *by* Sven Boese et al.

Anonymous Referee #2

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The article introduces a simple semi-empirical WUE model describing the relationships between daily transpiration and GPP as a function of daily water vapor deficit and incoming solar radiation. It is well written paper and can be, from my point of view, very interesting for BGS readers especially in respect to applied data analysis and interpretation of the evapotranspiration - GPP relationships.

Suggested model was tested via results of eddy covariance flux measurements at 110 FLUXNET measuring sites. Most sites are located in the areas with temperate climate conditions. A limited data were used from the areas with dry (arid and semiarid) climates (according to list of sites given in supplement). It is pity that the tropical area was presented by one site only (climate of tropical savannas in North Australia). No data available from the areas with tropical rainforest or monsoon climate. It is known that there are very limited flux data for the areas. But, what is author opinion, is it possible

to apply suggested WUE model to large tropical areas and especially to tropical rain and monsoon forests? Or not?

Other point. Is there any difference in found transpiration - GPP relationships between forest and grassland sites? It is important to know taking into account the differences in plant canopy architecture of the forest and grassland sites (as well as penetration of solar radiation, stomatal regulation, etc.). Any way this point should be additionally discussed.

Specific comments.

Page 4, line 6. Sentence is not complete.

Page 4, line 16. Index uWUE is not explained.

Page 7, line 15. Index STO is not explained.

Page 9, line 14. What is about dew formation and its evaporation? Is it ignored?

Page 9, line 17. Did you analyze the relationships between contributions of soil evaporation to ET and canopy LAI?

Page 16 line 29. Term "underlying water-use efficiency (uWUE)" must be explained in page 6.

Conclusion is absent.

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