

17 April 2014

Revision of Manuscript

Dear Bart,

we revised our manuscript according to your editorial comment. The new passages of text in the manuscript are highlighted in bold type. Specifically, we modified the following parts of the manuscript to address your points:

- * treatment of terrestrial radiation: To show that our formulation of terrestrial radiation is bi-directional, we added an additional arrow in Fig. 2 and described the linearization in more detail in section 2.1.
- * Ts needs to exceed Ta to generate power: We added text after eqn. (7) in section 2.2 to address this point, following our reply, but in abbreviated form.
- * effects of transparent atmosphere: We added an Appendix A2, in which we treat this case and refer to it in the discussion section (5.1).
- * convergence of moisture/energy: We added the moisture transport and runoff to Fig. 2, added a note in the methods section (2.1) and at the end of the Appendix A1.
- * dissipation of kinetic energy: We explicitly use the notion of the dissipative heat engine by Renno and Ingersoll (1996) and Bister and Emanuel (1998) in the derivation of the maximum power limit after eqn. A4 in Appendix A1.
- * correspondence to empirical formula: We added a section in the discussion (5.3) to discuss radiation-based empirical approaches and specifically the overview by Xu and Singh (2000). However, we did not go into the specifics in evaluating these approaches. The main reason for this is that we would have needed to do quite an extensive discussion on the details (e.g., Xu and Singh evaluated these approaches for pan evaporation which is not the same as potential evaporation), which we did not think would provide much insights. What we think is a more critical (and unresolved) issue is the reconciliation of our approach with the broadly accepted Penman-Monteith equation. We added a brief discussion on this and the potential value of the combination of both to this new section.

I hope you find the revised manuscript acceptable for publication.

Best regards,

Axel