

***Interactive comment on* “Potential evaporation estimation through an unstressed surface energy balance and its sensitivity to climate change” by A. Barella-Ortiz et al.**

K. Wang (Referee)

kcwang@bnu.edu.cn

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This study compared different methods to estimate potential evaporation. The authors uncovered the assumptions made to each model, which may be very familiar to each one. The authors went further to look at what introduce the different estimates. They found that FAO method substantial underestimates potential evaporation for its incorrect default aerodynamics resistance. A large number of numerical experiments were made to support their argument. The authors also investigate the sensitivities of the methods to future climate change and what caused the different sensitivities. I strongly recommend its publication.

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However, this paper has a large numbers issues to be addressed before its publication. But most of them are about its presentation. 1. The abstract can be more informative. Page 8198, Lines 22-26, these sentences did not provide solid information. Similar sentences in Page 8218, Lines 21-24 are better. 2. Page 8204, Eq. (4), how to calculate T_w , what is the function of $q'(T_a)$. Provide equations. 3. Page 8204, Section 2.1.3 USEB method, how to calculate r_a in the USEB method in ORCHIDEE. Provide equations for it. It is necessary because it is key point made in this paper. 4. Page 8606, Eq. (6), what is L ? 5. Page 8208, 2.4 forcing data, an introduction of the forcing data WFD should be provided. If it is an observation based, how it extrapolated to areas where no observation and how it addressed the parameters that are not operational observed, such as radiation components? If it is a reanalysis or satellite based dataset, how it did the bias correction? 6. Fig. 2, what are the input data for these results? This should be discussed in the figure legend.

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