

Interactive comment on “A simple global Budyko model to partition evaporation into interception and transpiration” by Ameneh Mianabadi et al.

Anonymous Referee #1

Received and published: 22 June 2017

Annual evaporation (and interception and transpiration) at the global scale is estimated using the Gerrits' model, and compared with other data sources including Landflux-EVAL, STEAM and GLEAM. The estimated annual evaporation is also compared with one estimated by non-parametric Budyko equations. A global estimation of interception and transpiration is presented in this paper. The paper is well written, technically sound, and valuable (global interception and transpiration estimation). I provide the following comments for the authors to consider for revision.

It is not necessary to compare estimated evaporation with four non-parametric Budyko equations since all of them are curve fittings of observations and the uncertainty may be large for some areas. It is fine to compare it with one (e.g., Budyko equation). However, if it is possible, the authors may consider comparing the evaporation estimations

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with parametric Budyko equations since the parameter of the Budyko equation can be linked to land surface properties such as LAI.

Since the Gerrits' model estimates both interception and transpiration, it is interesting to computing the ratio between interception and total evaporation, i.e., E_i/E . The parameter of the Budyko equation in Wang and Tang (2014, doi:10.1002/2014GL060509), ε , can be computed using precipitation, potential evaporation, and E . I am curious on the relation between E_i/E and ε . The authors may plot E_i/E versus ε . Is E_i equivalent to "initial evaporation" defined in the paper?

It seems that the Gerrits' model is a conceptual model (with inputs and parameters even though assumed to be constant) for computing interception and transpiration, but is not a simple Budyko equation.

A thorough proof-reading is recommended since there are some typos. For example, a few typos are listed below. Line 11 on page 2: "physical base" needs to be changed. Equation (1) itself does not explain any physical process. Line 26 on page 2: "a couple of" Line 4 on page 5: change "parameter" to "parameters"; "equation" to "Equation" Line 9 on page 5: any explanation on the value of b ($=0.1$)? Line 19 on page 5: "are limited" to "is limited" Line 19 on page 7: "aria" to "area"

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2017-306>, 2017.

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