

Interactive comment on “Estimating actual, potential, reference crop and pan evaporation using standard meteorological data: a pragmatic synthesis” by T. A. McMahon et al.

Anonymous Referee #2

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Congratulations: assembling this synthesis is a great idea, and this paper is potentially extremely helpful to clarify the concepts. However, I would like to ask the authors to try to be still more pedagogical in their presentation. I think that the key to all the paper is section 2.1, where you present the different concepts. I would like to ask the authors to extend it a little further to clarify the differences between definitions. For example, I think you should introduce the concept of ET wet from the beginning, and not wait for the presentation of Morton’s work. I also remember a discussion by Perrier on the difference between "Maximal" and "Potential" Evapotranspiration that would be interesting here. Last, I would like to see a clear definition of the role of the reference

crop here: when are crops sometimes seen as a factor only active in the PET - > AET transformation ("stomatic resistance"), and when are they seen as a factor increasing PET. There has always been a lot of confusion in the literature, and for paractitionners, it would be extremely useful to address these questions, most of them lack a clear understanding of the differences.

Among the other debates that I wish would be dealt here is that of interception : does it represent a double count or not?

Miscellaneous comments . I was wondering whether Eq. 1a should not include a leakage term L, to account for flows which may leave the analysed system (e.g. a catchment) moving to a neighboring catchment or a regional aquifer. (you do it in Eq. 24).

. P.11837, I.5 : please define advection in simple terms

. P. 11847, when you introduce the complementary relationship, you introduce ETwet. Why didn't you do it earlier in section 2.1?

. Morton complementary relationship : when you describe Morton's attempt to validate the relationship, you could perhaps discuss Oudin's unsuccessful attempt to introduce it in a hydrologic model.

References Oudin, L., C. Michel, V. Andréassian, F. Anctil, & C. Loumagne, 2005. Should Bouchet's hypothesis be taken into account for estimating evapotranspiration in rainfall-runoff modeling? An assessment over 308 catchments. Hydrological Processes, 19: 4093-4106.

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