

Interactive comment on “Remote sensing techniques for predicting evapotranspiration from mixed vegetated surfaces” by H. Nouri et al.

Anonymous Referee #1

Received and published: 21 May 2013

Review of

Remote sensing techniques for predicting evapotranspiration from mixed vegetated surfaces

by Nouri et al.

General comments:

This is a review paper on methods to retrieve evapotranspiration (ET). As a number of previous studies have addressed this issue (e.g. Courault et al. 2005), the authors focus on mixed surfaces. However, it is not always clear to what extent their findings are new, valid for all types of surfaces, or only refer to heterogeneous surfaces. Moreover,

C1855

the importance of biochemistry land surface models (able to account for heterogeneous landscapes through sub-grid tiles) and of techniques to ingest satellite data into models (e.g. data assimilation) is not sufficiently discussed. Direct evaporation of rain water intercepted by the leaves may contribute to a large extent to the total ET through large evaporation rates over a short period of time. How can this flux be accounted for by empirical methods relying on satellite data? What about the robustness of the methods with respect to climate change (e.g. impact of atmospheric CO₂ concentration, validity of empirical parameters in a changing climate?). To what extent have the various methods been validated/benchmarked? These are key questions, unfortunately not addressed in the current version of the manuscript. The paper lacks new original results permitting the assessment of the various methods.

Recommendation: major revisions.

Particular comments:

- P. 3901, L. 9-13: what is the added value of this study w.r.t. previous classifications?
- P. 3909, L. 2: "ET₀ from a weather station" in the context of rising atmospheric CO₂ concentration (now approaching a global mean value of 400 ppm), impacting plant growth and stomatal closure, is the ET₀ concept still valid?
- P. 3910, L. 21: "tress"?
- P. 3924, Fig. 1: the captions are not complete for understanding. Units of ET rates? Where, when?
- P. 3925, Fig. 2: Units of ET rates (cm/yr)?

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 3897, 2013.

C1856