

Interactive comment on “Ecohydrology in Mediterranean areas: a numerical model to describe growing seasons out of phase with precipitations” by D. Pumo et al.

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Received and published: 2 November 2007

The paper named "*Ecohydrology in Mediterranean areas: a numerical model to describe growing seasons out of phase with precipitations*" by D. Pumo et al. deals with a topic of great interest for scope of the special issue that we are promoting on HESS. This topic is appealing and difficult to handle through an analytical approach especially for the case of Mediterranean areas characterized by seasonal fluctuation in the climatic forcing (both rainfall and evapotranspiration).

There are several elements of interest in the results of this work nevertheless it requires

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Major Revisions according to the suggestions of all the Referees. At this point, I want to remark the excellent work made by the referees that have provided constructive reviews to this paper that will be useful to re-organize its structure possibly improving its final quality.

For this reason, I suggest to follow point by point all the referee's comments and also to improve the English of the paper before resubmitting. In particular, all referees pointed out the necessity to shorten the paper especially in the parts related to the description of the theoretical model developed by *Rodriguez-Iturbe et al.* (1999) and modified by *Laio et al.* (2001) simply citing the original papers (see comments of Reviewer 1, 2 and 3). Such a description is certainly misleading for general scope of the paper that proposes the use of a numerical approach for soil water budget analysis. As a consequence, more emphasis should be devoted to the numerical analysis and results (see comments of Reviewer 1). An interesting point was also made by the Reviewer 1 regarding a the choice of a computational time-step of 1/4day or lower. This choice should be better clarified and it can not be only dependent on the precipitation characteristics, but it is strongly depended on the non-linear processes involved in this dynamic (e.g., hydraulic conductivity). Reviewer 2 also pointed out the necessity to provide a validation of the conjectures arising from the presented modelling application.

Finally, I would like to suggest the reading of the following paper that may be of interest for the present theme: Laio F., Porporato A., Ridolfi L. and Rodriguez-Iturbe I. (2002), On the seasonal dynamics of mean soil moisture, *Journal of Geophysical Research*, vol. 107 (D15).

Interactive comment on *Hydrol. Earth Syst. Sci. Discuss.*, 4, 2769, 2007.

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