

Interactive comment on “Spatial and temporal connections in groundwater contribution to evaporation” by A. Lam et al.

Anonymous Referee #2

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I had a difficult time putting a positive spin on this manuscript. First of all, after review I found this manuscript was not very well prepared. It is quite rough in many aspects of evaluation as detailed in this report. There is certain distance from being able to publish on HESS in its present form. Many inadequate sentence structure and wording throughout the manuscript.

To the benefit of the Authors, I have listed page/line numbers where necessary revision is highly recommended (only until p. 1546, I hope the Authors will find them useful....)

P 1542, lines 13, 17, 18, 19 P 1543, lines 3, P 1544, lines 8, 10, 16, 20, 21, 22, 24, 25, P 1545, lines 3, 4, 11, 22, 23 P 1546, lines 3, 4, 13,

Some major concerns as follows:

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P 1543, lines 18-20: This argument is strong. Can the Authors cite some references to support the argument?

P 1544, lines 11-15: Questions 1 and 3 are partially overlapped, aren't they? suggest to clarify.

P. 1544, lines 18-20, Please explain quantitatively the contrast between the "meso-scale" and "regional climate scale".

P. 1546, line 4 - why 7-day timestep was used? Can it capture the dynamics? I seriously doubt. Land surface use 30-min to 3 hrs timesteps in order to calculate the flux exchanges between different reservoirs, how can it be done using 7-day timestep? Need a strong justification.

Second, the introduction of background information takes 9 pages (p. 1942-p. 1950), but the presentation & discussion of results are only 4 pages. This ratio is not acceptable. Suggest to shorten the background information, and enhance both the contents and quality of discussion on the results and well spell out the implication and shortcoming of this study. None of them have been reached in its present form.

Third, the objective of the manuscript seems rather vague to me. Some key statements read contradictory to each other such that I was really confused about the clear idea the authors would like to express. An example is from p. 1554, line 24 to p. 1555, line 2. So, what is the main point here? Lateral groundwater flux is not necessary to be included, but it helps to close water balance? Difficult to understand indeed. Further, although the Authors repeatedly argued that considering groundwater processes will help close water balance, but has this been demonstrated in this paper? I am afraid not at all. Same thing applies to their statement that "Goal of this research was to investigate the importance of groundwater and groundwater convergence to the regional scale evaporation and through this on regional climate."

Finally, some relevant reference have not been adequately cited. A quick search over

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the WRR, JH, JHM using the key words such as "groundwater-vadose zone interactions", "groundwater evapotranspiration" or "Groundwater-supported evapotranspiration" will come out some more references not cited yet in the manuscript -

In view of my above review comments, I can not recommend to publish this manuscript. I do wish the Authors can make substantial improvements realized and consider re-submission.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 1541, 2011.