Hydrol. Earth Syst. Sci. Discuss., 12, C4650–C4651, 2015
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Hydrology and Earth System Sciences
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Discussions

Interactive comment on "Experimental evidence of condensation-driven airflow" *by* P. Bunyard et al.

Anonymous Referee #1

Received and published: 5 November 2015

Evaluation is impossible unless more information is supplied about the employed dynamic models !

The paper compares two competing kinds of dynamic modeling to explain the laboratory experiments that have been done, namely the usual "convection model" and the new "biotic pump model".

Hence, dynamic modeling forms the core subject of the paper. However, whereas the thermodynamic equations have been worked out well, dynamic equations are almost completely missing ! Equation 9 relates units only, and can be omitted. Equation 10 is said to be used to convert the developed power to airflow velocity, but this is to my knowledge merely a theoretical maximum corresponding to the case that 100 % of the energy becomes kinetic energy (primarily it expresses the flow of kinetic energy through an area perpendicular to the flow). Moreover, it is not described how the

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developed power is obtained for each of the models.

Because of these omissions, it appears impossible to evaluate the discussion paper unless more information is supplied. Questions whose answers are urgently needed to understand the methodology and results, are:

(1) How exactly is the conversion from change of partial vapor pressure to velocity calculated ?

(2) How exactly is the conversion from change of density to velocity calculated ?

There are a few other questions which show up if one tries to understand the presented results:

(3) It should be made clear how the rate of change of the vapor pressure is defined. The most often used (Eulerian) definition takes the change in time at a fixed point in space, but this is probably not intended. A Lagrangian definition would be: the difference between the values of two points of observations, multiplied with v/L where v is the velocity and L a length scale, but which length scale ?

(4) Finally, how has figure 3 been obtained ? This question is less urgent than the other three, but the answer may shed much light on the logic followed by the authors, which is up to now hard to understand.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 10921, 2015.