Interactive comment on “Assessment of open thermodynamic system concepts for fluvio-karst temperature calculations – an example, the Cent-Fonts resurgence (Hérault, France)” by P. Machetel and D. A. Yuen

Anonymous Referee #1

Received and published: 3 March 2014

I have read the reply of the authors and would like to comment on a couple of issues: some references to stream temperature models are:


And several references herin.
Regarding point 3a:

$C_p$ does not describe the storage of heat, but is a conversion factor to convert temperature into energy. Storage of heat is described as a $V_i T_i$ (eventually multiplied with $\rho C_p$ to have units in terms of energy). In Eq 3, a change in storage over time ($V \Delta T / \Delta x$) should equal the sum of $Q_{in} T_{in}$ minus the sum of $Q_{out} T_{out}$.

Regarding point 3c:
The LHS has units: [m/s][K]/[m] = [K/s]
The RHS has units: [m$^2$/s][K] = [m$^2$K/s]

Regarding points 3d-f:
After having read the text in the manuscript again, I see that the authors are right. Nevertheless, to avoid this confusion, I recommend to give the normalized parameters a different symbol such as e.g. $T_{normalized}$ or add the normalization in the formula e.g. $T/\Delta T_{max}$.