Interactive comment on "Thermodynamics of Saline and Fresh Water Mixing in Estuaries" *by* Zhilin Zhang and Hubert H. G. Savenije

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The reply of the authors clarifies many things, but I still have a couple of points:

(1) About maximum / minimum. If the higher derivatives are also zero then you can strictly speaking not conclude if there is an extreme value. Therefore I would suggest to mention in the paper that the maximization of the power is an HYPOTHESIS.

(2) About the chain rule for the derivation. Let me give another simpler example: The relation between water depth and water level in a 1D steady or tide-averaged flow. It is obvious that $dD/dY=1$ (D=water depth, Y=water level). It is per definition that $D=Y-Z$ (Z=bed-level). Applying the chain rule as suggested by the authors yields $dD/dY=1-(dZ/dx)/(dY/dx)$, and is thus not equal to 1, as it should be. My conclusion is then that

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D and Y are both functions of x alone is not sufficient for the validity of the chain rule.

(3) Sloping or flat bed. It is also my argument that the depth is more or less constant. Therefore it is better to draw a sloping bed. Otherwise you have not not-constant depth as shown by the figure in the manuscript.