

Interactive comment on “Technical note: rectifying systematic underestimation of the specific energy required to evaporate water into the atmosphere” by Andrew S. Kowalski

G. Petty

gwpetty@wisc.edu

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In the abstract of this paper, we read:

“What L represents is the specific energy necessary to overcome affinities among liquid water molecules, neglecting the specific work done against atmospheric pressure (p) when water expands in volume (V) from liquid to gas (pV work).”

In the body of the paper, we then read:

“[L ’s] empirical determination is based on the equilibrium thermodynamics that underlie the Clausius–Clapeyron equation for the case of isothermal, isobaric phase change

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(Petty, 2008).”

But equation (7.5) of Petty (2008) explicitly shows L as consisting of both an internal energy part (the energy of attraction of the molecules) and a pressure-volume part. So there seems to be an inconsistency between the premise of the present paper and the definition of L as cited, according to which L is an enthalpy just like sensible heat (as it should be).

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