Correction to: Evapotranspiration over Land from a Boundary-Layer Meteorology Perspective

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In Sect. 3.1 of Cuxart and Boone (2020) the psychrometric constant given two lines below Eq. 10 does not apply to Eq. 10. When Eq. 10 is given in terms of the partial pressure of water vapour e , the psychrometric constant γ has to take the form

$$\gamma = \frac{R_v}{R_d} \frac{C_p}{\lambda} p. \quad (1)$$

The expression $\gamma = C_p/\lambda$ applies when the Penman equation is given in terms of the specific humidity

$$\lambda E_p = \frac{s (R_n - G)}{s + \gamma} + \frac{\rho C_p [q_{sat}(T_a) - q_a]}{r_{ae} (s + \gamma)}. \quad (2)$$

Here R_d and R_v ($\text{J kg}^{-1} \text{K}^{-1}$) are the specific gas constants for dry air and water vapour, λ (J kg^{-1}) is the enthalpy of vaporization of water, R_n (W m^{-2}) is the net radiation, G (W m^{-2}) is the ground heat flux, E_p ($\text{kg m}^{-2} \text{s}^{-1}$) is the evapotranspiration, C_p ($\text{J kg}^{-1} \text{K}^{-1}$) is the specific heat capacity of air at constant pressure, s (K^{-1}) is the slope of the saturated specific humidity curve at the air temperature T_a (K), ρ is the air density (kg m^{-3}), q_a (kg kg^{-1}) is the specific humidity of the air and q_{sat} is the saturating value at T_a and r_{ae} (s m^{-1}) is the aerodynamic resistance.

The original article can be found online at <https://doi.org/10.1007/s10546-020-00550-9>.

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Reference

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