

Correction to "Lorentzian ion exosphere model"

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In the paper "Lorentzian ion exosphere model" by V. Pierrard and J. Lemaire (*Journal of Geophysical Research*, 101(A4), 7923–7934, 1996) the real expression of (28) or (39) is

$$E(r) = \frac{\eta m}{8} n_0 A_k \kappa^{1/2} w^3 \left(1 + \frac{U_0}{\kappa}\right)^{-\kappa} \cdot \left\{ \left[\frac{\kappa}{\kappa - 2} \left(1 + \frac{U_0}{\kappa}\right)^2 - \frac{2\kappa}{\kappa - 1} \left(1 + \frac{U_0}{\kappa}\right) + 1 \right] - \frac{R}{w^2} \left[\frac{1 + U_0}{\kappa(\kappa - 1)} \right] \right\} \quad (1)$$

Identically, the real expression of (44) or (49) is

$$E(r) = \frac{\eta m}{8} n_0 A_k \kappa^{1/2} w^3 \left(\kappa \left(\frac{1}{\kappa} - \frac{2}{\kappa - 1} + \frac{1}{\kappa - 2} \right) - \frac{R}{w^2 \kappa (\kappa - 1)} \right) \quad (2)$$

A problem can also occur when $R + \kappa w^2 < 0$ in expressions (40) to (44). In this case, correct expressions are obtained by replacing in these expressions $1 + R/\kappa w^2$, d , b' and f' by their norm and by replacing $(1 - t)$ by $(1 - t) * \text{sign}(1 + R/\kappa w^2)$ in (23) and (24) i.e. the definitions of $\beta_2(x)$ and $\beta_4(x)$.

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